4.3 Ted Stevens Anchorage International Airport

4.3.1 Overview

Since its dedication in 1953, TSAIA has grown into a highly valued asset at both the municipal and state levels. It provides passenger and cargo service to the region, serves as the primary means of transportation to many rural areas of Alaska, and contributes $850 million in annual payroll to the local economy, providing one out of every eight jobs in Anchorage. While the economic and transportation value of the airport is significant, growth and expansion inside the airport boundary have had an ongoing impact on the surrounding community.

As Anchorage residential housing has developed up to the airport boundaries from the outside and aviation development and operations have expanded toward airport boundaries from the inside, incompatible land use and operational issues have intensified. At the same time, TSAIA is facing stiff competition from other airports worldwide and must fulfill its obligations under FAA grant assurances to accommodate airport growth and development. Meanwhile, nearby residents are asking, "When is enough, enough?" and seeking to restrain airport growth to protect their quality of life. The Municipality, TSAIA, its tenants, the FAA, and Community Councils must continue to work together to find land use solutions that reduce conflicts and maintain the economic vitality of TSAIA.

This plan element acknowledges the airport's value, the likelihood of continued growth to meet aviation demand while seeking ways to minimize conflicts between the airport and the surrounding community.

4.3.2 Airport-Community History

The relationship between the airport and the community has been defined by a series of interactions over time. As the years pass and people come and go, that history can be lost. While historic events do not dictate current choices, understanding them is important for providing a sense of continuity and an informed starting point for selecting the best course forward. The following paragraphs contain historical background important for understanding the current state of airport-community relations.

1975 – Spenard Beach

From the early 1900s when Joe Spenard established a resort and swimming beach near the town of Spenard, Spenard Lake has been a prominent landmark in West Anchorage. Spenard Beach, located on the north end of the lake, was long used for swimming and winter skating by Anchorage residents until the mid 1990s. While swimming in Spenard Lake no longer occurs due to lack of staffed safeguards, the beach area is actively used for a variety of recreational pursuits and contains playground equipment.

Although anecdotal accounts suggest that Joe Spenard donated the beach to Anchorage, there is no evidence of his having owned the property. Records do show that the City of Anchorage purchased the property from the federal government in August 1934 (Patent No. 1071292).

The property then passed from the City to the State in 1975, resulting from a condemnation action filed by the State for *"the operation, maintenance, expansion, improvement and protection of the Lake Hood Seaplane Base Project."* The proceeding was finalized and the property formally transferred in October 1975 with the issuance of a final judgment (Civil Action 73-2351, Book 4, Page 66, Anchorage Recording District) that established a compensation price for the property. Neither of these transfer documents contains language that reserves the property for park or recreation use.

Upon being transferred to airport ownership, the property became subject to all FAA grant assurances (see Section 4.3.3) regarding use of the property. Following this, the MOA and TSAIA had a maintenance agreement, which expired in 1992, allowing the MOA to temporarily use the Spenard Beach property as a public beach, recognizing that the property might be needed in the future for aviation purposes. Since that time, the agreement has been in month-to-month holdover.

Despite the fact that Spenard Beach now lies within the airport and is therefore subject to FAA Grant Assurances, the lake and north side park site remain an important landmark for Spenard residents and one of the few lakefront areas that allows the public to observe float plane operations at close range. Consequently, Spenard and Turnagain Community Council members regularly advocate for a solution to permanently retain public recreational use of Spenard Beach Park.

TSAIA management believes allowing controlled access for public viewing of aircraft operations is an important tool to motivate and inspire the next generation of pilots; however, they are concerned about the interaction of pedestrians with aircraft and vehicles.

1984 – Tony Knowles Coastal Trail

Anchorage's original 1979 *Coastal Management Plan*, along with subsequent Comprehensive Plan updates, identified access to the coast as a prominent long-term community goal. Coastal access was limited and complicated by land ownership and geography at the time. In the early 1980s, the Municipality produced a coastal trail routing study that offered consistent access to the coastline while also connecting neighborhoods, future subdivisions, and trail corridors. Designed and constructed in several phases, the Tony Knowles Coastal Trail now extends from downtown, around and through the airport, to Kincaid Park.

Because much of the area within the trail corridor was already subdivided and/or within TSAIA ownership, portions of the trail, both inside and outside the airport, are accommodated via easements and airport maintenance agreements, not all of which are permanent. The municipal Capital Projects Office managed trail construction and negotiated trail easements with numerous landowners along the route.

Currently, the MOA and TSAIA have a maintenance agreement (*contract ADA-30118*) allowing temporary use of the property for a public trail, recognizing that the property may be needed in the future for aviation purposes. The language of the agreement suggests that TSAIA allowed the trail to be built on its property as a good neighbor to the community, so the public could make use of the property until it was needed for airport development. The term of this particular agreement remains in effect until either the TSAIA or MOA decide to terminate it, which can occur at any time for any reason with 90-days' notice.

During *TSAIA Master Plan* updates, the trail corridor has often come up. A future West Airpark and a possible second North-South (N-S) runway are discussed in the current Airport Master Plan west of the existing N-S runway. If implemented, either of these would locate airport uses in closer proximity to the trail and/or require areas of trail relocation/reconstruction. Portions of the trail corridor are shown within a "buffer" area on the current Airport Land Use Plan, meaning that these areas are available in the short term to buffer separate land uses because the airport has not identified an immediate need for the property. Because of this, public interest in creating a permanent trail and buffer is a recurring topic of discussion.

The Tony Knowles Coastal Trail is Anchorage's premier coastal access amenity. Much of its alignment is not on municipal land. Trail advocates and the Municipality have long desired that the trail and an associated greenbelt be permanently protected through dedicated

easements or consistent municipal ownership. A decision on the appropriate width of a coastal trail buffer remains unresolved. Past efforts to finalize a standard were never formalized and the *WADP* recommends this happen.

1986 – Lake Hood Floatplane Facility Expansion

As part of an update to the *Airport Master Plan*, TSAIA proposed an expansion of the Lake Hood facility by excavating portions of Turnagain Bog for new lake access to up to 325 new floatplane slips. A large amount of public opposition followed this proposal and it was removed from consideration in the master plan update.

1986 – State Entitlement Lands

The MOA selected six airport parcels in a 1986 "*Agreement for the Conveyance of Land of the State of Alaska to the Municipality of Anchorage, and Settlement of Land-Related Issues*" (Settlement Agreement). The state land selection process has been of interest to community members because it involves portions of the Tony Knowles Coastal Trail north of the airport, Sisson Loop Trail system at Kincaid Park, DeLong Lake wetlands, Connors Lake, and Little Campbell (aka "Beercan" Lake).

However, recognizing that these parcels were subject to special airport and deed/title restrictions, the Settlement Agreement included numerous conditions that had to be met before transfer could occur. These included such things as FAA concurrence, limitations on uses and activities not compatible with safe and efficient airport operations, provision for airport navigation equipment, granting of aviation and hazard easements, and noise/ building height restrictions, among others.

At a meeting between HLB and FAA staff in 2005, these conditions were further defined. FAA indicated that the land transfer proposal must be initiated by the airport director and include a finding that there would ***never*** be an aviation need for the land (current, planned, or future), as well as a statement describing the post-transfer use of the land with guarantees of compatible use (e.g., no residential uses, no places of public assembly, no public parking lots, public golf courses, or other public gathering facilities).

In addition, the FAA would require:

- Revision of the Airport Layout Plan;
- A zone change to reflect the new use.
- National Environmental Policy Act (NEPA) review;
- Notice in the Federal Register;
- Fair market value compensation or proportionate land exchange; and
- Confirmation by the FAA Regional Counsel and the State Attorney General that there is no reversionary clause in the federal patent.

Despite pursuing these six parcels since 1986, which included extensive communication with the State and FAA, MOA staff made no progress in acquiring them. The State claims they have no obligation to provide alternative selections or compensation to offset the original selections. Because the state selection process is subordinate to federal jurisdiction and FAA regulations, the *WADP* recommends planning be based on the premise that it is unlikely that the MOA will obtain uncompensated rights to these parcels. The *WADP* therefore explores other alternatives to obtaining these parcels for MOA uses.

1995 – Point Woronzof Park

In the early 1990s the Anchorage School District had a pressing need for a new elementary school in the Sand Lake area. Because the Municipality lacked available land there, it identified an opportunity to trade land with the State of Alaska that would give the district a state-owned parcel in exchange for TSAIA receiving most of the HLB land west of the airport for air cargo-related expansion.

Because the exchange would have allowed aviation-related development within 50 feet of the Tony Knowles Coastal Trail and removed a significant natural open space from municipal ownership, strong public opposition ensued. Friends of the Coastal Trail, a coalition of interested groups, initiated a ballot referendum asking voters to reverse the decision. The initiative contained provisions offering the State a lesser amount of HLB land in exchange for the school and dedicating the remaining HLB property as parkland.

Ultimately, the Assembly developed and approved a compromise land exchange in 1994 similar to the ballot initiative. Under the exchange, the school district received 40 acres of state land at the southwest corner of Caravelle Drive and Raspberry Road, the airport received 130 acres of HLB land west of its then existing boundary and 191 acres of HLB land were transferred to the Parks and Recreation Department. The land transaction received final approval in 1995, which formally dedicated Point Woronzof Park.

1995 – Lions Club Picnic Area

The former Lions Club Picnic Area, consisting of a small picnic area and pullout at the northwest corner of Spenard Lake, was operated by the local Anchorage Lions Club between 1995 and 1998. When contacted by the airport during an adjacent road construction project in 2005, the Lions Club indicated that they were not interested in renewing the agreement and it was allowed to lapse. The airport maintains the trail and picnic tables in this area.

1990s – Point Woronzof Coastal Bluff Erosion

Coastal erosion has been occurring along Point Woronzof bluff for many years. In the mid 1990s a section of the Tony Knowles Coastal Trail built a decade or so earlier fell down the bluff due to erosion (see photo following), necessitating trail reconstruction farther inland. Since then, the bluff has continually and steadily eroded. While the bluff edge at Point Woronzof is still some distance away from the trail, that distance grows narrower each year and erosion will, in time, undermine the trail again.

In 2008, the University of Alaska Anchorage (UAA) undertook a study of coastal erosion at Point Woronzof to revisit the conclusion of earlier studies. After comparing aerial photography from 1959 to 1997, the report concluded that erosion had been occurring at an average rate of 2 feet per year and that the top of the bluff had moved southward nearly 105 feet during that time period.

Updated survey work in 2008 showed a rate of erosion of six feet per year between 2006 and 2008, higher than the historic average. This suggests an increased rate of erosion, although the sample period is too short to establish a long-term trend and the reasons for the increase are not conclusively documented. Possible causes that have been suggested[1] (though not proven) include recent weather trends that have shortened the annual periods of shore-fast ice (which protect the coastline from erosive wave motion), increased vibration and wind shear from aircraft activity at the end of the N-S runway, some combination of these, and/or some other contributing factor as yet unknown. The study concluded that a revetment (i.e., a protective layer of rock) at the base of the cliff would stabilize the slope and halt the erosion. Currently, the distance between the trail and bluff varies widely depending on

1 E-mail correspondence from Thomas Ravens (UAA) to Thede Tobish, MOA Physical Planning Department May 27, 2010.

location. At its narrowest point, the two are separated by about 10 feet with a posted warning sign.

As erosion continues to move the bluff closer to the Tony Knowles Coastal Trail, a short-term solution could be to continue moving the trail inland at selective points as it becomes necessary. However, this does not provide a long-term solution to the problem and, eventually, the reduction of land could threaten not only the trail but also Point Woronzof Drive and the northerly end of the N-S runway.

The question of how to resolve this situation is a complicated one. The State owns the land but FAA grant assurances preclude TSAIA from funding recreational improvements. The MOA built the trail and has maintenance responsibility for it, but a revetment is a costly solution during a time of tight budgets. Finally, no federal or state agency currently has responsibility or funding for such a project. If nothing is done and erosion again undermines some portion of the Tony Knowles Coastal Trail, the causes of bluff erosion and responsibility for addressing it will become a prominent topic of public discussion.

1998 – Airport Noise Zoning Ordinance

In mid 1997, the municipal Planning Department proposed an "airport noise zoning ordinance" (AO 98-10) to aid the airport in dealing with off-airport noise issues. It proposed to do this by controlling the number and type of residential uses with exposure to high airport noise levels. The ordinance proposed to prohibit the approval of discretionary zoning map amendments in the airport's LDN 60 noise contour that would allow: a) an increase in residential density; b) construction of mobile home or camper parks, which cannot be effectively sound insulated; or c) rezoning to a residential district.

Minutes of the Planning and Zoning Commission indicate that concerns were raised by one property owner with ensuing discussion by the Commission. Ultimately, the ordinance was approved by the Planning and Zoning Commission on a 5-2 vote citing the following findings:

- It is important for the community to minimize the number of noise complaints as a result of airport growth.
- There is a cost to locating residential development near airports that affects enjoyment of the home and its economic value.
- The proposed ordinance would only impact property owners seeking a rezoning within the 60 DNL noise contour to a residential zone of higher density or to a zoning district that allows mobile home parks or camper parks.
- The proposed ordinance allows for Anchorage International Airport growth and provides for the health and safety of the community with the least amount of regulation.

When the ordinance went to the Anchorage Assembly, it was heard, reconsidered, and postponed indefinitely in early 1998.

2001 – 10-Year TSAIA Wetland Permit

A significant amount of the undeveloped area within the TSAIA boundary is wetlands and new development in those areas requires an individual permit authorization or wetland delineation from the US Army Corps of Engineers (Corps). In an effort to lend predictability and simplicity to future airport development in wetland areas, TSAIA applied for and received a 10-year wetlands permit from the Corps in 2001. This permit authorized up to 5.5 million cubic yards of fill for placement into 218 acres of wetlands in the airport boundary at sites identified for near-term development in the then current *TSAIA Master Plan*.

In return, the permit required compensatory mitigation, which included the State purchasing the development rights of 168 acres of MOA-owned Klatt Bog and transfer to

the MOA of 84 acres of adjacent wetlands. TSAIA also agreed to multiple restrictions on development of Postmark and Turnagain Bogs. This mitigation program was based on a credit-debit assessment and balancing adopted by the Corps, the EPA, and the municipal Planning Department. After issuance, this long-term permit was challenged in state and federal court and ultimately rescinded by the Corps. This did not preclude the airport from developing its wetlands but merely meant a return to requesting a new wetlands permit for each individual development project.

In a related action, the Anchorage Assembly adopted AO 2000-151(S-2) (see Appendix A, available on-line) that approved the sale of HLB-owned development rights on Klatt Bog. Section 5 in the ordinance included a condition of approval requiring a "scenic easement" in the northeast section of Turnagain Bog:

> *Section 5*. Any future development of the natural portions of the Turnagain Bog identified in green on illustration 2 ("Lands Not Permitted," Including "Scenic Easement") shall occur only after a master plan for that area is prepared jointly by ANC and the MOA and approved by the Anchorage Assembly after public hearing. The commitment of the Ted Stevens Anchorage International Airport to this process, while contractually binding on the airport for this parcel, is not a waiver of its rights or privileges with respect to other parcels under state law.

The ordinance was accompanied by Assembly Memorandum 928-2000(A-2) that identified various key terms and conditions of the sale. Of the 11 terms, #9 and #10 related to Turnagain Bog:

9. *Anchorage International Airport will establish a scenic easement area more than 55 acres in size along its boundary with Turnagain neighborhoods, north and east of Lake Hood Airstrip and on the side of Northern Lights Blvd. (The scenic easement concept paper is attached)*
10. *Any future development of the natural portions of the Turnagain Bog identified in green on illustration 2 ("Lands Not Permitted," including "Scenic Easement") shall occur only after a master plan for that area is prepared jointly by ANC and the MOA and approved by the Anchorage Assembly after public hearing.*

The Municipality's interest in obtaining the "scenic easement" was expressed in 4 of the 15 findings from the ordinance:

1. WHEREAS, the neighborhoods surrounding ANC are experiencing increased Impacts from airport development: and
2. WHEREAS, ANC Master Plans have identified portions of Turnagain Bog as an Important buffer between surrounding residential areas and incompatible airport Industrial uses: and
3. WHEREAS, it is in the public interest that the portions of Turnagain Bog identified as "Lands not Permitted" in green on illustration 2 (including "Scenic Easement") remain as a natural buffer between ANC and surrounding neighborhoods: and
4. WHEREAS, it is In the public interest that any future development of the portions of Turnagain Bog identified as "Lands Not Permitted" In green on Illustration 2 (including "Scenic Easement" be determined pursuant to a public joint planning process between ANC and MOA.

AO 2000-151(S-2) included a condition that future development of Turnagain Bog, identified as "lands not permitted" on maps in the ordinance, is subject to a joint master plan process. This master plan effort was to include delineation of future buffer and development areas. Conditions of this AO still apply for this section of the TSAIA property. Setting these aside, and taking the conditions at face value, the following conclusions are evident:

- A defined boundary and minimum acreage were identified within the airport property for a residential buffer (scenic easement).
- A joint planning effort was to be undertaken by the MOA and the airport for this area before any development occurred.
- No mandatory timeframe was established for either of these actions.
- TSAIA is presently in compliance with these conditions since they have done no development within the area identified as "Lands not permitted" (i.e., lands not permitted for development under the 10-year wetlands permit).

Although the long-term wetlands permit was voided, the permit process and subsequent Assembly ordinance yielded several valuable products:

- TSAIA completed the Klatt Bog wetlands purchase and received mitigation credits that have since been used for ongoing development of airport wetlands. At the time of this Plan, TSAIA still has remaining credits although these will probably be used up in the next few years.
- The 10-year permit contained numerous parameters that defined a TSAIA-Community compromise related to buffers in and around Turnagain and Postmark Bogs as a condition of the permit.
- Assembly Ordinance 2000-151(S-2) identified a 55-acre "Scenic Easement" that provides a defined boundary for discussions of buffering between TSAIA and Turnagain neighborhoods.

In conclusion, TSAIA completed the Klatt Bog wetlands purchase from the Municipality, as conditioned by the terms of AO 2000-151(S-2). The ordinance states that "it is in the public interest that the portions of Turnagain Bog identified as "lands not permitted" in green on Illustration 2 (including "Scenic Easement") remain as a natural buffer between ANC and the surrounding neighborhood." The WADP reflects the acknowledgement of protection of this valuable wetland/upland complex. This agreement remains legally binding and the WADP honors this buffer delineation.

2002 – 2001 Airport Ground Noise Study

Following a 2001 public meeting convened by state legislators where the community aired grievances and concerns about airport related noise, TSAIA initiated a Ground Noise Study. That evaluation focused on identification of ground noise sources and means of mitigating impacts on the community as highlighted in a 2002 report. Since that time, TSAIA initiated efforts to address these sources, including bringing power outlets to certain sections of the international terminal. The study was meant to be updated periodically.

2008 – New North-South Runway

The current airport layout plan, approved by the FAA as part of the 2002 Airport Master Plan, shows a new North-South parallel runway as a future airport project. This future runway is shown east of the AWWU Asplund Wastewater Treatment Plant approximately 900 feet west of and "closely spaced" to the existing runway.

In 2007, TSAIA undertook a master plan update that reaffirmed the need for a new runway to meet future cargo volume and growth in airport operations. The runway was deemed necessary to alleviate future airspace congestion and accompanying passenger and cargo delays projected with expanding cargo flights. Two possible N-S runway locations were identified, a "widely spaced" alternative on the west side of the wastewater treatment plant and a "closely spaced" alternative on the east side of the plant.

During the master plan update process, world financial markets experienced unprecedented downturns in economic growth that affected every sector of industry. This situation had the residual effect of introducing uncertainty about the timing and level of

future aviation demand projections. This was particularly acute for the airline carriers that base their support for new airport infrastructure on near-term cargo and passenger demand.

When the runway alternatives were made public, considerable public, agency, and airline user group opposition emerged in relation to both the purpose and need for a new runway as well as the location and layout of the alternatives presented. To varying degrees, all runway alternatives entailed land use and environmental conflicts, particularly at the area's north end where numerous facilities converge. N-S runway alternatives could, to varying degrees, require realignment or reconstruction of the Tony Knowles Coastal Trail, the overlook parking area, Point Woronzof Park, the existing roadway alignment, several utilities, existing AWWU facility operations, and future plans for expansion of the AWWU treatment campus. Environmental concerns included constriction of wildlife movement, loss of natural open space, habitat and coastal tidelands, increased noise, increased air emissions and impacts to the Tony Knowles Coastal Trail and the AWWU facility.

Due to this accumulation of outstanding issues combined with significant opposition and airline user group concerns about incurring expense at a time of volatile and unpredictable economic conditions, TSAIA chose to halt the master planning effort but plans to undertake a new master plan in the near future. Public opposition was then and continues to be strong, as evidenced by past resolutions from the Turnagain Community Council.

However, it is possible that the issue of an additional runway, accompanied by challenging public dialogues and hard policy choices, may reemerge as cargo operations rebound and carrier demand increases the need for added runway capacity to reduce cargo and passenger delays. Notably, cargo volumes have rebounded since 2008 and are approaching pre-recession levels in mid 2010. The MOA intends to work cooperatively with TSAIA, FAA and the community within the context of master plan revisions and as part of local, state and federal planning and permitting processes to address and analyze the need for and possible locations of a new N-S runway if TSAIA advances such plans. This evaluation must take into consideration community concerns, AWWU facility needs, wildlife corridors, trails, and other relevant issues as well as the actual runway functional and design considerations.

Ultimately, each successive FAA approved Master Plan will include a planning and evaluation process that explores all the ways the Airport might meet projected aviation demand. These analyses could include the need for and design of a new N-S runway. This public process will commence only if conditions and forecast data point to a demand for a new runway. Airport growth and demand for a new runway will take into account level of need and efficiencies both in the airspace and for facility expansions on the ground. Important factors that influence airport growth and that will be considered in the ensuing community dialogue include aviation fuel prices, aircraft and instrumentation technology changes, world and local economies, availability and feasibility of new runway locations. If the FAA agrees that conditions warrant a future runway, they will require TSAIA to initiate the process. This effort is required to follow the NEPA public process.

Kulis Air National Guard and Federal Express Utility Improvements

Two events reveal the importance of close cooperation between MOA and TSAIA in planning airport infrastructure and the benefit of AWWU design review/comment on airport sewer and water trunk lines.

To serve the Kulis Air National Guard (ANG) Base, a sewer line was extended from the AWWU trunk sewer located in Air Guard Road. Although the sewer line was appropriately sized to accommodate the base, the design didn't consider possible extension beyond Kulis to serve the western portions of the South Airpark. This has raised the question of whether proper planning should have considered upsizing the line, extending a trunk line in

Raspberry Road or some other method to address South Airpark development more cost effectively.

When the Federal Express hangar in the North Airpark was constructed, the design located taxiway and aircraft parking areas over trunk sewer and water lines. The enhanced reinforcement needed to accommodate aircraft weight, makes access more difficult and maintenance and repair more costly. Although there has been recent discussions between TSAIA and AWWU about allowing AWWU to own and maintain trunk facilities within the airport boundary, excessive cost to maintain some trunk lines poses a challenge.

2010 – Kulis Reuse Plan

In March of 2009, TSAIA was officially notified that the Air National Guard, which had been based at Kulis ANG Base (Kulis) along Raspberry in the southern portion of TSAIA, would be terminating its lease with the State and relocating to Elmendorf Air Force Base. The withdrawal of Guard from airport property is scheduled to take effect in 2011, resulting in return of the land and existing facilities to TSAIA. In preparation for this eventuality, TSAIA is formulating redevelopment options for reuse of the base to address other aviation needs. These approaches range from those that would retain and/or redevelop existing facilities in varying configurations for individual lease to others that would lease the entire facility to a single user.

TSAIA has held numerous public meetings, primarily attended by residents along Air Guard Road that abuts the eastern side of Kulis. Public concern has focused on redevelopment alternatives that might result in changes to existing topographic and vegetative barriers due to major re-grading. In general, the alternatives suggest that any immediate development would occur in the northern half of the base where aviation uses are presently focused, while the southern half would be retained for office/campus uses over the next 5-20 years with the potential to convert to aeronautical use (with substantial re-grading of the site) beyond that timeframe. The Kulis Reuse process is still ongoing as of the date of this plan.

4.3.3 Airport Regulations

The airport presents a unique and complex regulatory environment. Unlike many other airports, TSAIA is owned by the State of Alaska rather than the city in which it operates. This means that, even though the Airport is the predominant land use in west Anchorage, the MOA does not directly operate or control the development or operational decisions made there. This problem, caused by the absence of MOA ownership, is compounded by the State disputing the authority of MOA zoning on airport property. *See October 24, 1996, State of Alaska Attorney General Opinion on Aviation Zoning (file #661-97-0228).* The MOA disagrees with this interpretation of Alaska law given the general mandate in AS 35.30.020 that departments comply with local zoning ordinances and subdivision requirements in the same manner and to the same extent as other landowners and based on the Alaska Supreme Court's adoption of a balancing of interests test to the application of local zoning in Native Village of Eklutna v. Alaska Railroad Corporation, 87 P. 3rd 41 (Alaska 2004)."

Second, although the State owns and operates the airport, it too is subject to federal oversight. Consequently, there are two sets of overlapping governmental structures that come into play on airport land. To further complicate matters, most residents have no point of reference or direct experience with the technical, financial or regulatory context that governs airport operations. Consequently, it is not surprising that local citizens might interpret this regulatory complexity as a deliberate lack of responsiveness or cooperation and feel frustrated over their inability to exert greater influence over the airport decision-making process.

To better understand airport land use policy, it is necessary to understand some basic facts about the federal and state governance structure and key federal regulations that apply to airports.

FAA Mission

The Federal Aviation Administration (FAA), a division of the U.S. Department of Transportation (USDOT), is tasked with overseeing the national system of federally obligated airports throughout the country to ensure that they are being run with the national aviation interest in mind. Key management decisions at TSAIA are subject to compliance with FAA grant assurances. In accordance with their mission, the FAA generally looks to make sure that TSAIA is being run to:

- Promote the federal aviation system;
- Protect federal aviation investment;
- Result in efficient, self sustaining airport management;
- Ensure safety, nondiscrimination, and free commerce in airport operations;
- Discourage non-aviation use of airport land; and
- Ensure that adjacent land uses do not preclude safe and efficient airport operations.

Airport Management Structure

Following is an outline of TSAIA's management structure. It is within this framework that capital programs, management plans, policies, and budgets at the airport are formed and implemented. TSAIA is considered an executive branch of the State of Alaska. The Airport Director, who serves at the pleasure of the Governor (an appointed position), oversees all TSAIA operations. Each TSAIA department has a manager who reports to the Airport Director. Since TSAIA is a formal division of ADOT&PF, the Airport Director reports to the Commissioner of ADOT&PF and the Deputy Commissioner of Aviation.

In addition, TSAIA, along with Fairbanks International Airport, is part of the Alaska International Airports System, which functions as an enterprise fund that does not tie TSAIA operations to the State's general fund. TSAIA's annual capital program requires approval from the user airlines and the Alaska Legislature. The Governor's Aviation Advisory Board advises the Governor on statewide aviation issues, which may include specific TSAIA items. In addition to approving annual TSAIA budgets, the Alaska Legislature addresses constituent concerns and adjudicates new legislation for TSAIA. TSAIA formally interfaces with other entities and agencies, some of which have a direct role in various aspects of TSAIA operations and functions. These include:

- Governors' Aviation Advisory Board;
- Lake Hood Pilots Association;
- Alaska Airmen's Association;
- Seaplane Pilots Association;
- Aircraft Owners Pilots Association;
- Alaska Economic Development Corporation;
- Anchorage Convention and Visitors Bureau;
- Community Councils (Sand Lake, Turnagain, Spenard);
- Municipality of Anchorage (Mayor's Office, Planning and Parks and Recreation Departments, Heritage Land Bank);
- Federal Aviation Association (local and national); and

- Other federal agencies;

Airport Decision-making

There is no single individual who makes decisions at the airport. Rather, they are influenced by many different agencies with varying levels of responsibility.

- *ADOT&PF* owns the airport land and non-private facilities, sets budgets and management policy,[2] and must authorize any land or facility disposals.
- *Airport Management* sets budgets and management policy and handles short and long range planning and daily operations activities. Though the airport manager and staff are the "face" of the airport most visible to residents, the Airport is required to act in accordance with state regulations (17 AAC 42.005 – 17 AAC 42.990) and FAA grant assurances.
- *U.S. DOT/National FAA* establishes aviation policies/standards[3] and allocates airport funding.
- *Local FAA* is responsible for aviation oversight and enforcement of airport compliance with FAA grant assurances and regulations.
- *Air Carriers* are the primary users for commercial aviation passenger and cargo infrastructure. They determine the aircraft fleet mix, select the destinations served, pay a portion of airport development costs through user fees in accordance with FAA standards and regulations and it is their pilots and crews who implement flight operations and procedures. The willingness to pay for airport improvements is a factor in proceeding with certain types of airport improvements. Airline decisions are highly responsive to customer demand and pricing in a very competitive industry.
- *MOA* is the local land use agency with responsibility for off-airport land use controls. The MOA also has applied zoning (PLI, PLI-p, I-1, T) to airport land but municipal land use authority within the airport boundary is disputed by the State. The relationship between municipal zoning and airport ownership was an ongoing consideration under the Title 21 Rewrite.

In summary, airport land use and operational decisions are governed and influenced by multiple government agencies and private entities. Those with direct authority and usage share the primary mission of ensuring that airport development occurs in time to accommodate existing and anticipated aviation demand.

Federal Grant Assurances

When airports accept land or funding from the federal government, they must agree to certain obligations (or assurances) in return. This is intended to make sure that Federal resources are used for their intended purpose of enhancing the national aviation system. TSAIA has accepted both land and funding and, therefore, is subject to FAA grant assurances. Further, grant assurances are applied to the entire airport property, not just parts of it. This could be likened to the obligation an individual assumes when taking a bank loan for a mortgage. The bank uses the land and house as collateral for the loan. As long as the loan is in place, the homeowner is not free to do whatever they want with the property but must receive the bank's approval. For example, giving away part of the

2 Alaska Administrative Code, Title 17, Chapter 42 relates to the governance of the TSAIA. 17 AAC 42.900.b states the primary directive for airport management is to make decisions that serve the "best interest of the State" to achieve "a strong airport and aviation environment for the benefit of the traveling and shipping public."

3 The USDOT Mission Statement is to "Serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future." The mission statement of the FAA is to "provide the safest, most efficient aerospace system in the world"

property would not be acceptable to the bank because it reduces the value of the collateral that ensures repayment of the loan.

Airport grant assurances must be met and balanced. Some of the most relevant include an obligation: a) to operate the airport safely and efficiently; b) to seek financial self sufficiency; c) to restrict the use of land near the airport to airport-compatible uses; d) to avoid economic discrimination that would hinder free commerce; e) to seek reasonable consistency with state-authorized plans for development of the area surrounding the airport; and f) to consider surrounding community interests. Some airport grant assurances remain in effect for the useful life of the facility (up to 20 years) extending from the time an airport accepts federal funds, which occurs routinely. Other grant assurances (such as those involving real property) remain in effect for the life of the airport.

In a practical sense, these assurances influence common day-to-day decisions at TSAIA, such as: a) directing aircraft over residential areas when weather and safety conditions require; b) insisting on fair compensation for airport land disposals and that lands proposed for disposal are not needed for future airport use; c) objecting to residential development within the 65 DNL airport noise contour; and d) an inability to direct noisier aircraft or airlines with primarily "touch and go" refueling activities to other airports.

In summary, federal monies and land come with strings designed to protect the integrity of the national air transportation system. The FAA requires that airport land use decisions contribute positively to aviation growth, safety, economic viability, and free commerce.

Interim Uses

The airport can allow short-term, interim public uses (such as recreation) on airport land ,provided the area is not needed for immediate airport development and the public use is compatible with airport operations. However, it is important to note that this does not constitute a permanent public right but, instead, can only continue temporarily until the airport needs the land. FAA recommends against allowing interim recreational use of airport property because it raises public expectations and increases the potential for community conflict.

TSAIA has allowed temporary public use of recreational areas through the issuance of short-term maintenance agreements to the MOA. Many well known and highly used recreational facilities such as Little Campbell "Beercan" Lake, Connors Lake, and the Tony Knowles Coastal Trail, have been authorized on this basis in the past. However, most maintenance agreements have expired and public use continues only on a month-to-month holdover basis.

TSAIA has also designated "buffer" areas on its On-Airport Land Use Plan (ALUP), defined as "*Airport lands for which no specific immediate need has been identified and which can be used as a buffer from adjacent off-airport land uses*" (page 5-13, TSAIA 2002 *Master Plan Update*). These are generally located adjacent to the Tony Knowles Coastal Trail, Turnagain neighborhoods, and the southeast portion of the airport. TSAIA expects that these areas will not be immediately needed for airport development as confirmed by the Airport's Recommended Development Phasing Plan (Figure 5-2, TSAIA 2002 *Master Plan Update*), which identifies no proposed construction in these areas within the plan horizon. Again, the buffer designation is NOT permanent and each buffer area is reevaluated for aviation use during periodic updates of the ALUP. It must also be recognized that, despite its best planning efforts, the Airport is obligated to consider all applications to lease airport land[4]. If the use is viable and no alternative location is available, TSAIA believes that state and federal regulations require the lease to be approved even if it encroaches within an identified buffer area.

[4] State Title 17, Chapter 42.215 and FAA Grant Assurances prohibiting economic discrimination.

Interim use is the easiest way to allow public recreation on airport property but it is also the most uncertain. The supply of airport land is a finite commodity. As airport growth diminishes that finite supply, demand for the remaining pieces will increase. In the future, these parcels may be so critical that the airport will find they must be developed to meet aviation demand even over strong public opposition. This risk is inherent in accepting continued reliance on temporary public recreational use of airport land.

In summary, recreational use of airport land is allowed at the airport's discretion on a short-term basis but will not remain that way whenever the land is needed for airport development.

Airport Master Plan

Airport master plans (AMP) have one primary purpose: to identify and plan for airport growth needed to meet future aviation demand (air cargo and passenger volumes, arrivals/departures and runway capacities). AMPs have several FAA-mandated components. They must be based on current aviation demand projections for the airport. They also must contain an "airport layout plan" (ALP) drawing set, which includes among other drawings, an "airport land use drawing" showing land uses proposed on airport property during the plan horizon, and an airport layout drawing showing the proposed improvements needed to meet aviation demand during the 20-year plan horizon. A "recommended airport development phasing plan," breaking the proposed improvements down into short-, medium-, and long-term periods for construction, is also included in the AMP. AMPs generally focus toward a 20-year planning horizon but are subject to update every 5-10 years. The FAA reviews the master plan and formally approves the demand projections and the ALP.

The TSAIA Master Plan was last updated in 2002 and is scheduled for revision in approximately 2012. A master plan update was started in early 2006 but was halted in 2008 when disruptions in the global economy cast uncertainty on the timing of aviation demand projections. The 2002 TSAIA Airport Land Use Plan (with minor revisions in 2006) is in Appendix A (available on-line).

The General Aviation Master Plan for Lake Hood and Anchorage International Airport (ANC) (GA Master Plan) was last updated in 2006 to cover general aviation (GA) operations and development at Lake Hood Seaplane Base (LHD) and TSAIA. The *GA Master Plan* represented the first time TSAIA focused only on GA and whether their operations are accommodated adequately in the future. The 2006 Lake Hood GA Airport Land Use Plan is in Appendix A.

Consistent with FAA grant assurances, TSAIA applies an interactive public process when updating the AMP. Typically, the airport has convened both a technical and community advisory group to interact with and provide feedback to the airport's project consultants. National Environmental Policy Act (NEPA) processes are also followed, including mandatory public notice requirements for review and comment on associated environmental documentation. Although an airport is required to solicit and consider public input, the master plan is mandated, first and foremost, to accommodate airport development needs.

In summary, because they are oriented towards accommodating growth, airport master plans can appear to be unresponsive to broader community concerns regarding airport policy, operations, and/or whether continued airport growth should occur at all.

FAA Part 150 Noise Compatibility Program

Congress enacted the Aviation Safety and Noise Abatement Act of 1979 to address the issue of airport noise. The act required the FAA to adopt regulations establishing a single system of measuring aircraft noise and determining noise exposure in the vicinity of airports. The resulting Federal Aviation Regulation, Part 150 (Airport Noise Compatibility Planning), is the primary Federal regulation guiding and controlling planning for aviation noise compatibility on and around airports. FAA believes that the Part 150 process represents a balanced approach for mitigating the noise impacts of airports upon their neighbors while protecting or increasing both airport access and capacity as well as maintaining the efficiency of the national aviation system. The regulations contained in Part 150 are voluntary and airport operators are not required to participate. However, an approved Part 150 Noise Compatibility Plan is the primary vehicle for gaining approval of applications for federal grants for noise abatement projects, such as TSAIA's ongoing residential sound insulation program.

In addition, FAA grant assurance #25 states: "All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital operating costs of the airport, the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property, or for the noise mitigation purposes on or off the airport."

Part 150 produces two primary tools:

- *Noise Exposure Maps* – Noise Exposure Maps are designed to clearly display an airport's present and future noise patterns and land uses within those noise patterns. The maps display the noise contours for the DNL 60, 65, 70, and 75 noise levels based on computer modeling of annual average aircraft noise levels. The maps may include two versions of a contour: the first is the precise model-generated contour line, while the second allows for adjustment to more equitably consider land use configuration in distributing FAA noise mitigation funds.
- *Noise Compatibility Program* – The Noise Compatibility Program (NCP) identifies measures the airport and surrounding community can take to minimize incompatible land uses in areas exposed to high airport noise. It seeks to achieve maximum noise compatibility between an airport and its neighbors while taking into account the requirements of the national aviation system.

Part 150 Noise Studies are typically updated every 5-10 years resulting in periodic changes to the airport noise contours. TSAIA's last Part 150 Noise Study was conducted in 1999. TSAIA expects to undertake an update of its Part 150 noise study in 2011, taking into consideration improvements in aircraft noise control technologies, updated flight information, and other factors that have changed since 1999.

4.3.4 Compatibility Toolkit

In the interest of balance and thoroughness, this plan gives equal attention to both on-airport and off-airport compatibility solutions. The first section presents the full range of ***off-airport compatibility mechanisms*** commonly used near other large airports throughout the nation. The second section presents the full range of ***on-airport compatibility mechanisms*** available through the application of standard land planning techniques. Although some of these may be controversial, it is a fact that real solutions to these deeply ingrained, divisive issues require full consideration of any and all possible approaches with openness to compromise.

Consequently, it is likely that the TSAIA would tend to prefer many of the off-airport measures because they are endorsed by FAA and promote the airport's mission of

accommodating aviation demand with minimal impact to its land base. Conversely, community members are more likely to find fault with them, because they place restrictions on, or make additional requirements of, private landowners. Regarding on-airport measures, the positions are likely to be reversed. Adjacent residents are likely to be in favor of these since they affect only airport property, while the TSAIA may find them objectionable since they would require the commitment of airport land for non-aviation purposes, would dilute airport management authority, and potentially complicate decision making within its own boundaries.

In response, there are four things to keep in mind:

- Since airport activities create impacts beyond the airport boundaries (e.g. noise, air quality, traffic, etc.), TSAIA bears the primary responsibility for addressing them;
- Since the Municipality has sole land use authority around the airport, it bears the primary responsibility to avoid creating new land use conflicts and to reduce those that currently exist near the airport;
- None of the following measures will be enacted upon adoption of the *WADP* without additional evaluation and implementation steps. In particular, issues related to consistency, property value, level of impact, effectiveness of current measures (e.g. plat notes vs. disclosure notices), legality, and extent of application (to other airports in the MOA) will need to be assessed in greater detail.
- Ultimately, it will be up to Municipal decision-makers, after candid public dialogue, to determine what final suite of on-airport and off-airport policy approaches should be retained in the plan.

Off Airport Compatibility Tools

Various techniques are commonly used throughout the country to address airport compatibility issues. Since the ability to control airport development is restricted by FAA grant assurances, most methods focus instead on achieving compatibility in areas surrounding airports. These typically involve some type of development regulation of properties although disclosure methods and construction techniques also play a role.

- *Land Use Compatibility Plans*

  The most effective way to address airport conflicts is to keep them from occurring in the first place. This is commonly done through airport land use compatibility plans where the various airport noise contours and flight zones surrounding an airport are mapped and correlated with acceptable (compatible) and unacceptable (incompatible) uses. For example, residential uses in high airport noise areas are considered incompatible, whereas industrial uses in high airport noise areas are considered compatible. NCPs are then used to evaluate individual development proposals that are approved, disapproved, or fitted with conditions to make them more acceptable within an airport environment. This technique is most effective at locations where large amounts of vacant land remain around an airport where there is still an opportunity to influence and guide new development.

- *Rezoning of Incompatible Uses*

  In situations where pockets of vacant land remain around an airport, a community could consider initiating zoning amendments to compatible uses. Most obvious would be vacant parcels with residential zoning that lie within the airports 60 or 65 DNL noise contour. Rezoning these properties from residential to some other use keeps new homes from being built in areas that are most regularly exposed to airport noise. This requires evaluation on a case by case basis since a property's surrounding land use and zoning would determine what alternate zones would be appropriate. Rezoning also has significant influence on the value of a given

property, either positively or negatively, so a decision to rezone is likely to elicit strong support or opposition from the land owner, depending on the particular zone selected.

- *Purchase of Incompatible Use Sites*

  Another approach is to acquire vacant properties to prevent new construction and/or purchase developed properties to demolish incompatible uses within the airport's 65 DNL noise contour. This option would require significant funding by the MOA or TSAIA. The airport has purchased about seven acres of land with FAA noise compatibility funds for this purpose. A by-product of airport acquisition is the incremental expansion of the airport boundary (with associated grant assurance restrictions) as these properties are assimilated into the airport's land holdings.

- *Land Exchanges or Other Acquisition*

  Fee simple acquisition or exchange lands between the Airport and the MOA to better address MOA recreational desires, residential separation concerns, and airport development needs. Such trades or acquisition actions would be subject to FAA grant assurances and approval by FAA, the State of Alaska and the Anchorage Assembly. Parcels involving MOA-dedicated parkland would be subject to public vote regulations.

- *Airport Influence Overlays*

  Establish a "noise overlay zoning district" based on certain airports' noise contours. Apply special requirements and restrictions to lands within this zone to minimize or mitigate additional development of non-compatible land uses. This might include restrictions on rezonings for higher densities, mobile homes and camper parks. It might also require enhanced sound attenuation measures for new construction and additions.

- *Airport Disclosure through Plat Notes*

  Notes on subdivision plats within the airport Part 150 noise contours to provide notification of noise levels and requiring that enhanced sound attenuation measures are incorporated during residential construction.

- *Airport Disclosure through Recorded Notification*

  Require that a prominent "Airport Environs" notification be included in all residential real estate transactions to advise new homebuyers within a predetermined radius of the airport's presence.

- *Avigation Easement*

  Air aviation easements are a legal contract between an airport and a land owner acknowledging awareness and acceptance of aircraft overflights and the effects of aircraft and airport operations. They are currently used by TSAIA as part of their residential sound insulation program.

- *Building Regulations*

  Incorporate provisions in the building code to require new homes constructed within the airport high noise contours to incorporate more stringent sound attenuation measures.

- *Berms/Open Space Buffers*

  Use barriers, berms, or open spaces to reduce visual impacts of airport facilities on adjacent neighborhoods and recreational facilities. This should be considered, especially where the MOA owns recreational or vacant land adjacent to the airport

boundary. Berms and barriers are relatively ineffective for noise prevention (both aircraft and ground related) due to the behavior and characteristics of sound waves. They can have some effect in reducing the effects of airport ground noise when placed directly adjacent to a noise source or receptor, although the level of benefit is dependent on location and site specifics.

- *Residential Sound Insulation Program*

  TSAIA sound insulation program available to residences constructed before 1998 within the airport's Residential Sound Insulation Program boundary. Generally, homes within the 65dB DNL contour are eligible for funding in this program; however. FAA guidance allows the airport to include an incidental number of homes outside this contour in order to achieve neighborhood equity when establishing the boundary. FAA may allow expanded program if a municipality institutes enhanced building code requirements for new construction in 60 DNL contour. The program is based on FAA's national program and provides funding for home improvements that reduce interior noise levels with windows and doors shut. The program does not address airport noise in outdoor areas, such as residential yards or parks.

- *Planning and Zoning Commission Review Criteria*

  Adopt noise compatibility criteria and guidelines for evaluating proposed development proposals within areas subject to high levels of airport noise.

- *MOA Public Land Development Policy*

  Adopt a policy requiring development of facilities on public lands subject to high levels of airport noise to meet noise compatibility criteria and guidelines.

- *Review of Communications Protocols*

  Evaluate the effectiveness and expectations of past and present communication mechanisms and advisory groups, so that future endeavors provide optimal means to share information, improve stakeholder relations and better incorporate community input in the decision making process.

On Airport Compatibility Tools

Airports in general and TSAIA in particular, have become acutely aware of the effects their operations have on surrounding communities and the intense public reactions they can evoke. Over the years, as TSAIA and its leaseholders have continued to develop airport land and expand operations to meet demand, the effects of growth, such as noise and odors, have also increased. Recognizing this, TSAIA takes its community relations role seriously and has developed and continues to refine various programs to address airport impacts to some degree (see Table 4.3-2). In considering these, it must be recognized that airport operations involve large, semi-industrial activities that are inherently incompatible with residential uses and that aircraft carry some of these effects far beyond the airport boundary. Consequently, what is reasonably within an airport's control, when balanced against FAA regulatory, safety and other obligations, can be expected to minimize impacts but not eliminate them. A listing of the possible compatibility techniques include:

- *Airport Zoning*

  This involves adopting a municipal "airport zoning district" that would be applied to airport property and include setbacks and other development standards. TSAIA and MOA initiated discussions of this concept during the Title 21 rewrite, however, the recently adopted Title 21 did not address the issue but reserved it for future consideration. Continued discussion of Airport District standards will need to consider FAA and DOT&PF design standards and regulations as well as determining whether the zone should apply to all airport property or only to areas "outside the

security fence" that exclude the airport operations area (e.g., aircraft movement areas, parking aprons, etc.).

- *Design Recommendation Handbook*

  Design suggestions to encourage mitigation through building and site design of airport facilities. Techniques might include: light shielding, building placement, vegetative buffers, berms/fencing, use restrictions where adjacent to neighborhoods, and MOA ownership of recreational areas. Handbook would ideally be produced by TSAIA and MOA and offered to potential lessees for use in developing site plans prior to airport approval.

- *Berms/Open Space Buffers*

  Barriers, berms, or open spaces can be used to reduce visual impacts and sometimes air pollution of airport facilities on adjacent neighborhoods and recreational facilities. Berms and open space buffers are generally ineffective for noise prevention due to the behavior and characteristics of sound waves. They can have some limited effect in reducing the effects of airport ground noise when placed directly adjacent to a noise source or receptor, although the level of benefit is dependent on location and site specifics.

- *Leasehold Configuration*

  Creative use of leasehold boundary configurations can create a setback from the airport boundary. If a leasehold is configured to leave a "gap" too narrow to be effectively developed adjacent to the airport boundary, that gap would function as a buffer. However, while this would provide buffering for a period of time, it cannot be guaranteed as permanent since a lessee could petition to expand their business and TSAIA would be obligated by State of Alaska and FAA regulations to consider it.

- *Leasehold Restrictions*

  The airport operator can place some level of conditions on the authorized uses of a leasehold, such as limiting the types of operations that could be performed on selected parcels near residences. This should seek to maintain less intensive operations along the airport boundary where adjacent residences occur and allow more intensive ones as distance increases.

- *Land Exchanges or Other Acquisition*

  Fee simple acquisition or exchange lands between the Airport and the MOA to better and permanently address MOA recreational desires, residential separation concerns, and Airport Development needs. Such trades or acquisition actions would be subject to FAA grant assurances and approvals by the FAA, the State of Alaska and the Anchorage Assembly. Parcels involving MOA dedicated parkland would be subject to public vote regulations.

- *Surplus Land Sale*

  This would involve selling airport land determined not to be viable for airport use. Property identified for aeronautical uses would likely not be sold. Surplus determination is subject to FAA grant assurances and requires FAA approval.

- *Conservation Easement*

  Conservations easements are used to place permanent open space restrictions on a property, frequently a wetlands, in exchange for development credits. This tool requires an entity formally designated by USACE as a Land Bank to accept and administer the credits and hold the easement. A conservation easement has the net effect of reducing the amount of airport land available for development, thus

requiring equal value in wetlands credits. The use of conservation easements on airport property is considered viable only if a) wetlands credits are not available from off-airport sources or b) preservation of airport wetlands is required by the U.S. Army Corps of Engineers. As a point of information, the preservation of wetlands on airport land contradicts certain safety practices since they attract waterfowl, increasing the potential for bird strikes. In Anchorage, conservation easements have been used almost exclusively on wetlands, but State enabling legislation allows their use anywhere.

- *Building Placement*

  Placement of large structures, such as hangars or multi-story administrative buildings, between aircraft activity areas and residences can provide some measure of noise reduction. The buildings must be situated near to the aircraft in order to effectively intercept and deflect the sound waves.

- *General Aviation Tie Down Orientation*

  The highest GA aircraft ground noise is generated directly in front of the aircraft. Situating tie downs such that the aircraft is facing away from adjacent residences serves to reduce aircraft noise impacts on residences during engine run up procedures.

- *Interim Use Agreement*

  This tool allows short-term, temporary use of airport property by the MOA for recreational or other purposes through a mutual agreement, provided the property is not currently needed for airport development. It may be for a 1-5 year timeframe with mutually agreeable options; would require payment of a fee or a requirement to cover maintenance costs, and would contain clauses where facilities revert to airport ownership at the termination of the agreement or when otherwise needed for airport development.

- *Non-Aeronautical Use Designation*

  Designation by the airport of airport properties which are not directly aviation related. In order to apply the designation, TSAIA must demonstrate there is no aeronautical need for a significant period. Designation involves a formal FAA process. Designation could be changed back to aeronautical use in the future should an aviation need arise.

- *Buffer Designation on ALUP*

  Areas expected to remain undeveloped during life of the Airport Master Plan, usually about 5 years. The designation may be reapplied if no airport use arises, however, it is not a permanent designation. The 2002 TSAIA Airport Master Plan defined a buffer as, "Airport lands for which no specific immediate need has been identified and which can be used as a buffer from adjacent off-airport land uses."

- *Conceptual Plan*

  Preparation of a concept design plan illustrating key aspects of a project can be used to help visualize the project and promote agreement on key design aspects before investing in costly engineering or architectural design drawings. This technique is suggested as a way to illustrate the design of visual buffers along the airport perimeter, such as berm/buffer design along the north side of Raspberry Road. The concept design could follow recommendations from the *Design Guideline Handbook*.

- *Ground Noise Mitigation Measures*

  Implement measures identified in the Airport's 2002 Ground Noise Study where applicable and appropriate. Quantification and mitigation of ground noise should be incorporated into the next TSAIA Part 150 Noise study beginning with an evaluation of the standards of performance and effectiveness of current noise control methods being applied at the airport. Where warranted, changes to these or additions of new operational and physical measures to mitigate ground noise should be explored. Although the sources, character and effects of ground noise at TSAIA vary by time, location and intensity, it is essential that ground noise sources continue to be monitored and addressed. In particular, engine run-ups, APUs, associated heavy equipment, backup alarms etc. must all be taken into consideration in developing solutions. Many large airports are investing in procedures and equipment that address blast deflections and overall sound management on a 24-hour basis. The community has noted that addressing and minimizing ground noise at TSAIA should be an ongoing management priority and that, where effective, physical barriers on airport property should be given special consideration. Mitigation of ground noise should be elevated to a high priority. The airport should work to maximize the use of tariffs and other revenues to fund and pursue ground and air noise mitigation projects, per FAA grant assurance #25.

Table 4.3-1 summarizes and characterizes on-airport land use mechanisms and identifies their potential application to TSAIA.

Table 4.3-1 Summary of On-Airport Land Use Compatibility Tools						
Mechanism	**Term of Effectiveness**	**Equal Benefit Required ?**	**Appraisal Required?** (Fair Market Value)	**Requires FAA Approval**	**Where Useful?**	**Explanation/Comment**
Airport Zoning	Long	No	No	Yes	Areas outside the security fence, at a minimum	Designating airport lands with an "airport zoning district" recognized by the MOA. Key considerations are whether zoning should apply only to non-airport areas outside the security fence[2] and the consideration of FAA and ADOT&PF design standards and regulations.
Design Recommendation Handbook	Medium	No	No	Yes	South, North, & East Airpark, Kulis Lake Hood, and GA tie downs	A planning tool to provide advance design guidance to architects and developers. Describes mitigation measures that should be considered during site planning and building design. (e.g., building placement to screen aircraft noise from surrounding residences).
Berms/Open Space Buffers	Long	Yes	No	Yes	Raspberry Road, Turnagain Neighborhoods, Air Guard Road, North & East Airpark, Tony Knowles Coastal Trail	Use of berms and open spaces to reduce visual impacts of airport facilities on adjacent neighborhoods. Berms and barriers are generally ineffective for noise prevention due to the behavior and characteristics of sound waves.
Leasehold Configuration	Medium	Yes	No	No	Adjacent to residential areas, Coastal Trail, north edge of Raspberry Road, North Airpark	Consider creating a separation from adjacent residential areas and from Raspberry Road when approving the configuration of leasehold boundaries. This technique would be effective in the short-medium term but should be viewed as permanent since a leasee can request an expansion of their facility reducing the separation width.
Leasehold Restrictions	Medium	No	No	Possibly	Internal leasehold lots in South Airpark, North Airpark, Kulis	Place appropriate conditions on the authorized uses of a leasehold, such as limiting heavy cargo operations or engine maintenance/run-ups on selected parcels near residences. A primary intent is to maintain less intensive operations along the airport boundary where adjacent residences occur and allow more intensive operations as distance increases.

Table 4.3-1 Summary of On-Airport Land Use Compatibility Tools						
Mechanism	**Term of Effectiveness**	**Equal Benefit Required ?**	**Appraisal Required?** (Fair Market Value)	**Requires FAA Approval**	**Where Useful?**	**Explanation/Comment**
Land Exchange	Permanent	Yes	Yes	Yes	ID specific parcels	Exchanging less unusable land for more usable land. Land exchange package requires FAA approval. Dependent on airport receiving lands with aviation value.
Surplus Land Sale	Permanent	Yes	Yes	Yes	Parcels South of Raspberry Road	Selling land determined not to be usable. Property identified for aeronautical uses would likely not be sold. Surplus determination requires FAA approval.
Conservation Easement	Permanent	Yes	Yes	Yes	Wetlands, Turnagain Buffer, possibly elsewhere	Placing permanent open space restrictions on a property, frequently a wetlands, in exchange for wetlands development credits. Requires an entity formally designated by the U.S. Army Corps of Engineers (USACE) as a Land Bank to accept and administer the credits. Conditions can be placed on the approval of a wetlands permit by USACE.
Building Placement	Long	No	No	No	North, South, & East Airpark, Kulis	Placement of large structures, such as hangars or multi-story administrative buildings, between aircraft activity areas and residences can provide some measure of visual screening and noise reduction. The buildings must be situated near to the aircraft or other noise generating operation in order to effectively intercept and deflect the sound waves. Building placement must also take FAA regulations into consideration since buildings on airport property require an air space study and must be shown on the Airport Layout Plan.
GA Tie-down Orientation	Long	No	No	No	GA Areas	The highest GA aircraft ground noise is generated directly in front of the aircraft. Situating tie downs such that the aircraft is facing away from adjacent residences serves to reduce aircraft noise.
Interim Use Agreement	1-5 years	No	No	Yes	Recreational use areas	Temporary use by mutual agreement. Sometimes renewable. Sometimes fee charged. Usually 1-5 year timeframe.

Table 4.3-1
Summary of On-Airport Land Use Compatibility Tools

Mechanism	Term of Effectiveness	Equal Benefit Required ?	Appraisal Required? (Fair Market Value)	Requires FAA Approval	Where Useful?	Explanation/Comment
"Non-aeronautical use" designation	Varied	No	No	Yes	Parcels S of Raspberry	Designation of airport properties for uses which are not directly aviation related. Must demonstrate that there is no aeronautical need for a significant period. Designation requires formal FAA process but can be reversed in the future if conditions change and aeronautical use of the property becomes feasible. Also, by removing the aeronautical restriction and allowing a broader range of uses, other types of commercial development may be accelerated.
"Buffer" designation on Airport Land Use Plan [1]	1-5 years	No	No	Yes	Tony Knowles Coastal Trail, Turnagain Bog Wetlands and Associated Uplands, Areas Abutting Residential, Public Recreation Areas, north edge of Raspberry Road	Areas expected to remain undeveloped during life of Airport Master Plan if not needed for airport purposes, usually about 5 years. Can be renewed with airport concurrence. Not a permanent designation.
Conceptual Plan	Medium	No	No	No	Raspberry Road Buffer	Preliminary design concept to illustrate possible site specific solutions and important design concepts for an area. (e.g., buffer design concept)
Ground Noise Mitigation Measures	Medium	No	No	Possibly	Airport-wide	Measures identified in the 2002 Airport Ground Noise Study.

1. Buffer definition per 2002 Airport Master Plan as, *"Airport lands for which no specific immediate need has been identified and which can be used as a buffer from adjacent off-airport land uses."*
2. The security fence encloses the airport operations area containing aircraft runways, taxiways, parking aprons, and similar features. The fence location is shown on Figure 2-2.

4.3.5 Discussion and Recommendations

The recommendations that follow are intended to set forth a general framework leading to a reasonable and practical solution to airport development and use conflict issues. Ultimately, any successful resolution will require actions by both the MOA and the TSAIA to influence, manage, and control development within their respective jurisdictions. It will also require communication and understanding on the part of all airport stakeholders. For example, surrounding neighbors may not understand the requirements FAA places on the airport and not be aware of actions the airport has already undertaken to mitigate offsite impacts. Similarly, the airport may not realize how its communication style can create an atmosphere of conflict, or that the public sometimes has difficulty recognizing and appreciating voluntary actions that the airport has taken to address its concerns.

Objective #1

Support the continued economic vitality of TSAIA and its current and future role as a premier State, National, and International aviation hub.

The TSAIA is vital to the transportation system and economies of the MOA, the State of Alaska and many rural Alaskan communities. As such, the *WADP* recommends that MOA adopt policies to support and protect TSAIA's continued operation and growth to remain competitive.

Provide necessary off-site infrastructure

The airport does not operate in a vacuum but requires services from the Municipality in the form of adequate domestic water supply, wastewater collection, surface transportation, and a housing supply for employees. Incorporating adequate existing and future capacity in these systems is important for maintaining the airport and accommodating its future growth.

Mediate and resolve community concerns

Like most businesses, TSAIA values flexible development options and predictable permitting processes. Continual community controversy introduces an element of volatility that makes both unpredictable. Since the MOA and TSAIA share a common interest in seeing that local residents remain as supportive as possible, there should be a shared and cooperative commitment to manage neighborhood issues. This should focus on cooperative efforts to a) work toward addressing longstanding concerns held by existing residents, b) make sure that new residents are fully aware of airport activities before they purchase a home and c) maintain effective avenues for two-way communication between the airport and local residents. These techniques will reduce the intensity of public controversy over time.

Exchange lands that would benefit the airport and the community

Achieving a comprehensive transfer of lands between the MOA and TSAIA (one that provides equivalent mutual benefit) would allow all lands to be considered together in the balance rather than addressing questions of individual parcel usage in isolation. Because a comprehensive land exchange involving all prioritized parcels offers the most promising approach to permanently resolving perimeter parcel conflicts, it is preferable over an incremental approach focused on acquisitions or other means of title transfers. This would lay questions of boundary and usage to rest once and for all because both the MOA and TSAIA would have carefully considered all their options and negotiated their optimum land solution. Section 4.3.6 discusses this concept in greater detail.

Implement overlay zones to eliminate the creation of incompatible uses.

As with all airports, TSAIA is obligated to influence land uses surrounding the airport and seek to keep those from occurring that are incompatible with airport operation and development. Adoption of an airport zoning overlay by the MOA would support this goal while also serving the community by minimizing the creation of new conflicts.

Objective #2

Promote responsible development and operations inside the airport that minimize the negative effects of airport operations on adjacent neighborhoods, trails, parks, and habitat.

Continue to encourage community sensitive aviation practices

Over the years, TSAIA has enacted numerous operational guidelines and programs specifically intended to respond to community issues. The *WADP* recognizes that implementation of these programs makes a significant contribution to minimizing offsite airport impacts and supports their continued application and improvement over time.

Representative programs include:

Table 4.3-2
TSAIA Community Responsive Operational Programs

Improvement	Benefit/Rationale
Preferential Runway Use Policy	Encourages pilots to takeoff and land over Cook Inlet whenever possible.
Noise Monitoring Program	Tracks airport noise levels at key locations throughout the MOA
Residential Sound Insulation Program	Voluntary program that provides funding through FAA grant for improved sound insulation on pre-1998 homes exposed to airport noise within the 65DNL noise contour.
Ground Noise Study	Identifies sources of airport ground noise and recommends mitigation measures.
De-Icing Best Management Practices/Pilot Programs	Addresses control of chemicals that might otherwise be released in surface water discharges.
Fly Friendly Handout	A program that provides pilots with operational tips and techniques to reduce impacts of GA traffic on airport neighbors.
Waterbody Recovery Plan	Plan designed to improve water quality in Lake Hood and Lake Spenard

Reduce conflicts through proactive planning and design along the airport perimeter.

In many locations, residential development has been allowed to encroach up to the airport boundary. Applying 20-20 hindsight, this ought not to have occurred. However, given today's reality, these have been and will continue to be "hot spots" for conflict as the airport continues to build out its property to meet aviation needs and the separation between airport and neighborhood uses decrease. In addition, the popularity and high visibility of the Tony Knowles Coastal Trail, its location paralleling (and sometimes entering) the airport boundary and the potential for conflict with airport expansion projects merit special consideration as well.

Focal areas include:

- Neighborhoods near South Airpark (Sand Lake south of Raspberry Road).
- Neighborhoods near the Kulis ANG Base (Sand Lake along Air Guard Road).
- Neighborhoods near Lake Hood and the GA airstrip (Turnagain).
- Tony Knowles Coastal Trail from Kincaid Park to Earthquake Park.

The location of these key airport interface areas are shown in Exhibit 4-5.

Where residential uses are in place there is little likelihood of redesigning or removing them without purchasing the homes entirely. Some neighborhood residents have evidenced a long history of opposition to airport development. The Tony Knowles Coastal Trail, as well, has a strong constituency of loyal users that care about its continued usage. Assuming that residential homes and the Tony Knowles Coastal Trail will remain, attempts to improve compatibility must focus inside the airport boundary.

Recognizing that a District Plan is only advisory to the TSAIA and that the airport is under strict scrutiny from FAA as regards its commitments and development plans, the *WADP* recommends that TSAIA consider ways to predictably and routinely ensure that effective mitigation techniques are identified and communicated to potential lessees early in the design process. Formalizing this would increase community confidence that the airport takes its role as a good neighbor seriously, and is committed to actively influencing design to address community concerns.

This could take various forms. It could be accomplished via an airport zoning district that would define development standards such as allowable uses on airport property and minimum setbacks along the airport boundary.

It could also consist of a handbook of design and development recommendations that would be distributed with other lease materials. The handbook could identify the location of nearby sensitive residential uses and suggesting recommended techniques to consider in developing site designs that would minimize negative impacts.

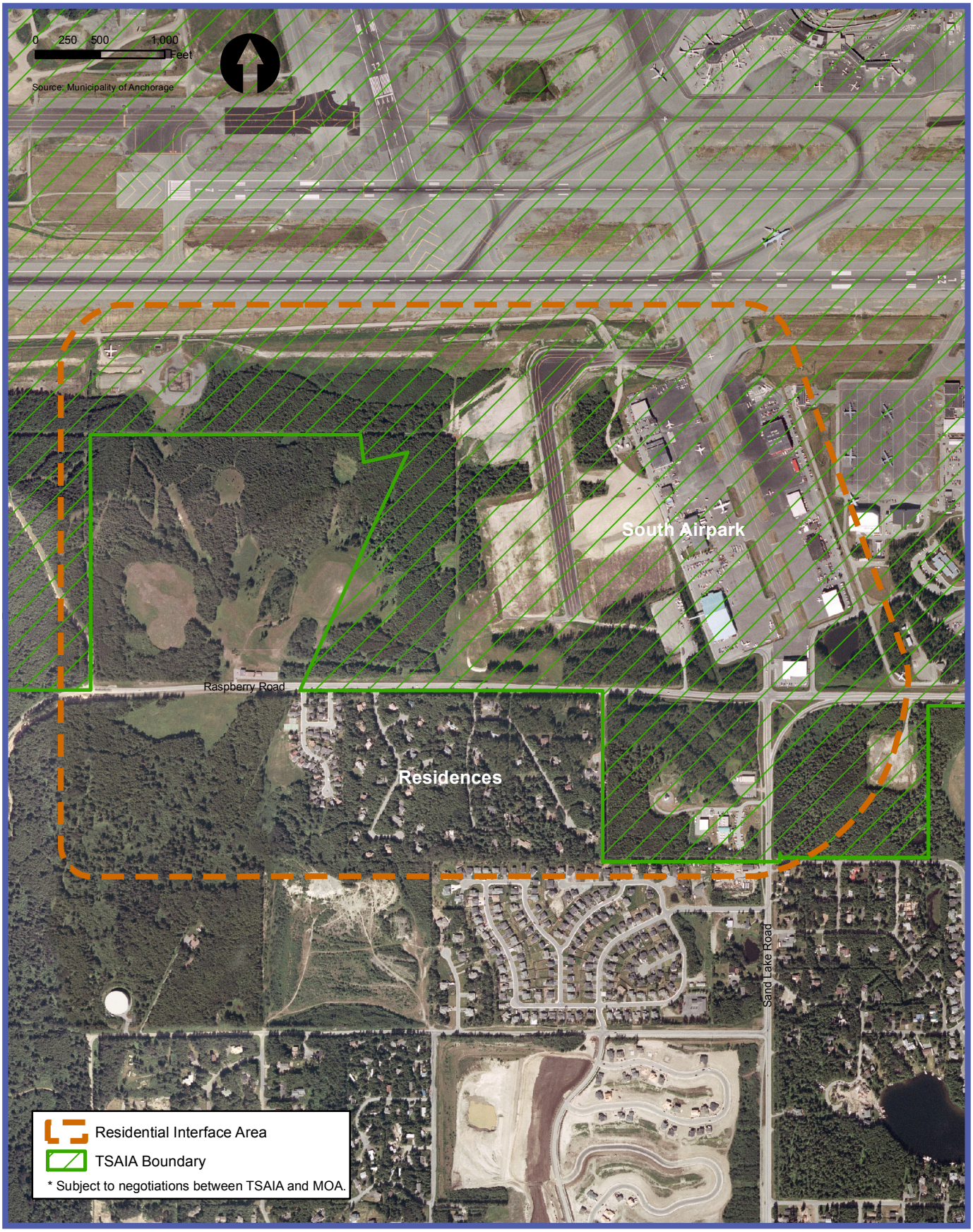
Following is a brief description of each key interface area and a list of associated focal design issues. Accompanying illustrations are provided in Exhibits 4-6a/b, 4-7a/b, 4-8a/b and 4-9a/b that give a graphic representation of how possible design solutions might be applied in each area.

South Airpark Neighborhoods (Exhibit 4-6a/b)

This residential area consists of three neighborhoods (Country Lane Estates, Tanaina Valley, and Tanaina Hills) that are separated from TSAIA by Raspberry Road. Residents from the neighborhoods have expressed concern about the expansion plans of the South Airpark, citing especially the need for a visual barrier on the north side of Raspberry Road to shield residences from airport views and maintain a visually attractive entry corridor into Kincaid Park. They have also voiced concerns about additional airport access points onto Raspberry Road.

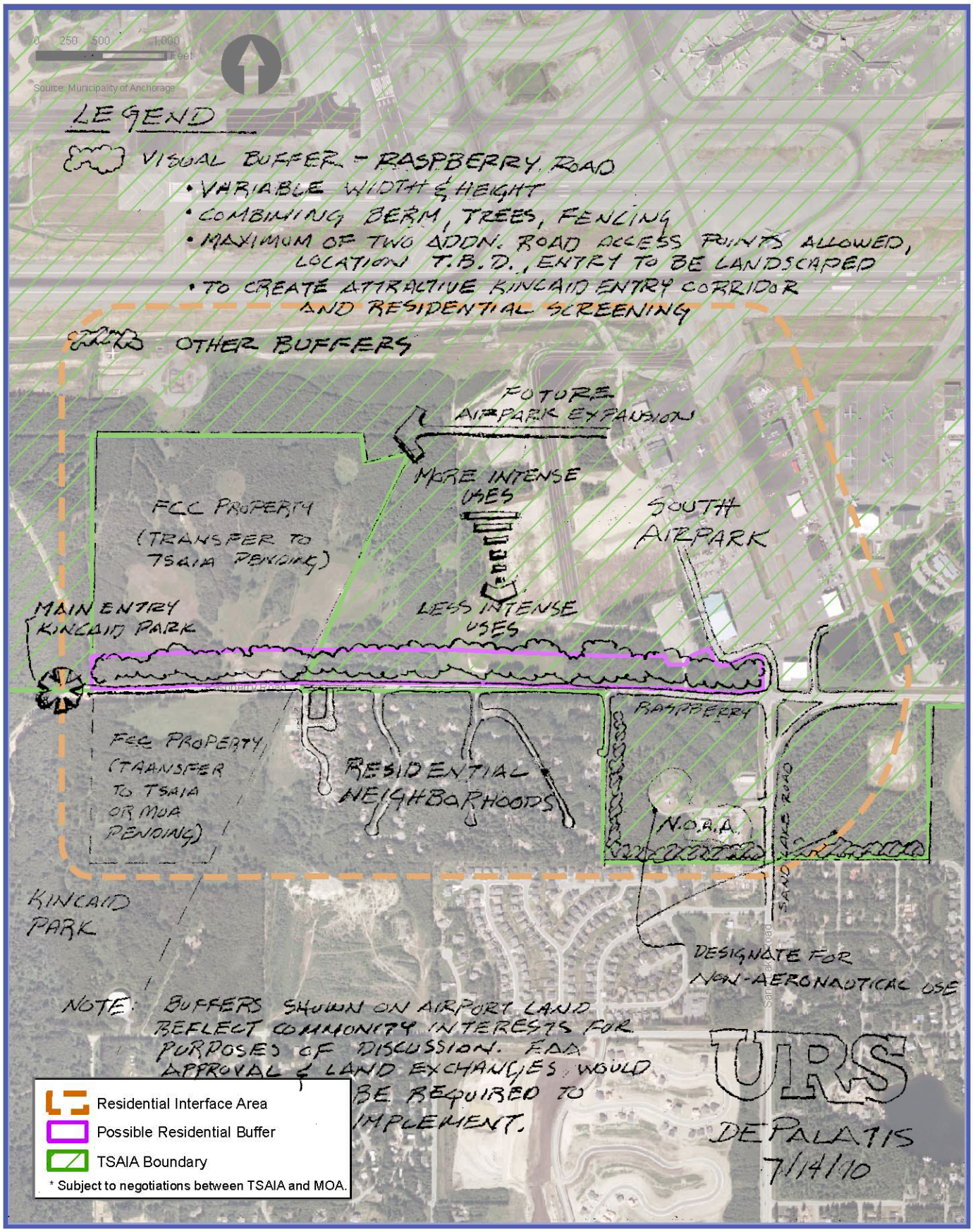
West Anchorage District Plan

Exhibit 4-5: Key Airport Interface Areas



West Anchorage District Plan

Exhibit 4-6a: South Airpark Residential Interface Area


0 250 500 1,000 Feet
Source: Municipality of Anchorage
LEGEND
VISUAL BUFFER - RASPBERRY ROAD
• VARIABLE WIDTH & HEIGHT
• COMBINING BERM, TREES, FENCING
• MAXIMUM OF TWO ADDN. ROAD ACCESS POINTS ALLOWED, LOCATION T.B.D., ENTRY TO BE LANDSCAPED
• TO CREATE ATTRACTIVE KINCAID ENTRY CORRIDOR AND RESIDENTIAL SCREENING
OTHER BUFFERS
FUTURE AIRPARK EXPANSION
MORE INTENSE USES
FCC PROPERTY (TRANSFER TO TSAIA PENDING)
SOUTH AIRPARK
MAIN ENTRY KINCAID PARK
LESS INTENSE USES
Raspberry Road
FCC PROPERTY (TRANSFER TO TSAIA OR MOA PENDING)
RESIDENTIAL NEIGHBORHOODS
RASPBERRY
N.O.A.A.
SAND LAKE ROAD
KINCAID PARK
DESIGNATE FOR NON-AERONAUTICAL USE
Sand Lake Road
NOTE: BUFFERS SHOWN ON AIRPORT LAND REFLECT COMMUNITY INTERESTS FOR PURPOSES OF DISCUSSION. FAA APPROVAL & LAND EXCHANGES WOULD BE REQUIRED TO IMPLEMENT.
URS
DEPALATIS
7/14/10
Residential Interface Area
Possible Residential Buffer
TSAIA Boundary
* Subject to negotiations between TSAIA and MOA.

Focal design issues include:

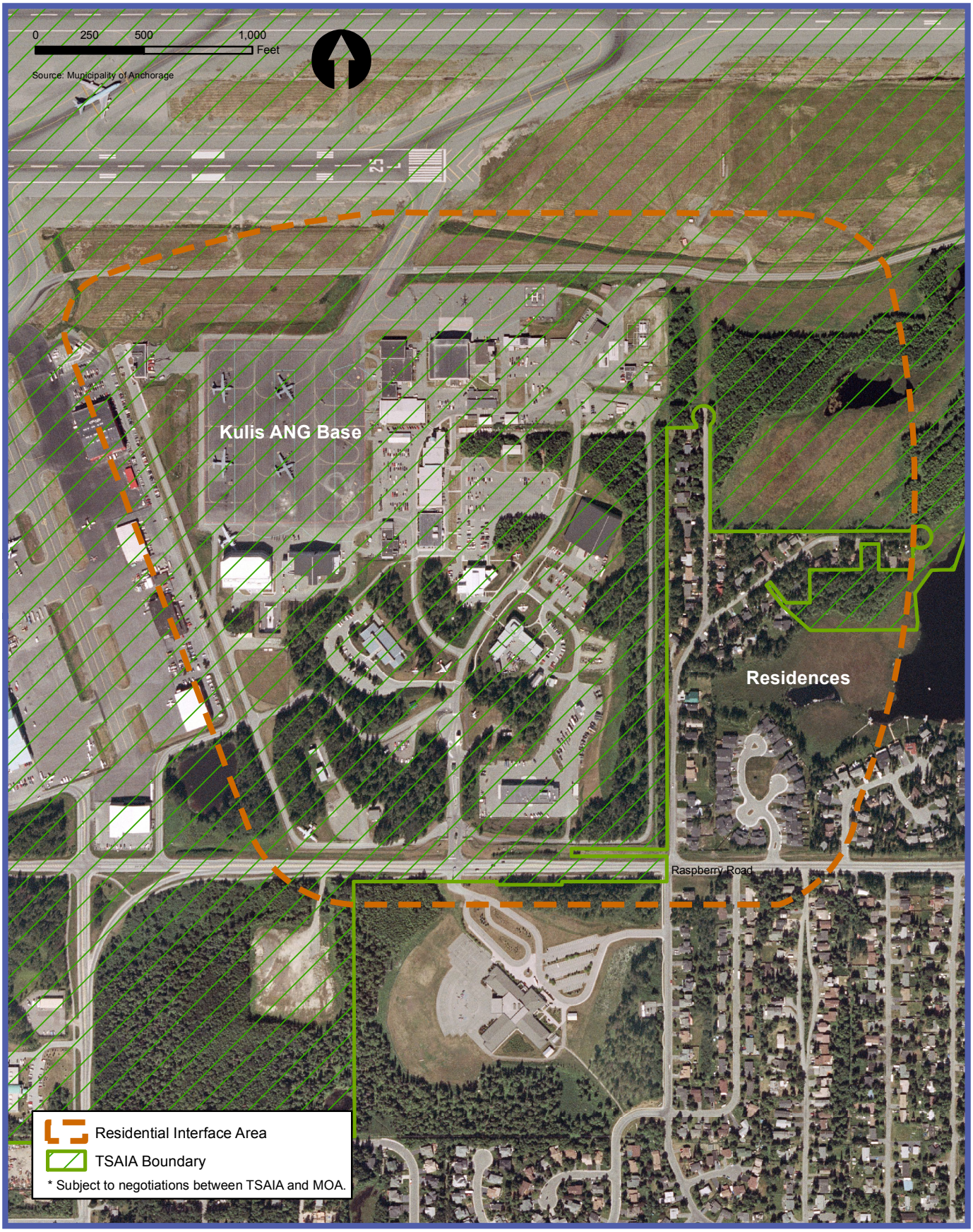
- The need for visual buffers/berm along Raspberry Road.
- Maintaining adequate separation of large buildings from Raspberry Road.
- Minimizing or eliminating additional access points onto Raspberry Road.
- Light shielding.
- Graduating land uses (i.e., locating uses that generate greater and more constant noise levels farther away from residential areas).
- Controls on sources of ground based noise near the airport boundary (e.g., backup alarms).

Kulis ANG Base Neighborhoods (Exhibit 4-7a/b)

This neighborhood consists of homes along Air Guard Road that parallel the TSAIA boundary. Kulis itself is elevated above these homes with a heavily treed slope on TSAIA property separating the two. Homes on the south end of the street nearer Raspberry are sited lower than Kulis and are separated from the TSAIA by Air Guard Road. Homes on the north end lie west of Air Guard Road and are slightly higher, situated roughly at grade with airport property to the north, sharing a common property line with Kulis. Residents have expressed concerns over changes proposed by the Kulis Reuse Plan that would eliminate or reduce existing topographic and vegetative features that serve to buffer airport uses along the TSAIA boundary.

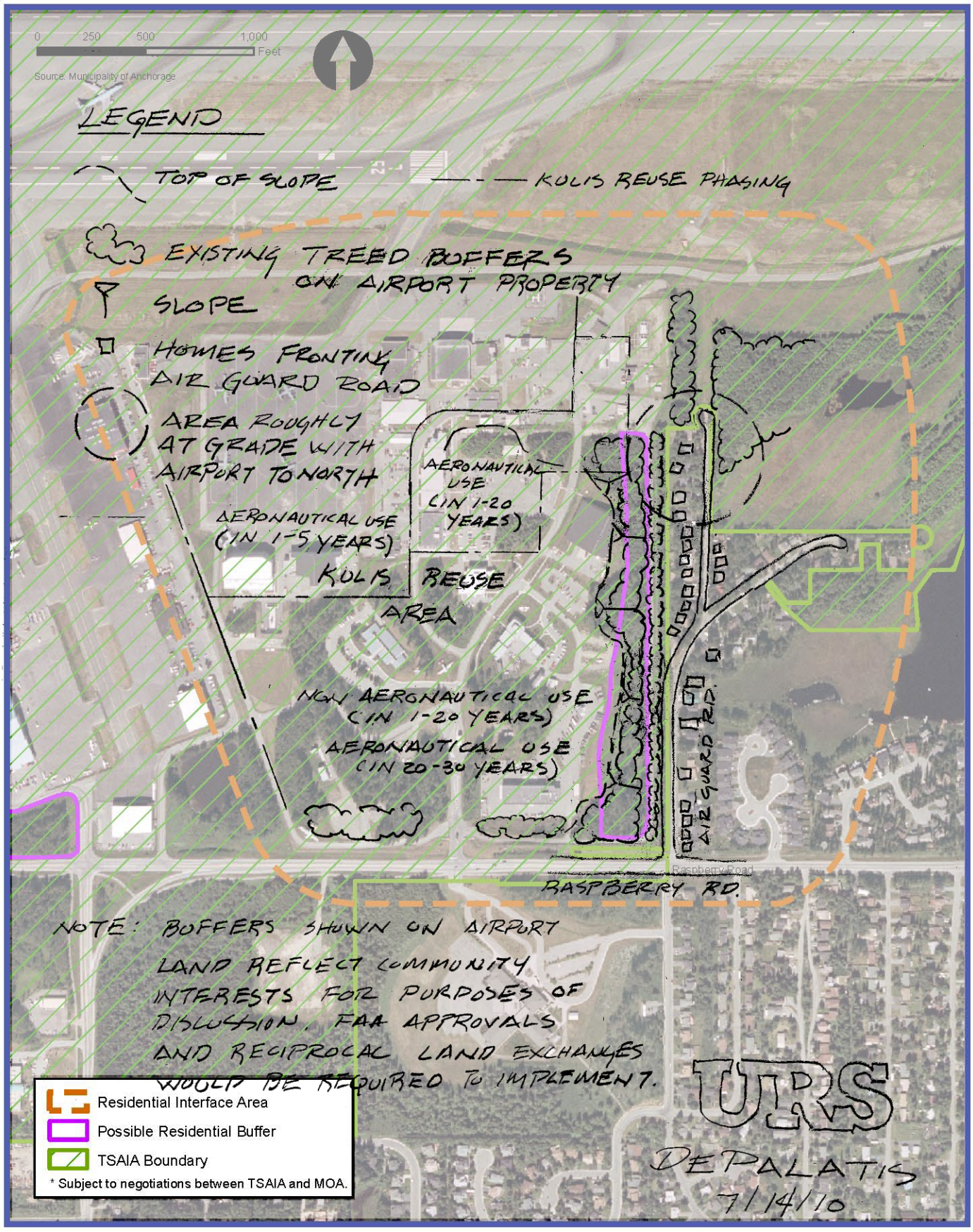
Focal design issues include:

- Maximum retention of natural topography, vegetation as a buffer.
- Managing the effects of elevation changes due to proposed grading of south Kulis.
- Relation of aircraft operating areas to residences both vertically (height) and horizontally (distance).
- Locating new airport buildings to act as a noise and visual barrier.
- Light shielding.
- Controls on sources of ground-based noise near the airport boundary (e.g., backup alarms).



West Anchorage District Plan

Exhibit 4-7a: Kulis ANG Residential Interface Area


0 250 500 1,000 Feet
Source: Municipality of Anchorage
LEGEND
TOP OF SLOPE
KULIS REUSE PHASING
EXISTING TREED BUFFERS ON AIRPORT PROPERTY
SLOPE
HOMES FRONTING AIR GUARD ROAD
AREA ROUGHLY AT GRADE WITH AIRPORT TO NORTH
AERONAUTICAL USE (IN 1-5 YEARS)
AERONAUTICAL USE (IN 1-20 YEARS)
KULIS REUSE AREA
NON AERONAUTICAL USE (IN 1-20 YEARS)
AERONAUTICAL USE (IN 20-30 YEARS)
AIR GUARD RD.
Raspberry Road
RASPBERRY RD.
NOTE: BUFFERS SHOWN ON AIRPORT LAND REFLECT COMMUNITY INTERESTS FOR PURPOSES OF DISCUSSION. FAA APPROVALS AND RECIPROCAL LAND EXCHANGES WOULD BE REQUIRED TO IMPLEMENT.
Residential Interface Area
Possible Residential Buffer
TSAIA Boundary
* Subject to negotiations between TSAIA and MOA.
URS
DEPALATIS
7/14/10