

## 7 AIRPORT DEVELOPMENT

This chapter describes the recommended airport development plan and presents the ALP. It includes the reasoning that was used to develop the features of the airport and pertinent information about the project to support the development plan. These plans will serve as the reference for DOT&PF, in conjunction with the FAA, to support development. The ALP becomes the official development plan which may be revised or amended over time to accommodate changing community aviation needs. This chapter also includes a financial plan for the development and operation of Talkeetna Airport.

### 7.1 Airport Layout Plan

The purpose of the ALP set is to illustrate the recommended development plan for the Talkeetna Airport. Airport plans for Talkeetna consist of six separate drawings on thirteen sheets which have been prepared on a computer-assisted drafting system to graphically depict the recommendations for airport layout and development. These drawings, presented in Appendix A, were developed in accordance with FAA AC 150/5300-13, Appendix 7. They include:

- ALP (overview plan, runway plan, and runway profile)
- Runway Approach Surfaces Plans and Profiles
- Federal Aviation Regulation (FAR) Part 77 Surfaces
- Terminal Area Plan
- Land Use Plan
- Airport Property Plan
- Airport Narrative Report

#### 7.1.1 Airport Layout Plan Drawings

The ALP presents the intended airport layout and depicts all improvements which will enable the airport to meet future aviation demands. Detailed airport and runway data are provided on the ALP to facilitate the interpretation of the development recommendations.

The ALP shows a number of airport improvements associated with the development of the airport. This information is contained on three sheets: the overview plan, the runway plan, and runway profile.

The overview plan is intended to show the extent of the ultimate airport development in relation to the existing runway and airport property, on one sheet. The runway plan and runway profile provide specific details about the runway at a scale to facilitate easy review.

### ***7.1.2 Approach Surface Plans and Profiles***

The approach surfaces drawing for Talkeetna Airport depicts the dimensions necessary for a non-precision approach to Runways 18 and 36. The profile representation of the approach surfaces for each runway depicts the physical features in the vicinity of the runway end, including buildings, roadways, antennae, fences, and trees that lie within the confines of the protected airspace. The plan depicts the physical end of the runway and the relationship of the runway end to obstructions.

The RPZ starts 61 m (200 ft) from the runway end and extends in a trapezoidal shape to a distance of 518 m (1,700 ft) from its start. Its inner width is 152 m (500 ft), its outer width is 210 m (700 ft). Each RPZ encompasses 5.6 ha (13.8 acres) of land beneath it. Both RPZs at Talkeetna Airport lie wholly within airport property.

### ***7.1.3 FAR Part 77 Surfaces***

The information on this drawing is based on FAR Part 77, Objects Affecting Navigable Airspace. In order to protect the airspace and approaches to each runway from hazards which could affect the safe and efficient operation of the airport, federal criteria have been established in FAR Part 77 for use by land use authorities to control the height of objects in the vicinity of the airport.

Design criteria for surface heights, angles, and radii on this plan are determined by the airport category and the runway approach instrumentation. Since a non-precision instrument

approach procedure exists at Talkeetna Airport, protection for the procedure is depicted on the drawing.

The airspace plan also depicts obstructions in the vicinity of the airport. As the airport develops, it is anticipated that buildings will be constructed on the new lease lots. Any structures in the vicinity of the airport should be adequately lighted to ensure its visibility to approaching aircraft.

#### ***7.1.4 Terminal Area Plan***

The terminal area plan is a specific depiction of terminal area developments. The ultimate plan for the terminal area provides space for both air taxi, GA, transient, and skiplane activities. The primary features of this plan are lease lot and apron expansion, and improvements in the functional layout of the terminal area compared to the existing airport.

Additional commercial lease lots have been identified as immediate needs at Talkeetna Airport. The large lease lots depicted on this sheet adjacent to the proposed commercial apron are for that purpose. As the demand for services increases at Talkeetna Airport, additional lease lot demands will develop.

The terminal area has additional lease lot spaces identified. It is recommended that lots adjacent to aircraft parking aprons be leased by DOT&PF for aviation purposes only, such as the establishment of an FBO. The lease lots also include their own vehicle parking areas.

#### ***7.1.5 Property Plan***

The final drawing of the ALP set is a depiction of airport property. This drawing shows the tracts of land that will be acquired for development of the airport. Federal funds will be used to acquire land adjacent to proposed transient parking for the maintenance access road and to the south of the existing airport property to construct the secondary access road.

### 7.1.6 Land Use Plan

There are two primary considerations for airport land-use planning: first, to secure those areas essential to the safe and efficient operation of the airport; and second, to determine the compatible land uses for excess property both on the airside and landside of the airport that will be most advantageous to the airport and community. On the airside of the field, land use is dedicated to aviation use.

The terminal area of the apron is divided into Commercial Aviation (C) and General Aviation (GA) uses. Areas labeled as Aviation (A) have been reserved for future development of aircraft parking and lease lots.

A-G (Aviation [Government]) reserves a large lease area adjacent to the DOT&PF M&O lot to ensure that the NPS has facilities on Talkeetna Airport in support of their critical search and rescue role in DNPP.

Drainage Reserve (D-R) is designated between the commercial apron area and the ARRC embankment. This area is intended as a reserve to develop a flood drainage swale to mitigate impacts to the 100-year floodplain, should DOT&PF find such action necessary. Lands labeled General (G) may be developed for either non-aviation or aviation uses as future demand warrants.

Specific attention should be paid to aircraft noise. The development of residential areas near the airport and in areas subjected to routine air traffic activity should be avoided. Furthermore, if residential development is considered near the airport, developers should pay particular attention to the height limitation requirements established in FAR Part 77 and the noise impacts associated with landing and departing aircraft over residential areas. Attention to these considerations will preclude any development that may have an impact on safe air traffic activities at the airport.

## 7.2 Development Plan

### 7.2.1 Runway and Runway Safety Area

The existing runway at Talkeetna Airport is 1067 m (3,500 ft) long and 23 m (75 ft) wide, which is adequate to meet future aviation demands at Talkeetna Airport. The existing RSA extends 90 m (300 ft) beyond each runway end and is 45 m (150 ft) wide, satisfying FAA design standards. However, the northern-most 90 m (300 ft) of the RSA does not meet FAA grading standards. The existing longitudinal grade of the RSA is uphill at 0.13 percent from the Runway 18 threshold. This RSA should be regraded to 0 percent or less longitudinal grade to meet FAA standards.

### 7.2.2 Taxiways

The existing taxiways at Talkeetna Airport include a full length parallel taxiway and four exit taxiways. The proposed development will extend the parallel taxiway to the north to access the future skiplane apron and government lease reserve. Three additional taxiways will provide access to the proposed and future commercial aprons that will be constructed to the south of the existing commercial apron.

### 7.2.3 Aircraft Parking Aprons

Two additional paved commercial aprons will be constructed south of the existing commercial apron. The apron nearest to the existing commercial apron will be constructed parallel to the existing apron, and the second apron will utilize the remaining triangular area near the end of the runway.

Additional aircraft parking will be provided north of the FSS, between the BRL and the parallel taxiway. A large apron in this area will accommodate (from south to north), transient aircraft, GA, commercial aircraft, and skiplanes.

Aircraft parking will be specifically prohibited in the area directly in front of the FSS. Parked aircraft in this area would significantly hinder the ability of the FSS specialist to see activity on

the airfield, and the noise associated with these aircraft will hinder the ability of the FSS to carry out their critical advisory role.

#### ***7.2.4 Lease Lot Development***

Lease lots have been identified to maximize the aviation use of airport property, separate commercial, GA, and transient aircraft, and to meet the forecasted aviation demands.

The area to the south of the existing commercial apron has been identified to meet the future demands of commercial aviation at Talkeetna Airport. Large lease lots are designated adjacent to proposed and future commercial aprons. Three small lease lots that do not have apron access have also been designated in this area. These lots are intended to provide aviation support that does not require aircraft parking, such as an aircraft parts supply.

Four small lease lots will be located just to the south of the existing M&O site along the BRL. These lots are located adjacent to the future commercial apron. Located adjacent to and north of the M&O site will be a Government Lease Reserve. This lot is reserved for use by the NPS to support their critical search and rescue role in DNPP.

#### ***7.2.5 Compass Calibration Pad***

A CCP will be located just off the Runway 18 threshold. The CCP is recommended based on comments received at public meetings and the large number of forecasted commercial operations at Talkeetna Airport over the planning period.

#### ***7.2.6 AWOS, Wind Cones, Segmented Circle, and Rotating Beacon***

The existing AWOS is located south of the existing commercial apron. This area adjacent to existing aviation uses is needed to accommodate future aviation demands at Talkeetna Airport. Relocation of the AWOS to an upland area east of the existing runway is recommended to allow the aviation development of the existing AWOS site. The AWOS site will be connected to the existing runway by a new maintenance access road.

The existing wind cone and segmented circle will be relocated just to the north of their existing

location to allow for construction of a taxiway to the proposed commercial apron area.

The existing rotating beacon will be relocated on the DOT&PF M&O building to provide a more central location, and will be shielded to reduce light impacts to the adjacent residential community.

### ***7.2.7 Security Fencing***

Pedestrian incursions frequently occur on the taxiways and aprons at Talkeetna Airport. To reduce the likelihood of pedestrian incursions, the plan recommends that security fencing be constructed to separate pedestrian/automobile areas from aircraft operational areas. The fencing should be located to preserve existing permissible land use practices. Optimally, it will be designed to surround existing aircraft parking areas, while preserving parking and pedestrian access to the various commercial operators at the airport. In general, the fencing will run down the BRL and along the edge of aprons. Gates will be provided as required to allow access to the airport. New fencing will be constructed in concert with airport development projects as appropriate.

### ***7.2.8 Automobile Parking***

Normal parking related to commercial aviation activities will be accommodated on the lease lots of the various operators. Short-term/visitor parking will be provided adjacent to the FSS. This parking lot will serve both pilots and non pilots who use the Talkeetna FSS to collect aviation information, and will help to reduce airport congestion. Additional automobile parking will be provided along the landside of the BRL, on existing airport property. This parking is located adjacent to the proposed transient aircraft parking and future GA parking apron. This lot will allow both pilots and aircraft passengers to park in an area that is off the aircraft parking apron, enhancing aviation safety during the busy summer season when it may be undesirable to have autos in aircraft movement areas.

### ***7.2.9 Airport Access and Circulation***

The existing M&O access road (Bill's Road) will be abandoned and the area will be converted to

aircraft parking. A new access road will be constructed from the existing FSS, down the landside of the BRL and around the west side of the M&O facility. This road will extend to Beaver Street to provide alternate access to the M&O facility. Gates will be installed at the Beaver Street intersection so maintenance can exercise security control over pedestrian and auto traffic.

The proposed and future commercial aprons will be accessed by realigning the existing gravel road in this area. The new alignment will be parallel to the curved portion of the airport property boundary southwest of the existing commercial apron. This road will extend to the southern extreme of airport property, and will connect to the Talkeetna Spur Road just to the south of the existing Spur Road/ARRC track intersection. The secondary access road will provide emergency access to the airport and adjacent residential neighborhood in the event a train blocks Second Avenue.

#### **7.2.10 Property Acquisition**

Property acquisitions will be necessary at two locations: a portion of Lot 11, Block 2 Denali Subdivision and unknown parcels south of the airport. The portion of Lot 11, Block 2 Denali Subdivision is being acquired to build the proposed maintenance access road, and the parcels south of the airport property are necessary to construct the secondary access road.

#### **7.2.11 Mitigation to the 100-Year Floodplain**

Talkeetna Airport is located within the 100-Year floodplain of the Talkeetna River. During of the preparation of the Talkeetna Airport Master Plan, the USACE revised the limits and depth of the flood waters during the 100-year event (the flood that has a 1 percent chance of occurring in any given year). Consequently, FEMA began a process to revise the FIRM for Talkeetna and the Talkeetna Airport. The revised mapping published by FEMA indicated that the depth and extend of flooding at the airport is more significant than the previous FIRM had indicated. At the time of this master plan, the FIRM had not yet been finalized.

Developing the commercial apron will impact the depth and extent of flooding in Talkeetna during the 100-year event. To mitigate this impact, DOT&PF will prepare a hydrologic study

and analyze at least two different scenarios to enhance the flow of flood water. One alternative involves extending the length of the ARRC bridge over the Talkeetna River. The second option involves construction of a 49-m (160-ft) wide by 914-m (3,000-ft) long flood drainage swale along the ARRC embankment. Three 49-m (160-ft) clear-span bridges would also be required: one at Second Avenue near its intersection with the ARRC tracks, one at the Talkeetna Spur Road near its intersection with and west of the ARRC embankment, and one at the ARRC tracks just north of its intersection with the Talkeetna Spur Road. The intent of this scenario is to permit flood waters to flow under Second Avenue, through the drainage swale along the ARRC embankment, and then under the ARRC embankment and the Spur Road into the Susitna River.

An environmental document will be prepared for the floodplain mitigation project in an effort separate from this airport master plan. Construction of the floodplain mitigation will occur either before or concurrently with construction of the Phase 1 aviation facilities.

#### **7.2.12 Landfill Remediation**

Two abandoned landfills reportedly exist on Talkeetna Airport. One, located near the north end of the runway, was used as the Talkeetna landfill between 1965 and 1975. The other landfill is located south of the existing commercial apron, and was used as a landfill by the FAA. The exact nature of the contents of the landfill are unknown; however, it is likely that the landfill contains trash such as wood, metal debris, drums, and other items commonly associated with landfills. It is not known if the landfill contains hazardous waste, but the presence of petroleum products in the landfill is possible. An ADEC-approved CAP will be developed outlining the details of this cleanup.

### **7.3 Transportation Improvement Program**

The Transportation Improvement Program (TIP) outlines the sequence and cost of development at the Talkeetna Airport. Development is planned for the short-term (0 to 5 years), intermediate or mid-term (5 to 10 years), and long-term (10 to 20 years) planning horizons.

Implementation of the Talkeetna Airport Master Plan will occur via this phased approach. The

phased development is intended to ensure that each project being undertaken integrates well with the intent of the entire master plan and will lead to the eventual development of the airport as outlined in the ALP, while ensuring that the needs of future aviation demand are met.

The phases are not specifically driven by year, but are flexible guidelines for the organized development of the airport. As airport activity increases, development stages can be accelerated or delayed, based on the actual activity level realized in the future. **Table 18** identifies the specific development projects, the capital costs associated with each project, and the expected funding sources and amounts.

<b>Table 18 Talkeetna Airport Transportation Improvement Program</b>			
<b>Development Phase</b>	<b>Project Cost</b>	<b>Funding Source</b>	
		<b>Federal</b>	<b>State</b>
<b>Phase 1 - Short-Term</b>			
Hydrologic Study	\$70,000.00	\$65,625.00	\$4,375.00
Commercial Apron Phase 1 (south, 13,300 m <sup>2</sup> )	\$464,000.00	\$435,000.00	\$29,000.00
Large Lease Lots (south apron, 5 ea.)	\$172,000.00	\$161,250.00	\$10,750.00
Property Acquisition (Portion of L11, B2, Denali Subd)	\$13,000.00	\$12,187.50	\$812.50
Access Road (Second Ave. to M&O site)	\$151,000.00	\$141,562.50	\$9,437.50
Transient Apron Phase 1 (4200 m <sup>2</sup> )	\$523,000.00	\$490,312.50	\$32,687.50
Relocate AWOS	\$150,000.00	\$140,625.00	\$9,375.00
Relocate segmented circle/ARB and new windsock	\$23,000.00	\$21,562.50	\$1,437.50
Floodplain Mitigation	\$3,700,000.00	\$3,468,750.00	\$231,250.00
GA Auto Parking	\$61,000.00	\$0.00	\$61,000.00
<b>Total Phase 1 Costs</b>	<b>\$5,327,000.00</b>	<b>\$4,936,875.00</b>	<b>\$390,125.00</b>
<b>Phase 2 - Mid-Term</b>			
Remediate Abandoned Landfill	\$2,200,000.00	\$2,062,500.00	\$137,500.00
Large Lease Lots (south apron, 3 ea.)	\$160,000.00	\$150,000.00	\$10,000.00
Transient Apron Phase 2 (9000 m <sup>2</sup> )	\$250,000.00	\$234,375.00	\$15,625.00
<b>Total Phase 2 Costs</b>	<b>\$2,610,000.00</b>	<b>\$2,446,875.00</b>	<b>\$163,125.00</b>
<b>Phase 3 - Long-Term</b>			
Commercial Apron Phase 2 (south, 4500 m <sup>2</sup> )	\$120,000.00	\$112,500.00	\$7,500.00
Large Lease Lots (south apron, 2 ea.)	\$30,000.00	\$28,125.00	\$1,875.00
Small Lease Lots (south apron, 3 ea.)	\$15,000.00	\$14,062.50	\$937.50
CCP w/ Taxiway	\$130,000.00	\$121,875.00	\$8,125.00
GA/Commercial/Ski plane Apron (north)	\$720,000.00	\$675,000.00	\$45,000.00
Small Lease Lots (north, 4 ea.)	\$90,000.00	\$84,375.00	\$5,625.00
Government Lease Reserve	\$190,000.00	\$178,125.00	\$11,875.00
Secondary Access Road	\$1,400,000.00	\$1,312,500.00	\$87,500.00
Land Acquisition	\$36,000.00	\$33,750.00	\$2,250.00
<b>Total Phase 3 Costs</b>	<b>\$2,731,000.00</b>	<b>\$2,560,312.50</b>	<b>\$170,687.50</b>
<b>TOTAL</b>	<b>\$10,668,000.00</b>	<b>\$9,944,062.50</b>	<b>\$723,937.50</b>

Phase 1 projects are those needed in the immediate future to correct identified deficiencies and to significantly improve operations at the airport. These projects are designated as short-term Capital Improvement Program (CIP) projects. These items are recommended for immediate construction if funding is available. Phase 2 projects are intermediate, or mid-term, CIP projects. Phase 3 (long-term) projects are designed to increase capacity and efficiency at Talkeetna Airport as commercial activity peaks and the aircraft fleet mix evolves to include a greater proportion of larger twin-engine aircraft.

#### **7.4.1 Funding**

Talkeetna Airport is owned and operated by DOT&PF, which has the primary responsibility for securing funds for airport development projects. As outlined in Table 18, funding sources include state and federal appropriations. It is expected the FAA will contribute 93.75 percent of the capital costs, with the DOT&PF providing the other 6.25 percent.

#### **7.4.2 M&O Financial Plan**

Expense information obtained from the DOT&PF indicates that the State expended \$63,725 on maintenance at Talkeetna Airport during fiscal year 1999. The budget includes routine maintenance of the airport, including snow removal, pavement repairs and crack sealing, mowing and clearing, maintaining airport lighting, and other tasks as necessary.

The proposed improvements at Talkeetna Airport primarily constitute an expansion of existing facilities, rather than a significant addition of new facilities. Therefore, future maintenance expenses at Talkeetna Airport are estimated by comparing the present maintenance costs and associated maintained area with expected future maintained areas.

**Table 19** summarizes the existing maintenance expenses and maintained areas (in 1999 dollars), as well as cumulative future maintenance areas and expenses.

	Maintained Area (incremental)	Maintenance Expense (incremental)	Maintained Area (cumulative)	Maintenance Expense (cumulative)
Existing Development	76 640 m <sup>2</sup>	\$63,725	76 640 m <sup>2</sup>	\$63,725
Phase 1 Development	54 506 m <sup>2</sup>	\$45,000	131 146 m <sup>2</sup>	\$108,725
Phase 2 Development	18 173 m <sup>2</sup>	\$15, 000	149 319 m <sup>2</sup>	\$123,725
Phase 3 Development	29 309 m <sup>2</sup>	\$25,000	178 628 m <sup>2</sup>	\$148,725

### 7.4.3 Maintenance Equipment Fleet

The M&O facility at Talkeetna Airport is a combined airport/highway maintenance station. The equipment fleet is used for both airport and highway maintenance. **Table 20** summarizes relevant information about the existing equipment fleet at Talkeetna Airport.

Year	V#	Description	Condition
1999	33146	Ford pickup	New
1999	10901	Snowplow on Ford pickup	New
1994	30986	Autocar 8 y <sup>3</sup> dump	Good
1995	10362	Tenco one-way plow on 1994 Autocar dump	Good
1994	10289	Monroe belly blade on 1994 Autocar dump	Good
1989	1716	8 y <sup>3</sup> highway sander on 1994 Autocar dump	Fair
1990	7593	Champion 730 motor grader	Poor
1990	1797	Boss plow on 1990 Champion grader	Good
1990	1798	Rylind snow wing on 1990 Champion grader	Good
1993	31062	Aerio Asphalt HeatKettle	Fair
1996	32101	Oshkosh snowblower	Good
1982	6168	John Deere tractor	Fair
1988	1712	3 point rotary mower on JD tractor	Fair
1990	2492	3 y <sup>3</sup> Case loader	Poor
1990	—	Amundson u-blade loader	Good
1982	6328	Wausau snowplow (spare)	Good

As demand increases and new aviation facilities are constructed, snow removal will become increasingly difficult. Many of the lease lots that are currently used for snow storage will no longer be available for this purpose. In the future, maintenance will have to stack and haul away snow that they currently push off the runway, taxiways, and apron.

Equipment will need to be replaced to both increase M&O's snow removal capacity and to retire aging items. **Table 21** suggests a recommended equipment replacement schedule and costs (in 1999 dollars) to enable the timely and efficient maintenance operations at Talkeetna Airport.

<b>Table 21 Talkeetna Airport Equipment Replacement Schedule</b>			
<b>Description</b>	<b>Replacement Date</b>	<b>Replacement Cost</b>	<b>Condition</b>
Champion 730 motor grader	S	\$135,000	Poor
3 y <sup>3</sup> Case loader	S	\$100,000	Poor
8 y <sup>3</sup> highway sander on 1994 Autocar	S	\$20,000	Fair
Aerio Asphalt HeatKettle	S	\$5,000	Fair
John Deere tractor	S	\$40,000	Fair
3 point rotary mower on JD tractor	S	\$30,000	Fair
Amundson u-blade loader	S	\$10,000	Good
	<b>Subtotal</b>	<b>\$340,000</b>	
Autocar 8 y <sup>3</sup> Dump	M	\$100,000	Good
Tenco one-way plow on 1994 Autocar	M	\$20,000	Good
Monroe belly blade on 1994 Autocar	M	\$16,000	Good
Boss Plow on 1990 Champion grader	M	\$20,000	Good
Rylind snow wing on 1990 Champion	M	\$12,000	Good
Wausau snowplow (spare)	M	\$10,000	Good
	<b>Subtotal</b>	<b>\$178,000</b>	
Oshkosh snowblower	L	\$400,000	Good
Oshkosh snowblower	L	\$400,000	Good
1999 Ford pickup	L	\$35,000	New
Snowplow on 1999 Ford pickup	L	\$5,000	New
	<b>Subtotal</b>	<b>\$840,000</b>	

S - short-term M - mid-term L - long-term