

9. Airport Layout Plan Narrative

The ALP is intended to graphically portray existing conditions at the Airport, detail design standards outlined in FAA AC 150/5300-13 *Airport Design*, future development, and areas in which future development may occur. This document consists of a set of public drawings used by the FAA when budgeting for future projects, assessing impacts to the Airport, and to determine zoning and other land uses in the Airport environment. The ALP also stands as a planning tool for the FAA to use when reviewing planned development and AIP grants and for the surrounding communities to use when determining zoning and land use planning. The Final ALP associated with the TWF Master Plan Update was approved by the FAA on August 16, 2012. A reduced-size copy of the FAA approved ALP set is attached at the end of this section.

Recommended development projects depicted on the ALP are further described in Sections 5, 6, and 7 of this Master Plan Update report. Section 5 describes the development and evaluation of the concepts that form the foundation of the recommended development plan. Section 6 describes land use-related development that is also reflected on the ALP. Section 7 formalizes the recommended development plan, as presented on the ALP. The projects described in these sections are depicted on the Airport Layout Plan (Sheet 2) and are supported by the remaining sheets in the ALP set, and within various sections of the Master Plan Update report.

The ALP set consists of the following drawing sheets:

- **Sheet 1** – Airport Data Sheet
- **Sheet 2** – Airport Layout Plan
- **Sheet 3** – Airport Airspace (Sheet 1 of 2)
- **Sheet 4** – Airport Airspace (Sheet 2 of 2)
- **Sheet 5** – Inner Portion of Existing Runway 7-25 Approach (Future Runway 8-26)
- **Sheet 6** – Inner Portion of Runway 12-30 Approach
- **Sheet 7** – Inner Portion of Runway 17-35 Approach
- **Sheet 8** – On and Off Airport Land Use Plan
- **Sheet 9** – Airport Property Map

9.1 Airport Data Sheet

The Airport Data Sheet is designed to be a compiled source of all pertinent Airport data. This sheet is intended to be used in conjunction with the Airport Layout Plan sheet as a reference document for existing and planned Airport development. Various tables and graphics depicted on this sheet are as follows:

- **Runway Data Table** – This table is a compiled tabulation of information relating specifically to runways at the Airport. Various specifications are listed for each existing and future runway, including runway location, dimensions, design group, available lighting and navigational aids, as well as safety areas as defined in AC 150/5300-13.
- **Runway Surfaces Table** – This table and an associated graphic depict the approach visibility minimums for each runway, as well as dimensions for various safety areas, including the RSA/OFA, RPZ, and OFZ. The elevation of each runway end is also provided on this table.
- **Airport Data Table** – This table lists existing and future information specific to the Airport, such as Airport elevation, service level, role, reference code, design aircraft, owner, Airport Reference Point, temperature information, and available navigational aids.
- **Land and Hold Short Procedures** – For airports with intersecting runways (such as TWF), land and hold short procedures may be specified in order to ensure that aircraft landing on one runway do not interfere with aircraft operating on a crossing runway. This table identifies the existing and future hold short point for each runway (as appropriate).
- **Taxiway Data Table** – This table lists the existing and future width and safety area dimensions for each major taxiway at the Airport.
- **Modifications to Standards/Non-Standard Conditions** – These tables show any approved modifications to applicable design standards or any non-standard conditions that may be depicted on the ALP or present at the Airport. TWF does not have any listed modifications to standards or non-standard conditions.
- **Wind Rose and Wind Coverage Table** – These components detail the percentage of time a runway end or combination of ends or runways are available for arrivals. When combined, the coverage is intended to be as near as possible to 100 percent. The Wind Rose depicts the runway orientation and percentages over which winds from a given direction occur. The box width varies based on the crosswind component desired and is intended to graphically portray the information displayed in the Wind Coverage Table. For this Master Plan Update, the recommended future crosswind runway (Runway 17-35) is also depicted on the Wind Rose, with corresponding data shown in the Wind Coverage Table.

9.2 Airport Layout Plan

The Airport Layout Plan depicts both the existing and planned Airport facilities and safety areas. All existing and planned airfield and Airport related development is depicted on this sheet and identified with legend items for quick reference. Together with the Airport Data Sheet, this sheet serves as an overview for the FAA and Airport sponsors as grant and other federal funding for future improvements are assigned. The Airport Layout Plan also graphically depicts compliance with standards set forth in AC 150/5300-13 or necessary modifications to those standards.

9.3 Airport Airspace

The Airport Airspace sheet is a set of two (2) drawings depicting the 14 CFR Part 77 *Objects Affecting Navigable Airspace* (Part 77) imaginary airspace surfaces for the Airport. Part 77 details requirements for the safe and efficient use of navigable airspace. These surfaces are intended to provide airports and sponsors with a mechanism to evaluate existing and proposed objects as part of the 7460 process for determining hazards to air navigation. Part 77 surfaces correspond to available navigational aids and types of approaches available to a runway end. The following surfaces are depicted on the Airport Airspace sheet:

- **Horizontal Surface** – This surface corresponds to the types of approach available to each runway and is defined as swinging arcs of a specified radius. This surface is 150' above Airport elevation.
- **Primary Surface** – This surface is dependent on the most precise type of approach available to a runway. This surface is rectangular in shape, is the same elevation as the runway centerline and extends 200' beyond the runway end.
- **Conical Surface** – The conical surface extends upwards and outwards from the periphery of the horizontal surface for a distance of 2,000' at a slope of 20:1.
- **Approach Surface** – The approach surface extends upwards and outwards from the end of the primary surface along the runway centerline. The inner dimension is the same as the primary surface and the length and outer dimension are dependent on the most precise approach available to the specified runway end. Slopes may vary from 50:1 to 20:1.
- **Transitional Surface** – The transitional surface extends upwards and outwards from the edge of the approach surface for a distance of 5,000' at a slope of 7:1.

Only the lowest surface is shown on the Airport Airspace sheet. These surfaces take into account the new crosswind runway and any planned approach minimum improvements. Any object penetrating these surfaces outside of the first 10,000' of the approach surface is shown and described on these sheets. The obstruction table presented on this sheet identifies a terrain penetration of the horizontal and conical surfaces of less than 56 feet.

9.4 Inner Portion of Runway Approach

The Inner Portion of the Runway Approach drawing depicts the objects, roadways, railroads, rivers, and other significant objects that occur within the first 10,000' of the Part 77 approach surface. Objects such as roadways, railroads and other traverse ways are assigned a height prescribed in Part 77: twenty-three (23) feet for a railroad, seventeen (17) feet for an Interstate highway, fifteen (15) feet for any public roadway, and ten (10) feet for or the height of the highest mobile object on a private roadway. The applicable Part 77 surfaces, departure surfaces, and Threshold Siting Surfaces are shown on plan and profile views and objects are evaluated against these surfaces. Objects are plotted, identified, and otherwise depicted in both plan and profile view and the details of the object and the plan of action related to each object are listed.

Three drawings are provided under this section. The first two depict the surfaces and objects that apply to the existing Runway 7-25 (future/re-designated Runway 8-26) and Runway 12-30 approaches. The third drawing depicts the surfaces and objects associated with future Runway 17-35.

9.4.1 INNER APPROACH OBSTRUCTIONS

Of the six inner approaches (shown on Sheets 5, 6, and 7 of the ALP set), only the future Runway 35 has airspace penetrations. As described in Section 5, the location of future Runway 17-35 was determined by providing as much runway length as possible to meet the length requirement while remaining clear of the assumed landfill area to the north and keeping the RSA on the south end clear of 3300 North Road. As shown on Sheet 7, 3300 North Road creates a penetration for the Threshold Siting Surface and the Part 77 Approach Surface for Runway 35. It must be noted that the actual road surface does not penetrate either surface, but FAA guidelines require that 15 feet be added to public roadways to account for vehicles traveling on the roadways. With the additional 15 feet added to 3300 North Road, a 2.6-foot penetration is created for the Threshold Siting Surface and a 12.6-foot penetration is created for the Part 77 Approach Surface.

9.4.2 OBSTRUCTION MITIGATION

Per FAA guidelines, penetrations to a Threshold Siting Surface can be mitigated by limiting published approaches to daytime visual procedures only. Because future Runway 17-35 is planned to be a visual and non-lighted runway, the penetration to the Threshold Siting Surface does not warrant further action.

The penetration of the Part 77 Approach Surface requires the proper publication of the obstruction in all obstruction charts, navigational charts, and any approach charts or procedures associated with the Airport. Beyond the proper publication of the obstruction, no further action is warranted.

It should be noted that future mitigation of the Part 77 Approach Surface obstruction may be possible through the following means:

- Future environmental assessments that would determine the landfill area to the north is less extensive than assumed and allow future Runway 17-35 to be shifted northward.
- Future runway engineering or design factors that would require shifting of the runway northward.

- Pursuant to design standards enacted subsequent to approval of this ALP, the FAA may require relocation or closure of 3300 North Road where it passes through the proposed Runway 35 RPZ.

9.5 On and Off Airport Land Use Plan

The On and Off Airport Land Use Plan is a composite drawing that depicts the land uses for areas within and around the Airport boundary. All existing and planned improvements at the Airport are depicted and organized by general use categories. All Off Airport land use around the airport is currently agricultural.

9.6 Airport Property Map

The Airport Property Map details the property boundary and identifies the 21 parcels that were acquired between 1954 and 1990 to create this boundary. This sheet identifies the parcel information such as the grantor, record data, acreage, date, etc. The Airport Property Map serves as a method of tracking current Airport property and as a place in which to depict and identify future property acquisition or easements that may be necessary for future Airport development.

