



Chapter 4 - Facility Requirements and Concept Development

4.1 AIRSIDE FACILITIES

Airside facilities include runways, taxiways, airfield lighting and marking and navigational aids. These facilities are all related to the arrival, departure and ground movement of aircraft at Love Field.

4.1.1 Runways

The airport has two parallel east-west runways, 13L-31R and 13R-31L, and a single north-south runway 18-36. Runway 13L-31R measures 8,800 feet in length and has a width of 150 feet and Runway 13R-31L is 7,753 feet long and 150 feet wide. Both of the runways are concrete, grooved and in good condition with precision approach marking and high intensity runway lighting. Runway 18-36 is 6,149 feet long and 150 feet wide. It is asphalt in fair condition with non-precision marking and high intensity runway lighting.

The capacity of the airfield component was determined in Chapter 3 - Airside Analysis. The annual capacity of the present airfield is significantly less than the unconstrained forecast of aircraft operations because the impact of Dallas Forth Worth Airport (DFW) airspace on Love Field. The proximity of DFW seriously affects the ability of the airport to process traffic. The performance of the existing runway system at the airport was assessed using the FAA's Airfield Capacity Model. The importance of the situation is illustrated by the fact that DAL is limited to a single stream to avoid conflicts with DFW while the runway configuration could support parallel dependant approaches. These are particularly true in north flow due to the proximity to DFW.

The opportunity to develop additional runways to accommodate future demand does not exist at Love Field. Therefore, recommendations to improve the flow of aircraft from the terminal to the runways and vice versa are limited. The remaining airside facilities discussed in this section will be evaluated to determine if other improvements can enhance the movement of aircraft at Love Field.

4.1.2 Taxiway System

The taxiway system provides the link between the runway and the terminal gates. At most airports the capacity of the airport is due in large degree at how efficiently the taxiway system permits the flow of aircrafts from the runways into the terminal area and vice versa. At Dallas Love Field significant flow improvements can be achieved by making small modifications to the taxiway system.

Taxiways A, B, C, and D are full-length taxiways with entrance/exits at each runway end. All the taxiways are 75 feet wide with the exception of E and G, which are 50 feet wide, and F, which is 40 feet wide. There are taxiway centerline lights on all of the taxiways.

There are two critical factors that must be considered in determining taxiway improvements, aircraft size and aircraft flow. The critical aircraft that operates at an airport is key in determining the various airside facilities requirements. Aircraft type varies significant by weight, wingspan and performance characteristics. Wingspan impacts the taxiway system and the terminal area requirements. The Boeing 737-600/700/800 series was determined to be the critical aircraft for Love Field. Southwest Airlines the predominant carrier at the airport operates an aircraft fleet that is all Boeing 737 series aircraft. The



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B737-600/700/800 is slightly longer and has more wingspan than the other B737 series. But the B737-600 series is replacing older B737. Therefore, the B737-600 was used as the critical aircraft. The aircraft is classified under FAA guidelines as an Aircraft Approach Category C and Aircraft Design Group (ADG) III, which includes aircraft with a wingspan of up to 118.00 feet. The B737-600/700/800 is within the ADG but is not the largest aircraft in its group; therefore some savings could be achieved by using aircraft specific design instead of the ADG III criteria.

The following table shows for comparison purposes the different dimensional requirements for the Aircraft Design Group III and the requirements of the Boeing 737-600 series.

Description	737-600	ADG III
	(Feet)	(Feet)
Wing Span	112.60	118.00
Taxiway Wingtip Clearance	33	34
Taxiway to Taxiway/Taxilane	146	152
Taxiway to Object	89	93
Taxilane Wingtip Clearance	22	22
Taxilane to Taxilane	134	140
Taxilane to Object	78	81

Source: DMJM Aviation/FAA Airport Design

Under the existing operating conditions, the improvements that provide greater flexibility for managing departure queues would benefit Love Field. As the number of operations increases, greater flexibility will be required to handle conflicts with DFW airspace. The creation of departure holding bays provides the necessary flexibility to manage departure queues. Airfield improvements suggested for Love Field are described below and depicted in Figure 4-1, Airfield Improvements.

- Dual taxiway entrances to Runways 13R, 31L, 13L and 31R. The two independent access to the runway ends will provide air traffic controllers with the flexibility to selectively sequence departures prior to takeoff clearance in order to minimized aircraft delays caused by airspace conflicts with DFW.
- Extend Taxiway “L” to meet “D1”. To provide for dual taxiway capabilities from the Runway 13R to the West Concourse facilitating aircraft movement.
- Extension of Taxiway “K” to meet extended Taxiway “B5” and construction of Taxiway “M” between “B1” to “B3”. To provide for a dual taxiway system around the terminal area. Once the dual system is in place, depending on direction of traffic, one of the taxiways could be operated in a clockwise direction and the other in a counter clockwise direction to avoid aircraft conflicts around the terminal.
- Provide a designated road for aircraft service vehicles. To enhance the safety of the airport, a designated road should be provided for airside vehicles.
- Construction of Taxiway “M” to between “B5” and Runway 18-36. To provide for additional aircraft movement flexibility.
- Enhance intersection between Runway 13R-31L and Runway 13-36. To facilitate the movement of aircraft arriving in Runway 31L out of the runway. Frequently aircraft arriving in Runway 31L miss exit “D” and have to proceed to “C4”, an additional 1,200 feet.

