

VI. Preferred Development Plan

In December 2002, the DOA submitted a draft ALP Package depicting the proposed development to the FAA for review and comment. The new plan was supported by documentation subsequently delivered to FAA in the first quarter of 2003.

In May 2003, FAA provided technical comments on the December 2002 Draft ALP Package, compiled from the FAA's lines of business and TSA but not including the FAA's Great Lakes Region Air Traffic Division. Subsequently, the FAA provided supplemental comments from the Air Traffic Division on the utilization of the airfield and surrounding airspace from an operational perspective in August 2003.

Responses to the FAA comments were prepared and submitted to FAA in October 2003, as was a revised ALP Package for FAA review.¹ The following sections provide information on the physical and operational characteristics of the plan as depicted on the October 2003 Future ALP and are presented and discussed to provide a description for use in subsequent analyses.

The following sections are provided:

- Airfield Plan
- Terminal Plan
- Support/Ancillary Facilities Plan
- Ground Access Plan
- On-Airport Passenger Movements Plan
- Other Facilities
- Land Acquisition Plan
- Additional Capabilities
- Deviations From Standards

Each of these sections describes specific elements of the plan and are further subdivided as necessary to facilitate the review of information presented.

6.1 Airfield Plan

The Airfield Plan adds one new runway to the north airfield and reconfigures three other runways (Runways 18-36, 14L-32R, and 14R-32L) to effect a transition to an essentially east/west traffic flow configuration. Existing Runways 4L-22R and 4R-22L remain unchanged and are retained for wind coverage purposes and additional operational flexibility. Additionally, existing Runways 9L-27R and 9R-27L are extended to the west to better satisfy long-haul aircraft departure requirements and to provide operational flexibility for ground taxi of aircraft crossing active runways. New runway ends are located to satisfy clearance requirements for CAT II/III operations. The center runways on the north and south airfields are designed to meet ADG VI standards, while other runways are designed to ADG V standards. The following further describes the physical and operational components of the airside facilities.

¹ *Response to ALP Comments, O'Hare Modernization Program, October 2003*

6.1.1 Characteristics of Airfield Improvements

This section describes the physical characteristics of the airfield facility improvements. For ease of review, discussions of runway facilities refer to their location on either the North or South airfield, which corresponds to **Exhibits VI-1** and **VI-2**, respectively. For the purposes of this discussion, runways are labeled according to their ultimate designation unless otherwise noted. The order in which the airfield improvements are discussed does not reflect phasing of the development. Phasing is discussed in Section VII.

The October 2003 Future ALP utilized runway end coordinates for existing runways developed by the DOA and the FAA in support of the Local Area Augmentation System (LAAS) development.² These coordinates differ from those published by FAA in other documents and result in runway lengths that are slightly different than those discussed in prior sections.

6.1.1.1 Runway 9L-27R (North Airfield) Characteristics

Development of new Runway 9L-27R includes the construction, lighting, and marking of a new runway 6,901 feet north of existing Runway 9L-27R. The runway will be 150 feet wide and 7,500 feet long. The length of this runway will satisfy landing and departure runway length requirements for ADG IV and smaller aircraft for the majority of domestic markets. (This does not restrict the use of this runway by ADG VI aircraft.) The runway is separated from its parallel taxiway by 500 feet west of existing Taxiway P and by 400 feet east of existing Taxiway P. The reduced runway-to-taxiway separation to 400 feet on the east end of the runway is a result of the land-use requirements for the North Airfield detention basin.

For ADG V aircraft, the standard runway centerline to parallel taxiway centerline separation is 400 feet. However, TERPS criteria for CAT II/III approaches requires a runway to parallel taxiway centerline separation of 500 feet for ADG V aircraft taxi operations, with 400-foot spacing restricted to aircraft with wingspans less than 171 feet and tail heights less than 55 feet (typically ADG IV or less). On this basis, CAT II/III approaches by ADG V aircraft landing on Runway 27R will exit the runway and either taxi south on the north-south taxiway at the Runway 9L end or taxi back on the 500-foot spacing portion of the parallel taxiway to Taxiway P before proceeding south. Conversely, ADG V aircraft conducting CAT II/III approaches to Runway 9L will exit the runway and proceed south on the north-south taxiway at the Runway 27R end to avoid a “back-taxi” on the 400-foot spacing portion of the parallel taxiway.

Development of Runway 9L-27R requires land acquisition northwest of the existing Airport boundary. On the east end of the runway, the OFA and RSA are contained within Airport property; however, avigation easements are proposed for portions of the RPZ not on Airport property. The area of the RPZ out to where the FAR Part 77 Approach Surface obtains a height of at least 35 feet above the runway end elevation is within the ultimate Airport property and will be controlled.

² LAAS is an augmentation to the Global Positioning System (GPS) that focuses its service on the airport area and will yield the extremely high accuracy, availability, and integrity necessary for Category I, II, and III precision approaches.

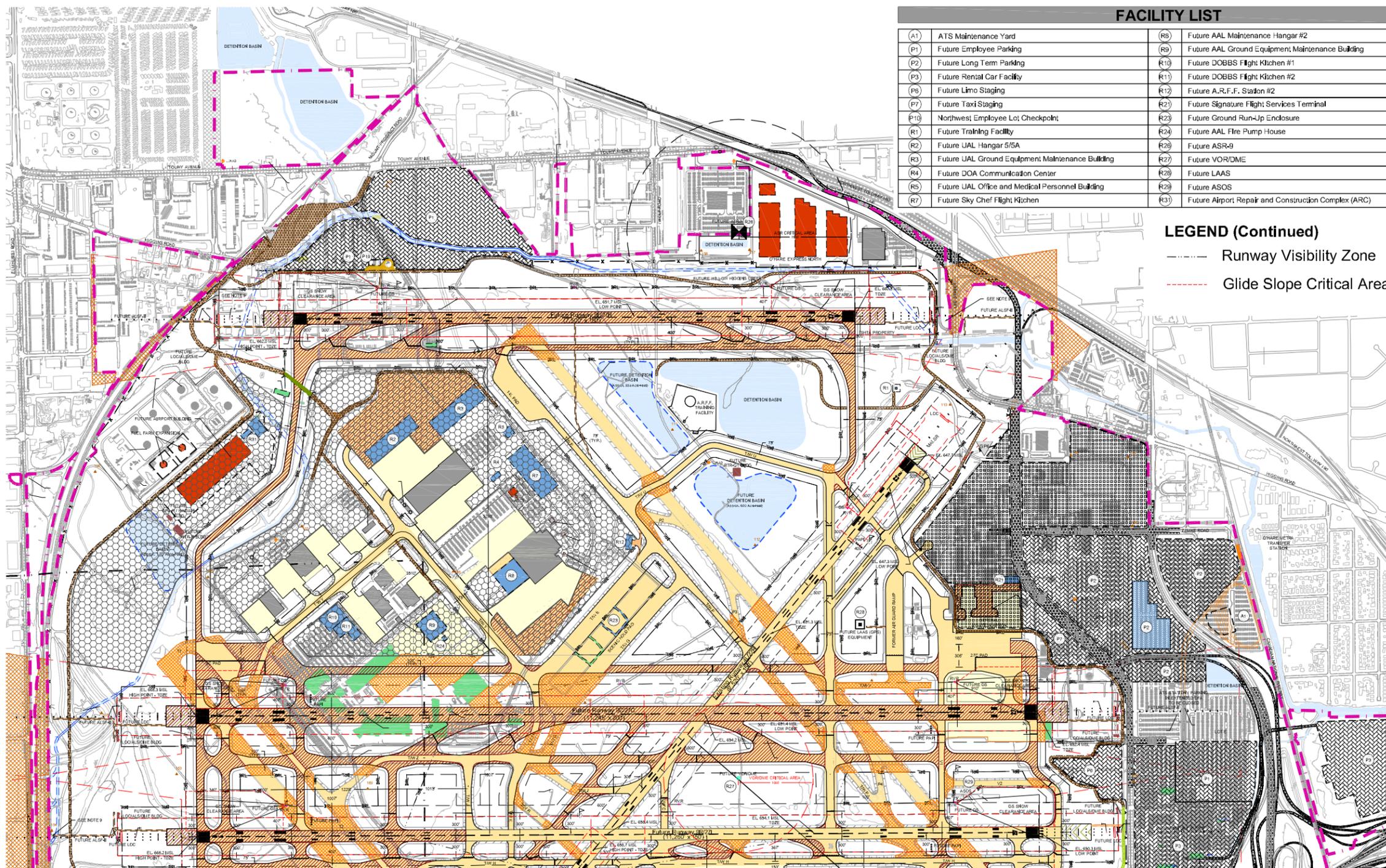
FACILITY LIST	
(A1) ATS Maintenance Yard	(R6) Future AAL Maintenance Hangar #2
(P1) Future Employee Parking	(R9) Future AAL Ground Equipment Maintenance Building
(P2) Future Long Term Parking	(R10) Future DOBBS Flight Kitchen #1
(P3) Future Rental Car Facility	(R11) Future DOBBS Flight Kitchen #2
(P6) Future Limo Staging	(R12) Future A.R.F.F. Station #2
(P7) Future Taxi Staging	(R27) Future Signature Flight Services Terminal
(P10) Northwest Employee Lot Checkpoint	(R23) Future Ground Run-Up Enclosure
(R1) Future Training Facility	(R24) Future AAL Fire Pump House
(R2) Future UAL Hangar 5/5A	(R26) Future ASR-9
(R3) Future UAL Ground Equipment Maintenance Building	(R27) Future VOR/DME
(R4) Future DOA Communication Center	(R28) Future LAAS
(R5) Future UAL Office and Medical Personnel Building	(R29) Future ASOS
(R7) Future Sky Chef Flight Kitchen	(R31) Future Airport, Repair and Construction Complex (ARC)

LEGEND (Continued)

- Runway Visibility Zone
- Glide Slope Critical Area

LEGEND

- Existing Airfield Pavement
- Future Airfield Pavement
- Airfield Pavement Demolition
- Existing Apron Pavement
- Existing Airport Building
- Existing Airport Buildings In AOA To Be Relocated
- Future Airport Facility
- Relocated Airport Buildings Previously In AOA
- Future Airport Building
- Future Airport Facility
- Future Roadway
- Future Structured Parking
- Future Surface Parking
- Future Collateral Development
- Existing Avigation Easement
- Future Avigation Easement
- Future Airport Property Line
- Existing Airport Property Line
- County Line
- Future Guard Posts
- Future Creek - Open
- Future Creek - Culvert
- Future Service Road
- Future Tunnels
- Future NAVAID/ARFF Access Road
- Runway Protection Zone
- Runway Safety Area
- Object Free Zone
- Air Operations Area (AOA)
- Localizer Critical Area

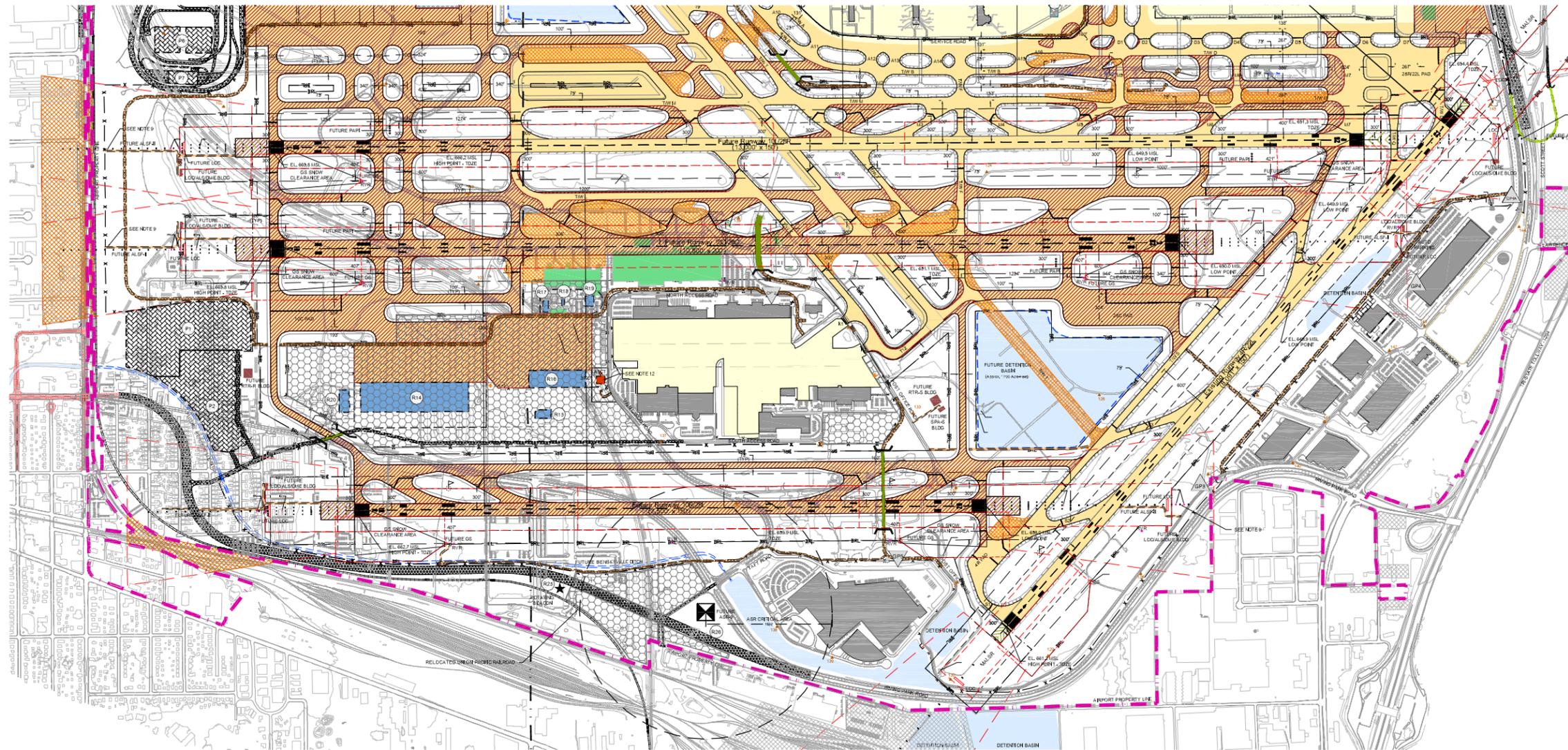


Source: Ricondo & Associates, Inc.; Martinez Corp. Aerial Photography (Nov. 2001);
 Department of Aviation Airport Management and Records
 Prepared by: Ricondo & Associates, Inc.

Exhibit VI-1



North Airfield Plan



LEGEND

- Existing Airfield Pavement
- Future Airfield Pavement
- Airfield Pavement Demolition
- Existing Apron Pavement
- Existing Airport Building
- Existing Airport Buildings In AOA To Be Relocated
- Future Airport Facility
- Relocated Airport Buildings Previously In AOA
- Future Airport Building
- Existing Avigation Easement
- Future Avigation Easement
- Future Airport Facility
- Future Roadway
- Future Surface Parking
- Currently Planned Non-airport Roadway Project
- Future Airport Property Line
- Existing Airport Property Line
- County Line
- Existing Guard Posts
- Future Guard Posts
- Future Creek - Open
- Future Creek - Culvert
- Future Service Road
- Future Tunnels
- Future NAVAID/ARFF Access Road

FACILITY LIST

(P1)	Future Employee Parking
(P2)	Future Long Term Parking
(P8)	Future Limo Staging
(P7)	Future Taxi Staging
(R14)	Future United Airlines Cargo Building
(R15)	Future Federal Express Maintenance Building
(R16)	Future Federal Express Metroplex Building

FACILITY LIST

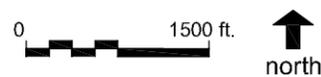
(R17)	Future South Airfield Lighting Vault & Electrical Utilities
(R18)	Future Air Cargo Simulation Facility
(R19)	Future Fueling Station
(R20)	Future Delta Air Freight
(R25)	Future Rotating Beacon
(R26)	Future ASR-9

LEGEND (Continued)

- Runway Visibility Zone
- Glide Slope Critical Area
- Localizer Critical Area
- Relocated Railroad
- Runway Protection Zone
- Runway Safety Area
- Object Free Area
- Air Operations Area (AOA)

Source: Ricondo & Associates, Inc.; Martinez Corp. Aerial Photography (Nov. 2001);
 Department of Aviation Airport Management and Records
 Prepared by: Ricondo & Associates, Inc.

Exhibit VI-2



South Airfield Plan

6.1.1.2 Runway 9C-27C (North Airfield) Characteristics

Existing Runway 14L-32R is relocated to an east-west orientation and lighted and marked as a new runway with a centerline 1,607 feet north of existing Runway 9L-27R. Runway 9C-27C will be 11,245 feet long with a width of 200 feet to accommodate ADG VI standards. The runway is served by 100-foot wide parallel taxiways north and south of the runway with an ADG VI runway-to-taxiway separation distance of 600 feet. The runway has three high-speed exit taxiways, two to facilitate Runway 27C landings and one to accommodate Runway 9C landings.

The spacing from Runway 9R-27L protects for a future option to relocate Runway 9R-27L to the north to provide dual ADG V taxiways around the north side of the Terminal Core Area. The relocation of Runway 9R-27L, extensively studied as part of the 1991 Delay Task Force, is not included in the preferred plan because simulation modeling did not suggest the need for dual ADG V taxiways around the north side of the Terminal Core Area during the planning period. However, relocation at a future date is not precluded. The east end of the runway is located approximately 1,150 feet west of Bessie Coleman Drive to provide a full RSA as well as clearance requirements from the Runway 9C localizer.

The planned realignment of Bessie Coleman Drive, proposed as part of the WGP, has been altered to prevent penetration of the Runway 27C 14 CFR Part 77 approach surface. The standard OFA and RSA are contained within the airside limits of the airfield; however, the limits of the OFA-extension include existing auto parking areas as well as the ATS station located in Lot E. These facilities will ultimately be relocated and closed, respectively. The east RPZ is contained entirely on Airport property.

On the west end of this runway, the RPZ out to where the Part 77 Approach Surface reaches a height of at least 35 feet above the runway end elevation is within Airport property and will be controlled. Avigation easements are proposed for portions of this RPZ not on Airport property.

6.1.1.3 Runway 9R-27L (North Airfield) Characteristics

Runway 9R-27L includes construction, lighting, and marking of an extension to existing Runway 9L-27R and the relocation of the Runway 27L threshold. The overall length of the modified runway is 11,260 feet at a width of 150 feet. This length represents an extension of 3,594 feet to the west end of the existing runway as well as the relocation of the east end of the runway 300 feet to the west to provide a full 1,000-foot RSA and localizer clearance from Bessie Coleman Drive.

The existing parallel taxiway located south of the runway is maintained at the existing centerline separation of 365 feet; however, extension of the taxiway to the west has a standard 400 feet of runway to parallel taxiway centerline separation to satisfy ADG V requirements.

TERPS criteria allows for CAT II/III approaches for taxiway centerline separations of 400 feet provided taxi operations are restricted to aircraft with wingspans less than 171 feet and tail heights less than 55 feet. During CAT II/III approaches to Runway 9R-27L, it is anticipated that Taxiway H will be restricted to ADG IV or smaller.

The RPZ for each runway end is contained within Airport property limits, except for a small portion extending over the railroad and York Road to the west where avigation easements are proposed. The

height of the Part 77 Approach Surface over the property line at the west end is at least 35 feet above the runway end elevation.

6.1.1.4 Runway 10L-28R (South Airfield) Characteristics

Existing Runway 9R-27L is extended and renamed as Runway 10L-28R. Improvements associated with this runway include the construction, lighting, and marking of a western 2,859-foot extension to Runway 10L-28R for an overall paved length of 13,000 feet and width of 150 feet. Runway 10L-28R is the longest runway planned and will provide sufficient runway length for “long-haul” markets (e.g., O'Hare-Hong Kong).

The existing parallel taxiway located on the north side of the runway will be extended to the west end of the runway, spaced 500 feet from the runway centerline. Two new high-speed exit taxiways are provided to reduce runway occupancy time. The runway and exit taxiways are designed to ADG V standards; however, perpendicular (i.e., crossover) taxiways located at the runway ends are planned at 100-foot widths to allow ADG VI taxi movements between Runway 10C-28C and the terminal area.

As planned in WGP, the eastern 3,500-foot portion of the parallel taxiway (east of exit Taxiway M5) will be modified to provide a 400-foot runway-to-parallel taxiway separation to accommodate three taxiways and a taxilane south of Terminal 5. This is provided to allow departure queuing and the general movement of aircraft around the terminal areas. TERPS criteria allows CAT II/III approaches for taxiway centerline separations of 400 feet provided taxi operations are restricted to aircraft with wingspans less than 171 feet and tail heights less than 55 feet. During CAT II/III approaches to Runways 10L or 28R, ADG V aircraft may be restricted from using the portion of the parallel taxiway east of exit Taxiway M5.

Taxiway Q, an exit taxiway off Runway 4R, is located within the current safety area off the east end of Runway 10L-28R and its use is prohibited under certain conditions when Runway 10L is used for landings in conjunction with landings on Runway 4R. With the additional length provided on Runway 10L-28R as a result of the extension to the west, the Landing Distance Available (LDA) on Runway 10L can be reduced to 12,249 feet, providing 1,000 feet of safety clearance beyond the LDA. This allows unrestricted taxi movements on Taxiway Q during arrival operations on Runway 10L. It should be noted that the use of declared distances was determined to be the most appropriate solution for providing adequate safety area clearances. Due to existing facilities in this area, other options were deemed to be impractical. Further, it was determined that the use of declared distances was more desirable than providing a reduced safety area. Taxiway Q will be restricted and/or controlled during departure operations on Runway 10L and during arrival operations on Runway 28R.

The west runway extension requires a realignment of the Union Pacific Railroad. The Runway 10L approach RPZ extends west of York Road beyond Airport property. The eastern RPZ is contained within Airport property (including existing easement areas); however, easements are proposed for portions of the western RPZ and OFA-extension not contained on Airport property. The area of the RPZ out to where the approach surface reaches a height of at least 35 feet above the runway end elevation is within Airport property and will be controlled.

6.1.1.5 Runway 10C-28C (South Airfield) Characteristics

Existing Runway 18-36 is reoriented to an east-west direction and named Runway 10C-28C. This improvement consists of construction, lighting, and marking of a new runway with a centerline spacing 1,200 feet south of Runway 10L-28R. This new runway will be 10,800 feet long by 200 feet wide to satisfy ADG VI criteria. The runway has a full-length parallel taxiway on the north side spaced at 600 feet from the runway centerline. Hold pads, designed to ADG VI standards, are located on the south side of each end of the runway to accommodate departure. Departing ADG VI aircraft will access the Runway 28C hold pad area via existing Taxiway S (the Runway 4R-22L parallel taxiway), which will be upgraded to ADG VI width.

The proximity of Runway 10C-28C to the South Cargo Area results in penetrations to the 14 CFR Part 77 Transitional Surfaces by the Northwest and FedEx Cargo Buildings. To meet Part 77 criteria, the center section of the runway would need to be raised approximately 23 feet or the facilities relocated at a substantial cost. In addition to raising the runway, a portion of Taxiway K would have to be raised approximately nine feet to meet the FAA maximum runway to parallel taxiway grade criteria of 1.5 percent.

The proposed runway profile was developed using TERPS criteria. This allows the profile to more closely match existing ground and maintains crossing point elevations with existing runways and taxiways. The TERPS Obstacle Clearance Surfaces based on this runway profile clear the FedEx and Northwest Cargo Buildings allowing them to remain in their existing location, although nine light poles will have to be lowered or removed.

Taxiway S is located in the east end of the Runway 10C-28C RSA. A declared distance LDA of 10,540 feet has been applied to Runway 10C to provide at least 1,000 feet of safety area beyond the LDA, specifically to preclude the wings of aircraft on Taxiway S from penetrating the safety area. It should be noted that the use of declared distances was determined to be the most appropriate solution for providing adequate safety area clearances. Due to existing facilities in this area, other options were deemed to be impractical. Further, it was determined that the use of declared distances was more desirable than providing a reduced safety area. Taxiway S will be restricted and/or controlled during Runway 10C departures or Runway 28C arrivals.

The eastern portion of the RPZ is within Airport property; however, construction of the western portion requires land acquisition and the realignment of the Union Pacific Railroad. Additionally, the Runway 10C approach RPZ extends beyond Airport property west of York Road. The standard OFA is contained within Airport property; however, easements are proposed for portions of the RPZ not on Airport property. The area of the RPZ out to where the 50:1 surface obtains a height of at least 35 feet above the runway end elevation is within Airport property and will be controlled.

6.1.1.6 Runway 10R-28L (South Airfield) Characteristics

Runway 14R-32L is reoriented in an east-west alignment and renamed Runway 10R-28L. This improvement includes construction, lighting, and marking a new runway with a centerline spacing 4,300 feet south of Runway 10C-28C. The runway is 7,500 feet in length and 150 feet wide to satisfy ADG V requirements. A full-length parallel taxiway is provided on the north side of the runway, spaced at 500 feet from the runway centerline at a width of 75 feet. In addition to end crossover taxiways, two high-speed exit taxiways are provided near each runway end to facilitate aircraft exit from the runway. The length of this runway will satisfy landing and departure runway

length requirements for ADG IV and smaller aircraft for the majority of domestic markets. (This does not preclude the use of this Runway by ADG V aircraft.)

Both the east and west runway end elevations approximate existing grades in the area resulting in a relatively “flat” runway. Under the planned profile, roads and railroads in the Runway 10R approach pose penetrations to the 14 CFR Part 77 surfaces. None of these items, however, violate TERPS obstacle clearance surfaces associated with this runway. To meet 14 CFR Part 77 criteria, the west end of the runway would have to be raised approximately 26 feet in elevation, which would be operationally undesirable and would add significant cost to the project.

Taxiway S is located in the east end of the Runway 10R-28L RSA and will be restricted and/or controlled during operations on Runway 10R-28L to ensure availability of the full safety area.

Runway 10R-28L will require land acquisition and the relocation of Irving Park Road and the Union Pacific Railroad. This not only accommodates construction of the runway but also clears an area to allow placement of the approach lighting system and satisfies approach surface and RPZ requirements. The OFA, RPZ, and OFA-extension are contained within the ultimate Airport property.

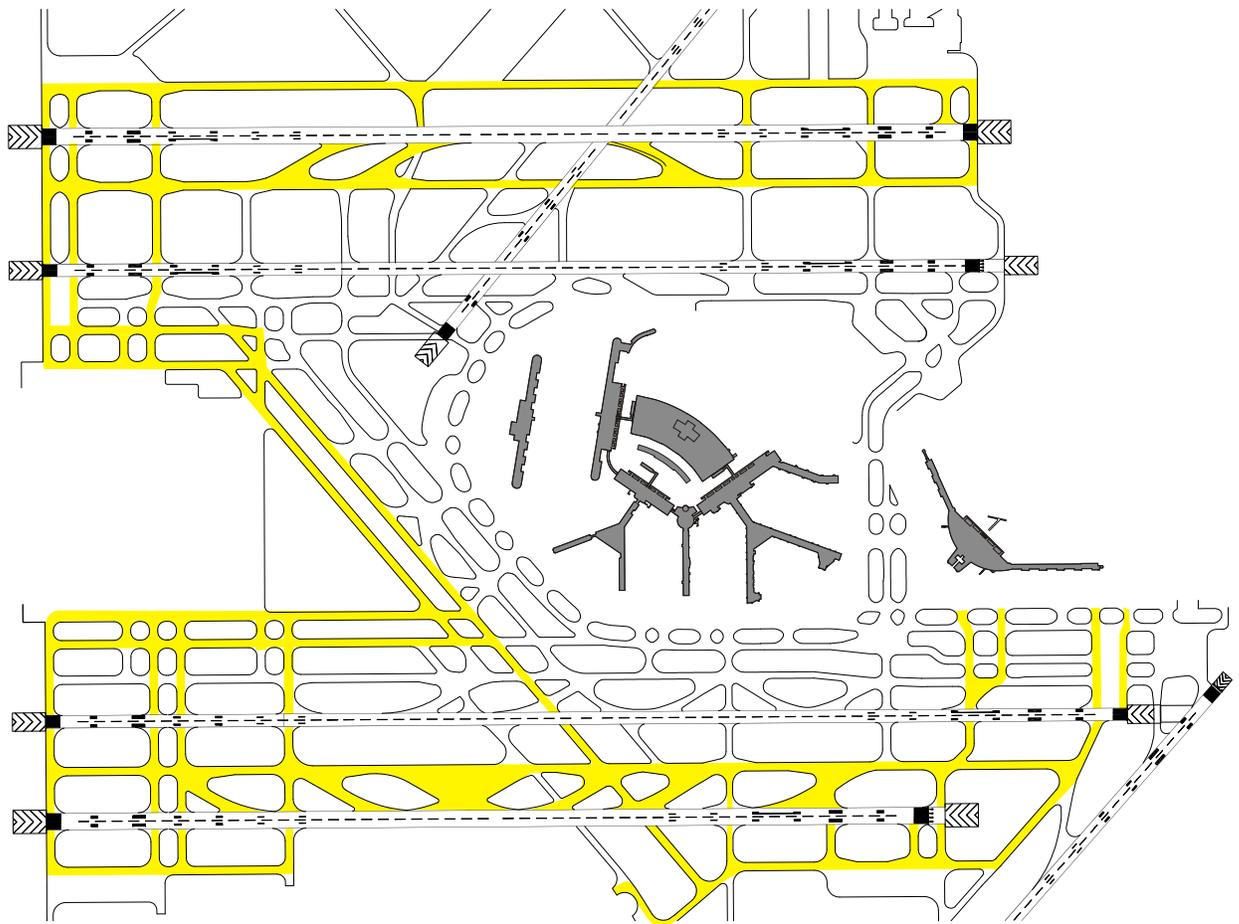
6.1.1.7 ADG VI Runways and Taxiways

Since a large number of ADG VI aircraft operations are not anticipated at the Airport, development of all new facilities to accommodate this aircraft category was not deemed practical. Runways 10C-28C and 9C-27C were designated for ADG VI operations, and these runways and their associated taxiways are designed to meet ADG VI requirements. In addition, taxiway upgrades necessary to facilitate ADG VI aircraft movements to and from these runways to the terminal gates in the Terminal 5/6 area and the West Terminal Development Area are proposed. **Exhibit VI-3** depicts the proposed ADG VI taxiways. This level of development for ADG-VI aircraft is considered adequate to accommodate the level of operations anticipated.

6.2 Terminal Plan

The preferred terminal layout provides a combination of existing and expanded terminal facilities in the Terminal Core Area and the East Terminal Area (as envisioned under the WGP for Terminals 4, 5, and 6) combined with new terminal facilities in the West Terminal Area. This combination of existing and new facilities would provide approximately 38,460 linear feet of total apron frontage adequate to meet the required gates as described in Section 5.2.1. **Exhibits VI-4** through **VI-7** depict the characteristics of the future terminal development. **Table VI-1** summarizes the existing and planned gross building area and apron frontage for each of the existing and proposed terminal facilities. **Table VI-2** indicates the aircraft that each terminal apron is capable of handling. Each of the three terminal areas is planned to accommodate as wide a range of aircraft as possible to provide the flexibility for carriers to operate a fully integrated network of short-range domestic operations and long-haul transcontinental and international operations. **Table VI-3** shows the allocation of gates to each terminal by number and type of aircraft. The “Preferred Plan” column reflects allocation of gates as assigned by the 2018 gate model. This is only one of many possible scenarios reflecting the potential assignment of future gate capability for the design day.

The characteristics of the proposed terminal development in each of the three terminal areas are described in the following sections.



LEGEND

 Aircraft Design Group VI Taxiways

Source: Ricondo & Associates, Inc.; Martinez Corp. Aerial Photography (Nov. 2001);
Department of Aviation Airport Management and Records
Prepared by: Ricondo & Associates, Inc.

Exhibit VI-3

0  N.T.S.



Group VI (NLA) Taxiways