Chapter 5
Passenger Terminal Complex Development Alternatives

INTRODUCTION

The term passenger terminal complex as used herein relates to the area required for the passenger terminal building and parking, as well as all other support facilities required for airport functions and operations. A series of passenger terminal complex development alternatives were devised and judged capable of serving the forecast of demand and satisfying the program requirements. Alternative development concepts are needed because there are a number of possible solutions to a transportation planning project. The goal of an alternatives analysis is to identify the alternative that best meets the overall objectives of the planning program. The various elements of the terminal complex were addressed to ensure that the total operation of the Airport was considered in the evaluation of alternatives.

It is not expected that the selected concept should be superior under every evaluation criterion, however, a superior plan was apparent and ranked higher overall in the evaluation process. This chapter addresses the development and evaluation of alternative concepts, and includes a description of concepts and the evaluation process. Following the selection of the preferred alternative concept, further refinements were made to transform the concept into the recommended development plan. The refinement of the planning process is addressed in Chapter 7 of this report.

OVERVIEW OF ALTERNATIVES PROCESS

The approach taken in this master plan involved the following principal steps:

- Select a group of alternative passenger terminal complex development alternatives that are judged to satisfy the program requirements through Planning Level 3.
- Establish a list of evaluation factors to be used to perform a comparative analysis of each alternative concept.
- Prepare a two-step evaluation analysis of alternatives.
- Rank the initial development alternatives following the completion of the first step evaluation.
- Select the best alternatives (final development alternatives) from the first step and subject them to a more detailed second evaluation process.
- From the results of the second evaluation, select the alternative concept that best meets goals and objectives of DOA and the Master Plan Update.
- Subject the planning and evaluation process to a Peer Review.

While a major consideration of the alternatives evaluation was the passenger terminal, the process also recognized overall development requirements for access, parking, cargo, and airport support facilities. In developing the alternative passenger terminal concepts, future requirements for other airport facilities were considered and are depicted on concept plans as generalized areas of land uses. The selection of a preferred alternative therefore considered a balanced approach for accommodating passenger operations and support facilities. The generalized land use analysis for support facilities demonstrates that each concept can reasonably accommodate future demand for all airport functions through Planning Level 3. Liberal allowances were assumed at this stage of the analysis. In some

cases, the concept plans provide land area for needs beyond Planning Level 3. Using this approach, the planning team was confident that the evaluation included passenger terminal concepts capable of satisfying the projected passenger and all other facility requirements through Planning Level 3.

INITIAL DEVELOPMENT ALTERNATIVES

Ten passenger terminal complex development alternatives were identified including the concept previously depicted on the existing Airport Layout Plan (ALP) at the start of the study. The principal components of the development alternatives include the passenger terminal, support facilities, roads and parking. The passenger terminal element is the anchor of the concepts because the other two elements are related to its configuration.

Two basic airfield scenarios were used as the basis for the development of the ten alternatives. The first airside scenario assumes that the option to develop a third parallel runway to the west of the existing passenger terminal is retained. Concepts developed in this scenario were designated as "A" Series. The second airside scenario assumes the option to develop the third parallel runway as presently shown is eliminated. This would allow for development of additional terminal, apron and support facilities in areas presently required for a third runway. Concepts developed under this second airside scenario were classified as "B" Series.

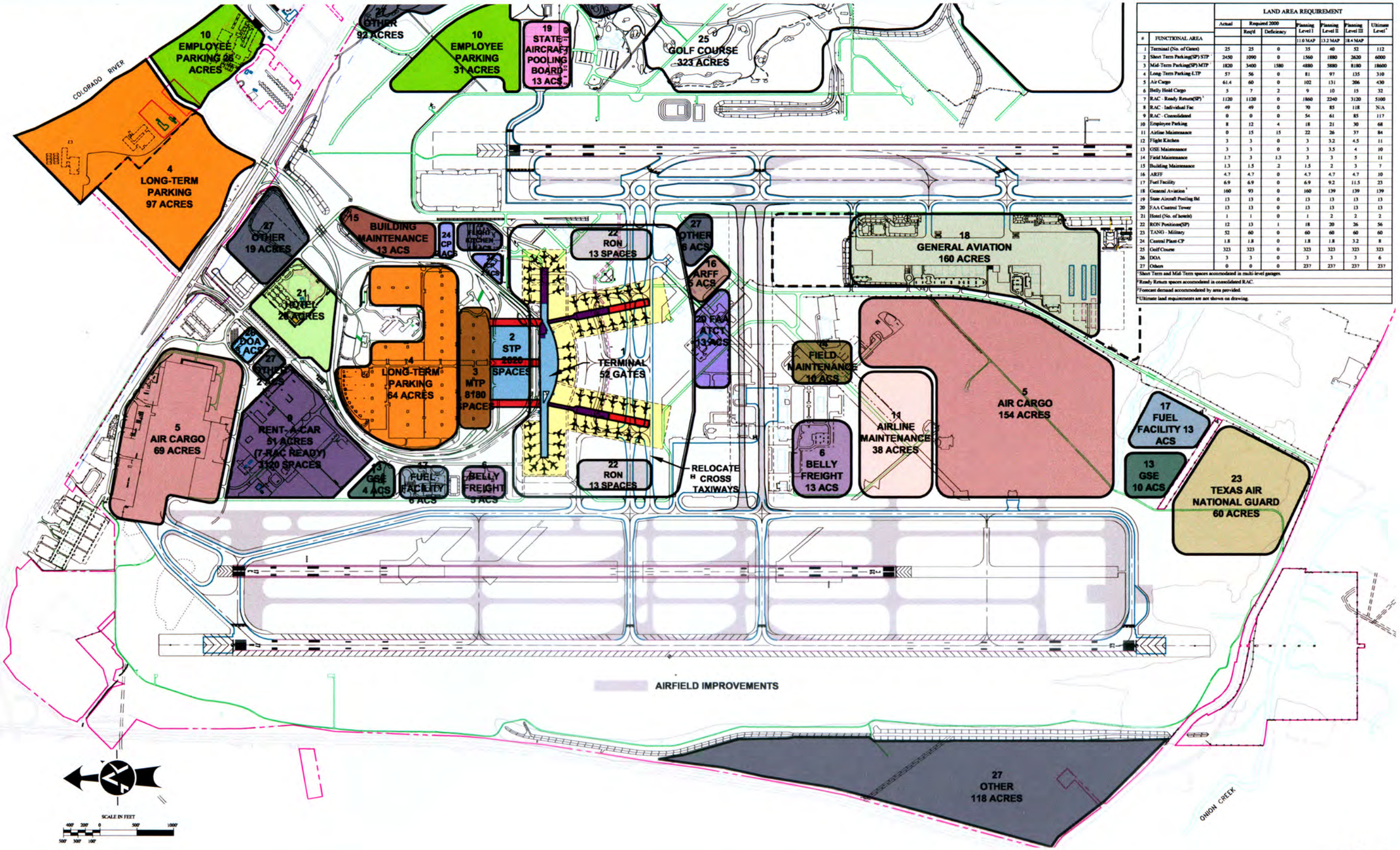
The ten passenger terminal concepts can further be classified by type of terminal operation or functional arrangement (centralized or decentralized operation). A "Centralized Terminal Operation" centers on a concept wherein core terminal functions such as ticketing and check-in, outbound baggage and baggage claim remain with a fundamentally consolidated terminal. A "Decentralized Terminal Operation" departs from the idea of consolidating all core terminal facilities within a contiguous terminal area and is based on the concept of separate, individual unit terminal(s). Each has distinct advantages and disadvantages.

Set out below is a brief description of the ten passenger terminal complex development alternatives analyzed.

Description of Development Alternatives

Concept A-01

Figure 5-1 presents Concept A-01. This is a centralized terminal concept and the gate expansion on this concept was adopted from the original passenger terminal Conceptual Design Report in 1994 and that which was previously shown on the Airport Layout Plan. The distinction between A-01 and the concept previously depicted on the ALP lies in the full extension of the two proposed pier concourses to approximately 1,300 feet in length each in order to accommodate the future ramp frontage requirement.



#	FUNCTIONAL AREA	Actual	Required 2000		Planning Level I	Planning Level II	Planning Level III	Ultimate Level[4]
			Req'd	Deficiency	11.0 MAP	13.2 MAP	18.4 MAP	
1	Terminal (No. of Gates)	25	25	0	35	40	52	112
2	Short Term Parking(SP) STP	2450	1090	0	1560	1880	2620	6000
3	Mid-Term Parking(SP) MTP	1820	3400	1580	4880	5880	8180	18600
4	Long-Term Parking LTP	57	56	0	81	97	135	310
5	Air Cargo	61.4	60	0	102	131	206	430
6	Belly Hold Cargo	5	7	2	9	10	15	32
7	RAC - Ready Return(SP)[1]	1120	1120	0	1860	2240	3120	5100
8	RAC - Individual Fac	49	49	0	70	85	118	N/A
9	RAC - Consolidated	0	0	0	54	61	85	117
10	Employee Parking	8	12	4	18	21	30	68
11	Airline Maintenance	0	15	15	22	26	37	84
12	Flight Kitchen	3	3	0	3	3.2	4.5	11
13	GSE Maintenance	3	3	0	3	3.5	4	10
14	Field Maintenance	1.7	3	1.3	3	3	5	11
15	Building Maintenance	1.3	1.5	2	1.5	2	3	7
16	ARFF	4.7	4.7	0	4.7	4.7	4.7	10
17	Fuel Facility	6.9	6.9	0	6.9	9.2	11.5	23
18	General Aviation[1]	160	93	0	160	139	139	139
19	State Aircraft Pooling Bd	13	13	0	13	13	13	13
20	FAA Control Tower	13	13	0	13	13	13	13
21	Hotel (No. of hotels)	1	1	0	1	2	2	2
22	RON Positions(SP)	12	13	1	18	20	26	56
23	TANG - Military	52	60	0	60	60	60	60
24	Central Plant-CP	1.8	1.8	0	1.8	1.8	3.2	8
25	Golf Course	323	323	0	323	323	323	323
26	DOA	3	3	0	3	3	3	6
27	Others	0	0	0	237	237	237	237

[1]Short Term and Mid-Term spaces accomodated in multi-level garages.
[2]Ready Return spaces accomodated in consolidated RAC.
[3]Forecast demand accommodated by area provided.
[4]Ultimate land requirements are not shown on drawing.

Figure 5-1
Concept A-01

With the proposed extension of the two pier concourses to the south, the midfield cross taxiways will have to be relocated. With the addition of the pier concourses, the existing terminal in effect will be transformed from a linear terminal to a centralized terminal with a hybrid pier/linear configuration.

Concept A-02

This is a centralized terminal concept and the gate expansion approach in this concept will transform the existing linear concept completely into a double-loaded pier operation. The concept, shown in Figure 5-2, is based on three pier concourses, each approximately 1,000 linear feet in length, in order to meet the ramp frontage requirement. Regrading of the existing apron will be necessary to implement this concept and the existing midfield cross taxiways will also need to be relocated.

Concept A-03

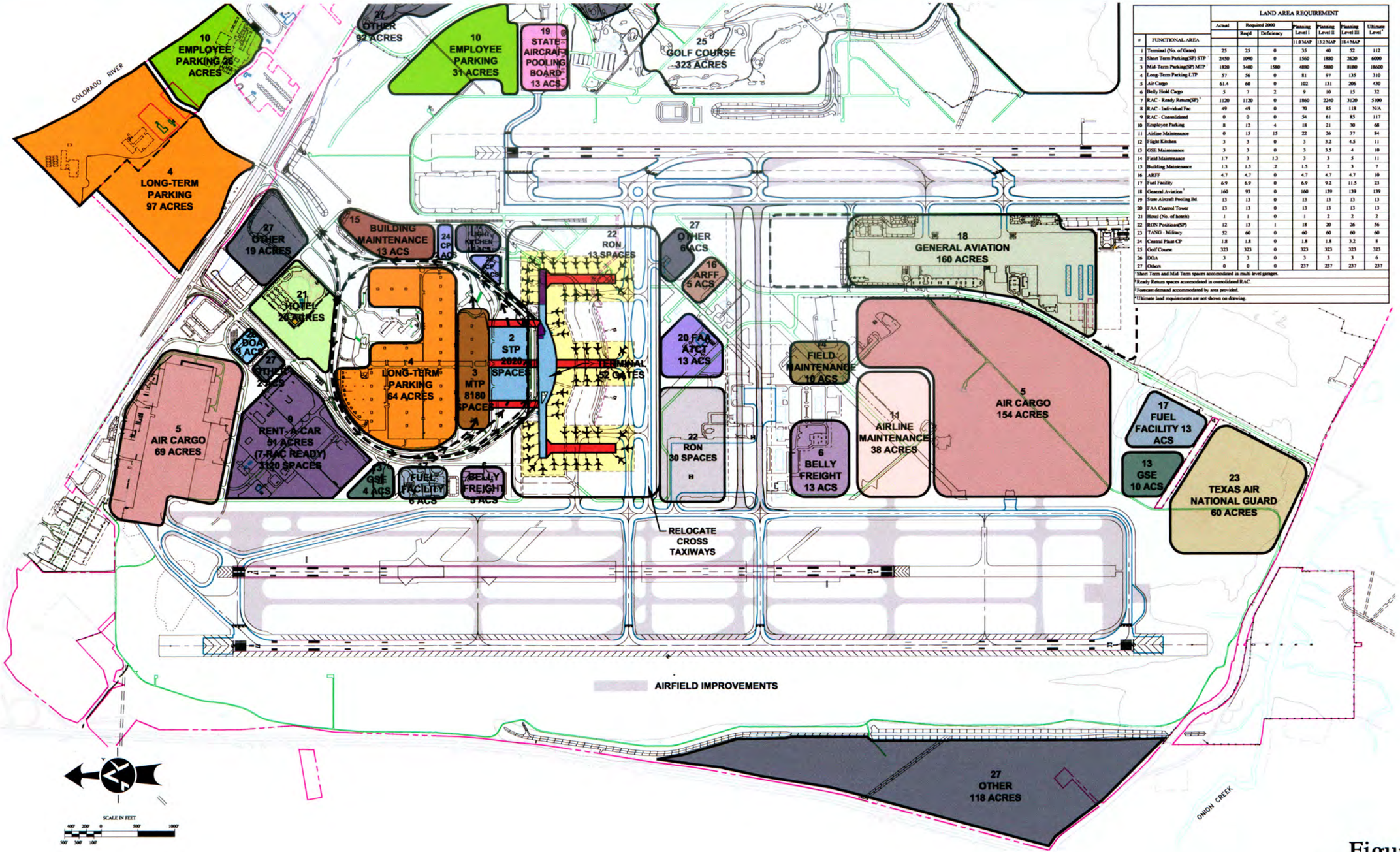
This is a decentralized terminal concept that suggests the creation of a new unit terminal to the north of the existing terminal complex and south of the existing air cargo area. Figure 5-3 presents Concept A-03. The concentration of terminal activities on the north quadrant of the airport will put a heavy burden on the ground access system and will displace many support facilities currently located along the main access roadway. This concept does not impact the existing midfield cross taxiways. The north unit terminal included in this concept is not conveniently located with respect to access to Runway 17L-35R. The potential exists for simultaneous taxiing of aircraft in opposite directions requiring the development of a dual parallel taxiway capability for Runway 17R-35L.

Concept A-04

This is a centralized terminal concept with gate expansion in this concept based on reconfiguring the center section of the main terminal gate area with a pedestrian connector equipped with moving sidewalks to a single double-loaded pier satellite. The new concourse will be oriented westward to satisfy the gate requirements while incorporating the base of the FAA control tower/TRACON facility into the central core of the satellite. The midfield cross taxiways will need to be relocated in this concept, and depending on the gate position of an aircraft, taxi routes may be circuitous for some aircraft. Figure 5-4 presents Concept A-04.

Concept A-05

This is a centralized terminal concept with gate expansion accommodated in a remote satellite concourse south of the existing midfield cross taxiway. Access to the satellite will be dependent on an automated people mover system (approximately 2,000 feet long) either below grade or suspended overhead. This concept also incorporates the base of the FAA control tower/TRACON at the core of the satellite structure. This concept does not impact the existing midfield cross taxiways. Concept A-05 is shown in Figure 5-5.



#	FUNCTIONAL AREA	LAND AREA REQUIREMENT: Actual	Required 2000: Req'd	Required 2000: Deficiency	Planning Level I: 11.0 MAP	Planning Level II: 13.2 MAP	Planning Level III: 18.4 MAP	Ultimate Level[5]
1	Terminal (No. of Gates)	25	25	0	35	40	52	112
2	Short Term Parking(SP) STP	2450	1090	0	1560	1880	2620	6000
3	Mid-Term Parking(SP) MTP	1820	3400	1580	4880	5880	8180	18600
4	Long-Term Parking LTP	57	56	0	81	97	135	310
5	Air Cargo	61.4	60	0	102	131	206	430
6	Belly Hold Cargo	5	7	2	9	10	15	32
7	RAC - Ready Return(SP)[1]	1120	1120	0	1860	2240	3120	5100
8	RAC - Individual Fac	49	49	0	70	85	118	N/A
9	RAC - Consolidated	0	0	0	54	61	85	117
10	Employee Parking	8	12	4	18	21	30	68
11	Airline Maintenance	0	15	15	22	26	37	84
12	Flight Kitchen	3	3	0	3	3.2	4.5	11
13	GSE Maintenance	3	3	0	3	3.5	4	10
14	Field Maintenance	1.7	3	1.3	3	3	5	11
15	Building Maintenance	1.3	1.5	.2	1.5	2	3	7
16	ARFF	4.7	4.7	0	4.7	4.7	4.7	10
17	Fuel Facility	6.9	6.9	0	6.9	9.2	11.5	23
18	General Aviation[3]	160	93	0	160	139	139	139
19	State Aircraft Pooling Bd	13	13	0	13	13	13	13
20	FAA Control Tower	13	13	0	13	13	13	13
21	Hotel (No. of hotels)	1	1	0	1	2	2	2
22	RON Positions(SP)	12	13	1	18	20	26	56
23	TANG - Military	52	60	0	60	60	60	60
24	Central Plant-CP	1.8	1.8	0	1.8	1.8	3.2	8
25	Golf Course	323	323	0	323	323	323	323
26	DOA	3	3	0	3	3	3	6
27	Others	0	0	0	237	237	237	237

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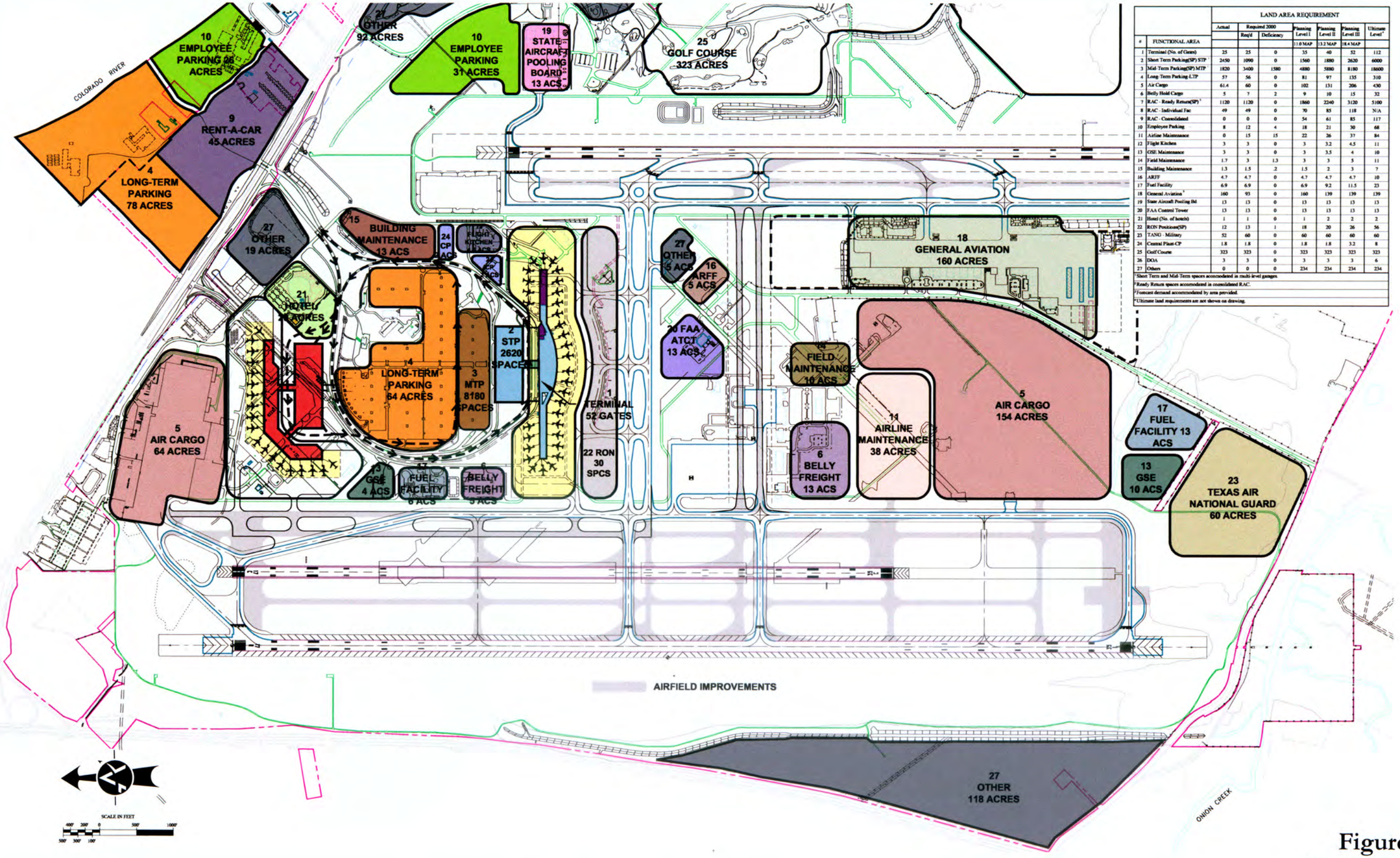
Figure 5-2
Concept A-02

Passenger Terminal Complex Development Alternatives



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8	RAC - Individual Fac	49	49	0	70	85	118	N/A
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19	State Aircraft Pooling Bd	13	13	0	13	13	13	13
20	FAA Control Tower	13	13	0	13	13	13	13
21	Hotel (No. of hotels)	1	1	0	1	2	2	2
22	RON Positions(SP)	12	13	1	18	20	26	56
23	TANG - Military	52	60	0	60	60	60	60
24	Central Plant-CP	1.8	1.8	0	1.8	1.8	3.2	8
25	Golf Course	323	323	0	323	323	323	323
26	DOA	3	3	0	3	3	3	6
27	Others	0	0	0	234	234	234	234

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Figure 5-3
Concept A-03