

## 8 CELL PHONE LOT

### 8.1 Background

Cell phone lots provide short term parking in which drivers (or meeters) wait for a cellular call from an arriving passenger prior to approaching the deplaning curbside to collect the passenger and baggage. A cell phone lot at ABIA could reduce the volume of re-circulating traffic using the deplaning curbside and the ABIA loop roadway. By providing drivers a free place to park, the City could eliminate the 30-minute free parking policy in the garage while still providing a short-term free parking space somewhere on the Airport. Since the existing garage is at capacity, a cell phone lot would provide an alternate location for meeters to wait, thereby reducing demand for garage spaces.

In conjunction with the development of a cell phone lot, the City wishes to plan the area to accommodate retail functions. Retail development could:

- Increase the attractiveness of the cell phone lot by providing meeters with alternatives to sitting in vehicles while awaiting arriving passengers.
- Provide potentially airport-compatible retail services not currently available on-Airport (e.g., gas station, dry cleaning, kennel).
- Provide concession opportunities that would generate Airport revenue from currently available land.

### 8.2 Previous Studies

The Jacobs Consultancy Team previously analyzed three alternative site locations for an ABIA cell phone lot. The analysis considered accessibility, visibility, proximity to terminal, capacity, flexibility for development, synergy with other land uses, and highest and best use. The development of the site located between the existing hotel and the ground transportation hold lot was recommended as the preferred location.

### 8.3 Facility Size/Configuration

The site layout presented (see Figure 29) indicates a potential arrangement of parking and retail opportunities while accommodating existing site constraints. This layout does not comply with the new City of Austin Commercial Design Standards. Confirmation as to whether those standards will apply to future development within Airport property is required to verify the compliance of the layout depicted in **Figure 29** with applicable development regulations.

The layout provides a possible configuration of retail opportunities to coincide with the cell phone lot. It should be noted that there is no

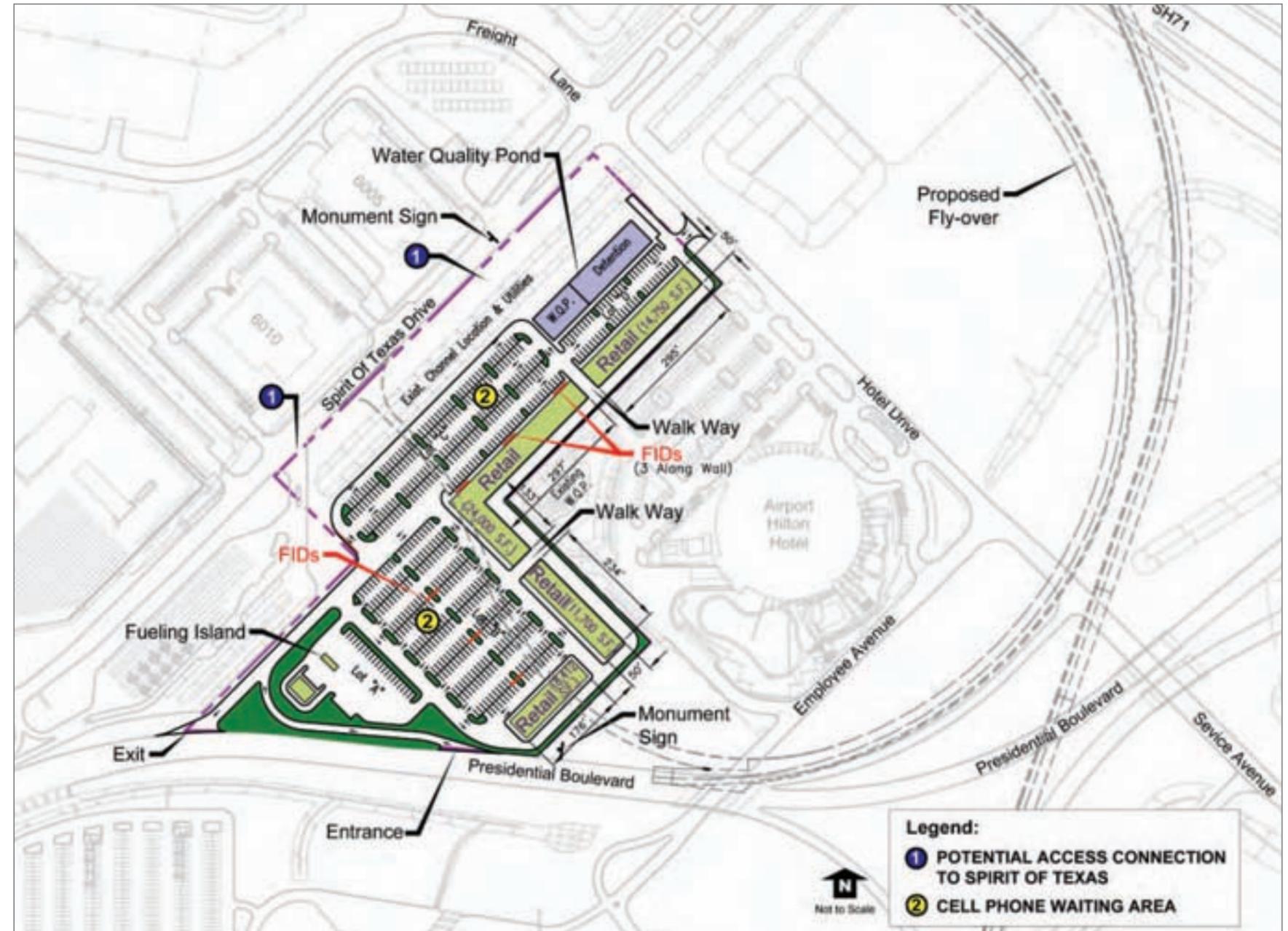


Figure 29 Cell Phone Lot Retail Site

definitive methodology for determining the number of vehicles that would use the facility.

The layout indicates room for approximately 625 parking spaces (after allowing for City of Austin landscape code requirements and provision

of ADA compliant accessible parking spaces), approximately 61,000 square foot of retail/restaurant space, and one combined fuel station/drive-through restaurant opportunity. The amount of parking indicated will likely exceed the minimum code requirements for potential retail/restaurant use (depending on the mix and type of use).

Although a rectangular property configuration may appear to be more desirable for the location of the cell phone lot development, the configuration of the recommended site affords an opportunity for development phasing by arranging the site into parcels that can be easily developed together or individually. The plan is divided into four separate "lots" both for purposes of discussion and as possible phased construction. These lots are identified as Lot A, Lot B, Lot C and Lot D. Phasing the construction of the lots would allow for the Airport to determine the viability of retail development in this area and evaluate the demand for parking. If it was determined that the site accommodates parking in excess of that required for the site uses (i.e. cell lot and retail/restaurant), that area could be allocated to other uses such as employee parking or the site could be reconfigured to allow for additional retail space, such as a restaurant pad site. Refer to the section on retail opportunities for a breakdown of parking and retail opportunity by lot.

The layout is planned to retain the existing grass-lined channel that runs parallel to Spirit of Texas Drive. In addition, the layout shows a designated area for water quality and detention facilities.

### 8.4 Location and Access

Location of and access to the facility is critical for viability of both the cell phone lot and the potential associated retail uses. This site is readily visible and accessible for all traffic approaching the terminal building from State Highway (SH) 71. Additionally, traffic arriving at the hotel or approaching the Airport via Spirit of Texas Drive have ready access to this location as well. The site would be an ideal distance from the terminal - located with a convenient drive to the terminal building while far enough away that walking from the facility would not be considered viable.

The site is bounded by three roads: Presidential Boulevard, Spirit of Texas Drive, and Hotel Drive. Primary access is shown from Presidential Boulevard with secondary access from Hotel Drive. There is also the potential opportunity to have a direct connection to Spirit of Texas Drive.

Presidential Boulevard is located at a higher grade elevation than the proposed site for the cell phone lot. Rough grading calculations indicate an elevation drop of 10 to 12 feet (from 522 feet above sea level at Presidential Boulevard to between 510 and 512 at the southern edge of the cell phone lot property). A ramp at 5% grade will require 200' of length along with 80-100' of transition of 2% or less grade at either end near the "decision points" for drivers. Presidential Boulevard is a one way circular drive running counter clockwise. The start of the "exit ramp" should be as far from the convergence of the east-bound fly over ramp from SH-71 and the access road off of SH-71 for west-bound traffic to allow drivers the maximum amount of room for decision making and lane maneuvering.

The site configuration allows for approximately 400' of maneuvering

length, 100' of ramp transition and 200' of sloped exit ramp leading to a gently sloped (1 to 2%) curved entry drive to the facility. Since Presidential Boulevard is dropping in grade from east to west, the cell phone lot exit ramp only needs to climb 6 to 7 feet (from approximately 510 at the southern edge of the cell phone lot property to approximately 517). The proposed layout allows room for a 5% climb for 140' to an 80 to 100 foot long entry ramp at 1% slope connecting to Presidential Boulevard. This entry ramp connects to Presidential Boulevard well before the ground transportation holding area entry ramp.

The recommended layout includes a direct connection to Hotel Drive at the far end of the site from Lot D.

A direct connection to Spirit of Texas Drive could be added by reconfiguring the existing hold lot entry drive to accommodate both entry to the cell lot and the hold lot. This would involve extending the existing concrete culvert, relocating gate arms to the holding lot, and slightly reconfiguring a portion of the holding lot area. Alternately, a direct connection can be made separately by extending a drive across the existing drainage channel, requiring provision of a new concrete culvert at that location. This connection would allow commercial vehicles from the holding lot easier access to the cell phone lot commercial facilities.

The City has previously considered a proposed direct connection from Presidential Boulevard to Spirit of Texas Drive with a fly-over. The Jacobs Consultancy Team has recommended not implementing this flyover because Spirit of Texas Drive is easily accessible from SH-71 and this flyover potentially would mix service and cargo traffic with passenger vehicles. The proposed configuration of the fly-over would divide the site, severely impacting its development potential. Lot A and Lot D could remain more or less as depicted, but lot B would be nearly eliminated and lot C would be reduced in size. In addition, splitting the site would reduce the synergy between the lots and the ability to fully utilize the retail potential.

### 8.5 Retail Opportunities

Retail is an appropriate highest and best use for this site and would compliment the cell phone waiting lot function. Additionally, convenience retail, such as fuel facilities, dry cleaners, flower shops, gift stores, and restaurants (both full-service and drive-through) would be able to capitalize on a significant market of both travelers and meeters. The location allows for good visibility and access for vehicles entering the airport site. Additionally, pedestrian connections to the hotel site

would allow for guests to easily access the proposed development.

Located adjacent to the commercial vehicle hold lot, a retail development that includes a gas station/convenience store will likely be used frequently by drivers of taxicabs, limousines, and other commercial vehicles to refuel and, if a car wash is provided, wash their vehicles. Depending on the future location for rental car ready/return, this location could have excellent potential for returning rent car refueling (this could be a significant new revenue stream for the City).

Lot	Parking Spaces (approximate)	Potential Retail/Restaurant	Parking ratio
Lot A	27	Fuel station/drive through restaurant	
Lot B	258	29,650 square feet	One per 114 sf
Lot C	232	14,850 square feet	One per 64 sf
Lot D	53	17,750 square feet	One per 334 sf
Total	570	62,250 square feet plus fuel/drive through pad site	One per 114 sf (Lots B-D only)

Source: Jacobs Consultancy Team.

The breakdown of parking and retail opportunity is given in **Table 8**.

The required parking allocation, as determined by the City of Austin Land Development Code, is one space for every 275 square feet of retail, one space for every 75 square feet of restaurant less than 2,500 square feet, and one space for every 100 square feet of restaurant greater than 2,500 square feet. The current configuration easily accommodates this requirement with excess parking remaining. Additional retail may be considered if it is determined that excess parking is not required for the cell phone lot use. These calculations are based only on cumulative aggregate parking requirements, although it is likely that a detailed parking study could indicate a total number of spaces required for shared parking that is less than this cumulative total.

### 8.6 Flight Information Displays (FIDs)

The layout indicates preliminary locations for FIDs, which display flight arrival information. The orientation and location of the FIDs takes into consideration sight alignment for those waiting in their vehicles. Displays mounted on the face of the retail buildings are indicated, where appropriate. In addition to the outdoor displays, it is anticipated that the individual retail spaces will seek to have FIDs within the store/restaurant areas to encourage meeters to shop and eat during waiting

periods. The cost estimate is based on the assumption that electrical and communications feeds to the FIDs are available directly from the utility corridor parallel to Spirit of Texas Drive along the northwestern boundary of the facility.

### 8.7 Signage

There are ample opportunities for monument signs indicating the availability of the cell phone lot and advertisements for the retailers. Three primary locations are indicated on the site layout prior to each access point. Additional road signage could be considered further in advance to notify drivers of the cell phone lot area.

### 8.8 Drainage and Grading

The existing site grading is very flat (less than half percent) across the property from the toe of the Presidential Boulevard embankment to the top of the bank of the channel at Hotel Drive. In order to drain the site and accommodate access to Presidential Boulevard, it was assumed that the south elevation would be set between 510 and 512 (toe of embankment is 505) and that the site would drain at approximately 1% to 2% toward the northeast corner of the property. The drainage channel parallel to Spirit of Texas Drive along the northern edge of the site is quite shallow. The current Drainage Master Plan (prepared by Alan Plummer) indicates a channel depth of 3 feet with a 0.0025% slope and 1,013-foot length. This channel drains to an existing water quality and detention pond system.

Review of the Drainage Master Plan does not readily indicate whether there is sufficient capacity in the existing pond system to accommodate additional impervious cover from the proposed site. Three options are available: (a) perform calculations to determine whether the existing ponds have additional excess capacity to accommodate the increased runoff; (b) modify the ponds to handle the additional runoff; or (c) provide a separate pond system. To provide a workable solution within the site selected for the facility, the layout and cost estimate for the facility provide for on-site detention and water quality controls. An internal storm drainage system would collect building and parking lot runoff and direct the runoff to a splitter box for the pond system.

Given the shallow channel to which this site drains, a gravity feed water quality and detention pond system will not be able to allow gravity outfall to this channel without being excessively shallow and large, should it prove technically feasible at all. The pond recommendation for this site is similar to the approach taken by the adjacent Hilton Hotel site, which is gravity drain to a pond system, then discharge via a pump to the adjacent channel. This approach will also allow for the pond system to move to any location alongside the channel as needed to accommodate the most desirable retail layout. The current location is indicated at the low point of the site.

Preliminary sizing calculations for the water quality and detention pond which assume fully developed conditions (conservatively estimated at 95% impervious cover) and no tail water effect indicate approximately 51,000 cubic foot of water quality volume and 100,000 cubic feet of detention volume. Using an estimated depth of 8-9 feet and 3:1 grass side slopes, the footprint area for the pond system is approximate 100 x 300 feet.

### 8.9 Utilities and Wireless Internet (Wi-Fi)

A Utility Corridor exists along the northwest boundary of the cell lot site. This utility corridor runs parallel to Spirit of Texas Drive and contains wastewater, gas and telecommunications. Water is available from Hotel Drive and at the northeast corner of site off of Spirit of Texas Drive. The cost estimate is based on the assumption that capacity for all utilities feeds including water, wastewater, electrical, and communication are available directly from this utility corridor.

The City should consider offering wireless internet access (Wi-Fi) in the cell phone lot. This likely could be provided by a third-party vendor, similar to the service offered in the passenger terminal. An allowance for Wi-Fi installation has been included in this CIP.

### 8.10 Phasing

The site layout is divided into four areas designated as Lots A through D. Given the ample parking provided by the overall layout, construction of the entire site can be phased to accommodate demand for retail development. Lots A and B, which have the most visibility from Presidential Boulevard and would accommodate a fuel station, should be developed first. Since Lot A would not be used for the cell phone lot function, the recommendation is to have this entire pad site and parking area constructed by the developer for Lot A. Construction for Lot B would consist of the exit and entry ramp to Presidential Boulevard, the driveway and parking for Lot B (with curb cuts to Lot A), utility services to the pad sites for Lot B, access drive to Hotel Drive, and the water quality and detention pond (sized for fully developed conditions). Lots C and D could be constructed later as one project or two,

depending on demand conditions.

## 9 AIRPORT MAINTENANCE COMPLEX

### 9.1 Requirements

There is a significant need for additional airport maintenance facilities. The current conditions are substantially affecting staff productivity due to lack of appropriate facilities and a centralized complex from which the entire Airport can be maintained. Further, the lack of covered storage for maintenance vehicles has caused these important and expensive assets to degrade from weather exposure.

Figure 30 shows the recommended location and preliminary facilities

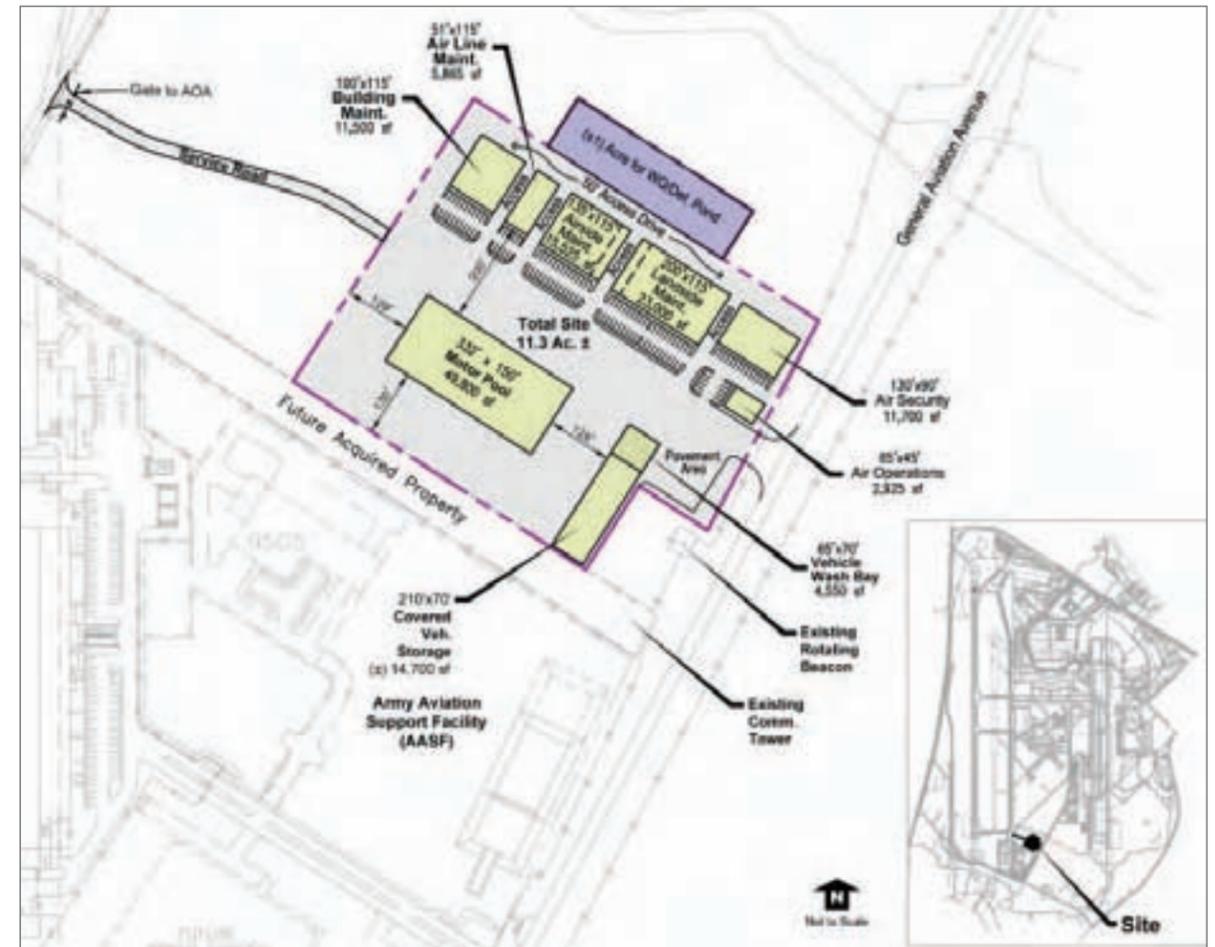


Figure 30 Maintenance Complex

layout for the maintenance complex. A program for the Airport Maintenance Complex is presented in Table 9.

The functional program for this facility is approximately 142,000 square feet. The program involves a consolidation of several divisions that are currently located in various airport facilities into a single complex. These divisions include:

- Airport Operations
- Landside Maintenance
- Airside Maintenance
- Mechanical Shop Division
- Building Maintenance
- Airline Maintenance
- Public Safety

## 9.2 Site Size and Configuration

The preliminary site layout provides a potential arrangement of building, parking, vehicle storage, and maneuvering ability to meet the specified program requirements. The layout presented provides for a separate building for each program element. Consideration of combining functions into one building could result in lower construction cost for the overall facility. The site layout provides ample parking area for each building. The parking provided on the site layout is based on City of Austin Land Development Code parking requirements calculated by square footage and function of each building. Based on the amount of staff numbers provided on the maintenance program, negotiations with the Watershed Protection and Development Review Department may allow for provision of less parking.

## 9.3 Location and access

The proposed location of the maintenance complex facility is ideal for the function and purpose of the groups (see Figure 30). The location of the complex is in the southern portion of Airport property, near the southeast end of the West Runway System next to the Texas Air National Guard facility. Access to this portion of the airport is from Burleson Road. Access to the site is from General Aviation Avenue. The site layout also provides access to the Airport Operations Area (AOA) via a service road leading to the West Runway System perimeter roadway.

## 9.4 Drainage and Grading

The existing site is very flat (approximately less than 1/2 percent slope based on aerial topography). The site is located adjacent to a tributary of Onion Creek and drains towards this natural channel. The channel is relatively deep in this area, allowing construction of a gravity-feed pond

system discharging directly into the creek. The layout and cost estimate for the facility provide for on-site detention and water quality controls in compliance with current City of Austin drainage and water quality requirements.

Preliminary sizing calculations for the water quality and detention pond which assume fully developed conditions (conservatively estimated at 95% impervious cover) and no tail water effect indicate approximately 61,530 cubic foot of water quality volume and 140,270 cubic feet of detention volume. Note that preliminary review of the Drainage Master Plan does not readily indicate the tailwater in the existing drainage channel – this information could increase the pond size. The proposed pond system location indicated on the exhibit is at the low point of the site adjacent to the channel on the northern edge of the site.

## 9.5 Utilities

A Utility Corridor exists along the eastern boundary of the maintenance complex site. This utility corridor runs parallel to General Aviation Avenue and contains a 16" water line, 18" wastewater line, 6" gas line and electrical conduits. A telecommunications conduit system runs along the south boundary of the site from General Aviation Avenue to the perimeter road. The cost estimate is based on the assumption that capacity for all utilities feeds including water, wastewater, gas, electrical, and communication are available directly from this utility corridor.

**Table 9**  
**Maintenance Complex Space Requirements**  
Austin-Bergstrom International Airport Master Plan Level 1 Phasing Plan

Functional Group	Existing (2007)			Required (2016)		
	Staff	Approximate Area (sf)	Shifts	Annual Escalation	Staff	Approximate Area (sf)
<b>Airport Operations</b>	10	2,300	3	2.6%	13	2,896
Individual Offices (2)	2	250				315
Common Open Office	8	800				1,007
Vehicles/ Daily Use	3					0
Break Room		350				441
Conference Room		450				567
Copy Room		150				189
Library / Reference Area		200				252
Mail Processing Room		100				126
Special Considerations						
Airside operations offices should have a visual connection to the airfield. Site will need access for airport vehicles and employee vehicles. Covered parking should be provided.						
<b>Landside Maintenance</b>	20	19,850	2	1.5%	23	22,689
Individual offices (4)	7	750				857
Common Day Room	13	800				914
Interior Storage		6,000				6,858
Secure storage for Chemicals		300				343
Vehicles / Daily Use	5					
Exterior Covered storage		12,000				13,716
Special Considerations						
Covered storage required for 5 trucks and small equipment Mower and tractor storage required Showers and lockers if possible for field crews						
<b>Airside Maintenance</b>	18	13,475	2	1.5%	21	15,402
Individual Offices (3)	3	375				429
Common Open Office	4	400				457
Wildlife Hazard Mgmt.	1	400				457
Common Day Room	10	800				914
Vehicles / Daily Usage	5					0
Covered Exterior Storage		11,500				13,145
Special Considerations						
Wildlife Hazard Management needs a secured storage Has a functional adjacency with Airside Operations Mower and Tractor storage required Showers and lockers for field crews if possible						
<b>Mechanical Shop Division</b>	9	59,985	1	1.5%	10	69,063
Individual Offices (4)	4	1,460				1,669
Common Day Room	5	500				572
Motor Pool Shop		8,200				9,373
Sign Shop		4,150				4,743
Warehouse		26,000				29,718
Conditioned Storage		1,275				1,457

**Table 9 continued**

Restrooms with Showers		600			686	
Equipment Storage		6,000			6,858	
Vehicle Storage		8,000			9,144	
Fueling Station		600			686	
Wash Bay		3,200			3,658	
Loading Dock					500	
Special Considerations						
Consolidation of all entities to a single location						
<b>Building Maintenance</b>	32	19,300	2	3%	42	25,167
Individual Offices (4)	4	500				652
Common Day Room	28	1,000				1,304
Common Break Room		600				782
Common Supply Room		1,500				1,956
HVAC Bench / Shop		1,000				1,304
Plumbing Bench / Shop		600				782
Electrical Bench / Shop		600				782
General Maintenance/ Wood Shop		2,000				2,608
Electronics Bench / Shop		600				782
Central Plant		10,600				13,822
Vehicles / Daily Usage						0
Conditioned Storage		300				391
Special Considerations						
Secured storage required for Specialty tools						
Conditioned storage required						
Each bench/shop area needs a workstation area						
<b>Airline Maintenance</b>	20	4,600		2.6%	25	5,791
Individual Offices (4)	4	500				630
Common Day Room	16	600				755
Loading Bridge Bench / Shop		900				1,133
Baggage System Bench / Shop		1,400				1,763
Secured Storage Area		1,200				1,511
Special Considerations						
Bench/ Shop areas need access for large equipment						
<b>Airport Security</b>		0		N/A	0	11,750
Individual Offices (10)						1,500
Common Day Room						800
Interview and Holding Area						1,550
Training Room						1,000
Exercise Facilities						1,200
Secured Storage						1,000
Storage						1,500
Locker Rooms and Showers						1,200
Vehicles / Daily Usage						10
Canine Units						2,000

**Table 9 continued**

Special Considerations		
Convenient access to vehicles		
Area for Canine maintenance		
Quick access to all sections of the airport		
<b>Summary</b>		
<b>Airside Operations</b>	2,300	2,896
<b>Landside Maintenance</b>	19,850	22,689
<b>Airside Maintenance</b>	13,475	15,402
<b>Mechanical Shop Division</b>	59,985	69,063
<b>Building Maintenance</b>	19,300	25,167
<b>Airline Maintenance</b>	4,600	5,791
<b>Airport Security</b>	N/A	11,750
<b>TOTAL</b>	<b>119,510</b>	<b>152,758</b>

Sources: City of Austin, Jacobs Consultancy Team.

## 10 PROGRAM COST

The program cost estimate has been prepared for the purpose of establishing a probable cost of development for the various components of the Capital Improvement Program. The CIP estimate was prepared by Sunland Group (terminal remodel and expansion, apron and garage) and Martinez, Wright & Mendez Design Group (cell phone lot and airport maintenance facility).

Table 10 shows the recommended CIP program cost summary by project. The program total is estimated to be approximately \$487 million including escalation, soft costs and contingency. The largest project element is the east concourse extension which is estimated to be approximately \$117 million.

The costs included herein have been developed based on the individual construction periods for each of the

projects identified in the CIP. The overall program has a projected duration of 57 months. Unit costs have also been adjusted to account for construction in Austin, Texas within an operational airport and the potential for significant coordination with airport activities and non-normal working hours for some portions of the work.

**Table 10  
CIP Program Cost Summary**

Austin-Bergstrom International Airport Master Plan Level 1 Phasing Plan

<b>Apron Expansion</b>	
Phase 1	\$ 8,277,600
Phase 2	\$ 16,131,200
Phase 3	\$ 50,924,000
<b>Garage</b>	\$ 82,558,300
<b>Inbound Baggage Facilities</b>	\$ 8,492,800
<b>Outbound Baggage Facilities</b>	\$ 39,893,700
<b>West Infill Terminal Expansion</b>	\$ 44,922,000
<b>East Infill Terminal Expansion</b>	\$ 39,741,800
<b>East Concourse Extension</b>	\$116,764,200
<b>Cell Phone Lot</b>	\$ 12,605,300
<b>Airport Maintenance Facility</b>	\$ 66,498,600
<b>Program Total</b>	<b>\$486,809,500</b>

Source: Jacobs Consultancy Team.

The estimate anticipates that all work will be publicly advertised and bid. The general and specialized contractors were assumed to make all-inclusive bids for the work scope of each project. The estimate is based on a minimum of three competitors for procurements no matter what type of procurement is utilized.

**Table 11** shows the individual project costs in 2007 dollars with the addition of soft costs, including design fees, escalation, contingency and City of Austin requirements. Costs factors have been added for design (15%), program management (5%), City of Austin support (2.5%), Art in Public Places (0.5%) and contingency (25%). The construction packages have been escalated to the projected mid-point of construction at a rate of 8% per year to that point to account for inflation. This is a relatively high inflation factor; however it has been used to account for the robust Austin construction market that is known to have elevated construction costs.

The 2007 construction costs rise from approximately \$233 million to \$484 million with the addition of the soft cost factors and escalation. The high contingency amount, approximately \$95 million, accounts for the preliminary planning nature of the projects and the lack of design information. It is recommended that the City dedicate some of this contingency to a reserve fund to be used during program execution for unforeseen events that will arise on a program of this size and scope.

The cost estimate detail, shown in **Table 12**, is presented and summarized using order of magnitude cost indices consistent for projects at this level of planning. The estimate summarizes costs based on the square footages of the various functions identified on the exhibits and in the report. The estimate also summarizes the cost information based on the proposed packaging of the construction as identified in the CIP schedule (see section 11).

It should be noted that the proposed facilities have not been designed or engineered prior to developing this cost estimate. Therefore, the selective removal of individual elements of this cost estimate may not yield the associated cost reductions and may affect the accuracy of the overall cost estimate. Given the uncertainties involved, there will be variabilities in the actual costs for these individual elements, and there will be additional costs that cannot be identified at this time.

The costs shown in Table 12 are reflective of typical costs as of December of 2007. Unit costs used in this order of magnitude estimate are inclusive of all costs associated with the construction of the work including contractor mark-ups, overhead, and insurance.

In Table 12 the individual apron phases are noted. The parking garage, cell phone lot, and maintenance facility, are shown as discrete cost estimates. The terminal expansion elements have been shown by level.

*Level 1* includes:

- New west employee parking
- Relocated rental car and Department of Aviation offices
- Baggage claim lobby expansion and new/replacement carousels
- Loading dock reconfiguration

*Level 2* includes:

- West EDS building area expansion and conveyors
- West outbound baggage facilities
- New east airline operations space
- East EDS building area expansion and conveyors
- East outbound baggage facilities

*Level 3* includes:

- East and west ticket lobby expansions
- New east and west ticket counters and outbound baggage conveyors
- New east and west curbside check-in facilities
- New east and west airline ticket office space
- East concourse extension
- New east and west concessions space
- New and relocated passenger loading bridges
- Temporary terminal

*Level 4* includes:

- West expansion space for concessions, meeting rooms, and airline clubs
- East expansion space for concessions

**Table 11**  
**CIP Probable Development Costs**

Austin-Bergstrom International Airport Master Plan Level 1 Phasing Plan

	Cost in 2007 Dollars	Cost in Escalated Dollars	Design	Program Management	City of Austin Support	Art in Public Places	Contingency	Total
			15.0%	5.0%	2.5%	0.5%	25.0%	
Apron								
Phase 1	\$ 4,328,013	\$ 5,427,962	\$ 814,194	\$ 271,398	\$ 135,699		\$ 1,628,388	\$ 8,277,641
Phase 2	\$ 8,088,563	\$10,577,831	\$ 1,586,675	\$ 528,892	\$ 264,446		\$ 3,173,349	\$ 16,131,193
Phase 3	\$ 24,246,340	\$33,392,765	\$ 5,008,915	\$ 1,669,638	\$ 834,819		\$10,017,830	\$ 50,923,967
Garage	\$ 40,850,420	\$54,136,583	\$ 8,120,487	\$ 2,706,829	\$ 1,353,415		\$16,240,975	\$ 82,558,289
Inbound Baggage	\$ 4,272,000	\$ 5,569,073	\$ 835,361	\$ 278,454	\$ 139,227		\$ 1,670,722	\$ 8,492,837
Outbound Baggage	\$ 18,409,000	\$26,159,824	\$ 3,923,974	\$ 1,307,991	\$ 653,996		\$ 7,847,947	\$ 39,893,732
West Terminal Infill	\$ 22,221,178	\$29,336,824	\$ 4,400,524	\$ 1,466,841	\$ 733,421	\$ 146,684	\$ 8,837,718	\$ 44,922,012
East Terminal Infill	\$ 18,649,300	\$25,953,835	\$ 3,893,075	\$ 1,297,692	\$ 648,846	\$ 129,769	\$ 7,818,593	\$ 39,741,810
East Concourse	\$ 55,595,950	\$76,254,187	\$11,438,128	\$ 3,812,709	\$1,906,355	\$ 381,271	\$22,971,574	\$116,764,224
Cell Phone Lot	\$ 6,325,287	\$ 8,265,803	\$ 1,239,870	\$ 413,290	\$ 206,645		\$ 2,479,741	\$ 12,605,349
Airport Maintenance	\$ 31,581,829	\$43,605,606	\$ 6,540,841	\$ 2,180,280	\$1,090,140		\$13,081,682	\$ 66,498,550
<b>Subtotal</b>	<b>\$234,567,879</b>	<b>\$318,680,295</b>	<b>\$47,802,044</b>	<b>\$15,934,015</b>	<b>\$7,967,007</b>	<b>\$ 657,724</b>	<b>\$95,768,519</b>	<b>\$486,809,605</b>
Design		\$47,802,044						
Program Management		\$15,934,015						
Airport Management		\$ 7,967,007						
Art in Public Places		\$ 657,724						
Contingency		\$ 95,768,519						
<b>PROGRAM TOTAL</b>		<b>\$ 486,809,605</b>						

Source: Jacobs Consultancy Team.

**Table 12**  
**CIP Probable Development Costs**

Austin-Bergstrom International Airport Master Plan Level 1 Phasing Plan

<b>Apron</b>	<b>Quantity</b>	<b>Unit Price</b>	<b>Amount</b>
1 Phase 1 Paving	247,315 sf	\$10.00 /sf	\$ 2,473,150
1 Phase 1 Subgrade Preparation	247,315 sf	\$7.50 /sf	\$ 1,854,863
2 Phase 2 Paving	298,647 sf	\$10.00 /sf	\$ 2,986,470
2 Phase 2 Subgrade Preparation	298,647 sf	\$7.50 /sf	\$ 2,239,853
2 Phase 2 Demo (asphalt)	152,448 sf	\$5.00 /sf	\$ 762,240
3 Building Demolition	31,440 sf	\$20.00 /sf	\$ 628,800
3 Abatement	31,440 sf	\$2.00 /sf	\$ 62,880
3 Parking Lot Demo	360,000 sf	\$7.50 /sf	\$ 2,700,000
3 Phase 3A	434,930 sf	\$10.00 /sf	\$ 4,349,300
3 Phase 3A Subgrade Preparation	434,930 sf	\$7.50 /sf	\$ 3,261,975
3 Phase 3B	174,335 sf	\$10.00 /sf	\$ 1,743,350
3 Phase 3B Subgrade Preparation	174,335 sf	\$7.50 /sf	\$ 1,307,513
3 Phase 3C	54,687 sf	\$10.00 /sf	\$ 546,870
3 Phase 3C Subgrade Preparation	54,687 sf	\$7.50 /sf	\$ 410,153
3 Embankment (from onsite)	50,000 cy	\$15.00 /cy	\$ 750,000
3 Embankment (from offsite)	152,000 cy	\$25.00 /cy	\$ 3,800,000
3 Retaining Wall	14,700 sf	\$65.00 /sf	\$ 955,500
3 Relocate AOA Gate	2 ea	\$50,000 /ea	\$ 100,000
3 Apron Lighting @ East End RON	1 ea	\$150,000 /ea	\$ 150,000
2 Relocate Compactors	6 ea	\$350,000 /ea	\$ 2,100,000
3 Storm Water Drainage Culvert (8'x8')	1,700 lf	\$650.00 /lf	\$ 1,105,000
3 Water Collection Pond	1 ea	\$500,000 /ea	\$ 500,000
3 High Voltage Duct Bank (4/6" & 5/4")	1,250 lf	\$600.00 /lf	\$ 750,000
3 Natural Gas Line (6")	1,250 lf	\$200.00 /lf	\$ 250,000
3 Water Main (16")	1,250 lf	\$125.00 /lf	\$ 156,250
3 Water Line (8")	1,250 lf	\$75.00 /lf	\$ 93,750
3 Telecom Duct Bank (14/4 way)	1,250 lf	\$400.00 /lf	\$ 500,000
3 Wastewater (12")	1,250 lf	\$100.00 /lf	\$ 125,000
<b>Apron Subtotal</b>			<b>\$ 36,662,915</b>
<b>Garage</b>	<b>Quantity</b>	<b>Unit Price</b>	<b>Amount</b>
Reconfigure Phase 1 Level 1	246,740 sf	\$2.00 /sf	\$ 493,480
Phase 1 Level 1 - 2 Ramps	13,750 sf	\$45.00 /sf	\$ 618,750
Phase 1 Level 2	246,740 sf	\$45.00 /sf	\$ 11,103,300
Phase 1 Level 2 - 3 Ramps	11,250 sf	\$45.00 /sf	\$ 506,250
Phase 1 Level 3	246,740 sf	\$45.00 /sf	\$ 11,103,300
Phase 1 Level 3 - 4 Ramps	5,625 sf	\$45.00 /sf	\$ 253,125
Phase 1 Level 4	241,115 sf	\$45.00 /sf	\$ 10,850,175
Repair Lot A Surface	442,040 sf	\$1.00 /sf	\$ 442,040
Elevators at New Garage	6 ea	\$200,000 /ea	\$ 1,200,000
Pedestrian Bridge	2,400 sf	\$200.00 /sf	\$ 480,000
Elevators at Existing Garage	6 ea	\$250,000 /ea	\$ 1,500,000
Stairs	8 ea	\$100,000 /ea	\$ 800,000
Airport Safety & Security	1 ea	\$1,500,000 /ea	\$ 1,500,000
<b>Garage Subtotal</b>			<b>\$ 40,850,420</b>

**Table 12 continued**

<b>Level 1 - Arrival, FIS, Baggage Claim</b>		<b>Quantity</b>	<b>Unit Price</b>	<b>Amount</b>
West	Excavation	5,000 cy	\$15.00 /cy	\$ 75,000
West	Relocated Employee Parking	14,425 sf	\$9.00 /sf	\$ 129,825
West	Relocated Employee Parking Drainage	14,425 sf	\$2.00 /sf	\$ 28,850
West	Existing Employee Parking Demolition	8,064 sf	\$2.00 /sf	\$ 16,128
West	Building Demolition	19,000 sf	\$50.00 /sf	\$ 950,000
West	Service Elevator	1 ea	\$250,000 /ea	\$ 250,000
West	Escalator	1 ea	\$150,000 /ea	\$ 150,000
West	Department of Aviation Services Relocation	2,675 sf	\$75.00 /sf	\$ 200,625
West	Department of Aviation Relocation	12,225 sf	\$300.00 /sf	\$ 3,667,500
West	Baggage Service Office	1,089 sf	\$250.00 /sf	\$ 272,250
West	New Car Rental	612 sf	\$350.00 /sf	\$ 214,200
West	Relocated Car Rental	1,330 sf	\$75.00 /sf	\$ 99,750
West	Lobby Expansion	1,224 sf	\$450.00 /sf	\$ 550,800
West	Service Corridor	1,510 sf	\$250.00 /sf	\$ 377,500
West	Concessions Storage	1,057 sf	\$250.00 /sf	\$ 264,250
East	Service Corridor Expansion	922 sf	\$200.00 /sf	\$ 184,400
East	Service Elevator	1 ea	\$250,000 /ea	\$ 250,000
East	Escalator	1 ea	\$150,000 /ea	\$ 150,000
East	Loading Dock	1 ea	\$25,000 /ea	\$ 25,000
East	Loading Dock Removal	1 ea	\$10,000 /ea	\$ 10,000
East	Baggage Claim Carousel	548 lf	\$5,000.00 /lf	\$ 2,740,000
East	Baggage Claim Carousel Removal	157 lf	\$1,000.00 /lf	\$ 157,000
East	Lobby Expansion	2,880 sf	\$450.00 /sf	\$ 1,296,000
East	Concessions Support	6,610 sf	\$250.00 /sf	\$ 1,652,500
East	Building Wall Demolition	260 sf	\$50.00 /sf	\$ 13,000
East	Dog Walk	8,000 sf	\$10.00 /sf	\$ 80,000
East	Loading Dock Area Reconfiguration	2,000 sf	\$30.00 /sf	\$ 60,000
	<b>Level 1 Subtotal</b>			<b>\$ 13,864,578</b>
<b>Level 2 - Baggage Processing Expansion</b>		<b>Quantity</b>	<b>Unit Price</b>	<b>Amount</b>
West	Expansion	12,301 sf	\$200.00 /sf	\$ 2,460,200
West	EDS Expansion	3,396 sf	\$250.00 /sf	\$ 849,000
West	EDS Conveyor	320 lf	\$4,500.00 /lf	\$ 1,440,000
West	Building Demolition	1,500 sf	\$150.00 /sf	\$ 225,000
	Baggage Claim Conveyor	440 lf	\$2,500.00 /lf	\$ 1,100,000
	Baggage Claim Conveyor ROW	440 lf	\$500.00 /lf	\$ 220,000
	Baggage Claim Conveyor Removal	110 lf	\$500.00 /lf	\$ 55,000
	Outbound Baggage Conveyor	1,530 lf	\$5,000.00 /lf	\$ 7,650,000
	Outbound Baggage Conveyor ROW	1,530 lf	\$1,500.00 /lf	\$ 2,295,000
	Outbound Baggage Carousel	920 lf	\$4,000.00 /lf	\$ 3,680,000
	Outbound Oversize Baggage Conveyor	70 lf	\$4,000.00 /lf	\$ 280,000
	Outbound Oversize Baggage Conveyor ROW	70 lf	\$1,000.00 /lf	\$ 70,000
East	Airline Operations Concourse Shell Space	16,800 sf	\$200.00 /sf	\$ 3,360,000
East	Expansion	1,440 sf	\$200.00 /sf	\$ 288,000
East	EDS Expansion	8,815 sf	\$300.00 /sf	\$ 2,644,500
East	EDS Conveyor	500 lf	\$4,500.00 /lf	\$ 2,250,000
East	Building Wall Demolition	1,170 sf	\$50.00 /sf	\$ 58,500
	<b>Level 2 Subtotal</b>			<b>\$ 28,925,200</b>

**Table 12 continued**

**Level 3 - SSCP, Ticketing, Retail Expansion**

		Quantity	Unit Price	Amount
West	Building Demolition	7,100 sf	\$200.00 /sf	\$ 1,420,000
West	New Check-in	6,100 sf	\$400.00 /sf	\$ 2,440,000
West	New Check-in Conveyor	88 lf	\$3,000.00 /lf	\$ 264,000
West	Bypass	5,012 sf	\$400.00 /sf	\$ 2,004,800
West	Retail	2,784 sf	\$250.00 /sf	\$ 696,000
West	ATO	1,672 sf	\$350.00 /sf	\$ 585,200
West	Service Corridor	790 sf	\$250.00 /sf	\$ 197,500
West	Curbside Check-in	3 ea	\$50,000 /ea	\$ 150,000
East	Building Wall Demolition	6,100 sf	\$50.00 /sf	\$ 305,000
East	New Check-in	8,496 sf	\$400.00 /sf	\$ 3,398,400
East	New Check-in conveyor	132 lf	\$3,000.00 /lf	\$ 396,000
East	New Check-in Oversize Conveyor	28 lf	\$3,000.00 /lf	\$ 84,000
East	ATO	2,235 sf	\$350.00 /sf	\$ 782,250
East	Support	609 sf	\$300.00 /sf	\$ 182,700
East	Bypass	3,076 sf	\$400.00 /sf	\$ 1,230,400
East	SSCP	3,190 sf	\$400.00 /sf	\$ 1,276,000
East	Restaurant/Bar	2,931 sf	\$250.00 /sf	\$ 732,750
East	Service Corridor	778 sf	\$250.00 /sf	\$ 194,500
East	Curbside Check-in	3 ea	\$100,000 /ea	\$ 300,000
East	Gate 1	2,599 sf	\$400.00 /sf	\$ 1,039,600
East	Gate 2	2,559 sf	\$400.00 /sf	\$ 1,023,600
East	Gate 3	2,599 sf	\$400.00 /sf	\$ 1,039,600
East	Gate 4	2,599 sf	\$400.00 /sf	\$ 1,039,600
East	Gate 5 & 6	4,916 sf	\$400.00 /sf	\$ 1,966,400
East	Gate 7	2,599 sf	\$400.00 /sf	\$ 1,039,600
East	Gate 8	2,599 sf	\$400.00 /sf	\$ 1,039,600
East	Gate 9	2,599 sf	\$400.00 /sf	\$ 1,039,600
East	Gate 10	2,599 sf	\$400.00 /sf	\$ 1,039,600
East	Gate 2 Relocated	2,423 sf	\$400.00 /sf	\$ 969,200
East	Gate 2 Renovated	771 sf	\$250.00 /sf	\$ 192,750
East	Secure Circulation New	176 sf	\$300.00 /sf	\$ 52,800
East	Secure circulation Renovated	529 sf	\$200.00 /sf	\$ 105,800
East	Concessions	10,399 sf	\$300.00 /sf	\$ 3,119,700
East	Concessions Renovated	1,300 sf	\$250.00 /sf	\$ 325,000
East	Restrooms	2,639 sf	\$500.00 /sf	\$ 1,319,500
East	Circulation New	14,635 sf	\$400.00 /sf	\$ 5,854,000
East	Circulation Renovated	1,120 sf	\$250.00 /sf	\$ 280,000
East	Exterior Stairs	9 ea	\$50,000 /ea	\$ 450,000
East	Passenger Loading Bridge Relocation (multiple moves)	7 ea	\$400,000 /ea	\$ 2,800,000
East	Passenger Loading Bridge New	9 ea	\$1,500,000 /ea	\$ 13,500,000
East	Temporary Terminal	32,500 sf	\$300.00 /sf	\$ 9,750,000
East	Temporary Terminal Removal	32,500 sf	\$100.00 /sf	\$ 3,250,000
<b>Level 3 Subtotal</b>				<b>\$ 68,875,450</b>

**Table 12 continued**

**Level 4 - Retail Expansion**

		Quantity	Unit Price	Amount
West	Demolition	1,200 sf	\$150.00 /sf	\$ 180,000
West	Garden/Green Roof	4,863 sf	\$200.00 /sf	\$ 972,600
West	Indoor Club Functions	6,029 sf	\$250.00 /sf	\$ 1,507,250
West	Indoor Club Functions Renovated	616 sf	\$300.00 /sf	\$ 184,800
West	Club Support	605 sf	\$350.00 /sf	\$ 211,750
West	Men's Room	401 sf	\$500.00 /sf	\$ 200,500
West	Women's Room	401 sf	\$500.00 /sf	\$ 200,500
East	Demolition	1,700 sf	\$150.00 /sf	\$ 255,000
East	Kitchen/Bar	1,738 sf	\$250.00 /sf	\$ 434,500
East	Kitchen/Bar Renovated	1,729 sf	\$300.00 /sf	\$ 518,700
East	Service Corridor	400 sf	\$250.00 /sf	\$ 100,000
East	Restaurant	6,776 sf	\$250.00 /sf	\$ 1,694,000
East	Stairs	1 ea	\$50,000 /ea	\$ 50,000
East	Outdoor Seating/Garden	4,863 sf	\$200.00 /sf	\$ 972,600
<b>Retail Subtotal</b>				<b>\$ 7,482,200</b>

**Cell Phone Lot**

		Quantity	Unit Price	Amount
<b>Demolition</b>				
	Demolition Allowance for Unforeseen Clear/Grub/Prep Existing	18,000 sf	\$0.34 /sf	\$6,095
	Site Abatement - Assume not required	14,300 sf	\$0.23 /sf	\$3,228
	Demolition Allowance for Unforeseen Clear/Grub/Prep Existing	560,000 sf	\$0.34 /sf	\$189,630
		560,000 sf	\$0.17 /sf	\$94,815
<b>Earthwork</b>				
	Layout	14,300 sf	\$0.56 /sf	\$8,071
	Infill/Cut/Balance	2,200	\$14.67 /cy	\$32,282
	Finish Grade	14,300 sf	\$1.69 /sf	\$24,212
	Haul Off Spoils and Excavated Soils	530	\$9.03 /cy	\$4,783
	Layout	560,000 sf	\$0.17 /sf	\$94,815
	Finish Grade	560,000 sf	\$0.32 /sf	\$176,988
	Haul Off Spoils and Excavated Soils	22,000 cy	\$9.03 /cy	\$198,660
	Water Quality Ponds	30,511 sf	\$3.95 /sf	\$120,538
<b>Pollution Prevention</b>				
	Reinforced Filter Fabric Barrier	550 lf	\$2.82 /lf	\$1,552
	Inlet/Grate Protection Barrier	1 allow	\$169.31	\$169
	Reinforced Filter Fabric Barrier	3,975 lf	\$2.82 /lf	\$11,217
	Inlet/Grate Protection Barrier	1 allow	\$846.56	\$847
	Construction Entrance	2,000 sf	\$3.39 /sf	\$6,773
<b>Landscaping and Irrigation</b>				
	Landscape Allowance - Seed Hydro	1 allow	\$11,287.50	\$11,288
	Irrigation Allowance	1 allow	\$11,287.50	\$11,288
	Landscape Allowance	1 allow	\$112,875.00	\$112,875
	Irrigation Allowance	1 allow	\$50,793.75	\$50,794

**Table 12 continued**

Site Development			
Fencing - Chain link at Back of Site	1,600 lf	\$18.06 /lf	\$28,896
Miscellaneous Site	1 ls	\$22,575.00	\$22,575
<b>Subtotal Site Development</b>			<b>\$1,212,388</b>
Concrete			
Concrete Paving - Roadway	14,300	\$7.90 /sf	\$112,988
Curb/Gutter	550 lf	\$14.67 /lf	\$8,071
Pavement Marking	14,300 sf	\$0.30 /sf	\$4,358
Miscellaneous Concrete	1 allow	\$8,466	\$8,466
Sidewalk	45,587 sf	\$4.52 /sf	\$205,825
Concrete Paving - Parking/Roadway	272,074 sf	\$5.64 /sf	\$1,535,518
Concrete Paving - Fuel Area	37,656 sf	\$5.64 /sf	\$212,521
Curb/Gutter	8,978 lf	\$14.67 /lf	\$131,741
Pavement Marking	309,730 sf	\$0.30 /sf	\$94,394
ADA Parking Signage	15 allow	\$846	\$12,698
FIDS - Concrete Pole Base	6 ea	\$5,079	\$30,476
Miscellaneous Concrete	1 allow	\$22,575	\$22,575
<b>Subtotal Concrete</b>			<b>\$2,379,631</b>
Metals			
<b>Structural Steel</b>			
Structural Steel Poles/Bracing/Support - FIDS	33.00	\$4,51	\$148,995
<b>Subtotal Metals</b>			<b>\$148,995</b>
Equipment			
Monument Sign	1 ea	\$56,438	\$56,438
WiFi For Parking Lot - Installation	1 allow	\$50,794	\$50,794
Flight Information Display - FIDS (assume 20x10 board)	6 ea	\$248,325	\$1,489,950
<b>Subtotal Equipment</b>			<b>\$1,597,181</b>
Mechanical Plumbing			
<b>Site Utilities:</b>			
Storm System Piping/Inlets	560,000 sf	\$0.79 /sf	\$442,470
Sanitary - Assumed Not Required			
Domestic Water - Assumed Not Required			
Fire Line - Assumed Not Required			
<b>Subtotal Plumbing</b>			<b>\$442,470</b>
Electrical			
Primary Power Ductbank/Connection	200 lf	\$225.75 /lf	\$45,150
Secondary Equipment - XFMR/Panels/Switches	1 allow	\$112,875	\$112,875
Conduit/Wire - Power	1,200 lf	\$22.58 /lf	\$27,090
Conduit/Wire - Lighting	2,100 lf	\$22.58 /lf	\$47,408
Empty Conduit - Communications	1,500 lf	\$28.22 /lf	\$42,328
Site Lighting - Poles/Bases - Parking/Roadway	20 ea	\$5,643	\$112,875
Site Lighting - Miscellaneous	1 ls	\$15,803	\$15,803
Site Lighting - Trench	4,800 lf	\$7.90 /lf	\$37,926
Conduit/Wire - Power	1,500 lf	\$13.55 /lf	\$20,318
Security - Code Blue Box	4 ea	\$2,821	\$11,288
Security - Conduit/Cable	1,200 lf	\$7.90 /lf	\$9,482

**Table 12 continued**

Security - Camera	10 ea	\$2,821	\$28,219
<b>Subtotal Electrical</b>			<b>\$544,622</b>
<b>Subtotal Cell Phone Lot</b>			<b>\$6,325,287</b>
<b>Airport Maintenance Complex</b>			
	<b>Quantity</b>	<b>Unit Price</b>	<b>Amount</b>
Demolition			
Demolition Allowance for Unforeseen	492,000 sf	\$0.22 /sf	\$110,523
Clear/Grub/Prep Existing	492,000 sf	\$0.17 /sf	\$82,892
Site Abatement - Assume Not Required			
Earthwork			
Layout	513,000 sf	\$0.17 /sf	\$86,430
Finish Grade	513,000 sf	\$0.28 /sf	\$144,050
Haul Off Spoils and Excavated Soils	22,000 cy	\$8.99 /cy	\$197,683
Water Quality Ponds	45,000 sf	\$4.49 /sf	\$202,176
Pollution Prevention			
Reinforced Filter Fabric Barrier	4,225 lf	\$2.81 /lf	\$11,864
Inlet/Grate Protection Barrier	1 allow	\$2,808	\$2,808
Construction Entrance	3,200 sf	\$3.37 /sf	\$10,783
Landscaping and Irrigation			
Landscape Allowance	1 allow	\$56,160	\$56,160
Irrigation Allowance	1 allow	\$28,080	\$28,080
Site Development			
Fencing - Chain link	2,825 lf	\$17.97 /lf	\$50,769
Miscellaneous Site	1	\$28,080	\$28,080
Pavements			
Service Road	21,000 sf	\$7.86 /sf	\$165,110
Gate	1 ea	\$2,808	\$2,808
Curb Cut	1 ea	\$3,370	\$3,370
Curb/Gutter	1,440 lf	\$14.60 /lf	\$21,026
Concrete Paving - Parking/Access Drive	352,435 sf	\$7.86 /sf	\$2,770,985
Curb/Gutter	4,580 lf	\$14.60 /lf	\$66,875
Pavement Marking	352,435 sf	\$0.30 /sf	\$106,881
ADA Parking Signage	1 allow	\$1,685	\$1,685
Miscellaneous Concrete	1 allow	\$28,080	\$28,080
Utilities			
Utilities - from general aviation	1	\$2,358,720	\$2,358,720
<b>Subtotal Site Development</b>			<b>\$6,537,838</b>
Buildings			
Building Maintenance	11,500 sf	\$174.10 /sf	\$2,002,104
Air Line Maintenance	5,865 sf	\$196.56 /sf	\$1,152,824
Air Side Maintenance	15,525 sf	\$196.56 /sf	\$3,051,594
Landside Maintenance	23,000 sf	\$179.71 /sf	\$4,133,376
Air Security	11,700 sf	\$190.94 /sf	\$2,234,045
Airport Operations	2,925 sf	\$202.18 /sf	\$591,365
Vehicle Wash Bay	4,550 sf	\$252.72 /sf	\$1,149,876
Covered Storage	14,700 sf	\$44.93 /sf	\$660,442
Motor Pool	49,800 sf	\$202.18 /sf	\$10,068,365
<b>Subtotal Buildings</b>			<b>\$25,043,990</b>
<b>Subtotal Airport Maintenance Complex</b>			<b>\$31,581,829</b>

Source: Jacobs Consultancy Team.

# 11 PROGRAM SEQUENCING AND SCHEDULE

The scale and scope of the recommended CIP for the Airport is significant. The Airport has not had a major program of development since it was opened in 1999. The demand for additional capacity in several airport functions is the result of continued expansion of the Austin aviation market and its attractiveness to the airline industry.

One key aspect of this expansion program is that this development will occur within the parameters of an operational facility. Development on an operational airport requires intensive coordination and cooperation among all the stakeholders of the development program. Further, the City must establish measures to maintain the high level of passenger comfort and convenience for which the Airport has become known.

It is recommended that the City procure the assistance of a program manager to provide the personnel and skills necessary to successfully complete this CIP. In addition to the program manager, the City should plan for the procurement of at least 6 major design contracts and 10 major construction projects. There could also be several smaller design and construction projects for more specialized elements of the overall program such as passenger loading bridges, security system expansion, roadway signage, etc.

The interrelationship of the recommended CIP projects and the need to maintain airport operations necessitates careful sequencing of the various contracts required to complete the program successfully. The recommended CIP program sequence was established in response to the most pressing capacity requirements as well the logic of an efficient overall program development.

The Airport has already initiated the procurement of a design team for the expansion of the apron for RON and eventual terminal apron. It is important to complete this project on schedule as it is critical to timely completion of the east concourse expansion (i.e. this is a critical path project). A suggested phasing plan for the apron expansion is shown in Figures 31-33.

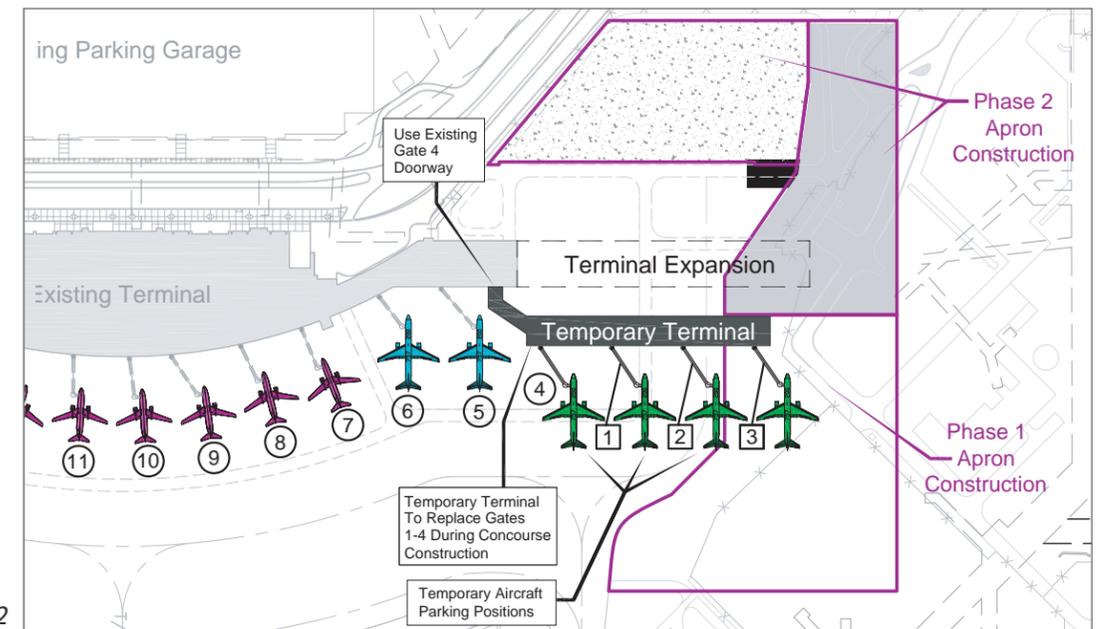


Figure 32 Apron Phase 2

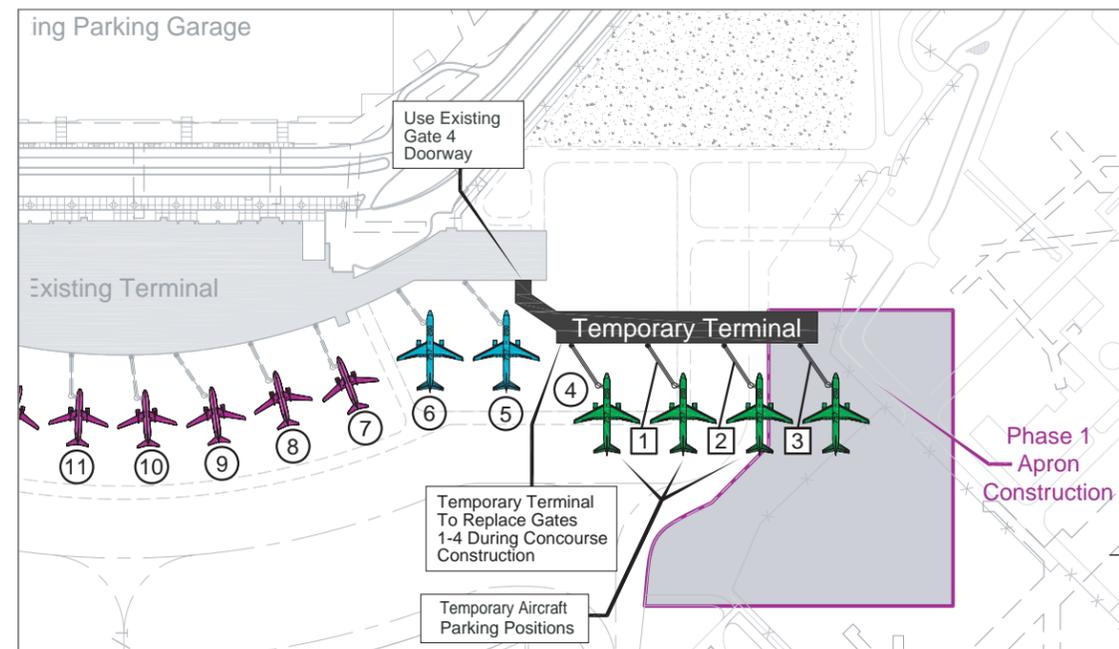


Figure 31 Apron Phase 1

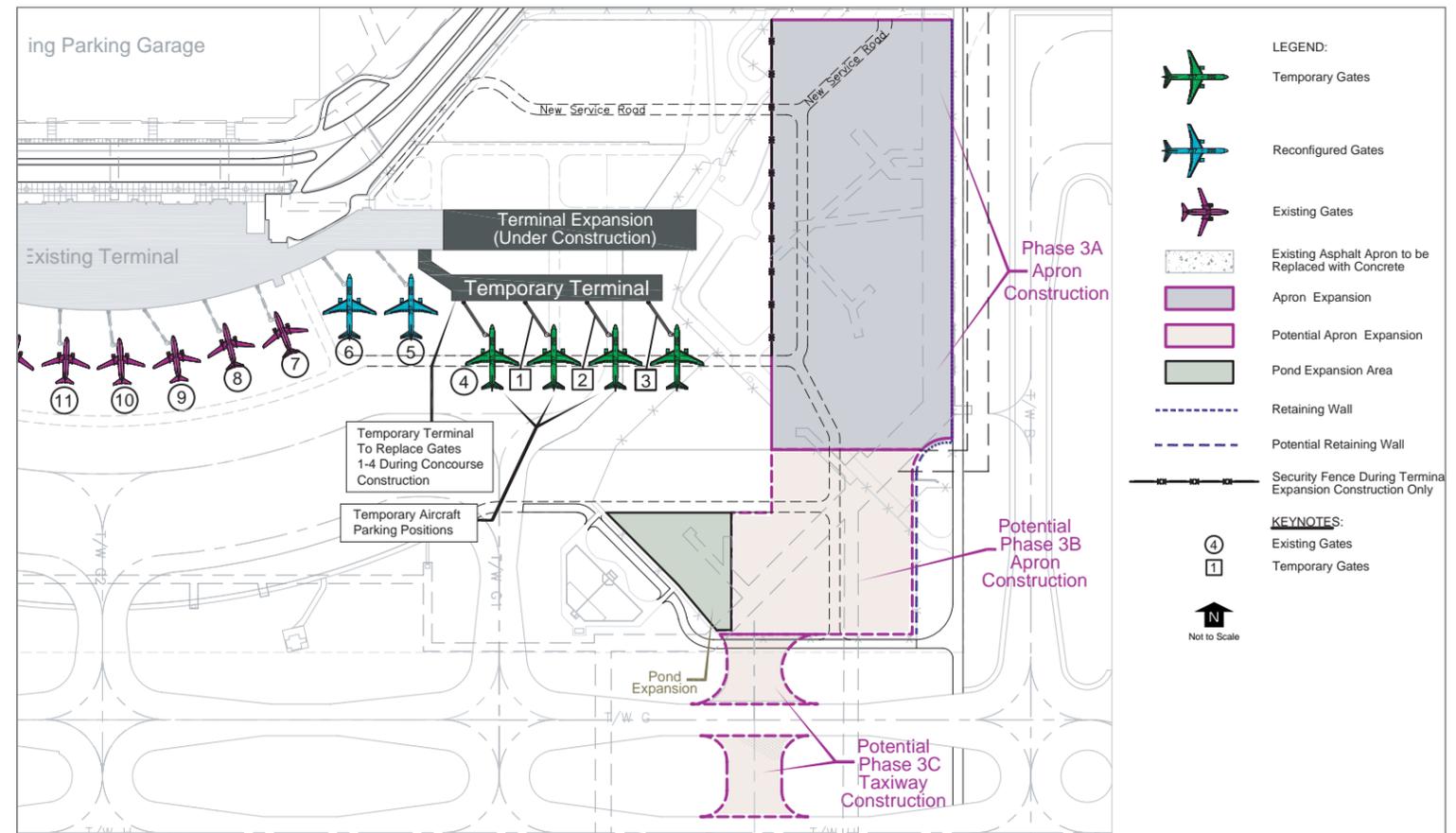


Figure 33 Apron Phase 3

Some of the most pressing capacity requirements of the existing terminal facility are aircraft parking positions, public parking, baggage claim and airline baggage make-up. The earliest phase of the east concourse development should be to install a temporary terminal that can provide four or five gate positions depending on the airline fleet mix (see Figure 32). These temporary gates will replace three that must be taken out of service during the construction of the east concourse. Program cost estimates include relocating loading bridges to the temporary gates and then to the extended concourse.

Public parking will be improved by accelerating the design and construction of the new parking structure in Lot A. This will provide 1,500 new parking spaces with minimal impacts to the function of the existing RAC and parking garage functions.

The baggage claim area would also benefit from capacity enhancements early in the program by adding a new claim device at the west end of the existing claim area and replacing the central triangular device with two new rectangular devices. This will provide a net increase of two new devices and 259 lineal feet of bag claim frontage while the rest of the terminal expansion continues.

The congestion of the existing airline baggage makeup area has recently been eased somewhat by the replacement of two indexing devices with new carousels. Expansion of the makeup capacity beyond that point is not feasible without the new terminal construction being put in place.

The recommended CIP was sequenced to progress the program in a logical and efficient manner while maintaining the operational performance of the airport. The projects that relate directly to the terminal such as the east concourse and landside terminal expansions should have an orderly sequence. Projects that are remote from the terminal such as the cell phone lot and airport maintenance have more flexibility in sequencing and can be used to help balance the overall program work level and cash flow. The parking garage development has been accelerated to the front of the CIP since the demand already exists and, based on the expected overall duration, its construction impact can be essentially completed in advance of the major terminal construction.

## 11.1 Program Packaging

### Package 1

The Lot A parking garage is recommended to be an individual design and construction project. This is a good candidate for design/build procurement since the scope of work can be well defined and the location will not require an excessive level of coordination with daily activities of the airport.

### Package 2

The terminal and concourse development projects should be combined since the functions, spaces, infrastructure, and systems that relate to these areas are highly interrelated. Architecturally, the continuity of the overall facility is better maintained by having a single entity be responsible for the all design of the terminal expansion.

From a construction standpoint there is some logic in having multiple construction packages for this development effort. The temporary replacement concourse gates could be an early project that is temporary in nature and product so its construction can have a defined endpoint. The concourse could be bundled with or have a separate construction packages from the east and west infill terminal projects. The east infill and the east concourse are functionally related and there are significant advantages to having them constructed together. The west infill terminal is less related to eastern development and could be packaged separately and initiated sooner than the east side as well since its development is not related to apron construction.

There could also be several systems-related projects that could be procured independently. These are related to the terminal infill and concourse construction projects such as loading bridges, concessions build-out, and security system expansion.

### Package 3

The baggage system expansion is a specialized area that should be handled as a separate project. There are specialized consultants that bring the skills needed to successfully interconnect this system expansion and there are also several milestones related to this system expansion that will be most flexible in a separate procurement process.

This project also may be a good candidate for a design/build type of project. The scope of work can be well defined and it is limited to a relatively small area of the overall project. In addition, a design/build approach would give the airport the ability to work with the selected team to develop specific milestones for system delivery and ensure appropriate coordination with the existing baggage system and airline operations.

### Package 4

The airport maintenance complex is a good candidate for a separate package. This will be smaller than some of the other development packages and there may be an opportunity to increase participation in the overall CIP by a range of firm sizes. This element also is not specifically related to the other CIP projects so it has the flexibility to be procured at almost any time. That means it can be sequenced to help balance the overall CIP work and cash flow.

### Package 5

The development of the cell phone lot is recommended to be procured as a separate package. The location adjacent to the existing hotel means any potential impacts will be more remote to the airport operations.

This project is anticipated to be a relatively short duration element but it has relatively high potential in terms of revenues and assistance to the traveling public. Thus it is prudent to complete this project early in the overall program so that its supporting role can alleviate some of the congestion that is certain to occur in relation to the infill terminal projects. The scope of this project should also include any anticipated changes to roadway signage which could be procured as a separate construction project.

## 11.2 Program Schedule

The Program schedule was developed using the following basic assumptions:

- The RON apron project will be awarded soon and the design activity will start in the second quarter 2008. Delays of this activity can have a direct impact on completion of the overall program since development of a temporary terminal and concourse phasing require completion of portions of the new apron.
- The selection and involvement of a project manager will have more benefit to the airport if the remaining CIP program is delayed slightly to allow this entity to be mobilized and become familiar with the scope and goals of the CIP. Detailed input to overall project sequencing, procurement methods, packaging, etc. should be developed by the program manager in coordination with the Airport and City staff.
- The parking garage in Lot A has been accelerated in the CIP to meet the current and projected parking demands in advance of the obstacles that passengers will be facing during the terminal construction. In addition, having the garage completed early allows its revenue stream to come online during the remaining CIP development.

Figure 34 shows the recommended CIP development schedule. At this time the CIP schedule does not address all possible projects that could be generated by such a large and complicated development process. The schedule addresses the major scopes of work that must be completed in the program. There are opportunities to establish smaller projects that are more controllable and provide a range of projects to the design and contracting communities. Those decisions should be made by the City and the project manager in response to changing market conditions.

Figure 34 Recommended CIP Development Schedule

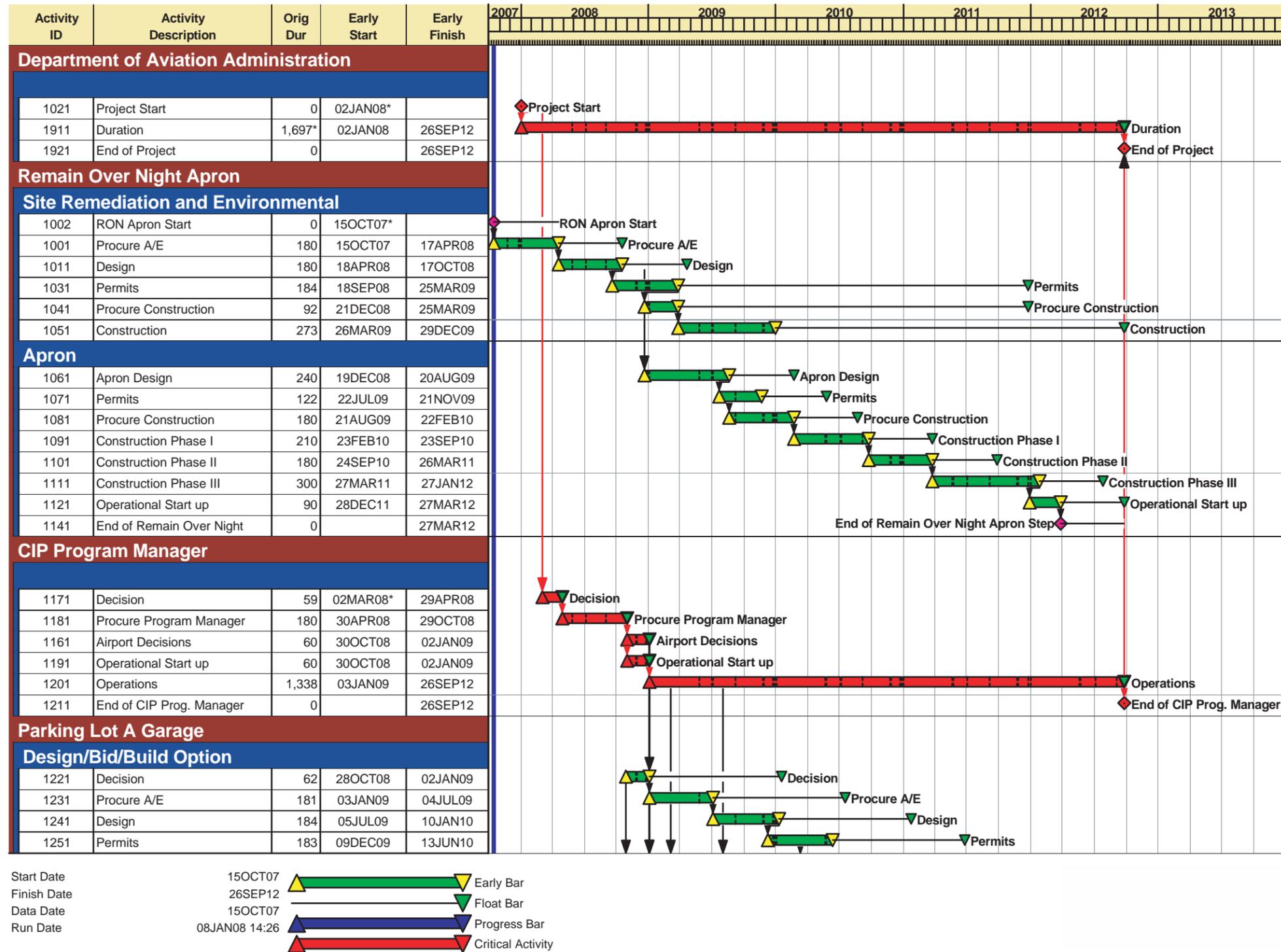
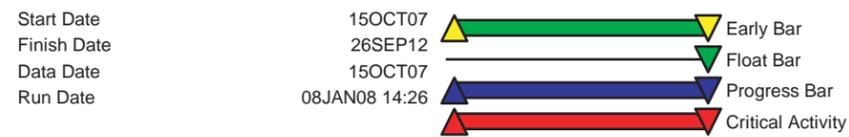
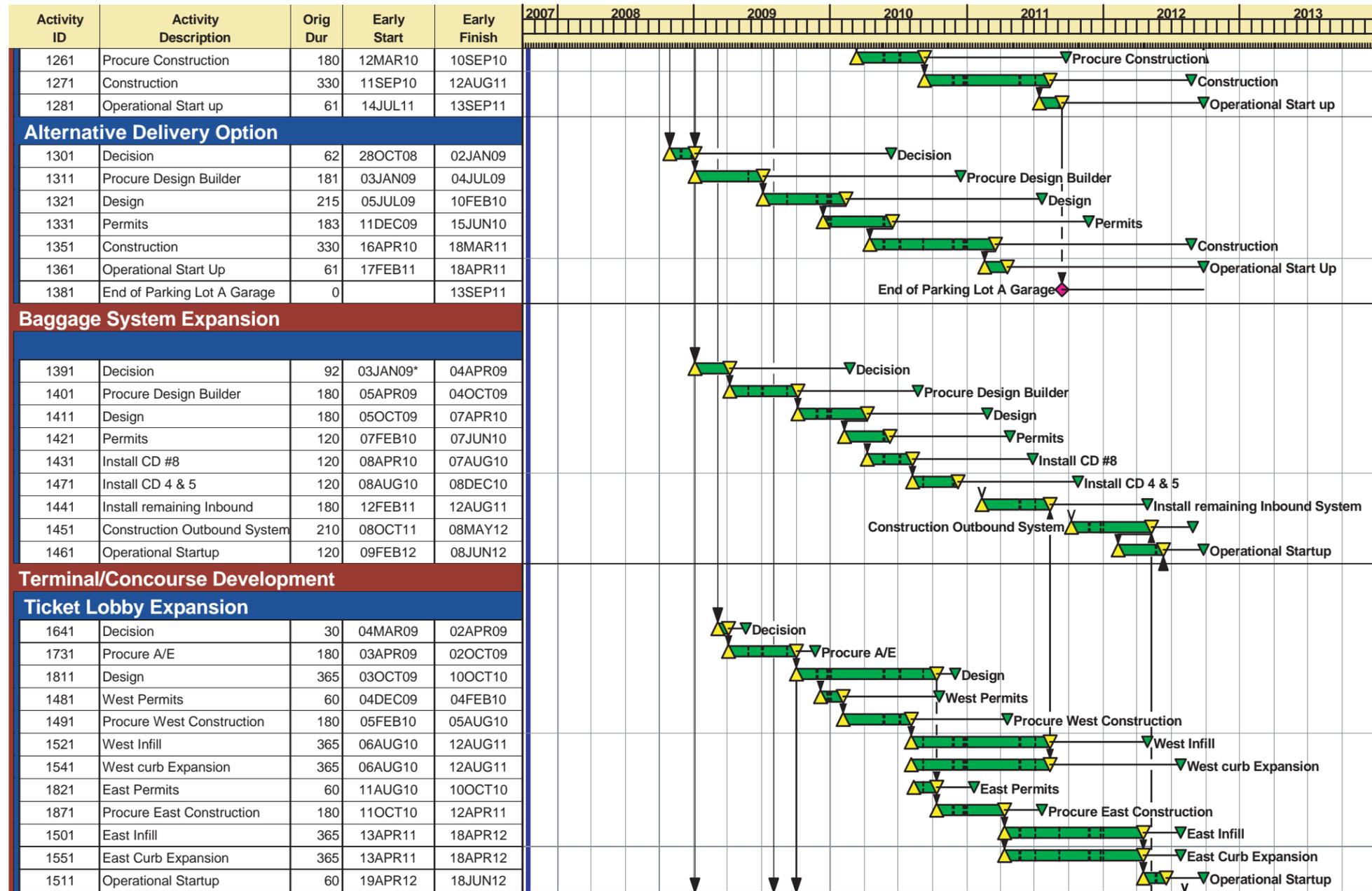


Figure 34 continued





## 11.3 Program Delivery

### ABIA Staffing and Operations

The current Airport Operations, Maintenance and Planning and Design Departments are fully committed to the operation of the Airport. The situation is similar to the continued operation of Robert Mueller Airport during the construction of ABIA. Additional staff members are necessary to successfully complete a CIP of this size and scope. Due to the program size, and the commensurate execution requirements, the Department of Aviation should obtain the services of a program manager to direct the CIP implementation. Given the City of Austin's commitment to sustainability, a Leadership in Energy and Environmental Design (LEED) accredited professional should be considered for this program.

Staff skills required for this program include:

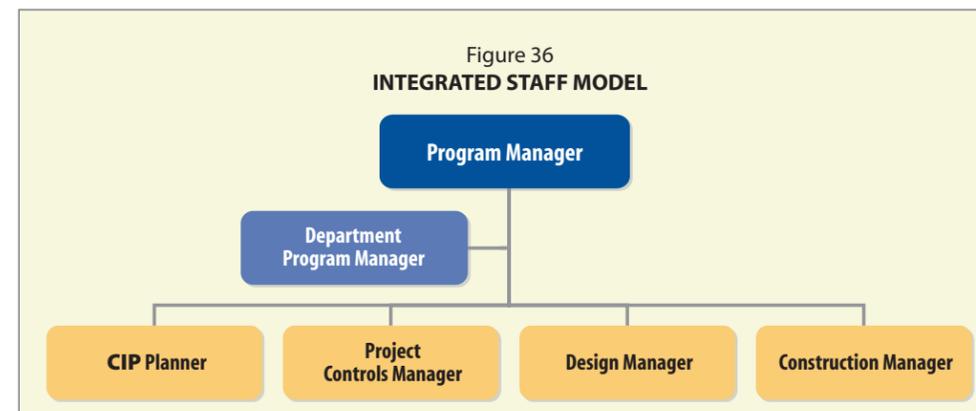
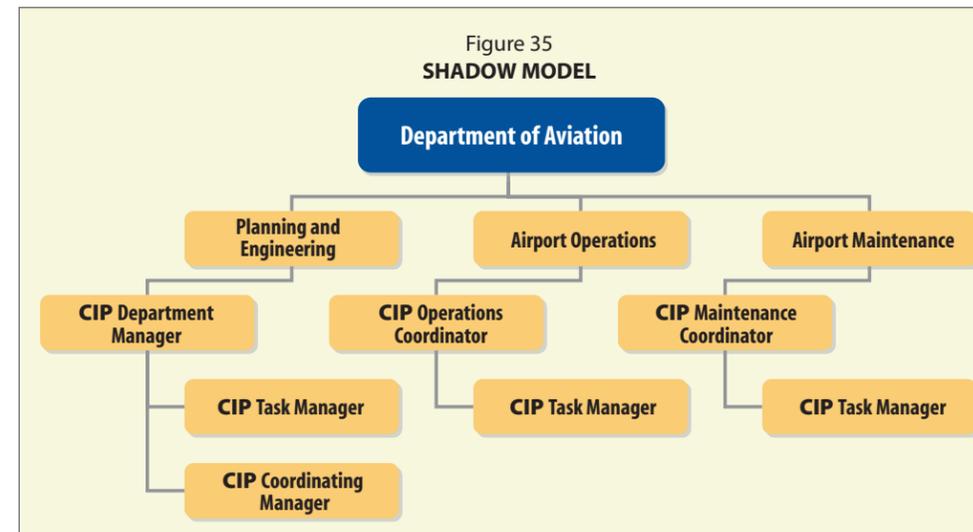
- Engineering: structural, civil, mechanical, electrical, fire protection, security, etc. Architecture, planning, building design and interior design. Special consulting for utilities, operations and vendors are needed as well.
- Procurement for the project will require teams to manage the various aspects of the contract and the documentation of the grant assurances for the FAA.
- A public involvement and information team will be needed to assist in the overall communications with passengers, airlines, the general public and regulatory agencies.

### Organizational and Operational Models

There are basically four Organizational Models to complete short term major programs as shown in Figures 35-38. The models are:

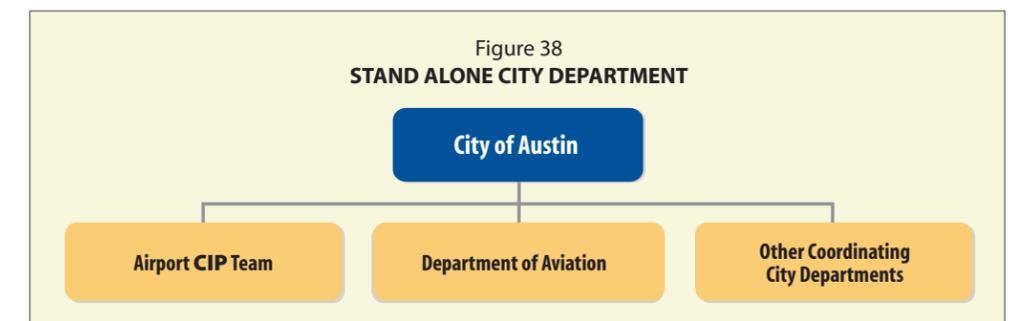
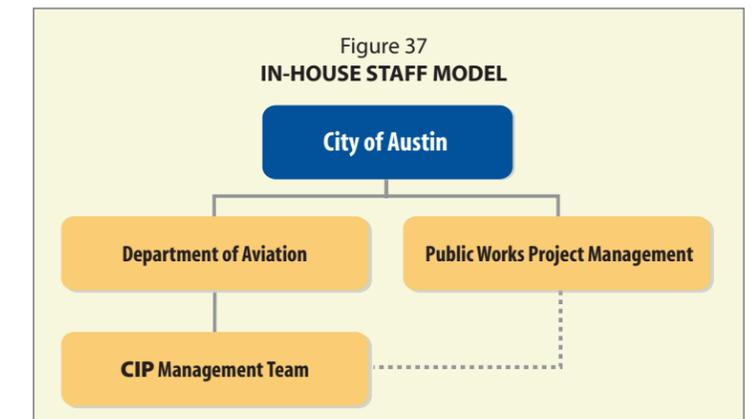
- Shadow Model
- Integrated Staff Model
- In-House Staff
- Stand Alone City Department

The shadow model uses the existing organization and Airport staff continues to conduct Airport related operational work. Each department head has a shadow person to actually do the CIP work. These shadow staff members are supported by their own staffs. The advantage is the airport staff maintains both operational control and coordination of both programs and the consultant brings the additional expertise.



The integrated staff model provides outside expertise to complement the Airport/City management staff. The model also provides special departments for program controls; scheduling, contract administration, estimating, CADD and document control. This model was also used by the New Airport Project Team (NAPT) that was responsible for the development of ABIA. Though it functioned as a stand alone department within the City structure, the NAPT was staffed by an integrated force of city staff and consultant staff working seamlessly together. At the completion of the project the consultant staff left the project leaving experienced city staff in a position to manage the new airport.

The model using in-house staff would be envisioned as a separate branch of the Aviation department, recruiting staff from finance, public works and aviation to manage the program.



The stand alone model (used by the former NAPT) provides flexibility in not requiring staff from other departments, but providing skilled individuals with airport experience to complete the CIP on an as-needed basis.

### Procurement

The City through the Department of Aviation is required to follow Federal (FAA), State and City, Laws, Rules and Regulatory Policy for all procurements on the CIP. The requirements call for significant documentation, Grant Assurance certifications and reporting to Managers, City Council, the FAA and the Bond Holders. The NAPT program had City finance staff assigned directly to the program which was supported by a Contract Administration Group (primarily contract employees). This approach works well for documentation and financial control. A sub department included documentation and a CADD section to maintain all electronic files and record drawings. The computer network was

provided by the City. The NAPT also had a dedicated senior City staff member to handle all permit applications and coordination.

## 11.4 Program Delivery Methods

There are three basic options available to the City and the Department of Aviation for the procurement of design and construction services related to the CIP. The three options are:

- Design, Bid, Build, (DBB)
- Design/Build (DB)
- Construction Manager at Risk (CM)

All three methods have degrees of risk for the two contracting partners. The DBB method is more of a risk sharing model for the owner while DB and CM methods transfer more risk to the contracted parties. The owner sacrifices control and input into the finished product with the transfer of the financial risk. It is strongly recommended that the City always maintain contingency funds for the unexpected issues that will arise regardless of the type of procurement.

The airlines, the Department of Aviation and the agencies such as FAA and the Transportation Security Administration (TSA) will have changing requirements throughout the program over which there usually is little control. Typical outside impacts include legislation, market forces, differing site conditions, the general economy, availability of construction forces with the necessary skills and materials availability.

The traditional Design, Bid, Build calls for procurement of an Architectural/Engineering (AE) firm to design the project and process the permit applications. The City advertises and procures construction with the lowest responsive bidder and contracts for construction of the project.

Design/Build requires the City to obtain an AE for a general project and procurement document. The document identifies all of the owner requirements. The requirements may be performance-based or they may be prescriptive in nature. The Design/Build process saves only the period of time required for the bidding of a construction contract, typically about three or four months. The procurement of an AE is still required; however, the "design time" may be shorter.

The Construction Manager at Risk combines some of the features of the other two methods. The owner procures an AE for design services and also retains a CM early in the process to participate on an owner/AE/CM Team to create an efficient design and determine a cost effective solution. The CM then hires subcontractors, which might include a prime and subcontractor structure below the CM. The CM is in control of the project as the owner has not directly contracted with the actual construction firms. The CM is responsible to bring the project in on-time at a fixed budget. The CM also conducts testing and inspection of the project.

There are important differences between all three methods; all contracts can have change orders and claims. Much of the risk is transferred in the DB and CM methods from the owner to others. Any owner intervention will relieve the primes of some risk and responsibility and can ultimately be more expensive in the claim/settlement process than in the DBB method.

A significant item that needs an early decision is whether or not to use an Owner Controlled Insurance program. The NAPT used this method to reduce program costs by several million dollars.

Using all DB or CM will allow for a smaller Program Management staff for oversight.

## 11.5 Permitting Requirements

The City of Austin Permitting process typically is a three to six month procedure. The NAPT had a City Ordinance developed specifically to reduce permitting time, and in some cases the requirements, to speed up the process. A senior staff member was assigned to specifically handle permits. It is recommended that this approach be implemented again due to the scope and complexity of the CIP.

During development of ABIA there were significant permit issues and disagreements with the City Fire Department and for portions of the mechanical code reviews for the terminal building. Early coordination for the upcoming CIP may reduce the potential for these issues to reoccur.

Previous site plan reviews failed to grasp the significance of the facility scale and the fact that the drainage system was significantly larger than typical developments and they requested "structural solutions" that were contrary to Object Free Zone criteria of the FAA.

The One Stop Shop and the City internal general permit process may mitigate some of the previous problems.

### **Building Permit**

The building permit application and review process ensures that the plans for construction comply with Austin's land use and construction standards. Specific code issues include appropriate zoning, structural integrity, proper exiting, fire resistance, sanitation and other health concerns, tapping into water and sewer lines, the extension of electrical service, industrial waste review for commercial buildings, etc. Specific aspects of building plan review are building, plumbing, electrical, fire, health, mechanical, energy code and zoning reviews.

In addition, signs, barricades, and underground tanks are reviewed at the building permit stage, if these improvements are proposed.

