

EXECTIVE SUMMARY

An update to the Concord-Padgett Regional Airport (JQF) Airport Master Plan is being initiated by the City of Concord (the City) to provide direction and guidance regarding airport sustainability for future airport development priorities and justification for improvements. The Airport Master Plan Update will reassess planned development with respect to recent activity trends and economic indicators. Above all, the update follows federal and state policy in providing for a facility that is:

- Safe and efficient in accordance with airport design standards
- Economically viable and substantially user-supported
- In accordance with local, regional, state, and national goals
- Providing customers with safe, secure, and service-oriented operations

An evaluation of JQF facility needs will be completed for a 20-year planning period. The Airport Master Plan Update will comprehensively examine land use and facility requirements, emergency operations in the event of a natural disaster, and viable commercial service. The JQF Airport Master Plan Update will depict these improvements, as adopted by the City of Concord and accepted by the Federal Aviation Administration (FAA) and North Carolina Department of Transportation Division of Aviation (NCDOT-DOA). The approved Airport Master Plan Update will enable the City to apply for funding for improvements, as eligible under the respective federal and state airport grant-in-aid programs.

E.1 Key Issues

Overall, the goal of the Airport Master Plan Update is to identify the orderly development of facilities essential to meeting the needs of the airport's users. Major study objectives include:

- Security, safety, service, and economic viability at JQF
- Evaluate airfield and airspace capacity
- Identify and create a plan to provide for the needs of JQF customers, users, and stakeholders
- Create a plan to ensure that JQF continues to be an economic engine for the City of Concord and Cabarrus County
- Identify and describe future airport land acquisition
- Determine priority and best use of undeveloped airport property and future acquisitions
- Conduct a preliminary environmental overview of the proposed development



E.2 Existing Facilities Summary

Table E.2-1 provides a summary of JQF facilities.

	Table E.2-1							
	Inventory of Existing Facilities							
	Concord-Padgett Regional Airport							
Α.								
1	Runway	02/20						
•	a) Length	7.400'						
ľ	b) Width	100'						
ľ	c) Type Pavement	Asphalt						
ľ	d) Pavement Condition	Excellent						
	e) Strength	171,000 lbs. DWG						
ľ	f) Marking	Precision						
2	Taxiways							
ľ	a) Description/Width	Full Parallel/50', A, B, C, D, E, F, G, A1, A2, A3, A4, A5, A6						
ľ	b) Type Pavement	Asphalt						
ľ	c) Pavement Condition	Fair						
ľ	d) Marking	Centerline, enhanced marking						
3	Lighting	·						
ľ	a) Runway Type	HIRL, CL, TDZ RWY 20						
	b) Taxiway Type	MITL						
	c) Approach	P4L/P4L, REIL – RWY 02, MALSR – RWY 20						
4	General Aviation Apron							
	a) Area							
	Itinerant	109,018 sq. yds.						
	Storage							
	Private	1,234 sq. yds.						
	b) Taxilanes	50,893 sq. yds.						
	c) Type Pavement	Asphalt						
	d) Condition	Fair						
	e) Tie-downs	104						
	f) Lighting	Flood						
5	Commercial Service Apron	19,042 sq. yds.						
6	Wind Indicator &							
	Segmented Circle							
<u> </u>	a) Location	Between parallel taxiway and Runway 20						
7	AWOS-3	N. 5. 00 I						
	a) Location	Near Runway 20 end						
8	8 Beacon							
	a) Location On top of ATCT							
	Physical Site							
1	Location	7 miles west of Concord, NC						
2	Counties Served Cabarrus, Davidson, Iredell, Catawba, Rowan, Stanly, Mecklenburg							



	Table E.2-1							
	Inventory of Existing Facilities							
	Concord-Padgett Regional Airport							
3								
		I-85 to Poplar Tent Road to Derita Road to Aviation Boulevard						
4								
5	Airport Elevation	705'						
6	Airport Ownership	City of Concord						
C.	Terminal Facilities/Service	ces						
1	Commercial Service Terminal	25,000 sf – single story						
2	General Aviation Terminal	12,618 sf (6,308 sf - ground floor, 6,310 sf	– upper floor)					
3	Automobile Parking	Total spaces – 1,513						
	_	Parking Deck (in front of commercial service	e terminal) - 700					
		Daily parking (in front of general aviation te	rminal) - 32					
		Car rental (south of daily parking) – 24						
		South parking lot - 174						
		North lot (next to Hangar A) – 90						
		South Long Term (gravel lot on south side						
		North Long Term (gravel lot on south side of	of Aviation Boulevard) - 134					
4	Fuel Farm	1 – 15,000 gal. AST Avgas						
		4 – 15,000 gal. AST Jet A						
		1 – 1,000 gal. AST Unleaded Gasoline						
ı		1 – 1,000 gal. AST empty						
<u> </u>		1 – 500 gal. AST Diesel Fuel						
5	Services	Major Airframe Maintenance						
ŀ		Major Power Plant Maintenance						
ŀ		Bottled Oxygen - High						
		Avionics						
ŀ		Interior refinishing Instruction/Sales/Charter/Rental						
6	Hangars	T-hangars 4 – 67 units						
ľ	Tiangais	Hangars – 8						
ŀ		Corporate – 12						
7	Equipment	4 golf carts	4 Hobart ground power units					
1	qaipinont	3 baggage carts	Premier de-ice cart					
ľ		1 tug	1 Eagle tug					
		1 lavcart	6 Helicopter Dollies					
ľ		1 Victory tug	1 beltloader					
ı		1 small Lektro	1 Genie manlift					
		1 pressure washer	1 DC welder/AC generator/Light					
		2 Bush hog bat wings 2 New Holland tractors						
		1 Dodge passenger bus 2 fuel bowsers						
		1 F-350 dump truck with plow 2 Woods tow behind mowers						
		2 tow behind mowers 1 Brush roller tractor attachment						
		1 Woods tow behind land grater 1 Cheetah Scag zero turn mower						
		1 Ford tractor 1 Mule ATV						
		1 Kabota ATV 1 standup Lektro tug						



Table E.2-1									
Inventory of Existing Facilities									
Concord-Padgett Regional Airport									
1 Harlan tug 1 Floor cleaning machine									
		1 Type IV anti-ice cart sprayer 1 De-ice truck type I and type IV							
		2 portable generators 2 Dump trucks with plow/solid de-							
		1 tractor with lawn mower attaching arm	spreader						
8	ARFF	1986 Oshkosh T-3000							
		1995 E-1 Super Duty Ford Cab							
		1998 Oshkosh T-3000							
D.	Flight Navigation Aids								
1	Airport Beacon	36-inch beacon located on top of ATCT							
2	Instrument Approaches	ILS RWY 20							
		GPS RWY 02							
		GPS RWY 20							
		RNAV (GPS) RWY 02							
		RNAV (GPS) RWY 20							
3	Visual Approach Aids	PAPI 4L/RWY 02							
		PAPI 4L/RWY 20							
		REILs RWY 02							
4	Communications &	ILS, GPS							
	NAVAIDs	AWOS-3 133.675							
		CTAF 134.65							
		UNICOM 122.95							
		Charlotte APP/DEP.CON. 128.32							
		Clearance Delivery 127.25							
		Tower 134.65							
		GND CON 121.85							
		Clearance Delivery 118.55							
		Charlotte VOR/DME 115.00							
		ILS /DME 111.95							
5	5 ATCT contract tower operating from 7:00 a.m. to 11:00 p.m., located on top of general aviation terminal building								
Soi	Source: Concord-Padgett Regional Airport, November 2017.								

E.3 Forecast Summary

The forecasts of aviation activity developed as part of this Master Plan Update indicate consistent growth in activity over the next 20 years. The increase in aviation activity at the Concord-Padgett Regional Airport is due in part to the addition of new/upgraded facilities at the Airport as well as the introduction of scheduled air carrier service.



Table E.3-1 (page E-6) provides a summary of the forecasts for the Concord-Padgett Regional Airport throughout the 20-year Master Plan planning period. Based aircraft forecasts are within 10 percent of the FAA Terminal Area Forecasts (TAF) forecasts through 2023. The forecast-based aircraft are below the TAF due to a lower but more accurate starting point of current based aircraft. Forecast annual operations vary from 9.1 percent below to 17.8 percent below the TAF. As discussed earlier in this section, annual operations are anticipated to increase at the same rate as based aircraft at JQF over the planning period. As more aircraft are added to the JQF inventory, operations will increase and therefore, a 0.6 percent average annual increase in airport operations is considered reasonable. Also, the forecast annual operations were developed using airport records which show slightly less operations compared to the TAF.

E.4 Facility Requirements Summary

Table E.4-1 summarizes the facility requirements for the Concord-Padgett Regional Airport and lists the phases in which various facilities will be needed, as driven by demand.

Table E.4-1									
Facility Requirements Summary									
Concord-Padgett Regional Airport									
Current Phase 1 Phase 2 Phase 3									
Facility Capacity Existing (2018-2023) (2024-2028) (2021-2028)									
Runway		7,400' x 100'	7,400' x 150'	7,400' x 150'	7,400' x 150'				
Taxiway		Full-Parallel	Full-Parallel	Full-Parallel	Full-Parallel				
T-Hangar Units	67	62	63	63	63				
Conventional Hangar (sf)	399,637 sf	365,800 sf	403,100 sf	430,400 sf	509,000 sf				
Excess		+33,837							
Total Apron Area (sy)	178,953 sy	263,700 sy	270,800 sy	281,900 sy	302,000 sy				
Deficiency		-84,747							
Automobile Parking Spaces		1,513	1,513	1,713	2,213				
Commercial Service Terminal (sf)		25,000 sf	35,182 sf	37,123 sf	43,327 sf				
General Aviation Terminal (sf) 12,618 sf 20,086 sf 21,027 sf 22,215 sf									
Source: Talbert, Bright & Ellington, Inc., March 2018.									

¹Federal Aviation Administration (L. Bernard Green, CM, AICP), "Chapter 3 - Aviation Forecast Review, AIP Project No. 3-37-0015-003-2017, Airport Master Plan Update, Concord-Padgett Regional Airport (JQF)," forecast approval letter to Concord-Padgett Regional Airport (Dirk Vanderleest) March 1, 2018.



Table E.3-1 Aviation Forecast Summary Concord-Padgett Regional Airport

			Concora 1	augen -	110510114111	mport				
	2017 (Existing)		2018 202		23 2028		28	2038		
	Forecast	TAF	Forecast	TAF	Forecast	TAF	Forecast	TAF	Forecast	TAF
Enplanements and Averag	e Annual Grov	th Rate								
Air Carrier Enplanements	115,074	36,866	117,491	37,634	130,356	41,724	144,631	46,256	178,040	56,858
(Percent Difference from TAF)	(212.1%)		(212.2%)		(212.4%)		(212.7%)		(213.1%)	
Based Aircraft and Averag	e Annual Grov	th Rate								
Single-Engine Piston	107		107		108		108		107	
Multi-Engine Piston	15		15		16		16		17	
Turboprop	8		8		9		9		11	
Jets	23		24		26		30		37	
Helicopters	5		5		5		6		7	
Total Based Aircraft	158	169	159	171	164	185	169	195	179	215
			(0.6%)		(0.6%)		(0.6%)		(0.6%)	
(Percent Difference from TAF)	(-6.5%)		(-7.0%)		(-11.4%)		(-13.3%)		(-16.7%)	
Aircraft Operations and Av	erage Annual	Growth Rat	е							
GA Local	21,844	19,902	21,975	20,200	22,642	21,761	23,329	23,441	24,767	27,203
GA Itinerant	31,205	32,484	31,392	32,517	32,345	32,682	33,328	32,847	35,382	33,177
Air Carrier	2,496	1,979	2,511	2,006	2,588	2,147	2,666	2,299	2,831	2,636
Air Taxi	6,179	6,551	6,216	6,643	6,404	7,112	6,599	7,610	7,006	8,720
Military	686	833	691	833	712	833	734	833	779	833
Total Operations	62,410	68,623	62,785	74,065	64,691	76,766	66,655	79,662	70,764	86,116
			(0.6%)		(0.6%)		(0.6%)		(0.6%)	
(Percent Difference from TAF)	(-9.1%)		(-15.2%)		(-15.7%)		(-16.3%)		(-17.8%)	
Operations per Based Aircraft	395	406	395	433	395	414	394	409	395	401

Source: Federal Aviation Administration, "FAA APO Terminal Area Forecast Detail Report," http://aspm.faa.gov/, accessed January 23, 2018.

Talbert, Bright & Ellington, Inc., January 2018.



Additional airport facilities not included in the previous sections include additional ARFF equipment and command center as the operations/based aircraft increase at the Airport. There is not anticipated change in the ARFF index of the Airport due to future operations. Snow removal equipment is also recommended due to the number of airport users impacted by a shutdown of the Airport during a snowstorm.

One of the key components of the future facility additions will be the short- and long-term sustainability of the Airport. It is important for the Airport to provide the most benefit while utilizing the fewest resources possible. These resources may include fuel, electricity, consumables (such as paper), and water. The Concord-Padgett Regional Airport has taken steps to reduce electric consumption with the addition of LED taxiway lights, which use a fraction of the electricity that halogen bulbs use.

The Airport has also reduced water usage by changing the fire suppression systems in many of the hangars to one that uses less water than a conventional sprinkler system. Other options for increasing sustainability at the Airport include:

- Increased use of skylights/windows on northern facing building walls to reduce the amount of artificial light required
- Increased use of solar panels as the cost of this technology decreases Increased use of LED lighting technology for both direct and indirect airfield lighting
- Coordinated recycling program with the City of Concord for used batteries, oil, and aircraft lubricants in addition to typical household recyclable items
- Energy conscious architecture of future facilities to reduce utility requirements
- Carbon exchange programs with local public/private industry to offset carbon footprint of JQF

A carbon exchange program can be developed and incorporated into the Airport Best Management Practices. This program would work with other city departments to purchase or trade carbon credits. This would offset the carbon emissions from operations at JQF while increasing the environmental sustainability of the facility.

These changes represent some of the potential solutions for achieving airport sustainability, which should be incorporated into the ongoing airport planning process and evolve with the development of future technologies.



E.5 Airport Develoment Program

This section lists each future airport improvement project by phase for the 20-year planning period (2018-2037). Planning estimates of probable construction cost are listed on Table E.5-1 (page 9), as well as a breakdown of potential FAA, state, and local funding sources.

E.6 Airport Layout Plan

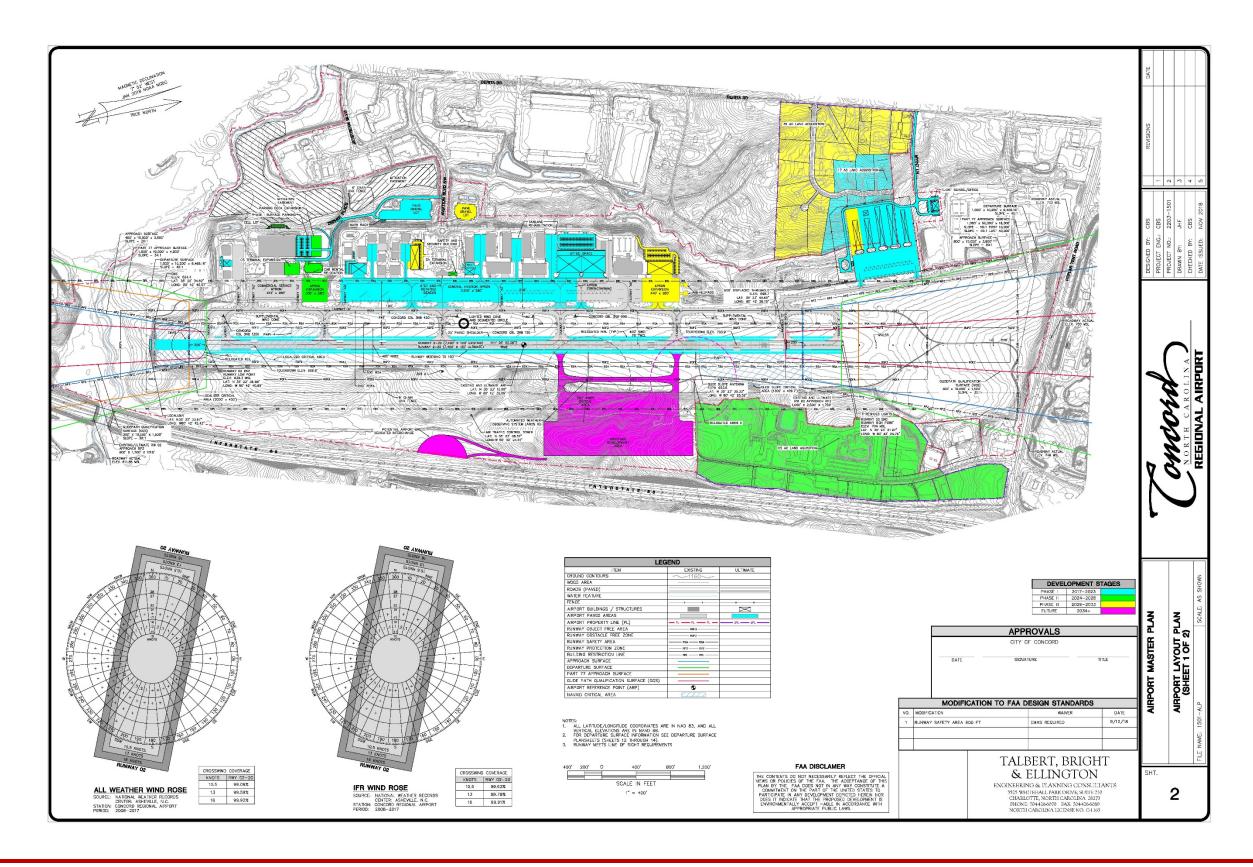
The ALP drawing (pages E-10 and E-11) represents a 20-year, three-phased program, which is required to support the projected activity for JQF.



Table E.5-1 Preliminary Engineer's Opinion of Probable Cost 20-Year Planning Program Concord-Padgett Regional Airport

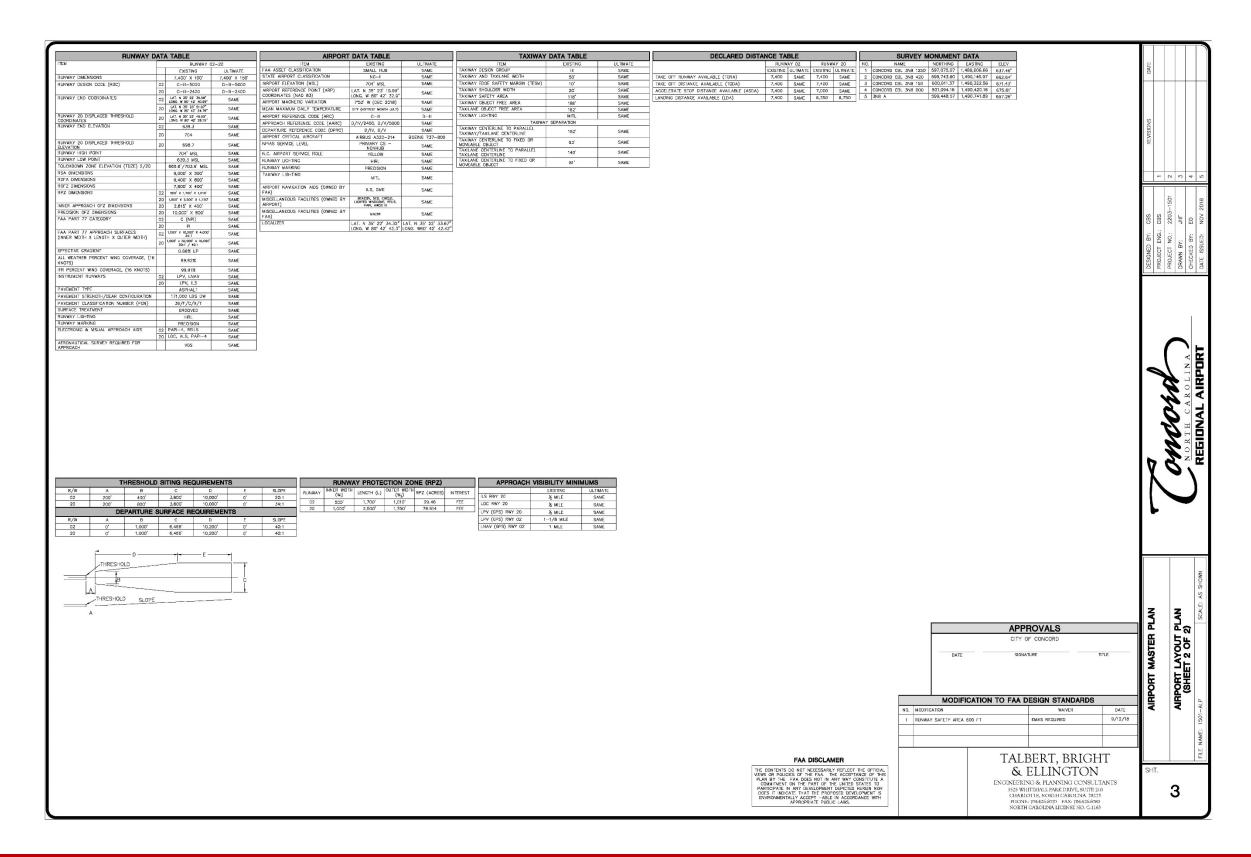
Phase	Project	Estimated Cost	Federal	Local			
-	Runway Widening (25' Each Side)	\$10,984,600	\$9,886,140	\$1,098,460			
I	Runway Shoulder (25' Each Side)	\$8,976,000	\$8,078,400	\$897,600			
	Apron Strengthening	\$5,522,000	\$4,969,800	\$552,200			
I	Taxilane Rehabilitation	\$2,561,000	\$2,304,900	\$256,100			
I	Runway 02 EMAS	\$5,417,000	\$4,875,300	\$541,700			
	Hangar 1	\$2,594,000	\$0	\$2,594,000			
	Hangar 4	\$7,471,920	\$0	\$7,471,920			
	Hangar 13	\$42,613,640	\$0	\$42,613,640			
	Fire Station - Security Center Building	\$4,543,570	\$4,089,213	\$454,357			
	Air Traffic Control Tower	\$3,402,000	\$3,061,800	\$340,200			
I	Land Acquisition Phase 1	\$1,955,374	\$1,759,837	\$195,537			
I	T-Hangars - North	\$39,503,330	\$9,883,370	\$29,619,960			
	SUBTOTAL	\$135,544,434	\$48,908,760	\$86,635,674			
II	South Apron Expansion	\$6,942,000	\$6,247,800	\$694,200			
II	Commercial Service Terminal Expansion	\$10,377,000	\$9,339,300	\$1,037,700			
II	Parking Deck Expansion	\$12,599,000	\$0	\$12,599,000			
II	General Aviation Terminal Expansion	\$5,095,000	\$4,585,500	\$509,500			
II	Rental Car Parking Lot Pavement	\$1,431,000	\$0	\$1,431,000			
II	Cell Phone Parking Lot	\$286,000	\$257,400	\$28,600			
II	Rental Car Wash Rack	\$669,000	\$602,100	\$66,900			
II	Commercial Service Terminal Access Road	\$3,268,000	\$2,941,200	\$326,800			
II	Pave South Gravel Lot	\$941,000	\$0	\$941,000			
II	Land Acquisition Phase 2	\$7,369,949	\$6,632,954	\$736,995			
	SUBTOTAL	\$48,977,949	\$30,606,254	\$18,371,695			
III	Hangar 9	\$8,040,900	\$0	\$8,040,900			
III	Hangar 14 and North Apron Expansion	\$20,037,550	\$3,599,940	\$16,437,610			
III	Hangar 16	\$3,711,310	\$0	\$3,711,310			
III	Pave North Gravel Lot	\$428,000	\$0	\$428,000			
III	Helipads	\$405,000	\$364,500	\$40,500			
III	Land Acquisition Phase 3	\$6,962,500	\$6,266,250	\$696,250			
	SUBTOTAL	\$39,585,260	\$10,230,690	\$29,354,570			
	TOTAL 20-YEAR PROGRAM	\$224,107,643	\$89,745,704	\$134,361,939			
Source: Talbert, Bright & Ellington, Inc., December 2018, revised March 2019.							





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TALBERT, BRIGHT & ELLINGTON, INC.

E-11