

Twin County Airport Master Plan Update



TWIN COUNTY AIRPORT

FINAL

April 2022

FAA AIP Grant Number: 3-51-0020-015-2018

DOAV Grant Number: CF0020-15

Prepared for:

Twin County Airport Commission

504 Hangar Road
Hillsville, VA 24343

Prepared by:

Talbert and Bright

10105 Krause Road, Suite 100
Chesterfield, Virginia 23832

CHAPTER 1 - INVENTORY

1.0	INTRODUCTION	1
1.1	Objectives	1
1.2	Airport Location and Property	1
1.3	Airport History	3
1.4	Airport Role	3
1.5	Airport Facilities	4
1.6	Fuel Farm	5
1.7	Apron and Hangars	6
1.8	Fixed Base Operator (FBO)	7
1.9	Terminal Building	7
1.10	Auto Parking	7
1.11	Airport Access	8
1.12	Airport Maintenance Facility	8
1.13	Navigational Aids (NAVAIDS)	8
1.14	Airspace	8
1.15	Approach Procedures	9
1.16	Approach Lighting	9
1.17	Rotating Beacon	10
1.18	Additional Airport Facilities	10
1.19	Airport Aerial Survey	10

CHAPTER 2 - FORECASTS

2.0	FORECASTS OF AVIATION ACTIVITY	13
2.1	Existing Airport Activity Levels	13
2.2	FAA & VATSP Reported Activity Levels	14
2.3	2009 Twin County Airport Layout Plan Forecasts	14
2.4	Forecast of Based Aircraft	15
2.5	Forecast of Aircraft Operations	17
2.6	Operations by Aircraft Type	19
2.7	Local and Itinerant Operations Forecast	20
2.8	Instrument Operations Forecasts	21
2.9	Forecast of Airport Peaking Characteristics	22
2.10	Passenger Forecasts	22
2.11	Critical Aircraft Forecast	23
2.12	Summary	24

CHAPTER 3 – FACILITY REQUIREMENTS

3.0 FACILITY REQUIREMENTS26

 3.0.1 Airfield Capacity and Delay26

 3.0.2 Airport Service Level.....26

 3.0.3 Airport Reference Code26

3.1 AIRPORT GEOMETRY27

 3.1.1 Runway Wind Coverage28

 3.1.2 Runway Length Requirements.....28

 3.1.3 Runway Heading.....29

 3.1.4 Runway Width29

 3.1.5 Pavement Strength and Condition30

 3.1.6 Runway Protection Zones32

 3.1.7 Runway Safety Area33

 3.1.8 Runway Obstacle Free Zone.....34

 3.1.9 Runway Object Free Area.....34

 3.1.10 Runway Line of Sight34

 3.1.11 Runway Edge Lighting and Signage.....34

 3.1.12 Helipad.....35

 3.1.13 Taxiway Requirements35

 3.1.14 Taxiway Edge Lighting.....36

 3.1.15 Taxilane System.....36

3.2 AIRSIDE FACILITY REQUIREMENTS37

 3.2.1 Aircraft Storage.....37

 3.2.2 T-Hangar Storage.....37

 3.2.3 Conventional Hangar Storage38

 3.2.4 Apron Area.....38

 3.2.5 Transient Aircraft Storage.....38

 3.2.6 Fueling Facilities.....39

 3.2.7 Perimeter Fencing39

 3.2.8 Approach Capabilities.....40

 3.2.9 Automated Weather Observing System.....40

 3.2.10 Additional Airside Facility Requirements40

3.3 LANDSIDE FACILITY REQUIREMENTS41

 3.3.1 Terminal Building41

 3.3.2 Auto Parking41

 3.3.3 Landside Access.....42

 3.3.4 Airfield Maintenance Storage Facility.....42

3.4 AIRPORT OBSTRUCTIONS42

3.5 ENVIRONMENTAL OVERVIEW44

 3.5.1 Cultural Resources45

 3.5.2 Wetlands46

 3.5.3 Floodplains.....47

3.6 AIRPORT RECYCLING, REUSE, and WASTE REDUCTION48

3.6.1	Facility Description and Background	49
3.6.2	Review of Recycling Feasibility	49
3.6.3	Operation and Maintenance (O&M) Requirements.....	49
3.6.4	Review of Waste Management Contracts.....	49
3.6.5	Potential for Cost Savings or Revenue Generation.....	50
3.6.6	Plan to Minimize Solid Waste Generation.....	50
3.7	FACILITY REQUIREMENTS SUMMARY.....	51

CHAPTER 4 – DEVELOPMENT ALTERNATIVES

4.0	DEVELOPMENT ALTERNATIVES	52
4.1	Runway Alternatives.....	52
4.2	Approach Capabilities.....	53
4.3	Taxiway Alternatives	53
4.4	Hangar Development Alternatives.....	54
4.5	Additional Airport Facility Alternatives	58
4.6	Obstructions	58
4.7	Alternatives Evaluation Matrix.....	58
4.8	Recommended Development and Phasing.....	62
4.9	Recommended Development Cost Estimate.....	64

CHAPTER 5 – AIRPORT DEVELOPMENT & FINANCIAL PLAN

5.0	AIRPORT DEVELOPMENT & FINANCIAL PLAN.....	66
5.1	AIRPORT LAYOUT PLAN.....	66
5.1.1	Title Sheet	66
5.1.2	Airport Layout Plan Drawing	67
5.1.3	Terminal Area Plan	67
5.1.4	Inner Approach Surface Drawing	67
5.1.5	Airport Airspace Drawing.....	68
5.1.6	Airport Property Map.....	68
5.2	AIRPORT DEVELOPMENT PROGRAM PHASING.....	69
5.3	AIRPORT FINANCIAL PLAN	70
5.3.1	Funding Sources.....	70
5.3.2	Proposed Development Cost Estimate.....	72

TABLES

Table 1.1 Existing Airport Facilities4

Table 1.2 Airport Hangars6

Table 1.3 Auto Parking Facilities8

Table 2.1 Twin County Airport Activity14

Table 2.2 2018 FAA & DOAV Activity Records.....14

Table 2.3 2007 HLX Airport Layout Plan – Forecast Summary15

Table 2.4 Based Aircraft Forecast Comparison16

Table 2.5 Based Aircraft Forecast by Type17

Table 2.6 Annual Operations Forecast Comparison19

Table 2.7 Historical Percentage of Aircraft Operations by Type20

Table 2.8 HLX Forecast Operations by Aircraft Type20

Table 2.9 Percentage of Operations by Type20

Table 2.10 Annual Operations by Type21

Table 2.11 Instrument Operations Forecast21

Table 2.12 Airport Operations Peaking Characteristics.....22

Table 2.13 Airport Passenger Forecasts.....22

Table 2.14 Aircraft Approach Categories23

Table 2.15 Airplane Design Groups23

Table 2.16 Existing and Future Family of Critical Aircraft.....24

Table 2.17 Aviation Forecast Summary25

Table 3.1 Forecast Demand as Percent of ASV26

Table 3.2 Aircraft Approach Category27

Table 3.3 Airplane Design Group27

Table 3.4 Runway Wind Coverage28

Table 3.5 Runway Length Requirements.....29

Table 3.6 Pavement Weight Bearing Capacity30

Table 3.7 Critical Aircraft Wheel/Weight Characteristics.....30

Table 3.8 FKN Pavement Condition and Phasing31

Table 3.9 Runway Protection Zone (RPZ) Dimensions and Design Standards.....32

Table 3.10 Runway Safety Area Dimensions and Design Standards33

Table 3.11 Runway Object Free Area Dimensions and Design Standards.....34

Table 3.12 Taxiway Design Standards35

Table 3.13 Based Aircraft Storage Ratios.....37

Table 3.14 Transient Aircraft Storage Ratios39

Table 3.15 Aircraft Storage Requirements39

Table 3.16 DOAV Proposed NAVAID Improvements at FKN40

Table 3.17 Auto Parking Space Requirements42

Table 3.18 Twin County Airport Obstruction Areas44

Table 3.19 Facility Requirements Summary.....51

Table 4.1 Development Phases52

Table 4.2	Alternatives Matrix	59
Table 4.3	Recommended Development Cost Estimate.....	64
Table 5.1	Runway Approach Surface Dimensions	68
Table 5.2	Development Cost Estimate.....	72

EXHIBITS

Exhibit 1-1	Location & Vicinity Maps	2
Exhibit 1-2	Twin County Airport Overview.....	4
Exhibit 1-3	Twin County Airport Fuel Farm.....	5
Exhibit 1-4	Twin County Airport Hangars	6
Exhibit 1-5	Twin County Airport Terminal Building.....	7
Exhibit 1-6	Twin County Airport Airspace	9
Exhibit 1-7	Runway 1 RNAV (GPS) Approach Procedure.....	11
Exhibit 1-8	Runway 19 RNAV (GPS) Approach Procedure.....	12
Exhibit 3-1	2020 HLX PCI Data.....	32
Exhibit 3-2	Airport Obstructions	43
Exhibit 3-3	Twin County Airport Cultural Resources	45
Exhibit 3-4	Twin County Airport Wetlands	47
Exhibit 3-5	Twin County Airport Floodplains.....	48
Exhibit 4-1	Alternative 1 – Parallel Taxiway	54
Exhibit 4-2	Alternative 1 – Proposed Corporate Hangar Development	55
Exhibit 4-3	Alternative 1 – Proposed South T-Hangar Development	56
Exhibit 4-4	Alternative 1 – Proposed North T-Hangar Development	56
Exhibit 4-5	Alternative 2 – Proposed South T-Hangar Development	57
Exhibit 4-6	Proposed Development Alternative	60
Exhibit 4-7	Proposed Development Alternative – Obstruction Removal Areas	61

APPENDICES

Appendix A	Glossary/Acronyms
Appendix B	FAA Traffic Flow Management System Counts (TFMSC) Data for HLX - 2017