

SECTION SEVEN COST ESTIMATES AND PROJECT IMPLEMENTATION

Section Seven contains project cost estimates for each of the major facility requirements presented in **Section Three** and depicted on the Airport's Layout Plan. **Figure 7.1** through **Figure 7.4** present an indexing of the identified development items, their location and function. Preliminary cost estimates for design, construction, and construction phase services are provided for each of these projects by phase in **Figure 7.5**. As projects move towards implementation further refinement of the cost estimates should be prepared.

Based on the estimated development costs and analysis for AIP eligibility, potential funding allocations (i.e., FAA, DOAV, and others) are presented in **Figure 7.5**. The funding analysis assumes that AIP projects will receive the maximum funding level of 95-percent throughout the 20-year planning horizon. Where only a portion of a proposed development item is considered eligible for AIP funding, potential funding levels are estimated based on previous experience in receiving funding from these agencies. The recommended development plan also depicts a fourth phase of development. This fourth phase represents a full "build-out" scenario for the airfield property. The estimates prepared for this Master Plan Update include preliminary cost estimates for the fourth phase; however, these costs are presented separate from Phase 1, 2 and 3 costs. All cost estimates are in 2007 dollars and are not adjusted to reflect inflation. Estimates for professional planning, engineering, and construction management services are also provided. It should be noted that efficiencies in design and construction could be gained by combining projects together. Similarly, total project cost could be higher if a project is divided and funded in separate components.

The planned development at Virginia Tech-Montgomery Executive Airport clusters around four items throughout the current 20-year planning horizon: 1) Terminal Area, 2) Western Corporate Area, 3) Runway-Taxiway Development, and 4) Miscellaneous Improvements. The development focuses on creating distinct Corporate and Single Engine Aircraft nodes that serve specific air transportation needs, accommodating the forecasted 20-year demand levels.

The total cost to implement Phase 1, 2 and 3 development items totals over **\$37.8 million**, with an additional **\$45.4 million** for Phase 4 development (**Figure 7.4**). Approximately **\$5.9 million** or 7.1-

percent of the estimated implementation cost of the Airport Layout Plan is associated with the purchasing of Land to clear both of the airport's Ultimate RPZ areas and land to expand the RSA to meet standard. An additional **\$12.3 million** or 14.8% of the overall development plan is associated with realigning Tech Center Drive and the Huckleberry Trail, grading of the Ultimate RW 12 RSA and constructing the 1,535' Runway extension. The airport should initially concentrate on continuing efforts to improve safety on and off the airfield through the purchase of land to control and clear the Runway Protection Zones, acquire the necessary land to meet RSA standards, and remove structures that penetrate part 77 surfaces or are incompatible with the RPZ's.

7.1 PHASE 1 (YEARS 2008-2013) DEVELOPMENT

The implementation of development items depicted in Phase 1 (years 0-5) is estimated to cost more than **\$23.4 million**. The approximate federal share of Phase 1 development is **\$15.9 million** (67.9-percent) and the DOAV share of development is **\$2.4 million** (10.3-percent). The remaining **\$5.1 million** (21.8-percent) of Phase 1 development costs is associated with private/public partnerships, or third party development. The initial Public investment in Phase 1 development is associated with the Environmental Assessment for ALP projects.

7.1.1 Terminal Area (East Airfield) Development

The projects included on the Terminal Area include the demolition of the old Group Hangar in order to remove it as a penetration to the airfields Part 77 Transitional surface. The area occupied by the old Group Hangar will be rehabilitated and the site prepared for a future building that will meet the appropriate height restrictions. Along with the area occupied by the old hangar structure 5,400 square yards of older apron pavement located around the old hangar building will be rehabilitated.

Figure 7.1
Phase 1, Projects

Project	Location	Purpose
Environmental Assessment		Environmental Permits and Approvals for ALP projects
Corp. Hangars	West Apron Area Adjacent to Terminal	Two 15,000 square ft Corp. Hangar
Runway-Taxiway Rehab	Runway-Taxiway	Rehabilitate or Repave existing pavement
Based Aircraft Apron	West Apron in Front of New T-hangars	Provide Tie-down positions for Based Aircraft and remove Based Aircraft from Old RW 8-26 pavement. Also provide Access from Taxiway to new T-hangars. Apron is Approximately 18,000sy
T-Hangars	West of Terminal	Construct 14 Unit T-Hangar Building to meet Chapter 3 Facility Need
Parking Lots	West of Terminal	Parking facilities to Support Airfield Development
Demolish Old Hangar	East of Terminal	Remove 1 Old Group Hangar (Hokie Hangar) and Grade/Rehab Site
RW 30 RPZ Land Acquisition	East of Airfield	Purchase and Clear Remaining Properties in Ultimate RW 30 RPZ
RW 12 Land Acquisition	West of Airfield	Purchase area necessary for RW and RSA extension and RPZ protection
Relocate Tech Center Dr. and Huckleberry Trail	West of Airfield	Prior to extending the runway it is necessary to relocated the Tech Center Drive and the Huckleberry Trail outside the Runways future RSA

7.1.2 West Corporate Area Development

The Phase 1 focus will be the construction of a new Group Hangar to replace the older Group Hangar (Hokie Hangar). With the completion of the Phase II terminal apron expansion in 2008 two of the proposed group hangars will be able to front onto the new apron expansion area. With the completion of the first group hangar's site in 2008, the building is anticipated to be constructed in 2009-2010. The Second group hangar is anticipated to be constructed in 2011-2012 to meet the forecasted demand. The redevelopment of old the Runway 8-26 will continue and apron space will be constructed to provide a new based aircraft apron to replace the existing old tie-down line. A new 14 unit t-hangar structure is proposed, taxi-lanes would be constructed as part of the project to provide the t-hangars with the necessary access to the airports runway and taxiway. A 600' long segment of the perimeter road will

also be constructed in this phase. This portion of the perimeter road will provide access from the Terminal to the group hangars and the new t-hangar buildings.

7.1.3 Runway-Taxiway Development

The runway and taxiway improvements will focus initially on acquiring control of the necessary land to perform the construction and grading for the proposed runway expansion and its associated RSA areas. It is recommended that the Airport control the Ultimate RSA area in Fee, however appropriate control of the RPZ may be established through easement. The total cost to complete the land acquisitions and perform the necessary relocations in Phase 1 is **\$5.9 million**. The Ultimate Runway and RSA design may also begin in the later part of Phase 1. Tech Center Drive and the Huckleberry Trail will need to be relocated during phase I as the runway can not be extended until the existing road alignment is closed. The estimated cost to relocate the road and the trails is **\$3.0 million**. During Phase 1 the existing runway and taxiways will need to be rehabilitated. The cost of this pavement rehab project is **\$4.0 million**, design and construction of this rehab should take into consideration the future C-II standards of the airfield.

7.1.4 Miscellaneous

Phase 1 includes funding for the Environmental Assessment in order to perform the appropriate environmental coordination and receive the necessary environmental approvals for the ALP projects. The EA is anticipated to cost **\$300,000**.

7.2 PHASE 2 (YEARS 2013-2018) DEVELOPMENT

The implementation of development items depicted in Phase 2 (Years 2013-2018) is anticipated to cost approximately **\$14.3 million**. The approximate federal share of Phase 2 development is **\$11.2 million** (78.0-percent), and the DOAV share of development is **\$1.0 million** (7-percent). The remaining **\$2.2 million** (15.4-percent) of Phase 2 development is associated with private/public partnerships, or third party development. The largest public investment in Phase 2 is the construction of the RW 12 extension and its associated RSA improvements.

7.2.1 Terminal Area Development

Total Phase 2 cost, associated with the Terminal Area, is about **\$2.3 million**. This includes the design and construction of an expansion to the airport's terminal building and the construction of new parking

facilities to support terminal needs. The construction of a new Av-Gas self serve fuel center with a 500 gallon day tank is proposed to allow GA pilots/users to fuel their aircraft adjacent to the Terminal. In addition, the two older brick structures will be demolished and a new facility to store and maintain airport equipment will be constructed.

7.2.2 West Corporate Area Development

The construction of a new fuel farm and the completion of the perimeter road is the focus of the Phase 2 development in this area. The perimeter road will be extended from the new t-hangar development west past the ultimate corporate hangar development and connect to the new fuel farm site. This road will allow fuel tenders to access the fuel farm without driving across the airport's apron and taxi-lanes. It should also be noted that any portion of Phase 1 projects that are not completed will be pursued during this phase.

7.2.3 Runway-Taxiway Development

With the acquisition of the necessary land in Phase 1, Phase 2 will begin the construction of the Runway 12 extension. Approximately 295,000 cubic yards of cut and 140,000 cubic yards of fill are necessary in this area. For planning purposes it is assumed that 100,000 cubic yards of the cut will require the removal of rock. However, during the design process the geotech survey of this area will provide more detailed information on the amount of rock that can be expected to be removed. In addition, Runway 30 will need to be graded to C-II standard, as such approximately 100,000cy of material will be removed from this runway end. Based on similar projects in the region, the removal of rock is estimated at \$20/cubic yard and the estimate for the remaining cut area is \$10/cubic yard. Cut material that is not used as fill for the RSA can be placed on the airport property's proposed western apron area. The realignment of Tech Center Drive and the affected trails will need to be completed prior to beginning construction on the runway extension to allow the existing alignment to be closed. As part of the Runway Extension the Nav-Aids will need to be adjusted accordingly. This will include the relocation of the 4-box PAPI, the ODALS, as well as extending all the runway and taxiway lighting. It should be noted that the western most ODALS will be located on towers up to 65-feet tall. The total cost for the Runway Taxiway improvements in this phase is **\$9.3 million**.

7.2.4 Miscellaneous

During Phase 2 the National Weather Service's (NWS) 8-acre lease at the western end of Abandoned Runway 8-26 will expire. The ALP depicts the NWS's Upper Air Inflation Building being relocated to

the northeastern portion of the airfield in an area designated for non-aeronautical uses. The cost for constructing the new NWS facility will be born the NWS and is not AIP eligible. The relocation of the NWS's will allow for the removal of their existing facility and construction of a new Stormwater management facility. The Stormwater management facility will be designed to accommodate the ultimate stormwater needs shown on the ALP.

Figure 7.2

Phase 2, Projects

Project	Location	Function
RW, Taxiway, RSA Extension	Western Extension	Extend RW 12 Pavement 1,535' and bring both RW 12 and RW 30 to C-II standard with 1000' RSA's Beyond Runway End.
Wash Racks Self Serve AV-Gas	Adjacent to Terminal	Provide an AV Gas Pump and Day tank (approximately 500 gallon) to allow GA aircraft owners/users to pump there own gas.
Fuel Farm	Western Property	Construct a new Fuel Farm and Remove the existing facility
Perimeter Road	From Terminal to western property	Provide Access to Hangar, Fuel Farm, parking facilities and property to the west of the Terminal Building
Terminal Expansion	Terminal Building	Design and Construction of a 2,000sf expansion to provide additional office, FBO, flight planning, meeting, and leasible space within the Terminal
Terminal Parking	Terminal Area	Construct new parking facility to accommodate terminal needs.
Demolition	East of Terminal	Removal of the two older Brick Buildings
Maintenance Storage Building	East of Terminal	Design and Construction of a New Facility to Store and Maintain Airport Equipment. State Funding will be per the Airport Program Manual.
Storm Water Facility	Western Airfield at end of old 8-26 Runway	A new stormwater facility is needed to manage drainage from the proposed airfield development through all phases of construction. The airfields natural drainage occurs to this portion of the airfield.
Demolition	Upper Air Inflation Building	Upon the completion of the National Weather Services lease this facility will be removed and relocated to another portion of the airfield.

7.3 PHASE 3 (YEARS 2018-2028) DEVELOPMENT

No development is anticipated in Phase 3. However it should be noted that demand for facilities will drive development. As such some of the projects listed in Phase 4 may be constructed earlier as demand present itself.

7.4. POTENTIAL ULTIMATE (YEARS 2028+) DEVELOPMENT

The total development anticipated to occur beyond the planning horizon (2028+ years) is considered to be the potential ultimate build-out for this airfield. The anticipated cost is **\$45.4 million**. This development will primarily include the completion of the West Corporate Apron Area.

Figure 7.3

Phase 4, Projects

Project	Location	Purpose
T-Hangars	West of Terminal	Two 14-unit structures
Apron	West of Terminal	West Apron 86,500 Square Yards of Apron
Corp. Hangars	West of Terminal	95,000 square feet of Storage hangars
Maintenance Hangar	East of Terminal	10,000 square feet, east of Terminal
Executive hangars	West of Terminal	Five 60x60 hangars to the West of Terminal
Parking Lots	Serve Corporate Hangars	Serving new facilities west airfield.
Apron	East of Terminal	6500sy area east of terminal around new Maintenance Hangar
Parking areas	West of Terminal	Provide Parking Facilities adjacent to Hangars
AWOS Relocation	Northwestern Airfield	Relocate the Facility away from proposed hangar development

7.5 PRELIMINARY COST ESTIMATE SUMMARY

Virginia Tech Montgomery Executive Airport will experience a dramatic change in the way the airport operates over the course of the planning horizon. In order to construct the facilities that can accommodate the demand over the next 20 years and beyond, a large investment into the Runway, RSA and RPZ area is necessary. This development will allow the airfield to better accommodate its future general aviation and corporate needs. **Figure 7.4** summarizes the investment needed by phase to implement the facilities recommended in this report and on the Airport Layout Plan.

Figure 7.4				
Preliminary Cost Estimates by Phase				
Phase	Total Cost	Federal Share	State Share	3 rd Party Share
Phase 1	\$23.4 million	\$15.9 million	\$2.4 million	\$5.1 million
Phase 2	\$14.4 million	\$11.2 million	\$1.0 million	\$2.2 million
Phase 3	-----	-----	-----	-----
Phase 4	\$45.4 million	\$13.7 million	\$12.8 million	\$19 million
Total	\$83.2 million	\$40.8 million	\$16.2 million	\$26.3 million

FIGURE 7.5: PRELIMINARY DEVELOPMENT BUDGETS

Ref. #	Project Description	qty	unit	cost/unit	Costs	Design Fees	CM Fees	Total Estimated Costs		Estimated FAA Share %	Estimated DOAV Share %	Estimated Third Party Share %		
								Estimated Costs	Estimated Third Party Share \$					
1	Environmental Assessment	1	LS		\$300,000	\$0		\$300,000	95%	\$285,000	3%	\$9,000	2%	\$6,000
2	RW 30 RPZ Phase II Land Acquisition / Relocation / Building Removal	4	AC	\$95,000	\$380,000	\$70,000		\$450,000	95%	\$427,500	3%	\$13,500	2%	\$9,000
3	RW 30 RPZ Phase I Demolition Grading	1	LS	\$300,000	\$300,000	\$31,000	\$30,000	\$361,000	95%	\$342,950	3%	\$10,830	2%	\$7,220
4	Land Acquisition RW 12 RSA Area	20.3	AC	\$60,000	\$1,218,000	\$50,000		\$1,268,000	95%	\$1,204,600	3%	\$38,040	2%	\$25,360
5	Land Acquisition RW 12 RPZ / Fee Simple	17.3	AC	\$60,000	\$1,038,000	\$50,000		\$1,088,000	95%	\$1,033,600	3%	\$32,640	2%	\$21,760
6	RW 12 Bldg and Uses Removal	1	LS	\$2,000,000	\$2,000,000	\$70,000	\$70,000	\$2,140,000	95%	\$2,033,000	3%	\$64,200	2%	\$42,800
7	Seismic Monitoring Station Relocation	1	LS	\$500,000	\$500,000	\$50,000	\$50,000	\$600,000	95%	\$570,000	3%	\$18,000	2%	\$12,000
8	Rehab Runway and Taxiway Pavement	66000	SY	\$55	\$3,630,000	\$170,000	\$170,000	\$4,000,000	95%	\$3,800,000	3%	\$120,000	2%	\$80,000
9	15,000 sf Corporate Hangar Building #1	1	BLDG	\$1,500,000	\$1,500,000	\$150,000	\$120,000	\$1,770,000	0%	\$0	0%	\$0	100%	\$1,770,000
10	15,000 sf Corporate Hangar Site #2	1	EA	\$800,000	\$800,000	\$120,000	\$120,000	\$1,040,000	0%	\$0	80%	\$832,000	20%	\$208,000
11	15,000 sf Corporate Hangar Building #2	1	BLDG	\$1,500,000	\$1,500,000	\$150,000	\$120,000	\$1,770,000	0%	\$0	0%	\$0	100%	\$1,770,000
12	15,000 sf Corporate Hangar Building #2	1	BLDG	\$1,500,000	\$1,500,000	\$150,000	\$120,000	\$1,770,000	0%	\$0	0%	\$0	100%	\$1,770,000
13	Based Aircraft Apron @ T-hangars (18,000sf)	18000	SY	\$125	\$2,250,000	\$120,000	\$260,000	\$2,630,000	95%	\$2,498,500	3%	\$78,900	2%	\$52,600
14	T-Hangar (14units) Site work, Taxi lanes	1	LS	\$1,200,000	\$1,200,000	\$60,000	\$60,000	\$1,320,000	0%	\$0	80%	\$1,056,000	20%	\$264,000
15	T-Hangar (14units) Building	1	BLDG	\$675,000	\$675,000	\$60,000	\$60,000	\$795,000	0%	\$0	0%	\$0	100%	\$795,000
16	Demolition of Old Group Hangar (Hokie Hangar)	13000	SF	\$12	\$156,000	\$50,000	\$50,000	\$256,000	95%	\$243,200	3%	\$7,680	2%	\$5,120
17	Rehab of Old Group Hangar Site (Hokie Hangar)	2000	SY	\$125	\$250,000	\$0	\$0	\$250,000	95%	\$237,500	3%	\$7,500	2%	\$5,000
18	Tree Removal	1	LS	\$340,000	\$340,000	\$30,000	\$30,000	\$400,000	95%	\$380,000	3%	\$12,000	2%	\$8,000
19	Relocation of Tech Center Drive	1	LS	\$2,200,000	\$2,200,000	\$220,000	\$220,000	\$2,640,000	95%	\$2,508,000	3%	\$79,200	2%	\$52,800
20	Trail	1	LS	\$300,000	\$300,000	\$30,000	\$30,000	\$360,000	95%	\$342,000	3%	\$10,800	2%	\$7,200
SUBTOTAL FOR PHASE - 1					\$20,537,000	\$1,481,000	\$1,420,000	\$23,438,000		\$15,905,850		\$2,390,290		\$5,141,860

Ref. #	Project Description	qty	unit	cost/unit	Costs	Design Fees	CM Fees	Total Estimated Costs		Estimated FAA Share %	Estimated DOAV Share %	Estimated Third Party Share %		
								Estimated Costs	Estimated Third Party Share \$					
3	RW 12 RSA Expansion / Grading	1	LS	\$4,450,000	\$4,450,000	\$220,000	\$220,000	\$4,890,000	95%	\$4,645,500	3%	\$146,700	2%	\$97,800
4	RW 30 RSA Expansion / Grading	1	LS	\$1,200,000	\$1,200,000	\$120,000	\$120,000	\$1,440,000	95%	\$1,368,000	3%	\$43,200	2%	\$28,800
5	RW 12 & Parallel Taxiway 1.535' Extension	17055	SY	\$120	\$2,046,600	\$205,000	\$205,000	\$2,456,600	95%	\$2,333,770	3%	\$73,698	2%	\$49,132
6	Relocation of Navajds, PAPI's and ODALS	1	LS	\$300,000	\$300,000	\$40,000	\$30,000	\$370,000	95%	\$351,500	3%	\$11,100	2%	\$7,400
7	Security Fencing	5900	LF	\$18	\$106,200	\$20,000	\$25,000	\$151,200	95%	\$143,640	3%	\$4,536	2%	\$3,024
8	Terminal Building Expansion	2000	SF	\$200	\$400,000	\$100,000	\$100,000	\$600,000	0%	\$0	50%	\$300,000	50%	\$300,000
9	Auto Parking	2500	SY	\$85	\$212,500	\$21,250	\$25,500	\$259,250	0%	\$0	80%	\$207,400	20%	\$51,850
10	New Maintenance Building/Garage	1	LS	\$800,000	\$800,000	\$100,000	\$100,000	\$1,000,000	0%	\$0	3%	\$31,250	97%	\$970,000
11	Stormwater Facility	1	LS	\$500,000	\$500,000	\$100,000	\$50,000	\$650,000	95%	\$617,500	3%	\$19,500	2%	\$13,000
12	Self Serve Fuel Station	1	LS	\$200,000	\$200,000	\$25,000	\$25,000	\$250,000	0%	\$0	0%	\$0	100%	\$250,000
13	Relocate Fuel Farm	1	EA	\$400,000	\$400,000	\$50,000	\$50,000	\$500,000	0%	\$0	25%	\$125,000	75%	\$375,000
14	Perimeter Road	1	LS	\$1,400,000	\$1,400,000	\$120,000	\$120,000	\$1,640,000	95%	\$1,558,000	3%	\$49,200	2%	\$32,800
15	Demolition of two Brick Buildings East of Terminal	7400	SF	\$12	\$88,800	\$30,000	\$30,000	\$148,800	95%	\$141,360	3%	\$4,464	2%	\$2,976
SUBTOTAL FOR PHASE - 2					\$12,104,100	\$1,151,250	\$1,100,500	\$14,355,850		\$11,159,270		\$1,016,048		\$2,181,782

Ref. #	Project Description	qnty	unit	cost/unit	Costs	Design Fees	CM Fees	Total Estimated Costs		Estimated FAA Share %	Estimated DOAV Share %	Estimated Third Party %
								\$	\$			
PHASE-3 (2018-2028 years)												
NO PROJECTS LISTED												
SUBTOTAL FOR PHASE - III												
					\$0	\$0	\$0	\$0	\$0		\$0	\$0

Ref. #	Project Description	qnty	unit	cost/unit	Costs	Design Fees	CM Fees	Total Estimated Costs		Estimated FAA Share %	Estimated DOAV Share %	Estimated Third Party %		
								\$	\$					
PHASE-4 (2028+years/Buildout)														
1	15,000 sf Corporate Hangar Site #3	1	EA	\$800,000	\$800,000	\$120,000	\$120,000	\$1,040,000	\$1,040,000	0%	80%	20%		
2	15,000 sf Corporate Hangar Building #3	1	BLDG	\$1,500,000	\$1,500,000	\$150,000	\$120,000	\$1,770,000	\$1,770,000	0%	0%	100%		
3	10,000 sf Corporate Hangar Sites	8	EA	\$600,000	\$4,800,000	\$960,000	\$640,000	\$6,400,000	\$6,400,000	0%	80%	20%		
4	10,000 sf Corporate Hangar Building	8	BLDG	\$1,000,000	\$8,000,000	\$960,000	\$640,000	\$9,600,000	\$9,600,000	0%	0%	100%		
5	Executive Hangars Site	5	EA	\$800,000	\$4,000,000	\$300,000	\$250,000	\$4,550,000	\$4,550,000	0%	80%	20%		
6	Executive Hangar Buildings	5	BLDG	\$180,000	\$900,000	\$300,000	\$250,000	\$1,450,000	\$1,450,000	0%	0%	100%		
7	10,000 sf Maintenance Hangar Site	1	EA	\$600,000	\$600,000	\$100,000	\$100,000	\$800,000	\$800,000	0%	80%	20%		
8	10,000 sf Maintenance Hangar Building	1	BLDG	\$1,000,000	\$1,000,000	\$100,000	\$100,000	\$1,200,000	\$1,200,000	0%	0%	100%		
9	T-Hangar (14units) Site work, Taxi lanes	2	EA	\$1,200,000	\$2,400,000	\$120,000	\$120,000	\$2,640,000	\$2,640,000	0%	80%	20%		
10	T-Hangar (14units) Building	2	BLDG	\$675,000	\$1,350,000	\$120,000	\$120,000	\$1,590,000	\$1,590,000	0%	0%	100%		
11	Ultimate Western Apron	86500	SY	\$125	\$10,812,500	\$500,000	\$500,000	\$11,812,500	\$11,812,500	95%	3%	2%		
12	Hold Apron Grading	20000	CY	\$9	\$180,000	\$120,000	\$120,000	\$420,000	\$420,000	95%	3%	2%		
13	AWOS Relocation	6200	SY	\$125	\$775,000	\$75,000	\$75,000	\$925,000	\$925,000	95%	3%	2%		
14	Relocate Rotating Beacon to Ultimate Location	1	LS	\$150,000	\$150,000	\$25,000	\$25,000	\$200,000	\$200,000	95%	3%	2%		
15	Land Acquisition High Knob, RW 30 App. Protector	40	AC	\$20,000	\$800,000	\$80,000	\$20,000	\$920,000	\$920,000	95%	3%	2%		
SUBTOTAL FOR PHASE - IV								\$37,267,500	\$3,950,000	\$3,200,000	\$45,417,500	\$13,658,625	\$12,775,325	\$18,983,550

Note #1 - Project costs are estimated from similar Virginia airport projects including recent construction at BCB.
 Note #2 - Project costs are reflected in 2007 dollar value.
 Note #3 - Combining projects may reduce actual costs due to increased quantities and reduced mobil/demob expenses.
 Note #4 - Land acquisition and relocation costs based on 2006-2007 realty listings for similar properties in the Montgomery County Area

7.6 PRELIMINARY REVENUE & OPERATIONS ESTIMATE SUMMARY

The revenue streams, operational cost, and debt service at the airport will change dramatically over the next 20 years. **Figure 7.6** summarizes the major revenue streams. These revenue streams will help pay for the local share of the capital projects as well for the annual operation and maintenance expenses at the airfield. All revenue is in 2007 dollar amounts. In 2006 Virginia Tech Montgomery Executive had approximately **\$799,400** in operating revenues. For purposes of this report, fuel revenue will increase at the same rate as the forecasted aircraft traffic increases. T-hangar lease rates for the older units are assumed to remain the same; however T-hangar lease rates for the newer units will cover the cost of construction and maintenance. In addition, areas denoted on the ALP for non-aeronautical uses will be developed during Phase 2 and Phase 3 and will be leased at market rates. It should also be noted that **Figure 7.6** indicates that the member jurisdictions provide \$200,000/year to the airfield, this figure will likely change as other revenue streams become available and as capital improvements warrant. The land lease revenue for the proposed fire station is also included in **Figure 7.6** under the Other category.

Figure 7.6				
Preliminary Revenue Estimates by Phase				
Revenue *	(2007)	Phase 1 (2013)	Phase 2 (2018)	Phase 3 (2028)
Leases	\$52,500	\$159,500	\$160,500	\$163,500
Fuel	\$560,000	\$637,000	\$684,000	\$762,000
Sponsor Contr.	\$200,000	\$200,000	\$200,000	\$200,000
Other**	\$40,000	\$42,000	\$45,000	\$45,000
Non-Aeronautical Land Lease(s)	-----	-----	\$24,000	\$48,000
Total	\$852,500	\$1,038,500	\$1,113,500	\$1,227,500

*2006-2007 Revenue Information Provided By BCB

**Includes: front desk sales, event parking, rental car

***For purposes of this analysis maintenance reimbursements are not included

Annual expenditures for the daily management and operation of the airport were **\$860,000** in 2007. Salaries, benefits, insurance, and administrative services accounted for 32% of that cost. Maintenance of

the airport accounted for 13.6% of that cost. As the airport grows insurance cost can be expected to increase with the number of facilities.

The estimated total cost of the development program (**Figure 7-4**) is **\$83.2 million**. To determine the Airport Sponsors local share it is assumed that the building cost to construct Corporate Hangars will be born by private developers and the Sponsor will lease the land to the developer. As such the Sponsor share is the third party share listed in Table 7-4 minus the private corporate hangar building development cost, which totals **\$3.81 million**. Broken out by phase that is **\$1.6 million** for Phase 1, **\$2.21 million** for Phase 2, and **\$0** Phase 3. To provide an estimated cost for the debt service associated with the local share it is assumed that this cost will be amortized over a 20 year period at a rate of 6-percent.

Figure 7.6 summarizes the major operation and debt service cost for the planning horizon. For the purposes of this report it is assumed that the airport's expenses will remain at their projected 2007 level, as provided by their sponsor. In addition, it should be noted that the airport will take on additional debt service if it funds the construction of both the Group Hangar sites and building. The retirement of the existing debt will leave only debt service expenditures for the new capital projects recommended by phase in this chapter.

Figure 7.7				
Preliminary Operation and Debt Service Estimates by Phase				
Revenue	2007	End of Phase1 (2013)	End of Phase2 (2018)	End of Phase 3 (2028)
Operational Expenses	\$860,000	\$860,000	\$860,000	\$860,000
Debt Service From Phase I Projects	_____	\$139,500	\$139,500	\$139,500
Debt Service From Phase II Projects	_____	_____	\$192,000	\$192,000
Debt Service From Phase III Projects	_____	_____	_____	\$0
Total	\$860,000	\$999,500	\$1,191,500	\$1,191,500

*Information provided from BCB

The net position (i.e. revenue versus expenditures) is summarized in **Figure 7.7** for each of the phases. Historically the member jurisdictions of the Airport Authority have provided transfers to the airport to cover the difference between revenue and expenditures. As is shown in **Figure 7.7** the airport will operate at a loss during Phase 2. However, by Phase 3 the airport will break-even and it should be noted that after Phase 3 the debt for Phase 1 projects will begin to be retired, further improving the Airport's position. The revenue generated from anticipated fuel sales and new hangar leases is primarily responsible for closing the cash flow gap and bringing the airport to a break-even point. It should also be noted that if FAA and DOAV funding level percentages for AIP projects were to be reduced, the local share to construct the projects would increase accordingly, making it more difficult achieve a break-even point. However, it is also important to note that Virginia Tech-Montgomery Executive Airport has the potential to induce several million dollars of economic activity annually in the local economy.

Figure 7.8				
Preliminary Net Cash Flow Estimate by Phase				
	2007	Phase 1 (2013)	Phase 2 (2018)	Phase 3 (2028)
(+) Revenue	\$852,500	\$1,038,500	\$1,113,500	\$1,227,500
(-)Expenditures	\$860,000	\$999,500	\$1,191,500	\$1,191,500
Total ()= Loss	(\$7,500)	\$39,000	(-\$78,000)	\$36,000

7.5 REGIONAL ECONOMIC IMPACT

The 2004 Virginia Airport's System Economic Impact Study conducted by DOAV utilized two methods for determining the economic impact of GA airports, by based aircraft and by operation. This study concluded that General Aviation Airports induce approximately \$119,000 in economic activity per based aircraft or \$300 per operation. Using these estimates and the approved forecast, **Figure 7.9** summarizes the estimated potential economic impact of the activity at Virginia Tech Montgomery Executive.

Figure 7.9				
Estimated Induced Regional Economic Impact by Phase				
	2007	Phase 1 (2013)	Phase 2 (2018)	Phase 3 (2028)
By Aircraft Operation	\$5,034,900	\$5,801,700	\$6,580,200	\$8,152,500
By Based Aircraft	\$4,284,000	\$4,879,000	\$5,236,000	\$5,831,000

This simple method demonstrates the large positive economic impact that the operation of this facility has on the region's economy, with its ability to induce between **\$4.9 million** and **\$5.8 million** in economic activity by the end of Phase 1 and between **\$5.8 million** and **\$8.1 million** by the end of Phase 3. This reinforces the notion that whatever net cash flow position the airport achieves operationally, resulting from its direct income and expenses, the much larger consideration is how the airport is helping the region achieve the broader goals of improving the standards of living for residents and businesses in the area.