A. INTRODUCTION

This chapter deals with the description and evaluation of alternative plans leading to the selection of the recommended plan of development for the Sussex County Airport. The facility requirements of the airport to handle the forecast demand were discussed in Chapter Three. The overall objective of this chapter is to evaluate airport development concepts in a straight forward and logical manner. The alternatives provide Sussex County with a basis to plan airport development in the most safe and efficient manner. Each alternative was evaluated for facility requirements, aircraft operational needs, public access and future development capability, with the intent of selecting a preferred operational alternative.

B. GOALS AND OBJECTIVES

The on-set of the Master Plan effort focused on the goals and objectives of the Sussex County Airport. The primary objective of any such effort must be to address any existing non-standard airfield conditions. Existing non-standard conditions at the airport include penetrations to FAR Part 77 surfaces and the insufficient width and poor condition of Runway 13-31.

Following consideration of existing non-standard conditions, the evaluation of development alternatives must focus on the operational objectives of the airport's management and owners. Among these objectives were airfield operational enhancements to attract additional commercial operators, facility development plans to assist airfield maintenance efficiency and additional aircraft storage facilities to anticipate future demand. The key objectives are highlighted below.

- Develop airfield consistent with FAA design standards for ARC C-II aircraft (Preserving ARC C-III criteria when feasible to support based BBJ operator)
- Extend Runway 4-22 to support growing turbojet operations.
- Reopen Runway 10-28 to provide crosswind runway with length and width adequate to serve ARC B-II.

- Acquire property to clear and retain control of existing and future Runway Protection Zones (RPZ).
- Install an ILS with MALSR on Runway 4.
- Complete initial obstruction review with recommendations for a Part 77 penetration control program.
- Provide recommendations for perimeter fencing enhancements to promote airport security.
- Develop alternative development proposals for airfield facilities such as T-hangars and corporate hangars.

C. COMMON ASPECTS OF ALL RUNWAY DEVELOPMENT ALTERNATIVES

As several of the development objectives and consultant recommendations are common to all build alternatives, they are presented in this section of the text, and omitted from repetitive presentation within each alternative. Although the need to address the extension of Runway 4-22 is a common item, the approach to resolving the length demand is quite varied and thus, the runway extension issues form the framework for the airfield operational alternatives.

1. Obstruction Removal and Prevention

Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, establishes standards for determining obstructions in navigable airspace by:

- Setting forth the requirements for notice to the FAA Administrator of certain proposed construction or alteration;
- Providing for aeronautical studies of obstructions to air navigation, to determine their effect on the safe and efficient use of airspace;
- Providing for public hearings on the hazardous effect of proposed construction or alteration on air navigation; and
- Providing for establishing antenna farm areas.

Any existing fixed or mobile objects are, and future objects may be, obstructions to air navigation if they are of greater height than any of the heights or surfaces outlined in FAR Part 77.23. The determination of whether an 'obstruction' is actually a 'hazard to air navigation' is accomplished through an aeronautical study conducted by the FAA. The standards apply to all objects, whether manufactured, objects of natural growth, or terrain.

Existing obstruction data included in this report for the Sussex County Airport is based upon an aerial survey conducted by Potomac Aerial Surveys, Inc. in June 2002. Although airport management has identified and cleared a number of obstructions since the survey, research for this report indicated both natural growth and manufactured objects exist on and off airport property that may be penetrating the Part 77 surfaces and adversely impacting the minimums associated with established instrument approach procedures. Details of the available obstruction data are presented in the Airport Layout Plan (ALP) drawing set contained and described in Chapter Six of this report.

It is recommended that airport management work aggressively to remove any obstructions remaining on airport property and negotiate with the appropriate property owners to mitigate off airport obstructions. Once the obstructions are cleared, an FAA airspace study of the area may allow reductions to the minimums of the instrument flight procedures. A state ordinance protecting PART 77 airspace is found in Titles, 2, 9, and 30 of the Delaware code relating to Aeronautics and Building codes. A local ordinance is found in the "Sussex County Airport Hazard Zoning Ordinance", § 115-144. The ordinance places height restrictions on structures and/or trees in specified zones. The County has also executed avigation easements with several adjacent property owners to protect approach surfaces.

2. Acquisition of Controlling Interest in RPZs

Runway Protection Zones (RPZs) are areas off the runway end to enhance the protection of people and property on the ground. This function is achieved through airport owner control over the RPZ areas. Such control includes the clearing and prevention of incompatible objects and activities. While the FAA prefers that all objects be cleared from the RPZ, some uses are permitted, provided they do not attract wildlife, are outside the OFA, and do not impact NAVAIDS. Land uses prohibited from the RPZ are residences and places of public assembly. Fuel storage facilities should also not be located within an RPZ (Ref: FAA AC 150/5300-13, Paragraph 212).

Existing land survey information indicates that Sussex County currently controls all property within the RPZ areas at the airport. The Runway 4 RPZ is owned in fee simple. The Runway 22 RPZ is also owned in fee simple with exception to approximately 0.5 acres north of Runway 22 which are currently maintained via avigation easement. Easement is acceptable when incorporated with the appropriate land use controls. FAA AC 150/5300-13, Chapter 2, provides specific recommendations related to compatible land use within an RPZ. Details of the existing and future acquisition needs for RPZ areas at the Sussex County Airport are detailed on the Airport Property Map within the ALP drawing set presented and described in Chapter Six of this report.

3. Reduced Instrument Approach Minimums

A review of the existing instrument approach procedures (IAP) was conducted to determine the feasibility of reducing the minimum decision altitude and visibility requirements for non-precision approaches associated with Runway 4-22. Existing minimums for the most critical approach to the airport, an RNAV (GPS) Approach, are 480 feet MSL (approximately 430 feet AGL) and 1-1/4 mile visibility. The terminal instrument procedures (TERPS) records for GED were acquired from FAA Aviation Systems Standards to determine the obstructions preventing lower IAP minimums. Four natural growth obstructions and one manufactured obstruction were identified that

prevent a reduction in visibility minima.

The detailed location of these obstructions are listed on the standard IAP Data Record Sheets within the TERPS data provided in **Appendix C**. It is recommended that the County pursue removal of the natural growth obstructions and explore the options available to remove or reduce the impact of the manufactured obstruction.

Future opportunities may exist to reduce IAP minimums as the Global Positioning Satellite (GPS) System is enhanced by a series of ground based stations known as the Wide Area Augmentation System (WAAS). WAAS is expected to eventually satisfy the Category I instrument approach needs for most airports. Airport management is currently working with the FAA to determine actions necessary to acquire a WAAS based IAP with lower minimums than currently available at the airport.

In the interim, it is recommended the County pursue installation of a precision Instrument Landing System (ILS) to reduce approach minimums. Pending a comprehensive FAA airspace study, minimums associated with an ILS could substantially reduce existing approach minimums.

4. Additional Instrument Approach Procedures

The advantages of pursuing a precision IAP as a supplement to the existing non-precision VOR and RNAV (GPS) approaches, were presented in Chapter Three and the recommended approach is a Category I ILS supported by a MALSR. While great strides have been made recently in WAAS and GPS approaches, the unknown availability of a precision GPS approach will not accommodate the present need for a precision approach at the airport. An analysis was completed to determine which end of the primary runway (Runway 4-22) would best accommodate an ILS.

Two primary ILS options were considered - a Runway 4 approach, and a Runway 22 approach. Each option was reviewed for existing conditions as well as post-runway

extension conditions. Approaches to Runway 13-31 and future Runway 10-28 were not considered in this analysis. Factors considered in the analysis include the following:

Prevailing winds
Land requirements
Physical constraints
Part 77 surfaces
Obstruction removal
Airspace constraints
Construction cost
Noise

Based upon review of the above listed considerations, Runway 4 appears to be the preferred approach for an Instrument Landing System for the airport. The main factors that lead to this determination are the winds and physical constraints.

Prevailing winds during Instrument Meteorological Conditions (IMC) favor a Runway 4 approach. IMC winds are important because most precision approaches are completed during IMC weather. Detailed wind data and IMC windroses can be found in Chapter 1 of this document.

Active railroads are located off both ends of Runway 4-22. The railroad located off the Runway 22 end would be an obstruction to the Part 77 50:1 approach surface for a Runway 22 approach. This would likely require that the existing Runway 22 end be displaced approximately 650 feet. To make matters worse, the railroad off the end of Runway 4 restricts the location of the Runway 22 localizer, such that extending the runway further to accommodate the 650 feet displacement becomes unfeasible. This reduces the usable length of the runway from the proposed 6,000 feet to 5,650 feet, unless the railroad could be relocated, or a waiver approved by FAA to permit the localizer antenna to be located within the 1,000' extended runway safety area off Runway 4.

Another consideration to be made is the softball facility (Sports at the Beach) off the Runway 22 end. While the facility does not specifically pose a technical constraint to an ILS, developing an approach so close to such a large, extensively lighted facility is not recommended.

An ILS can physically be accommodated for a Runway 4 approach (existing or extended) with no waivers or railroad relocations, although land acquisition will be required.

Obstruction removal, airspace, and noise impacts are similar for either runway end, with no significant difference between the existing and post-extension condition. Construction costs are similar as well. Accordingly, Runway 4 is considered the preferred approach for an ILS.

5. Install PAPI – Runway 4-22 and Runway 10-28

The County has replaced the 2-bar, 4-light VASI system on Runway 4-22 with a less expensive and more simplified PAPI lighting system. A PAPI system is also included in the design for the proposed Runway 10-28.

6. ARC Reclassification of Primary Runway 4-22 from B-II to C-II

The FAA has a system to correlate airport design criteria to the operating (approach speed) and physical (wingspan) characteristics of the most demanding aircraft currently using or expected to use a runway with greater than 500 annual itinerant operations. The details of this classification system are contained in FAA AC 150/5300-13. The Airport Reference Code (ARC) system is comprised of two components. The first component, depicted by a letter (A-E), designates the aircraft approach category, determined by approach speed, and the second component, depicted by a roman numeral (I-VI), designates the airplane design group, determined by the wingspan.

Runway 4-22 is currently maintained at ARC B-II design standards. However, the current critical design aircraft is represented by a family of medium size business jets including aircraft within Approach Category C and Design Group II. The designation of Runway 4-22 as a C-II would meet the current and future demand of aircraft using the airport. Although the Boeing Business Jet (ARC C-III) frequently operates at the airport for service at the licensed Boeing maintenance facility, it is not considered the design aircraft because its activity is currently less than 500 annual itinerant operations.

7. Close Runway 13-31 and Develop Runway 10-28 as an ARC B-II

Runway 13-31, the crosswind runway, is currently intended to serve as ARC A-I. However, as discussed in Chapter Three, Facility Requirements, the runway does not meet current design standards and is inadequate to serve the majority of aircraft using the airport today. It has been recommended that the runway be closed permanently and that Runway 10-28 be rehabilitated to serve as the new crosswind. Runway 10-28 will be reconstructed to be 3,500 feet in length with pavement strength of 12,500 lbs. single-wheel loading. The runway will be constructed to ARC B-II design specifications to serve large turboprop aircraft such as the Beechcraft King Air.

The reopening of Runway 10-28 as the crosswind runway was evaluated in the Preliminary Runway 10-28 study conducted by Delta Airport Consultants in 1999, and assessed for environmental impacts in the Environmental Assessment for five-year CIP prepared by Delta in 2003. The development of the runway is presented in this text to document its incorporation into the Master Plan Update. Design of the Runway 10-28 reconstruction is currently underway, and thus details of the development are not included in this alternative evaluation.

8. Realignment of Park Avenue (CR318/Truck Route 9)

Park Avenue, also known as CR 318 or Truck Route 9, runs east-west across the southern boundary of the airport, approximately 1,300 feet south of the existing threshold for

Runway 4. All alternatives considered for extending Runway 4-22 require the realignment of Park Avenue. Following a series of public meetings in which the potential roadway alignment options were presented, airport management directed Delta Airport Consultants to conduct a Roadway Realignment Feasibility Study to analyze three alternatives, as well as determine if other viable alternatives existed.

The three alternatives included; 1) the 'bubble' realignment to relocate Park Avenue beyond the future Runway Safety Area, but tie back into the existing alignment west of the railroad tracks, 2) turn Park Avenue to the south and tie into Arrow Safety Road creating a new intersection at Bedford Street, or 3) turn Park Avenue to the south and tie into Bedford Street at the existing intersection with Zoar Road. Delta enlisted the assistance of Whitman-Requardt Associates (WRA) to prepare the analysis and associated traffic studies. Each roadway alternative is presented in greater detail in Section D(2) of this chapter, and the WRA report in its entirety is provided in **Appendix D.**

D. ALTERNATIVE ANALYSIS

The alternatives considered during this evaluation phase are to reflect some of the feasible concepts for both runway and facility development. Exhibits 4-1 through 4-3 present the runway development alternatives, Exhibit 4-4 the roadway alternatives and Exhibits 4-5 through 4-7 present facility development alternatives.

1. Runway Development Alternatives

Each of the three runway development alternatives were developed specifically for this Master Plan Update to meet the facility requirements necessary to accommodate the existing and 20-year forecasted demand as summarized in Chapter Three. All alternatives are intended to extend Runway 4-22 to support ARC C-II aircraft as a foundation and consider additional measures to assist achievement of GED's operational objectives. Estimated project costs are summarized within each alternative description

and detailed in Chapter Seven of this report. Each alternative is presented below.

Runway Development - Alternative 1

Alternative 1 is focused on extending Runway 4-22's existing 5,000 feet of pavement to 6,000 feet of useable pavement for aircraft take-off and landing. To accomplish this and comply with FAA design standards, the Runway 22 threshold would be shifted 300 feet to the southwest and an additional 1,300 feet of runway pavement would be constructed at the Runway 4 end. The 300 foot shift is required to accommodate the Runway Object Free Area (ROFA) and protect the FAR Part 77 surfaces.

The project would also require realignment of Park Avenue, construction of a new at-grade railroad crossing, relocation of the existing lighting and signage, construction of a parallel taxiway, obstruction removal and approximately 88 acres of fee simple land acquisition for RSA and RPZ control, and road relocation.

Advantages:

- Increased useable runway length to 6,000' with full parallel taxiway.
- Provides greatest useable length of the three alternatives considered for Runway 4-22 without use of declared distances.

Disadvantages:

- Significant investment required.
- Significant land acquisition required.
- Requires relocation of several residences.
- Requires the relocation of Park Avenue and a new at-grade railroad crossing.

The alternative can be developed at an estimated cost of approximately $17.5 million, see **Table 4-1** for details. **Exhibit 4-1** illustrates this alternative.

Table 4-1
Sussex County Airport
Alternative 1 Development Costs

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Land Acquisition – Runway 4-22 Extension (88 acres)	$2,640,000
2	Extend Runway 4 – 1,300’ Construct at-grade railroad crossing, safety area grading	$8,800,000
3	Construct new Runway 4-22 parallel taxiway, and connector taxiways	$4,000,000
4	Install Instrument Landing System (ILS) Install localizer, glide slope, MALSR Obstruction Removal	$2,000,000
	TOTAL ALTERNATIVE 1	**$17,440,000**

Source: Delta Airport Consultants, Inc.

EXHIBIT 4-1

Runway Development - Alternative 2

The effort is focused on extending Runway 4-22's existing 5,000 feet of pavement to 5,400 feet of useable pavement for aircraft landing. The establishment of declared distances would provide 5,400 feet useable runway for takeoff on Runway 4 and 5,700 feet on Runway 22. To accomplish this, the Runway 22 threshold would be shifted 300 feet to the southwest and an additional 1,000 feet of runway pavement would be constructed at the Runway 4 end. The Runway 4 threshold would be displaced 300 feet from the pavement end, while the Runway 22 threshold would be displaced 300 feet.

The project would also require realignment of Park Avenue, relocation of existing lighting and signage, construction of a parallel taxiway and approximately 67 acres of fee simple land acquisition for RSA and RPZ control, as well as road relocation.

Advantages:

- Increased useable runway take-off length of 400 feet on Runway 4 and 700 feet on Runway 22, and an increase of 400 feet for landing on both ends.
- Does not require relocation of at-grade railroad crossing.

Disadvantages:

- 6,000 feet useable runway length is not attained.
- Declared distances used to obtain additional runway length.
- Significant investment required.
- Significant land acquisition required.
- Requires relocation of several residences.
- Requires the relocation of Park Avenue and a new at-grade railroad crossing.

The alternative can be developed at an estimated cost of approximately $16 million, see **Table 4-2** for details. **Exhibit 4-2** illustrates this alternative.

Table 4-2
Sussex County Airport
Alternative 2 Development Costs

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Land acquisition – Runway 4-22 Extension (67 acres)	$2,000,000
2	Extend Runway 4-1,000' Safety area grading	$8,000,000
3	Construct new Runway 4-22 parallel taxiway, and connector taxiways	$4,000,000
4	Install Instrument Landing System (ILS) Install localizer, glide slope, MALSR Obstruction removal	$2,000,000
	TOTAL ALTERNATIVE 2	**$16,000,000**

Source: Delta Airport Consultants, Inc.

EXHIBIT 4-2

Runway Development - Alternative 3

This alternative is focused on extending Runway 4-22 to 5,400 feet of useable runway for landing. The establishment of declared distances would provide 5,700 feet useable runway for take-off on Runway 4 and 6,200 feet on Runway 22. To accomplish this, an additional 1,000 feet of runway pavement would be constructed at the Runway 4 end and 500 feet at the Runway 22 end. The Runway 4 threshold would be displaced 300 feet from the pavement end, while the Runway 22 threshold would be displaced 800 feet.

The project would require the realignment of Park Avenue, relocation of the existing lighting and signage, construction of a parallel taxiway, and approximately 66 acres of fee simple land acquisition for RSA and RPZ control, and road relocation.

Advantages:

- Increased useable runway take-off length of 700 feet on Runway 4 and 1,200 feet on Runway 22, and an increase of 400 feet for aircraft landing on both ends.
- Does not require relocation of at-grade railroad crossing.

Disadvantages:

- 6,000 feet of useable runway length attained only for Runway 22 with established declared distances.
- Declared distances used to obtain additional runway length.
- Significant investment required.
- Significant land acquisition required.
- Requires relocation of several residences.
- Requires the relocation of Park Avenue and a new at-grade railroad crossing.

The alternative can be developed at an estimated cost of approximately $18.3 million, see **Table 4-3** for details. **Exhibit 4-3** illustrates this alternative.

Table 4-3
Sussex County Airport
Alternative 3 Development Costs

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Land acquisition – Runway 4-22 extension (76 acres)	$2,300,000
2	Extend Runway 4 -1,000'/Runway 22 – 500' Safety area grading	$10,000,000
3	Construct new Runway 4-22 parallel taxiway, and connector taxiways	$4,000,000
4	Install Instrument Landing System (ILS) Install localizer, glide slope, MALSR Obstruction removal	$2,000,000
	TOTAL ALTERNATIVE 3	**$18,300,000**

Source: Delta Airport Consultants, Inc.

EXHIBIT 4-3

2. Roadway Realignment Options

As noted previously, each of the three runway development options presented required the realignment of Park Avenue. Three roadway realignment options were developed to accommodate the traffic flow demand as it currently exists. All three options are depicted on **Exhibit 4-4**.

Roadway Alignment - Option 1

Option 1 is intended to maintain the existing traffic flow on Park Avenue by redesigning the roadway around the extended runway and reconnecting to existing Park Avenue west of the railroad tracks to maintain existing travel patterns for existing Truck Route 9. This option requires fee simple acquisition of approximately seven acres affecting 11 properties and requiring the relocation of three residences.

Roadway realignment Option 1 can be developed at an estimated cost of approximately $5.1 million, see **Table 4-4** for details.

Table 4-4
Sussex County Airport
Roadway Alignment Option 1

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Airport Project Costs (includes roadway design, construction and contingencies)	$3,800,000
2	Right of Way Costs	$1,300,000
	TOTAL OPTION 1	**$5,100,000**

Source: WRA Report, March 2005

Roadway Alignment - Option 2

Option 2 impacts fewer property owners and residences and improves the routing of Truck Route 9 via a new intersection at Bedford Street, south of the airport. Option 2 requires approximately seven acres of fee simple land acquisition affecting nine properties and requiring the relocation of two residences.

Roadway Realignment Option 2 can be developed at an estimated cost of approximately $5.0 million, see **Table 4-5** for details.

Table 4-5
Sussex County Airport
Roadway Alignment Option 2

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Airport Project Costs (includes roadway design, construction and contingencies)	$4,000,000
2	Right of Way Costs	$1,000,000
	TOTAL OPTION 2*	**$5,000,000**

Source: WRA Report, March 2005
*Note: DelDOT contributions of $500,000 to improve the new intersection is not included.

Roadway Alignment - Option 3

Option 3 is intended to provide direct access to Truck Route 9 via a new intersection at Zoar Road. Option 3 requires approximately eight acres of fee simple land acquisition affecting 19 properties and requiring the relocation of two residences and one commercial business.

Roadway Alignment Option 3 can be developed at an estimated cost of approximately $5.7 million, see **Table 4-6** for details.

Table 4-6
Sussex County Airport
Roadway Alignment Option 3

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Airport Project Costs (includes roadway design, construction and contingencies)	$4,100,000
2	Right of Way Costs	$1,600,000
	TOTAL OPTION 3*	**$5,700,000**

Source: WRA Report, March 2005
*Note: DelDOT contributions of $500,000 to improve the new intersection is not included.

EXHIBIT 4-4

ROADWAY ALTS

3. Facility Development Alternatives

Three alternatives were considered during the evaluation phase to reflect some of the feasible concepts of future facility development.

Facility Development Alternatives – Common Items

Each of the build alternatives below offers a blend of T-hangars and conventional hangar space. The facility requirements identified in Chapter Three indicate additional T-hangars will be required during the planning period, but note there is adequate conventional hangar space to accommodate both existing and future demand assuming maximum efficiency and space utilization of the hangar space. The owners/tenants of conventional hangars are often regional or national firms that prefer exclusive use of a hangar facility, and such facilities are often developed through private funding. Therefore, while the physical facilities available may indicate adequate space, additional conventional hangar development is anticipated during the planning period. In pursuing this development, it is important for the County to ensure:

- T-hangar facilities and access are planned in advance of need and depicted on the airport's approved ALP,
- Conventional hangars are proposed near existing general aviation activity with additional auto parking easily accommodated, and
- Facilities are located so as to separate piston and turbine powered aircraft operations as much as possible.

Facility Development - Alternative A

Alternative A offers potential development locations for an additional four 8-unit T-hangars totaling 40,000 square feet and eight (8) conventional hangars totaling 75,200 square feet.

The alternative can be developed at an estimated cost of approximately $8 million, see **Table 4-7. Exhibit 4-5** illustrates this alternative.

Table 4-7
Sussex County Airport
Facility Development Alternative A Development Costs

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Conventional Hangars	
	2 - 60'x60'	$680,000
	2 - 100'x100'	$1,700,000
	4 - 100'x120'	$4,080,000
2	T-Hangars	
	4– 8-unit	$1,600,000
	TOTAL ALTERNATIVE A	**$8,060,000**

Source: Delta Airport Consultants, Inc.
*Note: Estimates include buildings and site work. Portions of public use apron and connecting taxiways may be AIP eligible.

EXHIBIT 4-5

Facility Development - Alternative B

Alternative B offers potential development locations for four 6-unit T-hangars, and three 10-unit T-hangars, totaling 67,500 square feet and eight (8) conventional hangars, totaling 100,000 square feet.

The alternative can be developed at an estimated cost of approximately $11 million, see **Table 4-8** for details. **Exhibit 4-6** illustrates this alternative.

Table 4-8
Sussex County Airport
Facility Development Alternative B Development Costs

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Conventional Hangars	
	4 - 100'x100'	$3,400,000
	2 - 120'x150'	$3,060,000
	2 - 100'x120'	$2,040,000
2	T-Hangars	
	4 - 6 unit	$1,200,000
	3 - 10 unit	$1,500,000
	TOTAL ALTERNATIVE B	**$11,200,000**

Source: Delta Airport Consultants, Inc.
*Note: Estimates include buildings and site work. Portions of public use apron and connecting taxiways may be AIP eligible.

EXHIBIT 4-6

Alternative B

Facility Development - Alternative C

Alternative C offers potential development locations for an additional three 8-unit and three 10-unit T-hangars (67,500 square feet) and six (6) conventional hangars (64,000 square feet).

The alternative can be developed at an estimated cost of approximately $8 million, see **Table 4-9** for details. **Exhibit 4-7** illustrates this alternative.

Table 4-9
Sussex County Airport
Facility Development Alternative C Development Costs

NO.	PROJECT	TOTAL ESTIMATED COSTS
1	Conventional Hangars	
	4 - 100'x100'	$3,400,000
	2 - 100 'x120'	$2,040,000
2	T-Hangars	
	3 - 8 unit	$1,200,000
	3 – 10 unit	$1,500,000
	TOTAL ALTERNATIVE C	**$8,140,000**

Source: Delta Airport Consultants, Inc.

EXHIBIT 4-7

Alternative C

E. CONCLUSIONS AND RECOMMENDATIONS

After reviewing and evaluating the three alternatives for Runway Development, Alternative 1 is recommended as the preferred operational alternative. Alternative 1 offers the advantage of attaining full compliance with FAA design criteria and meeting the present and future needs of the airport.

Alternative #1 provides for 6,000 feet of useable runway length; the distance required to adequately serve the family of medium size business jets currently operating at the airport, as well as the Boeing Business Jet (BBJ-B737) activity generated by the onsite maintenance facility for that aircraft. The other two alternatives either do not achieve a similar level of compliance with the FAA design criteria or do not provide adequate runway length for current and future demand. **Table 4-10** highlights the estimated costs and compliance success of each alternative.

Table 4-10
Sussex County Airport
Runway Alternative Summary

RUNWAY DEVELOPMENT ALTERNATIVE	FAA COMPLIANCE ACHIEVED	ESTIMATED COST ($ MILLIONS)
#1	Yes	17.5
#2	Yes*	16.0
#3	Yes*	18.3

* Requires establishment of declared distance to maximize runway length available.

After reviewing and evaluating the three roadway alignment alternatives as presented in the Roadway Realignment Feasibility Study prepared by WRA, the FAA expressed support for the recommended Arrow Safety Road option (Alternative 2), and the County concurred with this preferred option.

After reviewing and evaluating the three alternatives for Facility Development, Alternative C is recommended as the preferred operational alternative. Alternative C offers proposed locations for both conventional hangars and T-hangars that complement the existing development, and provides the most attractive development model for the

future. A blend of the three alternatives will be depicted on the ALP to provide airport management a land use planning guide for ultimate development.

The Facility Development alternatives range in estimated cost from $8 million to $11 million and depend largely on the commitment of private funding to initiate development.