APPENDIX D

ALTERNATIVES DEVELOPMENT AND ANALYSIS

Field Reconnaissance Report

Anticipated Maintenance and Operations Costs

Construction Cost Estimates

Field Reconnaissance Report

TRIP REPORT

Subject:	August 2006 Field Recon	**Date:**	8-29-06 To 8-31-06
RE:		**PDC #** **Name:**	F05077 Kotzebue Airport Master Plan Stage 1
Location:	Kotzebue, Alaska		

1.0 INTRODUCTION

The purpose of the recon trip was to investigate the Baldwin Peninsula to consider areas that could be used for a new airport. The project team members included:

- Donna Gardino, DOT&PF, Project Manager
- Royce Conlon, PDC, Project Manager
- Ken Risse, PDC, Civil Design
- Pete Hardcastle, R&M, Geologist
- Janet Kidd, ABR, Environmental Analyst
- Catherine Williams, NLU, Archeologist

Others that accepted the invitation to participate in the recon effort included:

- Derrick Martin, City of Kotzebue, Capital Projects Manager
- John Ehrlich, City of Kotzebue, City Planner
- Alex Whiting, Native Village of Kotzebue, Environmental Specialist
- Walter Sampson, Nana Regional Corporation, Lands and Natural Resources
- Ernie Norton, KIC Corporation, General Manager-Lands
- Caleb Pungowiyi, Maniilaq
- Ninel Shestakovich, Maniilaq

2.0 LOGISTICS

Team members traveled to Kotzebue by commercial aircraft. In Kotzebue, we rented a suburban to observe conditions and landforms that were road accessible. A Robinson R44 helicopter (3 passengers plus pilot) piloted by John Gibson was chartered from Pollux Aviation to observe and investigate areas on the peninsula that were otherwise inaccessible. The weather was perfect for the entire trip, with clear skies, no precipitation, and enough wind to keep the insects down. Temperature ranged from 40-60 degrees F.

Shortly after arriving, Royce and Donna attended a meeting and spoke about the Kotzebue Airport and described the work we were doing for the project. Ernie and I went out with the Suburban and drove along the beach south of Kotzebue. Individual native allotments in this area have been mined for gravel for small projects; it is not a significant source for larger projects like an airport relocation. Later we drove out near the wind generator towers south of Kotzebue, and returned to Kotzebue on Vortac Lake Road.

1028 Aurora Drive
Fairbanks, AK 99709
T: 907.452.1414
F: 907.456.2707

We had an informal organizational meeting at the Nulagvik Hotel where we were staying. Recon participants were divided into groups of three persons each to fly out and observe, photograph, and investigate areas of potential airport relocation. Adjustable frequency radios were used to communicate with the pilot and groups on the ground.

3.0 AERIAL RECONNAISSANCE

Relocation Sites

Potential relocation areas were investigated. An ideal relocation site would have desirable features such as:

- Flat topography
- Good foundation soils
- Near the population center
- Close to existing roads, power, and other utilities
- Vacant land
- No airspace obstructions
- Allows runway orientations aligned with the prevailing winds

To accommodate the design requirements of Category C&D aircraft, the runway, taxiway and apron profiles are less than 1.5%. To avoid excavation into the permafrost, the flattest topography should be chosen to minimize the embankment cost. Advantages of close proximity to the community include lower construction, maintenance and user costs. If vacant land is available, the property acquisition is simpler and relocation costs of displaced property owners are eliminated. Wind generators, communications towers and terrain are all airspace obstructions considered in reviewing the potential airport relocation sites. While flying over the peninsula, we looked for sites that provide for an east-west orientation for the primary runway, similar to the present layout for wind considerations.

Some potential relocation sites visited in the reconnaissance trip include a ridge site approximately six miles east of Kotzebue, and two sites on the north and south side of Sadie Creek.

Ridge Site: The ridge site is generally east-west in orientation, with the land sloping off gently to the north and south. We landed near the intersection of Sections 3, 4, 33 and 34. This was a good vantage point, but the high point in the middle of the ridge may either have to be cut down or runway ends built up very high to achieve sight distance from one end of the runway to the other. The gentle slope perpendicular to the ridge is likely to be steeper than the allowable profile grades. Permafrost was found within 18 inches of the surface, and the seasonally thawed soil was very wet. Snow drifting is likely to be less severe on the ridges than at lower elevations. Lands are owned by the Nana Regional Corporation, both surface and subsurface.

Sadie Creek North. We looked at several areas for possible runways on the north side of Sadie Creek. The higher ground was irregular with in the terrain elevations varying by 20-30 feet. The

lower lands were flatter, but swampier and not well drained. All test probes found permafrost within 18 inches of the surface. All the land considered for airport relocation in this area is vacant. Most lands in this area are owned by Nana Regional Corporation. Depending on site selection and airport configuration, KIC lands may also be required.

Sadie Creek South. South of Sadie Creek the terrain is flat with areas of typical polygonal permafrost topography. Access to the site will require a bridge or large culverts crossing Sadie Creek. The road that bypasses the current airport crosses June Creek though 20'diameter multiplate culverts, Sadie Creek drains a larger area than June Creek. Lands along the coast are Native Allotments, the interior lands are owned by Nana and KIC.

Material Sites.

One of the goals of the recon trip was to observe existing and potential future material sites that could support an airport relocation project. Pete Hardcastle (R&M) identified several potential sites. Ernie Norton added an additional site on the northeast side of the peninsula. We explored each of the sites.

Beach Deposits: The beaches between Sadie Creek and Kotzebue have been mined for gravel for small projects; it is not a significant source for larger projects like an airport relocation. Beaches near Cape Blossom have more potential for material extraction. Offshore deposits could be investigated as a potential source of aggregate.

Cape Blossom: A glacial till deposit, approximately 9 miles south of Kotzebue could provide embankment, but is not a likely source for aggregate.

Nimiuk Point: Material from this site is being barged to Kotzebue for the runway safety area widening. Two areas are developed, the area to the north is Drake's pit and the south area is KIC's.

Arctic Circle Landing Strip. This potential source is also known as Jeppsons Strip. It is about 37 miles southeast of Kotzebue. This airfield was used in World War II during the lend-lease program. The landing strip consists of coarse gravel, 200-250 feet wide and 12,000 feet long along the beach.

Exposed Gravel near Pipe Spit. Ernie Norton showed us a bluff approximately 2 miles south of pipe spit where there was gravel exposed along the edge of a gully. Only a small area of gravel was exposed, making it difficult to estimate the volume of material that could be produced from this potential source.

General Observations

The exposed bluffs along the western edge of Baldwin Peninsula are actively eroding and provide a good indication of the subsurface soil conditions. Massive visible ice lenses and

wedges were observed and photographed. Wet silt flowed down the slopes of the bluffs. Constructing any paved surface over these soil conditions will be a challenge.

Other items of interest included an old oil-drilling site and access road from the east coast of Baldwin Peninsula, a cabin build for Boy Scouts, reindeer pens, and wildlife. We observed moose, caribou, a bear, and thousands of swans, geese and cranes preparing for migration.

For future reference, the latitude and longitude of several points were recorded by team members and are listed below

Point Number	Recorded by:	Description	North Latitude	West Longitude
1223	JG	NE Site	66° 54.514’	162° 23.802’
1224	JG	Grave	66° 43.997’	162° 28.043’
1225	JG	S. Sadie Creek	66° 48.093’	162° 30.258’
1226	JG	Oil Well	66° 44.364’	162° 28.472’
1227	JG	Cabin	66° 53.371’	162° 28.472’
1228	JG	Reindeer Pen	66° 54.092’	162° 24.471’
24	DG	NE Site	66° 54.436’	162° 23.570’
25	DG	Near NE Site	66° 54.318’	162° 23.620’
26	DG	Sadie Creek	66° 48.173’	162° 29.504’
27	DG	Beyond CB. Native Allotments Begin	66° 43.802’	162° 28.113’
28	DG	Riley Gravel –Native Allotment	66° 43.463’	162° 20.305’
29	DG	Mouth of Riley Creek	66° 43.097’	162° 17.511’
30	DG	Arctic Circle – Native Allotment 4-5 mil cy	66° 28.149’	161° 52.048’
31	DG	Nimiuk Point	66° 45.756’	162° 00.580’
32	DG	Drakes – Native Allotment	66° 46.181’	162° 00.651’
33	DG	Drill Pad – Oil Exploration	66° 44.432’	162° 07.050’
36	KR	Ridge of NE Site	66° 54.564’	162° 20.377’
37	KR	NE Site – Top	66° 54.568’	162° 23.132’
39	KR	Top of exposed gravel gully	66° 55.356’	162° 17.073’
40	KR	Potential gravel source – not apparent at surface	66° 55.572’	162° 17.219’
41	KR	Area of Consideration South of Sadie Creek	66° 48.733’	162° 29.148’

42	KR	Area of Consideration South of Sadie Creek	66° 48.707’	162° 29.235’
43	KR	Area of Consideration South of Sadie Creek	66° 48.034’	162° 30.149’
44	KR	Area of Consideration South of Sadie Creek	66° 48.034’	162° 30.149’
45	KR	Area of Consideration North of Sadie Creek	66° 50.083’	162° 28.593’
46	KR	Area of Consideration North of Sadie Creek	66° 49.218’	162° 31.678’
47	KR	Area of Consideration North of Sadie Creek	66° 49.121’	162° 32.185’
48	KR	South end of Arctic Circle Strip	66° 26.189’	161° 52.348’
49	KR	Southeast threshold Arctic Circle Strip	66° 26.658’	161° 52.158’
50	KR	Southwest threshold Arctic Circle Strip	66° 26.658’	161° 52.228’
51	KR	Area of Consideration North of Sadie Creek	66° 49.513’	162° 33.567’
CABBIN	KR	Cabin build for Boy Scout camp	66° 53.376’	162° 28.464’
FLAT	KR	Broad flat area between Sadie Creek and Cape Blossom	66° 46.182’	162° 30.430’
GRAVEL	KR	Exposed Gravel in gully on east side of Baldwin Peninsula	66° 55.350’	162° 17.050’
MON	KR	Section Corner Monument found at NE Site	66° 54.560’	162° 23.279’
PEN	KR	Reindeer Pen - dilapidated	66° 54.081’	162° 24.471’
SADIS	KR	Area of Consideration South of Sadie Creek	66° 49.390’	162° 31.234’
SAND	KR	Potential Sand source on east side Baldwin Peninsula	66° 35.478’	161° 57.629’
THRES	KR	Northwest Threshold Arctic Circle Strip	66° 27.449’	161° 52.069’
THRESH	KR	Southeast Threshold Arctic Circle Strip	66° 26.658’	161° 52.159’

4.0 PHOTOS

Figure 1
Kotzebue is surrounded by numerous lakes, ponds and swampy areas.

Figure 2 Extension of the exiting runway would close off the waterway

Figure 3
Relatively flat terrain in the vicinity of the potential ridge site.

Figure 4
Section corner monument was found near the potential ridge site (S33,34 T18N R17W and S4, 3 T17N)

Figure 5
Wet saturated silt just below the surface at the potential ridge site, frozen ground at less than 18 inch depth.

Figure 6
Potential airport relocation areas on the Baldwin Peninsula observed from the air.

Figure 7
The runway safety area of the existing runway is being widened. Note the silt curtain being used to control the sediment.

Figure 8
Material for the safety area widening is mined near Nimiuk Point.

Figure 9
Barge haul from KIC pit.

Figure 10
Material site development. Access road to oil exploration pad in background

Figure 11
Ice lenses and ice wedges are exposed by active erosion along the western shore of Baldwin Peninsula

Figure 12
Arctic Circle Strip (Jeppsons Strip), 12,000 feet of straight wide gravel, 4800 feet between threshold markers

Figure 13
Threshold marker at Arctic Circle Strip (Jeppsons Strip)

Figure 14
Gravel Beach east of Cape Blossom

Figure 15
Glacial till near Cape Blossom, approximately 60 feet high.

Figure 16 Exposed gravel approximately 1.5 miles southeast of Pipe Spit.

Figure 17 Material Stockpile near Nimiuk Point (KIC)

18 Ponds created from melted permafrost on access road to drill site

Figure 19
Former oil well drill site. Note the thermal degradation of the pad and access road.

5.0 END OF TRIP

After three days of exploration, we concluded the trip and returned home.

Anticipated Maintenance and Operations Costs

Anticipated M&O Costs

Lane-Mile Cost

	Lane-Mile	Cost (2006 $s)	Cost/Lane-Mile
Existing Airport:	58.8	$1,219,892	$20,750

Proposed M&O Costs

	7,500' Rnwy			6,700' Rnwy		
	Lane-Mile	Cost (2006 $s)	Increase (%)	Lane-Mile	Cost (2006 $s)	Increase (%)
Area 1	133.8	$2,776,960	128%	127.5	$2,645,963	117%
Area 2	129.1	$2,679,269	120%	122.8	$2,548,272	109%
Area 3	136.2	$2,827,083	132%	129.9	$2,696,085	121%
Improved Existing	126.6	$2,626,305	115%	120.3	$2,495,308	105%

Note: These calculated M&O costs are estimates based on the historic M&O costs at the existing airport. The actual costs may increase depending on the geotechnical conditions of the site and the resulting settlement experienced.

Anticipated M&O Costs

Kotzebue Maintenance & Operation Costs

Historic Kotzebue Airport M&O Expense:

	M&O Cost	Cost Increase
FY02	$485,572	--
FY03	$660,672	36%
FY04	$854,173	29%
FY05	$1,050,135	23%
FY06	$1,219,892	16%
	Avg Increase	26%

Anticipated M&O Costs

Existing Airport Lane-Mile Calc:

	Dimension	Area	Lane-Mile
Main Runway (& safety area)	6,300' x 340'	2,142,000	33.8
Taxiways (& safety area)			
Taxiway A	400' x 120'	48000	0.8
Taxiway B	400' x 120'	48000	0.8
Taxiway C	440' x 120'	52800	0.8
Taxiway D	380' x 120'	45600	0.7
Taxiway E	540' x 120'	64800	1.0
Taxiway F	1,390' x 100'	139000	2.2
Taxiway G	420' x 100'	42000	0.7
Main Apron	1,974' x 290'	572,460	9.0
Crosswind Runway (& safety area)	4,340' x 100'	434,000	6.8
GA Apron	220' x 270'	59,400	0.9
Roads (2 lane)	0.6 mile	n/a	1.2
TOTAL			**58.8**

AREA 1 - Proposed Airport Lane-Mile Calc:

	Dimension	Area	7,500' Rnwy Lane-Mile	6,700' Rnwy Lane-Mile
7,500' Runway (& safety area)	9,500' x 500'	4,750,000	75.0	
6,700' Runway (& safety area)	8,700' x 500'	4,350,000		68.7
Crosswind Runway (& safety area)	4,400' x 150'	660,000	10.4	10.4
Main Apron	2,200' x 500'	1,100,000	17.4	17.4
GA Apron	1,300' x 325'	422,500	6.7	6.7
Taxiways (& safety area)				
Taxiway A	530' x 120'	63,600	1.0	1.0
Taxiway B	470' x 120'	56,400	0.9	0.9
Taxiway C	520' x 120'	62,400	1.0	1.0
Taxiway D	2,120 x 120'	254,400	4.0	4.0
Taxiway E	1,180' x 100'	118,000	1.9	1.9
Taxiway F	212.5' x 100'	21,250	0.3	0.3
Taxiway G	212.5' x 100'	21,250	0.3	0.3
Taxiway H	500' x 120'	60,000	0.9	0.9
Taxiway I	500' x 120'	60,000	0.9	0.9
Taxiway J	500' x 120'	60,000	0.9	0.9
Taxiway K	500' x 120'	60,000	0.9	0.9
Airport Access Road (2 lane)	5.6 miles	n/a	11.2	11.2
TOTAL			**133.8**	**127.5**

*Areas are from AutoCAD drawing: P:\2005\F05077\Xref\C\C5077-ARPT-SITE-TOPO.dwg

Anticipated M&O Costs

AREA 2 - Proposed Airport Lane-Mile Calc:

	Dimension	Area	7,500' Rnwy Lane-Mile	6,700' Rnwy Lane-Mile
7,500' Runway (& safety area)	9,500' x 500'	4,750,000	75.0	
6,700' Runway (& safety area)	8,700' x 500'	4,350,000		68.7
Crosswind Runway (& safety area)	4,400' x 150'	660,000	10.4	10.4
Main Apron	2,200' x 500'	1,100,000	17.4	17.4
GA Apron	1,300' x 325'	422,500	6.7	6.7
Taxiways (& safety area)				
Taxiway A	530' x 120'	63,600	1.0	1.0
Taxiway B	470' x 120'	56,400	0.9	0.9
Taxiway C	520' x 120'	62,400	1.0	1.0
Taxiway D	2,120 x 120'	254,400	4.0	4.0
Taxiway E	990' x 100'	99,000	1.6	1.6
Taxiway F	400' x 100'	40,000	0.6	0.6
Taxiway G	400' x 100'	40,000	0.6	0.6
Taxiway H	500' x 120'	60,000	0.9	0.9
Taxiway I	500' x 120'	60,000	0.9	0.9
Taxiway J	500' x 120'	60,000	0.9	0.9
Taxiway K	500' x 120'	60,000	0.9	0.9
Airport Access Road (2 lane)	3.1 miles	n/a	6.2	6.2
TOTAL			**129.1**	**122.8**

AREA 3 - Proposed Airport Lane-Mile Calc:

	Dimension	Area	7,500' Rnwy Lane-Mile	6,700' Rnwy Lane-Mile
7,500' Runway (& safety area)	9,500' x 500'	4,750,000	75.0	
6,700' Runway (& safety area)	8,700' x 500'	4,350,000		68.7
Crosswind Runway (& safety area)	4,400' x 150'	660,000	10.4	10.4
Main Apron	2,200' x 500'	1,100,000	17.4	17.4
GA Apron	1,300' x 325'	422,500	6.7	6.7
Taxiways (& safety area)				
Taxiway A	530' x 120'	63,600	1.0	1.0
Taxiway B	470' x 120'	56,400	0.9	0.9
Taxiway C	520' x 120'	62,400	1.0	1.0
Taxiway D	2,120 x 120'	254,400	4.0	4.0
Taxiway E	1570' x 100'	157,000	2.5	2.5
Taxiway F	212.5' x 100'	21,250	0.3	0.3
Taxiway G	212.5' x 100'	21,250	0.3	0.3
Taxiway H	500' x 120'	60,000	0.9	0.9
Taxiway I	500' x 120'	60,000	0.9	0.9
Taxiway J	500' x 120'	60,000	0.9	0.9
Taxiway K	500' x 120'	60,000	0.9	0.9
Airport Access Road (2 lane)*	6.5 miles	n/a	13.0	13.0
TOTAL			**136.2**	**129.9**

*Area 3 airport access road is 9.7 miles long. Deepwater Port Project covers maintenance of 1/3 of the access road. So this cost estimate is for 6.5 miles.

**Areas are from AutoCAD drawing: P:\2005\F05077\Xref\C\C5077-ARPT-SITE-TOPO.dwg

Anticipated M&O Costs

Improved Existing Airport - Lane-Mile Calc:

	Dimension	Area	7,500' Rnwy Lane-Mile	6,700' Rnwy Lane-Mile
7,500' Runway (& safety area)	9,500' x 500'	4,750,000	75.0	
6,700' Runway (& safety area)	8,700' x 500'	4,350,000		68.7
Crosswind Runway (& safety area)	4,400' x 150'	660,000	10.4	10.4
Main Apron	2,200' x 500'	1,100,000	17.4	17.4
GA Apron	1,380' x 300'	414,000	6.5	6.5
Taxiways (& safety area)				
Taxiway A	2320' x 120'	278,400	4.4	4.4
Taxiway B	440' x 120'	52,800	0.8	0.8
Taxiway C	380' x 120'	45,600	0.7	0.7
Taxiway D	540' x 120'	64,800	1.0	1.0
Taxiway F	400' x 120'	48,000	0.8	0.8
Taxiway G	400' x 120'	48,000	0.8	0.8
Taxiway H	470' x 120'	56,400	0.9	0.9
Taxiway I	420' x 120'	50,400	0.8	0.8
Taxiway J	2,000' x 120'	240,000	3.8	3.8
Taxiway K	210' x 80'	16,800	0.3	0.3
Taxiway L	210' x 80'	16,800	0.3	0.3
Airport Access Road (2 lane)*	1.4 miles	n/a	2.8	2.8
TOTAL			**126.6**	**120.3**

*Areas are from AutoCAD drawing: P:\2005\F05077\Xref\C\C5077-KOTZ-TOPO-FINAL.dwg

Construction Cost Estimates

Kotzebue Airport Relocation Feasibility Study
Cost Estimates

	Cost of Relocating Airport			
	Area 1	***Area 1***	***Area 2***	***Area 3***
	W/ Barged Borrow	**W/ Local Borrow**	**W/ Barged Borrow**	**W/ Barged Borrow**
	7,500' Runway			
Airport Facilities	$1,154,000,000	$661,600,000	$846,400,000	$659,500,000
Access Road	$86,400,000	$54,400,000	$59,500,000	$189,200,000
Utilities	$7,800,000	$7,800,000	$4,300,000	$13,500,000
M&O Facilities	$18,600,000	$18,600,000	$18,600,000	$18,600,000
Land Purchase	$3,600,000	$3,600,000	$4,000,000	$4,500,000
Leaseholder Relocation	$14,700,000	$14,700,000	$14,700,000	$14,700,000
Deepwater Port Project Benefit				($94,600,000)
TOTAL	**$1,285,100,000**	**$760,700,000**	**$947,500,000**	**$805,400,000**

	Cost of Relocating Airport			
	Area 1	***Area 1***	***Area 2***	***Area 3***
	W/ Barged Borrow	**W/ Local Borrow**	**W/ Barged Borrow**	**W/ Barged Borrow**
	6,700' Runway			
Airport Facilities	$1,109,200,000	$634,200,000	$789,300,000	$617,400,000
Access Road	$86,400,000	$54,400,000	$59,500,000	$189,200,000
Utilities	$7,800,000	$7,800,000	$4,300,000	$13,500,000
M&O Facilities	$18,600,000	$18,600,000	$18,600,000	$18,600,000
Land Purchase	$3,600,000	$3,600,000	$4,000,000	$4,500,000
Leaseholder Relocation	$14,700,000	$14,700,000	$14,700,000	$14,700,000
Deepwater Port Project Benefit				($94,600,000)
TOTAL	**$1,240,300,000**	**$733,300,000**	**$890,400,000**	**$763,300,000**

Notes:
1. All costs are in 2007 dollars
2. Local borrow is borrow found within five miles of the construction site and hauled overland, rather than transported by barge.
3. Area 3 costs assume that the the Deepwater Port Project will pay for half of the airport access road construction cost.

Kotzebue Airport Relocation Feasibility Study
Cost Estimates

	Cost of Improving Existing Airport	
	7,500' Runway	***6,700' Runway***
	W/ Full Safety Areas	W/ Full Safety Areas
Extend Runway Across Lagoon	$60,100,000	$60,100,000
Extend Runway into Hillside	$359,300,000	$269,400,000
EMAS for West Safety Area	n/a	n/a
Widen Safety Area	$12,400,000	$12,400,000
Runway Lighting & Nav Aid Improvements	$4,300,000	$4,300,000
Apron & Taxiway Improvements	$88,900,000	$88,900,000
BIA Road Realignment	$31,500,000	$31,500,000
TOTAL	**$556,500,000**	**$466,600,000**

Notes:
1. A standard EMAS bed in the west safety area of the runway would reduce the cost of a 7,500' runway by $30,200,000 and a 6,700' runway by $42,600,000.
2. All costs are in 2007 dollars
3. The cut slope will need to be warped from a 7:1 slope to a 5:1 slope in the vicinity of the cemetery to avoid relocating the cemetery. The cost of relocating the cemetery is not included in this estimate.
4. The BIA road will need to be relocated for all improvement scenarios for the existing airport. This cost is included in the estimate.
5. A TERPS 34:1 approach is included in this cost estimate, rather than the full Part 77 Airspace requirements.
6. Cost estimate does not include funds for raising runway to increase flood resistance and measures to prevent the possible disturbance of Vortac Lake.

Materials	Unit	Unit Prices	Year	Unit Prices 2007 $s*	Rounded	Notes
Excavation	CY	$14	2005	$15	$15	Price from Obstruction Removal Project
Borrow	CY	$64	2005	$71	$70	Price from Obstruction Removal Project (local source: $32/CY) (price per ton: $32/ton)
Asphalt-Stabilized Base Course	CY	$293	2005	$323	$325	0.94 * Base Course ($105/ton) + 0.06 * Bituminous Mat'l ($850/ton) = $149.70/ton
Crushed AggregateSurface Course	CY	$206	2005	$227	$230	Price from Obstruction Removal Project
Insulation Board	SF	$8	2005	$9	$9	Price from Obstruction Removal Project
Slope Protection	SY	$4	2005	$4.41	$4.50	This unit price combines the cost of coconut jute mat and seeding
Culverts - 11' Structrual Plate Pipes	LF	$1,080	2007	$1,080	$1,080	Price from Dalton Highway Project ($900 * 120% = $1080)
Bituminous Mixture	Ton	$200	2005	$220	$220	Price from Obstruction Removal Project
Bituminous Material	Ton	$850	2005	$940	$940	Price from Obstruction Removal Project
Pav't Grooving	SY	$2.50	2006	$2.60	$2.60	Price from Nome Runway Rehab & Unalakleet Airport Paving
Runway & Taxiway Painting	LF	$20	2006	$21	$21	Price from Nome Runway Rehab & Unalakleet Airport Paving
High Intensity Runway Lighting System	LS	$1,087,500				Estimate from other bush airports at $125 ft + $150,000 for Regulators
Medium Intensity Runway Lighting System	LS	$430,000				Estimate from other bush airports at $100 ft + $50,000 for Regulators
Navigational Aids	LS	$1,500,000	2007	$1,500,000	$1,500,000	Estimated
Water Extension	LF	$116	2005	$128	$130	Price from 2005 Kotzebue water main replacement project
Power Extension	Mile	$150,000	2007	$150,000	$150,000	Price from Kotzebue Electric Association's engineer
Maintenance & Operations Facilities	SF	$490	2005	$540	$540	2005 Kotzebue ARFF/SREB Bid ($8,422,000)+$100,000 for septic system, Square footage (17,394 sf)
Single Span Bridge Cost	SF	$360	2007	$360	$360	Price from DOT Historical Bridge Costs ($300 * 120% = $360)
Land Purchase	Acre	$2,000	2007	$2,000	$2,000	(Land purchase cost from 11/17/06 meeting with DOT's Leasing Dept)
Leaseholder Relocation	LS	$8,765,000				See worksheet

*5% per annum inflation rate

Area 1 - Material Quantities

	Units	Unit Price	Primary Runway (7,500')	Primary Runway (6,700')	Crosswind Runway	Taxiways	Main Apron	Lease Lots	GA Apron	Airport Facilities 7,500' Runway w/ Barged Borrow		Airport Facilities 7,500' Runway w/ Local Borrow		Airport Facilities 6,700' Runway w/ Barged Borrow		Airport Facilities 6,700' Runway w/ Local Borrow		36' Access Road		36' Access Road w/ Local Borrow		Utility Extension		M&O Facilities		Land Purchase		Leaseholder Relocation	
										Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
																		29,340		29,340									
EARTHWORK																													
Excavation	CY	$15	220,000	196,533	77,970	0	0	0	15,300	313,270	$4,699,050	313,270	$4,699,050	289,803	$4,347,050	289,803	$4,347,050	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Barged Borrow	CY	$70	2,772,037	2,476,353	482,600	14,064	2,505,722	2,538,300	91,400	8,404,123	$588,288,594	0	$0	8,108,439	$567,590,718	0	$0	547,680	$38,337,600	0	$0	0	$0	0	$0	0	$0	0	$0
Local Borrow		$35.00								0	$0	8,404,123	$294,144,297	0	$0	8,108,439	$283,795,359		$0	547,680	$19,168,800	0	$0	0	$0	0	$0	0	$0
Asphalt-Stabilized Base Course	CY	$325	83,333	74,444	0	0	70,278	0	0	153,611	$49,923,611	153,611	$49,923,611	144,722	$47,034,722	144,722	$47,034,722	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Crushed Aggregate Surface Course	CY	$230	60,185	53,765	10,800	2,009	0	0	15,800	88,794	$20,422,680	88,794	$20,422,680	82,375	$18,946,136	82,375	$18,946,136	43,467	$9,997,333	43,467	$9,997,333	0	$0	0	$0	0	$0	0	$0
Insulation Board	SF	$9	425,000	379,667	80,750	0	0	0	383,500	889,250	$8,003,250	889,250	$8,003,250	843,917	$7,595,250	843,917	$7,595,250	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Culverts - 11' Structural Plate Pipes	LF	$1,080	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	2,934	$3,168,720	2,934	$3,168,720	0	$0	0	$0	0	$0	0	$0
										0	$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
PAVING										0	$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
Bituminous Mixture	Ton	$220	29,120	26,014	0	0	23,613	0	0	52,733	$11,601,333	52,733	$11,601,333	49,627	$10,917,984	49,627	$10,917,984	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Bitunimous Material	Ton	$940	1,747	1,561	0	0	1,417	0	0	3,164	$2,974,160	3,164	$2,974,160	2,978	$2,798,974	2,978	$2,798,974	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Pav't Grooving	SY	$2.60	125,000	111,667	0	0	0	0	0	125,000	$325,000	125,000	$325,000	111,667	$290,333	111,667	$290,333	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Runway & Taxiway Painting	LF	$21	7,500	6,700	0	0	0	0	0	7,500	$157,500	7,500	$157,500	6,700	$140,700	6,700	$140,700	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
										0	$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
RUNWAY LIGHTING & NAV AIDS										0	$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
High Intensity Runway Lighting System	LS	$1,087,500	1.00	1.00	0	0	0	0	0	1.00	$1,087,500	1.00	$1,087,500	1.00	$1,087,500	1	$1,087,500	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Medium Intensity Runway Lighting System	LS	$430,000	0	0	1.00	0	0	0	0	1.00	$430,000	1.00	$430,000	1.00	$430,000	1	$430,000	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
Navigational Aids	LS	$1,500,000	1	1	0	0	0	0	0	1	$1,500,000	1	$1,500,000	1	$1,500,000	1	$1,500,000	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
										0	$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
INFRASTRUCTURE										0	$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
Water Service	LF	$130	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	29,340	$3,814,200	0	$0	0	$0	0	$0
Electrical Service	Mile	$150,000	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	5.6	$833,523	0	$0	0.0	$0	0	$0
Maintenance & Operations Facilities	SF	$540	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	20,550	$11,097,000	0	$0	0	$0
Access Road Single Span Bridge	SF	$360	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
										0	$0	0	$0	0	$0	0	$0		$0		$0		$0		$0		$0		$0
LAND PURCHASE	Acre	$2,000	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	69	$138,223	69	$138,223		$0		$0		$0	1,089	$2,178,000		
LEASEHOLDER RELOCATION	LS	$8,765,000	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0			1	$8,765,000
SUBTOTAL											**$689,412,679**		**$395,268,381**		**$662,679,368**		**$378,884,009**		**$51,641,876**		**$32,473,076**		**$4,647,723**		**$11,097,000**		**$2,178,000**		**$8,765,000**
General Contract Items (10%)											$68,941,268		$39,526,838		$66,267,937		$37,888,401		$5,164,188		$3,247,308		$464,772		$1,109,700		$217,800		$876,500
Contingency (20%)											$137,882,536		$79,053,676		$132,535,874		$75,776,802		$10,328,375		$6,494,615		$929,545		$2,219,400		$435,600		$1,753,000
SUBTOTAL											**$896,236,482**		**$513,848,896**		**$861,483,178**		**$492,549,212**		**$67,134,439**		**$42,214,999**		**$6,042,040**		**$14,426,100**		**$2,831,400**		**$11,394,500**
Design, Geotech, Environ, Survey (10%)											$89,623,648		$51,384,890		$86,148,318		$49,254,921		$6,713,444		$4,221,500		$604,204		$1,442,610		$283,140		$1,139,450
Construction Admin (15%)											$134,435,472		$77,077,334		$129,222,477		$73,882,382		$10,070,166		$6,332,250		$906,306		$2,163,915		$424,710		$1,709,175
ICAP (3.76%)											$33,698,492		$19,320,718		$32,391,768		$18,519,850		$2,524,255		$1,587,284		$227,181		$542,421		$106,461		$428,433
TOTAL											**$1,153,994,094**		**$661,631,838**		**$1,109,245,740**		**$634,206,365**		**$86,442,304**		**$54,356,033**		**$7,779,730**		**$18,575,046**		**$3,645,711**		**$14,671,558**
											$1,154,000,000		**$661,600,000**		**$1,109,200,000**		**$634,200,000**		**$86,400,000**		**$54,400,000**		**$7,800,000**		**$18,600,000**		**$3,600,000**		**$14,700,000**

Area 2 - Material Quantities

	Units	Unit Price	Primary Runway (7,500')	Primary Runway (6,700')	Crosswind Runway	Taxiways	Main Apron	Lease Lots	GA Apron	Airport Facilities 7,500' Runway w/ Barged Borrow		Airport Facilities 6,700' Runway w/ Barged Borrow		36' Access Road		Utility Extension		M&O Facilities		Land Purchase		Leaseholder Relocation	
										Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
														16,350									
EARTHWORK																							
Excavation	CY	$15	700,000	625,333	76,300	0	1,150,350	1,131,950	30,800	3,089,400	$46,341,000	3,014,733	$45,221,000	0	$0	0	$0	0	$0	0	$0	0	$0
Barged Borrow	CY	$70	3,632,037	3,244,620	415,000	12,409	306,522	353,200	104,600	4,823,768	$337,663,773	4,436,351	$310,544,563	305,200	$21,364,000	0	$0	0	$0	0	$0	0	$0
Asphalt-Stabilized Base Course	CY	$325	83,333	74,444	0	0	70,278	0	0	153,611	$49,923,611	144,722	$47,034,722	0	$0	0	$0	0	$0	0	$0	0	$0
Crushed Aggregate Surface Course	CY	$230	60,185	53,765	10,800	1,773	0	0	15,800	88,558	$20,368,314	82,138	$18,891,771	24,222	$5,571,111	0	$0	0	$0	0	$0	0	$0
Insulation Board	SF	$9	625,000	558,333	93,750	47,863	1,265,000	1,100,000	422,500	3,554,113	$31,987,017	3,487,446	$31,387,017	752,100	$6,768,900	0	$0	0	$0	0	$0	0	$0
onlayer	LF	$1,080	1,200	1,200	0	0	0	0	0	1,200	$1,296,000	1,200	$1,296,000	1,635	$1,765,800	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
PAVING											$0		$0		$0		$0		$0		$0		$0
Bituminous Mixture	Ton	$220	29,120	26,014	0	0	23,613	0	0	52,733	$11,601,333	49,627	$10,917,984	0	$0	0	$0	0	$0	0	$0	0	$0
Bitunimous Material	Ton	$940	1,747	1,561	0	0	1,417	0	0	3,164	$2,974,160	2,978	$2,798,974	0	$0	0	$0	0	$0	0	$0	0	$0
Pav't Grooving	SY	$2.60	125,000	111,667	0	0	0	0	0	125,000	$325,000	111,667	$290,333	0	$0	0	$0	0	$0	0	$0	0	$0
Runway & Taxiway Painting	LF	$21	7,500	6,700	0	0	0	0	0	7,500	$157,500	6,700	$140,700	0	$0	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
RUNWAY LIGHTING & NAV AIDS											$0		$0		$0		$0		$0		$0		$0
High Intensity Runway Lighting System	LS	$1,087,500	1	1	0	0	0	0	0	1.00	$1,087,500	1.00	$1,087,500	0	$0	0	$0	0	$0	0	$0	0	$0
Medium Intensity Runway Lighting System	LS	$430,000	0	0	1.00	0	0	0	0	1.00	$430,000	1.00	$430,000	0	$0	0	$0	0	$0	0	$0	0	$0
Navigational Aids	LS	$1,500,000	1	1	0	0	0	0	0	1.00	$1,500,000	1.00	$1,500,000	0	$0	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
INFRASTRUCTURE											$0		$0		$0		$0		$0		$0		$0
Water Service	LF	$130	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	16,350	$2,125,500	0	$0	0	$0	0	$0
Electrical Service	Mile	$150,000	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	3.1	$464,489	0	$0	0.0	$0	0	$0
Maintenance & Operations Facilities	SF	$540	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	20,550	$11,097,000	0	$0	0	$0
Access Road Single Span Bridge	SF	$360	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
LAND PURCHASE	Acre	$2,000	0	0	0	0	0	0	0	0	$0	0	$0	45	$89,256	0	$0	0	$0	1,204	$2,408,000		$0
LEASEHOLDER RELOCATION	LS	$8,765,000	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	1	$8,765,000
SUBTOTAL											**$505,655,209**		**$471,540,565**		**$35,559,067**		**$2,589,989**		**$11,097,000**		**$2,408,000**		**$8,765,000**
General Contract Items (10%)											$50,565,521		$47,154,056		$3,555,907		$258,999		$1,109,700		$240,800		$876,500
Contingency (20%)											$101,131,042		$94,308,113		$7,111,813		$517,998		$2,219,400		$481,600		$1,753,000
SUBTOTAL											**$657,351,772**		**$613,002,734**		**$46,226,788**		**$3,366,985**		**$14,426,100**		**$3,130,400**		**$11,394,500**
Design, Geotech, Environ, Survey (10%)											$65,735,177		$61,300,273		$4,622,679		$336,699		$1,442,610		$313,040		$1,139,450
Construction Admin (15%)											$98,602,766		$91,950,410		$6,934,018		$505,048		$2,163,915		$469,560		$1,709,175
ICAP (3.76%)											$24,716,427		$23,048,903		$1,738,127		$126,599		$542,421		$117,703		$428,433
TOTAL											**$846,406,141**		**$789,302,321**		**$59,521,612**		**$4,335,330**		**$18,575,046**		**$4,030,703**		**$14,671,558**
											$846,400,000		**$789,300,000**		**$59,500,000**		**$4,300,000**		**$18,600,000**		**$4,000,000**		**$14,700,000**

Area 3 - Material Quantities

	Units	Unit Price	Primary Runway* (7,500')	Primary Runway (6,700')	Crosswind Runway	Taxiways	Main Apron	Lease Lots	GA Apron	Airport Facilities 7,500' Runway w/ Barged Borrow		Airport Facilities 6,700' Runway w/ Barged Borrow		36' Access Road		Utility Extension		M&O Facilities		Land Purchase		Leaseholder Relocation	
										Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost
														Road length (ft):	51,020								
EARTHWORK																							
Excavation	CY	$15	14,800	13,221	80	0	153,100	145,900	0	313,880	$4,708,200	312,301	$4,684,520	0	$0	0	$0	0	$0	0	$0	0	$0
Barged Borrow	CY	$70	2,644,037	2,362,006	444,700	20,257	284,672	332,450	289,500	4,015,616	$281,093,117	3,733,585	$261,350,974	952,373	$66,666,133	0	$0	0	$0	0	$0	0	$0
Asphalt-Stabilized Base Course	CY	$325	83,333	74,444	0	0	70,278	0	0	153,611	$49,923,611	144,722	$47,034,722	0	$0	0	$0	0	$0	0	$0	0	$0
Crushed Aggregate Surface Course	CY	$230	60,185	53,765	10,800	2,894	0	0	15,800	89,679	$20,626,170	83,259	$19,149,627	75,585	$17,384,593	0	$0	0	$0	0	$0	0	$0
Insulation Board	SF	$9	0	0	103,500	78,133	886,000	1,100,000	7,446	2,175,079	$19,575,711	2,175,079	$19,575,711	2,346,920	$21,122,280	0	$0	0	$0	0	$0	0	$0
Culverts - 11' Structural Plate Pipes	LF	$1,080	0	0	0	0	0	0	0	0	$0	0	$0	5,102	$5,510,160	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
PAVING											$0		$0		$0		$0		$0		$0		$0
Bituminous Mixture	Ton	$220	29,120	26,014	0	0	23,613	0	0	52,733	$11,601,333	49,627	$10,917,984	0	$0	0	$0	0	$0	0	$0	0	$0
Bitunimous Material	Ton	$940	1,747	1,561	0	0	1,417	0	0	3,164	$2,974,160	2,978	$2,798,974	0	$0	0	$0	0	$0	0	$0	0	$0
Pav't Grooving	SY	$2.60	125,000	111,667	0	0	0	0	0	125,000	$325,000	111,667	$290,333	0	$0	0	$0	0	$0	0	$0	0	$0
Runway & Taxiway Painting	LF	$21	7,500	6,700	0	0	0	0	0	7,500	$157,500	6,700	$140,700	0	$0	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
RUNWAY LIGHTING & NAV AIDS											$0		$0		$0		$0		$0		$0		$0
High Intensity Runway Lighting System	LS	$1,087,500	1.00	0.89	0	0	0	0	0	1.00	$1,087,500	0.89	$971,500	0	$0	0	$0	0	$0	0	$0	0	$0
Medium Intensity Runway Lighting System	LS	$430,000	0	0	1.00	0	0	0	0	1.00	$430,000	1.00	$430,000	0	$0	0	$0	0	$0	0	$0	0	$0
Navigational Aids	LS	$1,500,000	1	1	0	0	0	0	0	1	$1,500,000	1	$1,500,000	0	$0	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
INFRASTRUCTURE											$0		$0		$0		$0		$0		$0		$0
Water Service	LF	$130	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	51,020	$6,632,600	0	$0	0	$0	0	$0
Electrical Service	Mile	$150,000	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	9.7	$1,449,432	0	$0	0.0	$0	0	$0
Maintenance & Operations Facilities	SF	$540	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	20,550	$11,097,000	0	$0	0	$0
Access Road Single Span Bridge	SF	$360	0	0	0	0	0	0	0	0	$0	0	$0	5,730	$2,062,800	0	$0	0	$0	0	$0	0	$0
											$0		$0		$0		$0		$0		$0		$0
LAND PURCHASE	Acre	$2,000	0	0	0	0	0	0	0	0	$0	0	$0	135	$270,730	0	$0	0	$0	1,337	$2,674,000		$0
LEASEHOLDER RELOCATION	LS	$8,765,000	0	0	0	0	0	0	0	0	$0	0	$0	0	$0	0	$0	0	$0	0	$0	1	$8,765,000
SUBTOTAL											**$394,002,303**		**$368,845,046**		**$113,016,696**		**$8,082,032**		**$11,097,000**		**$2,674,000**		**$8,765,000**
General Contract Items (10%)											$39,400,230		$36,884,505		$11,301,670		$808,203		$1,109,700		$267,400		$876,500
Contingency (20%)											$78,800,461		$73,769,009		$22,603,339		$1,616,406		$2,219,400		$534,800		$1,753,000
SUBTOTAL											**$512,202,994**		**$479,498,559**		**$146,921,705**		**$10,506,641**		**$14,426,100**		**$3,476,200**		**$11,394,500**
Design, Geotech, Environ, Survey (10%)											$51,220,299		$47,949,856		$14,692,170		$1,050,664		$1,442,610		$347,620		$1,139,450
Construction Admin (15%)											$76,830,449		$71,924,784		$22,038,256		$1,575,996		$2,163,915		$521,430		$1,709,175
ICAP (3.76%)											$19,258,833		$18,029,146		$5,524,256		$395,050		$542,421		$130,705		$428,433
TOTAL											**$659,512,575**		**$617,402,345**		**$189,176,387**		**$13,528,351**		**$18,575,046**		**$4,475,955**		**$14,671,558**
											$659,500,000		**$617,400,000**		**$189,200,000** *		**$13,500,000**		**$18,600,000**		**$4,500,000**		**$14,700,000**

* Access road construction costs could be significantly reduced by constructing the road with a 5' silt embankment, a 2' gravel cap, and 0.5' of surface course at a minimal width of 24'. A suitable local silt source would need to be identified for this alternate construction method. Additionally, insulation may not be necessary. This minimal road facility could reduce the construction cost by as much as $126,800,000.

Existing Airport Improvements - Material Quantities

	Units	Unit Price	Lengthen Runway (7,500') Full Lengh Safety Areas STA 70+00 to 85+00		Lengthen Runway (7,500') EMAS SA on West End STA 70+00 to 81+00		Lengthen Runway (6,700') STA 70+00 to 77+00		Lengthen Runway (6,700') EMAS SA on West End STA 70+00 to 73+00		Lagoon Bridge STA 62+00 to 70+00		BIA Road Realignment		Main Apron Exp.		New GA Apron		New Taxiway Between 8-26 & 17-35		Navigational Aids & Runway Lighting Upgrades	
													8650									
EARTHWORK																						
Demolition - Roads & Taxiways	SY	$5	0	$0	0	$0	0	$0	0	$0	0	$0		$0	4,674	$23,368	32,000	$160,000	0	$0	0	$0
Demolition - Buildings	EA	$200,000									0	$0			4	$800,000	0	$0	0	$0	0	$0
Excavation	CY	$15	11,087,000	$166,305,000	9,993,500	$149,902,500	8,603,300	$129,049,500	7,023,000	$105,345,000	0	$0		$0	35,352	$530,278	0	$0	0	$0	0	$0
Borrow	CY	$70	343,800	$24,066,000	290,280	$20,319,600	236,700	$16,569,000	183,214	$12,825,000	79200	$5,544,000	161,467	$11,302,667	136,130	$9,529,074	261,244	$18,287,111	44,278	$3,099,444	0	$0
Asphalt-Stabilized Base Course	CY	$325	16,700	$5,427,500	12,247	$3,980,167	7,800	$2,535,000	3,343	$1,086,429	8,900	$2,892,500	0	$0	22,594	$7,343,194	0	$0	0	$0	0	$0
Crushed Aggregate Surface Course	CY	$230	17,700	$4,071,000	15,460	$3,555,800	13,200	$3,036,000	10,971	$2,523,429	4400	$1,012,000	12,815	$2,947,407	0	$0	17,504	$4,025,852	8,856	$2,036,778	0	$0
Insulation Board	SF	$9	1,250,000	$11,250,000	1,050,000	$9,450,000	850,000	$7,650,000	650,000	$5,850,000	340,000	$3,060,000	397,900	$3,581,100	298,700	$2,688,300	0	$0	239,100	$2,151,900	0	$0
Culverts - 11' Structural Plate Pipes	LF	$1,080	0	$0	0	$0	0	$0	0	$0		$0	865	$934,200	0	$0	0	$0	0	$0	0	$0
Slope Protection	SY	$4.50	401,820	$1,808,191	345,681	$1,555,563	289,541	$1,302,936	217,177	$977,298		$0		$0								
				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
PAVING				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
Bituminous Mixture	Ton	$220	5,800	$1,276,000	4,253	$935,733	2,700	$594,000	1,157	$254,571	3,106	$683,349		$0	7,592	$1,670,181	0	$0	0	$0	0	$0
Bitunimous Material	Ton	$940	348	$327,120	255	$239,888	162	$152,280	69	$65,263	186	$175,186		$0	456	$428,174	0	$0	0	$0	0	$0
Pav't Grooving	SY	$2.60	25,000	$65,000	18,333	$47,667	11,667	$30,333	5,000	$13,000	13,333	$34,667		$0	0	$0	0	$0	0	$0	0	$0
Runway & Taxiway Painting	LF	$21	1,500	$31,500	1,100	$23,100	700	$14,700	300	$6,300	800	$16,800		$0	900	$18,900	0	$0	0	$0	0	$0
				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
RUNWAY LIGHTING & NAV AIDS				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
High Intensity Runway Lighting System	LS	$1,087,500		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0	1	$1,087,500
Medium Intensity Runway Lighting System	LS	$430,000		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0	0	$0
Navigational Aids	LS	$1,500,000		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0	1	$1,500,000
				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
INFRASTRUCTURE				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
Water Service	LF	$130		$0		$0		$0		$0		$0		$0	1,580	$205,400	0	$0	0	$0	0	$0
Electrical Service	Mile	$150,000		$0		$0		$0		$0		$0		$0	0.30	$44,886	0	$0	0	$0	0	$0
Maintenance & Operations Facilities	SF	$540		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0	0	$0
Single Span Bridge	SF	$360		$0		$0		$0		$0	62,400	$22,464,000		$0	0	$0	0	$0	0	$0	0	$0
				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
LAND PURCHASE	Acre	$2,000		$0		$0		$0		$0		$0	30	$59,573	0	$0	0	$0	0	$0	0	$0
Relocate Lighted Wind Cone	LS	$41,800		$0		$0		$0		$0		$0		$0	0	$0	0	$0	1	$41,800	0	$0
				$0		$0		$0		$0		$0		$0		$0	0	$0	0	$0	0	$0
SUBTOTAL				**$214,627,311**		**$190,010,018**		**$160,933,749**		**$128,946,289**		**$35,882,502**		**$18,824,947**		**$23,281,756**		**$22,472,963**		**$7,329,922**		**$2,587,500**
General Contract Items (10%)				$21,462,731		$19,001,002		$16,093,375		$12,894,629		$3,588,250		$1,882,495		$2,328,176		$2,247,296		$732,992		$258,750
Contingency (20%)				$42,925,462		$38,002,004		$32,186,750		$25,789,258		$7,176,500		$3,764,989		$4,656,351		$4,494,593		$1,465,984		$517,500
SUBTOTAL				**$279,015,504**		**$247,013,023**		**$209,213,874**		**$167,630,176**		**$46,647,252**		**$24,472,431**		**$30,266,282**		**$29,214,852**		**$9,528,899**		**$3,363,750**
Design, Geotech, Environ, Survey (10%)				$27,901,550		$24,701,302		$20,921,387		$16,763,018		$4,664,725		$2,447,243		$3,026,628		$2,921,485		$952,890		$336,375
Construction Admin (15%)				$41,852,326		$37,051,953		$31,382,081		$25,144,526		$6,997,088		$3,670,865		$4,539,942		$4,382,228		$1,429,335		$504,563
ICAP (3.76%)				$10,490,983		$9,287,690		$7,866,442		$6,302,895		$1,753,937		$920,163		$1,138,012		$1,098,478		$358,287		$126,477
TOTAL				**$359,260,362**		**$318,053,969**		**$269,383,784**		**$215,840,615**		**$60,063,002**		**$31,510,702**		**$38,970,865**		**$37,617,043**		**$12,269,410**		**$4,331,165**
				$359,300,000		**$318,100,000**		**$269,400,000**		**$215,800,000**		**$60,100,000**		**$31,500,000**		**$39,000,000**		**$37,600,000**		**$12,300,000**		**$4,300,000**

TOTAL **88,900,000**

All runway lengthening options include TERPS approach and require relocation of the BIA road and, possibly, the cemetary.

Estimates from "Runway Safety Area Practicability Study" written by DOT&PF in 2004

	2004 Cost	2007 Cost
Safety Area Widening - From 340' to 500'	$10,740,000	$12,400,000
600' EMAS Bed - Materials, Shipping, & Installation	$9,500,000	$11,000,000

These costs are from the 2004 report "Runway Safety Area Practicability Study" written by DOT&PF.
The costs have design & construction admin costs included and a 5% per annum inflation rate is applied.