

9.0 SOCIAL AND COMMUNITY ASPECTS

9.1 Social Profile

9.1.1 Population

At the time of the last census in 1992 the population of Anguilla was 8,960. The sex ratio between males and females is very even with approximately 50% male and 50% female. Recent population estimates by the Government Statistical Unit estimate the 1998 population at 12,394. The birth rate between 1988 and 1998 has declined from 20.5 to 14.8 per thousand, the death rate fluctuates between 5.4 and 8.6 per thousand. There has been a decline in the overall rate of natural increase over this period. The population increase over this period is in large part due to immigration of persons from other Caribbean islands (particularly Guyana, Santa Domingo, Dominica, St Kitts / Nevis, Montserrat), UK and the USA. There is a large dependent population with some 39% under 20 years of age and 11% over 60 years of age.

9.1.2 Labour Force, Employment and Incomes

In 1992 the labour force comprised 49% of the working population (4443 persons, of which 58% were males and 42% females). Ninety two percent were employed (94% of males and 91% of females). The unemployment rate was 7%. It is common practice however in Anguilla for individuals to have two or even three places of employment or sources of income.

The majority of employment is within the Production, Construction and Transport sector (32%) and in the Services sector (25%). The Clerical and Sales sector provides (20%) of jobs and the Professional and Technical sector (12.5%). There is a much higher proportion of women in the Clerical and Sales and Services sectors and a higher proportion of men in the Production, Construction and Transport sector.

Sixty percent of the employed labour force worked in the private sector and 18% in the public sector with 21% being self-employed. Seventy four percent of the employed labour force was Anguillan, 26% being non-Anguillan.

The majority of work permits are issued in the Production, Construction and Transport sectors (37% in 1992) and to a lesser extent the Services sector (30%). The number of work permits issued increased from 132 in 1987 to 557 in 1992.

There is no income tax on the island and it was continually reported by consultees that although the cost of living is high there is little poverty on the island but there is a growing sub-sector of the population that is economically deprived without experiencing extreme poverty. It is generally thought that poverty is confined to the elderly who may be ill, live in inadequate housing and have children overseas. A number of Anguillans do their shopping in St Martin, taking the ferry from Blowing Point. Car ownership is very high amongst the community, partly because there is no public transport service.

9.1.3 Education

There are 6 public and one private primary schools on the island and one secondary school. A new campus for the secondary school is under construction. There are 10

Table 7.24
Projected Cash Flow

Option	Do Minimum	Wallblake 1	Wallblake 2	Brimegin 1	Brimegin 2
	US\$ '000	US\$ '000	US\$ '000	US\$ '000	US\$ '000
Annual					
2005	-774.4	-4,303.1	-6,214.4	-17,152.6	-43,679.0
2010	-764.3	-4,082.0	-5,993.3	-16,910.7	-41,094.6
2015	-752.1	110.5	110.5	177.6	6,800.0
Cumulative					
2005	-4,722.9	-10,112.2	-24,843.5	-58,636.2	-153,992.2
2010	-8,565.5	-30,991.1	-55,279.1	-143,703.4	-364,746.7
2015	-12,351.2	-44,168.2	-63,281.7	-172,711.7	-411,876.3
2020	-17,100.4	-44,930.3	-64,043.8	-174,551.6	-382,137.4

Source: WSA analysis.

The profiles of projected cash flow for each of the development options are illustrated in Figure 7.4.

7.9.3 Financial Return

The financial return on each of the airport development options has been measured in terms of net present values discounted to the present day at real interest rates of 7 percent, 9 percent and 11 percent.

Table 7.25 summarises the net present value of each option, firstly in terms of the balance of costs and benefits associated with the development option alone and secondly net of the corresponding NPV of the Do-Minimum option. It shows that all of the options return substantial negative financial returns at real interest rates of between 5 and 8 percent. Financial Internal Rates of Return are negative in all cases.

The Do-something options would be ranked in the following order:

- Wallblake 1;
- Wallblake 2;
- Brimegin 1; and
- Brimegin 2.

The least worst option in purely financial terms would be the Do-Minimum option of operating and maintaining the existing airport facilities at Wallblake up to the limit of their existing capacity.

pre-school facilities. Enrolment is high as education is free up to secondary level. At the tertiary level there is a UWI School of Continuing Studies. The government pays fees for public sector employees but in the private sector individuals pay their own way. Bachelor degrees in Management or Education can be obtained as well as various certificates in public and business administration and education.

Whilst the CXC results are on a par with regional results there are some disturbing trends emerging in the education sector. Among these is the fact that many of the children of migrants have special needs. There has also been a recent increase in truancy and incidents involving weapons and drugs.

9.1.4 Health

There is one 36 bed government hospital and a number of clinics throughout the island. Facilities are however limited and serious cases have to be transported off the island. Treatment is not free but the government assists on a case by case basis. There is a reported need for the development of further facilities especially psychiatric care. It is also reported that the type of diseases common in the country are changing and are increasingly typical of those of more developed countries – ageing, obesity, hypertension and diabetes.

9.1.5 Housing

In 1992 there were 2,619 households. The average household size was 3.4 persons. Ninety percent of households have an electricity supply. Forty one percent have a water supply from cisterns whilst 32% have a water supply from both cisterns and a private piped supply. Most households own their property although migrants who have recently entered the country usually rent property in the first instance. Housing conditions for migrant workers are relatively poor with some living in abandoned structures without sanitation.

9.1.6 Community Development and Welfare

Anguilla prides itself on having a quiet, relatively crime free environment. The small population creates an atmosphere in which everyone is known and the society has traditionally been very close knit. This has however been changing over the years and a number of consultees consider that the spirit of community is now being lost due to the increasing emphasis on the acquisition of material wealth, the fact that parents are working most of the time and the increasing influence of both television and exposure to the culture and lifestyles of both wealthy foreign tourists and immigrant workers. Although reported cases of crime were on the increase to 1995, there is now a significant decline. Some consultees reported an increase in prostitution, primarily among migrant workers.

9.1.7 Existing Land Use and Settlement at Wallblake and Brimegin

Wallblake

The existing airport at Wallblake is located in a central part of the island to the south of, but in close proximity to the island's main settlement at The Valley. This is the commercial, social and administrative centre of the island and contains most of the

government offices, the main social, educational, community and cultural facilities and a large proportion of the islands commercial enterprises.

There are villages in the vicinity of the airport – George Hill to the west, Long Ground to the south, Ray Hill to the north-east and The Forest to the south-east. The majority of settlement is located around the western end of the airport with settlement being more sparse at and around the eastern end. There is a considerable amount of new construction and many buildings are under construction or semi-completed.

To the north-west of the runway along the main road from the terminal to the western part of the island there are a number of commercial properties including small retail outlets and restaurants / bars and to the north-east of the runway there are a number of garages and builders yards. On the south side of the runway there is a primary school at the Forest.

To the south of the runway is the island's electricity generating station which is fed by an oil pipeline from the bulk oil storage terminal immediately to the south.

The land at the extreme eastern end of the runway is open pasture to the south and scrub vegetation on the slightly higher land to the north. The land on which the airport is located is considered by the Department of Agriculture to be of relatively good quality being classified as sandy or clay loams. There is a limestone cavern at the eastern end of the runway which is a site of archaeological interest.

Land Use Planning Policy

Land use planning in Anguilla is governed by the Land Development Control Ordinance 1966. A new Ordinance has been prepared in draft and is currently being processed by the Attorney General. The current Ordinance does not make provision for the preparation of a Development Plan for the island but the Physical Planning Unit nevertheless produced a National Land Use (NLU) Plan in 1996. This has not yet been approved by Government but is used for development control purposes.

The NLU Plan covers the period 1995 to 2015. It is a strategic plan which defines a three level settlement hierarchy. The Valley is designated National Centre, whilst George Hill is designated a Local Centre. At the intermediate level a number of Sub-national Centres are designated. Blowing Point is designated a Growth Centre.

The strategy is to develop a mixture of residential, commercial and industrial development at selected locations across the island. Whilst The Valley is clearly planned to remain as the commercial, institutional and administrative centre of the island further development above and close to the aquifer will not be permitted unless the area is centrally sewered.

Other key proposals in the NLU Plan are to develop tourism at specified locations, to minimize the alienation of good quality agricultural land and to conserve biodiversity.

The main proposals of the Plan in the Wallblake area are:

- Medium density residential development to the east
- Industrial development to the south from the airport to the solid waste disposal site and bulk oil storage depot.

The main proposals at the Brimegin site are :

- A Conservation Area on the north part of the site (to protect the natural vegetation especially the tall trees and the iguanas)
- Heavy industry in the vicinity of the quarry
- Low density residential development in the remainder of the area.

Regarding the airport the Plan considers a number of problems with the existing facility including :

- the runway is cracked and uneven,
- the gradient gives poor visibility,
- the displacement of the runway's threshold,
- encroachment within 260 feet of the extended centre line, especially at the eastern end
- runway too short for ATR 42 with full passenger load,
- lack of refuelling facilities
- terminal infringes the transitional surface
- the raised ground inside the runway strip on the south-east side does not comply with ICAO obstruction standards
- infringements of power lines

The Plan recommends that any decision to relocate the airport should be preceded by a comprehensive financial and environmental feasibility study which identifies all alternative sites and examines the costs and benefits of each. The Plan proposes that the following options be evaluated :

- Extension of the runway to eliminate payload penalties on ATR 42
- Extension to 4,806 feet to accommodate ATR 72 aircraft without restrictions
- Relocation of the airport to a site at Brimegin, Corito or Lockrum.

9.2 Impact Assessment

9.2.1 Land Use and Property

Wallblake Area

A field survey was undertaken using 1:2000 scale plans of the Wallblake area to estimate the number of properties affected by the proposals and the area of land under different uses taken.

It is proposed that the runway be lengthened by some 600 metres at the eastern end. The width of the strip of land required is 150 metres. A zone of 60 metres is required at the western end plus a strip 90 metres long and 60 metres wide for the RESA.

Land is therefore required at both the eastern and western ends, the majority at the eastern end. Along the length of the runway most of the land required is on the north side.

The land use at the eastern end is a mixture of residential and commercial on the northern side, and pasture and scrubland to the east. It is estimated that about 25 plots will be affected either in total or in part by the proposals. It is also estimated that 12

properties fall within the boundary of the clearance area at this end. Of these 9 are residential and 3 commercial (garages and builders yards). Most of the buildings are small, single storey although two are large two storey dwellings. Additional property may be required to avoid infringement of the 1:7 clearance area. There are three properties in close proximity to the boundary of the clearance area on the north side at this end, two of which are dwellings (one large, two storey) and one commercial (building material supplies). There are three buildings in close proximity on the southern side, one of which is a small dwelling and the other two are a primary school.

The land use at the western end is a mixture of residential and commercial with a small amount of open pasture. It is estimated that about 36 plots will be affected by the proposals either in total or in part. It is estimated that 6 properties fall within the boundary of the clearance area. All six are small residential dwellings. Additional property may be required to avoid infringement of the 1: 7 clearance area. There are 7 residential properties in close proximity to the boundary of the clearance area on the south side and 13 properties at the extreme western end and on the northern side which may be affected. Of these 8 are commercial, being mainly shops and bars. Most are small single storey buildings although one is a large two storey commercial building.

Various options relating to re-profiling, land take and the strip end and runway end safety area would need to be re-evaluated during the design phase.

Brimegin Area

At the Brimegin site the land use is mainly grass and scrubland although extensive subdivision has taken place. The Valuation Section of the Department of Lands and Surveys undertook an assessment of the land and property to be acquired for development of the airport in June 1999. They estimated that 853.35 acres (347 hectares) would be affected consisting of 212 parcels. The size of the parcels ranges from 0.2 acre to 66 acres although most parcels are between 0.5 and 3 acres. Twenty existing buildings would be affected. The average value of the land was put at US\$ 43,427.58 per acre and the average value per house US\$ 136,646.65 although three properties are valued at over US\$300,000 The total value of the property required in the area was minimally estimated at US\$ 35,950,733.

9.2.2 *Impact on plans and policies*

The impact of the proposals at Wallblake on development plan proposals and policies is limited. The land at the eastern end of the runway is proposed for medium density residential use. However part of this area falls within an area where development is restricted due to the airport. There is unlikely to be any serious planning objection to the proposals here.

At Brimegin however, whilst part of the site is zoned for low density residential use, the proposals would conflict with the proposed Conservation Area on the north part of the site. In addition there would be conflicts with the existing and proposed industrial uses on and around the quarry site (eg proposal for an asphalt plant) as well as conflicts with the preservation of Fountains Cave and its setting. In addition the scale of the tourist development envisaged with the Brimegin Option 2 proposal is contrary to the proposals of the current development plan.

9.2.3 *Labour force and employment*

It is understood that there are currently approximately 60 employees at the airport. It is assumed that with the improvement in facilities proposed at Wallblake (including limited duty free shopping) this could be expected to rise by say 15 - 20 employees. The Feasibility study for the Brimegin proposal envisages permanent employment of some 50 persons (5 expatriate) and an additional 30 jobs for duty free shops. At both sites temporary construction workers will of course be required, but the number of workers required at Brimegin will probably be larger and the construction period longer. The Brimegin Option 2 proposal, most importantly envisages the construction of a large number of new hotels and suggests that direct employment in these hotels will be about 950 persons (mainly female) with further indirect employment in the tourist industry support services (mainly male). Construction employees for the new hotels would be required over a five year period.

The Brimegin proposals will result in the need to import large numbers of migrant workers due to the shortage of labour on the island. This is seen as undesirable by the majority of consultees and would be anticipated, based on experience on the island to date, to lead to further crime and social tensions with strains on both social and physical infrastructure. It would also lead to a dilution of the essential Anguillan character of the island with in the longer term the possibility of migrants outnumbering Anguillans.

9.2.4 *Disturbance - noise, vibration, odours, traffic*

Wallblake

The proposals at Wallblake will have an impact primarily on the communities in George Hill, Long Ground and Statia Valley. They will also have an impact on the commercial and administrative properties in The Valley, including the main government buildings on the south side of the town. There are already complaints from many residents regarding noise, vibration, interference with TV reception, and odours which can all be expected to increase with larger and/or more frequent aircraft. The proposals will however result in improved safety for the residents of the surrounding areas.

The impact in terms of increased traffic within these communities is unlikely to be significant – the main increases in traffic flows are likely to be along the main road from the airport terminal westwards. The commercial properties along this stretch of road could benefit in this respect.

It is assumed that the bulk of construction materials will come from the quarry to the north and the port at Sandy Ground. The former would result in heavy vehicles passing through North Side village and The Valley to reach the site, causing some disturbance to these communities. The site is however conveniently located in relation to the waste disposal site on the south coast and disposal could be effected without adverse impact on communities.

Brimegin

The Brimegin proposals would have an adverse impact on the communities at Little Dix and Welches to the east of the site. These are fairly densely settled rural communities and considerable opposition to the proposals could be anticipated. Noise levels, vibration, and odours in these areas would be significant, particularly with the size of the airport envisaged in Option 2. In addition there would be a significant impact on the properties in the north part of The Valley and the tourist development and beach facilities at Shoal Bay.

There would be a significant increase in traffic through The Valley as a result of tourists travelling from the airport to the main hotel developments in the west of the island.

Whilst it is assumed that the majority of construction materials would be from the quarry near the site any heavy materials imported via Sandy Ground would need to be brought through The Valley and the communities to the north of the town where roads are narrow. This would cause undesirable disturbance.

9.2.5 *Severance and Communications*

The proposals at Wallblake would result in the severing of the road at the eastern end of the runway which gives access from The Valley to Forest Bay, and the facilities at Corito. This road could either be realigned around the extreme eastern end of the runway extension or alternatively the connection could be forfeited with additional use being made of the road around the western end of the runway to give access to Corito. The latter would increase traffic flows through Georges Hill and Long Ground.

At Brimegin the proposals would sever the main access road to Shoal Bay from The Valley. Access to this area would need to be achieved via Welches and Island Harbour village. This would be a relatively long diversion and would increase traffic through these rural areas. The proposals would also sever the main road from the Valley to the rock quarry, block making plant and crusher facility, making access from this facility to most of the island to the south and west significantly longer and increasing traffic through Shoal Bay, Welches, Island Harbour, Deep Waters, Little Dix and Stoney Ground.

9.3 Consultation

9.3.1 *Methodology*

Extensive consultation was undertaken with stakeholders including NGO's, religious organisations, sample households from those likely to be directly affected, interest groups and the community at large, including hotel managers and managers of various business concerns. Primary stakeholders were identified through inquiries with relevant ministries and through general inquiries. The intention was to consult a cross section of interested parties. The following organisations were consulted :

- National Trust

- Department of Social Services
- Anguilla Beautification Club
- Anguilla Tourist Board
- Soroptimists
- Optimists
- Department of Education
- National Council of Women
- Department of Community Development
- Christian Council
- Youth Council
- Rotary Club
- Director of Medical and Health Services
- Hotel and Tourism Association
- National Farmers Association
- Co-ordinator of Women Affairs
- Representatives of residents likely to be affected
- Representatives of Spanish Town (migrant community)
- Chamber of Commerce

9.3.2 *General Issues*

The need for improvement of the existing airport was well recognised. The general view was that something has to be done as Wallblake is too small and planes have to cut back on the numbers of passengers that can be brought in. This appears to be seen as a waste and uneconomic. Most consultees recognised the need for improved safety, and greater reliability. Some commercial concerns noted the lack of any space for duty free shopping at the airport.

There seemed to be particular opposition to the dependence on St Martin and other international airports for the arrival of visitors. Dependency is clearly something that is not appreciated on the island.

There was almost total opposition to the construction of an international airport. The prospect of large plane loads of visitors arriving is viewed unfavourably primarily because it is considered that it would completely change the character of the island from one of up-market tourism offering a luxury product to one satisfying the mass tourism market, because the existing infrastructure (both physical and social) would be unable to cope, and because of the perceived adverse environmental impact and social impact of large numbers of tourists.

It is well recognised that the island has a limited carrying capacity and is fragile socially, culturally and environmentally. If tourism is to survive and flourish on the island it must be sustainable. It is felt that the Brimegin proposals threaten sustainability in all respects. It is also recognised widely that the development of the tourist industry can be better achieved through increasing occupancy levels at existing hotels and improving the quality of the environment of the island and its natural attractions rather than the construction of further hotel capacity.

There were very mixed views from the residents of the Wallblake area on relocation. Some would be happy and willing to move whilst others would be totally opposed to

the idea, particularly those on the northern side some of which have good views across the island. Some residents would be happy to move to another site within the same village. (see notes of meetings in Appendix) There is considerable attachment to family lands especially amongst older people.

A view frequently expressed was that sites other than Brimegin should be investigated, at least before a decision is made concerning the future expansion of Wallblake.

9.3.3 *Issues and concerns at Wallblake*

The main concerns with the expansion of Wallblake which were frequently expressed are as follows :

- Noise, particularly from aircraft taking off,
- Vibration, including damage to buildings,
- Odours,
- Pollution of water supplies, especially from fumes at the western end of the runway,
- Interference with TV reception,
- Safety, particularly from aircraft overshooting the runway,
- Longstanding talk about the need to relocate which has resulted in an element of blight in the area
- Stress from aircraft disturbance, especially to the old, sick and young babies,
- Frustration at not being able to develop land either because of the uncertainty of future development or because plots lie within restricted zones,
- Poor drainage in nearby areas as a result of the construction of the airport and runway

9.3.4 *Issues and concerns at Brimegin*

The main issues and concerns with the Brimegin proposal are as follows :

- Concern over the environment and in particular the need to protect Fountain Cave, the habitat of the Iguanas and the forest area to the north which is designated a Conservation Area in the National Land Use Plan and contains the few remaining wild fruit trees on the island,
- Uncertainty over the possibility of developing residential plots on approved subdivisions and a certain amount of planning blight,
- Opposition to the need for additional hotel development to support the larger airport because of pressures on water supplies, infrastructure, the natural and social environment, because of the possible loss of top class tourism and because of the resulting change in character to the island resulting from mass tourism development with further immigration and all the associated problems that is seen to bring such as crime and prostitution,
- Loss of grazing land,
- High costs of infrastructure development associated with the proposal and high costs for land assembly,
- Remote location particularly in relation to the major tourist development on the western part of the island and inaccessibility for employees.

9.4 Social Survey of Residents in Wallblake and Brimegin

9.4.1 Introduction

This report presents the results of an assessment of the views of the residents most likely to be affected by the expansion of the Wallblake airport or the development of a new airport at Brimegin. The four villages in the vicinity of the Wallblake airport are George Hill to the west, Long Ground to the south, Ray Hill to the north east and the Forest to the south-east. Little Dix and Welches are the two settlements most likely to be impacted by the Brimegin development.

A representative sample of the households in each of the communities was selected, and a brief survey was conducted to ascertain the views of the residents on the proposed developments. The main findings of the surveys were as follows:

Wallblake airport area overview

- The majority of the residents have lived in the area for more than 25 years.
- Only 7% of the sample work at the Wallblake airport.
- For those residents closest to the Wallblake airport, noise is the main impact, but most persons indicate that they have grown accustomed to this and the other nuisance factors.
- 50.6% of the respondents supported the idea of expanding the Wallblake airport. Their reasons were based on the fact that they believe that it would be the least cost option; the need for a bigger airport and the opportunities it would bring to Anguilla through tourism.
- The 40% who did not support the idea of expanding the Wallblake airport were concerned about noise and the impact on their property.
- 49% of the respondents were in favour of developing the airport at Brimegin because there is more space, there is very little housing development, it offers the opportunity for the development of an international airport, and it can increase tourism and economic benefits.
- 29% of the respondents who were against the idea of developing the airport at Brimegin based their objections on the cost it would take to build, the distance from town, the geology in the area, the private land ownership and the heritage features in the area.
- 37% of the sample were prepared to relocate if absolutely necessary. 48% were not prepared to move under any circumstances.
- 76% would require compensation in the form of house and land to the value of, or greater than what they currently own. 13.3% wanted money and 10.7% were unsure of what they would want or indicated that nothing would be enough.

Brimegin development area overview

- The majority of the residents have lived in the area for more than 25 years.
- 78.5% support the proposal to expand the Wallblake airport because they believe that it will be less costly, that the residents there are accustomed to the noise and other nuisance factors, that it would make Anguilla less dependent on neighbouring islands, it would be safer and there is existing infrastructure.

- 26% support the development at Brimegin because there is less housing development and there could be economic benefits.
- 74% disagree with the proposal to develop the airport at Brimegin because of the geology on the area, they believe that it would be very costly, they feel it would bring fundamental negative changes to the island and have negative impacts on their lives.
- The main impact that the residents are concerned about regarding the proposed airport development at Brimegin is the noise.

Taxi drivers overview

A meeting was held with twelve taxi drivers to determine their views on the airport development. There were two main positions:

- One group felt that a proper airport was needed no matter where or how, by all cost and on good ground, even if it is not at Brimegin.
- The other group was concerned that the development of an international airport would be detrimental to Anguilla, and that the island should maintain its up-market status because it offered something to the travellers that they can not obtain elsewhere.

Both groups were in agreement, however, with the need to upgrade the Wallblake airport because of the existing problems, i.e. the bump in the airstrip, the alignment of the runway, the need for fueling capacity, and the poor drainage.

More indepth details of the survey results are contained in the following sections.

9.4.2 *The Wallblake airport area*

The Department of Lands and Surveys estimate that 131 buildings will be impacted by the proposed expansion of the Wallblake airport. A 60% sample was taken in this area, targeting the properties in closest proximity to the airport (Table 9.1). The survey findings are tabulated below.

Table 9.1 Number of persons in sample households

Community	Adults	Children	Total Persons	Total Households
The Forest	26 (60.5%)	17 (39.5%)	43	8
George Hill	114 (68%)	54 (32%)	168	43
Long Ground	16 (53%)	14 (47%)	30	7
Statia Valley	43 (73%)	16 (27%)	59	17

As Table 9.2 shows, the majority of the residents have lived in the area surrounding the airport for more than 25 years.

Table 9.2 Length of residence

Community	Less than 10 years	10 – 25 years	More than 25 years	Total number of respondents
The Forest		1 (12.5%)	7 (87.5%)	8
George Hill	5 (12%)	8 (19%)	30 (69%)	43
Long Ground	2 (29%)	4 (57%)	1 (14%)	7
Statia valley	2 (11%)	4 (23%)	11 (65%)	17

Within these households, fourteen (14) adults, or 7% of the adults in the sample work at the Wallblake airport.

Table 9.3 Number of respondents employed at Wallblake airport

Community	Employed at airport	Total adults in sample
The Forest	3	26
George Hill	7	114
Long Ground	0	16
Statia Valley	4	43

The distribution of employment at the Wallblake airport is as follows:

Table 9.4 Distribution of employment

Department	Number employed
American Eagle	2
Fire Department	5
Aircraft company	1
Pilot	2
Security	1
Immigration	2
Other	1

The impact of the existing airport

When asked to indicate what type of impact the airport has had on their lives, noise was the leading concern.

- Problems are more acute when planes land from the east.
- Jets are noisy.
- The American Eagle flight at night wakes you up, and a jet almost landed 2 years ago.
- Noise is expected sometimes when they take short cuts over the house.

However, many of the respondents were quick to comment that they were accustomed to the noise and hardly noticed the other factors at all.

Table 9.5 Effects of airport on residents

Effects	The Forest	George Hill	Long Ground	Statia Valley
No impact	37.5%		14%	
Dust		21%		
Vibrations from planes	12.5%	44%	14%	6%
Noise	62.5%	65%	86%	25%
Odours	12.5%	49%		6%
Pollution of water		19%		
Interference with TV reception		28%		
Safety	12.5%	49%	14%	
Drainage				
Fumes			28%	
Construction		7%		6%

Odour was another factor that affected the respondents. They indicated that the extent of the problem depended on the wind direction or the size of the plane. One person reported that their sinuses were affected by the odour.

Vibrations from the planes passing overhead were reported by one respondent to have "cracked up" his house. Other respondents indicated that the intensity of the vibrations was linked to how low the planes were flying and the size of the plane.

According to the respondents, interference with TV reception depended on the direction of the take off and the size of the planes. The major safety concerns pertained to the possibility of planes overshooting the runway, or coming down on one of the buildings.

One area of increasing concern is the restriction on construction and the inability to build more than one-storey structures. Respondents raised the point that no approvals are being given for building in the area, and indicated that it is creating problems to persons who own land and wish to start their homes.

Only one respondent remarked on the length of time it takes to get to the main road because of the need to travel around the runway.

Opinions on Wallblake airport expansion

When asked for their opinion on the proposed expansion of the Wallblake airport, roughly half of the respondents were for the idea and half were against. Of the thirty-eight (38) respondents (50.6%) who were for the idea of expansion, the reasons were:

Least cost option

- It could happen. The government will be looking for the least expensive option. If it happens people will have to move and that will be costly. It could be beneficial.
- Good idea. Already established that it is cheaper to fix.
- The need for a bigger airport
- Has not heard about it, but airport needs to be bigger.

Advantages to Anguilla and to tourism

- They should for tourism.
- Yes extend – improve tourism. Maybe vibrations or reception TV from jets.
- Would be good for Anguilla.
- If it's done bigger planes can come in.
- There was substantive agreement with the proposal to expand to the east, and to have the take off over the sea:
- Better to expand towards the northeast.
- Might be the better thing to do. Have the take off over the sea.
- Best suggestion, can't go west.
- Better way to go east can't go west.
- Good idea. Let them touch down after they pass this area.
- It should be extended east.
- Yes that would be good. Extend going eastward.
- However, some respondents were concerned that the eastern end of the island was "swampy".
- One respondent was concerned about the cost and suggested upgrading rather than building a new airport.

The thirty (30) respondents (40%) in disagreement with the expansion of Wallblake were concerned about the following:

Noise

- More noise, more planes.
- Jets would be a problem.
- There might be an increase in noise.

The impact on the existing homes and buildings

- Would have to move houses.
- Would mean larger planes and therefore would be a problem. Would have to do a lot of construction and move the houses that are in the way.
- Can't because of homes.
- It is dangerous for George Hill.
- Should be condemned. Too many houses built up. A new airport should be built.
- An airport should not be too close to a residential area.
- Some respondents wanted a completely new location:
- Rebuild at Scrub Island build a bridge. Keep it off mainland.
- No, I prefer for it to be moved to a new location.
- If funding is available, move it.

- One person felt that the airport should remain the same size, and another suggested that it be kept for small planes.
- Seven respondents offered no opinion or indicated that the government would do what they wanted to do no matter how they felt about it.

Opinions on the Brimegin development

With respect to the respondents' opinions on building a new airport at Brimegin, thirty-seven respondents (49%) were in favour of the idea and twenty-two (29%) were not. Of those in favour, the reasons given were:

More space

- Has more space therefore can build bigger airport.
- If there is more land there then yes.

Lack of housing in the area

- Yes, where there are no dwelling houses.
- Yes. Any area where there are no dwelling houses.

The opportunity for an international airport

- If the airport is built at Brimegin it would be international. This would generate more work, and therefore it would be beneficial.
- Improved tourism and economic opportunities
- Would be a good idea for tourism, especially to get bigger planes. Could also build a better building.
- Yes, it will help us economically. It will also create jobs.
- Some respondents agreed with the location but expressed concern about the cost of building the airport, the nature of the geology in the area and the distance to be travelled to reach the airport
- Would be ideal, however money would be an issue.
- Space- yes but rocky.
- Yes but further away.
- More tourist, but further away.

The twenty-two respondents who were against the idea of an airport at Brimegin were concerned about:

The cost

- Long time, costly
- No, finance
- It will take a long time and a lot of money

The distance

- Its too far.
- Too far away.
- Far.

The geology

- Brimegin has caves and might not be suitable

Land ownership

- Would be good to move it from Wallblake in the past but now Brimegin is also getting built up.
- If people have land at Brimegin the same problems that we're experiencing they'll have eventually.

There is no need for an international airport

- Don't need international airport.
- Not sure Anguilla ready for that right now.

Heritage features

- Too expensive, the fountain is located in that area
- I don't know if it's a suitable area due to the fountain being located there which should be preserved.

Find an entirely different site

- Disagree with removing it to Brimegin but a new site would be preferable. Brimegin should be preserved as a tourist area. Scrub would be preferable
- Better to build elsewhere
- A number of respondents were unable to comment because they were unfamiliar with the area

Relocation of residents

The survey sought to ascertain the willingness of the respondents to be relocated if it should be required by the airport expansion. Twenty-eight (37%) respondents indicated that they would do so if they absolutely had to, while thirty-six (48%) were adamant that they would be un-prepared to move.

The respondents who indicated that they would move, however reluctantly, made it clear that they would want to have a say in where they were moved to and that compensation would be a must.

The individuals who were not prepared to relocate, all felt very attached to the area.

- "Jesus I love it here"
- I would be sad.
- I would feel very bad.
- No, my navel string was buried here.

The remaining respondents were not prepared to comment or indicated that they had not given it any consideration.

The respondents were also asked to indicate what location they preferred, should they have to move. The answers varied considerably, but the majority once again confirmed that they would rather stay in the area.

Table 9.6 Preferred location for relocation

Preferred Location	Number of responses
Nowhere but here	51
Somewhere close	2
Don't know	3
Statia Valley	1
The Quarter	1
Little Harbour	4
The Valley	1
Northside	1
East area	2
Rock farm	2
Wallblake	2
South Hill	1
Stoney Ground	1
Pope Hill	1
Rock Farm	1
Shoal Bay	1

Within the context of this overwhelming desire to remain in the area, the respondents were asked what features of the area were attractive to them.

Table 9.7 What is liked about the area

Likes	The Forest	George Hill	Long Ground	Statia Valley
Quiet peaceful pleasant cool	7	5	3	4
Lived here all their life/grew up in the area	1	2	3	6
Purity/Privacy Not crowded	1	1		
Family Neighbours		2	1	1
It is central and is close to services – church, school, work	1	4	1	
Safety	1			
Beauty Scenery			6	
View of the sea and St. Martin		7	1	1
Watching the planes		3	2	
Memories/ Sentimental value		10		
Location		10		
Good Land		1		
Everything		2		1

The respondents were also asked to indicate the things in the area that were un-attractive. These were:

- The soot/pollution and the noise from the power plant
- The flies from the landfill
- Their proximity to the proposed industrial site
- The planes and the busy highway
- The narrow roads and the potholes
- The fact that most of the land is private can cause access problems
- Mosquitos

Compensation

When asked about the level of compensation that would be required if they were relocated, 57 respondents, 76% of the sample requested house and land of a value equal to or greater than what they currently own. These were:

- Same level of land and house
- Land to replace land or building
- A comfortable home and a good location
- Two new houses
- A big house on the hill
- A house not smaller than the existing one
- A better house and it must be concrete. A quiet area
- Twice as much as what I have now
- I would like to be replaced with my present assets
- A good location with what I have presently and transportation
- Good land for gardening
- 10 respondents, 13.3% wanted to have money and 8, 10.7% were unsure or indicated that nothing would ever be enough compensation.
- A lot of money
- Pay me for what I own
- Half a million dollars (US)
- I would have to be given the means to build my own house
- There is no compensation enough
- Never thought about it
- Nothing
- Too big to mention

9.4.3 Brimegin Development

In Brimegin, the residents in the communities of Little Dix and Welches are those most likely to be affected by any airport development in that area. To this end, residents of Little Dix and Welches were interviewed to ascertain their concerns regarding the potential development.

23 households representing 113 persons were interviewed in Little Dix and 19 households representing 88 individuals were interviewed in Welches.

Table 9.8 Number of persons in household sample

Community	Adults	Children	Total
Little Dix	79	34	113
Welches	49	39	88

As Table 9.9 indicates, the majority of the residents in the area have lived there for more than 25 years. Most of them have lived in the area all of their lives.

Table 9.9 Length of residence

Community	Less than 10 years	10 - 25 years	More than 25 years	Total number of respondents
Little Dix	1 (4.35%)	5 (21.74%)	16 (69.57%)	23*
Welches	2 (10.53%)	3 (15.79%)	14 (73.68%)	19

* One non-response

Not many of the respondents work in the area, and of those who do so, the majority is involved in agriculture.

Table 9.10 Respondents who work in or near area

Type of work	Little Dix	Welches
Lifestock	3	4
Crops	1	4
Agriculture (not specified)	1	1
Construction	3	
Other (not specified)	8	1
Tourism	1	1
TOTAL	17	11

Three individuals in the sample were employed at the Wallblake airport at the time of the survey, two in Little Dix and one in Welches. One is air traffic controller, another is a reservations clerk. One did not specify his/her type of employment.

Opinion on Wallblake airport expansion

There was overwhelming support for the extension of the airport at Wallblake. Of the forty-two (42) respondents, thirty-two (76%) indicated that they preferred the Wallblake site. Comments in support of the Wallblake airport were based on:

The fact that persons believe it to be the less costly option

- At the Wallblake airport all you have to do is relocate a few people from the area and extend the runway. It will be less costly.
- It should be extended. It will be less trouble than to buy land and survey and fill the caves.

- It is good idea because it would be less costly although some houses have to be moved.
- I agree for them to upgrade and extend the airport. It is the perfect spot. After the aircraft takes off it is going directly over the sea. It would be cheaper to relocate residents of George Hill who would be affected than to build a new airport.

People perceive that the residents in the areas around Wallblake are already accustomed to the inconvenience of noise etc.

- It's a good idea because people there accustomed to the noise and there won't be as much trouble.
- The airport would help to develop the town area. The people at George Hill are already accustomed to the air traffic already.
- They should extend the one at George Hill because the people are accustomed to the noise and vibration.

It would make Anguilla less dependent on the facilities in neighbouring islands.

- In light of the continuing development of the island, an expanded airport facility would render Anguilla less dependent on facilities in neighbouring islands.

Safety

- An extension is needed for the safety of all people, but the size is fine

Existing infrastructure

- I think that is the best decision. The building is already there, so just extend it.
- However, concerns were raised about the proper relocation of the persons in the affected area around Wallblake.
- It is OK if they have somewhere to put the people living in that area.
- The airport should remain in Wallblake. However, it should be upgraded and extended to accommodate larger aircraft. Persons affected by the noise etc. should be paid for their property and relocated.
- I believe that the airport should be extended. This would be less costly and the Wallblake area is a rather flat area. However, I do believe that provision would have to be made for the residents.
- It should be extended, but the people in George Hill who would be affected should be moved.
- Extending the present airport would mean less money to be invested but George Hill is a densely populated area and therefore quite a number of persons would be affected by the extra traffic, pollution etc. that would result from extending the present airport.
- My concern is about the people at George Hill. Despite this the people there are accustomed to the noise.

The six (14%) respondents not in favour of extension at Wallblake felt this way because it was inadequate or because of the number of residents who would be affected:

- Condemn it!
- They should not extend Wallblake airport. They should just make another one.
- There is not much room for extension.
- It should not be extended because there are too many houses in the area.
- I am concerned about the electrical lines in George Hill. I think the people in George Hill will be badly affected by noise, pollution, vibration and odour. My greatest concern is of a tragedy should occur many people will be hurt.
- This should not be done. My concern is about the people in George Hill and Wallblake area.

There was one query about what would be done with the old airport should a new one be built.

Opinion on the proposed Brimegin development

- Eleven (26%) persons agreed with the development of an airport at Brimegin. Six of these were from Welches. The main reason given was the fact that fewer persons would be affected.
- Yes it would be a good idea because there are less houses.
- Brimegin would be better area because it is less populated and so not many persons would be affected.
- I have no problem with this. I don't think we at Welches would be affected.
- Brimegin might be a better place because less persons would be affected by the pollution etc.

Some persons also recognised that there was a possible economic benefit:

- If it is an international airport, it means increase in tourism and more jobs for people living in Anguilla.

However, while agreeing with the idea there were still concerns about the cost and the effects that it would have on their lives:

- It can be built there, but the noise would be disturbing.
- It is not a bad idea, but it would be very costly because it would be a lot of work.

The thirty-one (74%) persons disagreeing with airport placement at Brimegin did so for the following reasons:

Inadequate geology

- None should be built. Inconvenient to build the airport on the north side of Anguilla. There are a lot of caves and deep holes. It would take over thirty years to build.

- The Brimegin area is an area filled with underground cavities which cannot take the vibrations of heavy planes, also it will destroy the fountain cavern which has a lot of history.
- The area geologically is not fit for such an undertaking

Too costly

- In Brimegin it will be too costly and take years. Don't build it in Brimegin
- It will be very costly to pay property owners for land in that area.
- It will be very costly to build a new airport and will take many years
- This is just pure ignorance. Seeing that it will take what the country doesn't have to build it.
- I do not like the idea of constructing a new airport in Brimegin. The area is not a strategic position for the airport. The construction of the airport will be very costly and Brimegin is a natural habitat for wildlife.
- It would be very costly and it will be a disturbance to my family and I
- It is a bad idea. Too expensive. Too many people will have to readjust or relocate

Fundamental negative change to the image of Anguilla and tourism

- Anguilla is a very small place. We surely don't need anything larger that can change the lives of our people. That is our safety. We are very comfortable with what we have.
- Seeing that Shoal Bay is one of Anguilla's best and most attractive beaches, building an airport here can have a negative effect on tourists who are vacationing. Therefore it is too close to Shoal Bay.
- This area should be developed for tourism - e.g. fountain cavern area.

Negative impact on their way of life

- Since I would be directly affected with noise and pollution, I would prefer for you to extend the one at George Hill. The people there are accustomed of the noise already.
- I don't want it to be built at Brimegin because I have young children who would be affected at some time with noise, vibration, odour etc.
- I don't think it is a good idea because I would be affected.
- My main concern is about the noise especially at night.

One respondent felt that more information would have been required prior to giving an informed input:

- The suggestion will have to be accompanied by the feasibility studies that have been submitted to the Government of Anguilla in order for more informed opinion to be reached.

Perceived impact of Brimegin development

When asked about the types of effects that the airport would have on their lives most of the respondents were concerned about the noise, vibrations from the planes and increased traffic through the area (Table 9.11).

Table 9.11 Perceived effects of Brimegin development

Effects	Little Dix	Welches
No impact		
Increased traffic	52%	74%
Change the character of the area	48%	53%
Dust	43%	53%
Vibrations from planes	70%	84%
Noise	74%	100%
Odours	43%	68%
Pollution of water	48%	58%
Interference with TV reception	43%	58%
Safety	39%	58%
Drainage	17.4%	11%
TOTAL RESPONDENTS	23	19

Some specific queries were raised about the access to Shoal Bay, and one respondent recommended that consideration be given to developing the airport on Scrub Island.

9.5 Terms of Reference For Social Impact Assessment

9.5.1 Background

This study of airport development options for Anguilla has concluded that the preferred option is the expansion of Wallblake airport. It is proposed to extend the runway by 600 metres at the eastern end to provide a total runway length of 1797 metres. Other improvements include the provision of refuelling facilities, and an improved and expanded terminal building together with improved drainage on the site. It is envisaged that these improvements will meet the aviation and transportation requirements for Anguilla for the foreseeable future and in particular, accommodate the ATR 72 American Eagle aircraft which are planned to be brought into operation in the near future.

The site lies on the south side of The Valley, the islands main commercial and administrative centre and there are four villages within the immediate airport area – Georges Hill, Long Ground, Statia Valley and The Forest. Development in these areas is primarily residential although there is some commercial development along the main access road to the terminal building and a primary school on the south side of the airport. The four communities will all be affected to some extent by the proposals.

There are a number of social development issues associated with the proposal. The main concern is the direct impact on people in the immediate vicinity of the runway and the requirements for relocation of premises within the airport clearance zone.

The second issue is the impact on these communities in terms of increased noise, vibration, odours and disturbance both during construction and operation. Thirdly there are considerations of the impact on the wider community on the island and in particular the effects on employment and the overall economy. These are expected to be largely beneficial.

The project is classified as Category B within the Social Development Handbook (ODA) 1993. Such projects are defined as having potential negative effects (as well as positive) on a significant number of people. For such projects social development advice is required, particularly in assessing whether effects can be minimised and proposals for compensation / mitigation are acceptable to the affected population and are both timely and effective (pg10-11, Social Development Handbook).

It is considered therefore in the particular circumstances of this project that a comprehensive social assessment will be required.

9.5.2 Purpose of the Assessment

The purpose of the study will be to assess the impact of the proposals on those likely to be affected either directly or indirectly, especially the communities in the immediate vicinity of the project site. It will also be necessary to identify and recommend measures to minimize any adverse effects.

9.5.3 Methodology and Tasks

The main tasks to be undertaken include :

- i) Identify those properties likely to be directly affected and families likely to be required to be relocated by the proposals. Consult with these and establish their concerns, priorities and desires regarding relocation.
- ii) Identify other properties / stakeholders in the vicinity of the project site likely to be affected as a result of noise, vibration, disturbance, severance etc. Liaise with the team undertaking the environmental impact assessment to establish the likely degree and extent of impact. Consult with these stakeholders and establish their concerns and views.
- iii) Consider the wider impact on the economy of the island as a whole particularly the effects of an improved facility on job opportunities, income levels and overall welfare.
- iv) Analyse the overall social costs and benefits of the project
- v) Prepare a social profile of the different groups within the population likely to be affected directly or indirectly by the proposals. This should include demographic and economic data. Special account should be taken of the role of the migrant community and the particular needs of the disadvantaged eg the elderly, disabled, or chronically sick.
- vi) Prepare a resettlement and compensation plan for the households to be relocated. The purpose of the plan is to ensure that households affected by the project are re-established on a sound productive basis. Current international guidance from funding agencies and aid organisations draws attention to the following principles which are now generally accepted for the design of resettlement schemes :

- All viable alternative project designs should be explored to avoid the need for resettlement, and when it cannot be avoided, to minimise the scale and impacts of resettlement
- Assistance should be given to the community in their efforts to improve former production levels, income earning capacity and living standards or at least restore them to levels they would have without the project.
- Displaced persons should be informed about their options and rights, consulted on options, compensated promptly and efficiently, assisted with relocation and given assistance and support during the transition period.
- Particular attention should be given to vulnerable groups
- Communities should be given opportunities to participate in planning, implementing and monitoring their resettlement

The plan should include :

- baseline socio-economic data on the affected population including information on incomes and employment and details of land, property and assets
- analysis of relevant legal and institutional framework and procedures relating to land and compulsory land acquisition
- analysis of the resettlement and compensation needs and requirements
- analysis of options for resettlement and compensation
- analysis of land availability for resettlement
- proposals for resettlement and compensation
- programme for resettlement
- estimated costs
- details of consultation undertaken
- implementation plan including organisational framework, proposed grievance procedures and proposals for monitoring and evaluation

Reference should be made to the guidelines given in the Social Development Handbook ODA 1993. Advice can also be sought from World Bank Operational Procedures 4.12 on Involuntary Resettlement. Consultations should be held with relevant government departments, including in particular the Department of Lands and Surveys and Department of Community Development.

- vii) Identify and assess options for avoiding, mitigating or compensating groups (other than those to be relocated) adversely affected by the proposals and recommend appropriate measures for mitigation of adverse impacts including possible changes to the design of the project.

10.0 COMPARATIVE AIRPORT STUDY: ANGUILLA

10.1 Environmental Issues

10.1.1 Review of Previous Airport Studies

Environmental information in previous studies is sparse though the feasibility study for the runway extension at Wallblake Airport undertaken for the ODA by Scott Wilson Kirkpatrick includes a brief comparative environmental assessment for 3 improvement options. For the maximum runway extension, the report concludes that no rare or special flora and fauna, or protected sites, would be affected and the vegetation lost to the proposal comprises common and widespread species found throughout the island. Access to Airport Cave, a site of archaeological interest, would probably be occluded by the runway embankment.

10.1.2 The CIEC report, A New Anguilla Airport at Brimegin. Preliminary Technical and Economics Study Feasibility, dispenses with environmental issues by concluding that there is no environmental impact given the "poor vegetation, flora and fauna..." on Anguilla. The Business Plan for the Anguilla Airport at Brimegin makes no mention of environmental issues.

10.1.3 The Anguilla Tourism Marketing Plan and Promotion Programme (by Cooper and Lyebrand Inc. for the Caribbean Tourism Organisation 1995) notes the potential for nature and heritage based tourism (e.g. the Arawak heritage, ornithology) and the existing low use of these resources. It makes the proposal for an active expansion in, and the wider promotion of, the eco- and heritage tourism product in Anguilla.

10.2 ENVIRONMENTAL DESCRIPTION OF THE AIRPORT SITES

10.2.1 Data on the existing environment have been obtained from a combination of the following sources:

- site inspections of both terrestrial and inshore marine habitats undertaken during a visit to Anguilla in early November 1999,
- from consultation with the Anguilla National Trust, the Agriculture Department and the Department of Fisheries and Marine Resource, and
- from the literature sources quoted in the list of References.

Brimegin

Landform and Drainage

10.2.2 The proposed runway alignment is centred on a shallow east-west valley. The land rises to Fountain Hill (55 m) in the north and to North Side around 58 m in elevation to the south. The land under the proposed runway alignment rises from around 25 metres by the coast to a higher central plateau at 38 m before descending in a series of terraces to land around 15 m high adjacent to Badcox Pond. Thick, fissured Miocene limestones form the solid geology. As a result of the geology and a relatively dry climate, there are no permanent surface watercourses. To the west, the land dips gently towards the rocky north-west coast; to the east, run-off water and percolating

ground water collects in the small lake, Badcox Pond. A quarry and fabrication works for the production of building blocks is present on the northern edge of the Brimegin site.

Flora and Fauna

- 10.2.3 The proposal area is characterised by an extensive tract of dense scrub, a woody growth of shrubs and small trees growing on a mosaic of surface outcrops of weathered limestone pavement and thin soil lenses. Deeper soils in the base of the shallow valley allow the growth of patches of grass sward within the shrub and tree cover. The plant community comprises over 20 principal native species of shrubs and small trees together with a number of grass and small herb species. There are areas of taller tree growth along the coast extending inland along the main valley. The predominant species include white cedar (*Tabebuia* sp.) pigeonwood (*Plumaria alba*), frangipani (*P. rubra*), five-finger tree (*Randia aculeata*), manchineel (*Hippomane mancinella*) and pitch apple (*Clusia rosea*). Orchids and bromeliads (*Tillandsia* spp) grow in the shaded habitats within the areas of taller growth. Additional species of the lower thorn scrub include sweet briar (*Acacia tortuosa*), bilbush (*Phyllanthus epiphyllanthus*), Christmas bush (*Comocladia dodonaea*), chinkswood (*Bourreria succulenta*), sages (*Lantana* and *Croton* sp.) and the cactuses *Melocactus inortus* and *Opuntia* sp.
- 10.2.4 The Brimegin area is one of only three sites in Anguilla noted for its biodiversity of native species though relatively little recent ecological research in the area appears to have been undertaken and it is unlikely that all species have been catalogued. It is one of only two sites remaining on the island with a community of native tall trees, the other being the small valley at Katouche Bay. It is the only site with a well developed shade community of orchids and bromeliads.
- 10.2.5 The extensive woody cover offers a good habitat for reptiles, bats inhabit the numerous limestone caves and the site is the last refuge on Anguilla for the Lesser Antillean iguana (*Iguana delicatissima*). A rare plant, endemic to Anguilla, *Rondeletia anguillensis*, known from a location on the east coast, has also recently been located in the coastal zone just to the south of the Brimegin site. The woodland habitats in the coastal area have been zoned for conservation in the proposed National Land Use Plan. The Anguilla Environmental Profile, 1993, recommends that this remaining natural habitat area be considered for protected status and the ecological importance of the area has been endorsed in a report from the U.K Joint Nature Conservation Committee, 1999. The National Parks Ordinance 1996 enables, under certain criteria, the acquisition of land in Anguilla for National Park status.
- 10.2.6 Badcox Pond at the eastern end of the proposed runway alignment is recorded as one of Anguilla's wetland sites (A Field Guide to Anguilla's Wetlands). It is a wintering site for often large number of ducks and stilts, it provides a roosting area for herons, egrets and pelican and a breeding site for stilts and killdeer. The pond is fed by run-off from the adjacent hills and by 8 springs along the SW shore. Further east, two other ponds, East End and Grey Pond, are also important for their bird populations.

Marine Habitats

- 10.2.7 The coastline at Brimegin is rocky with a series of low cliffs. On the rock substrates in the subtidal zone, scattered coral patches are present comprising the species *Porites astreoides*, *Dipora strigosa*, *D. clivosa* and *Acropora palmata*, in addition to a zooanthid *Polythicaribbea* sp., gorgonian sea fans and encrusting sponges. The presence of live *A. palmata* (Elkhorn coral) is notable as this species is suffering increased mortality in the Caribbean from coral bleaching. Of the fish species recorded, blue tang are common, ocean surgeon and sergeant major frequent with smaller number of parrotfish (*Scarus* and *Sparisoma* spp), grey angelfish, red hind, yellowtail snapper and, on the sand bottom, lizardfish. A number of caves and crevices in the limestone offer refuge for many fish species including shoals of the glassy sweeper. There is a weak coastal current from north-east to south-west.
- 10.2.8 Southwards along the coast at Little Bay, there is an area declared a Marine Park, notified for its seagrass beds which provide grazing for sea turtles and spawning grounds for yellowtail snapper, a species of commercial importance. It is thought that turtles continue to breed on some of the small beaches along the south Brimegin coastline. With the development of most of the beaches on the mainland for recreation, turtle breeding areas are now limited to the offshore islands.
- 10.2.9 To the north of Brimegin, at Shoal Bay, the extensive offshore coral reef meets the inshore waters of the coastline. Species of hard coral on the inshore reef include *Montastria annularis*, *Porites asteroides*, *P. porites*, *Siderastrea siderea*, *S. radians*, *Diploria strigosa*, *D. clivosa*, *Agarica agaricites*, *Mancia areolata*, *Colpophylla natans* and *Millepora complanata* with the remains of much dead *Acropora palmata*. It is considered (Department of Fisheries) that this reef is suffering from human impacts. A second mainland Marine Park has been declared at Shoal Bay to Island Harbour. Three other Parks have been notified to protect the offshore islands and marine habitats at Dog Island, Sandy Island and Prickly Pear.

Caves and Archaeology

- 10.2.10 To the north of the Brimegin site, is the Fountain Cave National Park, notified for its Arawak petroglyphs, artefacts and fossil flora and fauna. The cave system and its freshwater pools are habitat for a rare species of cave shrimp (*Stigiomysis holthusi*) and the rare funnel-eared bat (*Natalus stramineus*). Two other known archaeological sites are present on the south-west edge of the proposed airport site, in Limestone Bay and south-east of Blackgarden Bay. Both sites have yielded ceramics, stone tools and other artefacts.

Wallblake

Landform and Drainage

- 10.2.11 The existing airport at Wallblake is bordered to the north, west and south by dispersed housing and commercial developments with much green space and garden habitat between. To the east of the present runway, former arable land and grazing pastures extend along a broad shallow valley in an E-SE direction.

10.2.12 In common with the rest of the lower-lying land in The Valley, the airport overlies a groundwater aquifer, which was formerly used for the piped potable water supply. However, potable water is now supplied by a desalination plant at Crocus Bay. There is now, therefore the potential for the use of groundwater for agriculture but this resource is not currently utilised. Run-off water from the airport runway and car parks passes to soakaway though the system is prone to flooding during storm conditions.

Flora and Fauna

10.2.13 There are no records of any flora or fauna of special ecological importance in this area. Patches of Acacia and sea grape (*Coccoloba uvifera*) scrub have developed on the valley floor and there are remains of sisal plantations. The rocky limestone slopes on either side of the broad valley support a dense growth of shrubs forming a typical community that extends over the majority of the island where the intensity of land use is low. Some taller trees are present at the base of the slope, white cedar, loblolly and tamarind.

10.2.14 The open grasslands and scrub edges provide good general habitat for a number of common bird and insect species. Bird species noted include bananquit, black-faced grassquit, grey kingbird, pearly-eyed thrasher, ground dove, quail dove, turtle dove and swallow.

Archaeology

10.2.15 Sinna cave, in the valley side to the north-east of the existing runway, is a notified archaeological site. Human skeletal remains suggest the site may be an Arawak burial site but further excavation work remains to be done.

Other Environmental Issues

10.2.16 Local air quality is an issue of concern to some local residents who report hydrocarbon and particulate contamination from aerial fallout into domestic water collection systems. The island's electricity generating plant on the southern edge of the runway is a point source of aerial and noise emissions from the oil-fired generators. The issue of noise in relation to the proposals for airport development is considered in detail elsewhere in this report.

10.2.17 A summary of existing environmental conditions at the two proposal areas is given below in Table 10.1. Conditions relating to community and social issues are considered elsewhere in this report.

Table 10.1 Summary of Existing Conditions

PROPOSAL SITE	NATURAL RESOURCE OR ENVIRONMENTAL FACTOR	QUALITIES
Brimegin	Land-use planning	Area along the coast zoned for wildlife conservation. Central area zoned for industry (currently quarrying/cement works) Eastern area zoned for housing developments
	Agriculture	Marginal land, limited areas of grazing in central valley but little used.
	Air quality	Good air quality, no significant sources of emissions of potential pollutants. Vehicle emissions negligible. Quarry is likely to give rise to local dust emissions.
	Noise regime	Low ambient noise in the coastal area with the sound environment dominated by wind and wave noise. Quarry operations audible at some distance depending on wind direction and topography. Minimal road noise from occasional vehicles
	Terrestrial Wildlife/Nature Conservation	Identified as one of only three areas on Anguilla important for ecology/biodiversity.. One of two remaining area of native tall trees and the only site for Lesser Antillean iguana. Badcox Pond on the eastern edge of the site known for its roosting and wintering bird populations.
	Marine habitats/resources	Rocky shore habitats, coral patches, some inshore fishing. Good quality habitats. Marine Park to the south, good inshore coral reef to the north
	Water Resources	No known resources though Badcox Pond to the east receives run-off and springline inputs from this area.
	Archaeology	Fountain Cave to the north of the proposal site is an important Arawak Site and declared a National Park. Other Amerindian sites on the southern edge of the proposal site. No other recorded sites within the proposal area though numerous caves known.

PROPOSAL SITE	NATURAL RESOURCE OR ENVIRONMENTAL FACTOR	QUALITIES
Wallblake	Land-use planning	Housing/commercial to the north, west and south of the existing airport. Former agricultural land to the east. Alternative land uses pending airport development decision
	Agriculture	Airport developed on prime agricultural land. Prime land remaining to the east, currently under grass..
	Air Quality	Existing airport reportedly gives rise to hydrocarbon and particulate emissions with effects on some local domestic water collection facilities. Point source emissions from electricity generating plant to the south of the runway and diffuse emissions from traffic.
	Noise regime	Noise emissions in relation to aircraft type and movements. Significant local contributions to background noise from regular traffic movements on surrounding roads and from the electricity generating plant.
	Terrestrial Wildlife/Nature Conservation	No known special interest. Land in shallow valley to the east with grassland/scrub mosaic and semi-natural scrub formations on the valley slopes
	Marine habitats/resources	None within the proposal area
	Water Resources	Run-off water passes to soakaway. Situated in an aquifer protection zone but ground-water not currently suitable for potable supply.
	Archaeology	Airport Cave to the north-east of the existing runway recorded as a probable Amerindian burial site. Probably within the proposal area. Other sites recorded further to the east beyond the proposal site.

10.3 Comparative Environmental Effects

Brimegin

10.3.1 The development of the Brimegin site will clearly result in major changes to the environment of the north-west of Anguilla. Apart from recent quarrying activities, the intensity of land-use in this extensive area is very low and appears to have been so in recent historical times. The vegetation consequently retains a highly natural character and is dominated by a variety of native plant species. Areas of taller woodland in the valleys near the coast are considered to form the best remnants of Anguilla's natural vegetation and the biodiversity of this area is high. The area offers the last refuge for the native iguana.

10.3.2 In addition to the nature conservation interest, the area, in conjunction with the Fountain Cave National Park, has considerable potential for the development of interpretative nature trails for both educational and eco-tourism purposes. While it may be possible, and desirable, to retain a strip of vegetation within the coastal zone, the airport development, together with its access roads, would severely compromise the nature conservation value of this extensive area and the eco-tourism and educational potential. It is more likely that the interest would be lost altogether in addition to the probable loss to Anguilla of key species of flora and fauna.

10.3.3 The potential impacts on hydrogeology and water movements need further investigation to clarify the effects of construction. The volume and quality of the water inputs into Badcox pond to the east of the proposed runway could be at risk and the nature conservation interest of that site would be reduced by both the possible interception of the water supply and by noise and visual disturbance to wildlife from aircraft movements. There are additional wetland sites to the east where birds would be exposed to disturbance from aircraft in the take-off flight path.

10.3.4 During construction there would be a potential risk of pollution into the marine environment with consequences for the varied marine life along this section of coast and possibly the Marine Park to the south, in line with the prevailing coastal current. The following requirements would need to be met in order to reduce the risk of pollution of the coastal seas to a minimum:

- Good working practice during construction with regard to storage of materials and the disposal of coastal site run-off to sealed collection lagoons,
- the retention of a naturally vegetated zone along the coast,
- the collection and re-use of all run-off and waste water from the airport site during its operational life
- fuel stores to be constructed above-ground and monitored for leakages,
- containment facilities for accidental fuel spills.

10.3.5 There would clearly be major changes to the air quality and noise regime currently experienced in the Brimegin area with particular noise effects in residential and resort areas to the east of the runway. Noise issues and other social impacts are considered in further detail elsewhere in this report.

10.3.6 There would be a number of contingent future environmental impacts arising from the large increase in visitor numbers that an international airport would allow. This would be related to the development of new resort areas, an increased use of recreational facilities, a higher demand for resources such as potable water (a limiting resource in Anguilla), additional pressures on fishery resources, and the impacts of waste disposal. The majority of impacts would be concentrated on the coastal zone and would be likely to include the following:

- Loss of coastal sand-dune and scrub communities to resort development,
- Increased pressure for alternative development of the coastal wetlands with consequences for wetland plant and bird communities,
- Potential for over-use of fishery and shellfishery resources for the local restaurant trade,
- Increased pressure for marine disposal of run-off water from coastal developments with possible adverse consequences for inshore sea-grass or coral communities,
- Increase in the demand for potable water from desalination technology with subsequent impacts on the marine environment from the disposal of concentrated brine,
- Increased human pressures on sensitive ecosystems, e.g. coral reefs, turtle nesting beaches, bird nesting areas.

10.3.7 Overall, the impact of the airport proposal at the Brimegin site is severe with respect to nature conservation and wildlife and there are potential impacts on other resources that demand carefully designed mitigation measures. There is a high potential for future environmental impacts arising from the increase in visitor number and the resulting demand on the island's limited resources

Wallblake

10.3.8 The runway extension at Wallblake results in land-take to the east of the existing runway and a smaller area to the west. The main area taken comprises former farmland with remaining areas of pasture and developing patches of scrub. The north eastern edge of the extended runway would result in some loss of the dense shrub habitat at the base of the valley slope. There is, however, an extensive area of this habitat type along the remainder of this extensive valley so that the overall ecological impact is unlikely to be significant. There is scope for positive habitat management and landscape planting around the perimeter of the airport, which will compensate for the minor extent of habitat loss.

10.3.9 The proposals would encroach further onto land of relatively good agricultural quality. The land is little used at present apart from being lightly grazed by low numbers of goats. While the runway extension would result in some loss of land with potential agricultural use, there is considerable scope for the re-cultivation of abandoned farmland or lightly used land with agricultural potential at this site and elsewhere in Anguilla. In this context, the impact of the proposed extension on the agricultural sector seems slight.

10.3.10 The works may result in disturbance to the Airport Cave archaeological site and the runway embankment is likely at least to occlude the entrance. In this case, an archaeological excavation within the cave should be undertaken prior to construction.

- 10.3.11 Refurbishment of Wallblake Airport will offer the opportunity to improve the facilities for the collection, storage and disposal of run-off water from the runway and car parking areas. Water should be retained for use in landscape irrigation. Water quality should be analysed and monitored with respect to hydrocarbon contamination and heavy metal content before any use in agricultural irrigation.
- 10.3.12 Relocation of properties adversely affected by the present operation and the extended runway will reduce the overall impacts of noise, air quality and consequent impacts on domestic water catchments from aerial fallout at these receptor sites.
- 10.3.13 The provision of construction fill for the runway extension may have significant local impacts at the site of extraction which, on Anguilla, may lead to unacceptable loss of land and wildlife habitat. The environmental consequences of extraction and supply of fill requires further investigation.
- 10.3.14 With mitigation of the above impacts, the overall environmental impact of the extension at Wallblake is low, though community effects in relation to noise remain a significant issue.
- 10.3.15 As the extension at Wallblake would permit only a modest extension in the size of aircraft using the runway and hence, a modest increase in visitor numbers, the contingent impacts of this development proposal on tourism resources on Anguilla seem slight.
- 10.3.16 A summary of the comparative environmental effects of the two proposals is given in Table 10.2 below.

Development	Environmental Impacts	Mitigation	Residual Impacts
Development 1	Major increase in noise in relation to aircraft type and movements affecting airport and surrounding areas and the approach and take-off flight paths.	Major loss of woodland and biodiversity, possible extinction of Anguilla's the Lesser Antillean iguana. Possible loss of grassland. Noise but cover here is limited.	Major impact
Development 2	Minor increase in noise in relation to aircraft type and movements affecting airport and surrounding areas and the approach and take-off flight paths.	Minor loss of woodland and biodiversity, possible extinction of Anguilla's the Lesser Antillean iguana. Possible loss of grassland. Noise but cover here is limited.	Minor impact

Table 10.2 Summary of Comparative Environmental Impact.

PROPOSAL SITE	NATURAL RESOURCE OR ENVIRONMENTAL FACTOR	POTENTIAL IMPACTS	POTENTIAL FOR MITIGATION AND IMPACT SUMMARY*
Brimegin	Land-use planning	Loss of area along the coast zoned for wildlife conservation. Restricts area zoned for industry (currently quarrying/cement works) and severs access to the works. Limits the area in the east zoned for housing developments and compromises further residential/tourist development under the eastern flight-path. Housing affected	Little effective mitigation possible. New access roads needed for airport and quarry access. Alternative areas may be zoned for housing with possible secondary environmental consequences. Major impact
	Agriculture	Little impact as the land is marginal	Minor impact
	Air Quality	Potential decline in air quality with local increases in hydrocarbon and NO _x emissions	Little mitigation possible apart from limiting the development of receptor communities. Moderate impact
	Noise Regime	Major increase in noise in relation to aircraft type and movements affecting airport and surrounding areas and the approach and take-off flight paths.	Little mitigation possible apart from limiting the development of receptor communities Major impact
	Terrestrial Wildlife/Nature Conservation	Major loss of woodland/scrub biodiversity, possible extinction on Anguilla of the Lesser Antillean iguana. Probable loss of bat caves. Noise disturbance to bird habitat on Badcox Pond. Safety implications in relation to bird-strike.	No effective mitigation possible for habitat loss. Iguana may be translocated to Katouche but area here is limited. Severe impact

PROPOSAL SITE	NATURAL RESOURCE OR ENVIRONMENTAL FACTOR	POTENTIAL IMPACTS	POTENTIAL FOR MITIGATION AND IMPACT SUMMARY*
Brimegin contd.	Marine habitats/resources	Potential construction impacts from run-off into the marine environment affecting rocky shore habitats, coral patches, and fishing resources. Potential impacts on Marine Park to the south due to longshore currents. Fallout of aerial pollutants, risk of accidental fuel spillages.	Retention of naturally vegetated coastal strip, control of construction operations, collection and re-use of run-off and waste water for irrigation. Containment facilities for accidental fuel spillages Minor impact
	Water Resources	Potential for run-off pollution into Badcox Pond to the east and severance of springline inputs into the pond. Aerial fallout pollution may affect domestic water catchment systems.	Collection and re-use of run-off water for landscape irrigation. Containment facilities for accidental fuel spillages. Ensure water supply to Badcox pond. Limits to housing developments in airport area. Minor impact
	Archaeology	No known direct impacts but archaeological watching brief recommended in view of probable loss of caves.	Archaeological investigations of any detected sites. Minor impact

PROPOSAL SITE	NATURAL RESOURCE OR ENVIRONMENTAL FACTOR	POTENTIAL IMPACTS	POTENTIAL FOR MITIGATION AND IMPACT SUMMARY*
Wallblake	Land-use planning	Loss of alternative land-use potential on land take for the runway extension. Housing affected	Re-location and resettlement of affected households Moderate impact
	Agriculture	Further loss of prime agricultural land to the east of the existing runway. Approx.. 5 ha of land-take.	Many areas under-utilised in Anguilla. Effective agricultural development elsewhere would compensate for loss. Minor impact
	Air Quality	Small-scale increase in emissions in relation to the increase in aircraft movements. Aerial fallout may continue to affect domestic water catchment systems	Re-settlement would reduce the number of receptor households Minor impact
	Noise Regime	Small-scale increases in mean noise levels in relation to the frequency/ periodicity of aircraft movements. Potential for peak noise reduction from new generation of aircraft.	Re-settlement would reduce the number of receptor households Noise regulations could favour use of quieter aircraft. Minor to moderate impact
	Terrestrial Wildlife/Nature Conservation	Minor losses of grassland and scrub-edge habitats at the base of the valley slopes.	Peripheral areas could be zoned for nature conservation/ parkland use. Minor impact
	Marine habitats/resources	No direct impacts anticipated.	No impact

PROPOSAL SITE	NATURAL RESOURCE OR ENVIRONMENTAL FACTOR	POTENTIAL IMPACTS	POTENTIAL FOR MITIGATION AND IMPACT SUMMARY*
Wallblake Contd.	Water Resources	Potential for pollution of groundwater during construction and operation.	Efficient collection and re-use of run-off water in landscape irrigation would improve on existing regime No impact
	Archaeology	Possible loss of or disturbance to Sinna Cave or its access.	Pre-construction excavation within cave with preservation of any finds. Minor impact

* Impacts are judged to be Severe (large-scale impact or loss of resource), Major, Moderate, or Minor change from the existing situation, or no impact if no significant change is anticipated.

10.4 SUMMARY

10.4.1 On strict site criteria the Brimegin proposal would result in a higher environmental impact in view of the strong likelihood of a severe loss of Anguilla's biodiversity. In addition, there are a number of scattered residences around the south western end of the proposed runway, and a greater number impinging on the proposal site to the east. The eastern flight path would affect a number of residential areas and a section of coastline zoned for an expansion of tourist facilities. The environmental changes that would arise would be significantly different from the existing conditions. The large increase in visitor numbers that would arise on completion of the project would have its own environmental consequences elsewhere on the island.

10.4.2 The proposals are, however, not strictly comparable as the significant direct and indirect environmental impact of the Brimegin proposals arise from the scale of the planned development in comparison to a modest expansion of the existing facility at Wallblake. The environmental consequences for the Wallblake proposals focus attention on the need, already existing in some cases, to minimise disturbance to the local population with respect to noise, air quality and safety. The main mitigation effort should be directed at resettlement where necessary and an improvement in local facilities such as water supply or noise insulation. With adequate mitigation of community impacts the direct environmental impacts of the proposals are minor. Indirect impacts will arise mainly from the need for the provision of construction fill.

Aircraft Noise

10.4.3 The comparative impacts of the development options on the island, and their likely noise impacts on its residents have been undertaken using the Federal Aviation Administration's Integrated Noise Model (INM), version 6.0. This is computer model which allows the graphical representation of the 'footprints' of various aircraft at scales which can then be used to study the effect upon any residential properties under the flight-path of landing and departing aircraft. In order to assess the worst case scenario a wide range of aircraft, including those that are, and are proposed to be, used at the current airfield at Wallblake have been used to assess an extension of the existing airfield, and the development of a new airport at Brimegin. The aircraft used in the assessment are:

Gates Learjet 35
ATR 72
Boeing 737
Boeing 747

(Within the INM database the Hawker Siddeley (British Aerospace) HS748 is the direct replacement for the ATR 42 and 72 aircraft.

10.4.4 The full range of aircraft have been used in the assessment of the Brimegin site, as the runway is proposed to be some 2200 metres in length initially, with potential for extension to 3200 metres. This would theoretically be capable of accommodating aircraft as large as the Boeing 747. The proposed redevelopment of the Wallblake facility, as it would only extend the runway by approximately 600 metres, would result in a runway that could only be used by the Learjet and the ATR 72; hence only these aircraft have been assessed for this site.

10.4.5 Both the existing and potential runways fall on an East – West axis, it has been assumed that both the approach and departure tracks for both airstrips run in straight lines towards and away from the runways. The traces for the two runways are therefore comparable.

10.4.6 The traces that have been produced indicate the SEL 90dB footprint of the arriving and departing aircraft

10.4.7 The assessment that has been undertaken has inspected the effect of all of the take-off 'footprints' of the aircraft listed above. These have been printed onto a 1:50,000-scale map of the island to assess the likely effect of upgrading the existing airport against the proposed development of the site at Brimegin and are included in Appendix 5. What becomes immediately apparent when this exercise is undertaken is that the development and use of a runway at the Brimegin site could, potentially, have a greater effect on the island, due to the capability to handle larger aircraft.

10.4.8 From the assessment of the traces against the prevailing ground conditions and level of development surrounding the two possible runways, it can be seen that the development of the site at Brimegin would directly affect less populated areas on the island than the redevelopment of the existing facility at Wallblake. This site is already heavily constrained by the housing that already nearly surrounds it. Use of any aircraft from this runway will affect a considerable amount of the populated areas

of Rey Hill, George Hill and North Hill Village. The use of the same aircraft from Brimegin site would affect less densely populated areas such as Deep Waters and Welches Hill. With the use of noisier aircraft, such as the Learjet 35 or the Boeing 747, the area affected by the SEL 90dB footprint covers part of North Side, Wattices, Deep Waters, Welches Hill, Mount Fortune, and East End Village before heading into the Caribbean over Gibbon Point. These are areas that are, on the whole, far less densely populated. They also avoid the tourist areas on the North Coast, and the majority of Savannah Bay. In this respect therefore, the proposal to provide a new airport at Brimegin would provide noise benefits, removing the existing aircraft noise from the areas around Wallblake and The Valley, and placing them in an area which is populated by fewer people.

10.5 SCOPE OF WORK FOR AN ENVIRONMENTAL ASSESSMENT

Brimegin

- 10.5.1 Should the decision be made to continue with the option for the development of an international airport at Brimegin, a full Environmental Assessment (EA) will form one of the studies required to assess the impact of the project. The assessment should conform to the standards and requirements of the major lending institutions and would be expected to comply with the legislative requirements of the 1997 EC Directive on Environmental Assessment (97/11/EC)
- 10.5.2 The scope of the EA should be wide-ranging and include both the direct consequences of construction and the longer-term impacts in relation to airport operation and the impact of increased visitor numbers.
- 10.5.3 The EA should include proposals for mitigation to reduce or obviate any identified adverse impacts and monitoring of appropriate environmental variables should be proposed where the data obtained will allow remedial action to be undertaken as necessary.
- 10.5.4 Full consultation with statutory authorities, NGOs and local experts will be expected. Allowances will need to be made for the lack of easy access to many parts of the study area for the purposes of detailed biological or other survey work.
- 10.5.5 The study should examine the following issues in sufficient detail so as to accurately determine the likely impacts of the project and to enable the design of appropriate mitigation.

Planning and Land Use

- 10.5.6 Impacts on plans and policies, effects on existing and potential future alternative land-use, contingent impacts of activities and programmes displaced by airport construction e.g. the probable effects of housing development elsewhere on the island, severance of existing access routes, details of proposals for, and impacts of, new roads. Requirements for construction material and fill and the impacts of resourcing these requirements (e.g. impacts of additional quarrying operations)

Landscape

- 10.5.7 Visibility of the proposals from centres of population, tourist resort areas and individual dwellings. Assessment of impact on the landscape character, visual impacts on the coastline. Landscape mitigation design

Flora and Fauna

- 10.5.8 Survey work to assess the type and distribution of plant community types, location and population estimates for all uncommon or rare plant species encountered. Assessment of the ecological importance of the community in the context of Anguilla. Population census for, and the distribution of, the Lesser Antillean iguana, survey for bats and bat habitat, bird survey including importance of the site for breeding, migratory and wintering birds, the likelihood of accidents from bird strike, impact of airport development on biodiversity. Mitigation proposals.

Marine Habitats

- 10.5.9 Existing conditions in relation to marine and intertidal flora and fauna, inshore water quality, fisheries. Potential impact of construction and operation and mitigation design proposals. Assessment of secondary impacts on the coastal zone of Anguilla from an increase in visitor numbers facilitated by the airport operation

Hydrogeology and Water Resources

- 10.5.10 Impacts of construction and operation on drainage and springline flows into coastal areas and into Badcox pond. Mitigation design for prevention of pollution from runoff and domestic waste water. Design proposals for the prevention of groundwater contamination during construction and from operational fuel stores. Assessment of demand for, and impacts upon, water resources arising from an increase in visitor numbers facilitated by the airport operation

Air Quality and Noise

- 10.5.11 Existing baseline conditions in relation to air quality and noise. Modelling studies as necessary to determine changes to air quality and to predict the operational noise regime. Requirements for mitigation (e.g. regulation of aircraft movements, flying times, noise insulation) and proposals for monitoring should be considered.

Traffic

- 10.5.12 Impacts of construction traffic and operational impacts of new roads and the generated traffic on existing communities in terms of noise and vibration, air quality and safety.

Archaeology

- 10.5.13 Consultation to be undertaken to assess the likelihood of archaeological impacts with new survey work commissioned if required. Design of a watching brief.

Community Issues

10.5.14 Impacts on the human community not covered above, e.g. property blight and demolition, severance issues

Wallblake

10.5.15 The proposals for the runway extension at Wallblake may, according to the discretion of the local planning authority, not require a full environmental assessment to be undertaken. There are however, a number of environmental issues that required further study and local consultation to identify the optimum approach. The following areas are identified for further work.

- Noise Assessment. A study of the existing noise regime and the prediction of the expected regime after runway extension. This relates to the provision of mitigation (see below)
- Community issues in relation to property demolition, noise and air quality. An assessment of the need for mitigation is required which may include relocation and resettlement, noise insulation and improvements in water supply where catchments are affected by aerial fallout
- Hydrology and drainage. Improvements in the drainage regime are required together with an enhanced capacity for water treatment and re-use to minimise any risk of groundwater contamination.
- Archaeology. A precise assessment of the impact on the site at Airport Cave is necessary. In the event of damage to, or loss of the site or its access, a pre-construction excavation at the site should be undertaken.
- Impacts of Construction. Assessment of construction noise and impacts of construction traffic should be studied with the aim of minimising disturbance to human communities. The source of construction fill should be identified and the resulting impacts determined of quarrying, extraction and transport. Alternative sources of fill should be identified where unacceptable damage may arise from quarrying operations on Anguilla

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11.0 COMPARISON OF OPTIONS

11.1 Introduction

Development Options are discussed in Section 6 of this report.

This section compares the costs and economics of the options chosen for analysis. Two sub-options are considered for the Wallblake developments: one assuming that the fill for the runway reprofiling is imported, the second that only 30% of fill is imported and that 70% is obtained from local sources.

The reason for the two options is that any fill that is exposed to the atmosphere will have to have significant mechanical strength to withstand the heavy rainfall often encountered. However, not all the embankments proposed will need material of such high calibre; the core of the embankment, for example, could be formed of lower grade material such as is available free of charge, it is understood, from the Corito Waste Disposal Area.

Thus, we have costed two options, one with the embankment constructed in total with high quality imported material, the second with a core of local, lower quality fill with only the external slopes and upper surface of high quality imported material.

11.2 Options

The following options are chosen for the analysis:

Wallblake :

- a) do nothing - ie - maintain and operate present airport with no substantial development costs.
- b) reprofiling of runway from the top of the "Lump" in the runway (referred to as "chainage 520") towards the western end, increasing runway longitudinal gradient to 1.5% positive towards the west. This gives an obstacle free environment for take offs on runway 28, and does not require any displaced threshold for landings on runway 10. It produces an overall runway length from the existing 28 end of the runway of 1097 metres.
- c) as in (b) above, but instead of 1.5% slope from chainage 520, a level runway profile from that point towards the west is constructed. Because of obstacles this involves the displacement of the western end of the threshold of 80m.
- d) a 600m runway extension towards the east. This comprises 450 feet of runway proper, plus a paved area of 60m representing the runway strip end, plus 90m of paved area representing the Runway End Safety Area (RESA). The total end-to-end paved runway, including the displaced threshold at the western end and the paved strip area and paved RESA is therefore

$$1097\text{m} + 450\text{m} + 60\text{m} + 90\text{m} = 1697\text{ metres}$$

This gives a landing distance available on runway 10 of :

1697 - 60 - 90 - 80 = 1467 metres

since none of the displaced threshold, paved strip end or RESA can be taken into account. It also provides a take off run available on runway 28 of 1697 metres, since the paved strip end, RESA and the western end displacement may all be included in the calculation.

Brimegin:

- e) construction of a 2200 x 45m runway, with associated pavements, navigational aids, buildings etc. in a costing of the CEIC Engineering SA study "The Anguilla 2002 Project".
- f) in order to compare like-with-like, the construction of a 1700 x 30 metre runway, with associated infrastructures, in order to compare the Wallblake Airport development proposals with replacing it with a new airport at Brimegin.

11.3 The costed comparison of these options is shown in summary form in Section 7.5.2.

12.0 KEY STAKEHOLDER REVIEW

12.1 Stakeholders

The Terms of Reference for the study require that the main stakeholders affected by Anguilla airport development be identified, and interviewed to provide a rapid and informal assessment of their views on the development option of expanding the Wallblake site or building a new airport at Brimegin.

The following are identified as key stakeholders:

- the Anguillan Government (GoA)
- the general Anguillan population
- the airlines and aircraft operators
- local businesses

A summary of these views are given below. Details are provided in the section of this report dealing with the Social Issues and the appended interviews records.

12.2 The Anguillan Government

For the purpose of this report GoA was considered to comprise:

- politicians, past and present
- civil servants

and these groups were interviewed.

The general view among the politicians was that construction of a new facility at Brimegin would be a high cost, high risk project which, if it were to fail could have serious effects on the future economy of the island. It was recognised that, for a new Brimegin airport to be economically viable, a considerable increase in tourism would need to be achieved.

Only one or two politicians spoke in favour of the Brimegin scheme, although even those acknowledged the difficulties associated with the larger increase in tourists to make it viable. These few argued that these difficulties could be managed, and that Anguilla needed increased tourism.

Most of the senior civil servants favoured expansion at Wallblake over the new site option. They considered that a better airport facility was necessary to retain and sustain tourism growth rates, but were particularly aware of the infrastructural costs of the larger increase in tourist numbers a new large airport would bring.

The majority view of both civil servants and the politician was for a preferred option to develop Wallblake if possible in a contained and affordable way consistent with the development of the "up market" tourist sector, which was a Government objective.

A notable minority however, took a more bullish view on Brimegin expansion and considered the impact of rapid expansion needed to support a new international

airport was a necessary spur in achieving higher standards of living and ensuring the long-term future.

The Director of Off-Shore Finance expressed his support for a longer runway, since some of the participants in this sector were wealthy and liked to visit the Island using their own private jet aircraft.

The Director of the Department of Agriculture considered that an improvement in air freight facilities could encourage agriculture by providing export opportunities of higher value crops in times of surplus. He also pointed out that the Brimegin site was on marginal land, used only for some cattle grazing whilst Wallblake is on prime agricultural land with potential for re-use.

12.3 The Anguillan Population

The social interviewing carried out across the population is detailed in Section 9 of this report. A large cross section of the population, organisations and institutions were consulted. There is almost total opposition to the construction of a large new international airport. Most interviewees recognised the need for airport improvement, but preferred those at Wallblake.

Of the people likely to be effected by expansion at the Wallblake site, 50.6% supported development, and 40% did not. The latter were mainly concerned with increase in noise and the impact on their property.

Of those that would be affected by Brimegin development 78.5% supported the proposal to expand Wallblake Airport on the grounds of less cost, availability of existing infrastructure and other reasons. 26% supported development at Brimegin because of less housing development there and perceived economic benefits. 74% disagreed with development at Brimegin because of cost, the geology of the area and fundamental negative changes to the social fabric of the Island.

12.4 The Airlines and Aircraft Operators

The major scheduled airlines servicing Anguilla are American Eagle, Liat and Winair.

American Eagle has as discussed elsewhere in the study, medium term plans (5-6 years) to replace the current 44 seat ATR42 with the larger ATR72. To operate effectively out of Wallblake, the ATR72 would need a longer runway. The ATR 42 already operates under some restrictions in certain weather situations. The American Eagle senior management do not wish to be seen as imposing any airport development solutions on the GoA. Introduction of the ATR72 is still some years away, and it has no plans to introduce the Regional Jet type of aircraft into the Caribbean. However, the local American Eagle management very much wants an improvement in runway length since, even if only on a few occasions per year, it has to offload booked passenger in some numbers in certain weather conditions. This, of course, causes them embarrassment, but they also claim that it negatively affects the tourist image of the island.

They would prefer airport improvements anywhere, but do not see the need for a larger airport at Brimegin if the Wallblake site can be adequately developed.

Liat and Winair are more or less adequately serviced by the present airport (although they, like American Eagle, would like some upgrading of airfield lighting, navigational and approach systems) Liat intends to upgrade from its present Dash 8-100 aircraft to larger Dash 8-300's, but can operate them adequately from the present runway.

There are three or four privately own aircraft based at the airport, including a Citation 1 jet. Their operators can use the present facilities (but would also like some upgrading of lighting and nav aids).

The smaller charter companies based on Anguilla - Air Anguilla, Trans Anguilla and Tyden Air operating mostly 9 seat Islander aircraft are also adequately served by the present airport. However, various senior management members of both Air Anguilla and Trans Anguilla expressed themselves in favour of a new airport at Brimegin, on the ground that it would lead to increased passenger numbers, and therefore more charter business for themselves and increased business opportunities such as introducing new aircraft types, new routes and perhaps facilities as such as aircraft maintenance.

12.5 Local Business

Local business is of course dominated by the tourist industry. Most hoteliers interviewed wished to see Wallblake developed to provide better and more reliable facilities, but were against development at Brimegin. An extreme view, but one reflected in other hoteliers opinions, was that he would have to sell his up-market hotel (450 US\$/night) within a few years of Brimegin opening, since the down-market sector it would have to promote to become viable would ruin Anguillas' image and drive him out of business on the island.

The Tourist Board took a neutral view on airport development options. It stressed that airport improvements were needed, but the justification should not be based on growth of tourism, which must be based on economic planning which takes into account the needs of Anguilla and its focus on up-market tourism.

13.0 CONCLUSIONS

13.1 It is concluded that only one of the development options (Wallblake Option 1) is marginally viable. This is based on certain assumptions of discount rate and that Anguilla will require an airport with a longer runway at some time in the future.

13.2 The reasons for this conclusion are:

- the present runway length limits the useful payload of the main type of aircraft using the airport, ie the ATR 42 on the important San Juan - Anguilla route. Although only on limited number of occasions, these limitations can then be severe. It is considered that this limitation is of sufficient significance to impede the growth of tourism into Anguilla, particularly in the up-market sector which the GoA intends to continue to promote.
- American Eagle, one of the most important of the regional carriers servicing Anguilla, intends to introduce the larger ATR 72 to replace the ATR 42, and the present runway length does not allow the former to operate economically. Although the change of aircraft type is not likely to occur for another 5-6 years (according to American Eagle), it is considered unlikely that the airline would continue to service Anguilla with the smaller aircraft if all other destinations were capable of receiving the ATR 72.

13.3 If it is accepted that the longer runway is desirable at Anguilla, and that none of the development options evaluated are justified on economic grounds, then the least-cost development option is the logical choice.

13.4 Development options at the Wallblake Airport site are significantly cheaper than any of the development options at the Brimegin site.

13.5 In summary the development costs of the options are:

		US\$Millions (rounded)
Wallblake:	Eastern Extension: Import all fills	30.0
	Eastern Extension: 30% import fills	25.0
	Western regrade (flat runway) : import all fills	16.0
	Western regrade (flat runway) : 30% import fills	14.0
Brimegin;	2200 m runway	308.0
	1700 m runway	120.0

13.6 The financial and economic analyses gives the following results for each option:

13.6.1 Financial Conclusions

Wallblake Airport consistently reports a substantial operating deficit. This is partly because of the low level of passenger throughput but also because the main sources of revenue generated by the airport, the Passenger Departure Tax, goes directly into the

Government's general revenue fund is not accounted for as part of the airport's operating revenue.

The Passenger Departure Tax should be recast as a Passenger Service Charge and the resulting revenue retained by the airport operator. An increase in the level of passenger service charge paid by non-resident passengers from US\$10 to US\$20 would mirror recent increases at the corresponding charge at Princess Juliana International Airport, St Maarten and could be justified as and when any of the alternative development proposal are implemented.

The only development option able to generate an operating surplus during the course of the appraisal period would be the major new airport at Brimegin (Brimegin Option 2).

None of the development options would be able to make any significant contribution towards annual debt service charges estimated at:

- Wallblake Option 1 US\$ 3.5 million;
- Wallblake Option 2 US\$ 5.4 million;
- Brimegin Option 1 US\$ 16.6 million;
- Brimegin Option 2 US\$ 45.8 million.

The scale of operating and capital subsidy required by each of the development options over the first 20 years of operation is summarised in Table 13.1.

**Table 13.1
Scale of Subsidy Required**

Option	Do Minimum US\$ '000	Wallblake 1 US\$ '000	Wallblake 2 US\$ '000	Brimegin 1 US\$ '000	Brimegin 2 US\$ '000
Operating subsidy					
Average Annual	765.3	212.3	212.3	213.6	132.8
Cumulative	18,367.8	5,094.3	5,094.3	5,125.7	3,186.3
Per Passenger	US\$6.11	US\$1.30	US\$1.30	US\$1.31	US\$0.21
Capital subsidy					
Average Annual	103.0	1,728.2	2,524.6	7,150.9	15,205.9
Cumulative	2,472.1	41,476.4	60,589.9	171,621.2	364,942.4
Per Passenger	US\$0.82	US\$10.60	US\$15.48	US\$43.84	US\$24.58
Total subsidy					
Average Annual	868.3	1,940.4	2,736.8	7,364.5	15,338.7
Cumulative	20,839.9	46,570.7	65,684.2	176,746.9	368,128.7
Per Passenger	US\$6.94	US\$11.90	US\$16.78	US\$45.15	US\$24.79

13.6.2 Economic Conclusions

The main economic costs associated with the alternative development options comprise the cost of acquiring land, airport capital and periodic maintenance costs and the incremental social infrastructure costs required to meet the needs of an expanded resident population.

The main economic benefits of the alternative development options comprise government revenues from duties and taxes levied on accommodation and other tourist oriented goods and services. Current average government revenues of US\$ 137.50 per tourist arrival are projected to increase by 15 percent in real terms over the period to 2015 if Anguilla continues to develop as an up-market destination. Average government revenues per tourist arrival would fall by 15 percent in real terms if the high-density tourism development strategy associated with Brimegin Option 2 were to be pursued.

Wallblake Option 1, the lowest cost option, is the only one of the four alternative development options that is likely to return a positive economic return with a net present value estimated to be US\$ 1.5 million at a discount rate of 9 percent. Details of the economic return on all options are summarised in Table 13.2

The economic performance of all options would benefit significantly from lower capital costs, higher tourist arrivals, or higher unit revenues per tourist arrival but reasonable (+/-20%) variations in a positive direction are insufficient to render Wallblake Option 2 or Brimegin Option 1 economically viable.

Because of the scale of costs and benefits involved, the potential economic return on Brimegin Option 2, the major new international airport at Brimegin, is very volatile. It could be positive with a favourable combination of lower capital costs, higher tourist arrivals or higher unit revenues per tourist arrival but for all reasonable variations about the central cost and revenue assumptions, Brimegin Option 2 would always be outperformed by the more cost-effective Wallblake Option 1. Wallblake Option 1 is also the development proposal most closely suited to the continued development of Anguilla as a low-density upmarket tourist destination.

**Table 13.2
Summary of Economic Performance**

Discount Rate	7 percent	9 percent	11 percent
Wallblake Option 1			
Net Present Value	US\$ + 8.9 m.	US\$ + 1.5 m.	US\$ - 3.6 m.
Internal Rate of Return	9.5 percent		
Wallblake Option 2			
Net Present Value	US\$ - 1.9 m.	US\$ - 9.5 m.	US\$ - 14.8 m.
Internal Rate of Return	6.6 percent		
Brimegin Option 1			
Net Present Value	US\$ - 63.9 m.	US\$ - 71.7 m.	US\$ - 76.4 m.
Internal Rate of Return	1.1 percent		
Brimegin Option 2			
Net Present Value	US\$ - 2.9 m.	US\$ - 55.0 m.	US\$ - 91.4 m.
Internal Rate of Return	6.9 percent		

Source: W.S. Atkins analysis.

13.7 It is also concluded that, in addition to the financial costs and economic factors not justifying the much longer runway needed to service Boeing 737 and 747 types, the environmental and social issues also balance out in favour of the smaller development at Wallblake. The use of larger aircraft types would have to be justified by significant increases in tourist volumes, which would require major investment in additional hotels, water supplies, sewage systems, roads, housing and other infrastructure.

To generate such increases in tourism, the market would inevitably have to move down-market towards the mass market that is needed to operate the larger aircraft economically.

This would be contrary to the GoA declared lined policy of wishing to promote and retain the upper end of the market. This policy was also approved by the majority of Anguillans interviewed. Only a few of the local airline operators are in favour of the major developments that would be associated with a longer runway for use by B737-747 aircraft types, on the grounds that this would lead to increased business for themselves, not that they needed long runway lengths for their present or projected aviation activities.

13.8 The environmental issues also balance out in favour of development at Wallblake. At both sites, natural resources and environmental factors are mostly of a minor or insignificant nature. However, land use at Brimegin is classified as having a major impact, whilst it is only classified as having a minor impact at the Wallblake site.

The effect on wildlife and nature conversation has a "severe" impact at Brimegin, and only "minor" at Wallblake.

The environmental effect of noise is more complex. Whilst development at Wallblake with the larger Boeing 737/747 aircraft would, not surprisingly, have a major impact on the aircraft noise climate, a like-with-like comparison using smaller aircraft show that more people would be effected at the Wallblake site than at Brimegin. The Wallblake site is classified as having a "minor to moderate" impact due to aircraft noise. On all environmental issues therefore, apart from that of aircraft noise, the Wallblake site is preferred to Brimegin.

13.9 The social issues also favour development at Wallblake. The social interviewing and surveys showed majority support for development at Wallblake, and majority opposition for a new airport at Brimegin. Of those interviews conducted in the area proposed for the Wallblake airport developments, roughly half were for the development and half against.

The concerns of those against expansion (40%) were mainly related to increases in noise disturbance, and the possibility of larger, noisier aircraft.

Other concerns were that Wallblake Airport was close to residential areas, and that some people would have to re-locate.

**APPENDIX 1
INTERVIEWS**

MEETING WITH MR. JULIAN HARRIGAN, PERMANENT SECRETARY, SOCIAL SERVICES, & A RESIDENT OF THE WALLBLAKE AREA.

Impact of Wallblake airport on residents

In the early days the planes arriving in Anguilla were not very noisy, nor were they emitting excessive fumes. This has changed with the size of the aircraft, especially since LIAT introduced the Twin Otters (these use octane and kerosene) and the Dash 8s. There are now more noisy and odourous planes coming to Anguilla.

Persons who live in the flight path have problems with their water supply.

The vibrations from larger aircraft rattle windows.

When planes pass over they interfere with TV reception and hearing is impossible.

Mr. Harrigan has a spectacular view of the island, and has no desire to relocate. However, he recognises the need for a new airport, and his preferred alternative is Scrub Island. In his opinion it is flat and near enough to Anguilla to be linked by a bridge. He indicates that in the past there had been an airstrip. However, illicit traffic led to its destruction the government as a means of control. The land on the island is privately owned.

Health services

Mr. Harrigan believes that the management structure of the hospital needs to be changed. He feels that it should be a statutory body, instead of being a department of government. The current management structure in his opinion and experience allows for too much political interference. There is also inefficiency because the extensive governmental bureaucracy makes decision making at the hospital difficult.

The current political difficulties in the country are causing problems in accessing funds for supplies and equipment.

The hospital is expanding into new areas. For example, dialysis equipment has been ordered.

The country is facing new health issues, i.e., aging, obesity, hypertension and diabetes.

Mental health cases in Anguilla are primarily psychotic. The main cause, according to Mr. Harrigan, is the fact that people are driven by the need for economic affluence and some of them experience mental collapse in the process.

Unfortunately, some mental patients are being kept in prison. There is therefore a need for a psychiatric facility.

There are not many options for person with disabilities.

Migration

The migrant population and the returning residents are the main source of population increase in Anguilla. In particular the Indian population in Guyana and Santo Domingo.

There are some controls on migration, but Mr. Harrigan believe these to be discriminatory against West Indians and biased towards North Americans.

Education

There is one secondary school under construction – Campus B of the existing Comprehensive School. The enrollment is approximately 1200.

There is a University of the West Indies (UWI) School of Continuing Studies. Mr. Harrigan is the resident tutor. The government pays the fees for civil servants. The cost is US\$171 per subject per semester. Persons can complete Bachelor degrees in Management or Education, as well as the Certificate in Public Administration, the Certificate in Business Administration, the Certificate in Education and the Administrative Professional Secretaries programme at the School. All other degrees require eventual entry into the UWI campus for completion.

All of the tutors at the Continuing School have masters or doctoral degrees.

Emerging social issues

There is some gang-related crime. There is a need for money to be invested in youth programmes.

Allocation for social services

In 1998, the government allocated the following for social services:

1,267,789	Ministry
10,376,063	Education
6,094,465	Secondary health
3,660,023	Primary health
1,877,648	Community Development & Welfare

The government needs more revenue. In Mr. Harrigan's opinion, options include income tax, social services levy and increased options for tourists.

APPENDIX 1

INTERVIEW NOTES/LIST OF INTERVIEWEES

14.0 RECOMMENDATIONS

- 14.1 It is recommended that it is accepted that Anguilla will need airport improvements to be made in the short-medium terms to sustain its tourist growth.
- 14.2 Development of a major new international airport at Brimegin is not recommended because the growth of tourism required to support the project would run counter to the Governments's strategy for the continued development of a premium high yield low density tourism product and radically transform Anguilla's current development model.
- 14.3 The first phase development at Wallblake Airport (the eastern extension) should be the subject of a commitment to give confidence of other development and the timing of the development will need to take into account American Eagles' intention to phase out the ATR42 and replace it with the ATR72, possibly within 4-5 years.
- 14.4 Once the commitment is given to proceed with the first phase, the proposed second phase can be re-evaluated to determine the overall benefits that may be achieved, and the time frame of the second phase be co-ordinated with that of the first phase. The possible future extension by a further 250m at the eastern end can also be re-evaluated in the context of the phase 1 and phase 2 decisions.
- 14.5 The other facilities at Wallblake should be expanded in line with the forecast traffic increases, in a timescale to service the longer runway and phased according to the recovery period necessitated by the 1999 hurricanes.
- The facilities to be expanded include the passenger terminal building, apron parking areas, navigational aids, approach/runway airfield ground lighting, and airport drainage.
- 14.6 Once the commitment has been given to develop the Wallblake site, further detailed Social and Environmental Assessment should be carried out.
- 14.7 Irrespective of development decisions, the possibility of introducing a re-fuelling concession on the airport should be re-evaluated as a matter of urgency to attempt to alleviate some of American Eagles performance problems.
- 14.8 Also, charges, revenues and tariffs accruing to the airport should be re-examined and updated to levels more consistent with those in the region. This review should be carried out in conjunction with a review of the Airport Departments organisation and structure in order to up-date and improve it to conform with international airport standards.

MEETING WITH MR. ALBERT LAKE, BUSINESS-MAN AND OWNER OF PROPERTY IN BRIMEGIN.

Wallblake expansion versus new airport at Brimegin

Mr. Lake has a life-stock farm as well as a building material plant (sand, cement, asphalt) in the Brimegin area.

In his opinion, the airport at Wallblake should be extended. There is no need for a new one to be developed at Brimegin.

Property owners at Black Garden, near the Brimegin site, have been prohibited from developing their land. Developers who want to sub-divide land for housing can not get permission. The Planning Board will not give permission because the area is earmarked for airport development. However, the government has not requested any purchasing rights. In Brimegin the government does not own any land and would have to purchase it from the owners.

He feels that Wallblake should be lengthened by acquiring lands on the approach side, i.e. the government should cut the land on the west side over Sandy Ground. This, he says, will be easier, because on the east side there is a deep valley and it would mean filling in about 30 feet to level it to create a runway.

Mr. Lake says that Anguilla has become too costly. There is no price or labour control. The country's tourism will be jeopardised by lower priced countries. Moreover, Anguilla needs to give tourists more for their money.

“The British government should have a bigger say in the livelihood of Anguillans.”

MEETING WITH THE ANGUILLA BEAUTIFICATION CLUB (ENVIRONMENT)

Present were:

Lady Josephine Gumbs
Sir Emile Gumbs (former Chief Minister)

The Anguilla Beautification Club was started to take a stand on, and promote tree planting in the country.

Expansion of Wallblake airport versus construction of a new one at Brimegin

Lady Josephine feels that extending the Wallblake airport would be advantageous because the current one is too small—planes have to cut back on passengers and cargo depending on the circumstances.

However, to build an international airport at Brimegin would require too many rooms to support it and Anguilla would have to import labour. This would lead to problems, i.e. increased schools, public facilities, water supply, etc. The island is too small to support this. Mass tourism would spoil the character of the island, and Anguilla would lose the top class tourism that it is known for.

In any case, why go to the expense of starting over when we could extend the existing one—especially if it would be less costly and more timely.
There are caves at Brimegin that could present a problem.

Sir Emile would also prefer the expansion of the existing airport to accommodate the bigger jets out of America.

He indicates that in the past he has spoken to the Vice President of American Airlines who informed him that they sell a high proportion of first class seats to Anguilla and would like to be able to go directly to Anguilla with the first class service. These planes would require an additional 1200 feet of runway.

In his opinion, the Chief Minister wants to develop an international airport to get jets in from New York and an increase in the number of hotel rooms in Anguilla.

However, he pointed out that the newest hotel development on the island can not even get an adequate labour force, and are currently having to take persons away from other hotels.

The country is losing teachers who are going into hotel management.

Employment

People work two or even three jobs because of the lifestyles they want to live. Anguilla has a high ratio of cars, televisions, computers, washing machines – luxury items. Part of this is the demonstration effect of tourism -- locals want to copy the lifestyles of the visitors.

Many civil servants work at night in hotels.

The cost of living in Anguilla is high, and prices are high, for example, local restaurants price their food at tourist levels; most places charge in \$US, except perhaps for food in supermarkets. Yet the retail sector is flourishing.

Alternative industries

Fishing is a big industry, especially on weekends and at night. It is commercial, not recreational.

Migrant labour

There is a serious increase in migrant labour, especially persons from Santo Domingo, Dominica and St. Kitts.

Emerging social issues

The country is witnessing an increase in prostitution – some among the migrant population and young Anguillan females.

MEETING WITH THE ANGUILLA NATIONAL TRUST

Present were:

Ms. Ijahnya Christian – Executive Director
Ms. Celine Fantino – OCOD Volunteer
Ms. Andrea Lamboo – OCOC Volunteer

Relationship between St. Martin and Anguilla

There is a good relationship between Anguillans and St. Martin except on the issue of movement of visitors.

There is a heavy reliance on day-trippers from St. Martin.

There is some political sensitivity because Anguilla has considered placing an environmental levy on visitors, including day-trippers and St. Martin has indicated that they would be inclined to increase the departure tax.

There is also the issue of St. Martin marketing some of Anguilla's Cays as part of their tourism product without providing any benefits to Anguilla.

Domestic travel market

The majority of local Anguillan travel is via ferry to St. Martin.

Anguillans living abroad travel home in August for Carnival and the boating event. They also travel in December for Christmas.

Extension of the Wallblake airport

The communities in the vicinity of the airport are, George Hill, Long Ground, Statia Valley and the Forest.

The community next to the airport is a well-established typical Anguillan community.

If offered a good price and similar or better housing than what they currently have, most residents would probably be inclined to relocate.

Construction of an airport at Brimegin

The proposed site is within one of Anguilla's remaining green areas as identified in the Landuse Development Plan 1995-1996.

It is a habitat for iguana.

It is also close to the Fountain, the Arawak ceremonial site which contains a petroglyph of "Jocahu", the Chief Deity, giver of casava. It is the second of only two sites to have such an artifact, the other being in Cuba. Unfortunately that one was removed and sent to the Smithsonian. The Anguilla National Trust wishes to apply for World Heritage Site status for the Fountain. The development of an airport at Brimegin should not damage this site or its chances at the World Heritage Listing.

Brimegin is one of the remaining areas for wild fruit trees.

Poverty and marginalised communities

There is no clear definition of poverty in Anguilla.

The migrants from Santo Domingo are a marginalised group. Most work in construction. Some of them offer services such as bars, shoe repairs, radio repairs.

Women are another marginalised group. It is evident in the dearth of females in top management positions. They are concentrated in traditional sectors, e.g., head teachers of schools.

Anguillan tourism

The product needs to be diversified. Heritage is one area that could be explored.

There are not many local owners of hotels, and local ownership is primarily in the smaller hotels.

Persons who work in the tourism sector stay at home during the low season.

Education

Education is provided free to secondary level, but children must purchase their textbooks.

Access to post-secondary is mainly for persons in the public sector. In the private sector individuals would have to be in the correct position for the opportunity to study further, e.g. chef and management.

MEETING WITH BISHOP ERROL BROOKS – PRIEST OF THE ANGLICAN CHURCH AND CHAIR OF THE CHRISTIAN COUNCIL.

Social issues

In the past there was spirit of community in Anguilla more so than now. People had an interest in each other's welfare. There has been a move away from this and an increasing emphasis on the acquisition of material wealth. People have two jobs to get rich – i.e. increased material wealth.

In the past children wanted to get an education, now they want to acquire material possessions. They prefer to quit school and get a job, especially in the tourism industry.

There is a breakdown in family life. There is no parental supervision because parents are working two or even three jobs. Therefore, the TV supervises the children and determines the values and culture that are inculcated.

Gangs are being formed, e.g. at Blowing Point. There is an increase in violence, especially among youth, e.g. at the Secondary School.

The Anglican church has 2 pre-schools, one in the Valley (119 children), and one on the eastern side (20 children).

The church does do some moral education, through addresses to schools. However, this is infrequent.

There is also the issue of returned criminals from the US, i.e. persons of West Indian origin who commit crimes in the US, are deported to the region, and bring with them the negative attitudes and behaviours.

On occasion the church has been invited to make input on policy issues, but the ideas are not always implemented.

Expansion at Wallblake versus construction at Brimegin

The problem at Brimegin would be the high cost of infrastructure development. It would mean more migrant labour, and therefore, additional housing, roads, water, social services, schools, etc.

Poverty

It is mainly among older folk, i.e. illness, inadequate housing conditions, limited food, children abroad and no support.

MEETING WITH COMMUNITY DEVELOPMENT & WELFARE

Present were:

Ms. Daphe Hodge	Chief Community Development Officer
Mr. Clive Smith	Deputy Chief Community Development Officer
Mr. Ivor Hodge	Youth Officer
Mr. Alkins Rogers	Sports Officer & President of the Anguilla Civil Service Association

Medical services

The medical services are not up to date. Persons have to be shipped out for major surgery. If these individuals have no insurance, it is a problem. Government assists on a case by case basis. The Barbados hospital is the preferred location.

If visitors get sick they go via St. Martin to the U.S. or to Barbados, once they have the resources. Without resources, the government has to assist.

If persons suspect that they might have HIV/AIDS they get tested in St. Maarten because they do not want persons to know that they have tested positive. Therefore, it is difficult to obtain accurate statistics on HIV in Anguilla.

Anguilla is experiencing increases in lifestyle diseases – diabetes, hypertension, heart attack, obesity.

Social issues

The number of men having to provide child maintenance is on the increase. Women are purchasing property and men are paying child support.

Among some of the migrant population housing is a problem – some have no proper toilet facilities. They live in Spanish Town; some in abandoned structures, e.g. houses and garages without sanitary facilities.

Prostitution has begun to affect the youth – in their drive for material things.

The television is raising children because parents are working two and three jobs. Values are not being passed on, and there is significant influence from outside. Children are in school with youth from Montserrat, Guyana, etc.

Access to tertiary level education is not easy.

Transportation

There is no public transport service, so transportation is a problem. If you don't own a car you have to hitch a ride.

Hotels have to provide a bus service for their workers, mainly the migrant population.

Salaries and wages

It is not possible to pay the loan for a home and a car on one salary in Anguilla.

Labour is expensive because of the rates paid by the hotel industry. A mason will charge approximately EC\$150 - \$200 per day, labourers earn EC\$120 - \$140 per day.

Sports

Anguilla was hoping to host one-day international cricket. Apart from the difficulty in acquiring funds to improve the cricket facility, the travel logistics were a problem. The equipment had to be flown to St. Maarten and then put on a barge to Anguilla. This required too much time and expense to make the one-day feasible.

The main sports are cricket, football, tennis, basketball and volleyball is now being developed. There is also going to the beach, boat racing and the carnival.

Youth

Children are being spoilt by parents who want them to have more advantages than they had themselves.

Youth do not see the relevance of sports. There is insufficient corporate support for it to be financially viable. They do not see the point of trying for athletic scholarships. There is no pressure to get a job, their parents will support them until the job they want comes along—the “party” will find a job for them.

Migration

An increasing portion of the labour force is from across the Caribbean – teachers, police, doctors, nurses.

Migration means new cultures coming in. There is an increase in crime stealing, fights, and it is mostly among the immigrants. There is no screening of the migrants.

MEETING WITH MR. ROLAND HODGE, DIRECTOR, DEPARTMENT OF FISHERIES AND MARINE RESOURCE

The fishing industry

The four main fishing areas are in Island Harbour, Cove Bay, Sandy Ground and Blowing Point.

The fishing industry is subsistence, it is not highly commercialised. It is almost entirely trap fishing – reef fish from shallow waters to deep slope snappers. There is also some fishing done by perpendicular drop lines.

The Fisheries Department have just completed an exploratory project on long-lining that has proved to be successful, and looks very positive from an economic perspective. The Fisheries department wants to introduce long-lining to the fishermen to diversify and ease the stress on the reef stocks.

The country is experiencing problems with lobster stocks. This is due to both over-fishing as well as the after effects of Hurricane Luis.

The Fisheries Management Plan is now being finalised.

Linkages between the Tourism and Fishing Industries

There have been no conflicts as yet.

Recreational fishing is not currently a big thing but is part of the future plans, especially during the summer season. The experience with the long-lining has showed this to be promising. Marlin catches have been good.

There is currently some small scale sports fishing, but not by persons with real experience.

The Board of Tourism sees fishing as part of tourism's future.

One individual had tried to start a sports fishing activity in the past, but it is not currently operational.

Extension of Wallblake

The effects of the flights on the residents is of concern. If the airport is extended, there will be an increase in traffic and more problems.

Brimegin

The cost to acquire the land will be high.

There are caves that have not been mapped. However, persons who tend livestock in the area would know about them.

MEETING WITH THE HODGE FAMILY – PROPERTY WEST OF THE RUNWAY

Problems experienced

When the planes are coming in to land, they fly low over the house and it feels as if they will land on the house.

The fumes from the planes when they rev their engines are also problematic. The fumes from the aircraft have contaminated his water supply in his cistern and the family now has to purchase water.

The vibrations from the planes rattle the windows and have damaged the roof and ceilings.

Position on relocation

The family has lived in the area since 1959 before the airport was as developed as it is now. The airport has been developed westward in the past (beyond Hannas Rd.)

The issue of relocation of residents has been going on for years and the owner is “sick of it.” Mr. Hodge has written letters to the government (both the leader and deputy) and he has received no response. His wife is quite ill and is being made worse by the planes that fly overhead. He is disillusioned by the treatment from government.

The family is prepared to move. The sister, who lives next door, has been moved. (See newspaper article). He owns land on the North side of the island and would like the government to move his house there in the immediate short term. The authorities can eventually provide him with a piece of land to replace the piece in Wallblake, when they are able.

MEETING WITH THE ANGUILLA TOURIST BOARD

Present were:

Clive Carty – Chairman of the Tourist Board (Travel Agent)
Amelia Vanterpool-Kubisch – Executive Director, Tourist Board
Marvin Saunders – (labour)
Ambrose Richardson – (taxi driver)
Mel Franklin – (Air Anguilla, air taxi)
Eustace Guishard – General Manager, Cap Jaluca Hotel
Arendelle Lewis – Inter Island Hotel

Policy of the Anguilla Government on Tourism

The policy of the Government of Anguilla vis-à-vis tourism embodies the following three elements:

- A focus on the up-market tourist.
- The provision of a range of accommodation for every level of tourist.
- To consciously avoid mass tourism.

There is no tourism development plan. There is a policy and a marketing strategy.

Tourist Board's position on tourism growth

Visitor arrivals have grown faster than number of rooms.

Winter is the peak season for arrivals. Summer arrivals are low, approximately 30%, much lower than the regional average of 60%. September is the lowest month.

The new airport or the expansion of the existing one must not be tied to an increase in tourism. Tourism growth must be based on an overall economic plan that takes into account the needs of Anguilla, e.g. the growth of the labour force.

Tourist board's position on a new airport

Anguilla must have access to all of the main gateways in the Caribbean, including Antigua, San Juan and Barbados. The country must not rely on St. Maarten to receive visitors.

Anguilla must have improved airport facilities whether an expansion of the existing one or a new one. That is for the consultant's report to decide.

The new airport has been proposed because the current one is inadequate and the expansion of the old one may cost as much as building a new one.

In order to increase room occupancy levels, there is a need for more airline seats.

In the past fears of taxation to support the new airport development stalled the process.

Thus far the Tourist Board has not done anything substantial on financing for the expansion or building of a new airport. It has been connected to an increase in hotel rooms.

The Tourist Board is encouraging the re-establishment of the night ferry service to deal with the overflow of persons created by the limitations of the airport.

The new airport could act as a feeder to St. Maarten.

It could also offer bulk storage for fuel, or the trans-shipment of cargo.

St. Maarten/Anguilla conflict

The fact that visitors must go through St. Maarten to reach Anguilla is a problem. Members of the tourist board state that persons have even been discouraged from continuing their journey to Anguilla and encouraged to stay in St. Maarten.

In the hurricane that wiped out St. Maarten and the Virgin Islands. Flights could not land in St. Martin, Antigua or the Virgin Islands to connect with Anguilla. This created a problem of accepting hurricane relief assistance.

MEETING WITH THE ARINDELLE FAMILY – PROPERTY IMMEDIATELY EAST OF THE END OF THE WALLBLAKE RUNWAY.

Problems experienced

Planes from the east are the most noisy.

There was Pan Am some years ago that tried to land at Anguilla, mistaking Wallblake for Julianna, St. Maarten.

A plane has on one occasion passed the fence.

When the rain falls their land floods because of poor drainage from the airport.

One of the relatives has land in the area, but can not get permission to build.

Relocation

They are prepared to move, but would like to stay in the village.

MEETING WITH THE OPTIMISTS CLUB

Present were:

Michael Skellekie (Teacher)
Charmaine Sasso (Market Research Analyst)
Chrispen Gumbs (Police Officer)
Marian Egel (Secretary)
Michelle Roberts (Teacher)
Chanelle Petty (Barrister at Law)
Marva Gumbs (Product Development and Research Officer (Tourism))
Monica Hodge (Manager Insurance Company)
Clemont Bethel (Senior Clerical Officer)
Laureen Bryan (Officer Manager)
Ingrid Fullington (Teacher)
Avon Carty (Marketing Communications Executive)
Art Egel (Teacher/ migrant from the U.S.)
Carmen Hackett-Samuel (Hotel worker)
Jerome Roberts (Stores Controller)
Brian Corbett
Curtis Richardson (Math teacher)
Othlyn Vanterpool (Fisheries Officer)

Wallblake airport

One of the problems with Wallblake airport is that visitors sometimes have to overnight in Puerto Rico because of delayed flights and missing the connection to Anguilla, or because conditions in Anguilla would not permit landing or take-off.

If the Wallblake airport is extended there is only one house to move. On the other hand, the land in Brimegin is owned by a number of persons. There are also ecological and heritage features in Brimegin that could be damaged by the development of an airport in the area, e.g. The Fountain, Applehole Cave.

From a domestic point of view, commuting through St. Maarten is not an inconvenience, it is a long time habit/tradition.

The likelihood of someone who is in transit through St. Maarten to Anguilla, staying there and not continuing their journey is very unlikely, because their clientele is very different.

The persons who will be dislocated by the airport development in Wallblake will not be happy to relocate, especially the older folk. Anguillans are very attached to their land, and money might not be a motivational factor.

There is a security factor with the residents at Wallblake – there was a plane crash in the late sixties, early seventies.

Persons travelling from the Julianna airport in St. Maarten, who travel from Anguilla to St. Maarten by ferry have to pay US\$20 departure tax at the airport.

The option of Scrub Island as a location for the new airport would be expensive.

There is some concern about the French proposal and the number of hotel rooms recommended.

Tourism

Anguilla needs to redefine its target market for tourism. This has not been done since 1979-1980 when it was defined as upscale, family oriented, 20 – 30 room facilities, buildings not taller than coconut trees. Since then the word has spread and there have been other kinds of visitors, e.g. day-trippers. Questions need to be addressed such as are we making enough from the upscale tourism? Can it provide sufficient employment?

Insufficient money is being put into market research.

Everything needs to be revamped.

Whereas everywhere else in the Caribbean the UK market is increasing, it is declining in the Anguilla.

While commuting through St. Maarten might not be a problem for locals, it is a sad sight to see journey-tired visitors hoisting their luggage onto the ferry and then having to wait at customs because there is only one customs officer. Customs is a real problem, they harass locals.

There is a lack of a variety of services to the tourism industry.

Social issues

There is a need for an increase and improvement in the quality of jobs in Anguilla.

The cost of living is high and most persons have two jobs, some as many as three.

There are insufficient options for participation for Anguillians, especially the youth. Children do not know Anguilla. Need to develop heritage sites so that children and Anguillians can learn more about their country.

**MEETING WITH YOLANDE RICHARDSON, CHIEF EDUCATION OFFICER AND
CHAIR, NATIONAL COUNCIL OF WOMEN**

Education in Anguilla

The enrollment in schools for 1998-99:

- Primary, six public and one private school 1508 + 58
- Secondary, 1 school, new campus under construction 1159
- Pre-schools, 10 per-schools 475

The CXC results are on par with the regional results.

The majority of the children with special needs are among the migrant populations. The ration of migrant to local children in remedial reading is 6:4.

In the comprehensive school, there are issues with truancy and fights.

About 1 or 2 incidents per year of children with weapons or drugs, including alcohol.

The government needs added revenue. It can hardly afford teachers and equipment.

Teachers are lost to the government service.

Women's affairs

Women's groups include the Soroptimists, church groups, the friends of the hospital.

Women are not marginalised.

There is a craft shop that was started by the National Council of Women to assist unemployed women. It has not been doing very well, and many women have gone out on their own.

Wallblake airport

There is one resident who had to move.

The planes affect building development, e.g. there can be no two-storey buildings in the area.

Brimegin

Wallblake is easily accessible, Brimegin is more difficult to access.

Public transport system

There is no public transport system, but not for lack of trying. Anguillans do not like paying.

MEETINGS WITH THE SOROPTIMISTS

Present were:

Lydia Gumbs	Rendezvous Hotel
Molly K Hodge	Sandy Hill
Dawn Hodge	US Air Force
Irma Richardson	Long Bay
Alecia Ballin	North Hill
Blondell Rodgiers	Forest Bay

Tourism is the mainstay of the island. However, the airport is also needed for locals. You can miss a connecting flight in Puerto Rico because the American Eagle could not land in Anguilla to collect you.

The authorities should find a better site without houses and limitations and allow for bigger planes and room for expansion.

There is need another good airline in Anguilla, the Eagle has too much of a monopoly.

Prior to building a new airport, the old one still needs to be upgraded in the short term.

Wallblake hurts tourism because of the travel time it takes to get there.

People like living in Wallblake, it is near the town. However, the planes are stressful especially to the elderly, the ill and babies.

Wallblake is an established community and people will resist having to be relocated. There must be flexibility in whatever is built for the future needs. There should not only be a quick fix solution for today.

The health services need a good administrator and a community board.

INTERVIEWEES

Hon H Hughes, Chief Minister
Carl Thomas, Chief Pilot Trans Anguilla Inc
Edgar Richardson, Manager, Air Anguilla
Secretary, Tyden Airlines
Sir Emile Gumbs, Former Chief Minister
Hon. Osborne Fleming, Leader of the Opposition
Hon. Victor Banks, Member of the Opposition
Hon. Albert Hughes, Minister of Infrastructure, Communications and Utilities
Mr. R Bossons, Private Pilot
Mrs M Hodge, Station Manager American Eagle
Mr. Remington Lake, Airport Manager, Wallblake
Mr. Elmet Hughes, Permanent Secretary
Mr. John Lawrence, Overseas Finance Project
Mr. Steven Fahie, Permanent Secretary Ministry of Economics and Planning
Mr. Anil Skuppyo, Attorney General
Mr. Claude Brookes, Anguilla and Greater Caribbean Association, Slough, UK

APPENDIX 2

TERMS OF REFERENCE

APPENDIX 2

TERMS OF REFERENCE FOR A COMPARATIVE FEASIBILITY STUDY

1. Background Information

- 1.1 Wallblake Airport is the only airfield serving the island of Anguilla. It has a paved runway 1,097 metres long and 30.5 metres wide with terminal approach via taxiways and apron. The western runway threshold is displaced by 122 metres. The airport has a terminal building and control tower which were built in 1988, limited firefighting equipment, airport approach aids, navigational aids and night landing facilities.
- 1.2 It is not an international airport, but provides regular services to a number of Caribbean destinations by regional carriers. All passengers travelling to Anguilla from outside the Caribbean must connect at international airports on nearby islands. Many passengers from North America transfer in San Juan-Puerto Rico, and others in St Maarten.
- 1.3 Currently, American Eagle operate the 44 seater ATR 42 from San Juan. Using the existing runway in dry weather the plane operates with a 4 seat payload penalty, and in wet conditions its payload is reduced to only 28 passengers. To eliminate these restrictions the runway length would need to be increased to 1,200 metres and 1,280 metres respectively. American Eagle is planning to introduce the 64 seat ATR 72 to all its Caribbean destinations over the next 5 to 10 years. In any weather conditions, the existing runway would impose a 14 seat payload penalty on the aircraft.
- 1.4 Since the early 80's the Government of Anguilla (GoA) has been considering the construction of a new airport at Brimegin on the north side of the island. The site was examined in a study funded by HMG in January 1983. However, the final report made no firm recommendation that it was suitable for development.
- 1.5 In March 1993 HMG commissioned a second study to recommend the most practical and economic way of developing the existing runway at Wallblake to accept direct unrestricted flights by regional carriers from San Juan and other Caribbean international airports. A number of development options were identified and costed, which covered various combinations for extending and re-profiling the existing runway. Regardless of any decision which might be taken on these, the runway needed to be resurfaced at an early date to avoid its further deterioration.
- 1.6 In February 1995, a decision was made not to extend the runway but to explore and advance the construction of a completely new airport at Brimegin. As a consequence, HMG was requested to provide financial assistance to place an asphalt overlay on the existing runway, as an interim measure to allow the continued use of Wallblake Airport for a further period of 7 to 10 years. The runway was subsequently overlaid with 40mm of Marshall Asphalt in April 1998.
- 1.7 GoA continues to see merit in constructing a new airport at Brimegin, but is prepared to be guided by the findings and conclusions of the Comparative Study.
- 1.8 In July 1998 the Government formally accepted an offer of assistance from HMG for a consultancy to examine the justification, and compare the economic cases, for:

- i) An airport development strategy embracing the Brimegin proposal identified in the 1983 study, and
- ii) An airport development strategy based on the maintenance and development of the existing facility at Wallblake.

1.9 Funding for the consultancy, but not the subsequent design and capital works, will be provided by HMG's Department for International Development (DFID).

2.0 Requirements of the Consultancy

2.1 A consultancy is now required to examine the above two development cases and recommend which GoA should take forward for implementation. The consultants terms of reference for this are as follows:

- i) Review all existing data and literature on options for Anguilla's airport development, including in particular the 1983 Brimegin and 1994 Wallblake reports, and to update the technical, financial and economic data contained in them.
- ii) Investigate the extent to which the existing airport facilities impose a constraint on tourism, air cargo export development and other national development objectives. This shall include, inter alia, a critical assessment of passenger flows, the number and type of flights using the airport, and the ability of existing facilities to absorb the forecast increase in number of flights and passengers.
- iii) Assess realistic projections for future passenger and cargo traffic flows over the next fifteen years and whether existing facilities are likely to impose any constraints. The consultant will also discuss with current and prospective airline operators their plans for servicing Anguilla and for replacing aircraft.
- iv) Appraise which of the two airport development strategies are warranted by the projected increase in demand and, if so, devise and appraise the two strategies for the next fifteen years, designed to accommodate forecast traffic demand at minimum economic cost, having due regard for considerations of safety, noise pollution, proximity to centres of population and compatibility with national planning objectives. Following this appraisal the consultant shall recommend which of the options GoA should take forward for implementation.

2.2 For each option the consultant will:

- i) Consult all GoA departments, statutory and non-statutory parties, and community groups representing individuals that might be affected by the development.
- ii) Identify and quantify the full costs and benefits to GoA, the airline operators and local businesses and the community, of the two options compared with the current situation.

- iii) Undertake a full sensitivity analysis of the options and base case, ie explore the sensitivity of each to changes in traffic growth scenarios and other key risk factors, eg increased capital costs.
- iv) Provide estimated airport revenue and operating costs and expected nett recurrent costs to GoA, based on assumed traffic flows over a fifteen year horizon, and undertake financial and sensitivity analyses of each option to evaluate their financial sustainability. In addition, the consultant shall also examine alternative revenue raising measures and recommend a range of tariffs and other charges for services for the operation of the facility.
- v) Provide estimates of the total capital costs of the two development options and associated infrastructure development.
- vi) Undertake such tests as are necessary to confirm that the existing ground at Wallblake and Brimegin poses no geotechnical problems for any airport development which might take place. Although topographical surveys will not be required at this stage the consultant should satisfy himself that the survey information obtained during the 1983 and 1993 studies is of sufficient accuracy.
- vii) Identify reliable sources of aggregates which will be available in sufficient quantities and could be used for concrete and asphalt work.
- viii) Carry out an initial environmental screening of the two development options being considered. The screening will identify the potential direct and indirect environmental consequences of the proposed investments. Inter alia, the impacts of runway embankments, proposed drainage systems, increased aircraft activity and noise, immediate construction effects and greater tourism pressure on Anguilla's natural resource base should be considered. If it is concluded that a full EIA is required, the consultant should propose terms of reference for an Environmental Impact Assessment (EIA) to be implemented during the detailed design phase. The consultant will refer to DFID's Manual of Environmental Appraisal when carrying out the initial screening and preparing the terms of reference for an EIA.
- ix) Identify the key primary stakeholders most affected by the project and make a rapid, informal assessment of their views on the two options of: (i) developing operations at Wallblake, and (ii) constructing a new airport at Brimegin and ceasing operations at Wallblake. The assessment should also consider the impact on employment (including airport workers), resettlement, productive land and accessibility. The assessment shall include consultations with women and poorer people.
- x) Analyse primary stakeholders' preferences and concerns relating to the project and show how these can be addressed in the recommended design option. If appropriate, the consultant will propose terms of reference for a more intensive Social Impact Assessment. (SIA) to be implemented during the detailed design phase. The consultant will refer to DFID's Social Development Handbook in completing this part of the study.

- xi) Carry out a social analysis of current air transport users (who is travelling by air, for what purpose, to which destinations and at what cost) who would obtain direct benefit from the project.
 - xii) Examine the Anguillans expectation of the project benefits and consider how much of this can be achieved.
- 2.3 Two private investment companies; one Dutch, Aruba-Anguilla Development NV, and the other Société de Développement et d'Investissement d'Anguilla, have each shown interest in constructing a new airport at Brimegin, which would be capable of taking fully loaded Boeing 737s (Dutch proposal) or 747s (French). GoA has signed a memorandum of Understanding (MoU) with each company and as part of this agreement they have each produced reports into the development of the site. The Dutch issued a 'Business Plan' in March 1998, and the French a 'Feasibility Study' in December 1999. The consultant will be required to examine each document and comment on their contents and recommendations.
- 2.4 Subject to further definition and costing, carry out any other work in connection with the project as may reasonably be required of the consultant.

3. Duration of Consultancy

- 3.1 It is proposed that the overall duration of the consultancy will be for nine weeks and involve a total maximum estimated input of one hundred staffdays. Three weeks will be allowed in Anguilla for the necessary field work and a further six weeks at their home base for mobilisation, data analysis and the preparation of the report.

4. Reporting

- 4.1 The consultant will be required to produce the following reports:
- i) **Draft Final Report.** Three copies of the draft final report shall be issued to GoA and three copies to DFID.
 - ii) **Final Report.** On receiving comments on the draft report from GoA and DFID the consultant shall provide five copies of the final report to GoA and five copies to DFID in London.

5. Locally Provided Support Facilities

- 5.1 The Ministry of Finance and Economic Development and the Ministry of Infrastructure, Communications and Utilities (MICU) will be jointly responsible for liaison with the consultant. The first point of contact for formal communication between the consultant. The first point of contact for formal communication between the consultant and GoA will be the Permanent Secretary MICU.
- 5.2 MICU will provide all documents, data, reports, statistics, information and maps at the disposal of the Government which the consultant may require for the purposes of the technical assistance.
- 5.3 As much notice as possible should be given by the consultant to the Permanent Secretary MICU when making arrangements to use the above services and facilities.

APPENDIX 3

SITE INVESTIGATIONS

APPENDIX 3

SITE INVESTIGATIONS

Wallblake 26 October 1999

With the aid of a JCB backhoe, four trial pit excavations were dug at chainages 1565m, 1665m, 1765m and 1865m; all chainages being relative to chainage 0 at 10 threshold. The purpose of these trial pit excavations was to extend the SWK investigation with a view to extending the runway ultimately to 1795m.

Trial pit 1	Chainage	1565m	0-800mm depth brown/dark brown topsoil with cobbles of limestone. at 800mm solid limestone encountered.
Trial pit 2	Chainage	1665m	0-100mm depth brown/dark brown topsoil at 100mm solid limestone encountered.
Trial pit 3	Chainage	1765m	Solid limestone at surface
Trial pit 4	Chainage	1865m	Solid limestone at surface

Brimegin 27 October 1999

Trial pits were dug at locations 1, 2, 3 and 4, corresponding approximately to the proposed terminal building and along a line parallel and to the south of the proposed runway at chainages 0m, 600m, and 1300m from the western threshold. Surface inspections were carried out at location 5 (at approximately chainage 1600m) and along location 6, a break line through the vegetation towards the eastern threshold.

Trial Pit 1	Chainage	-	Solid limestone encountered at surface.
Trial Pit 2	Chainage	0m	0-600mm depth brown/dark brown topsoil with cobbles and boulders of limestone. At 600mm, solid limestone encountered.
Trial Pit 3	Chainage	600m	Solid limestone encountered at surface
Trial Pit 4	Chainage	1300m	Solid limestone encountered at surface.

At location 5, a large cave was evident, approximately 5m x 6m in plan with a depth of approximately 15m. The walls of the cave appeared to be solid with few 'blowholes' or intrusions. Reportedly, these caves are evident in several places.

A surface inspection was conducted along location 6, a break line in the bush approximately 800m in length. The surface of the ground is consistently massive limestone, hard and grey in colour with creamy patches, with no evidence of topsoil other than in very small pockets contained in small pockets in the limestone surface. The bush is consistently heavy across the whole area and would be a significant cost item to clear.

Geotechnical Issues

From our examination of the existing ground conditions at both the Brimegin and Wallblake sites and a review of previous reports, we conclude that the massive limestone evident on the Brimegin site represents a typical Karstie limestone which will contain several solution cavities, whilst the material of Wallblake is predominantly topsoil over solid limestone.

It is extremely likely therefore that excavation of material on the Brimegin site will reveal further unknown cavities; an extensive site investigation would be necessary to identify as many of these as possible in advance of any significant excavation operations commencing.

Although the limestone in the Wallblake area is not known for any similar cavities, it is likely that some may exist, although it does not show evidence of being a similarly massive limestone mass as exists at Brimegin. Indeed, excavations for borrow material in the areas adjacent to Wallblake show a different material, being bands of hard limestone consisting of very weak to weak cemented clayey material interspersed with loose to medium dense calcareous silt. However, the trial pits attempted at chainages 176S and 186S encountered solid limestone, unable to be loosened by a JCB bucket. Again, an appropriate site investigation earthworks' operation.

In conclusion, the material at Wallblake is less likely to pose as high a risk as that at Brimegin, geotechnically, although it would be prudent to conduct site investigations for either case.

Aggregate Considerations

A review of likely sources of aggregate on Anguilla capable of being used in concrete and Marshall asphalt mixes, revealed a single source, that of the existing rock quarry to the north of the proposed Brimegin site, adjacent to the road between North Side and Shoal Bay Village.

The quarry face indicates a moderately strong, highly fractured, fissured, light brown limestone. There is evidence of porosity and some solution cavities. The material is not reapeable and is face blasted to stockpile.

The raw, blasted material is handled through a primary jaw crusher, screens and a secondary core crusher. The material so treated is well shaped, low flakiness index stone with little sign of excessive porosity and is produced in three sizes, 14-20mm, 10-14mm and 6.3-10mm.

There is a further set of crushing and grading plant that has been relatively recently installed to deal with smaller size, sand fractions; the product of this plant goes to the adjacent block making plant.

Although there must be some porosity in the crushed material, it is not evident on an inspection by eye. There are no laboratory facilities on Anguilla to test the material but it is opined that a blend of material from the two plants, blending the several single sized stockpiles with the sand fractions, would form the basis of a good, stable Marshall asphalt mix. The material is essentially sound with a good shape and with proper blending would most probably generate a mechanically stable graded crushed stone, suitable therefore for both concrete and Marshall asphalt (to be used for runway surfacing).

It would be prudent to conduct relatively extensive testing on the materials to ascertain porosity, and bitumen affinity; the degree of porosity encountered would affect the pentagemix which might be variable. This would not constitute an insurmountable problem.

In conclusion, it is our opinion that the existing rock quarry could provide a good source of crushed material which, with adequate washing and blending, would produce good quality material adequate for concrete and bituminous bound mixes. Clearly, before any significant production were to be commenced, extensive testing would be required but it is most likely that the source of local stone will be adequate and much cheaper than imported material.

