Feasibility studies for the rehabilitation of a selection of Bahamian airports through a PPP scheme ATN/OC-15345-BH

Environmental & Social Assessment Report






ALG TRANSPORTATION INFRASTRUCTURE & LOGISTICS

21st July 2016

Table of Contents

Table of Figures

1 Introduction

This report, part of the Phase 2 analysis, follows the phase for the selection of airports in the Bahamas that are potential choices for entry into a PPP. The airports shortlisted for Phase 2 were:

1. **North Eleuthera Airport** (North Eleuthera Island)
2. **Exuma Airport** (Exuma Island)
3. **Marsh Harbour & Treasure Cay** (Abaco Island)

Phase 1 determined that the fragility of the environment and the great environmental complexity posed a challenge for the planning and the efficiency of the Bahamian airport system. Therefore there is a need to achieve a degree of consistency between the mobility system and the territory, in order to optimise airport infrastructure in some of the islands.

The complex territorial matrix (island state) and the need to protect large areas (National Parks, Important Bird Areas - IBAs) in the islands increased the system's complexity. Also, the protection of these areas is linked to the protection of birds, which have different protection levels: threatened, endemic, vulnerable ... Such aspects were taken preliminary into account in Phase 1, and then in Phase 2 once the selection of airports was completed.

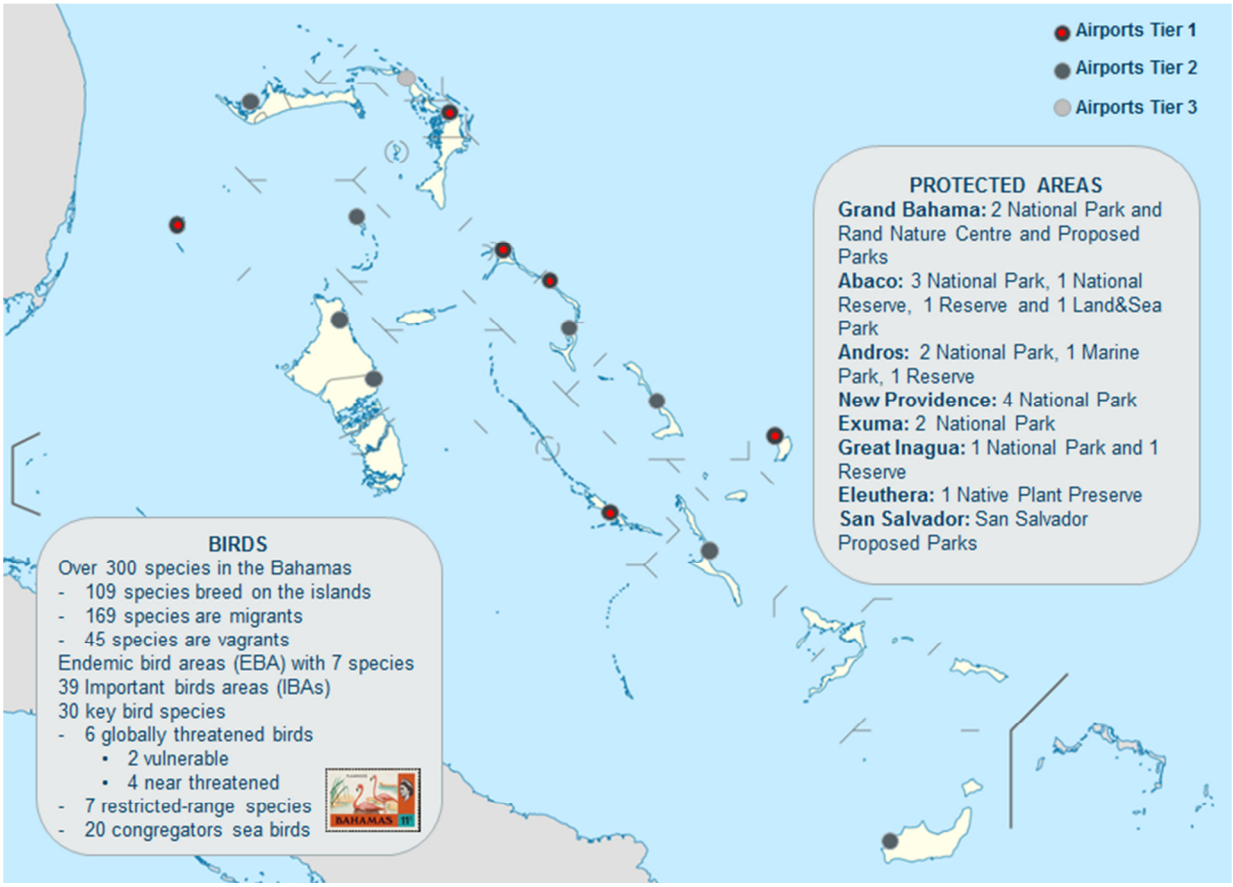


Figure 1: Environment and airport location. Phase 1

Stantec's report “institutional & organizational analysis/development of guidelines & standards: environment, health & safety, and safety management systems”, July 2014 contains information referring to the protected areas systems and the biodiversity of birds in the surroundings of Bahamian airports.The on-site visits to the 4 airports selected for the PPP model during present phase 2 provided first-hand information on the management of environmental issues in general, and of the protected areas and birds wildlife in particular.

The main objective of this document is, for each one of the airports included in Phase 2 of the PPP process, to **analyze the environmental and social risks and impacts** related to both current operation and contemplated works.

This analysis takes as a reference the **national legislation** as well as **international references:** the IDB Safeguards Policies, the IFC performance standards and ICAO regulations. The analysis makes possible the **identification of impacts** on the environment, society and airport operational safety.

The PPP process proposal includes 4 airports: North Eleuthera Airport (ELH) Exuma Airport (GGT), Marsh Harbour Airport (MHH) and Treasure Cay Airport (TCB). The last of these is included as an extension of the Marsh Harbour Airport operations.

The complexity of this analysis is due to several aspects:

1. Each airport would need **different interventions** that should be taken into account in the PPP process. These interventions involve **different phases of the infrastructure's life cycle**.

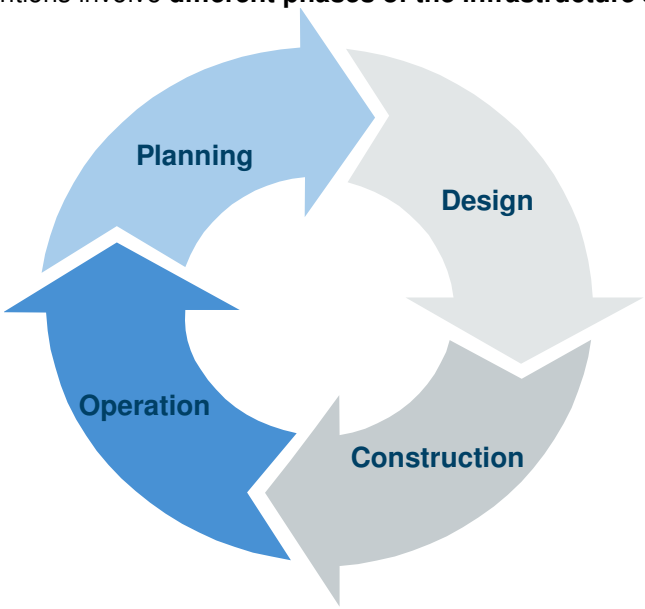


Figure 2: Infrastructure life cycle

2. Some of the **impacts identified in the analysis phase will be eliminated** according to the action proposal to be incorporated into the PPP.
3. Some of the actions that will need to be implemented in the framework of the PPP will generate new impacts (**future impacts in the construction phase)** which will need to be identified at stage of detailed planning. These impacts should be mitigated through the design and engineering phase and the socio-environmental management of the development.

It is important to note that the scope of the PPP is not validated at this point of the process. Therefore, some of the remarks and actions suggested in this document may need to be amended once the parameters of the PPP and its scope are fully defined and validated.

In response to this complexity, it may be anticipated that:

- During the planning of the PPP model, there is a special focus on the three complementary phases of the lifecycle of the infrastructure.
- There will be environmental issues that may have shared solutions despite the difference in management models.
- Some of the impacts identified may be applicable to 2, 3 or 4 airports.
- The environmental and social management of the 4 airports under the PPP should be focused in an integrated and transversal way to optimize costs and system efficiency.

Taking into account these aspects, an **Environmental Impact Assessment** process should be performed prior to the works, together with the final design and engineering; the EMP presented in annex is indicative and will serve as the basis for developing the final EMPs that will have to be developed with these EIA processes.

2 Multilateral Environmental Agreements and Legislation

The BEST Commission serves as the national focal point for multilateral Environmental agreements (MEAs), to which The Bahamas is a signatory.

- The Stockholm Convention on Persistent Organic Pollutants
- Rotterdam Convention (Prior informed consent)
- Minamata Convention
- Montreal Protocol on Substances that Deplete the Ozone Layer
- Vienna Protocol for the Protection of the Ozone Layer
- The Basel Convention on the control of Transboundary Movement of Hazardous Waste
- Strategic approach to International Chemicals Management
- Cartagena Protocol on Biosafety
- Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES)
- Chemicals Weapon Convention
- International Water and Coastal Area Management
- International Labour Organisation
- The Bahamas GEF Small Grans Programme
- GEF Assembly
- The Green Climate Fund
- Commission on Sustainable Development
- The United Nations Convention on Biological Diversity
    - National implementation support partnership
    - The Convention on Wetlands of International Importance (RAMSAR)
    - Country Support Program
    - The Caribbean Challenge
    - International Trade Endangered Species of Wild Fauna and Flora
- The United Nations Convention on Climate Change
    - Kyoto Protocol

National Environment Policies
Bahamas Biosecurity Strategy
Bahamas First National Communication on Climate Change 2001
Bahamas National Environmental Policy
Bahamas National Assessment Report
Bahamas National Assessment Report on the Implementation of Agenda 21
Bahamas National Biodiversity Strategy and Action Plan
Bahamas National Climate Change Policy
Bahamas National Wetlands Policy 2007
Bahamas National Trust Act 1959
Best international practice and the requirements of the Disaster Preparedness and Response Act of the Bahamas for Airport Emergency Plan.
Global Environment Outlook Report Bahamas 2005
National Environmental Management and Action Plan
National invasive species strategy 2003

In addition to international agreements, other strategies, agreements and reports have been signed at national level, which, together, make up national the working and legislative framework. Please refer to the list below.

E&S Legislation
Acquisition of Land Act (07/07/1913).
Acquisition of Land Air Fields Act (29/06/1944).
Acquisition of Land Special Application Act (15/07/1957).
Bahamas Electricity Corporation Vesting of Land Act (05/05/1958).
Bahamas Protected Areas Fund Act 2014 (09/07/2014).
Conservation and Protection of the Physical Landscape of The Bahamas Act. 1997.
Disaster Preparedness and Response Act (28/12/2011).
Eleuthera Land Company Limited Vesting Act (31/07/1963).
Employment Act (01/01/2002).
Environmental Health Fees for Services Regulations (27/05/1987).
Environmental Health Services Act (01/01/1990).
Environmental Health Services Collection and Disposal of Waste Amendment Regulations 2013 (01/04/2004).
Environmental Health Services Collection and Disposal of Waste Regulations (01/07/2013).
Environment Impact Assessment (Final Draft Regulations).
Environment Management (Final Draft Legislation).
Health and Safety at Work Act, Chapter 321C.
Non-Government Organizations. (Final Draft Legislation).
Plants Protection Act (01/0/2016).
Plants Protection Rules (07/10/1916).
Pollution control and waste management (Final Draft Regulations).
Quarantine Act (18/04/1905).
Quarantine Infectious or Contagious Disease Order 2015 (14/01/2015).
Reclamation and Drainage Act (18/01/1937).
Recruiting of Workers Act (01/01/1940).
Recruiting of Workers Regulations (05/10/2016).
Water and Sewerage Corporation Act (14/07/1976). Sewerage Rates Regulations (01/10/1979); Water Supply Rules (29/06/1953); Water and Sewerage Corporation Amendment Act 2015 (01/07/2015).
Water Supplies Out Islands Act (28/05/1953).
Water Supplies Out Islands Rules (01/01/1971).
Water Supplies Out Islands Rules-Notice under Rules (01/10/1971).
Wild Animals Protection Act (14/08/1968).
Wild Birds Protection Act (11/08/1952). Reserves (10/09/2008).
Wildlife Conservation and Trade Act (31/10/2004).

However, for matters concerning the airport environment—and given the nature of the PPP process—the guides of multilateral organizations such as ICAO, FAA, IYB and IFC must be taken as a reference in addition to the above.

ICAO
Aviation Safety Standards consolidated under Annex 19.
Airport Planning Manual (Part I and II).
Economic Circular No. 292 - Economic contribution of civil aviation.
Volume I Aerodrome design and operations. Annex 14.
Document 9137-AN/898 Airport Services Manual, Part 3.
Document 9332 Manual on the ICAO bird strike information system
Airport Planning manual. Part 2: Land use and environmental control. Doc. 9184.
Airport Air Quality manual. Doc. 9889.
Environmental protection. Annex 16 to the Chicago Convention on International Civil Aviation. Volume 1: Aircraft noise and Volume 2: Aircraft engine emissions.
Challenges for sustainable airport development. Environmental approach of the ICAO. 8th. CAR/SAM Regional Bird/Wildlife Hazard Prevention Committee Meeting Sept. 2010.

FAA
FAA 150/5200-31-C Aiport Emergency Plan.

IDB SAFEGUARD
Environment and Safeguards Compliance Policy.
Safeguards and Sustainability.
Access to information Policy
Operational Policy on Gender Equality in Development.
Natural Disaster Risk Management
Involuntary Resettlement

IFC – Performance Standards and Guidelines
PS1. Assessment and management of E&S Risks and Impacts.
PS2. Labor and working conditions.
PS3. Resource efficiency and pollution prevention.
PS4. Community health, safety and security.
PS5. Land Acquisition and involuntary resettlement.
PS6. Biodiversity conservation and sustainable management of living natural resources.
PS7. Indigenous people.
PS8. Cultural Heritage.
World Bank Group, Environmental, Health and Safety (EHS) Guidelines (in particular for airports)

3 E&S Stakeholders

The study and analysis of the Environmental and Social situation of the Bahamas confirmed the stakeholder's commitment to the preservation of the country's natural heritage.

3.1 BEST Commission: Bahamas Environment Science and Technology Commission

The BEST Commission is part of the Ministry of Environment & Housing. It has two main duties:

1 Manages the implementation of multilateral Environmental agreements.
2 Reviews environmental impact assessments and environmental management plans for development projects within the Bahamas:
- Provides guidelines for Environment Impact Assessment (EIA)
- Provides guidelines for Environment Management Plans (EMP)

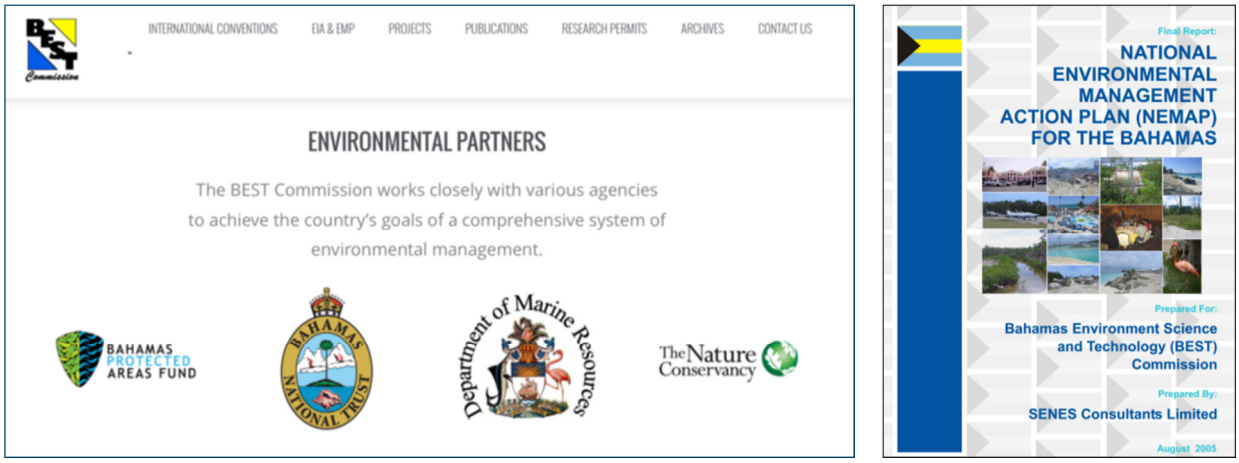


Figure 3: Environmental partners BEST Commission

According to the information available on the web: http://www.best.gov.bs/eia-and-emp/

All non-Bahamian and/or foreign companies seeking to provide EIA services in The Commonwealth of The Bahamas are required to have the following prior to commencing any related activities leading to the development of an EIA document for review:

1. *Pre-Approval by the BEST Commission to produce an EIA Document*
2. *Local Business Licence*
3. *Work Permits for all persons involved in the production of the EIA document*

All local companies seeking to provide EIA services require pre-approval by the BEST Commission. In addition to the following:

1. *Current Business Licence*
2. *Valid work permits for all foreign persons involved in the production of the EIA document*

From an airport point of view, the BEST Commission will need to be contacted in order to determine the scope of the EIA and EMP for each of the airports included in the PPP.

BEST Commission	New Providence Island	Date of visit: 28/06/2016
AIDB and Consulting Team	Ms Camille A. Davis-Thompson, AIDB Mr Xavier Esparrich, ALG Ms Beatriu Tenas, ALG	
Inputs of the meeting	It is confirmed that they are responsible for identifying the environmental aspects in all tasks requiring EIA. They have a code of good environmental practices that should be	

BEST Commission	New Providence Island	Date of visit: 28/06/2016
	applied in the design and engineering project phases. The airports will be considered as "light industry" in the EIA. Specifically as regards oil spills, noise pollution, etc. They don't consider airport noise to be issue for the local community. Special attention is given to including environmental aspects in each phase of the infrastructure cycle: PLANNING: Establish an environmental baseline for the PPP. DESIGN and ENGINEERING: Integrated architecture solutions, minimization of energy, usage of local materials, EIA and EMP. WORKS: Presence of asbestos in old buildings. They have to be considered as hazardous waste in the demolition of buildings.	

One of the most important aspects of the PPP process is the need to conduct an EIA prior to the start of construction. This is a key milestone of the PPP calendar, because work can't start if the environmental criteria set out by the BEST Commission are not met.

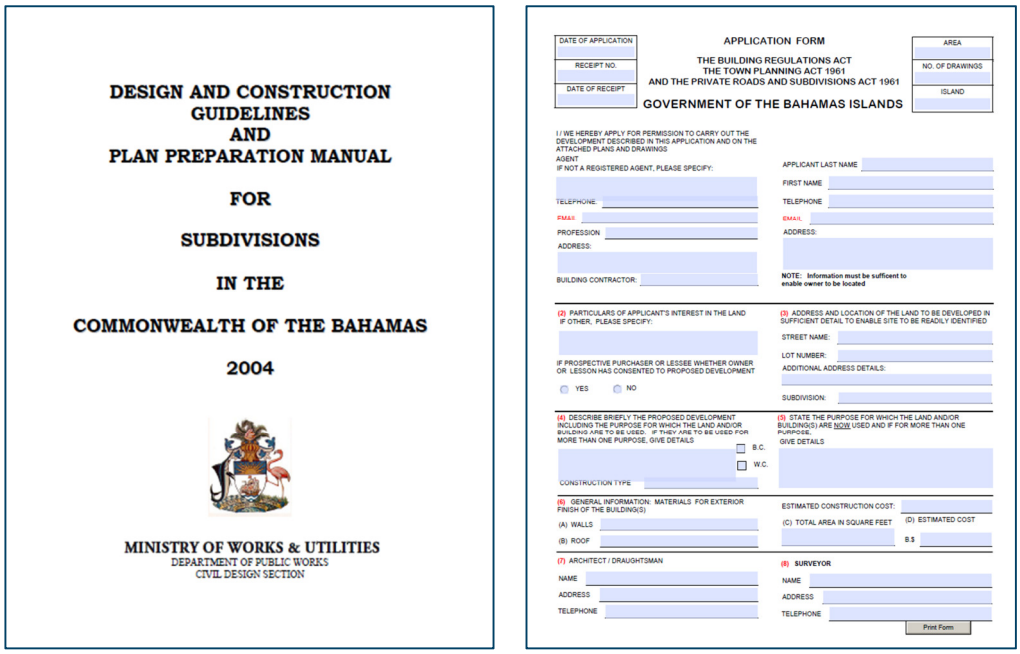


Figure 4: Reference documents for the various phases of the project

3.2 Ministry of Transport & Aviation

The environmental approach to the visit to the Ministry of Transport and Aviation relies on determining the strengths and weaknesses of the construction processes, in relation with the environmental procedures of EIA and EMP.

Ministry of Transport & Aviation	New Providence Island	Date of visit: 28/06/2016
AIDB and Consulting Team	Ms. Camille A. Davis-Thompson, AIDB Mr. Xavier Esparrich, ALG Ms. Beatriu Tenas, ALG	
Inputs of the meeting	There are no land use plans in force. No National Land Use Plans.	

Ministry of Transport & Aviation	New Providence Island	Date of visit: 28/06/2016
	The MoWUD also has a list of criteria for architectural solutions that are representative of the Bahamas. They consider it very important that the PPP involves local stakeholders and developers. They insist on the role the BEST Commission wants to take in applying environmental criteria to all phases of the construction process. The maintenance of airports poses a major challenge.	

3.3 BNT: Bahamas National Trust

The Bahamas National Trust was created by an Act of Parliament in 1959. The efforts of two groups of conservationists brought about the drafting and passing of the Act. Both groups in different arenas had been rallying for the conservation of natural resources in The Bahamas. (Source: http://www.bnt.bs)

The BNT has two main objectives:

- To advise the Government on environmental policies and to protect the country's environmental heritage.
- It is responsible for managing the national system of protected areas: 25 national parks (with 8 new proposals for protection) and 39 Important Bird Areas - IBAs.

The visit to the BNT had 3 main purposes:

1 The extent to which airports have an impact on the national system of protected areas.
2 The risk caused by airport activities on the most sensitive bird species.
3 Management of natural habitats and invasive species.

Bahamas National Trust	New Providence Island	Date of visit: 28/06/2016
AIDB and Consulting Team	Ms Camille A. Davis-Thompson, AIDB Mr Xavier Esparrich, ALG Ms Beatriu Tenas, ALG	
Inputs of the meeting	From a wildlife management viewpoint, airport activity does not pose a problem. The wetlands within airports have not suffered. In case there was need to intervene in the wetland, non-polluting mechanisms should be considered to ensure operational airport security. It is important .to take into account the effects of climate change for buildings located on the coast. One of BNT's priorities is to raise awareness in the community about the use of native plants. The management of the underground water reservoirs must be particularly rigorous to avoid episodes of contamination and accidental spillage.	

4 Environment and Social Analysis

4.1 North Eleuthera Airport (ELH)

North Eleuthera Airport	North Eleuthera Island	Date of visit: 29/06/2016
Team that paid the on-site visit:	Ms. Danielle Gibson, Airport Manager Mr. Amado Crotte, AIDB Mr. Xavier Esparrich, ALG Ms. Beatriu Tenas, ALG	

4.1.1 Organization and management aspects

The North Eleuthera International Airport has not implemented a structured **Environmental and Social Management System**. No formal **identification and management of risks and impacts** nor specific management programs are in place as regards those aspects that pose risks to the environment.

I1. Impact on E&S management efficiency

In this regard, the management does not take into account management criteria and tools such as: operational procedures, practices, or plans and documents to enable a systematic management of environmental and social information. Nor is there an identification of the direct and indirect area of influence of airport activities. This poses an obstacle to the control of environmental and social aspects.

As far as **competitiveness and organizational capacity** concerns, both the management and staff are qualified and perform tasks properly. However, the lack of procedures and management tools for monitoring and controlling E&S renders the management inefficient and insufficient.

I2. Impact on labour and working conditions.

The lack of documentation also affects **emergency preparedness and response**. The visit confirmed the lack of premises specifically devoted to emergency situations or accidental spills. Elements that should be used in cases of accidents or accidental spillage are not distributed at critical points but are stored in the terminal itself with other materials.

Limited firefighting resources were identified. There only was a truck parked on the apron. The construction of a fire station as part of the new combined service building will be an opportunity to update the emergency response system and to adapt it to the health and safety regulations.



Figure 5: Emergency material and equipment

I3. Impact on health and safety of workers

I4. Impact on the community.

A monitoring and assessment system should be put into place to measure the effectiveness of management and the compliance with legal obligations. The systematic analysis of data will permit the continuous improvement of the system and validating the implementation of procedures, practices and plans established.

The **participation of social stakeholders** is key to the consolidation of the relations. The availability of a database and an analysis of social stakeholders facilitates their participation, as well as the disclosure and dissemination of information. Also, the establishment of an internal and external **complaints mechanism** provides information about the weaknesses of system in order to guarantee the quality of airport services.

Based on the observations, it seems that the **work conditions and environment** are safe and free of health risks. Workers rely on measures in force to prevent accidents, injuries and illnesses.

Figure 6: Airport staff working on different tasks

As regards the spaces used, two relevant aspects can be highlighted: on the one hand, the over-occupation of spaces in the terminal and, on the other, the lack of infrastructure and equipment on the land side.

4.1.2 Water cycle

The management of the water cycle is shared (although there is no documentation available) with the municipality. The **water supplied** to the airport is distributed through a system of pipes inside the general system. There is no documented information regarding the quality of water, and there are no records of water sampling. Although the asset is of municipal property, the implementation of a control and monitoring procedure would be advisable.

The **sanitary water** is stored in a septic tank. It is also collected and managed by the municipality. There is no evidence as to the relationship between the airport and the municipality (through a contract or other documentation that may be incorporated into an Environmental and Social Management system).

The attached photographs show the poor maintenance and safety of the potable water well and the location of the septic tank next to the terminal's electrical system.

Figure 7: Current infrastructure and equipment associated to the water cycle

The terminal building will be re-located, leaving the existing terminal building for support purposes.

I5. Potential risk to the health and safety of people.

I6. Potential impact on the water well that supplies the airport facilities.

I7. Potential impact on the subsoil and groundwater in the wastewater storage area

The surface of the apron and taxiways run off **rain water** directly to the centre. There is no drainage system nor settling point to collect rainwater. No aircraft maintenance is performed on the apron, but vehicle maintenance operations take place within the airport grounds.

The **fuel plant** has no fuel retention system to prevent accidental spills. There are no spillage prevention or mitigation mechanisms at the fuel plant. The apron slopes of the fuel plant run off the surface waters out of the perimeter fence.

Figure 8: Maintenance of vehicles at fuel plant between the fuel tanks and the perimeter fence

I8. Potential risk of accidental spillage of fuel direct to the medium and out of the perimeter fence.

4.1.3 Waste Management

As could be observed at the visit, the management of **waste** is carried out differently in public and private areas. All the areas in the terminal look clean and tidy, and have the proper material and equipment for waste management.

Figure 9: Different types of bins inside the terminal

Waste collection is also the responsibility of the municipality (through the Bahamas Waste companyhttp://bahamaswaste.com/) although there is no information available about this system. There is no service contract in force. There is no data available regarding the waste generated, either internal or generated by airlines. There is no selective separation of waste. It is dumped in a single container and taken to a waste plant for separation and subsequent recycling.

Another issue is the waste generated by private stakeholders, in areas where obsolete equipment and waste materials are stored. There is a large area where all sorts of waste has been dumped, from construction materials to **hazardous waste**. One of the most common issues of the management of materials and equipment (which does not justify this unorderly and neglected storage) is that airport facility operators are not capable of managing government property. So that any piece of equipment that is inventoried can be dumped without prior authorization, which leads to the accumulation of old materials at various points in the airport grounds. The waste shown below is generated in different airport activities.

Figure 10: Accumulation and disposal of diverse types of waste within the airport complex (construction waste material, handling equipment, obsolete vehicles, hazardous materials…)

There are also storage spaces more or less structured but not properly laid out according to the risk and hazard of materials and equipment.

Figure 11: Civil Aviation warehouse

I9. Impact on health and safety of workers: lack of hygiene, disease outbreaks caused by accumulations of water, unhealthy conditions, hazardous substances.

I10. Impacts on soil: spillage of oil, and hazardous and flammable materials.

I11. Risk of fire: flammable and hazardous materials and substances (PCBs, batteries, paints…)

4.1.4 Energy

As regards **Energy,** there is no **energy efficiency** plan or program currently in force. In the terminal facilities more efficient elements have not yet been introduced. The use of more efficient elements that minimize consumer costs has not been observed. The photographs attached show the outdated cooling system and the use of fluorescent tubes.

Regarding power generation, it was confirmed that some pieces of equipment are obsolete and out of order, and should be included in the waste management programme. Some of the equipment is likely to contain **hazardous or flammable substances** (such as PCBs) which should be disposed of and managed appropriately in compliance with the international agreements signed by the Government.

Figure 12: Equipment related to energy cycle

I12. Impact on climate change.

I13. Impact on human health.

4.1.5 Noise and Air Emissions

Air quality is an important matter in areas of high environmental quality. Any disturbance implies a potential risk to the system, so it must be taken into account from an environmental and social viewpoint.

North Eleuthera Airport's location outside the urban environment minimises the impact of noise pollution on the community. The noise footprint prepared by Stantec in 2015 shows no direct or indirect damages to the community (North Eleuthera International Airport Master Plan). This was also noted in the meeting held with officials of the BEST Commission.

Stantec noise footprints are based on Noise Exposure Forecast method, developed by Transport Canada to predict the degree of community annoyance from airports and aircraft noise on the basis of various acoustical and operational data. It is applied to determine acceptable levels for various community zoning regions. For instance, a residential area should have a NEF of 30 or less; between 30 and 40 NEF is stated as suitable for multiple family housing; above NEF 40, the area is suitable for industrial and recreational purposes only. According to the Master Plan noise exposure mapping for the existing runway, areas in the airport surroundings are only affected by the NEF 30 contour, so no residential areas are above the recommended limit.

Stantec noise footprints are based on Noise Exposure Forecast method, developed by Transport Canada to predict the degree of community annoyance from airports and aircraft noise on the basis of various acoustical and operational data. It is applied to determine acceptable levels for various community zoning regions. For instance, a residential area should have a NEF of 30 or less; between 30 and 40 NEF is stated as suitable for multiple family housing; above NEF 40, the area is suitable for industrial and recreational purposes only. According to the Master Plan noise exposure mapping for the existing runway, areas in the airport surroundings are only affected by the NEF 30 contour, so no residential areas are above the recommended limit.

Due to the low traffic volume at the airport the acoustic emissions are not currently a major operational constraint. Additionally, the relatively small size of the fleet operating currently at the airport, consisting mostly of turboprop aircraft of less than 70 seats capacity, contributes to the reduced acoustic exposure in the airport surroundings.

This situation is not expected to change significantly during the concession period. In the first place, the annual growth in air traffic movements expected between 2017 and 2042 is less than 1.5% per year. In addition, it is not forecast that the aircraft mix will change much in the coming years. Although progressive growth in average aircraft size is expected, small turboprop aircraft will continue to be the most usual type, with the largest aircraft expected at the airport being a narrowbody jet such as a Boeing 737 or Airbus 320, and with no expectation for the arrival of widebody jets which would considerably increase the level of acoustic emissions.

As for the actions foreseen for the airport development, an extension to the current runway is not expected to occur. This, combined with the fact that the annual traffic growth expected at the airport is closely aligned with the forecasts made by Stantec in the above mentioned Master Plan, means that it is possible to take the noise footprints included in those studies as references. To ensure airport's operational security and its long-term viability it is recommended to develop a Plan for Land Use in the airport and its surroundings linked to the Master Plan.

Staff mobility within the airport takes place in golf carts and 4WD vehicles, which have low carbon emissions. However there is no specific program for minimising climate change. A study of emissions would be advisable to incorporate the environmental management system and monitoring and evaluation linked to emissions.

I14. Impact on air quality.

I15. Impact on climate change.

4.1.6 Protected Areas and Natural Habitats

North Eleuthera Airport does not carry out activities (direct or indirect) that affect the island's protected areas. However, the structure of the natural habitat within the airport perimeter is affected by the presence of casuarina (*Casuarina equisetifolia*). This invasive species is occupying spaces within the structure of the natural habitats found within the airport grounds.

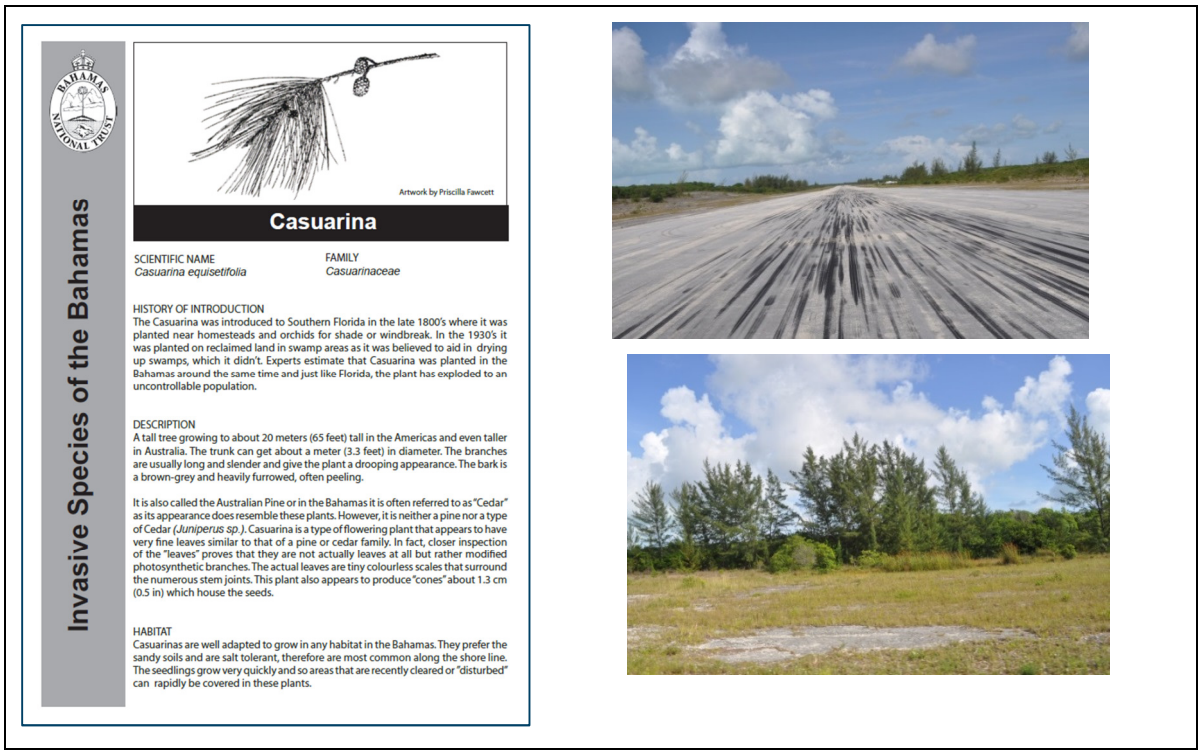


Figure 13: Presence of casuarina within the airport perimeter

I16. Impact on the natural habitat

The preservation of natural habitats within the airport grounds is evident. The loss of habitat only takes place within the runway safety areas and in the area occupied by the perimeter fence (which follow ICAO regulations).

Figure 14: Operational safety area

4.1.7 Birdstrike and Wildlife Control Program

One of the most important aspects of airport management is safety. The presence of wetlands, dumps or meat industries in the area of influence attracts birds to the airport environment. The island of North Eleuthera has a significant number of protected areas which are the habitat of different endangered species of birds included in the IUCN Red List.

The specialists at the Bahamas National Trust and airport workers confirmed there has been no interference between birds and aircraft. However, the on-site visit confirmed the presence of dead birds near the runway, as can be seen in the figure below.

Figure 15: Dead bird near the runway and cage for dogs and wild animals

Airports require a wildlife and bird strike program to be part of the airport operational management system. In some small airports, the fire department undertakes the tasks of surveillance, control and dispersion of birds. Elements for controlling wildlife are available but they are wrongly located and not identifiable. There are no documentation nor inventories regarding the types of birds in the airport area (permanently or temporarily based), there is no information of migration routes, no documentation of points of attractiveness, nor a list of specialists to contact in case of emergency... Every aspect should be documented in order to be able to provide for an immediate and efficient management of emergency situations.

The Bahamas is home to more than 30 endangered bird species (2 vulnerable, 4 near threatened, 7 restricted-range and 20 congregators sea birds) and there is a potential risk of their presence within the airport grounds. This means that, in case of invasion, a set of adequate conservation measures should be put in place coordinated with the authorities concerned.

I17. Potential impact on airport operational safety.

I18. Potential risk of collision between birds and aircraft.

I19. Potential health risk to users.

4.1.8 Land Acquisition

The need for extending the terminal and for reorganizing the space on the land side to meet such needs may require the occupation of communal land. There is no need for the reallocation of dwellings or other elements. As shown the picture, it is a natural space with large open spaces typical of a very rocky soil.

Figure 16: Aspect of the plot where the new terminal is to be built.

The Government should reach an agreement with the community prior to the PPP to transfer the rights of utilization of the required land to the Airport. This is a process that should take place prior to launching the tendering process for PPPs, in order to assure that once the concession for North Eleuthera Airport has been awarded, there are no obstacles in starting the construction process and that the airport perimeter is completely redefined.

I20. Impact caused by the loss of natural habitats.

I21. Potential risk of affecting the start of the PPP process.

4.2 Exuma Airport (GGT)

North Eleuthera Airport	North Eleuthera Island	Date of visit: 29/06/2016
Team that paid the on-site visit:	Mr. John Nixon, Airport Manager Mr. Amado Crotte, IYB Mr. Xavier Esparrich, ALG Ms. Beatriu Tenas, ALG	

4.2.1 Organization and management aspects

The environmental management of the Airport of Exuma (GGT) is not adequate. The terminal spaces are saturated due to the lack of space. Given the absence of a structured **Environmental and Social Management system,** a certain sense of chaos can be perceived from the general disorder and lack of cleanliness in some of the facilities.

The inability to identify risks and environmental/social impacts are associated with an unavailability of information and the overall result is poor management. There is a lack of structuring of action programs, complementary studies, the definition of the scope of airport activity and potential damages inside and outside the airport perimeter. There are no equipment and infrastructure maintenance programs, which stresses the infrastructure environment's obsolescence. The legal requirements that need to be met have not been identified. A map of stakeholders has not been drawn up. The complexity of environmental management in adverse situations that have direct impacts on society has not been assessed.

- Impact on management efficiency.

The management does not take into account management criteria and tools such as: operational procedures, practices, or plans and documents to enable a systematic management of environmental and social information. Nor is there an identification of the direct and indirect area of influence of airport activities. This poses an obstacle to the control of environmental and social aspects.

The lack of structured mechanisms for an efficient management of airport infrastructure also has a direct impact on the **competence and organizational capacity** of the administrative and operational structure.

In general, the implementation of a quality management system and an environmental and social management system adds transparency, methodology and management tools. The systematization of data is essential to develop management indicators. The systematization of data in GGT is currently non-existent.

- Impact on labor and working conditions.

Regarding **emergency preparedness and response,** poor organization, order and cleanliness make it difficult to operate quickly if necessary. There is also a lack of information in public areas indicating what to do in case of an emergency. Nor is there any commitment to the community to carry out joint actions if necessary.

The cluttering of materials inside the **fire station** means that it is not possible to distinguish between materials and waste. There is no control over the entry of materials. The expiration date of materials is not taken into account. Flammable and hazardous materials are not distinguishable from other materials that have no direct environmental impact. In the event of an emergency there would be no direct access to the materials and individual personal equipment to ensure immediate operation. The materials and first responders are not clearly identifiable. The materials and equipment would not be easily identifiable in case an accidental spillage took place, as in the case of the maintenance of one of the vehicles of the station. As an alternative for emergencies, a natural deposit was constructed, whose maintenance is undertaken by the government in the form on ongoing water analysis and chlorination.

In general, the station's health and safety conditions do not seem suitable for the working conditions of emergency responders. The facility is adequately sized, but the occupation of space, poor maintenance and health conditions of some spaces make it obsolete.

- Impact on labor and working conditions.

Large accumulation of flammable waste, pollutants and hazardous waste in the fire station.

Figure 17: Interior of the fire station

The absence of an environmental and social management system to document the operational and administrative management is a key impediment to the smooth operation of the airport infrastructure and operational safety. Conducting a review and monitoring the plans and programs derived from the management system would make it possible to advance through the ongoing improvement of processes.

- Impact on health and safety of workers.
- Impact on the community.

Exuma Airport participates in an environmental awareness campaign with the community, although it is not a structured and permanent program. The implementation of the Environmental and Social Management system strengthens the commitment with **stakeholders** through corporate social responsibility mechanisms.

Figure 18: Commitment with the stakeholders, environmental awareness campaign

4.2.2 Water cycle

The management of the water cycle is not performed in a structured or documented way. The system is part of the municipal network and the airport administration does not monitor nor supervise water and infrastructure quality.

There is a lack of maintenance of equipment; no documentation management; and a lack of control, monitoring and supervision of the entire cycle, both for **drinking water** and for **sanitary water.** There is no coordination procedures in place between the municipality and the airport management aimed to ensure the system operates correctly, ensure quality and promote mechanisms to reduce consumption.

Figure 19: Aspect of the water cycle infrastructures

- Potential impact on the subsoil and groundwater in the wastewater storage area

4.2.3 Waste Management

The overall **waste management** in Exuma Airport is clearly inadequate. Inside the terminal there are mechanisms for the disposal of waste but there is no selective management.

Waste collection is also the responsibility of the municipality (through the Bahamas Waste company (http://bahamaswaste.com/) although there is no information available about this system. There is no service contract in force. There is no data available regarding the waste generated, either internal or generated by airlines. There is no selective separation of waste. It is dumped in a single container and taken to a waste plant for separation and subsequent recycling.

Figure 20: Commitment with the stakeholders, environmental awareness campaign

As can be seen in the previous picture, the waste storage area is inadequate, which generates sources of contamination and risks to workers.

This management contrasts with the FBO area (Fixed-Base Operator), which has good quality facilities, design fitted to its needs and decor that adds value to the natural elements of the island.

Figure 21: Details and facilities of the FBO

As discussed above, apart from the waste generated in the terminal vicinity, waste also accumulates in different areas of the airport. There are waste discharges in areas devoted to the storage of handling equipment. The equipment is used as storage containers for **hazardous or special waste**, **flammable materials** and all kinds of construction waste. Corroded metal structures and other accumulation of materials can be found beside the perimeter fence, which generates direct impact on the outside of the airport

perimeter and on other properties. It was observed that warehouses are a mess and out of control and there are no conservation criteria applied to materials and equipment.

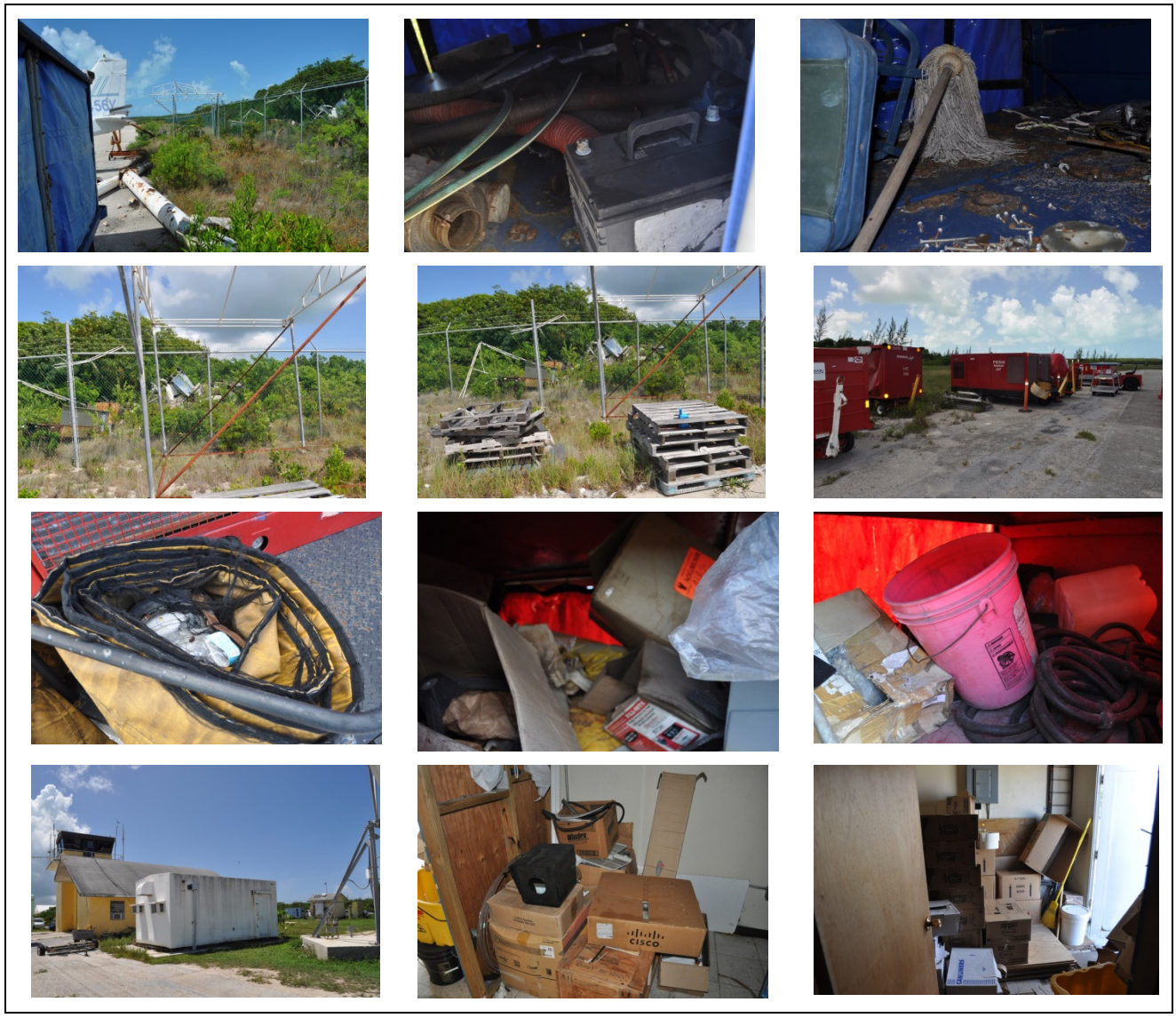


Figure 22: Waste storage and disposal (hazardous waste, flammable materials ...) within the airport perimeter

- Impact on health and safety of workers
- Impacts on soil: spillage of oil, and hazardous and flammable materials.
- Risk of fire: flammable and hazardous materials and substances
- Impact made outside the airport perimeter

4.2.4 Energy Management

Regarding **energy management**, there is no **energy efficiency** plan or program. The visit confirmed the lack of management and maintenance of equipment and machinery, particularly those associated with transformers. Some of the equipment is likely to contain **hazardous or flammable substances** (like PCBs) which should be disposed of and managed appropriately in compliance with the international agreements signed by the Government. The terminal facilities have not yet introduced more efficient elements. The use of more efficient elements that minimize consumer costs has not been observed.

Figure 23. Equipment associated to the energy cycle

- Potential impact on the air quality due to an accident involving hazardous materials (PCBs in obsolete transformers) and flammable substances (batteries, paints, etc.)
- Potential impact of the emission of pollutants (dioxins) into the atmosphere.

4.2.5 Noise and Air Emissions

One of the most sensitive aspects from the social point of view is airport noise. Furthermore, in areas of high environmental quality, where silence is an asset along with the landscape, **air quality** is an important aspect to consider.

Exuma Airport's location outside the urban environment minimizes the impact of **noise** pollution on the community. The noise footprint prepared by Stantec in 2015 shows no direct or indirect damages to the community (Exuma International Airport Master Plan). This is also noted in the meeting held with officials of the BEST Commission.

Stantec noise footprints are based on Noise Exposure Forecast method, developed by Transport Canada to predict the degree of community annoyance from airports and aircraft noise on the basis of various acoustical and operational data. It is applied to determine acceptable levels for various community zoning regions. For instance, a residential area should have a NEF of 30 or less; between 30 and 40 NEF is stated as suitable for multiple family housing; above NEF 40, the area is suitable for industrial and recreational purposes only. According to the Master Plan noise exposure mapping for the existing runway, areas in the airport surroundings are only affected by the NEF 30 contour, so no residential areas are above the recommended limit.

Due to the low traffic volume at the airport the acoustic emissions are not currently a major operational constraint. Additionally, the relatively small size of the fleet operating currently at the airport, consisting mostly of turboprop aircraft of less than 70 seats capacity, contributes to the reduced acoustic exposure in the airport surroundings.

This situation is not expected to change significantly during the concession period. In the first place, the annual growth in air traffic movements expected between 2017 and 2042 is less than 2% per year. In addition, it is not forecast that the aircraft mix will change much in the coming years. Although progressive growth in average aircraft size is expected, small turboprop aircraft will continue to be the most usual type, with the largest aircraft expected at the airport being a narrowbody jet such as a Boeing 737 or Airbus 320, and with no expectation for the arrival of widebody jets which would considerably increase the level of acoustic emissions.

As for the actions foreseen for the airport development, an extension to the current runway is not expected to occur. This, combined with the fact that the annual traffic growth expected at the airport is closely aligned with the forecasts made by Stantec in the above mentioned Master Plan, means that it is possible to take the noise footprints included in those studies as references.

To ensure airport's operational security and its long-term viability it is recommended to develop a Plan for Land Use in the airport and its surroundings linked to the Master Plan.

Staff mobility within the airport takes place in golf carts and, in some cases, in 4WD vehicles, which minimises carbon emissions. However there is no specific program for minimising climate change. A study of

emissions would be advisable to incorporate the environmental management system and monitoring and evaluation linked to emissions.

I14. Impact on air quality.
I15. Impact on climate change.

4.2.6 Protected Areas and Natural Habitats

Exuma airport's situation regarding natural habitats and protected areas is very particular. There are two elements to take into account: a wetland and a man-made water reservoir. The wetland is located outside of the airport safety and perimeter areas, as well as the reservoir, which is located at the side of the perimeter fence on the other side of the runway.

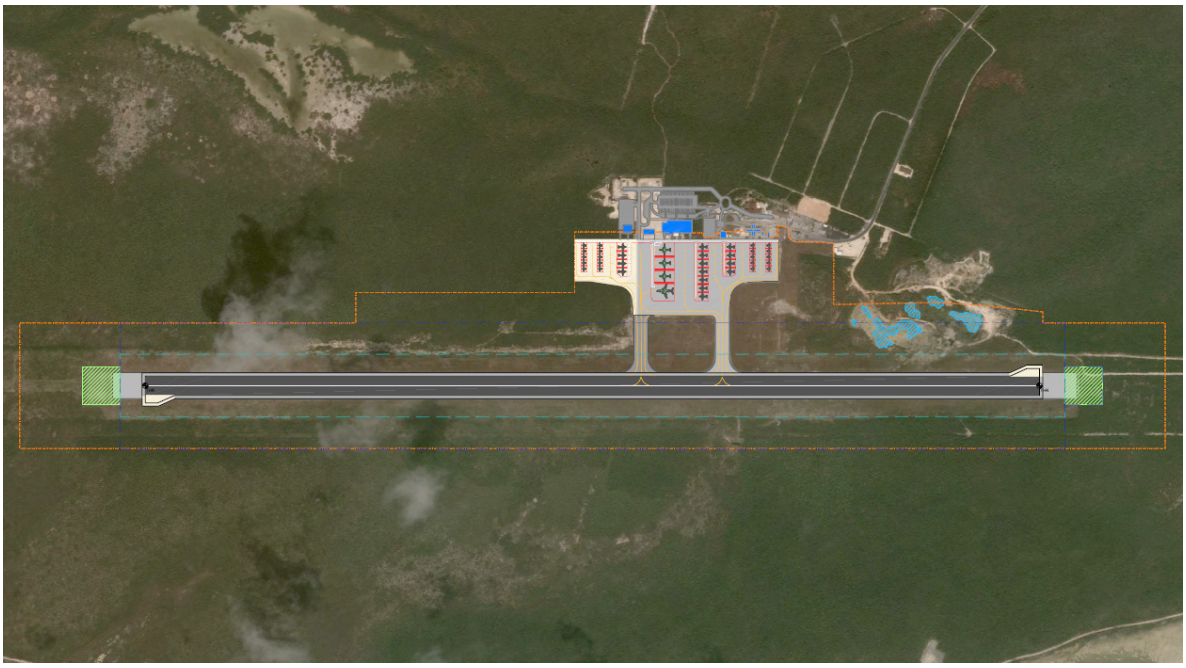


Figure 24: Wetland inside Exuma Airport

In this regard there is no management plan or program for preserving the habitat or biodiversity. On the other hand, the presence of this wetland does not imply a risk of birdstrike but there is no plan or program to permit the integrated management of the habitat and its wildlife.

Figure 25: Wetland and water reservoir inside the airport

Regarding habitats, the particularities of their structure make it necessary to perform regular maintenance in order to maintain airport safety. In general, the habitat is well structured (coppice) and the maintenance of safety areas also helps minimize the risk of fires associated with it. It is worth noting the presence of some examples of casuarina (*Casuarina equisetifolia*). This invasive species is occupying spaces within the structure of the natural habitats found within the airport grounds.

Figure 26: Structure of the habitat and presence of casuarina

- Impact on the natural habitat

4.2.7 Birdstrike and Wildlife Control Program

Exuma airport is located in an area of great ornithological value. The presence of well-structured terrestrial habitats and the presence of wetlands inside and outside the airport attract the settlement of small birds in the airport environment. The specialists at the Bahamas National Trust and airport workers confirmed there has been no interference between birds and aircraft. However, as in any airport, in order to comply with the ICAO standards, there is need for a wildlife and birdstrike program.

The Bahamas is home to more than 30 endangered bird species (2 vulnerable, 4 near threatened, 7 restricted-range and 20 congregators sea birds) and the potential risk of their presence within the airport grounds is high. This means that, in case of invasion, a set of adequate conservation measures should be put in place coordinated with the authorities concerned.

- Potential impact on airport operational safety.
- Potential risk of collision between birds and aircraft.
- Potential health risk to users.

4.3 Marsh Harbour Airport (MHH) – Abaco

North Eleuthera Airport	North Eleuthera Island	Date of visit: 29/06/2016
Team that paid the on-site visit:	Ms. Vivian Miller, Secretary to Airport Manager Ms. Beatriu Tenas, ALG	

4.3.1 Organization and management aspects

The new Marsh Harbour (MHH) airport, built in 2010-2011, is an infrastructure that has to meet all administrative and management needs of a modern airport. At first glance one can see large spaces, some without no particular use, and a management model that takes into account some aspects of integrated management. However, a deeper look into the airport's day to day permitted identifying unresolved management deficiencies with the new infrastructure. The operational launch of the new airport requires the establishment of plans, programs and procedures for the systematization of data and compliance with ICAO standards.

The infrastructure improvement is evident, as well as the **improvement in the quality of services** provided to customers - such as the free *Wi-Fi* or connections for recharging electronic devices in every area of the airport.

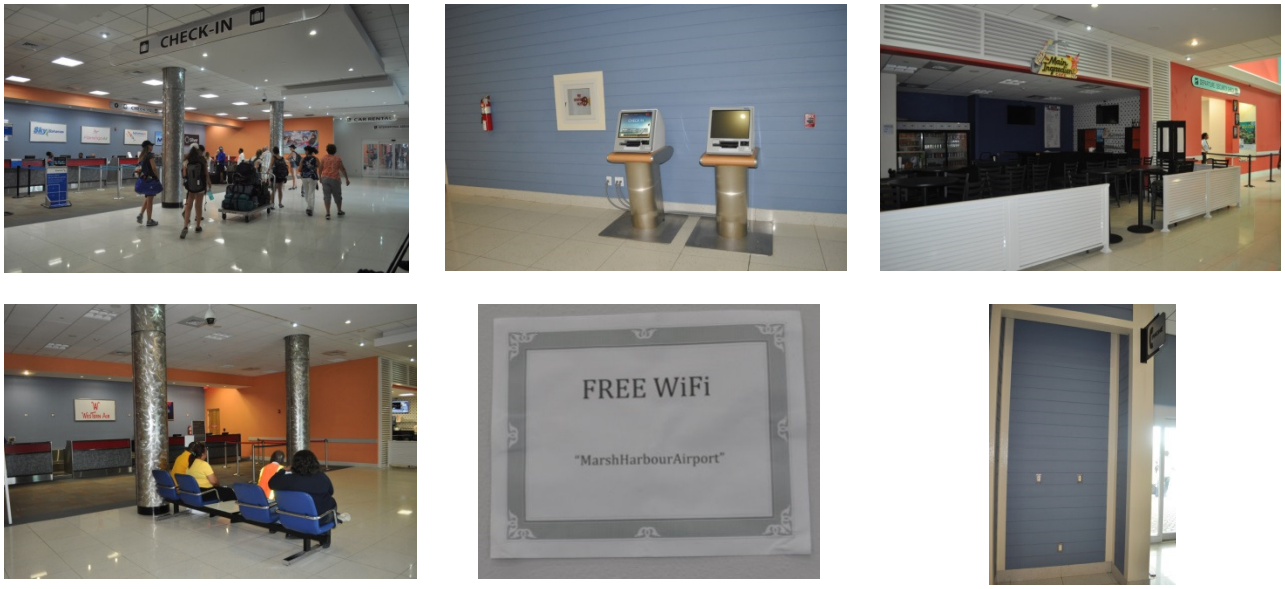


Figure 27: Points of access, check in and F&B at the new airport

It is important to take into account that there is a need for a future plan for the former terminal building. This future plan must consider either demolition and clean-up of the debris, or minimal adaptations for other services. Otherwise, the living conditions in the infrastructure and the state of the equipment will degrade almost immediately. Actions to be taken in the former terminal building are subject to potential commercial uses associated.

Figure 28: Old terminal in Marsh Harbour, now in disuse

- Impact on the cost of maintaining airport infrastructures.

There is no **Social and Environmental Management System** in place in Marsh Harbour airport management. Nor is there **identification and management of risks and impacts** through specific management programs or procedures.

From the point of view of **organizational capacity and competence**, space does not help. The mixed uses (passenger departures - police office - Secretary office - parking payment) in a same space does make for a relational space that matches the uses. This situation is due to the infrastructure itself, as it is underused due to poor accessibility, natural light and other aspects necessary to provide a suitable working environment.

It seems necessary to adapt the management to the new infrastructure. While there is the capacity and competence in the organization to perform all the tasks required, there is also a clear need for training on the management of tools and on the distribution of responsibilities, time management and the organization of human and material resources. These aspects would permit the management to be more efficient and competitive.

In this sense, the lack of general procedures implies that the day-to-day would not allow the **review and monitoring** of the data. Therefore, the ongoing improvement to enable the airport progress, competitiveness and leadership would not be generated.

- Impact on management efficiency.

As for the **emergency preparedness and response** inside the terminal, there could only be detected fireproof material. There is no evacuation plan that, in case of emergency, would relocate the people inside. The fire station is located at the other side of the runway next to the control tower. The fire station can be accessed from within the airport grounds and there is also direct access from the outside.

There is a failure to properly consider the locals residing outside the airport grounds in this respect. There are no shared action protocols with the community nor with the competent authorities, linking airport emergency with municipal and national emergency plans. However, as can be seen in the attached photographs, the installations and equipment are optimal.

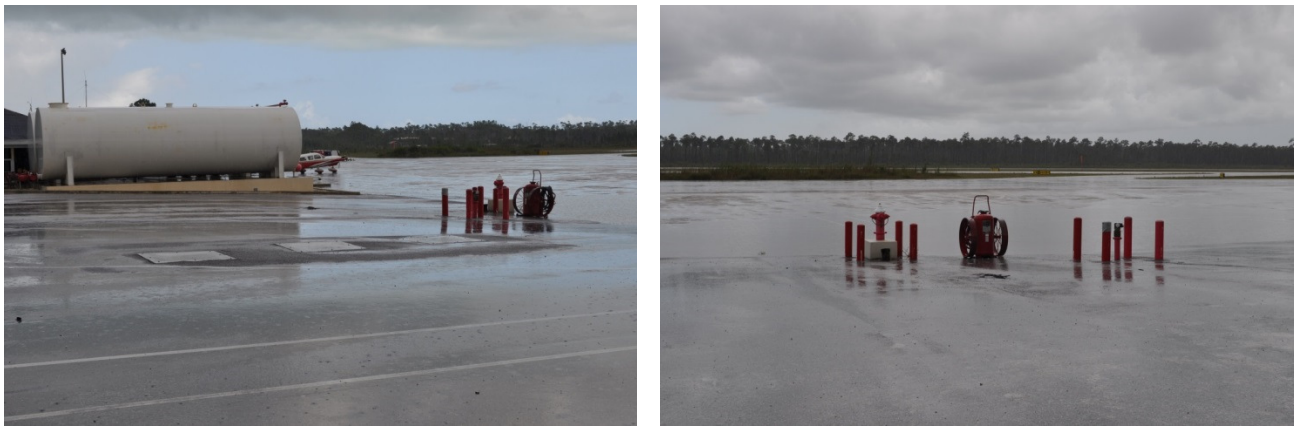


Figure 29: Fuel storage tanks and water connection mechanisms for emergencies

- Impact on the health and safety of workers.
- Impact on the community.

There was observed certain **community commitment** in favor of the sustainable management of the infrastructure. There is a commitment to the community through the availability of spaces for the sale of local products, local musicians inside the airport terminal and artwork by local artists, as can be seen in the following photographs.

Figure 30: Stakeholder engagement. Local community

These aspects denote a modernized management of the system, despite it is little structured and has neither programs nor procedures associated to it. A quality management system linked to a System of Environmental and Social Management would permit identifying implementing a **complaints and external communication system** (which does not exist at present).

It is necessary to rely on a Health and Safety System for those aspects related to **managing the relationship with workers and working conditions, safety and operational health** or, otherwise, initiate the management through clear and concise work-related procedures and instructions.

- Impact on labor and working conditions.

4.3.2 Water cycle

The management of the water cycle is shared (although there is no documentation available) with the municipality. The **water supplied** to the airport is distributed through a system of pipes inside the general system. The renovation of the facilities at Marsh Harbour Airport speaks in favor of a **more sustainable management policy.** However, there is a lack of airport management procedures with the municipality to document the shared management. There are no measures or monitoring of consumption, and the management is not documented through a contract between the parties.

Figure 31: Facilities associated with the water cycle

As shown in the picture above, the new terminal has already implemented water saving mechanisms. However, it remains essential that the entire water cycle is documented.

Regarding **sanitary water,** the facilities have been renovated and adapted to the new airport facilities. The sanitary water is stored in a septic tank. It is also collected and managed by the municipality. There is no evidence as to the relationship between the airport and the municipality (through a contract or other documentation that may be incorporated into an Environmental and Social Management system).

The surface of the apron and taxiways run off **rain water** directly to the center. There is no drainage system nor settling point to collect rainwater. No aircraft maintenance is performed on the apron, but vehicle maintenance operations take place within the airport grounds.

- Potential impact on the subsoil and groundwater in the wastewater storage area

4.3.3 Waste Management

Waste management is carried out via two collection points within the airport perimeter. A first point consists of a large container and a closed storage space which is near the terminal and which has direct access (no access control) for the collection service. And a second point -a container outdoors - located in the FBO area, of restricted access and requiring security check. In none of the cases was there observed separation or classification of waste.

The management of **dangerous waste** is not carried out through specific procedures. There is no procedure associated with the management of materials and equipment that require special management.

The waste collection system is carried out by a specialized company, and it is important to note that:

- Once the pickup process in the terminal is completed, the truck needs to reverse to get to the pick-up points.
- The truck goes to the fuel plant area and returns in the opposite direction of a one way area.
- The truck then collects the container at the FBO point and goes out from where it came.

This sequence is documented in the attached photographs. It seems that the airport marquee does not allow the transit of trucks and access to the parking given its curved axis. Therefore, until the collection points are relocated, the only way to access by truck is by performing the maneuvers described previously.

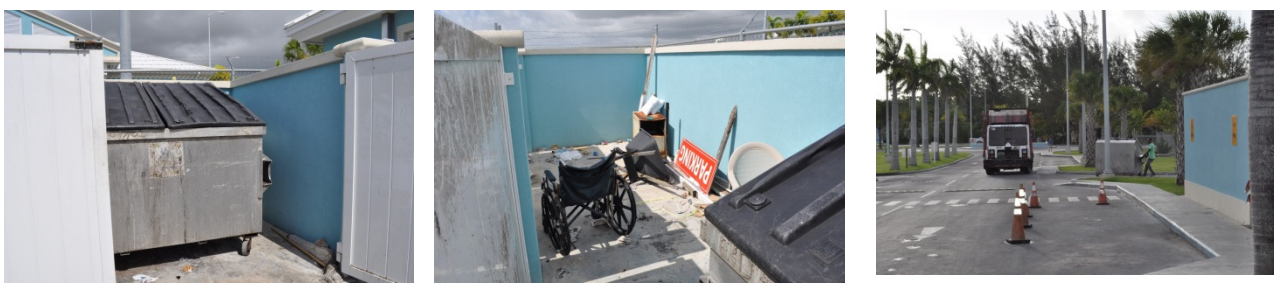


Figure 32: Waste storage points and collection system

- Impact on traffic and road safety
- Impact on health and safety of workers
- Impacts on soil: spillage of oil, and hazardous and flammable materials.
- Risk of fire: flammable and hazardous materials and substances
- Impact made outside the airport perimeter

With the advantage of the new infrastructure and the redistribution of uses within the airport grounds, it is important to keep the area clear of waste (this also extends to aircraft).

4.3.4 Energy

The challenge for Marsh Harbour Airport as regards **energy management** should be to minimize energy consumption. The cooling system and the lack of control over the **efficient systems** will be one of the aspects to be considered and to be integrated in the plans and programs of the Social and Environmental Management System.

There are efficient components such as halogen light bulbs, which makes it hard to justify that fluorescent tubes are still being used. After their usage, these tubes must be treated as hazardous waste and managed by specialized agents, given the mercury they contain.

Figure 33: Lighting systems inside the terminal

- Potential impact on the air quality due to an accident involving hazardous materials (PCBs in obsolete transformers) and flammable substances (batteries, paints, etc.)
- Potential impact of the emission of pollutants (dioxins) into the air.

As can be seen in the photo, the construction of the **fuel plant** is still to be completed, since the deposits do not have a platform or bucket for collecting material in the event of accidental spillage. If an accidental spillage took place, the concrete slab would not prevent the spillage to the ground and, so during the rainy season, the material would filter to the subsoil.

Within the airport grounds there are also large deposits which are properly adapted to the safety regulations regarding waste discharges.

Figure 34: Deposits in the area of terminal area and the old area which have not yet been demolished

It is worth noting that there is no emergency plan that takes into account the **risks to the community** and that is coordinated with the competent authorities at island and national levels.

4.3.5 Noise and Air Emissions

One of the most sensitive aspects from the social point of view is airport noise. Furthermore, in areas of high environmental quality, where silence is an asset along with the landscape, **air quality** is an important aspect to consider.

Marsh Harbour Airport's location outside the urban environment minimizes the impact of **noise** pollution on the community. Although currently no noise footprint of the airport runway is available, in the meeting held with officials of the BEST Commission it was stated that noise levels should be in line with acceptable guidelines. This will need to be assessed during EIA process to come.

Stantec noise footprints are based on Noise Exposure Forecast method, developed by Transport Canada to predict the degree of community annoyance from airports and aircraft noise on the basis of various acoustical and operational data. It is applied to determine acceptable levels for various community zoning regions. For instance, a residential area should have a NEF of 30 or less; between 30 and 40 NEF is stated as suitable for multiple family housing; above NEF 40, the area is suitable for industrial and recreational purposes only. According to the Master Plan noise exposure mapping for the existing runway, areas in the airport surroundings are only affected by the NEF 30 contour, so no residential areas are above the recommended limit.

Due to the low traffic volume at the airport the acoustic emissions are not currently a major operational constraint. Additionally, the relatively small size of the fleet operating currently at the airport, consisting mostly of turboprop aircraft of less than 70 seats capacity, contributes to the reduced acoustic exposure in the airport surroundings.

This situation is not expected to change significantly during the concession period. In the first place, the annual growth in air traffic movements expected between 2017 and 2042 is less than 1.5% per year. In addition, it is not forecast that the aircraft mix will change much in the coming years. Although progressive growth in average aircraft size is expected, small turboprop aircraft will continue to be the most usual type, with the largest aircraft expected at the airport being a narrowbody jet such as a Boeing 737 or Airbus 320, and with no expectation for the arrival of widebody jets which would considerably increase the level of acoustic emissions.

As for the actions foreseen for the airport development, an extension to the current runway is not expected to occur. This, combined with the fact that the annual traffic growth expected at the airport is low and its location outside the urban environment, produces a minimum impact of noise pollution on the community. A detailed noise impact study must be performed linked to the airport Master Plan development.

To ensure airport's operational security and its long-term viability it is recommended to develop a Plan for Land Use in the airport and its surroundings linked to the Master Plan.

Staff mobility within the airport takes place in golf carts and, in some cases, in 4WD vehicles, which minimises carbon emissions. However there is no specific program for minimising climate change. A study of

emissions would be advisable to incorporate the environmental management system and monitoring and evaluation linked to emissions.

I14. Impact on air quality. I15. Impact on climate change.

4.3.6 Protected Areas and Natural Habitats

From the point of view of the management of natural habitats, it can be said that the pine forest is well structured in the airport grounds. Some scattered casuarina could be seen near the runway and terminal areas.

In general, the habitat is well structured except for the runway safety areas, which need regular maintenance to ensure airport security.

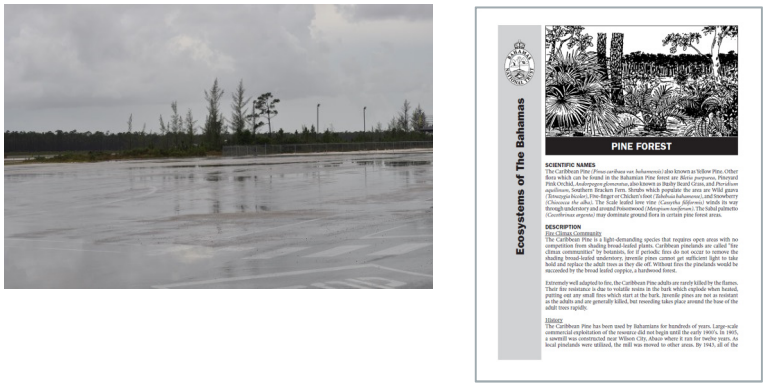


Figure 35: Casuarina inside the airport perimeter

– Impact on the natural habitat

South of the island of Abaco is the Abaco National Park, which is renowned for the presence of the Bahama parrot *(Amazona leucocephala bahamensis)*. Despite the lack of protected areas near the Marsh Harbour airport environment, there has been created a symbolic space near the passenger security check area that is aimed to raise awareness of the island's natural assets.

Figure 36: Abaco National Park and the Bahama parrot space

4.3.7 Birdstrike and Wildlife Control Program

There is no control program for wildlife and endangered bird species.

- Potential impact on airport operational safety.
- Potential risk of collision between birds and aircraft.
- Potential health risk to users.

4.4 Treasure Cay (TCB) Airport - Abaco

North Eleuthera Airport	North Eleuthera Island	Date of visit: 29/06/2016
Team that paid the on-site visit:	Ms. Vivian Miller, Secretary to Airport Manager Ms. Beatriu Tenas, ALG	

4.4.1 Organization and management aspects

Treasure Cay (TCB) Airport has not implemented any structured **Environmental and Social** Management System. No **identification and management of risks and impacts** nor specific management programs have been carried out as regards those aspects that pose major risks to the environment. It was confirmed that the management's prime concern is the operation of the airport. Despite the reduced spaces, the volume of air traffic movements does not pose a handicap to the size of the airport infrastructure. Another aspect is the management of environmental and social aspects that are also part of this integrated and transversal management.

- Impact on management efficiency.

Regarding **community relations**, there are collaboration mechanisms for local organisations. However the interior of the terminal looks cluttered and presents damages... and does not benefit the image of transparency that would help fostering for collaboration. This aspect also has an influence over the management and the relationship with workers to promote change.



Figure 37: Inside the terminal

The size of the airport matches the operational needs but would need improving the cleanliness of both the inside and outside.

As regards the **competence and organizational capacity**, there lacks coordination between the airport management and stakeholders.

Two more examples of situations not suited for the working conditions of staff are:

1. Passenger checkpoint
2. The taxi driver rest area, which is right sized, but should be better equipped to comply with the health and safety standards.

Figure 38: Aspect of passenger checkpoint

Figure 39: Taxi driver rest area

From the point of view of environmental and social management, there lacks a structured system containing plans, programs, procedures and technical instructions, to determine how, when and how certain tasks should be performed. **Agreements should be reached between the parties** to give space and keep them under suitable conditions. There must be a control and systematization of data to be able to see the ongoing improvement and the involvement of all the personnel structure, identify the needs and search for solutions.

Regarding the **emergency preparedness and response system,** the airport relies on one vehicle (properly equipped) and a one-person emergency team.

- Impact on the health and safety of workers.
- Impact on the community.

The **health and safety conditions of workers** are compromised in the fire station. The spaces are right sized as regards airport operations, but are cluttered with materials and equipment in a state of disuse, with inadequately stored materials, waste that have not been properly managed (hazardous waste, special waste) and with flammable materials.

The need for rescue teams to have kitchen facilities, toilets and rest areas is critical to ensure operational readiness in the event of an emergency.

Figure 40: Interior of the fire station

- Impact on labor and working conditions.

4.4.2 Water cycle

The water cycle at Treasure Cay Airport is managed the same way as in other airports. Drinking water and sanitary water are managed through municipal systems. There is no documentation that binds the airport administration with the municipality.

There is an evident lack of maintenance of equipment; no documentation management; and a lack of control, monitoring and supervision of the entire cycle, both for **drinking water** and for **sanitary water.**

There are no coordination procedures in place between the municipality and the airport management aimed to ensure the system operates correctly, ensure quality and promote mechanisms to reduce consumption.

Figure 41: Infrastructure associated to the water cycle

- Potential impact on the subsoil and groundwater in the wastewater storage area

4.4.3 Waste Management

The management of **waste** poses a similar but smaller problem. Many different types of waste both inside and outside the terminal could be observed. Waste is not selected previously, nor are **hazardous waste stored** adequately (batteries, deposits with flammable materials... is dumped outdoors).

Figure 42: Spillage and accumulation of waste, including hazardous waste

- Impact on health and safety of workers
- Impacts on soil: spillage of oil, and hazardous and flammable materials.
- Risk of fire: flammable and hazardous materials and substances

4.4.4 Energy

Regarding the **energy management**, there is no **energy efficiency** plan or program. The on-site visit allowed witnessing the lack of management and maintenance of equipment and machinery.

- Potential impact on the air quality due to an accident involving hazardous materials (PCBs in obsolete transformers) and flammable substances (batteries, paints, etc.)
- Potential impact of the emission of pollutants (dioxins) into the atmosphere.

4.4.5 Noise and Air Emissions

One of the most sensitive aspects from the social point of view is airport noise. Furthermore, in areas of high environmental quality, where silence is an asset along with the landscape, **air quality** is an important aspect to consider.

Treasure Cay Airport's location outside the urban environment minimises the impact of **noise** pollution on the community. Although currently no noise footprint of the airport runway is available, in the meeting held with officials of the BEST Commission it was noted stated that noise levels should be in line with acceptable guidelines. This will need to be assessed during EIA process to come.

Due to the low traffic volume at the airport the acoustic emissions are not currently a major operational constraint. Additionally, the relatively small size of the fleet operating currently at the airport, consisting mostly of turboprop aircraft of less than 70 seats capacity, contributes to the reduced acoustic exposure in the airport surroundings.

This situation is not expected to change significantly during the concession period. In the first place, the annual growth in air traffic movements expected between 2017 and 2042 is less than 1% per year. In addition, it is not forecast that the aircraft mix will change much in the coming years. Although progressive growth in average aircraft size is expected, small turboprop aircraft will continue to be the most usual type, with the largest aircraft expected at the airport being a narrowbody jet such as a Boeing 737 or Airbus 320, and with no expectation for the arrival of widebody jets which would considerably increase the level of acoustic emissions.

As for the actions foreseen for the airport development, an extension to the current runway is not expected to occur. This, combined with the fact that the annual traffic growth expected at the airport is low and its location outside the urban environment, produces a minimum impact of noise pollution on the community. A detailed noise impact study must be performed linked to the airport Master Plan development.

To ensure airport's operational security and its long-term viability it is recommended to develop a Plan for Land Use in the airport and its surroundings linked to the Master Plan.

Staff mobility within the airport takes place in golf carts and, in some cases, in 4WD vehicles, which minimises carbon emissions. However there is no specific program for minimising climate change. A study of emissions would be advisable to incorporate the environmental management system and monitoring and evaluation linked to emissions.

I14. Impact on air quality.

I15. Impact on climate change.

4.4.6 Protected Areas and Natural Habitats

Treasure Cay Airport is located in one of Abaco island's most special areas. The pine forest (the island's natural habitat) is present inside and outside the airport grounds, and gives shelter to many species of birds.

Regarding the protected areas and natural habitats, there is no management in place. While there is no direct or indirect impact by airport activity on future protected areas, there is need for information to carry out the management.

The only impact on the natural habitat in which the airport is located, is caused by the operational safety area, the perimeter fence area and the terminal green space.

During the on-site visit, the Consultant did not detect the presence of any casuarinas, invasive plant in the Bahamas Islands.

Figure 43: Symbolic aspects of Treasure Cay and the Bahamas parrot

- Impact on the natural habitat

4.4.7 Birdstrike and Wildlife Control Program

There is no control program for wildlife and endangered bird species.

- Potential impact on airport operational safety.
- Potential risk of collision between birds and aircraft.
- Potential health risk to users.

5 Proposed actions under the PPP

This section includes the actions proposed under the PPP. The Environmental Management Plan (EMP), derived from Environment Impact Assessment, will need to be available prior to the start of construction (short term, mid term and long term). The EMP will take into account aspects such as:

- Air Deterioration of areas used for the installation of camps
- Deterioration of the environmental quality in borrow areas (borrowing pits) quality improvement
- Alteration of hydrology, irrigation, drainage
- Alteration of land cover
- Impact on air quality
- Deterioration of water quality
- Alteration of sound quality caused by noise
- Soil factor deterioration
- Erosion
- Alteration of biodiversity
- Social perception of territorial management
- Emergency situation (dumps, emissions, accidents…)
- Storage: oils, used lubricants, fuels, toxic and hazardous products (especially asbestos)

Figure 44: Examples of environmental management works under way.

5.1 North Eleuthera Airport

The figure below shows all the construction activities proposed as part of the PPP.

Short-term (2017-2019)

- 1 New aerodrome beacon, PAPI lights and windsock (2017)
- - Procure front-end loader vehicle and pick-up truck (2017)
- - Procure fire fighting vehicles x2 (2017 & 2018)
- 2 Trimming of trees and vegetation within runway strip and runway end safety areas (2017 & 2018)
- 3 Maintain runway lights (2018)
- 4 Construct runway end safety areas (2018)
- 5 Expand of runway turn pads x2 (2018)
- 6 Full runway re-paving (2018)
- 7 Install drainage wells at the lowest points of the runway (each side) (2018)
- 8 Construct new commercial apron and two runway access taxiways , including lighting system (2019)
- 9 Define marking for runway, taxiways and aprons (2019)
- 10 Install security fence around 25%, of the airport boundary and security gates (2019)
- 11 Construct new passenger terminal, car parking lot and access roads (2019)
- 12 Construct new combined service building and associated car parking (2019)

Mid-term (2020-2030)

- 13 Renew airfield markings and windsocks (2025 and every 5 years afterwards)
- 14 Construct partial parallel taxiway and repave existing apron (2027), *subject to demand growth*
- - Renew airport vehicles: pick-up truck and front-end loader (2027)
- 15 Full refurbishment of terminal building, repairs and renew security equipment (2029)

Long-term (2031-2042)

- - Renew airport fire fighting vehicles (2032)
- - Second renovation of airport vehicles: pick-up truck and front-end loader (2027)
- 16 Second refurbishment of terminal building, repairs and security renovation (2039)

[1] The investment calendar associated with the proposed development plans includes planning, engineering, construction and lead times to enable the completion of activity by its due date

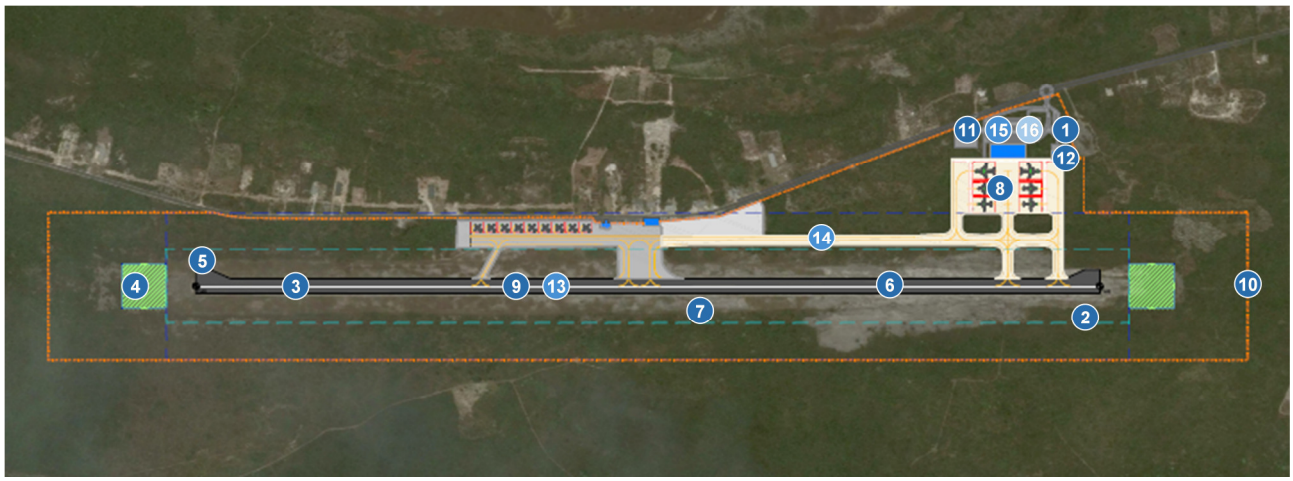


Figure 45: Layout Plan North Eleuthera Airport

5.2 Exuma Airport

The figure below shows all the construction activities proposed as part of the PPP.

Short-term (2017-2019)

1. Install new aerodrome beacon and maintenance of runway lights (2017)
- Procure fire fighting vehicles x2 (2017 & 2018)
- Procure push-back vehicle and front-end loader vehicle (2017 & 2018)
2. Trimming of trees and vegetation within runway strip and runway end safety areas (2017 & 2018)
3. Construct runway end safety areas (2018)
4. Procure and install wind direction indicator (2018)
5. Existing FBO apron partial reconstruction to handle commercial traffic (2018)
6. Construction runway turn pads x2 (2018)
7. Repair apron floodlighting (2018)
8. Define new marking for runway, taxiway and apron (2018)
9. Install security fence around 80%, of the airport boundary, jet-blast deflector wall and security gates (2019)
10. Construct new passenger terminal, car parking lot and access roads on the current location of the FBO (2019)
11. Construct new combined service building and associated car parking (2019)

Mid-term (2020-2030)

12. Construct new runway access taxiway (2025), *subject to demand growth*
13. Repave central portion of the runway, old apron & taxiway (2025)
14. Renew airfield markings and windsocks (2025 and every 5 years afterwards)
- Renew airport vehicles: pick-up truck, push-back and front-end loader (2027)
15. Full refurbishment of terminal building, repairs and renew security equipment (2029)

Long-term (2031-2042)

- Renew airport fire fighting vehicles (2032)
- Second renovation of airport vehicles: pick-up truck, push-back and front-end loader (2037)
16. Second refurbishment of terminal building, repairs and security equipment (2039)

[1] The investment calendar associated with the proposed development plans includes planning, engineering, construction and lead times to enable the completion of activity by its due date

Figure 46: Layout Plan Exuma Airport

5.3 Marsh Harbour Airport

The figure below shows all the construction activities proposed as part of the PPP.

Short-term (2017-2019)

- 1 Procure and install wind direction indicator and maintenance of runway lights (2017)
- - Procure fire fighting vehicle (2017)
- - Procure front-end loader vehicle (2017)
- 2 Trimming of trees and vegetation within runway strip and runway end safety areas (2017)
- 3 Procure and install obstacle hazard lights and markings (2018)
- 4 New aerodrome beacon (2018)
- 5 Correct runway pavement overlay transition (2018)
- 6 Terminal building repairs (2018)

Mid-term (2020-2030)

- - Renew airport fire fighting vehicle (2020)
- 7 Renew airfield markings and windsocks (2025 and every 5 years afterwards)
- - Renew airport vehicles: pick-up truck and front-end loader (2027)
- - Renew terminal security equipment (2027)
- 8 Full runway, apron and taxiways re-paving (2030)
- 9 Full terminal building refurbishment (2028)

Long-term (2031-2042)

- - Renew airport fire fighting vehicles x2 (2032 & 2035 respectively)
- 10 Apron & terminal building expansion, baggage claim and passport control areas (2035) *subject to demand growth*
- - Second renovation of airport vehicles: pick-up truck and front-end loader (2037)
- - Second renovation of terminal security equipment (2037)
- 11 Second terminal building refurbishment (2038)

[1] The investment calendar associated with the proposed development plans includes planning, engineering, construction and lead times to enable the completion of activity by its due date

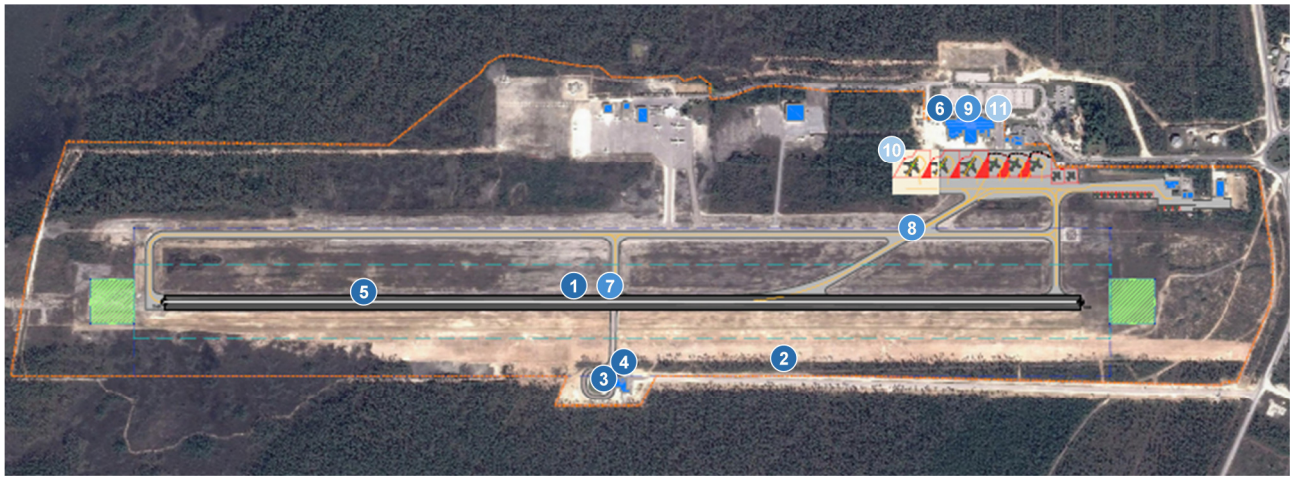


Figure 47: Layout Plan Marsh Harbour Airport

5.4 Treasure Cay Airport

The figure below shows all the construction activities proposed as part of the PPP.

Short-term (2017-2019)

- 1 Procure and install wind direction indicator and maintenance of runway lights (2018)
- - Procure fire fighting vehicle (2018)
- 2 Define marking for runway, taxiways and aprons (2018)
- 3 Construct runway end safety areas (2018)
- 4 Construct runway turn pad (2018)
- 5 Trimming of trees and vegetation within runway strip and runway end safety areas (2018)
- 6 Install security fence around 80% of the airport boundary and security gates (2018)
- 7 Full terminal building refurbishment and repairs (2018)
- - Procure Security equipment (2018)

Mid-term (2020-2030)

- 8 Full runway, apron and taxiways re-paving (2025)
- 9 Renew airfield markings and windsocks (2025 and every 5 years afterwards)
- - Renew airport vehicles: pick-up truck and front-end loader (2027)
- 10 Full terminal building refurbishment and repairs (2028)
- - Renew terminal security equipment (2030)

Long-term (2031-2042)

- - Renew airport fire fighting vehicles x1 (2033)
- - Second renovation of airport vehicles: pick-up truck and front-end loader (2037)
- 11 Second terminal building refurbishment and repairs (2038)
- - Second renovation of terminal security equipment (2040)

[1] The investment calendar associated with the proposed development plans includes planning, engineering, construction and lead times to enable the completion of activity by its due date

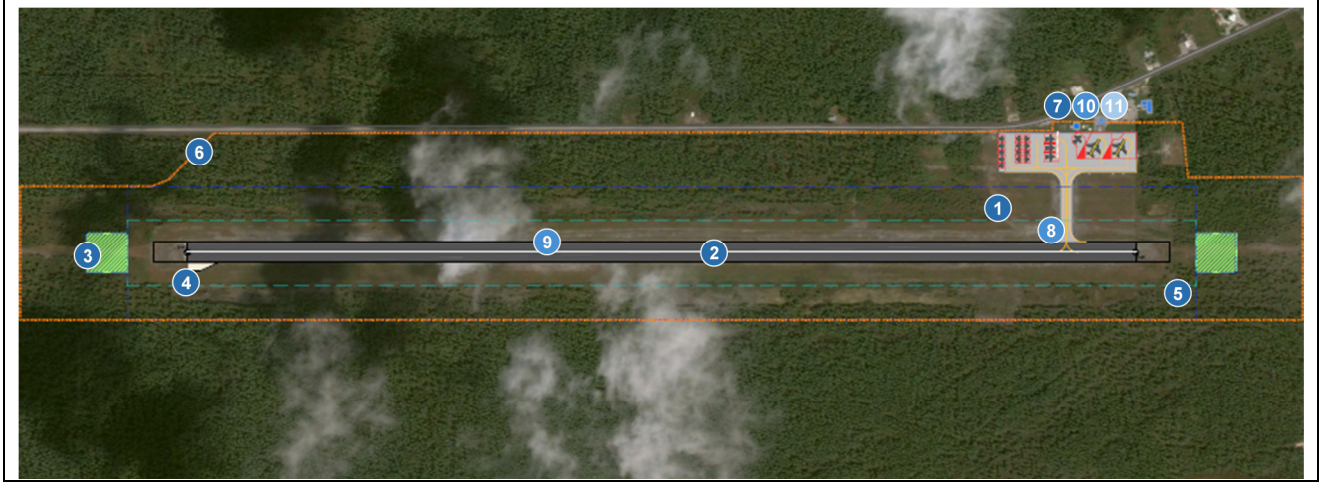


Figure 48: Layout Plan Treasure Cay Airport

6 Risk and impact assessment

From the analysis completed and the schedule of construction works planned, an assessment will be made of risks and impacts linked to the different stages of the infrastructure life cycle. In all airports, complexity is added to the process bearing in mind the following aspects:

1. The overlap of different phases in the infrastructure life cycle.

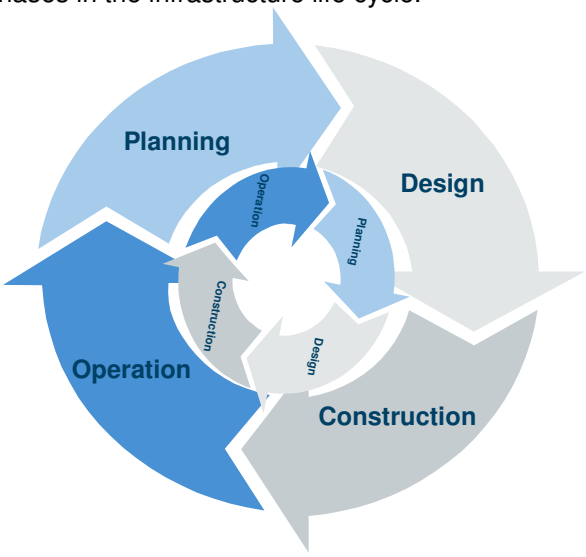


Figure 49: The overlap of different phases in the infrastructure life cycle

2. Current impacts derived from inefficient environmental management, without control of risk and impacts, which will no longer exist once the construction phase is finished.
3. New impacts produced during the construction phase.

In order to identify and evaluate the impacts, ICAO documents have been used as references in relation to birdstrike issues and emergency plans, along with IDB Safeguard Policies and the IFC Performance Standards in relation to other environmental aspects.

ENVIRONMENTAL AND SOCIAL ASPECTS OF REFERENCE -ICAO	
ICAO Birdstrike	Annex 14. Volume I Aerodrome design and operations. 9137-AN/898 Airport Services Manual, Part 3. Document 9332 Manual on the ICAO bird strike information system
Emergency Plan ICAO	Document9859-AN/474 Safety Management Manual

Figure 50: ICAO Reference Documents

ENVIRONMENTAL AND SOCIAL ASPECTS OF REFERENCE - AIDB /IFC	
Assessment and management of E&S Risk and Impacts	Identification of Risk and Impacts Management Programs Organizational Capacity and Competency Emergency preparedness and response Monitoring and Review Stakeholder engagement
Labor and working conditions	External communications and grievance mechanisms Ongoing reporting to affected communities Working conditions and management of worker relationship Protecting the work force Occupational Health and Safety Workers engaged by third parties
Resource efficiency and pollution prevention	Resource efficiency. Greenhouses gases Resource efficiency. Water consumption Pollution prevention. Waste Pollution prevention. Hazardous materials management Pollution prevention. Pesticide use and management
Community health, safety and security	Infrastructure and equipment design and safety Hazardous materials management and safety Ecosystems services Community exposure to disease Emergency preparedness and response Security personnel
Land Acquisition and involuntary resettlement	Land Acquisition

Figure 51: IFC Reference Documents

The analysis made is based on the **participant monitoring** carried out by the Consultant during the fieldwork. This is a qualitative methodology that makes it possible to quickly identify impacts through the application of a check list (linked to the Performance Standards) and participation in the airport environment. As well, the field visit allows the identification of those risks and impacts that could clearly interfere in the PPP process, affecting either the Government's side or that of the concession holder. That is to say, management situations are identified that could imply a risk to the operation from environmental and social points of view.

Below is a summary table showing the compliance (C) non-compliance (NC), non-applying (N/A), and triggered in the future (T) of current airport management and works contemplated for each of the airports in relation to the ICAO Operational Safety and IFC Performance Standards.

ENVIRONMENTAL AND SOCIAL ASPECTS OF REFERENCE	ELH	GGT	MHH	TCB
Birdstrike ICAO	NC	NC	NC	NC
Emergency Plan ICAO	NC	NC	NC	NC
PS1. Assessment and management of E&S Risk and Impacts	NC	NC	NC	NC
PS2. Labor and working conditions	NC	NC	NC	NC
PS3. Resource efficiency and pollution prevention	NC	NC	NC	NC
PS4. Community health, safety and security	NC	NC	NC	NC
PS5. Land Acquisition and involuntary resettlement	T	N/A	N/A	N/A
PS8. Cultural Heritage	T	N/A	N/A	N/A

Figure 52. Table of compliance and non-compliance with the elements of reference

From the environmental and social analysis which has been carried out, **risks and impacts have been identified for each one of the airports.** This makes it possible to have a transversal management vision, bearing in mind that, within the PPP, airport management will be shared. In this way, it can be seen that most of the impacts generated are the same in all airports.

	RISK & IMPACT	ELH	GGT	MHH	TCB
1	**Impact on management efficiency.**				
2	**Impact on the cost of maintaining airport infrastructures**				
3	**Impact on labour and working conditions**				
4	**Impact on health and safety of people**				
5	**Impact on traffic and road safety**				
6	**Impact on the community**				
7	**Impact on health and safety of workers: poor hygienic conditions, disease outbreaks caused by accumulations of water, unhealthy conditions, hazardous substances.**				
8	**Potential impact on the water well that supplies the airport facilities.**				
9	**Potential impact on the subsoil and groundwater in the wastewater storage area**				

	RISK & IMPACT	ELH	GGT	MHH	TCB
10	**Potential risk of accidental spillage of fuel direct to the medium and out of the perimeter fence.**				
11	**Impacts on soil: spillage of oil, and hazardous and flammable materials.**				
12	**Risk of fire: flammable and hazardous materials and substances (PCBs, batteries, paints…)**				
13	**Impact made outside the airport perimeter**				
14	**Impact on climate change.**				
15	**Impact on air quality**				
16	**Impact on human health**				
17	**Impact on natural habitat**				
18	**Potential impact on airport operational safety**				
19	**Potential risk of collision between birds and aircraft**				
20	**Potential health risk to users**				
21	**Impact caused by the loss of natural habitats**				

Figure 53. Table identifying the risks and impacts for each of the airports

The assessment of risks and impacts is made using tables, which provide a clear and simple way to determine:

What is the impact?			
In which airports does the impact take place?			
Evaluation of the impact	Direct/indirect impact		
	Insignificant/significant impact;		
	Impact toward/Impact from		
	If the impact is compatible, moderate or severe;		
Management tool that should be used to provide mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
PPP Phase	Pre-PPP (Actions that the Government should undertake previously to consolidate the PPP model)	Post-PPP (Actions that the concession-holder will need to undertake as part of the PPP framework)	

Figure 54. Table of general impact evaluation

Impact on management efficiency.			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on the cost of maintaining airport infrastructures			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on labour and working conditions			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on health and safety of people			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on traffic and road safety			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on the community			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on health and safety of workers			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Potential impact on the water well that supplies the airport facilities.			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Potential impact on the subsoil and groundwater in the wastewater storage area			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Potential risk of accidental spillage of fuel direct to the medium and out of the perimeter fence.			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impacts on soil: spillage of oil, and hazardous and flammable materials.			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Risk of fire: flammable and hazardous materials and substances (PCBs, batteries, paints…)			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact made outside the airport perimeter			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on climate change			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on air quality			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on human health			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact on the natural habitat			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Potential impact on airport operational safety			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Potential risk of collision between birds and aircraft			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Potential health risk to users			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

Impact caused by the loss of natural habitats			
ELH	**GGT**	**MHH**	**TCB**
Impact	Direct		Indirect
	No significant		Significant
	Impact toward		Impact from
	Compatible	Moderate	Severe
Need identification of mitigation measures	Environmental and Social Management System.	Environmental Impact Assessment	Corporate social responsibility.
Phase PPP	Pre-PPP		Post-PPP

7 Environmental Management Plan (EMP)

The Environmental Management Plan presented here is an **initial proposal** (in a planning phase) which must be definitively drafted once the Environmental Impact Assessment study is administratively processed. The Environmental Management Plan proposed here has a comprehensive approach, that is to say, it tackles preventive measures – including best practices – as well as corrective ones that should be implemented in each of the stages of the infrastructure life cycle.

For the structuring of the preventive and corrective measures, an Environmental Assessment format has been followed, in order to make it relatively easy to monitor the proposal.

7.1 Operational – management phase

This phase proposes 4 main actions which would permit minimizing the majority of impacts identified in this Pre-PPP Phase.

1. Management optimization through an Environmental and Social Management system
2. Proper waste management (hazardous waste and flammable materials)
3. Air quality improvement
4. Birdstrike risk

Management optimisation through an Environmental and Social Management system
Impact on management efficiency Impact on the cost of maintaining airport infrastructures
PREVENTIVE AND CORRECTIVE MEASURES
Develop and implement an environmental and social management system. - Policy definition - Identification of risks and impacts (projects, activities, facilities, impacts derived both in management and in the direct and indirect influence). - Establishment of protocols for risk and impact control. - Preparation of plans, programs and studies that permit having information and knowledge of each one of the environmental aspects. - Development of specific management programs to measure environmental performance. - Definition of the management structure and responsibilities - Establishment of a training plan to develop knowledge and skills to gain experience. - Associate the Airport Security system to the Environmental and Social Management system. - Development and implementation of a Plan for the Monitoring, Control and Assessment of the airport's key environmental issues. - Design, preparation and implementation of a Plan for the involvement of stakeholders. The Plan must include consultations, public consultations, external communications, complaint mechanisms and periodic reports. Create an E&S team to perform the tasks of the Environmental and Social Management system. From an airport management viewpoint, it is worth noting that environmental management is also linked to safety. Specifically regarding aspects related to Birdstrike and Emergency Plans. It is in this sense that, to ensure a transversal environmental management that is integrated in the airport management system, there must necessarily be an integrated environmental structure in the organization.

Figure 55: Management optimization through an Environmental and Social Management system

Proper waste management (hazardous waste and flammable materials)
Impact on labor and working conditions Impact on health and safety of workers Impact on the health and safety of workers Impact on traffic and road safety Potential impact on the subsoil and groundwater Impacts on soil: disposal of oil, and hazardous and flammable materials Risk of fire: flammable and hazardous materials and substances (PCBs, batteries, paints…) Impact made outside the airport perimeter
PREVENTIVE AND CORRECTIVE MEASURES
The proposed tasks are based on the criteria of an Environmental Management System: 1 Create an inventory or the cataloguing of waste 2 Identify the managers for each waste and the procedures to systematize data (volume, weight, characteristics...). 3 Identification of selective managing procedures of the waste generated. 4 Develop an airport management procedure for the waste, taking into account: its collection, recycling, assessment, treatment and final disposal (based on each type). 5 Identify the costs for managing all kinds of waste in the airport area. 6 Search for funding and / or cooperation mechanisms to ensure that waste is managed correctly. 7 Conduct a training program for employees and contractors that explains the procedure 8 Implement the system: Undertake a general cleaning process throughout the airport environment with the aim of minimizing all impacts due to poor waste management (throughout the airport).

Figure 56: Correct waste management

Air quality improvement
Impact on climate change Impact on human health Impact on air quality (emissions)
PREVENTIVE AND CORRECTIVE MEASURES
Establishing a program for calculating the emissions generated in each of the airports: - Calculation of emissions of the infrastructure - Calculation of aircraft emissions Structure mechanisms and collaboration agreements with the tourism sector to develop joint studies. Develop environmental awareness campaigns about the environmental cost of aviation.

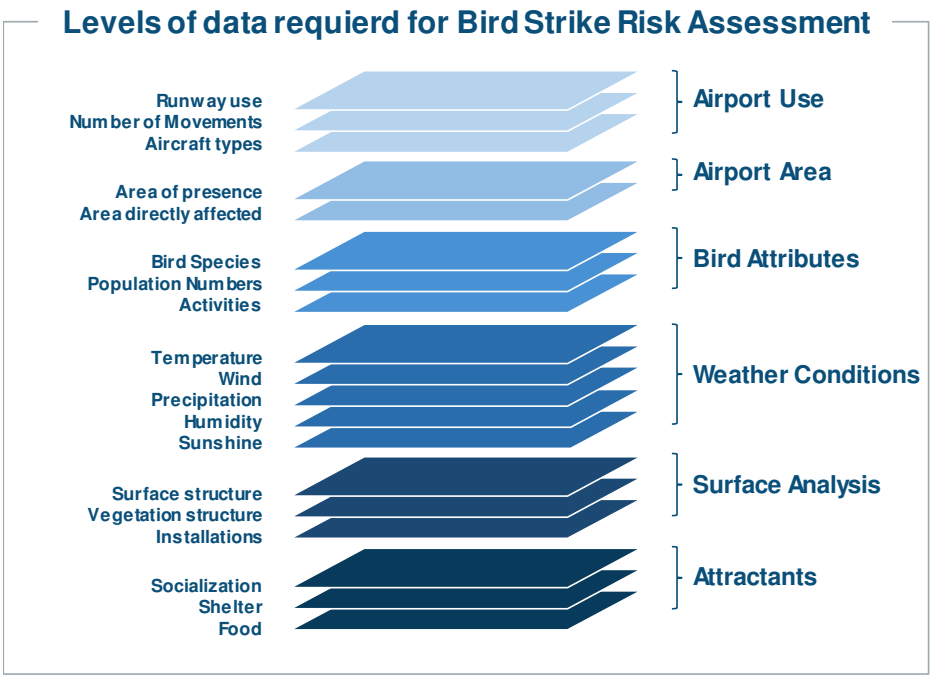
Figure 57: Air quality improvement

Birdstrike risk
Potential impact on airport safety Potential risk of collision between birds and aircraft Potential health risk to users
PREVENTIVE AND CORRECTIVE MEASURES

Develop a bird and wildlife management plan that specifically includes the following:

1. Application of a zero tolerance policy regarding the access of cattle and other large mammals
2. Apply techniques to scare and harass wild animals whenever it is necessary.
3. Apply capture techniques if necessary
4. Dissuasion of the development of alluring environments: waste dumps, wetlands, farming areas, artificial landscapes…
5. Periodical maintenance and monitoring of the runways to identify and remove non-admissible items) metals, beacon material, dead animals, etc.
6. Management of airport land use linked to maintenance to discourage birds
7. Creation of interaction spaces between the airport and the community aimed at developing and promoting local economy within the airport complex

Managing the birdstrike requires different levels of data management which are not taken into account by the 4 airports.



In some small airports, the fire department undertakes the tasks of surveillance, control and dispersion of birds. There are no documentation nor inventories regarding the types of birds in the airport area (permanently or temporarily based), there is no information of migration routes, no documentation of points of attractiveness, nor a list of specialists to contact in case of emergency... Every aspect should be documented in order to be able to provide for an immediate and efficient management of emergency situations (which could otherwise jeopardize safety).

Figure 58: Birdstrike risk

7.2 Design and engineering phase

The integration of the concepts of a green airport has to be implicit in the project. Whether or not this is a green airport will depend on the management and the public image that is built.

Basic Principles of a Green Airport	
ENERGY EFFICIENCY	The design, adaptation and construction of energy-efficient buildings must reduce pollution in the air, water and soil and limit the environmental impacts of energy production and consumption The airport design must favor natural light and include mechanisms adapted to the Andean areas where there is high sun exposure.
WATER EFFICIENCY	Minimization of the use, recycling and reduce pollutant loads to the municipal supply. Given its location in an island renowned for the quality of the landscape, the infrastructure must set an example regarding the environmental management and the preservation of the environment.
WASTE WATER MANAGEMENT	
LANDSCAPING	Landscaping is one of key challenges as it is an intangible value that must give priority to conservation.
UNIVERSAL ACCESSIBILITY	Provide areas that can be used for a broad range of people, regardless of age or ability.
APPLICATION OF NEW TECHNOLOGIES	All market technologies associated to the minimization of impacts must be adapted to the weather conditions such as rain, humidity, sunlight; and must minimize climate change risks, etc.

Figure 59: Basic Principles of a Green Airport

Besides these basic principles, Green Airport concept should also involve the implementation of Quality and Environmental Management Systems and the social and environmental areas in infrastructure projects, which allows obtaining a holistic vision of the airport as a comprehensive system through the analysis of all the variables and their interrelations.

Benefits that a Green Airport brings to the management, with a view to favoring compliance with the IFC Performance Standards		
SAVINGS ON INITIAL COSTS	Reduction of distribution costs	Adaptation of the needs and reorganization of the uses. Adequate infrastructure dimensioning
	Reduction in the use of materials	Application of environmental measures during the construction phases and sustainable construction.
	Savings through the elimination of construction waste	Establishment of minimization mechanisms in the design phase and separation in the constructive phase, linked to the country's reality and context.
REDUCTION IN OPERATING COSTS	Lower energy costs	Understand measure and manage through saving on consumption.
	Reduction in management costs	
	Greater durability and less maintenance actions	Through a more specific and adequate maintenance that has been focused upon during the conceptualization of the airports.
ENVIRONMENTAL	Reduction of the impact of global	Redesign of the taxi lanes of aircraft

Benefits that a Green Airport brings to the management, with a view to favoring compliance with the IFC Performance Standards		
BENEFITS	warming	streamlining of the aeronautical operations.
	Reduction of the contributions to air pollution at local and regional level	Proposals for efficient equipment and facilities efficient, along with the establishment of specific procedures.
	Reduction of the pollution of the regional and local water	Approach to integrated management of water through the identification of its cycle at the airport and its surroundings
	Protection of the biodiversity / natural vegetation	Specific treatment for the flora and fauna through a Biodiversity management plan.
ATTRACTIVENESS OF THE AIRPORT	Positive public image	A direct relationship is established between the stakeholders identified in the matrix of the Participation Plan and the communication plan, which has to develop simultaneously and as a complement
	Addition of the commercialization of the airport in the tourist zones	These have been considered as symbolic and identity elements

Figure 60: Benefits of the green airport approach.

7.3 Construction Phase

The construction phase will involve new impacts caused by the new intervention (rehabilitation or new construction). These impacts will be identified in the EMP derived from the EIA. However, during the planning stage, the impacts and preventive and corrective measures could be identified.

IMPACT: Modification of the habitat
Deterioration of areas used for the installation of camps **Deterioration of the environmental quality in borrow areas (borrowing pits)**
Preventive and corrective measures
Use of temporary camps that will be dismantled when the works are completed. Restitution of the areas affected back to their initial condition through the reprofiling, scarification Construction of the necessary facilities for the disposal and treatment of solid waste and liquid effluents. Have the corresponding municipal authorization for the exploitation of aggregates. Submit a Plan for the Management of Aggregates, establishing the exploitation methodology and restoration activities. Perform the exploitation activities based on the provisions set out in the Management Plan. Implement the borrowing pit regeneration works according to the Management Plan. Previous study of the general treatment of the habitat. Potentiation of the regeneration of shrubs and grass, especially in the characteristic habitats of the area.

Replanting of all areas susceptible of being affected with native vegetation. Standard landscaping according to the environment.

Figure 61: Preventive and corrective measures. Modification of the habitat

IMPACT: Modification of the regime
Alteration of hydrology, irrigation, drainage
Preventive and corrective measures
Conducting of a preliminary hydrogeological study to determine the hydrologic characteristics of the area and the internal dynamics of the system. Properly signpost the non-intervention areas. Periodically monitor the non-affectation. Demand that construction companies take extreme care to respect the designated protection areas. Conduct the affected drainages to the drainage system of the area. Collection of runoff waters. Use of a pavement that retains rainwater and runoff in non-operational areas. Minimization of the areas affected by the removal of vegetation. Replanting with native grass and shrub species to improve water retention and lamination. Control the location of deposits to minimize variations in soil permeability. Conducting of wastewater to an internal or external treatment plant, depending on the territorial characteristics. Separation of the first rainwaters.
Alteration of land cover
Preventive and corrective measures
Conducting of a geotechnical study to determine if there is need for additional corrective measures, primarily related to hydrological systems. Take into account the ground balance. Signalling of the affected zone. Decoating and preservation of organic land. Management of surplus materials.

Figure 62: Preventive and corrective measures. Modification of the regime

IMPACT: Air quality and climate change
Impact on air quality
Preventive and corrective measures
Maintenance of equipment and machinery in proper operating conditions. Frequent watering of the busiest roads to avoid dust clouds. Control of emissions generated by the machinery.
Deterioration of water quality
Preventive and corrective measures
Install systems for the treatment / disposal of waste waters. Install grease traps in the camp maintenance areas. Periodical check of water quality to verify the efficiency of the installed systems.

Figure 63: Preventive and corrective measures. Air quality and climate change

IMPACT: Physical and chemical characteristics, biological conditions
Alteration of sound quality caused by noise
Preventive and corrective measures
Establish appropriate times for conducting construction works with machinery noisier than 80 dBA (measured 15 m from the source) which could affect the population in the vicinity. Provision of Personal Protective Equipment to the personnel. Use of asphalt paving to reduce vehicle noise (provided the technical and operational characteristics are respected). Limitation of the circulation speed of vehicles. Incorporation of sound-deadening materials in all facilities. Annual monitoring the operation of the pumping, air conditioning facilities, etc. Noise control points and monitoring of results.
Soil factor deterioration
Preventive and corrective measures
Establish specific conditions to the transit of equipment in the construction site, to avoid soil compaction and disintegration in non-indispensable areas. Establish machinery and equipment maintenance areas, where the soil is to be waterproofed, to prevent its contamination. Avoid the removal of existing vegetation in non-essential areas, in order to prevent erosion.
Erosion
Preventive and corrective measures
In order to minimize the impact of erosion, the landscape of drainage channels must be integrated. Up to now, this aspect has been treated with gutter asphalting mechanisms, but has proven not to be a good solution because, on the one hand, the erosion moves to another area and, on the other, the speed of the water is increased, generating new impacts. The following is proposed: 1. Make larger diameter channels with embankments and minimum slopes that may be treated with fillers in the style of French drains. 2. Replant the free and eroded areas with mild treatments that do not affect soil structure.
Alteration of biodiversity
Preventive and corrective measures
Minimize the intervention area of the project and subsequently implement restitution activities Avoid the elimination of natural habitats outside of the necessary areas. Establish a plan for the preservation of biodiversity in coordination with the Bahamas National Trust. Establishment of a Code of Conduct for the technical staff and workers as regards to the burning, harvesting and other activities that may cause the deterioration of the resource.

Figure 64: Preventive and corrective measures. Modification of the habitat

IMPACT: Situation and treatment of the landscape
Landscape: visuals **Social perception of territorial management**
Preventive and corrective measures
Enrichment planting in areas of fall and borrowing pits with native species Establishment of dissemination and communication channels with the local community to ensure the environment adaptation maintains landscape quality. Promote the regeneration of shrubs and grass, and especially of the typical habitats of the area. Define a combined aesthetic landscape joining the modern infrastructure's elements and the island's typical characteristics. Minimization of the establishment of physical barriers through soft and "green" treatments.

Figure 65: Preventive and corrective measures. Situation and treatment of the landscape

IMPACT: Emergency discharges, emissions and accidents
Emergency situation (dumps, emissions, accidents…)
Preventive and corrective measures
Previous hydrological study that permits defining in detail the measures to be implemented during the infrastructure construction, during the operational and maintenance phase and during emergency situations. Availability of mechanisms and procedures to allow for a rapid response to protect the aquifer.
Storage: oils, used lubricants, fuels, toxic and hazardous products (especially asbestos)
Preventive and corrective measures
Implementation of mitigation measures according to specific procedures Adaptation of a storage area that complies with the environmental, safety and legal requirements. Installation of oil separators. Establishment of water collection ditches with decantation wells on the margins of access roads and new construction works or activity areas.

Figure 66: Preventive and corrective measures. Situation and treatment of the landscape

A key aspect of the construction works will be the Waste Management Plan (construction waste, hazardous waste) and other materials that will need proper management and which will ensure that the management can be traced. Special attention should be paid on the development of safety protocols for workers if **asbestos** is detected. To do this, a preliminary assessment of the facilities is recommended, as well as an agreement with the competent authority --BEST Commission- about what procedure should be followed.

8 Conclusions & recommendations

- All conservation partners in the Bahamas agree that a stronger Environmental and Social Management needs to be established.
- Issues with BEST Commission.
    - The BEST Commission is the body that should approve the **EIA** and the final **EMP** before the construction works start.
    - Communication with them at early stages and clearance from them before construction is advisable.
    - According to EIA procedures, airports will be treated as "light industries". This aspect should be double checked with the BEST Commission.
- The environmental and social status in each of the airports is similar.
    - Absence of a **comprehensive environmental and social management**.
    - There is a need for a **transversal management vision**, knowing that, within the PPP, airport management will be shared. **Joint management** will ensure the system's efficiency
    - An **environmental and social team** would collaborate with the airport management, and be responsible for documenting, controlling and monitoring all aspects related to the Management System.
- Regarding the protection of workers, the proposed PPP scope establishes that security forces and firefighters would remain employed by the Government and the rest of personnel would be transferred to the private operator.
    - **The same pay and working conditions** would need to be offered to those employees willing to be transferred to the Private Operator
    - A **Change Management Plan** will be prepared to guarantee a framework of trust and the time to adapt to the new employment situation.

Staff	MHH	CGT	ELH	TCB
Airport Manager	1	1	1	1
Middle Managers	1	1	0	0
Administration	0	0	0	0
Operations	2	0	0	0
Maintenance	0	3	0	1
Fire Fighters	8	7	2	4
Security	9	14	6	5
Janitors	5	2	2	0
ATC	0	4	1	0
Total	**26**	**32**	**12**	**11**

Current personnel in each of the airports (based on interviews with airport management)

- Most of the impacts identified in the pre-PPP planning phase affect the airport environment. An **efficient environmental management would minimize most impacts**
- The current infrastructures of the airports where construction works will take place **are going to be adapted for new uses.**
    - The sustainability of the current infrastructures will depend on their new uses and on the extent of the adaptation works to provide such new services. If such actions are not performed, there is a risk that the infrastructures may deteriorate in the interim period.

  - **The maintenance of buildings is the main challenge to environmental management.** Such considerations will need to be studied during the design and engineering phase. The capability to adapt to the environment is critical to minimize risk and to increase the resilience of infrastructures.

- The incorporation of **environmentally-friendly material** should be taken into account in the design and engineering phase. Other considerations related to climate change, such as hurricanes and floods, should also be taken into account, along with aspects related to the Green Airport concept.
- It would be necessary for waste from all the airport premises to be disposed of and managed prior to the signing of the PPP. This aspect is regarded as an **environmental liability,** since there are waste and hazardous materials that need special treatment. There would be a need to prepare an inventory of the waste (materials, equipment, vehicles, ...) and take the following actions:
  - Develop a management protocol for waste belonging to the Government so that it can be removed from the airport environment.
  - Identify and classify the waste and materials (hazardous waste, flammable materials, vehicles and unused equipment…)
  - Confirm the existence of PCBs.
  - Find the mechanisms needed to manage all waste according to the classification of the current regulations.
  - Establish a plan for cleaning-up the area
  - Facilitate the management protocol for managing waste during the construction phase.
  - There has been detected waste dumping outside the perimeter fence of North Eleuthera and Exuma airports.
  - It is essential to undertake a general clearing-up of the airport grounds to guarantee a successful devolution.
- There is no evidence as to the contractual relationship between the airport and the municipality (i.e. contract or other documentation that may be incorporated into an Environmental and Social Management system). The responsibility over water resources is affected by the absence of clear water management procedure, which could be structured before entering the PPP.
- The importance of the islands' biodiversity and protected areas makes it necessary to establish mechanisms to coordinate the management of wildlife (birds and wetlands) with the Bahamas National Trust. There is a need to:
  - Establish a common framework.
  - Develop a cooperation program to raise awareness on the natural values in a coordinated way and on an ongoing basis.
  - Regarding the maintenance of natural habitats, it is suggested that causarinas are removed before the PPP.
  - The maintenance of natural habitats and the removal of casuarinas (invasive species) must be included in the PPP contract.
- It is advisable that a study of emissions be incorporated in the environmental management system, along with the monitoring and evaluation of emissions.
  - The measuring of emissions to the atmosphere and the scale of climate change must be included in the PPP contract.
- From an image and communication viewpoint, it was identified that:

1. Treasure Cay and Marsh Harbour airports use a Bahamas parrot in their image (also the emblem of the Abaco National Park).
2. In Exuma there is also a one-off initiative to raise awareness on the importance of waste management and maintenance of natural habitats.

3. An opportunity to develop the concept of the new terminal at North Eleuthera has been identified. This opportunity involves a project linked to **ethnobotany** from a **gender perspective.** The Airport Manager has deep knowledge of the plants and traditional uses of North Eleuthera inhabitants. Given the need to develop a new terminal, the Consultant proposes a project to strengthen the new airport's commitment with the community by means of a cooperation project. Below is a project file describing the initial proposal:

USES OF PLANTS AT NORTH ELEUTHERA AIRPORT

Objective: Develop a cooperative project between the airport and community to raise awareness of the island's traditional ethnobotanical heritage.

General characteristics: The project will be mainly focused from a **gender perspective**. Typically, this knowledge is kept women and the knowledge is transmitted orally from generation to generation.

Actions:

- Establishment of a Working Commission that brings together airport staff and key people of the community. The committee should include representatives of the island of North Eleuthera. This commission would be chaired by the Airport Manager, who has extensive knowledge on the subject.
- Preparation of an inventory of the flora within the airport perimeter.
- Identification of species that have traditional uses or that are used in processed products. This identification would be done through holding interviews with people previously identified and selected by the Working Committee.
- Definition and preparation of materials to incorporate into the design of the new terminal, with a view to enhance the island's assets.
- Identification of handicraft products that are produced in the island, with a view to allocate space inside the terminal.

Photographs: B.Tenas

9 ANNEX

The information annexed has been obtained entirely from the website of the Ministry of Works & Urban Development (http://www.bahamas.gov.bs). It is important that environmental criteria are taken into during the planning phase and in all phases of the infrastructure, to understand and facilitate the construction processes under framework of the PPP system.

9.1 Permit + Approval + Process

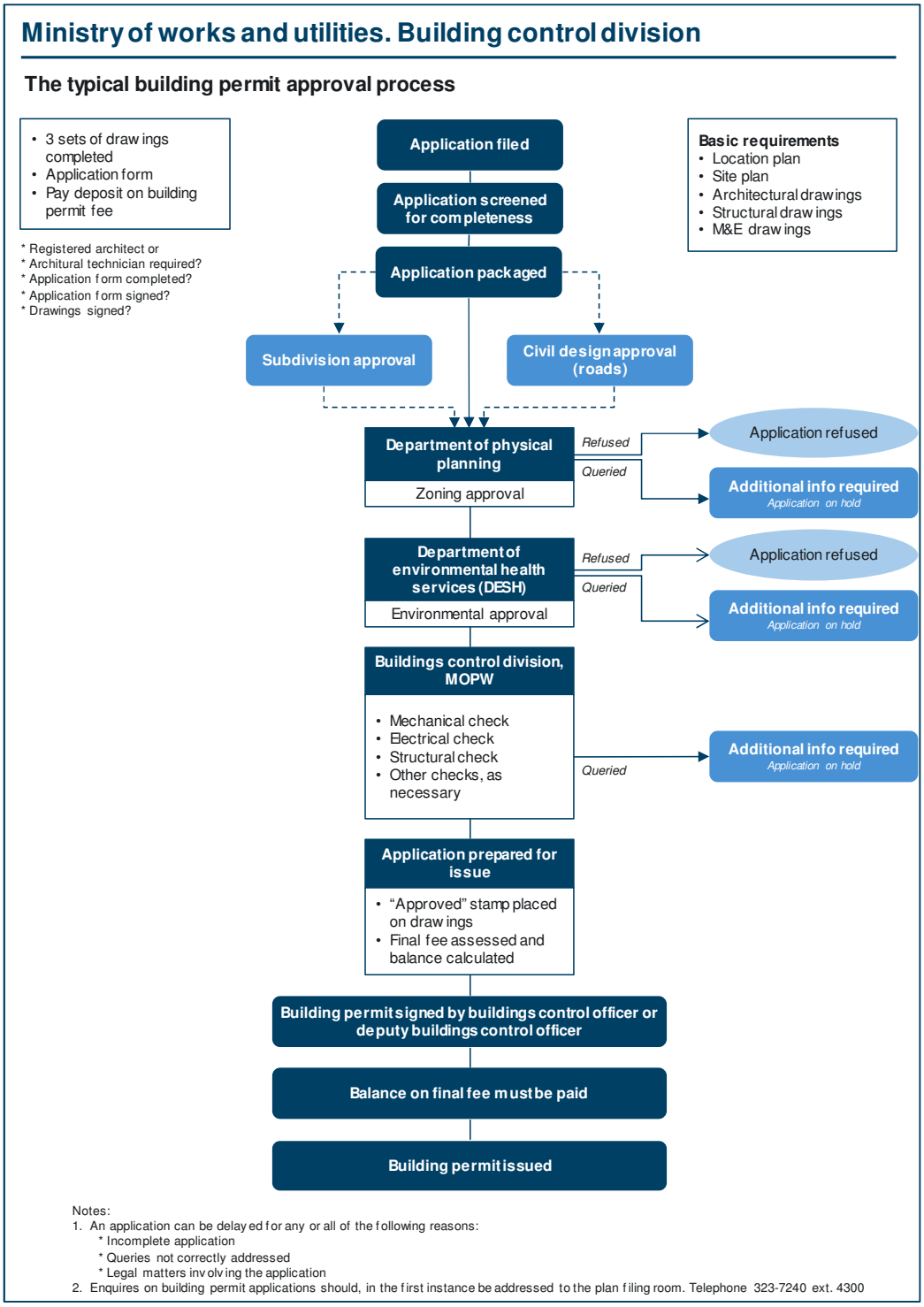


Figure 67: Building permit approval process

9.2 Applying for a Building Permit

A Building Permit is required for all new construction, additions, alterations, including decks, sheds, retaining walls, and fences in The Bahamas as mandated by the Buildings Regulations Act.

Building permits are required to ensure public safety, health, and welfare as they are affected by building construction, through its structural, mechanical, electrical integrity, adequate exit facilities, sanitary equipment, lighting, ventilation and fire safety. Building permission must be obtained from the Buildings Control Division of the Ministry of Works & Urban Development before any building is undertaken.

The permit is valid for eighteen months from the date of issue. An extension may be applied for prior to the permit expiration date.

Eligibility: Anyone interested in building.

Process:

1. Complete and submit the application form along with the required documents listed below, to the Ministry of Works & Urban Development or local administrator. Freeport applications are submitted to the Grand Bahama Port Authority Limited.
2. A 10% deposit (of the estimated building permit fee) is payable on submission of application. Please see fees table.
3. The application and supporting documents are sent to the following departments for processing:
    a. Civil Design Section, where checks are made for drainage and road access.
    b. Department of Physical Planning, which grants zoning approval.
    c. Department of Environmental Health/BEST Commission, to assess the environmental impact and ensure compliance with Environmental Health codes.
    d. Control Division of the Ministry of Works & Urban Development, where they complete mechanical, electrical, structural and other checks as necessary.
4. The Building Permit is then prepared for issue. Drawings are stamped as approved and the final fee is assessed and calculated.
5. Applicants are notified via telephone that the Building Permit has been approved and can be collected upon payment of the building permit fee.
6. The applicant must then make final payment and collect the Building Permit at the Buildings Control Division of the Ministry of Works & Urban Development. Family Island applicants collect approved permit and make final payment at the local government office.

Note: The application may be refused or additional information requested at any stage of the application process. The applicant is informed of any queries in writing via the post. The application will not move forward unless the requested information is supplied.

An application can be delayed for any of the following reasons:

- Incomplete application.
- Queries not addressed.
- Legal matter involving the application.

Application Form(s): Building Permit application form.

Supporting Documents: The following documents must be supplied in triplicates:

- Location Plan.
- Survey Drawing of Site.
- Site Plan.
- Architectural drawings – signed by a registered Architect.
- Structural drawings.
- Mechanical and electrical drawings - signed by a registered Engineer.
- Approval letter from Agency based on the location or nature of the project.
    1. Dock – Port Department.
    2. Hanger – Civil Aviation Department.
    3. Build of Lease/Agricultural Land – Ministry of Agriculture.

Turn-around time: A permit is processed within six to eight weeks following the submission of all documents. Please note that this may vary based on external agency requirements.

Deadline: There are no deadlines for this service.

Related Fee(s): Fees vary based on the type of operations. Please see The Building Permit Schedule of fees to determine the associated fee.

9.3 Applying for a Demolition Permit

Public safety, health, and welfare are affected by demolitions. Therefore a Demolition Permit is required for the safe removal of an existing building or structure. Persons seeking to demolish a structure must apply for a Demolition Permit from the Buildings Control Division of the Ministry of Works & Urban Development before any demolition is undertaken.

The permit is valid for 18 months from the date of issue. An extension may be applied for prior to the permit expiration date.

Eligibility: Persons seeking to demolish a structure in the Bahamas.

Process:

1. Complete and submit the application form along with the required documents listed below, to Ministry of Works & Urban Development or local administrator. Freeport applications are submitted to the Grand Bahama Port Authority Limited.
2. A 10% (of the estimated building permit fee) deposit is payable on submission of application. Please see fees table.
3. The application and supporting documents are passed to the following departments for processing:
    a. Civil Design Section, where checks are made for drainage and road access.
    b. Department of Physical Planning, which grants zoning approval.
    c. Department of Environmental Health/BEST Commission, to assess the environmental impact and ensures compliance with Environmental Health codes.
    d. Control Division of the Ministry of Works & Urban Development, where they complete mechanical, electrical, structural and other checks as necessary.
4. The Building Permit is then prepared for issue. Drawings are stamped as approved and the final fee is assessed and calculated.
5. Applicants are notified via telephone that the Building Permit has been approved and can be collected upon payment of the Building Permit fee.
6. The applicant must then make final payment and collect the Building Permit at the Buildings Control Division of the Ministry of Works & Urban Development. Family Island applicants collect approved permit and make final payment at the local government office.

Note: The application may be refused or additional information requested at any stage of the application process. The applicant is informed of any queries in writing via post. The application will not move forward unless the requested information is supplied.

An application can be delayed for any of the following reasons:

- Incomplete application.
- Queries not addressed.
- Legal matter involving the application.

Application Form(s): Building Permit Application form. This form can be obtained from the Ministry of Works & Urban Development.

Supporting Documents: The following documents must be supplied in Triplicates:

- Location plan.
- Site plan.
- Plan of building footprint.
- Photographs of building elevations.
- Permission from the Antiquities, Monuments and Museum Corporation for Historic Buildings.
- Approval letter from Agency based on the location or nature of the project.
    - Dock – Port Department.
    - Hanger – Civil Aviation Department.
    - Build of Lease/Agricultural Land – Ministry of Agricultural.

Turn-around time: A Permit is processed within six to eight weeks following the submission of all documents. Please note that this may vary based on external agency requirements.

Deadline: There are no deadlines for this service.

Related Fee(s): There are no fees for this service.

9.4 Applying for a Building Inspection and Occupancy Certificate

An Occupancy Certificate is required for all new construction, additions, alterations and sheds where the owner desires to occupy any building. To certify that the building is fit for occupancy the owner must apply to the Building Controls Division for an occupancy certificate.

Eligibility: Before starting this process the building should be completed with all plumbing and electrical fixtures installed. In the case of application for temporary occupancy for a residence, at least one bathroom must be completed, and an operational kitchen sink installed.

Process

1. Obtain Final Inspection application form, Occupancy Process Card and Connection of New Premises forms from Buildings Control Division, Ministry of Works & Urban Development.
2. Complete and submit, an Application for Final Inspection form, to Ministry of Works & Urban Development or local administrator. Freeport applications are submitted to the Grand Bahama Port Authority Limited.
3. Once a request is made the Building, Plumbing, Electrical and Mechanical Inspectors carry out a thorough inspection of the structure to ensure that the building has been built in accordance to the approved plans and complies with the Bahamas Building Code. In some cases, inspections by the Fire Branch of the Royal Bahamas Police Force may be required.
4. Complete and return stamped application form for the connection of water supply from the Water and Sewerage Corporation.
5. Return Occupancy Process Card signed by a Department of Environmental Health Inspector and the respective sections of the Ministry of Works & Urban Development.
6. Occupancy Certificate is then prepared for issue and signed by the Buildings Control Officer.
7. Applicant or his representative is then contacted via telephone to collect the Occupancy Certificate.
8. The owner/contractor must show proof of identification by presentation of a valid Driver's Licence or Passport.

Note: an application may be delayed for any or all of the following reasons:

- The building does not meet the inspector's approval in compliance with the minimum Code Standards, (e.g., the building is not completed; electrical or plumbing work outstanding).
- Outstanding queries not addressed by independent contractors.
- Changes such as the addition of a name or name change to the occupancy certificate, which does not appear on the actual building permit application.

Application Form(s)

1. Application for Final Inspection Form.
2. Form for Connection of New Premises (Water and Sewerage).
3. Occupancy Certificate Process Card.

Supporting Documents

- A valid I.D. Card
- Driver's License
- Passport

Turn-around time: An Occupancy Certificate is processed within one week following the submission of all documents. Please note that this may vary based on external agency requirements.

Deadline: There are no deadlines.

Related Fee(s): There are no related fees.

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