CIAA Airports Development Project

Airports Master Plans for the Future Development of Cayman Islands Airports



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Executive Summary

The purpose of the Cayman Islands Airports Development Project (ADP) is to prepare new airport master plans and land use plans with an Outline Business Case for the three airports known as Owen Roberts International Airport, Charles Kirkconnell International Airport, and Edward Bodden Airfield. The airport master plans provide a vision for the required aviation infrastructure and related facilities needed to accommodate current and future aviation and passenger demand within a 20-year timeframe. The ADP was undertaken with safety, environmental and financial sustainability as top priorities in facilitating aviation transportation services for the citizens of and visitors to the Cayman Islands.

There are four (4) key projects within the ADP:

Project A.1: General Aviation Terminal, Hangar and Apron, ORIA

Project A2.: Owen Roberts International Airport (ORIA) Master Plan

Project B: Charles Kirkconnell International Airport (CKIA) Master Plan

Project C: Edward Bodden Aerodrome (EBA) Master Plan

In May 2022, the ADP was awarded to Stantec, along with their project partners KPMG (financial consultants), Munich International (airport management strategic advisors), DKMA (forecasting consultants), Chalmers Gibbs (local architectural consultants), and BCQS (cost consultants); all who have collaborated closely with the CIAA, Cayman Islands airports stakeholders and the public. The consultant team completed on-site visits and engaged with and presented findings and outcomes to the CIAA Board of Directors and Steering Committee, the Cayman Islands Minister of Tourism, the Cayman Islands Government through Caucus and Cabinet, and the public on each Grand Cayman, Cayman Brac, and Little Cayman.

Significant stakeholder and public engagement was completed, and a number of recommendations were made that reflected the values of the aviation system users, airlines, and ground handling agencies, the public and passengers, and other key stakeholders. The engagement program is described in detail within.

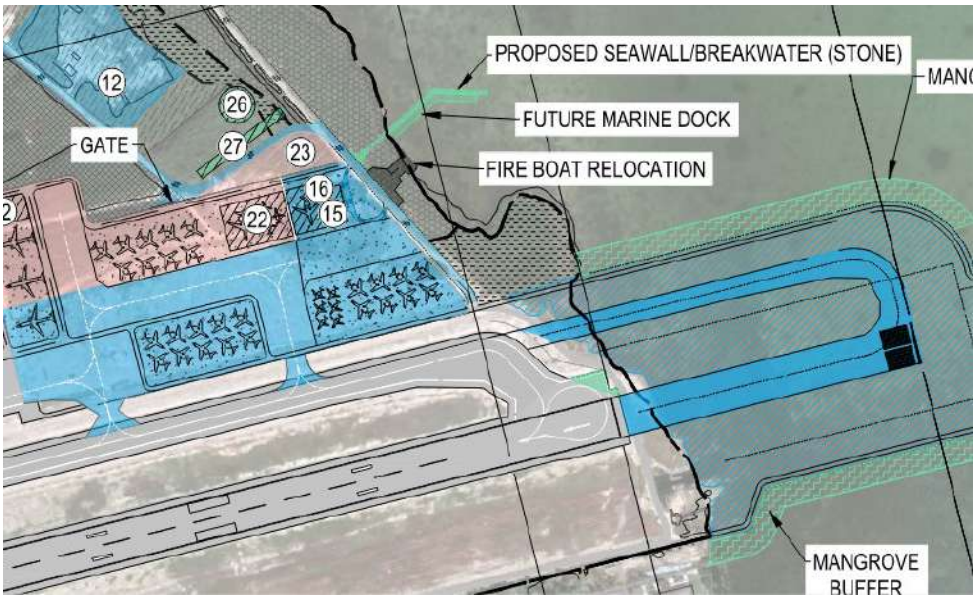
Project A.1: General Aviation Terminal, Hangar & Apron, ORIA

The existing general aviation (GA) terminal at Owen Roberts International Airport (ORIA) is well beyond the building's original and extended life expectancy. The aging building requires ever-increasing maintenance and repairs, and the facility fails to provide the high-value brand image that the Cayman Islands Government (CIG) is working to foster for its visitors. The Cayman Islands Airports Authority (CIAA) acknowledges three key issues: a) the relatively poor condition of the terminal building, b) the lack of space required for general aviation aircraft parking during peak periods, and c) delays to both GA aircraft commercial airline operations due to time required for aircraft backtracking taxiing operations and resulting extra time occupying Runway 08-26.

One of the components of the Cayman Islands Government's strategic policy is to improve the GA Facility at ORIA. Key stakeholders maintain that the poor quality of the general aviation facilities at ORIA inhibits tourism growth and have indicated their support for replacing these facilities, which also suffer from poor security, customer service/experience, and efficiency. These factors make it difficult for the Cayman Islands to attract high-net-worth individuals, along with their positive spinoff effects. Each of Air Agencies, Island Air, Cayman Islands Customs and Border Control (CICBC), Air Safety Support International (ASSI), CIAA Security, and CIAA Customer Service support the development of a new and improved facility to process VIPs and high-value guests.

One of the key airfield capacity issues at ORIA is the lack of a parallel taxiway on the north side of Runway 08-26 to connect with the GA aircraft parking apron. This lack of infrastructure induces delays to commercial aircraft operators on the main apron due to the need for general aviation aircraft to backtrack on the runway and/or taxi behind the commercial aircraft stands, delaying takeoffs and landings, as well as pushbacks from the terminal building, prior to backtracking on the runway to get to the GA apron.

Figure E.1: Future GA Terminal and Apron



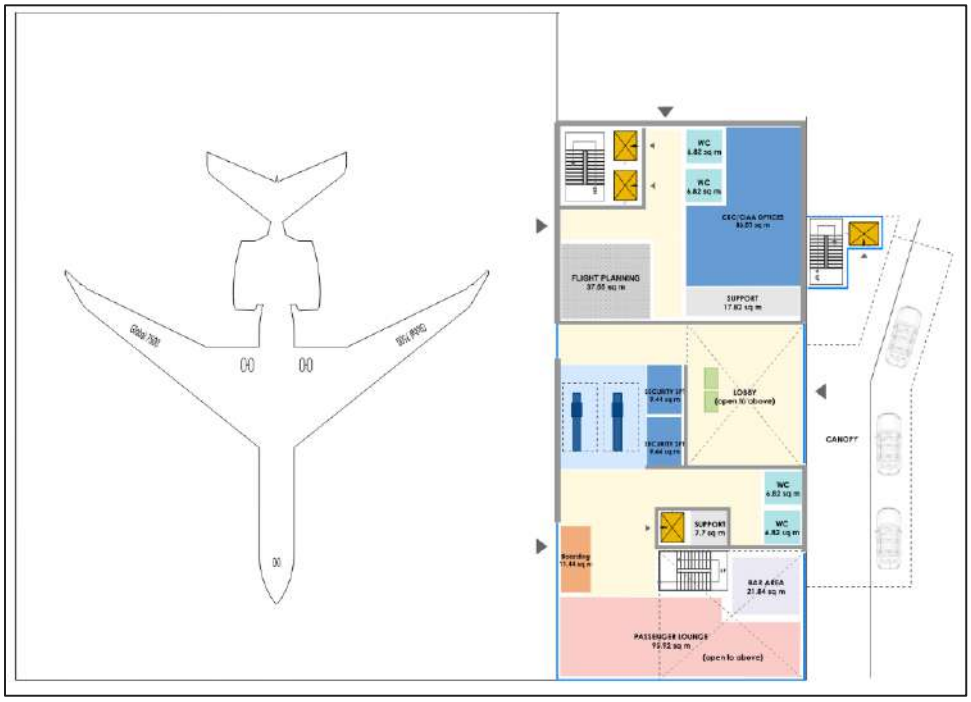
The preferred development option resolves these factors by locating the general aviation terminal, new hangars, and aircraft parking aprons to the east of the main terminal. This site, overlooking North Sound (north of Golf Taxiway), minimizes the time for general aviation aircraft to exit the runway and arrive at the GA terminal without interrupting existing commercial airline operations. (Aircraft back-tracking taxi operations on the runway will still need to be coordinated by ATC until a full-length, parallel taxiway is constructed).

The preferred development option allows for a significant increase in aircraft parking during peak months without taking up additional room for aircraft parking on other aprons and operational areas. Existing aprons can be utilized in the short term, and commercial aircraft may be able to utilize some portion of the general aviation aprons for temporary aircraft parking.

The preferred option also envisions a terminal facility with hangars that can provide new, high-quality passenger processing for general aviation users while ensuring space for protected aircraft storage. The general aviation facilities are planned such that applicable regulatory standards will be adhered to, and planned facilities shall provide a higher level of safety and service on both the landside and airside of the facility. The additional apron space for GA aircraft parking will reduce the need to 'stack' aircraft three or four deep, as is done today when demand outstrips capacity for aircraft parking.

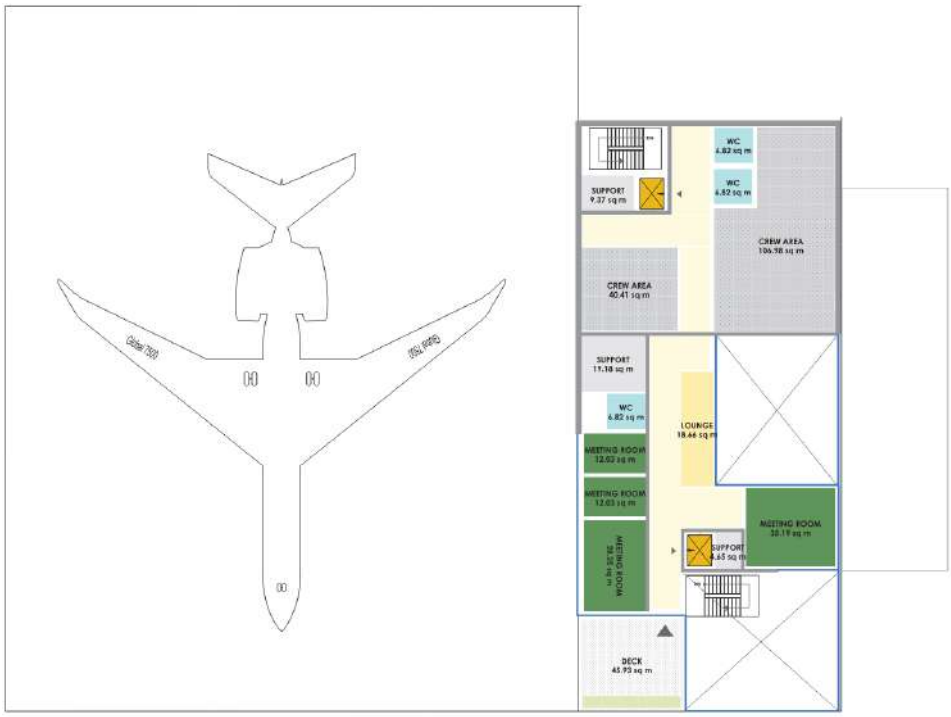
The two-level general aviation terminal is planned to be developed next to a hangar in the east of ORIA. A third level could be home to a restaurant and deck with views overlooking the North Sound and the General Aviation Aircraft Parking Apron. Landside and waterside access have been provided adjacent to the GA terminal to enable high net-worth customers to access the GA Terminal facilities in a secure, private area.

Figure E.2: General Aviation Terminal & Hangar Concept, Ground Level



Waterside access to the airport can be achieved through the development of a seawall, breakwater and dock for yachts and marine taxis, immediately east of the proposed GA Terminal on the North Sound. This is the same area that is required for the relocated Marine Fire Station currently in the runway strip, south-east of threshold for Runway 08. Improvements to the shoreline and protection of the mangroves is considered in terms of offsets required to support sustainability at ORIA and to ensure shoreline protection initiatives are considered through the life of this planned facility.

Figure E.3: GA Terminal & Hangar Concept, Second Level

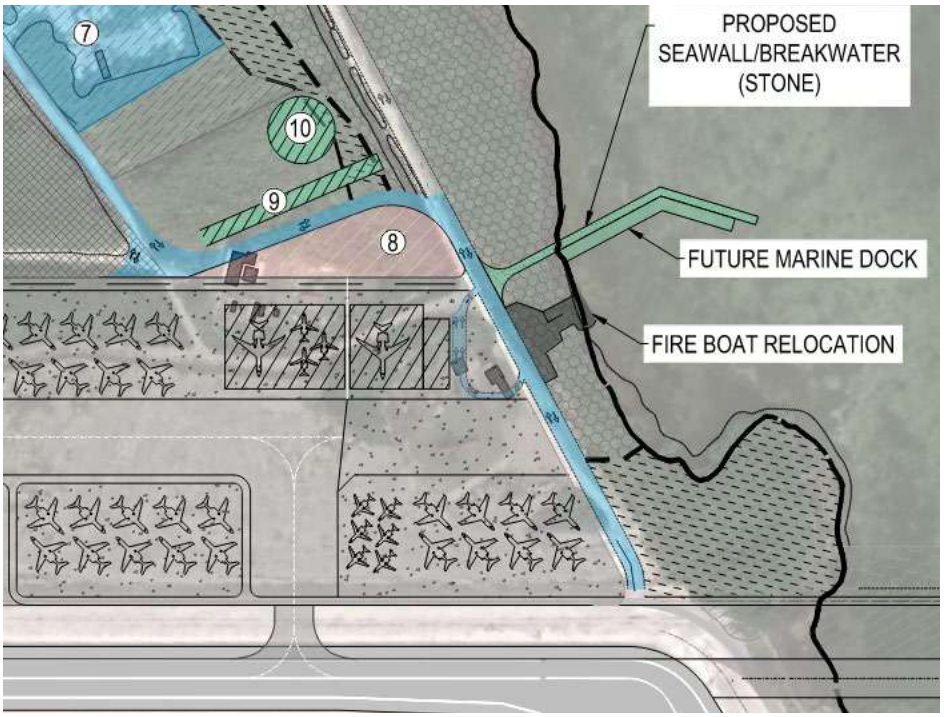


Just north of the new GA Terminal is the future Heliport – a dedicated facility for rotary-wing operations by the Police on Security and Medevac missions and for Tourism Flights. This will benefit both the airport and George Town residents due to the following benefits:

1. The reduction of helicopter flights over residential areas south and west of the airport for final approaches and departures (which will occur over North Sound);
2. The provision of a dedicated heliport (with published approach/departure procedures) north of the runway will reduce the number of air traffic conflicts between rotary and fixed-wing operations, resulting in a safer operational environment; and
3. The heliport could potentially service as a Vertiport to support e-VTOL operations at ORIA in future.

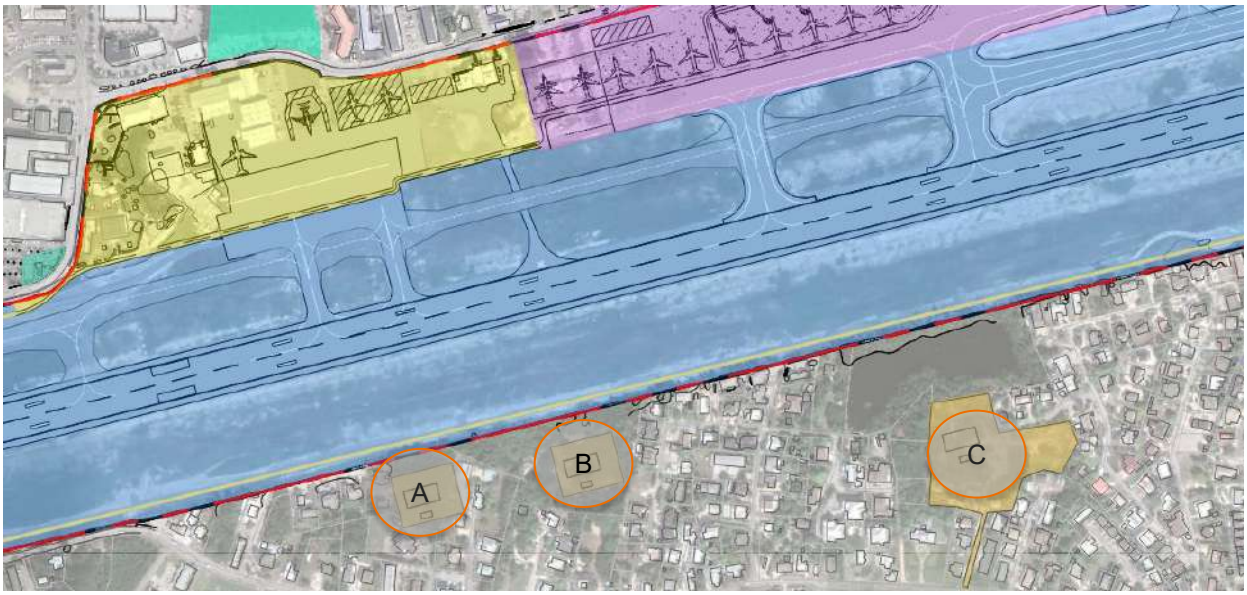
While it is not certain as to the timeframe for the introduction of e-VTOL services in the Cayman Islands, the current and worsening traffic congestion in and around George Town, Grand Cayman provides an excellent opportunity to consider the benefits of such a mode of transportation. In 2024, at the Paris Olympics, France may be ready to introduce public-paying service by autonomous e-VTOL between airports and Vertiports strategically located around Paris. The introduction of e-VTOL services (whether autonomous or not) presents an incredible opportunity for the CIAA to support the implementation of an improved landside transportation mode that reduces traffic congestion in a sustainable manner.

Figure E.4: Future Heliport



A new ATC Tower located south and central to the runway, (precise location yet to be determined and subject to land availability) is required to ensure a clear and unobstructed line-of-sight for air traffic controllers managing the air traffic on Runway 08-26 and the adjacent taxiways and apron taxi lanes. The view of the apron from a position south and central to the runway will ensure controllers have an excellent view of the aircraft stands, hangars and general aviation parking aprons, which will improve efficiency, and which should reinforce positive control of air traffic at ORIA.

Figure E.5: Future ATC Tower Location (Options A, B, C)



Project A.2: Owen Roberts International Airport Master Plan

The airport master plan for Owen Roberts International Airport (ORIA) is focused on ensuring several key objectives are met, including improving the passenger experience, expanding facilities to accommodate forecast growth, improving aeronautical revenues, and developing new non-aeronautical revenue streams while complying with applicable aviation and environmental regulations and standards.

Operationally, ORIA is currently challenged by a lack of aircraft parking during peak hours, the need for all aircraft to back-track the runway for take-off, and significant pressure on air terminal building processes such as passenger check-in, outbound security, aircraft boarding, and inbound customs and immigration.

A lack of adequate protection from the elements on the landside and airside is a key passenger experience concern. When the weather is fine, the experience is good; when it is raining, passenger complaints increase dramatically, particularly due to the long walk across the open apron and from the terminal to car rental facilities (off-airport), not to mention the distance unprotected into and through airport parking lots.

The following key environmental measures were considered in all aspects of the airport master plan:

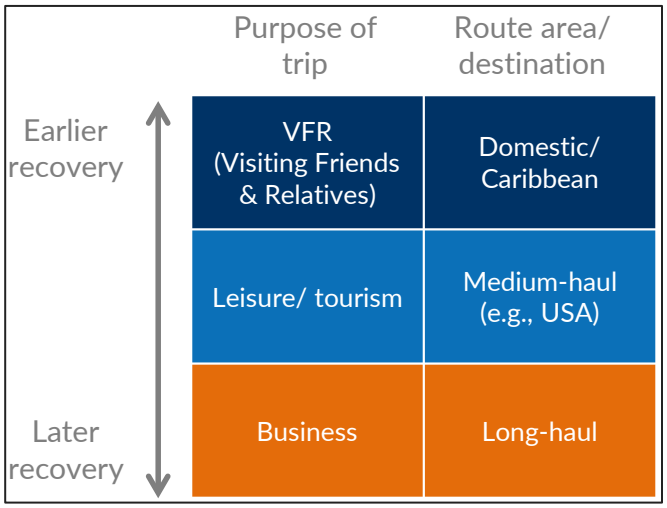
a) Preserving the existing shoreline mangroves on the east side of ORIA and expanding red mangroves where feasible

b) Reducing bird strikes by eliminating habitat and wildlife attractants, particularly improving drainage of standing water on the surface of the runway strip after rain

c) Encouraging innovative, technologically feasible sustainability initiatives, including but not limited to the development of green (solar and wind) power, fuel-water separation systems in hangars and on aprons, reduction of carbon footprint, and a reduction in aircraft fuel burn from taxiing on aprons and taxiways from the development of a more efficient airfield / taxiway configuration.

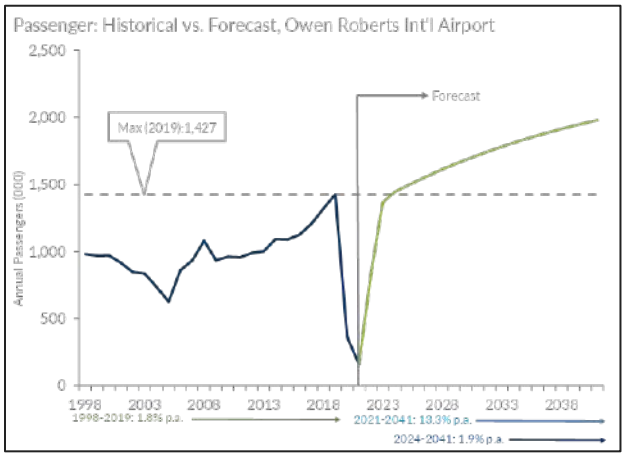
To make this a "living" document, key environmental objectives are embedded in all aspects of the master plan. Monitoring of key performance indicators (KPIs) enables CIAA to regularly reference the airport master plan when considering any project at ORIA. All contemplated projects must consider sustainability initiatives during the detailed design stage.

Figure E.6: Stages of Commercial Aviation Recovery



The baseline forecasts cover passenger traffic, aircraft movements and cargo volumes for ORIA. On the heels of a growing economy (itself driven by an expanding tourism sector), air passenger demand at ORIA is expected to reach nearly 2 million passengers by 2041. More than two years after the start of the pandemic, the ingredients for a durable passenger demand recovery are in place. More specifically, there is optimism about the long-term economic prospects; international borders are reopened, and pent-up demand is apparent in the last quarter of 2022.

Figure E.7: Historical vs. Forecast Passenger Demand



However, all is not perfect since the Cayman Islands must consider the negative impacts of high inflation, recessionary risks in the short term, and the potential for other countries to maintain or reinstate some travel restrictions. As can be seen in Figure E.7, for the entire forecast period (i.e., 2021 through 2041), passenger demand is projected to increase annually by 13.3%. If we exclude the rebound from the pandemic, the anticipated growth rate between 2024 and 2041 is 1.9% p.a., and by way of comparison, between 1998 and 2019, air traffic increased annually by 1.8%.

In the short term, growth will be very strong, and a return to pre-pandemic passenger levels is expected by 2024.

The peak hour demand requirements for passenger facilities and the key processors at ORIA were determined for a busy day based on forecast traffic and the space/time requirements for an 'optimal' level of service. An 'optimal' level of service improves the use of floorspace, reduces congestion at key processors, and leads to a positive passenger experience. An optimized terminal and a positive passenger increase will lead to improved revenues from terminal concessions. The faster passengers move through key processors such as check-in and security, the more time they will have to enjoy the amenities in the terminal prior to departure, which has the potential to enhance non-aeronautical revenue opportunities.

The report utilized the IATA Airport Development Reference Manual, Edition 12, produced in collaboration with ACI, to calculate space and processor time objectives for an optimal terminal such that air terminal facilities meet future peak hour demand requirements. A snapshot of the facility requirements at ORIA for each of the key processors is indicated in Table E.1.

Table E.1: ORIA Air Terminal Building Requirements

BD = Bag drop NB = Narrow Body WB = Wide Body	Existing capacity 2022			Demand capacity 2041		
	GCM Airport			Requirements		
	classic	auto	total	Classic (incl. buffer)	Automated (incl. buffer)	Total (incl. buffer)
Check In	39	24 Kiosks but no Bag drop	39	29	12 (BD)	41
Security Screening	4	-	4	7	-	7
Immigration	12	12	24	13	8	21
Gates	7 (NB)	2 (WB)	9	12 (NB)	2 (WB)	14
Baggage Reclaim	5 (NB)	-	5	6 (NB)	2 (WB)	8
Customs Control	4	-	4	7	-	7
AC Stands	8 (12NB)	2 (-WB)	12	16 (NB)	2 (WB)	16

While the short-term plan is to optimize existing terminal processors, the medium-term focus is the addition of a second level for expanded departure lounge areas, concessions, and air bridges from boarding gates to aircraft. The approach to capacity and demand management for the forecast year 2041 contemplates the need to balance capacity across the airport system. Reducing runway occupancy times and increasing aircraft parking positions on the aprons will improve airside capacity, but key processors and departure hold rooms, arrivals baggage claims and other terminal areas also need to be expanded and improved to create a better balance across the airport.

The following figures indicates the proposed, preferred layout of the terminal expansion main and second floors.

Figure E.8: Preferred Air Terminal Expansion – Main Floor Plan

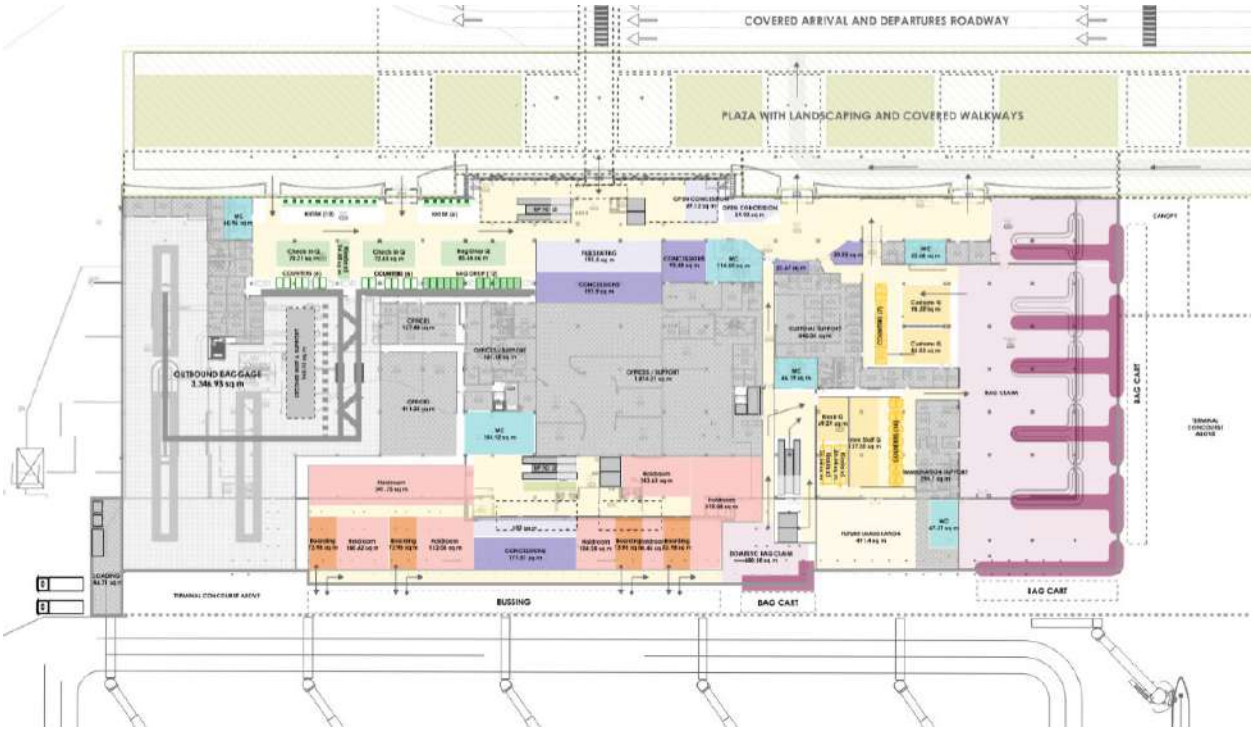
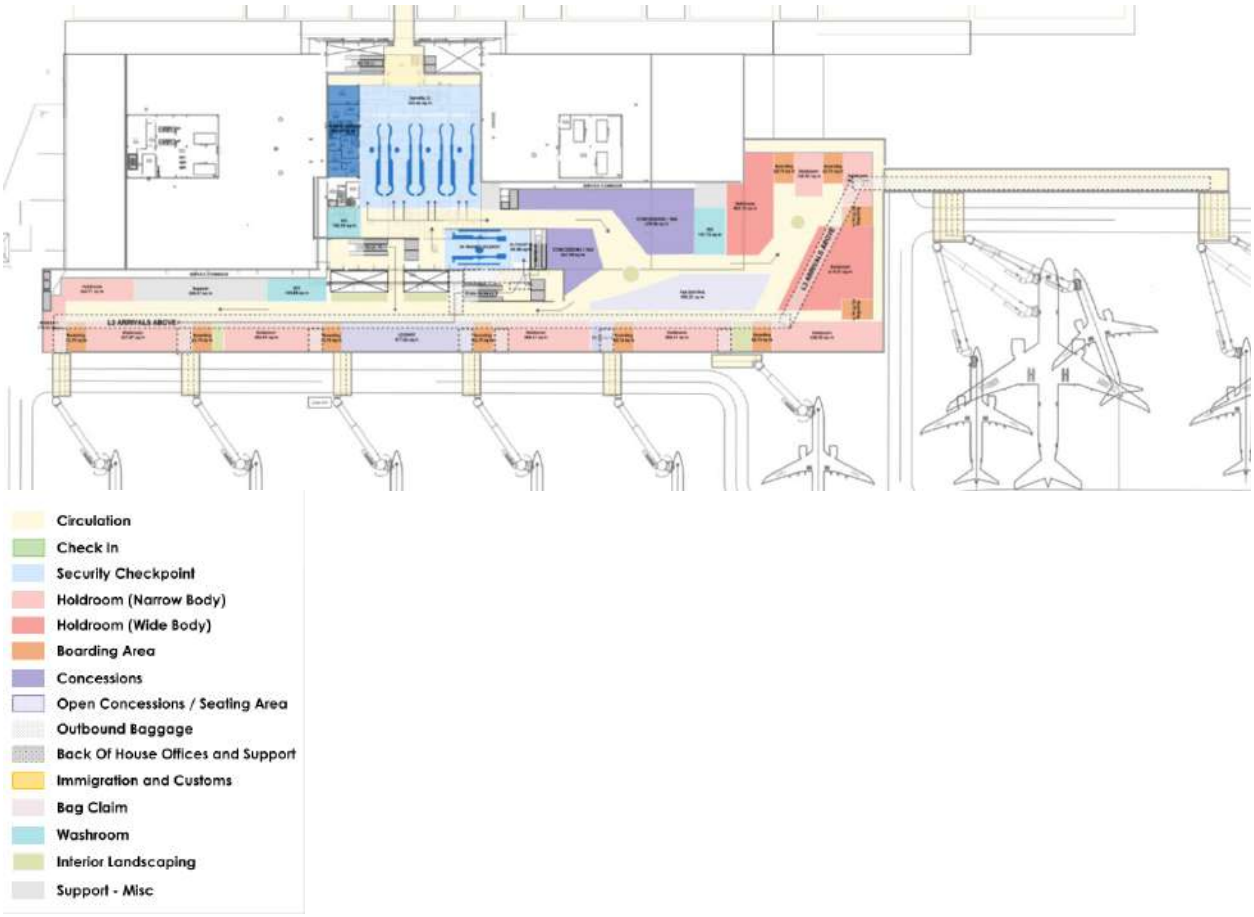


Figure E.9: Airport Terminal Layout, New 2nd Floor



The airport landside access and parking areas are also key functions for which future demand must be considered and capacity provided to meet such demand. The current at-grade parking lots are limited in capacity. A future multi-level parking lot, with a major car rental centre and employee parking, is conceived in this airport master plan, as indicated by item #16 in Figure E.10. A second-level walkway (item 33) into the main terminal building will be provided to protect passengers and guests from the environment when walking between the terminal and the ground transportation centre (GTC). The rendering of the ORIA preferred development concept is included below in Figure E.11.

Figure E.10: Landside Access / Circulation Roads, Ground Transportation Centre / Parking Garage

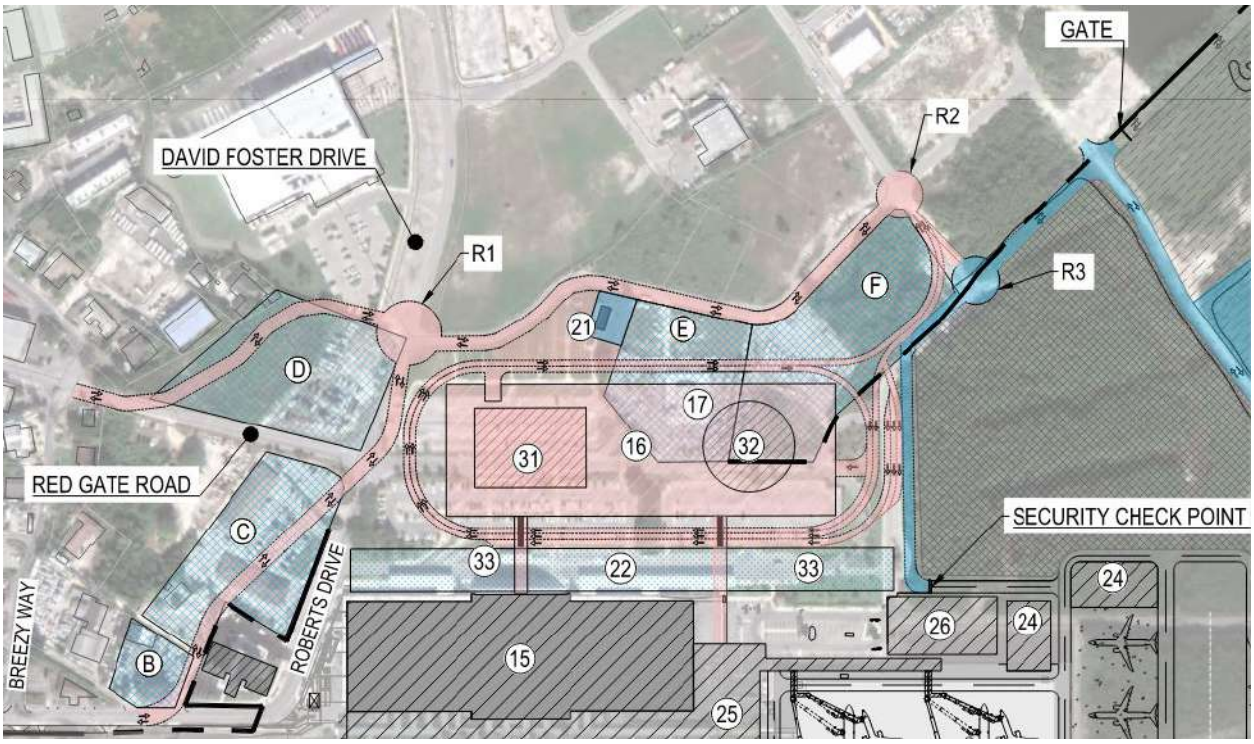


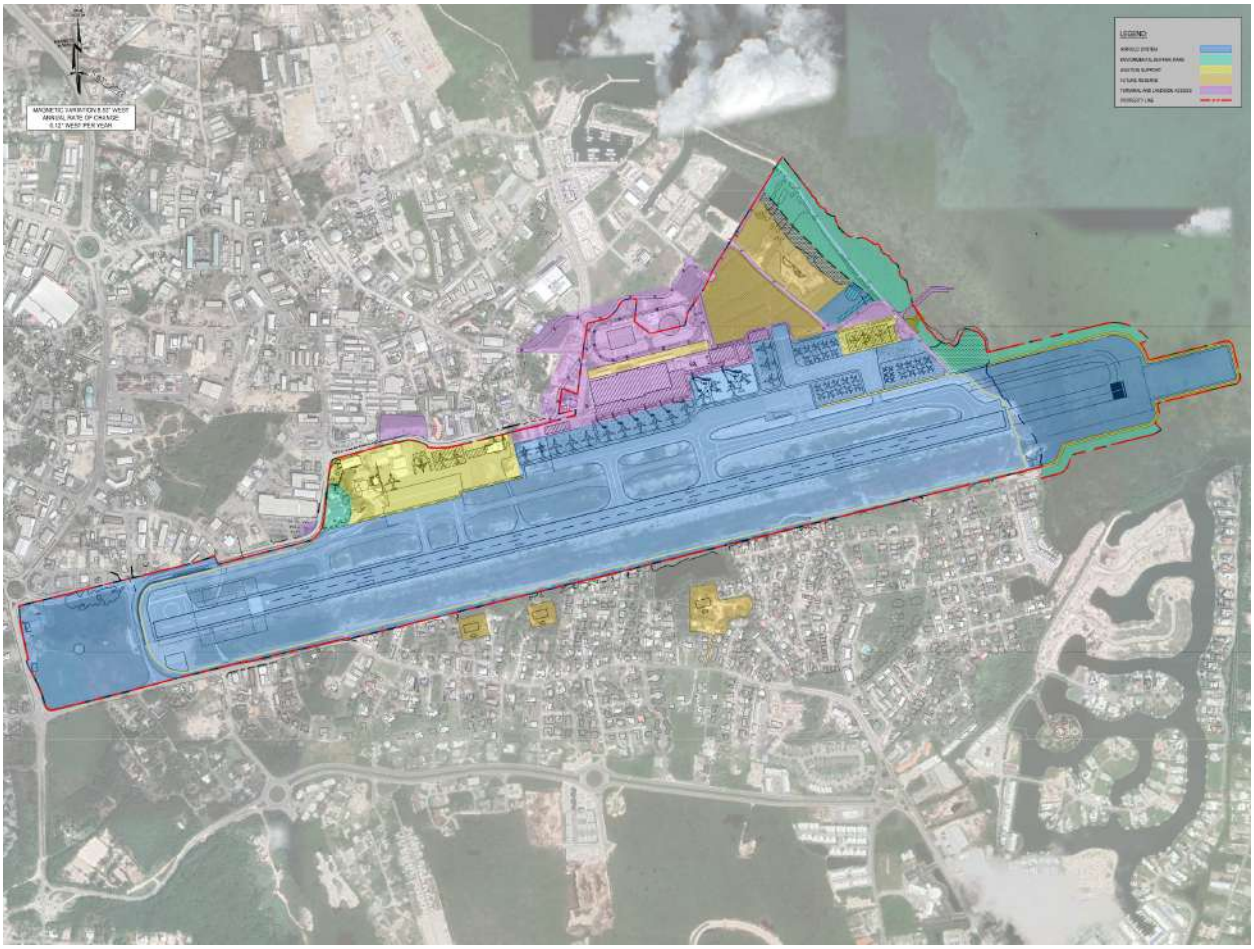
Figure E.11: Preferred Concept - ORIA Air Terminal Expansion, 2041



The ORIA Airport Master Plan requires the expansion of the main apron and taxiways to accommodate aircraft movements during peak hours. The completion of the parallel taxiway is planned for the medium term. A runway extension is planned for the short to medium term. The runway length is based on the need to meet market demand for long-haul flights from overseas. The preferred development option is to extend the runway into North Sound.

A marine connection to the airport is contemplated in the medium term, along with a future Vertiport to be collocated with the Ground Transportation Centre. Land acquisition and road access and circulation improvements will be required in the short term, as well as implementing a security setback from the air terminal to curb lanes to meet security requirements. Figure E.12 indicates the preferred airport master plan layout for 2041.

Figure E.12: Preferred Airport Master Plan Layout, 2041



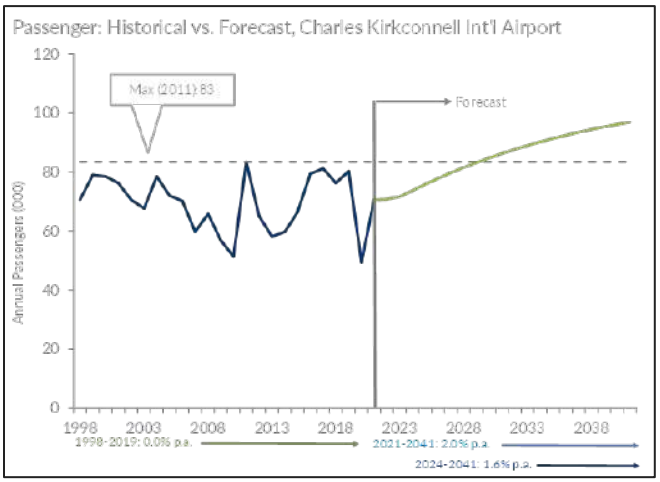
Other key projects at ORIA include the following required for CIAA to meet regulatory requirements:

- A comprehensive airfield drainage plan and pump system to ensure standing water does not remain on the surface of the runway and taxiway strips.
- A new ATC Tower south of and central to the airfield, and an Air Traffic Management (ATM) System facility.
- A new heliport and associated facilities for police, Medevac/patient transport and tourism helicopters, keeping rotary operations away from the runway environment and fixed-wing operations.

Project B: Charles Kirkconnell International Airport Master Plan

Charles Kirkconnell International Airport (CKIA) on Cayman Brac Island is in generally good condition. The proposed key investments are related to the infrastructure necessary to meet the regulatory requirements and to maintain operations as an international port of entry airport, with customs and immigration services to continue to support direct flights to/from the USA (Miami). Short-term requirements include the creation of two Runway End Safety Areas (RESA), the widening of the runway strip, and the removal of obstacles from the airport obstacle limitation surfaces (OLS).

Figure E.13: Historical vs. Forecast Passenger Demand, CKIA



The baseline (most likely) forecast assumes that traffic will continue to grow at a moderate rate and will not be limited by the available infrastructure. Most traffic at Cayman Brac will be domestic, but a limited number of international flights will also be offered to/ from the USA (MIA). In 2019 international passengers accounted for less than 3% of the passengers; this is anticipated to reach 7% by 2041 (about 6,500 international passengers per annum). By 2041 we anticipate that Cayman Brac will handle nearly 100,000 passengers and have nearly 3,600 flights, of which 85% will be commercial flights. Due to the low demand for international passengers at CKIA (~125 / week) the CIG has considered the potential for removing the international / Port of Entry status in order to reduce associated costs.

The air terminal building is capable of meeting current demand but can become congested at peak times. Forecast air traffic is expected to grow at a rate of 2.0% between 2021 and 2041. An expanded or entirely new air terminal building will be required to replace the existing facility by 2041 to accommodate future passenger demand.

The air terminal building requirements at Charles Kirkconnell International Airport are based on the passenger demand forecast for 2041. The space requirements in future peak hours, with three to four aircraft on the apron at a time, would result in key airport processors failing to perform adequately. The terminal processors that require expansion/improvements to meet that demand include airline check-in desks, self-check-in kiosks, bag drops, security screening for outbound checked baggage and passengers, concessions, and departure hold room areas and seating. In addition, due to its continued status as an international airport, the arrivals hall and baggage carousels, along with new Customs and Immigration facilities, will require upgrades.

The existing building will continue to function with one to two flights at a time in the short term, but the forecast growth in peak-hour passengers and flights will eventually exceed the capacity of the terminal facilities, which is estimated to be by 2033. Table E.2 indicates the facility requirements at CKIA forecast for 2041.

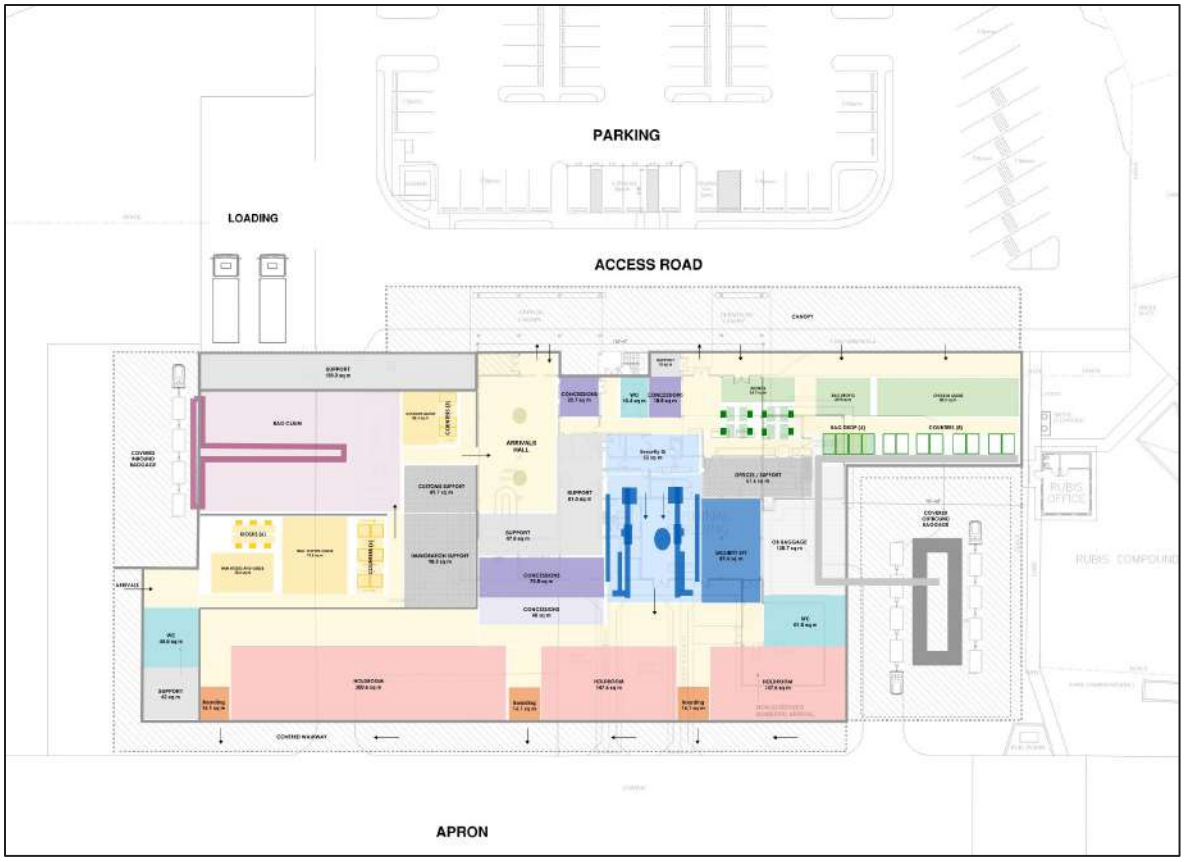
Table E.2: CKIA Air Terminal Building Requirements, 2041

CYB Requirements

	Existing capacity 2022			Demand capacity 2041		
	GCM Airport			MAI capacity analysis		
According ADRM calculations	Classic	auto	total	Classic (incl. buffer)	Automated (incl. buffer)	Total (incl. buffer)
Check In	2	0 (BD)	2	4	3 (BD)	7
Security Screening	1	-	1	2	-	2
Immigration	3	0	3	6	4	10
Gates	2 (NB)	-	2	4 (NB)	- (WB)	4
Baggage Reclaim	1 (NB)	-	1	2 (NB)	- (WB)	2
Customs Control	3	-	3	4	-	4
AC Stands	2 (NB)	-	2	3 (NB)	- (WB)	3

In addition to air terminal expansion, in future, a 100-foot setback from the terminal may need to be implemented to meet applicable security regulations found in the OTARs (OTAR 178 – Aviation Security). This must be preceded by acquisition of parcels for the development of new parking lots, terminal curb, and related airport circulation road realignments.

Figure E.14: CKIA New Air Terminal Building, 2041



The aircraft parking apron will need to be expanded to accommodate additional aircraft in the peak hour. Although two aircraft can park and manoeuvre efficiently today, in the future, a third aircraft in peak hour will be required. The apron itself must expand towards the runway to enable aircraft types common at CKIA to manoeuvre safely from aircraft parking stands to the taxiway. A second taxiway connecting the apron with the runway is also required in future to provide circulation redundancy and to reduce delays from aircraft operations on the commercial aircraft parking apron.

The airport master plan for CKIA will focus on the resolution of regulatory compliance issues in the short term. This includes the expansion of the runway strip and the construction of RESAs at each runway end. These are necessary and important improvements to the airfield and are required under Overseas Territories Aviation Regulations (OTARs). The protection of the environment has guided the planning of airfield regulatory improvements. The planned RESA at the west end, pre-threshold Runway 09, has been shifted to the east to avoid possible turtle nesting sites (generally found northwest of the runway strip). By shifting the runway landing threshold to the east, the runway length is marginally reduced while enabling take-off from the runway end safety area utilizing approved starter strips, as is the case at ORIA for take-off from Runway 08.

Figure E.15: CKIA Airport Master Plan, 2041



To be fully compliant, the south side of the runway strip must be widened to 246 ft. (75 m) from the runway centreline; this will encroach marginally on the north banks of the two Westerly Ponds (see light blue highlighted portion on south edge of proposed runway strip, in Figure E.15 above). Additionally, the South-Side Road must also be relocated out of the runway strip along with major obstacles such as trees and power lines. The shifting of the road will impact neighbouring property owners and must be coordinated with the National Roads Authority and Public Works. Improvement of bird management techniques is critical; the safety of aircraft operations at CKIA requires additional measures aimed at reducing bird hazards in the vicinity of the runway strip. A perimeter road is required around the entire airfield to ensure the ability of the CIAA to manage bird and wildlife hazards, regardless of the location of water bodies.

An expanded Meteorological Site and National Weather Services office is planned north of the runway. In addition, a new Air Traffic Control (ATC) Tower is planned for the medium to long term to replace the aging facilities on the existing Air Terminal Building (ATB); the existing ATC Tower has no line of sight to the western end of the runway. The future ATC Tower will be centrally located on airport property, north of the runway, just west of the Meteorological (Met) Site. New GA facilities east of the main apron are planned for the long term once the existing water tanks are removed and relocated off the airport by the Water Authority.

A third-party, private entity is proposing new GA facilities on private lands north of the runway, west of the Met Site, and future ATC Tower lands. This third-party entity is applying for direct access to the airfield. The CIAA is evaluating the private proposal and will consider approval if it complies with applicable regulations and laws.

Project C: Edward Bodden Airport Master Plan

The Edward Bodden Airfield (EBA/LYB) is the smallest of the three aerodromes in the Cayman Islands; it is not operated by the CIAA. The airfield is located at the west end of Little Cayman Island. The approach/departure paths are directly over West End and the Boobie Ponds, a significant bird colony refuge known for daily migrations to sea and back by Red Throated Boobie and Frigate Birds.

There is very limited domestic, general aviation traffic at EBA; the existing runway does not meet applicable regulatory standards and does not comply with applicable OTARs meant to ensure a safe airport operating environment for Cayman Airways Ltd. (CAL) and the travelling public. As such, the airfield is not a certified airport, required to support scheduled, public-paying air services. However, CAL must provide air service to the island because, as an agency of government, CAL is mandated to provide basic services to the local population.

It should be noted that CAACI views this as an uncertified aerodrome and has issued an exemption to permit the Cayman Airways (CAL) operations. This exemption allows CAL to provide air services from Cayman Brac and Grand Cayman to Little Cayman with a De Havilland Canada Twin Otter (DHC-6) aircraft. The exemption requires CAL to be responsible for managing the airfield's safety measures. CAL provides the measures that are meant to ensure an acceptable level of safety at the aerodrome.

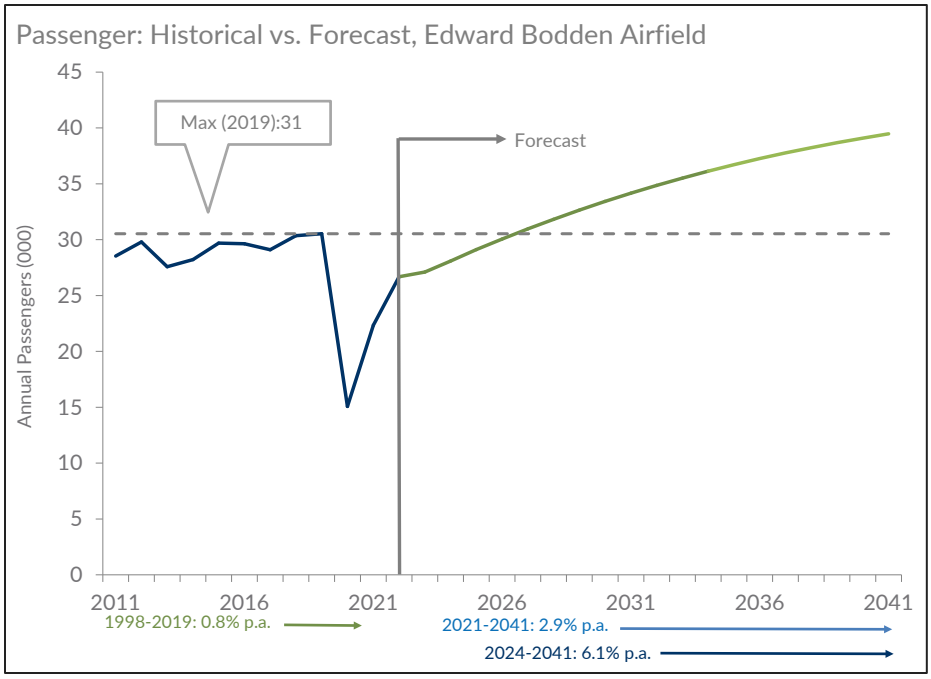
It is not feasible to improve the airfield to the extent that it can be certified due to the multiple, privately-owned properties on which the airfield is situated, the environmentally sensitive surrounding wetlands and endangered Rock Iguana populations. The road running down the south side of the runway strip, across the taxiway and between the runway and aircraft parking apron is a clear violation of aerodrome standards and must be remedied prior to the certification of the aerodrome. The runway is not aligned with the prevailing winds. The overhead power lines and multiple trees and buildings to the east and south are all considered obstacles and a hazard to aircraft operations at EBA and are also barriers to certification. Lastly, ASSI, through the OTAR regulations, requires all airports with commercial services over 10,000 kg to provide security screening measures, which do not exist at EBA today. The terminal building would not be capable of housing such equipment and would require significant upgrades as a result.

The CIG owns only a portion of the aerodrome, specifically the area on which the small terminal building is located and has invested in an Aircraft Rescue and Fire Fighting vehicle and a rudimentary storage garage next to the terminal building. Furthermore, the CIAA currently has no interest in, nor responsibility for, the operation and maintenance of the aerodrome. Due to the diverse ownership interests in the land that makes up the aerodrome, and in particular the temporary exemptions from CAACI to regulatory standards in place, responsibility for safety is somewhat unclear, implying that the CIG, CAL, CAACI, and the various landowners could be held jointly and/or severally liable for any incidents or accidents that might occur on the airfield.

In future, the airport should remain focussed on domestic operations only; it is anticipated that passenger demand will reach approximately 40,000 passengers per annum by 2041. The future critical aircraft would likely contain between 30 and 50 seats and be capable of operating on a short runway, between 4,000 and 5,000 ft. in length. It is unlikely that any new airport would operate at a profit and would likely require financial support from the CIG.



Figure E.16: Historical vs. Forecast Passengers at LYB, Little Cayman



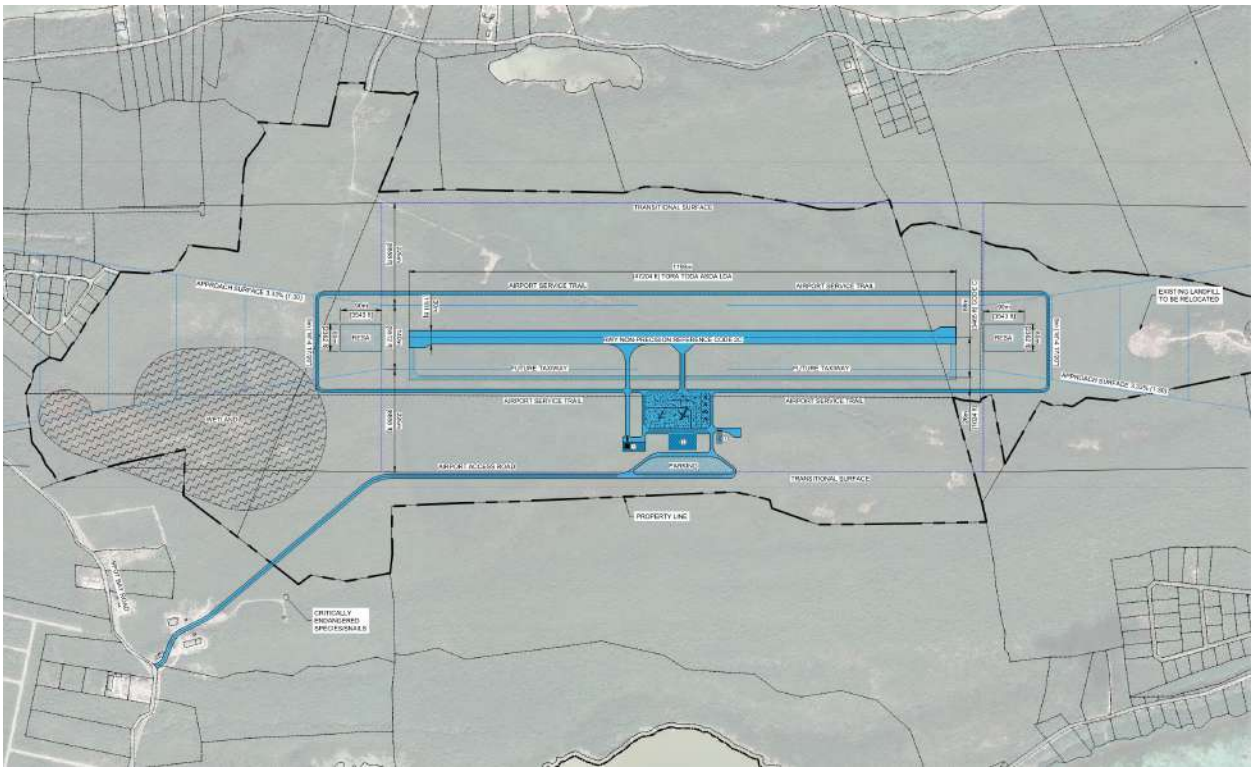
CAL will continue to offer flights to and from the airport. They have indicated that the DHC-6 Twin Otter aircraft is aging and will eventually be replaced by another, larger passenger aircraft. CAL has expressed the desire to replace the existing fleet of Saab 340 and DHC-6 Twin Otters with a single aircraft type, which would reduce their operating costs and streamline operations to only the B737-MAX 8 and a single new short take-off and landing (STOL) aircraft type, which has yet to be determined. Various types of STOL aircraft were considered during the planning of this airport, including ATR-42, ATR-72, and Dash-8 Q400s.

Due to overwhelming feedback from the public and users, it was concluded that the protection of the environment and the sense of place and 'charm' on arrival into Little Cayman had to be maintained with any future airport development. Although the public's general view is to allow the existing airfield to continue to operate as is ('there have been no accidents of note'), the planning team cannot recommend this course due to a lack of compliance with applicable airport standards and subsequent lack of redundant safety systems required of a certified aerodrome (airport).

Various airport development plans were considered. Since Little Cayman is only five (5) nautical miles from Cayman Brac, the first consideration was for a new ferry service from Cayman Brac to Little Cayman, with air service from Cayman Brac provided by either a helicopter or a seaplane. A new heliport could be constructed that would enable the continuation of emergency/medical evacuation (MEDEVAC) flights, but this option would severely limit the number of passengers able to fly between each of the Cayman Islands. A seaplane service, with DHC-6 Twin Otters on amphibious pontoons, would allow for a similar air service as exists today, but with severe aircraft load and weight constraints (reducing capacity to below what is flown today). In addition, a seaplane service can only operate during periods of relatively good weather and minimal wave action.

Beyond the provision of the ferry combined with either a helicopter or seaplane passenger service, the preferred option is a new aerodrome to be developed on land owned by the CIAA northeast of the existing airfield.

Figure E.17: Proposed New Airport for Little Cayman



An environmental review indicated a new, critically endangered species of snail northeast of the Public Works Site and Spot Bay Road, which precipitated the re-alignment of the access road, which is depicted in Figure E.17 above. A detailed environmental impact assessment and site civil review will be required prior to any development occurring.

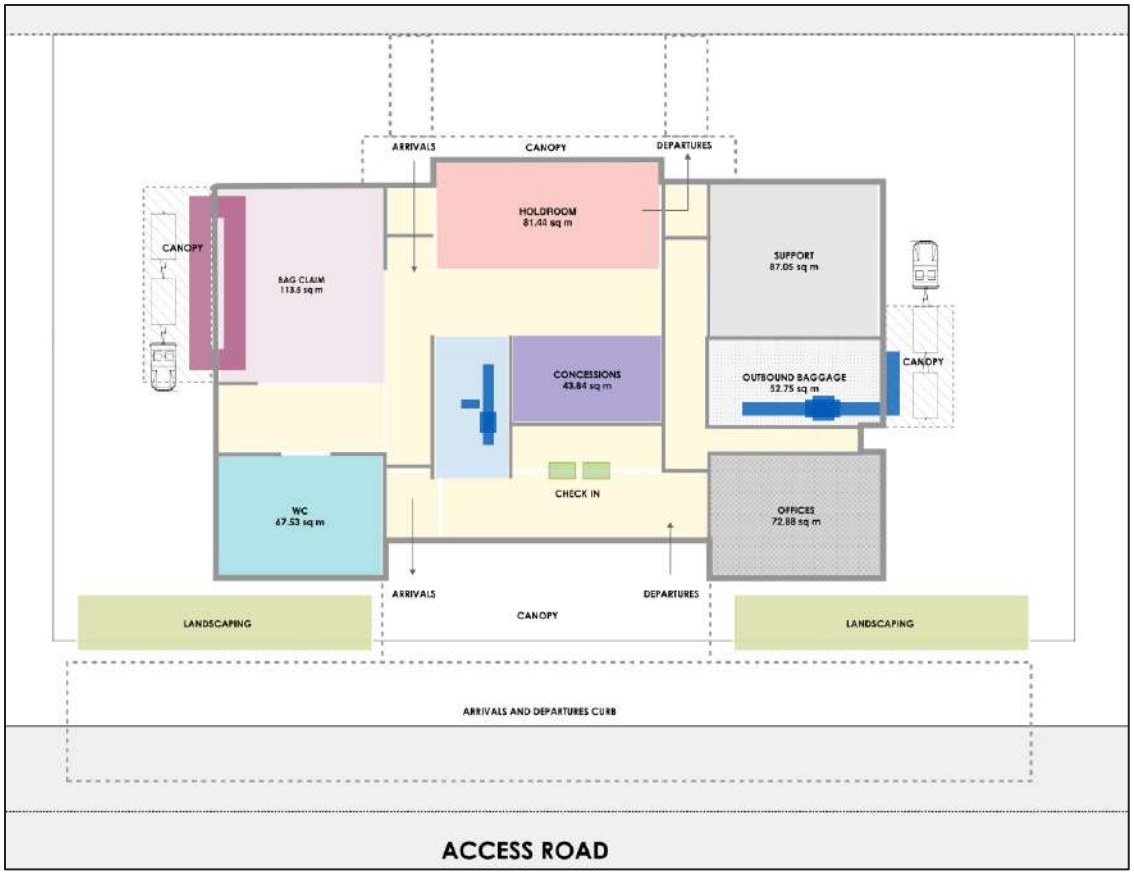
The new airport will be developed in accordance with applicable Aerodrome Standards and Recommended Practices (ICAO Annex 14, 17 and the OTARs) to ensure a safe and operationally efficient facility for the public and the air carriers 24 hours a day, 7 days a week (lighted airfield to allow for Medevac flights 24/7 year-round). This alleviates the concerns at the current Edward Bodden Airfield; the runway and runway strip will be free of obstacles and significant hazards to aviation. Having the new airport further from the south coast and ponds should result in a reduced bird strike rate. The provision of a new, fully certified airport on Little Cayman will reduce the risk and liabilities for CAL, CIG, and the multiple owners of lands at the existing airfield.

The aircraft parking apron will accommodate two aircraft parking positions simultaneously yet assumes that only one scheduled flight (19- to 50-seat aircraft) would typically operate at any one time. There is also sufficient space on the aircraft parking apron for two to four general aviation aircraft, which would enable small, domestic aircraft charters from either Cayman Brac or Grand Cayman.

The footprint of the airport was planned to be as small as possible while enabling commercial, scheduled aircraft services to Little Cayman. The public was clear in their concern that the replacement of the aerodrome should not necessarily reduce the flight frequencies currently enjoyed. In future, it is expected that a mix of larger and smaller scheduled aircraft is required; a 19- to 50-seat aircraft could operate on weekends during peak tourism travel periods, and a smaller, 9- to 30-seat aircraft could operate during weekdays with added frequency.

In addition to the new lighted runway, connector taxiway and aircraft parking apron, a new airport terminal building is contemplated. The new terminal would provide enhanced passenger check-in, screening, and departure hold room space for outbound passengers, segregated from the seamless arrival process into the Little Cayman Airport Terminal. It was important to Caymanian residents and resort operators that the airport terminal be planned and designed such that they can maintain the “island feel and culture.”

Figure E.18: New Little Cayman Airport Terminal Concept



The airport is planned to be maintained as a domestic facility only, with no need or desire to accommodate international services anticipated.

Implementation and Phasing

The various projects contemplated in the 2041 airport master plan require significant infrastructure investments. The prioritization of the projects must consider the following criteria:

1. Operational need
2. Safety and regulatory needs
3. Environmental impact assessments, environmental sustainability
4. Financial capability for CIAA to undertake the projects
5. Project management resources

These criteria were used to evaluate the general project implementation plan shown in the table below. Capital expenditures are shown as a percentage of total project cost spread over short-, medium- and long-term phases. Short-term projects are highlighted in bold red.

The Outline Business Case incorporates the funding and financial requirements of this implementation plan, the implementation of which is determined by the actual amount of funding made available to the CIAA through CIG and Cabinet decisions. As such, the actual implementation of projects may vary from the plan based on the availability of funds in future years.

Table E.3: Outcome Planning Criteria to Evaluate the General Project Implementation Plan

S= Short Term M= Medium Term Long= Long Term			% of Total Value Estimate																		
			Short Term					Medium Term					Long Term								
Priority	Description of Sub-Project	Project Base	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
	General Aviation Terminal, ORIA, Grand Cayman																				
S	New G/A Terminal east side, North Sound site	A.1	10	40	50																
S	New Hangar next to g/a terminal	A.1			10	40	50														
S/M	New apron, north-sound	A.1	10		15	25		25	25												
	Owen Roberts International Airport, Grand Cayman																				
S/M	Land acquisition (ATC Tower location, Andy's and Car Rental properties, Budget and lot near CAL plot (LT)	A.2	25	25				25	15				10								
S/M	Terminal Expansion	A.2	5	5	20	15	25	25	5												
S/M	Apron expansion, and rehabilitation	A.2	5	20					20	20	15	10	10								
S	Runway extension	A.2	5	5	80	10															
M	Full Parallel taxiway	A.2								5	20	75									
L	Cargo / Future MRO/Engine Run-up Aprons	A.2																	10	40	50
L	Marine Dock / Seawall for water taxi services interface with airport	A.2											5	45	50						
M	Landside works	A.2		10					10	30	50										
L	Heliport, Medevac/Police/Tourism Center	A.2											10	40	50						
S	New ATC Tower and ATM System	A.2	5	45	50																
M	Airfield drainage improvements and pumping station	A.2	5							10	85										
	Charles Kirkconnell International Airport, Cayman Brac																				
S	Landside expansion to accommodate 30m set-back security regulation	B					100														
L	Terminal expansion, meets future requirements	B											10	15	25	25	25				
L	Maintenance facility expansion	B															10	10	80		
S	Runway strip and RESA works (REVIEW)	B	5	95																	
M	Rehabilitate Runway, Taxiway, Apron,	B								5	50	45									
M/L	Site Works, fencing, contingency, fees, etc. (MORE DETAIL)	B							10	10	10	10	10	10	10	10	10	10			
M	Apron expansion and 2nd taxiway to runway from apron,	B								5	55	40									
L	General Aviation apron	B															10	40	50		
L	ATC Tower	B												10	40	50					
	New Edward Bodden Airport, Little Cayman																				
S	EIA, Runway, NEW taxiway, apron	C	5	5	10	30	40	10													
S	Access road, terminal curb road and parking lot	C	5	5	80	10															
S	Airport perimeter road and fence	C					10	50	40												
S	Site Clearing	C			25	75															
S	Terminal	C	5	5			40	50													

The above project implementation plan was updated in 2023, based on approvals provided by the CIG. As such, the following implementation plan (Table E.4) is provided as a record of approved airports projects for CIAA.

Table E.4: CIG Approved Airport Development Projects

S= Short Term M= Medium Term L= Long Term				% of Total Value Estimate																		
				Short Term					Medium Term					Long Term								
Priority	Priority	Description of Sub-Project	Project	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
YES	S	New G/A Terminal east side, North Sound site	A.1				1%	29%	70%													
	S	New Hangar next to g/a terminal	A.1				1%	37%	62%													
YES	S/M	New apron, north-sound	A.1	3%	4%			20%	73%													
		Project A.1 (GA facility) total:																				
YES	S/M	Land acquisition (ATC Tower location, Andy's and Car Rental properties, Budget and lot near CAL plot (LT)	A.2							25%	25%		25%	15%				10%				
YES	S/M	Terminal Expansion	A.2			1%	2%	2%	5%	10%	15%	25%	25%	15%								
	S/M	Apron expansion, and rehabilitation	A.2							5%	20%				20%	20%	15%	10%	10%			
YES	S	Runway extension	A.2	2%	2%	54%	42%															
	M	Full Parallel taxiway	A.2											5%	20%	75%						
	L	Cargo / Future MRO/Engine Run-up Aprons	A.2																	10%	40%	50%
	L	Marine Dock / Seawall for water taxi services at airport	A.2											5%	45%	50%						
YES	S/M	Landside works	A.2									10%	10%	30%	50%							
	L	Heliport, Medevac/Police/Tourism Center	A.2											10%	40%	50%						
YES	S	New ATC Tower and ATM System	A.2	3%	26%	19%					5%		5%	25%	17%							
YES	M	Airfield drainage improvements and pumping station	A.2							5%			10%	85%								
		Project A.2 (ORIA) total:																				
	S	Landside expansion to accommodate 30m set-back security regulation	B											100%								
	L	Terminal expansion, meets future requirements	B											10%	15%	25%	25%	25%				
	L	Maintenance facility expansion	B															10%	10%	80%		
YES	S	Runway strip and RESA works	B	2%	1%		97%															
	M	Rehabilitate Runway, Taxiway, Apron,	B												5%	50%	45%					
	M/L	Site Works, fencing, contingency site works	B										10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
	M	Apron expansion and 2nd taxiway to runway from apron,	B												5%	55%	40%					
	L	General Aviation apron	B																	10%	40%	50%
	L	ATC Tower	B																10%	40%	50%	
		Project B (CKIA) total:																				
YES	S	Environmental Impact Assessment	C	37%	63%																	
YES	S	EIA, Runway, NEW taxiway, apron	C			5%	5%	10%	30%	40%	10%											
YES	S	Access road, terminal curb road and parking lot	C			5%	5%	80%	10%													
YES	S	Airport perimeter road and fence	C					10%	50%	40%												
YES	S	Site Clearing, fill and other preparation	C			25%	75%															
YES	S	Terminal	C						5%	5%	40%	50%										

Outline Business Case

The Outline Business Case was prepared in support of the proposed Airports Development Projects for the Cayman Islands. The OBC covers the Master Planning for the development of the following Projects:

Project A1:	**The General Aviation (GA) terminal at Owen Roberts International Airport (ORIA), Grand Cayman**
Project A2:	**Owen Roberts International Airport (ORIA), Grand Cayman**
Project B:	**Charles Kirkconnell International Airport (CKIA), Cayman Brac**
Project C:	**Edward Bodden Airfield (EBA), Little Cayman**

The aim of this OBC and Master Planning Project is to evaluate the requirements of each of the airports to ensure that each airport meets the required standards and regulations for safety and are capable of accommodating the forecast levels of demand. Furthermore, the interconnectivity of the Sister Islands with Grand Cayman, the conveyance of a strong brand image for the Cayman Islands, acknowledging and mitigating environmental issues and health are also important considerations for any expansion or development of the Cayman Islands Airports.

The OBC outlines the context against which a long list of airport development options has been evaluated, and it identifies the key drivers for change. The OBC also details value for money (Economic Case) and affordability (Financial Case) considerations. Finally, it provides guidance on preferred procurement routes (Commercial Case) and management (Management Case) arrangements required to deliver each project. The OBC has been prepared using the agreed standard and format for business cases using the Five Case Model, which comprises the following key components:

Strategic case	Examines how the scope of the Projects fits within the existing policy in the Cayman Islands and outlines a case for change in terms of existing and future needs.
Economic Case	Evaluates the long list of options identified in detail. It has elements of qualitative and quantitative analysis. It culminates in the identification of a Preferred Option for each Project.
Commercial Case	Outlines the proposed procurement route in relation to the Preferred Option for each Project outlined in the economic case.
Financial Case	Assesses the overall affordability of the Preferred Options in terms of funding and financing.
Management Case	Addresses the achievability of the Preferred Options, including how the Projects will be delivered and how the risks will be managed. It builds on the SOC by setting out in more detail the actions that will be required to ensure the successful delivery of the Projects in accordance with best practices.

The development of the OBC with the contemplated Airports Master Planned projects complies with the requirements detailed in the Green Book Guidance for the development of an OBC using the Five Case Model.



Abbreviations and Acronyms

ACI	Airports Council International
ADP	Cayman Islands Airports Development Project
ANS	Air Navigation System
ARFF	Aircraft Rescue and Fire Fighting (Services)
ATB	Air terminal building
ATC	Air traffic control
ASDA	Accelerate Stop Distance Available (a runway declared distance)
ASSI	Air Safety Support International (subsidiary of UK Civil Aviation Authority)
BIDS	Baggage Information Display System
CAL	Cayman Airways Ltd.
CBS	Checked Baggage Screening
CDS	Cayman Dispatch Services (a ground handler)
CICBC	Cayman Islands Customs & Border Control
CIAA	Cayman Islands Airports Authority
CAACI	Civil Aviation Authority of the Cayman Islands
CIFS	Cayman Islands Fire Service
CIG	Cayman Islands Government
COCENSA	Central American Corporation for Air Navigation Services
CKIA (CYB)	Charles Kirkconnell International Airport, Cayman Brac (IATA code: CYB)
CUPPS	Common Use Passenger Processing System
CUTE	Common Use Terminal Equipment
DME	Distance Measuring Equipment
DoE	Department of Environment

DVOR	Doppler Very High-Frequency Omni-Directional Range
EBA (LYB)	Edward Bodden Airfield, Little Cayman (IATA code: LYB)
EIA	Environmental Impact Assessment/s
ENCA	Enabling a Natural Capital Approach (*Green Book guidance*)
ESO	Economics and Statistics Office
EVTOL	Electric Vertical Take-Off and Landing (vehicles)
FADS	Flowers Air Dispatch Services (a ground-handling company)
FBO	Fixed Base Operator
FIDS	Flight Information Display System
FOD	Foreign Object Debris/Damage
GTC	Ground Transportation Center
HBS	Hold Baggage Screening
LDA	Landing Distance Available (a runway declared distance)
LOS	Level of Service
MEDEVAC	Medical evacuation
MET	Meteorological Facility / Weather Station
MRCU	Mosquito Research & Control Unit, Cayman Islands
NDB	Non-directional Beacon
NRA	National Roads Authority
OAG	OAG
OBC	Outline Business Case
OECD	Organization for Economic Co-operation and Development
OLS	Obstacle Limitation Surface/s
ORIA (GCM)	Owen Roberts International Airport, George Town, Grand Cayman (IATA code: GCM)

OTARs	Overseas Territories Aviation Requirements
PHP	Peak Hour Passenger/s
RESA	Runway End Safety Area/s
SSR	Secondary Surveillance Radar
STOL	Short take-off and landing (aircraft)
TODA	Take-Off Distance Available (a runway declared distance)
TORA	Take-Off Run Available (a runway declared distance)
UAV	Unmanned Aerial Vehicle
ULD	Unit Load Device (a standard-size container for baggage that is loaded into an aircraft)
VFR	Visual Flight Rules
WTTC	World Trade and Travel Council

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1 Purpose of the Airports Development Project

The purpose of the Cayman Islands Airports Development Project (ADP) is to prepare new airport master plans and land use plans in association with the development of an Outline Business Case for the three airports known as Owen Roberts International Airport, Charles Kirkconnell International Airport, and Edward Bodden Airfield. The airport master plans provide a vision for the required aviation infrastructure and related facilities needed to accommodate current and future aviation and passenger demand within a 20-year timeframe.

The ADP was undertaken with safety, environmental and financial sustainability as top priorities in facilitating aviation transportation services for the citizens of and visitors to the Cayman Islands.

There are four (4) key projects within the ADP:

Project A.1: **General Aviation Terminal, Hangar and Apron, ORIA**

Project A2: **Owen Roberts International Airport (ORIA) Master Plan**

Project B: **Charles Kirkconnell International Airport (CKIA) Master Plan**

Project C: **Edward Bodden Aerodrome (EBA) Master Plan**

The Outline Business Case, in accordance with the requirements of the Procurement Act 2016 and the Procurement Regulations of 2018, was completed for the contemplated airport projects and presented to and approved by the CIG Cabinet in spring 2023.

The airports master plans are the manifestation of the mission, vision and strategic objectives set out by the Cayman Islands Airports Authority (CIAA) through the approval of the CIAA Steering Committee, CIAA Board of Directors and ultimately the Cayman Islands Government (CIG). The ADP was undertaken with safety, environmental and financial sustainability as top priorities in facilitating aviation transportation services for the citizens of and visitors to the Cayman Islands and is intended to be a “living,” working airport development reference guide to be utilized as a guideline for future facility developments at all three Cayman Islands airports. As CAL operates all domestic scheduled passenger air services, it is incumbent on the airport master planning program to consider current aircraft operations, and future aircraft operations. CAL currently operates three types of aircraft, two of which – the Saab 340 and Boeing 737-Max 8 - are shown in Figure 1.1 over page.

The ADP report incorporates the outcomes of public outreach sessions and multiple stakeholder engagements conducted in 2021 and 2022. It provides the perspectives of key contributors and agencies of the Cayman Islands Government, including the Civil Aviation Authority of the Cayman Islands (CAACI) and the Cayman Islands Customs and Border Control (CICBC), Department of Environment (DoE), National Roads Authority, Water Authority, Lands and Survey Department, Cayman Airways Limited and other non-based airlines, airline ground handling companies, airport tenants, and users. The report reflects current economic conditions coming out of the COVID-19 pandemic with consideration of key economic drivers such as tourism and financial services users in its traffic and passenger forecasts for the Cayman Islands Airports. The ADP envisions a system of safe, economical, environmentally sustainable, and operationally efficient airports for its users and shared customers. Cayman Islands’ airports are the gateways, both international and regional, to Cayman people, places, culture, and experience.

Figure 1.1: Cayman Airways Saab 340 and Boeing 737-Max 8



2 Background Information

2.1 The Cayman Islands

The Cayman Islands is a British Overseas Territory in the Caribbean Sea, comprising the islands of Grand Cayman, Cayman Brac, and Little Cayman (the latter two collectively referred to as the Sister Islands). It is situated about 180 miles (290 km) northwest of Jamaica and 480 miles south of Miami, USA. The capital city is George Town, located on Grand Cayman. According to preliminary 2023 census data, the total population of the country is now 69,310, with most residents living on Grand Cayman.

Grand Cayman is the largest and most populous island. It is approximately 22 miles (35 km) long and 8 miles (13 km) across at its widest, with a total area of 76 square miles (197 square km). Grand Cayman is generally flat and supports the majority of Cayman resorts, hotels, and tourism sites. The Owen Roberts International Airport (ORIA) in George Town is the primary gateway to the Cayman Islands, although tourists also visit by cruise ship seasonally.

Cayman Brac is approximately 145 km (90 miles) northeast of Grand Cayman and 8 km (5 miles) east of Little Cayman Island. It is the second-largest island and is about 19 km (12 miles) long by 2 km (1.2 miles) wide. The terrain on Cayman Brac is rockier, and it is known for its limestone bluffs and outcrops that rise along the length of the island. There are some small resorts and hotels on Cayman Brac. It is known for its natural beauty, caves, and of course – diving. It has fewer than 2,000 residents and is served by the Charles Kirkconnell International Airport (CKIA). Cayman Airways Ltd. (CAL) provides domestic air service between it and Grand Cayman and Little Cayman and has also provided international services directly to / from Miami, USA.

There were approximately 160 residents in Little Cayman in 2021. In addition to being the least populous, Little Cayman is also the smallest of the three islands, being 16 km (10 miles) long by approximately 1.6 km (1 mile) wide. The Edward Bodden Airfield (EBA) provides a landing strip for the residents and visitors from both ORIA and CKIA by CAL. There is no international air service at EBA. Little Cayman is known for its natural beauty, the red-footed booby birds, rock iguanas and hawksbill sea turtles, and of course sub-aqua diving. Two (2) of the most popular dive sites in the world are located off the north shores of Little Cayman, called the ‘Bloody Wall’ and ‘Jackson’s Bight.’

‘The Bogue,’ the sea between Cayman Brac and Little Cayman, is over 5,000 feet deep, and there are significant sea swells common to this area of the Caribbean Sea. This may be one of the key reasons there is no ferry service between the Sister Islands and Grand Cayman. Travel by air is therefore essential for both residents and visitors alike. The ADP documents the airport facilities required to support essential air services providing safe, efficient, cost-effective, and sustainable travel to/from and between the islands.

2.2 Cayman Islands Airports Authority

The CIAA was established in July 2004 and is a statutory authority under the Ministry of Tourism & Transport. The CIAA owns and operates Cayman's airport facilities, which consist of two (2) international aerodromes, ORIA on Grand Cayman and CKIA on Cayman Brac. The CIG owns a small portion of EBA on Little Cayman; the remainder of the aerodrome lands are owned by several private entities. EBA is currently managed/maintained by CAL.

The CIAA is led by Chief Executive Officer Mr. Albert Anderson, who reports to the Board of Directors. The CIAA has embarked on several major projects and multi-year airport redevelopment projects since 2015. The air terminal renovation and expansion and apron works were completed in 2019. The terminal was already experiencing capacity related constraints in some areas prior to this, and there were delays to aircraft movements on the runway and aprons. The airside works were completed in 2021 and included the runway rehabilitation and extension. It is important to note that the terminal capacity issues were identified prior to the apron and taxiway additions, and it is unclear at this time what positive impacts will be realized.

Figure 2.1: CIAA Vision, Mission and Culture

VISION STATEMENT

To provide world-class airport services

MISSION STATEMENT

Connecting Cayman to the world with an innovative and sustainable travel experience

CULTURE

Integrity
Caymanian Values
People-focused
Innovative

After the onset of the COVID-19 pandemic in the spring of 2020, the number of annual air passengers and aircraft movements dropped precipitously, which also occurred globally. Although some domestic traffic actually increased between Grand Cayman, Cayman Brac and Little Cayman, there were almost no international visitors due primarily to health and vaccination requirements, resulting in a significant overall reduction in air passengers. Tourism traffic began to recover again in July 2022, when most of the travel restrictions were lifted, including local quarantine measures. Note the CIAA's recently updated are the vision, mission statements, and core values of the CIAA:

2.2.1 Existing CIAA Organization

The CIAA organization structure developed organically over time, with the result that there is now no clear distinction between business units and support units. Due to ORIA's rapid growth over the past decade, their ongoing responsibility to manage CKIA, and the prospect of having to manage an additional airport in the near future (on Little Cayman), the CIAA organization structure must evolve into a structure that will promote the delivery of quality, world-class airport management across the entire airport system.

The current organization structures are shown below, in Figure 2.2 for ORIA and in Figure 2.3 for CKIA, which are based on operational delivery, facility maintenance and operational management of airport systems.

Figure 2.2: Current CIAA Organizational Structure at ORIA

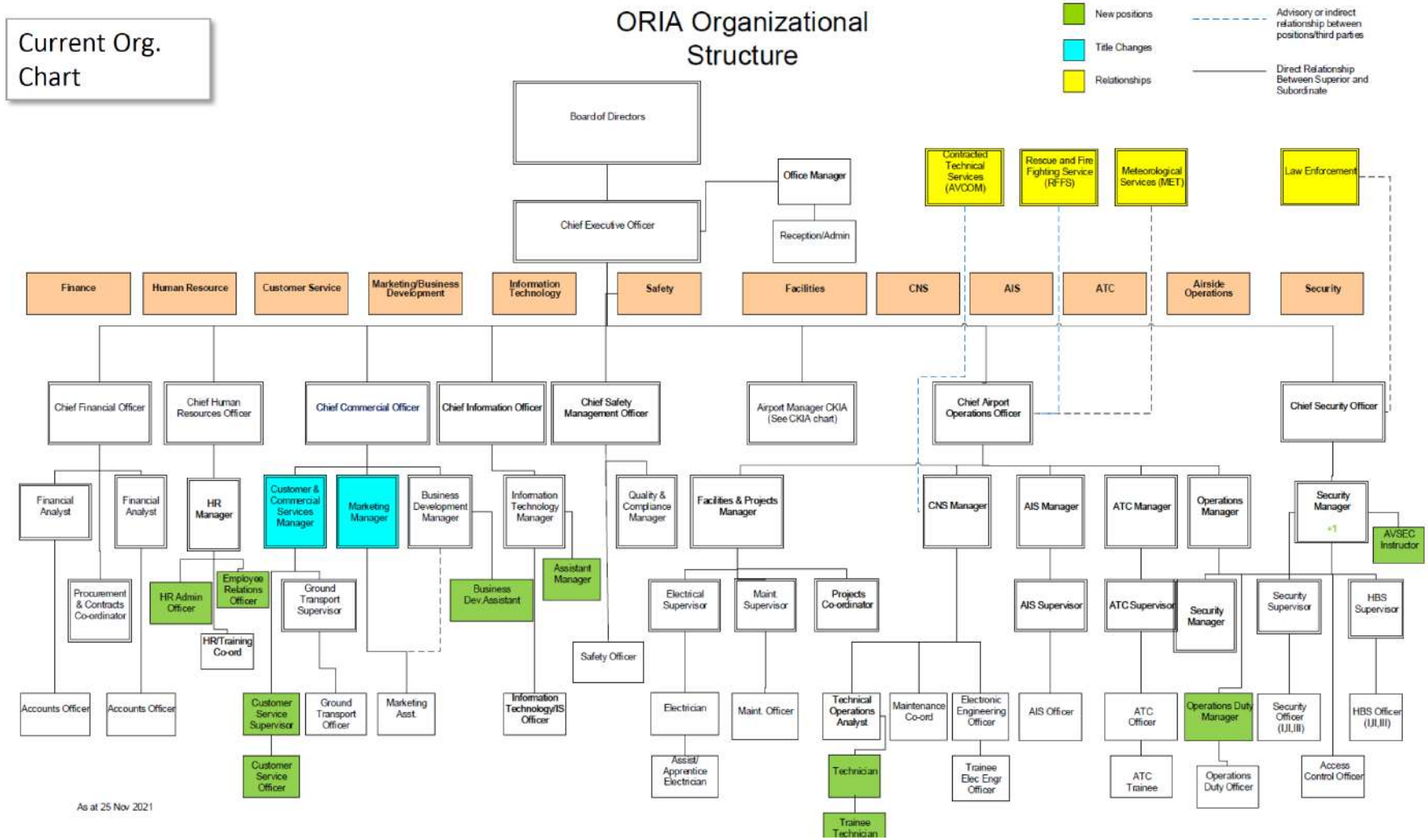
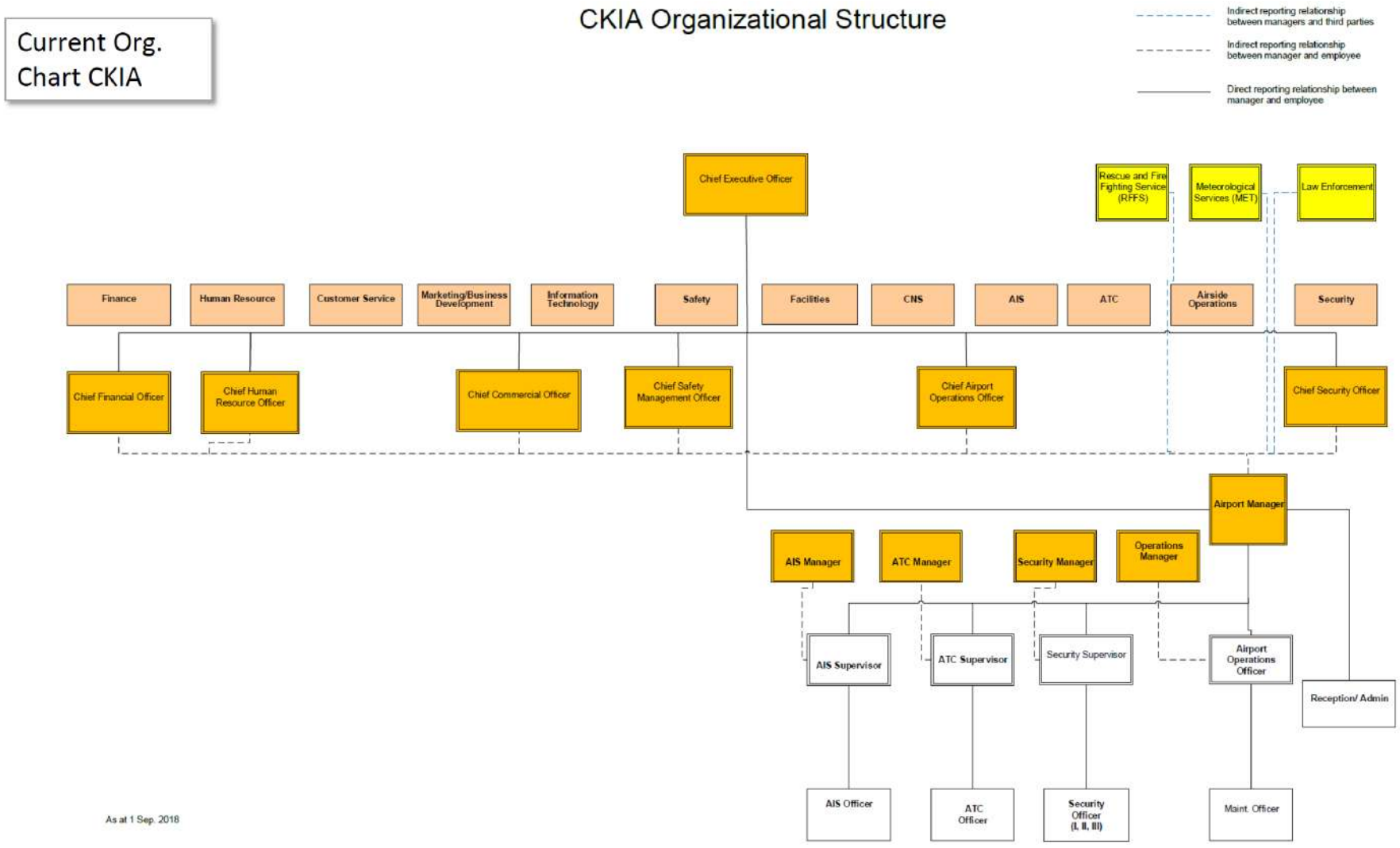


Figure 2.3: Current CIAA Organizational Structure at CKIA



The CIAA acknowledges that a review of the organizational structure of CIAA is required to realize a focus on revenue generation, which in turn facilitates/guides the CIAA's focus on the user, improving the passenger experience and the quality of facilitation while meeting supporting revenue targets and allocating functions to support such targets. The Authority is committed to moving towards a passenger/user and revenue focus, which aligns with the evolution of the organizational structure.

2.2.2 Proposed CIAA Organization

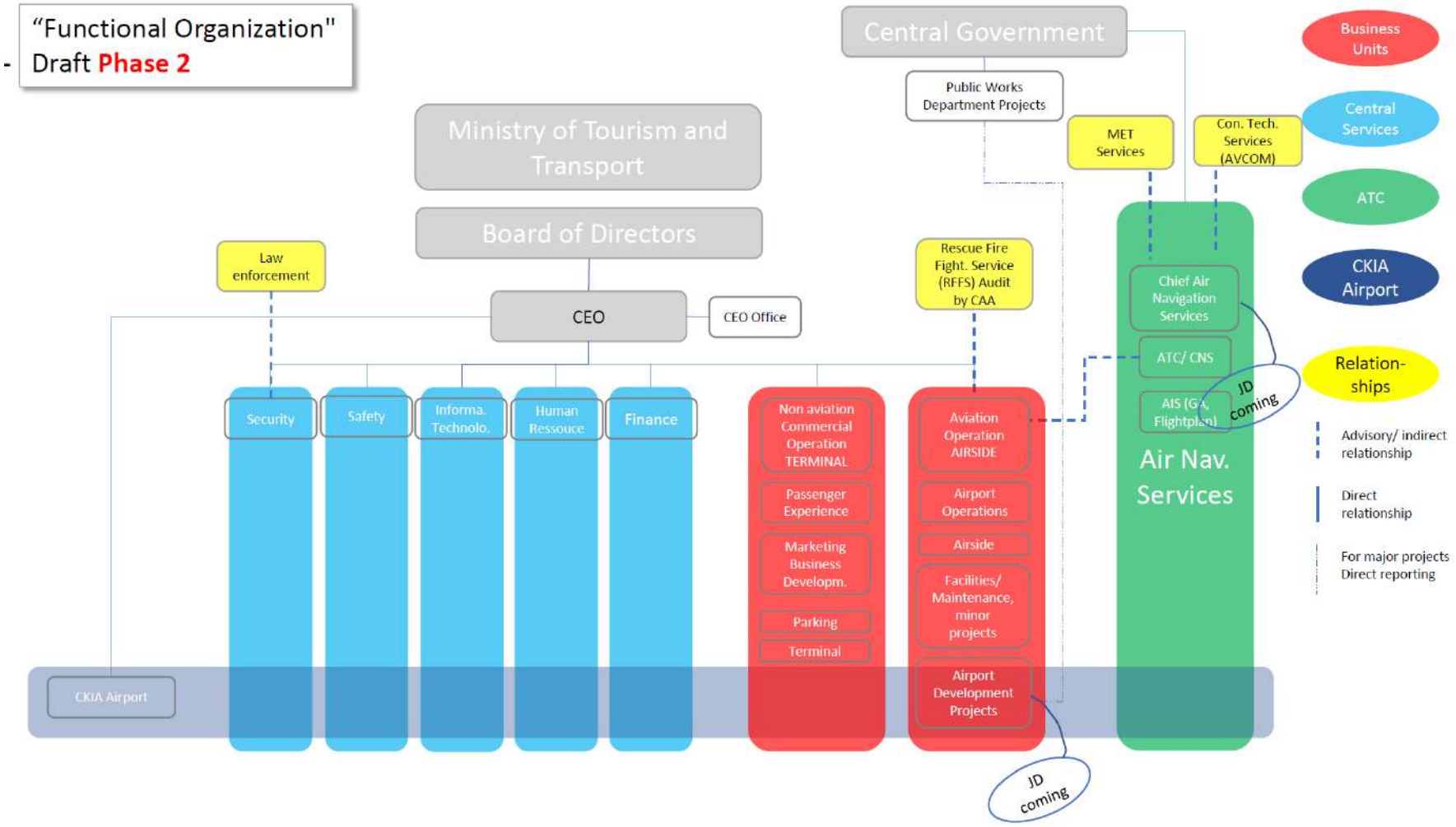
Based on the review completed by Stantec and Munich Airport International, the proposed CIAA organizational structure provides the following:

- There is a clear distinction between business units and central services.
- There is a clear understanding of which units generate revenues and which units support the revenue process.
- Functions were allocated first, then positions.
- There is a clear distinction between ORIA and CKIA airports.
- There is a clear distinction between the airport functions and the ATC / Airspace Management functions.

A draft functional organizational structure was developed and is shown in Figure 2.4 below.

In the proposed CIAA organizational structure, Aviation Operations should focus on all processes related to landside, terminal, and airside operations, such as terminal curbside management, check-in hall, security, baggage operations, aircraft ground movements, etc., non-aviation operations are to focus on passenger experience and commercial functions such as retail, food and beverage concessions, commercial management, business development, airport landlord functions, parking and ground transportation services and related landside revenue management functions. We have not recommended how or when to implement this proposed organizational chart. The CIAA will review how and when any changes should take place.

Figure 2.4: Proposed CIAA Organizational Structure



2.3 The Airports Development Project

In May of 2022, the CIAA initiated the ADP, comprised of four (4) key sections included in the Outline Business Case: Project A.1, GA Facilities at ORIA, Project A.2, ORIA Airport Master Plan, Project B, CKIA Airport Master Plan and Project C, the Little Cayman Airport master plan.

Each of the facilities indicated above is instrumental in supporting the feasible, long-term aviation system plan for the Cayman Islands Airports. The Edward Bodden Airfield (uncertified/unregistered aerodrome) on Little Cayman is not currently operated by the CIAA. It is operated by Cayman Airways Ltd. (CAL) under an exemption issued by the Civil Aviation Authority of the Cayman Islands (CAACI). If a new aerodrome contemplated for Little Cayman were to be developed, it would be undertaken by the CIAA as a certified airport capable of supporting Cayman Airways' contemplated future aircraft fleet. Again, the new airport would likely operate in an annual deficit situation until such time that commercial traffic and passenger revenues can offset the expenses of operating and maintaining the new airport. It is unlikely that the airport would be capable of operating without an operating deficit and will likely require funding support from the CIG.

The ADP is meant to be a living document that guides ***all*** future planned development at and adjacent to the three Cayman Islands Airports in support of a safe, certified public air transportation system that is the responsibility of multiple stakeholders, including the Cayman Islands Airports Authority, Cayman Airways, the Cayman Islands Government. The ADP aims to foster safe, sustainable, efficient, and innovative airport facilities through a detailed land use plan that meets the future demands of passenger, cargo, and landside traffic. It aims to do so in a manner that supports a positive passenger and user experience from the runway system through the passenger, cargo and general aviation terminals and landside systems.

The ADP explores the current capacity, condition, and capabilities of the airport system, followed by a traffic forecast and gap analysis to determine the gap between current facilities and future facilities based on key user requirements. It also includes alternative layout plan options for the airside, terminals, and landside that facilitate future demand in a safe, efficient, and operationally effective manner. The alternatives are evaluated, and a preferred development land use plan and facilities plan is detailed for each airport which ultimately becomes the manifestation of the strategic vision for each airport in the Cayman Islands, and from which the CIAA can deliver an excellent airport experience to its various partners, guests, and passengers.

3 Key Stakeholder Engagement Activities

3.1 Consultations with Primary and Secondary Stakeholders

Significant consultations were undertaken by the CIAA in 2021 in advance of the Cayman Islands Airports Development Project. The CIAA completed nearly 90 hours of interviews with leaders from over 40 primary and secondary stakeholders between May and October 2021. A list of the interviews completed is provided in Appendix A.

Figure 3.1: List of Stakeholders Surveyed by CIAA in 2021

Entity	Date Meeting held	Attendee 1	Attendee 2	Attendee 3	Attendee 4
American Airlines	04.10.2021	Nadine	Anagracia D.		
Air Traffic Control	25.05.2021	Erick B.	Bobby B.		
Car Rentals	08.10.2021	Brian K.	Paige F.		
Cayman Airways	02.09.2021	Paul T.	Ivan F.		
Cayman Finance Ltd	22.10.2021	Jude S.			
Cayman Flying Club	26.10.2021	Tim	Jason		
Customs and Border Control	20.09.2021	Charles C.			
CDS	24.06.2021	Erimando E.	Jonathon E.		
Central Carribbean Marine Institute	19.10.2021	Kate H.			
Chamber of Commerce	05.10.2021	Will P.			
Civil Aviation Authority #1	10.06.2021	Alastair R.	Robert H	Craig S.	Nikki M.
Civil Aviation Authority meet #2	28.06.2021	Alastair R.	Nikki M.	Richard S.	
CI Tourist Association	24.09.2021	Marc L.			
CKIA	11.06.2021	Miguel M.	Derron		
Commercial and Customer Service	21.06.2021	Bianca MD.	Ivis M.		
Delta Airlines	09.09.2021	Kevin B.	Marva R.		
Dept. of Environmental Health	24.08.2021	Richard S.			
Department of Environment	22.06.2021	Gina	Fred	Wendy J.	
Department of Tourism	08.09.2021	Rosa P.	Tom. L	Ricardo S.	Gary H.
Executive Air	16.11.2021	Dale			
CIAA Executives	24.06.2021	Albert A.	Wayne D.		
CIAA Facilities	23.06.2021	Eimer P.	Nicholas J.	Kemar B.	Derick J.
FADS	25.06.2021	Dara F.	Frank F.	Randy	
Island Air	07.09.2021	Marcus C.			
Fire Department	17.06.2021	Brevan	Paul W.	Tatum	
Fosters	26.11.2021	Woody F.			
Gene Thompson	07.10.2021	Gene T.	Rahul M.	Andrew V.	
Health City	17.09.2021	Shomani S.			
HMCI	25.11.2021	Danielle C	David B.		
Health Services Authority	01.09.2021	Dr. Simmons	Dr Williams	Steve D.	
InvestCayman	14.12.2021	Jane S.			
Information Technology	03.06.2021	Mark W.	Paul J.		
Jet Blue	20.08.2021	Benjani L.	Winston W.		
Medical Services/Aitheras	27.10.2021	Mark S.			
MET	05.10.2021	John T.			
MRCU	18.06.2021	Richard C.	Ben T.		
National Trust	29.09.2021	Annick J.	Catherine C.		
National Roads Authority	30.09.2021	Edward H.	Denis T.		
CIAA Operations #1	18.06.2021	Jeremy J.			
Operations Meeting # 2	27.05.2021	Andy G.			
Police (Airbourne)	15.09.2021	Steve F.			
Police (land Operations)	27.09.2021	Kurt W.	Malcolm K.		
RUBiS	22.09.2021	Andres B	Greg C.		
CIAA Safety	02.06.2021	Andrew M.			
CIAA Security	26.05.2021	Chad Y.	Denniston		
Sister Islands Committees	15.10.2021	Greg M.	Debra V.		
SOL Petroleum	21.09.2021	Ricardo C.	Myron B.		
SouthWest	11.09.2021	Shalico			
United	10.09.2021	Phil			
Water Authority	22.06.2021	Hendrik V.	Yasmin J.	Trenton F.	

For the ADP, the team conducted various types of stakeholder consultations, as summarized below:

- *Primary Stakeholder Interviews – Round I:* *25th May through 20th October 2021*
- Primary Stakeholders Interviews – Round 2: 20th June through 24th June 2022
- Public Survey: 11th July through 30th August 2022
- Public Outreach Session – Round 1: 11th through 13th July 2022
- Primary Stakeholder Interviews – Round 3: 11th through 15th July 2022
- Public Outreach Session – Round 2 21st – 23rd November 2022

In 2022, the CIAA ADP Project Manager, along with the Stantec Project Manager, completed a series of further key primary and secondary stakeholder interviews. The consultations generally augmented the interviews completed by the CIAA in 2021. Additional notes summarizing the outcomes of key stakeholder meetings are provided in Appendix A.

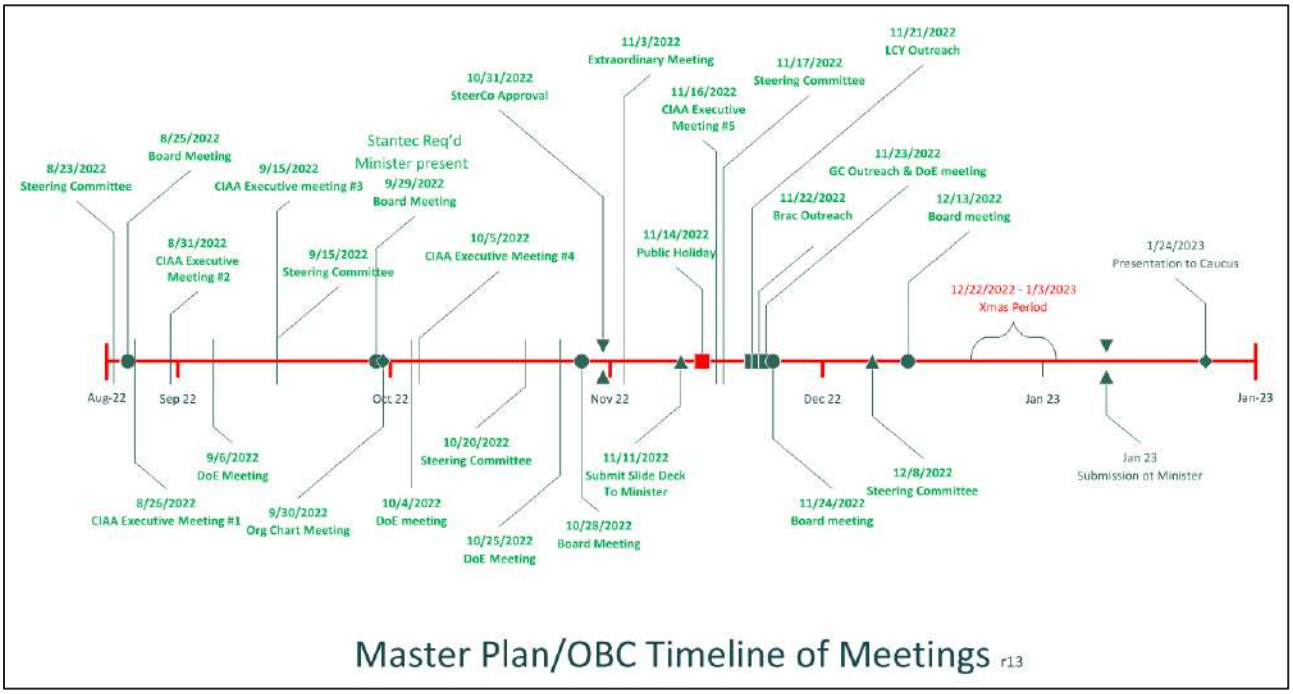
Figure 3.2 summarizes the key stakeholders engaged in June of 2022.

Figure 3.2: June 2022 Stakeholder Consultation Schedule

<table>
<tr><th></th><th>Sunday</th><th>Monday</th><th>Tuesday</th><th>Wednesday</th><th>Thursday</th><th>Friday</th></tr>
<tr><th></th><th>June 19th</th><th>June 20th</th><th>June 21st</th><th>June 22nd</th><th>June 23rd</th><th>June 24th</th></tr>
<tr><td>8:00</td><td rowspan="7">Travel to Island</td><td></td><td></td><td>Travel to the Brac</td><td></td><td></td></tr>
<tr><td>9:00</td><td rowspan="2">Meeting with the Civil Aviation Authority (at CAA Offices)</td><td rowspan="2">Airside Tour and GA Terminal Visit (Start at Beacon House)</td><td rowspan="3">Tour of CKIA and Meet with Airport manager</td><td rowspan="3">Round Table meeting with CIAA Departments and Munich Consultants</td><td>Meeting with CEO and COO</td></tr>
<tr><td>10:00</td><td rowspan="2">Open</td></tr>
<tr><td>11:00</td><td>Meeting with CEO and COO</td><td>Meeting with Customer Service/Security (Beacon House)</td></tr>
<tr><td>12:00</td><td>Lunch</td><td>Department of Environment</td><td>Lunch</td><td>Lunch</td><td>Lunch</td></tr>
<tr><td>13:00</td><td>Meet with Ground Handlers</td><td rowspan="2">ORIA Terminal Tour and Landside Operations (Start at Beacon House)</td><td rowspan="4">Tour of Little Cayman</td><td>open</td><td rowspan="6">Leave island</td></tr>
<tr><td>14:00</td><td>Meet with ATC/CNS/AIS</td><td rowspan="5">Steering Committee</td></tr>
<tr><td>15:00</td><td>Philip Arrives</td><td>Open</td><td rowspan="2">Facilities (Beacon House)</td></tr>
<tr><td>15:30</td><td></td><td rowspan="3">Meeting with Airside Operations (Jeremy & Andy)</td></tr>
<tr><td>16:00</td><td></td><td>Meeting With CFO (Boardroom)</td></tr>
<tr><td>16:30</td><td></td><td rowspan="2">Meeting with all Airlines (Boardroom)</td><td></td></tr>
<tr><td>17:00</td><td></td><td>Fosters Food Group</td><td>Travel Back to Grand Cayman</td></tr>
<tr><td>17:30</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>18:00</td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Additional meetings were held during the project in 2022 and early 2023, primarily with Lands and Survey Department, and the Department of Environment. The DoE is a primary stakeholder with significant influence on land use planning in an airport and adjacent to the airports, particularly the sensitive areas such as the protection of endangered species and mangroves, particularly where land meets the sea. A full listing of our milestone meetings is included below in Figure 3.3.

Figure 3.3: Milestone Meeting Chart



A full record of meeting notes is provided in Appendix B. Insights gleaned from these consultations informed the airport development objectives and desired outcomes for the facilitation of passengers, visitors, employees, cargo, general aviation, and aircraft support services. Many of the inputs related to the facilitation of a stable and growing tourism industry and the growing need to facilitate luxury tourism through correspondingly high levels of passenger services at both the general aviation and main passenger terminals of ORIA.

Many of the airlines and ground handling companies informed the CIAA and project team of the need for improved and or expanded facilities in key areas of the passenger terminal to support airline operations in the busy peak hours, including check-in and baggage handling facilities, security systems, space for customs and immigration services, departures hold rooms and boarding gates. Perhaps the most common need was for improved passenger protection from the elements on the airside (between terminal and aircraft) and landside (between terminal and ground transportation). Improved weather protection not only improves the level of service of the airport, but it also facilitates the separation of arriving and departing international passengers as well as the separation of arriving international passengers from domestic ones. All of this can be achieved through the provision of second-floor departure hold rooms with passenger boarding bridges.

Two significant concerns identified were the lack of sufficient parking stalls available generally, and a lack of cover over the landside curbs. Again, employees lack sufficient parking facilities at ORIA, above that required by passenger demand. The demand in the 2019 peak month exceeded supply, resulting in people having to use the nearby undeveloped grass fields for overflow parking, which becomes muddy after rain. In addition, there is only a single, non-aeronautical revenue-creating retail space on the landside. New revenue producing spaces can be implemented as part of a thoughtful terminal expansion planning process.

There are no rental car agencies at the airport at ORIA, which presents a problem to a significant number of passengers who must walk off the airport property with their luggage (often in blustery conditions) to reach rental car agencies to the north and west of the air terminal building. In addition, there are no associated revenues from rental car agencies, and this could change if the rental car facilities were operating within the airport property.

The CIG and CIAA complied with an ASSI mandate regarding the hardening of landside security at the ORIA air terminal building, in accordance with ICAO Doc 8973, Chapter 11 and the OTAR 178.181, to be implemented in August of 2021. It required that public roads, terminal curbside, and vehicle parking be set back 100 ft. (approximately 30 m) from the facade of a terminal building. Depending on future passenger growth at CKIA, it might also become subject to this requirement. The implications for ORIA are a loss of the existing curbside roads and landside parking to accommodate a new, relocated terminal curbside. Coupled with a growing traffic congestion problem in George Town on the approach to/from ORIA, it is incumbent upon the CIAA to maintain planning coordination with the NRA to implement landside traffic plans that ease congestion and improve the flow of traffic, resulting in both efficiencies and environmental benefits.

The volume of dedicated air cargo activity through the Cayman Islands, although regular, is minimal compared to container ship/marine freight systems. In fact, the volume of air cargo through ORIA is typically carried in small twin-engine (Code B) aircraft with daily/twice-daily flights to/from Miami, for example. There is a need for a dedicated cargo center at ORIA with facilities that supports the facilitation of cargo / goods that are time / temperature sensitive.

There is a lack of appropriate GA facilities (hangars, aircraft parking aprons, terminal spaces) to accommodate the current and future GA demand; investment in new facilities is required to support these operations, which, coupled with a strong tourism recovery and a growing financial services sector, aims to provide facilities which support the attraction of high net-worth individuals to the Cayman Islands.

The lack of full-length runway end safety areas (RESAs) at ORIA is a concern to the CAACI and must be addressed. Likewise, RESAs are also required at CKIA. In addition, the runway strip at ORIA must be drained, as standing water is an attractant to birds, another hazard to aviation, particularly in the runway strip after storms.

The Cayman Brac Airport issues were primarily related to airside regulatory issues and the impact of an expanded runway strip on the naturally occurring Westerly Ponds, which is also a bird habitat (and an aviation hazard). Elimination of the ponds is unacceptable to environmentalists and the DoE, but the hazard to aviation is a primary safety concern that must be addressed.

For Little Cayman's Edward Bodden Airfield (EBA), CAL, CAACI, and CIAA made it clear that the current aerodrome is not sustainable in its current form and will not accommodate the future aircraft fleet of CAL. The current use of DHC-6 Twin Otters by CAL allows for only a limited number of passengers and baggage due to the short, narrow runway and significant obstacle environment on and around the strip. Based on several iterations of runway development at the existing site, it was determined that the most feasible manner of achieving aerodrome certification, and meeting the requirements and standards that support the safe operations of critical aircraft for the flying public, would be the construction of a new aerodrome elsewhere.

Land owned by the Cayman Islands Airports Authority and designated as the location for an alternate aerodrome is available on Little Cayman, northeast of the existing airfield. The proposed site will accommodate the future fleet mix and critical aircraft while meeting all applicable aerodrome standards as a state-certified airport under ICAO Annex 14, 17 and Doc 9774 and applicable OTARS (OTAR 139, 178). A larger scale Sister Islands Development plan may be required to guide the overall development of the Sister Islands, but the concerns of the aviation regulator, the scheduled air carrier, and the airport authority must all be satisfied in either case. The existing situation should not continue based on the fact the existing aerodrome cannot meet international aerodrome standards and recommended practices. It is operated in a regulatory grey zone, hence leaving the multiple owners and operating stakeholders open to unforeseeable liabilities.

3.2 Public Survey

A survey was launched on 6 July 2022, inviting the public to have their say on the future of each Island's airport infrastructure development. The survey remained open for 30 days and closed on 7 August 2022. The results of the survey are to be found in Appendix C.

The following issues were raised in response to the question:

Do you live within half a mile of any of the Cayman Islands aerodromes/airports? If yes, what is your biggest concern in relation to future developments of the aerodromes/airports?

Grand Cayman

Respondents provided comments relevant to ORIA and the Sister Islands airports.

- Environmental impacts are a significant area of concern, including climate change, pollution, and destruction of the environment, including mangroves, natural habitats, and animals. Noise pollution is also a strong theme.
- Other concerns related to increased ground traffic, impact on private property, and overall safety.
- Some respondents expressed an interest in improvements, for example, to the design of the airports, safety, increased runway lengths (to facilitate larger planes and therefore more direct European flights) and other upgrades.

Cayman Brac

Many concerns were related to the environment, including the wetlands, birds, natural habitats, and pollution.

- Respondents noted that they do not want to see any destruction of the environment caused by expansion, which some believe to be unnecessary. Noise pollution is also a common concern. Also mentioned were concerns about private property and traffic.

Little Cayman

- A significant majority of respondents voiced the sentiment that they are against any expansion and feel it is unnecessary. Other areas of concern were the environment, noise pollution and the safety of the airstrip.

In response to the following question, other issues were raised:

Please let us know if you have any additional environmental/sustainability concerns you would like to raise.

- When considering the environment, the most frequently mentioned area of concern is perceived to be unnecessary or over-development. There are comments about the Islands losing their charm, a loss of the Cayman Islands' identity and, most often, whether the Islands can sustain an increase in tourism and development.
- Other top environmental concerns were wildlife, the wetlands, and birds. Respondents are very concerned about the destruction of the wetlands, loss of natural habitats and the impact on bird populations, mangroves, Rock Iguanas, and other wildlife. Many respondents noted that flora and fauna are an important part of what attracts people (tourists and locals) to the Cayman Islands, particularly the Sister Islands and that it would be counterproductive to destroy these for the purposes of growth and development.
- Other frequently mentioned areas include renewable energy (specifically the use of solar power), the importance of balancing environmental concerns with growth and safety issues, and pollution.

3.2.1 Aviation Stakeholder Recommendations

Respondents who identified as aviation stakeholders as opposed to passengers were asked two additional questions:

Are there locations in the Cayman Islands where you would like to see a new aerodrome, heliport, or seaplane facility? Please specify.

- Responses were varied but included enthusiasm for seaplane facilities and heliports. Locations suggested were Bodden Town, East End, North Sound or South Sound in Grand Cayman as well as Little Cayman and Cayman Brac. There was also a recommendation for a longer and wider runway in Little Cayman with modern navigation aids and lighting.

Do you have specific recommendations for improvements to the aviation system?

- Recommendations were made with regard to long-term planning for demand, the importance of jetways (or some form of shelter from the elements during boarding and disembarkation), improvements to facilities, including concessions, parking and departure areas, and enhancements to general aviation offerings.

Do you have any additional comments/concerns you would like to raise?

- Jetways and/or other methods of keeping passengers from getting wet or sunburnt were mentioned explicitly by many respondents.
- Other key areas of dissatisfaction overwhelmingly related to the entertainment, food & beverages (specifically the lack of bars), and shopping opportunities currently available, with some respondents noting that the current offering does not align with Cayman's push to be recognized as a "luxury' destination (while expecting tourists to pay a "luxury" price). Respondents have noted that the overall feel of the airport is below expectations, and they would like to see things such as local cuisine options (as opposed to fast food outlets), local art, local music playing for arrivals and departures, and "island" decorations throughout and the airport.

3.3 Public Outreach Sessions

Community outreach sessions were held on each of the three islands to give the public opportunities to have their voices heard. The hosts were representatives from CIAA, Stantec, KPMG and Chalmers Gibbs. The sessions were held between 5:30 pm and 7:30 pm as follows:

- Monday, 11 July, at the Aston Rutty Centre, Cayman Brac (c.35 people attended)
- Tuesday, 12 July, at the Little Cayman Beach Resort, Little Cayman (c.10 people attended)
- Wednesday 13, July at the John Gray High School Hall, Grand Cayman (c.28 people attended)

A brief outline of the project was presented, and then the meeting was opened to attendees to express their ideas, concerns, and suggestions and to ask any questions they may have. The sessions were streamed live on Facebook, and the videos were subsequently saved to the Cayman Islands Airports Authority's ("CIAA") Facebook page. Below is a summary of the key themes that were discussed during each session.

3.3.1 Grand Cayman Outreach Sessions

- There were questions around the old master plan – what had been achieved, what had yet to be done and what would be carried forward into the new plan.
- One community member expressed distrust of the process and whether the public outreach would have an impact. An increase in communication with the public throughout the course of the project would serve to alleviate such concerns.

- The attendees had questions about the impacts on local businesses. These included whether population and tourism growth were being considered, especially in relation to businesses in the vicinity of ORIA.
- Community members wanted to know whether the current footprint would accommodate current demand/future development, and if not, which land would be targeted? Is the CIAA considering moving the airport to the east end of Grand Cayman?
- A question was asked about the decision-making process – which methods, assumptions, and impacts would be considered and how these would be incorporated into the master plan. Further, how would environmental factors be weighed against other factors (e.g., value for money, operations, etc.)., etc.).
- Concerns were raised around a loss of 'sense of place' because of the recent upgrades to ORIA and whether an attempt would be made to restore the lost charm of the airport. Consideration for local culture and character was discussed in contrast to the current fast-food chains.
- Attendees were interested in what improvements would be considered – for example, automation such as kiosks, pre-clearance for the United States or Canada, efficiency, and use of underutilized space.
- Questions arose about mitigating the impact of increased traffic. Concerns were also raised in relation to how the infrastructure on the land side (e.g., parking, traffic congestion) would support increased air traffic.
- Questions were asked about air navigation facilities and if improvements would be made to these. It was noted that there is a possibility of using radar facilities that are available but would need to be implemented. It was expressed that currently, the closest alternative runway is more than 200 miles away should airplanes be unable to land at ORIA due to, for example, poor visibility or inclement weather. It was suggested that Cayman Brac should be considered as an alternative in these cases.
- Discussions took place around the general aviation facility. An attendee noted airplanes are being turned away, there is insufficient aircraft parking, and a parallel taxiway is needed.
- Community members wanted to know if consideration was being given to alternative fuels and whether accommodating hydrogen and electric-powered planes had been considered.
- Attendees asked whether consideration had been given to privatizing the Little Cayman airstrip and noted that they felt it worked well previously. A community member also noted that money was currently being lost on the Edward Bodden Airfield and that, while it was understood that residents of Little Cayman wanted it to remain as it currently is, they felt it should be upgraded to ensure emergency evacuation is possible at any time of day (e.g., lights, standards). People living there are at risk, and tourists are there too.
- Ecological and environmental concerns were discussed. It was noted that if the Brac Westerly Ponds were lost, there would not be any habitat left. Previous development caused the destruction of habitat that has not been mitigated, rehabilitated, or compensated for.
- There were also questions about what was being done to combat rising sea levels and whether air quality control was being considered, especially for those in the current approaching flight path.

3.3.2 Cayman Brac Outreach Sessions

- Many attendees voiced concerns about the impact of any proposed developments on the Westerly Ponds. It was discussed that much of the tourism in Cayman Brac is nature tourism (including birding). Developments that threaten birdlife would therefore threaten tourism.
- Two community members emphasized the importance of performing an Environmental Impact Assessment in advance of performing any work.
- There was a general sentiment that the airport was working as is and did not require any changes, with multiple community members quoting the international status of the airport as a basis for standards being met. As mentioned above, it is not widely known that the current airport is, in fact, not meeting regulations (e.g., runway length).
- Some attendees questioned whether increased growth was predicted. It was also noted that there was no official development plan or zoning in Cayman Brac and that development planning should be considered.

3.3.3 Little Cayman Outreach Sessions

- Some attendees talked about previous plans that had been initiated and then abandoned, such as a new site for the airstrip, and that there had not been satisfactory communication about the plan or why it had changed.
- The need for any developments/changes was not apparent to community members. There should be communication regarding the reasons for considering upgrades to/development of the airstrip, for example, around the importance of compliance with standards or regulations.
- Attendees expressed their satisfaction with the current airstrip. Generally, there was a feeling that the current arrangement met the current demand. They acknowledged there were issues but didn't feel there was a need to develop it much further.
- The attendees had questions about the methodology used to predict future growth. It was noted that the language implied there would either be development, or the use of the airstrip would be discontinued.
- There was a concern about infrastructure being used to drive development.
- Community members voiced concerns that Little Cayman could not support increased demand. For example, the dive sites are under pressure at the current capacity and would be overwhelmed if numbers increased.
- Discussions that continued after the main outreach session concluded identified that some residents do recognize the need for change and whether infrastructure improvements and other development were required on the island. It was noted that there is a fine balance between the required upgrades and over-development.
- Attendees noted that tourism is largely driven by diving and that Little Cayman has some of the best dive sites in the world. However, an increase in visitors would negatively impact that, with the reef's capacity for divers being finite.

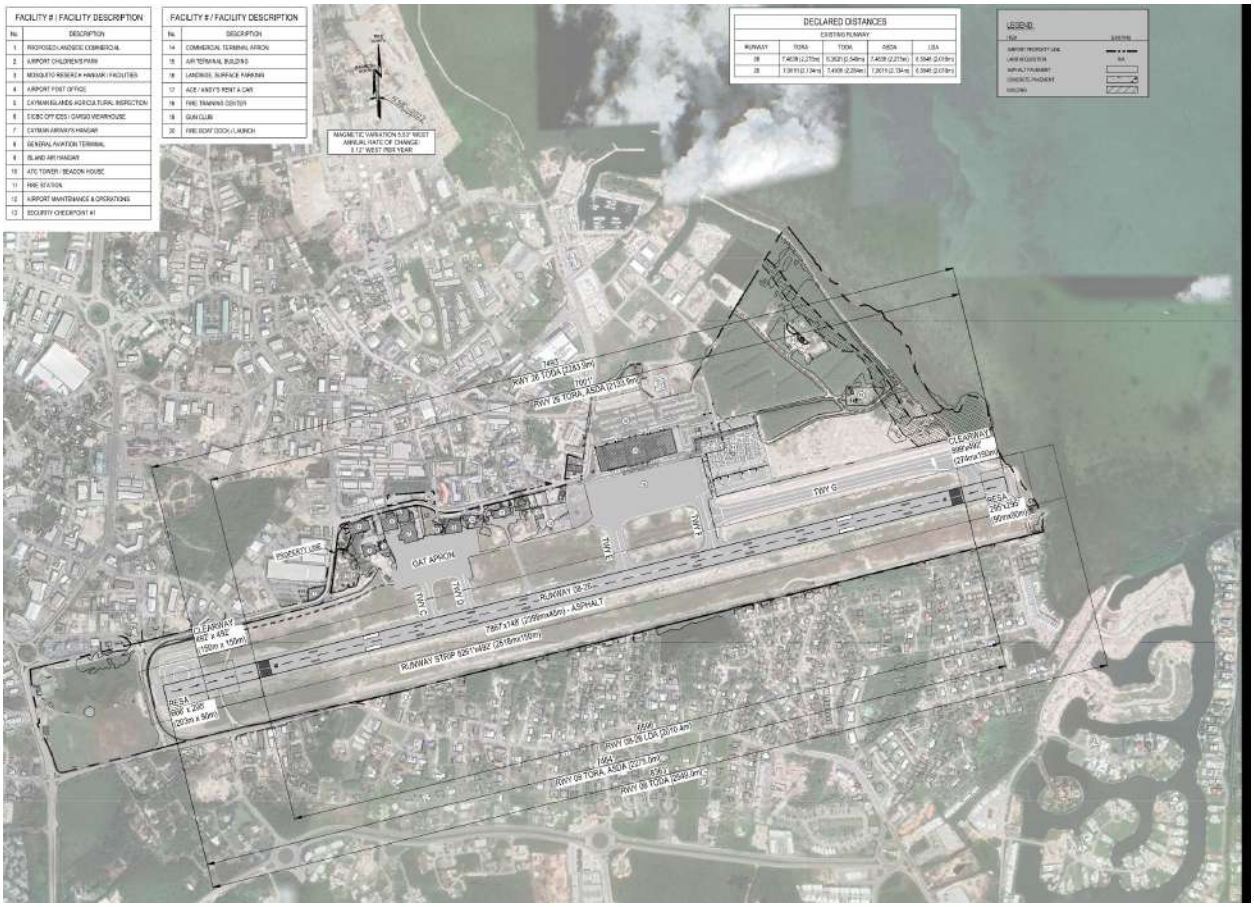


- It was expressed that whatever course of action is decided for Little Cayman, the eradication/lethal control of birds or destruction of their habitat would be unacceptable.
- Whatever the environmental impact of the plan, there should be offsets (e.g., other areas on the island set aside and protected, rehabilitation of the current airstrip if it is no longer in use, etc.).
- Consider using Cayman Brac as a base/distribution center for travel to Little Cayman and have a ferry service between the two (islands). This could also be expanded to allow private boats to be used as water taxis, sharing economic benefits with the locals.
- Other options considered would need to be run in conjunction with the current airstrip in case of emergencies where fast, reliable access to Grand Cayman is needed (disaster relief and evacuation before and after hurricanes, diving accidents), i.e., do not completely demolish the airfield if it is decided to proceed with alternatives.
- A resident suggested that Little Cayman could be accessed primarily by helicopter from Brac (with the helicopter stationed in the Brac) and also be accessible from Grand Cayman via helicopter. It was suggested that this would increase the allure/exclusivity of the island (for high-net-worth tourists especially) while maintaining the island's charm. Additionally, the helicopter could be leased to the local resorts to transport private parties to/from Grand Cayman or Cayman Brac.
- The question was raised as to whether someone could contact the current airstrip landowners to consider buying the land. A question was also raised as to whether there is a plan for a domestic arrival's terminal at ORIA.

4 Airport Infrastructure Existing Conditions

4.1 ORIA, Grand Cayman

Figure 4.1: Existing Conditions, Owen Robert International Airport



Please refer to a full-size existing airport layout plan in Appendix D.

4.1.1 General Aviation Terminal

The general aviation (GA) terminal at ORIA is located west of the Air Traffic Control tower and just east of the Cayman Airways hangar. The building is capacity constrained, is nearing the end of its useful life expectancy and needs improved air circulation / HVAC equipment, new and improved security screening equipment, upgraded finishes, washrooms, and new furniture.

Figure 4.2: GA Terminal, ORIA



The current general aviation site is more suitable as an aircraft maintenance area and less so for executive and high-net-worth individual passengers using the terminal. Because the number of washrooms for staff is inadequate, a portable toilet is provided outside of the terminal for their use.

The general aviation apron is also occupied by cargo aircraft, CAL aircraft, and other visiting aircraft. It can be very congested in peak periods of the year, particularly December through January, and the spring-break (February - March) peak tourist periods, with aircraft parked three and four-deep.

It is important to note that one of the CIG's strategic policy's states that the attraction of high net-worth visitors to the Cayman Islands supports key industries of tourism and financial services.

4.1.2 Cayman Airways Hangar

The CAL hangar is located on the west side of the existing GA terminal and aircraft parking apron. The facility was built for smaller aircraft - the latest Cayman Airways B737-MAX 8 aircraft is too large to fit inside the hangar. The wingtips would need to be removed for it to fit, and even then, the tail would remain outside the hangar. A larger hangar will be required to support the maintenance activities of their B737-MAX 8 aircraft, in addition to the Saab 340s and DHC-6 Twin Otters based at ORIA. Major aircraft maintenance services currently have to be undertaken outside the Cayman Islands. CAL expressed that it would be advantageous if a more appropriate facility were developed at ORIA so that more aircraft maintenance servicing could be conducted at their home base. This includes the development of an enclosed aircraft engine run-up area (which contains noise) to enable additional maintenance services and engine checks to be completed during off-peak hours. These engine run-ups are currently being performed on the runway.

Figure 4.3: CAL Hangar, ORIA



The hangar has been maintained in good condition, but the offices are temporary structures that have become permanent. The air quality in the building is maintained by keeping the airside doors open most of the time. The apron area adjacent to the CAL hangar is in good condition, although there are patches that require urgent repair due to their potential for generating foreign object debris (FOD).

4.1.3 Air Traffic Control Tower | Beacon House

The ORIA Air Traffic Control (ATC) Tower is located east of the GA terminal, north of the airfield and is facing south. The building is long past its expected life and is showing its age. The tower roofs have been repaired multiple times, including recently, to eliminate leaks in the fourth and fifth-floor roofs. The third-floor electrical equipment and data rooms have been kept dry, but there is a risk to this sensitive equipment. The replacement of the ATC Tower is planned to be initiated in the 2029-2030 horizon as it is an essential operational function at ORIA. A new ATC Tower on the south-side of the airfield would eliminate the glare from the sun that the controllers are facing constantly in the current Tower location. In addition, a new Tower to the south would provide better visibility to aircraft parking aprons in all areas, as opposed to the limited views from the current Tower.

The ceilings are low, and the visibility to the airfield is fair due to the sun's glare into the tower cab. Improvements via CCTV systems are required to support safe operations and line of site to all aircraft manoeuvring areas.

Despite the age and condition of the building, the CIAA maintains the building to ensure it is safe to work and operate until its replacement is made available.

Figure 4.4: Air Traffic Control Tower, ORIA



A secondary surveillance tower is located on the northeast corner of the airfield. It is operated by a third party; data is available to CIAA Tower Controllers, but this option was not realized. A separate study of the air navigation system (ANS) operated by CIAA at ORIA was completed in 2022. The study concluded that the navigational aids serving ORIA must be upgraded in the short term. The CIAA has indicated the need to upgrade the ATM system in addition to removals of equipment such as SSR Antennae that require significant setbacks, and which have limited adjacent land developments.

4.1.4 Owen Roberts Fire Station

The Owen Roberts Airport Fire Station is located immediately east of the GA hangars and the ATC Tower. The emergency response services are provided by the Cayman Islands Fire Service (CIFS). The CIFS provides both domestic fire response services to George Town, in addition to provision of Aircraft Rescue and Fire Fighting (ARFF) services at ORIA. The fire station is currently being expanded to accommodate additional bays for fire fighting apparatus and vehicles.

There is no current need to upgrade the level of ARFF services at ORIA. They currently stand ready for responses to emergencies for all aircraft operating at ORIA, up to Code E (i.e.: B-777).

The emergency response services road is a straight-shot alignment between the fire station and Runway 08-26, angled slightly to the east. The ARFF service road is in relatively good condition. However, new radius curves and the elimination of the wide-open asphalt mouth connecting to the runway would improve response times by ARFF vehicles while eliminating the wide-pavement area between the service roads that could be mistaken for a taxiway by pilots. An extension to the runway length will require a review of the ARFF services response

times; should the vehicles not be capable of attaining the end of the runway strip within the prescribed regulated time of three (3) minutes or less, then the ARFF fire hall would need to be relocated, or another station added.

Figure 4.5: Airport Fire Hall, ARFF Services



An emergency services fire boat and launch supporting ARFF services at ORIA, is located at the south-eastern corner of the Runway 08-26 strip, with the capability to respond to incidents in the North Sound. This fire boat launch must be relocated out of the runway strip, likely north of the runway strip, to meet applicable regulatory requirements.

Figure 4.6: Fire Rescue Boat and Launch, SE Corner of Runway 08-26 Strip



4.1.5 Security Fence and Check Points

There are two main security vehicle checkpoints at ORIA; each includes an office/duty station and screening area for employees and authorized personnel. The checkpoints include vehicle capture gate systems (gates trap the vehicle in front and behind during the screening process). All persons and vehicles entering the airside through these checkpoints are thoroughly screened.

Security Checkpoint #2 is being updated and renovated in the 2023 – 2024 timeframe to meet aviation security regulatory requirements. This will improve vehicle flow, security facilitation and facilities for the employees stationed at the checkpoint.

4.1.6 Runway 08-26

Runway 08-26 at ORIA is 150 ft. (46 m) wide, grooved, asphaltic concrete surface, non-instrument runway with a take-off run available (TORA) of 7,464 feet (2,275 m). The runway was recently rehabilitated and extended, and new RESAs were installed at both the west and east ends. The Runway strip measures 8,261 feet (2,518m) long x 492 feet (150m) wide and is the basis for its non-instrument Obstacle Limitation Surface (OLS) configuration. There are some obstacles noted on the west and south sides of the runway strip (mainly in the transitional area), which the CIAA is actively working with adjacent landowners and agencies to remove during 2022-2023. There is also a need for a marine obstacle assessment to be completed, along with any proposed extension to the runway and RESA into North Sound.

A portion of the airfield surface in the runway strip, and that which is south of the runway strip, holds standing water, which represents a hazard to aviation activity. Birds attracted to the standing water as a place to roost, feed, and rest represent the key risk to aircraft operations from Runway 08-26 at ORIA.

Standing water may also create a hazard to aircraft operations on Runway 08-26 and Taxiway Golf, particularly at the east end of the pavements; flooding has occurred in the past, and the swells that can be created from tropical storms and hurricane activity result in flooded surfaces and lead to the closure of the taxiway, and possibly a temporary displacement of the Runway 26 threshold to the west.

Figure 4.7: Runway 08-26 Strip, Standing Water



4.1.7 Runway 08 – 26 Capacity

The practical hourly capacity of the single runway configuration, in Visual Flight Rules (VFR) conditions, is estimated to be 18 to 20 movements due to the requirement for aircraft backtracking (after landing and prior to takeoff). Theoretically, this runway should be capable of handling closer to 50 aircraft movements in the peak hour, but the lack of runway exits in the appropriate ranges reduces the functional capacity as aircraft must taxi further or backtrack taxi on the runway itself. In addition, the lack of a modern air traffic management (ATM) system contributes to an increase in aircraft separations required.

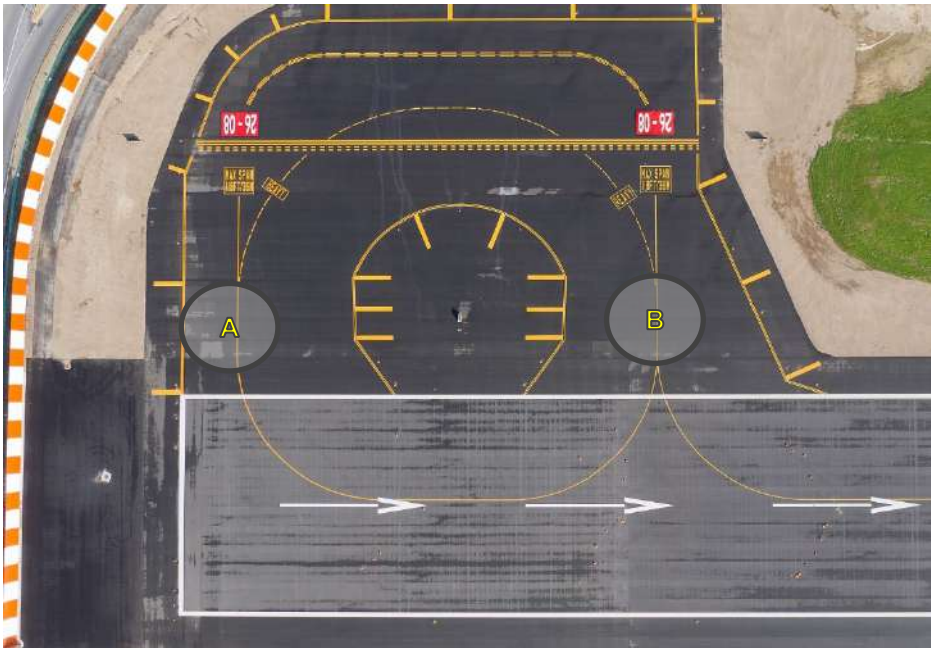
The estimated practical annual runway capacity of GCM is not greater than 116,800 movements. The theoretical annual runway capacity estimate is greater and upwards of 200,000 movements. The hours of operations at GCM, lack of a modern ATM system, and the lack of a fully parallel taxiway with taxiway exits located to suit the aircraft mix are all factors that limit ORIA's runway capacity.

4.1.8 Taxiways & Hotspots

There are eight separate taxiways at ORIA. Taxiways A, B, C, D, E, F, G and H are all asphaltic concrete surface taxiways; taxiways A and B were recently added. The CIAA recently built the partial parallel Taxiway G and Taxilane H, which alleviated key runway capacity constraints and improved runway exit flows significantly.

Hotspots are areas where there is a higher-than-usual potential for aircraft-to-aircraft conflicts. Without a full-length, parallel taxiway at ORIA, the runway itself is required for aircraft to taxi on and backtrack between the terminal or general aviation aprons and Runway 08 (the predominant runway). There are two (2) hotspots at ORIA: **Hotspot 1**: The intersection of Taxiways A and B (west end, pre-threshold holding area for Runway 08).

Figure 4.8: Hotspot 1, Taxiway A & B



Hotspot 1 requires pilots to carefully taxi their aircraft into a taxi-holding area parallel to the runway. Aircraft typically enter Bravo from the Runway and exit the holding area onto Runway 08 via Alpha taxiway. Prior to take-off from Runway 08, pilots and ATC coordinate and communicate to ensure that other backtracking aircraft are able to enter the holding bay via B taxiway and ensure the runway surface is clear for the next flight.

It was discovered that while the taxiway was designed to hold two (2) older model B737 models, when a B737-MAX 8 enters the taxiway A – B loop, there is not enough space for another B737-MAX 8. This will be resolved once a full-length parallel taxiway is built.

Hotspot 2: **Intersection of Taxiway F with G.**

Figure 4.9: Hotspot 2, F & G



Hotspot 2 is relatively new. Some aircraft may require the full runway length to land before exiting the runway onto G. During peak hours, some aircraft pushbacks on the main terminal apron may cause a delay for aircraft entering the apron via F. In addition, there is a possibility that aircraft on G may need to hold until an aircraft exits the apron via F. It is an ongoing challenge without a full parallel taxiway between the apron and runway. In addition, Taxilane H (along south side of the main apron) may also be occupied by aircraft pushing back from their parking positions at the main terminal during peak periods.

4.1.9 Aircraft Aprons

There are two aircraft parking aprons at ORIA; the first is the GA Apron for daily and weekly parking of private/chartered aircraft operations; the other is the main Terminal Apron, which supports passenger service aircraft at the main terminal building.

The aircraft parking aprons are distinguished by their various pavement ages, types, and conditions. The apron pavement surface consists of a patchwork of concrete/asphalt/brick surfaces. Older brick pavements should be replaced with a consistent rigid pavement structure and a surface that eliminates groundwater infiltration by effluents such as aircraft and ground handling equipment, engine oils, aviation and diesel fuels, hydraulic fluids,

and other lubricants. In addition, the installation of fuel/oil-water separators is encouraged for hangar and apron drains.

The paint markings used for aircraft taxi, parking and equipment parking areas are faded and should be repainted at least bi-annually to maintain surface markings visibility as per applicable aerodrome standards found in OTARs Part 139. The addition of glass beads to painted surfaces may improve visibility, particularly in rainy conditions.

There is limited space for parking GA aircraft. Aircraft parking is often required on the Cayman Airways hangar apron and commercial aprons in order to accommodate the demand. This results in operational constraints and inefficiencies; it takes extra time and resources to move aircraft around a congested apron. This has been a source of numerous complaints from aircraft owners and is a distraction to using Cayman as a destination during peak times. The lack of hangar space also negates any opportunity to accommodate the safe indoor storage of very expensive business jets and commercial aircraft alike, which is also a potentially significant revenue for CIAA.

The airside area, between the runway strip and airside hangars and terminals, is sufficient for the expansion of apron parking areas, but a future potential full-length parallel taxiway may reduce the area available for general aviation parking in the current location.

4.1.10 Airport Facilities Building

The airport facilities building is located on the west side of the passenger terminal apron and just east of the airport Fire Station. The building is old and in fair to poor condition. It is undersized and in need of replacement. The building and employee facilities are outdated, and the CIAA plans to replace this facility in the short term. A new airport facilities building is expected to be operational before the end of 2024. A security checkpoint for airside access is located adjacent to the airport facilities building.

4.1.11 Ground Handling Facilities

There are a number of old, outdated buildings operated by various ground-handling companies at ORIA. The equipment maintenance sheds are undersized, and the majority of airside handling equipment is stored outdoors on paved or unpaved surfaces. Companies such as Cayman Dispatch Services (CDS) and Flowers Air Dispatch Services (FADS) have complained that there is a lack of space for equipment storage and a lack of office space on the ground level at the terminal. Ground handling facilities located near the Airport Children Park and the Mosquito Research & Control Unit (MRCU) Hangar area are considered too far away for ground handlers to use efficiently. The airlines have indicated that they need their offices to be closer to the apron and aircraft, but they have complained about noise created by the power generators nearby.

There are no dedicated aircraft equipment storage/staging areas on the main terminal apron; all ground handling companies share space based on which airline is parked on which gate. There is no dedicated loading dock at the terminal buildings, and there is no central ice machine available.

Numerous ground staff are deployed on the main terminal apron at ORIA to ensure safe and controlled passenger flows. They check that mixing of passengers is avoided, that departing passengers follow the pathways to the aircraft from the building and the same for arriving passengers walking from aircraft stands to the terminal and customs hall.

The baggage handling equipment for ground handlers is evolving. They have indicated their desire to replace fossil fuel-powered equipment with electric equipment. Storage and staging areas with charging stations (and sufficient power) should therefore be contemplated as part of the master planning process. The lavatory cart dump station is obsolete and inadequate for use by ground handling companies. There is a lack of sufficient lighting, and there are no wash-down capabilities. A new lavatory dump system integrated into the terminal septic system would be advantageous to operators.

The ground handlers indicated that the baggage cart lanes in the baggage make-up area are too narrow and circulation restricted. They require offices, lunchrooms, and washroom areas easily accessible to their employees working on the terminal apron. Improving facilitation for employees is important; a separate security checkpoint for employees would have a positive impact on employees and would reduce queuing at public security checkpoints.

4.1.12 Cargo Warehouse and Cayman Islands CICBC Facilities

The Cayman Islands Customs & Border Control (CICBC) warehouse facility is located at the west end of the general aviation apron, immediately north/northwest of the Cayman Airways hangar. The CICBC operates a bonded warehouse to process cargo imports and exports, and the building includes customs administration offices. There is a lack of temperature-controlled cargo facilities at ORIA.

The CICBC warehouse and office complex is an aging facility, although it has been refurbished and is functioning as required. New cargo x-ray screening machines were acquired in 2022 and are to be installed in 2023, improving the throughput and screening effectiveness of the cargo warehouse.

Although there are low volumes of air cargo moving through ORIA/GCM, there are a variety of aircraft operations which may happen simultaneously, including unscheduled flights. The dedicated cargo aircraft types operating at ORIA include Convair 580s, Saab 340s and Fairchild Metros. While the cargo volumes are easily handled relative to the demand, there are not enough dedicated aircraft parking positions for cargo operations. When the GA apron is busy, and Cayman Airways have aircraft at or in front of their hangar, cargo aircraft operators can experience delays in parking and manoeuvring.

Most cargo is carried in the belly holds of large, commercial service aircraft, the majority of which are operated by Cayman Airways, British Airways, American Airlines, and Delta Airlines, and is mainly import cargo. Cargo is removed from the belly hold of commercial flights at the main passenger terminal and then transported by ground handlers to the CICBC cargo warehouse.

The main cargo couriers operating at ORIA/GCM include DHL, FedEx, Sprint, UPS, and US Link.

4.1.13 FBO and Private Aircraft Maintenance

The two dedicated fixed base operators (FBOs) at ORIA are Air Agencies, and Island Air. Island Air operates a small aircraft hangar adjacent to the GA Terminal. The FBOs provide aviation fuel, aircraft maintenance services, and hangarage for the helicopters and private fixed-wing aircraft.

Island Air reported that the private GA market at ORIA has changed since the advent of the COVID-19 pandemic. They indicated that there was an increase in the number of shared ownership aircraft (like NetJets) which visit but are less likely to overnight. In essence, the fractional aircraft ownership market is increasing relative to private ownership.

Figure 4.10: Island Air Hangar, ORIA



During peak travel periods pre-2020 (December-January and March), the GA aprons are congested, and aircraft are parked 'wingtip to wingtip,' which increases the risk of accidental damage to aircraft and may lead to operational inefficiencies for aircraft operators. The CIAA recognizes this issue as a key issue to be resolved in the ADP.

The helicopters based at ORIA are housed in the Island Air hangar; helicopters currently use the runway for approaches and departures, but ATC has complained about the mixing of rotary and fixed-wing operations. As such, a dedicated heliport is to be considered.

4.1.14 Aviation Fuel Services

Aviation fuel is distributed by two oil companies to the airlines and private operators by Sol and Rubis, major oil companies operating in the Cayman Islands. Island Air provides direct-to-aircraft fuel services for private aircraft operators at ORIA. Both Jet-A and 100LL fuel are available. A new fuel facility jointly developed and operated by Sol and Rubis is coming online in 2023, immediately north of the terminal parking lot.

4.1.15 Mosquito Research & Control Unit Hangar

The Mosquito Research and Control Unit (MRCU) hangar is home to a fleet of special aerial spraying aircraft (Thrasher 550) that are utilized to control the mosquito population in the Cayman Islands. The apron is a rigid concrete pavement structure that is relatively new and in good condition. There is a mosquito spray chemical catchment system next to the hangar apron, which is a large, sloped concrete structure.

In 2022, MRCU received funding to purchase an Unmanned Aerial Vehicle (UAV). MRCU is currently working on an aerial operations manual and staff training to enable the UAV to be safely used operationally to supplement its existing aerial capabilities.

Figure 4.11: MRCU Hangar and Aircraft (Thrasher 550)



4.1.16 Other Facilities

- There is no marine port or dock from the North Sound at ORIA. During a visioning exercise with CIAA in June 2022, this was identified as something to consider, especially in the light of George Town's growing traffic congestion issues.
- There are numerous private residential properties with trees that are obstacles to the OLS for Runway 08-26 and which have been identified by the CIAA and reported to CIAA. Ongoing obstacle removal is key to improving the safety of the airfield and airspace.

- There are meteorological (MET) facilities and weather-related equipment located immediately to the east of the GA Terminal at ORIA. The MET office is also constructing a new facility off the airport, immediately south of the runway strip and at the western end of the runway strip. This new site may be capable of supporting weather equipment, allowing some property to be re-purposed.
- Future ATC Tower locations were reviewed with CIAA, and a number of potential sites were noted. These sites require further analysis. Once a site is chosen, an ATC design height and line of sight studies can be completed to confirm the feasibility of the site. ATC would likely be co-located with other ANS facilities. A preferred location is central to the future runway length and south of the runway strip.
- The Sol Rubis fuel farms are located north of the parking areas at ORIA. There is no pipeline to the airport, so fuel trucks must travel on the ORIA landside roads and through security checkpoints (east of the air terminal building) onto the airside aprons. This is cause for concern, as traffic delays, security issues, and other unplanned events could impact the efficient timing of aircraft fueling operations. It would be beneficial if fuel trucks could remain airside, filling from a Jet-A fuel station that is fed by a pipeline from the fuel farm. However, Sol and Rubis stated that an underground fuel line would be too costly and proposed the use of dedicated fuel trucks and a holding bay close to an airside access point to resolve fuel-to-aircraft delivery and timing concerns indicated by airlines. There are no private or public fuel tanks located in the airport, but the oil companies have requested a dedicated access point in the east end of the airport landside to facilitate fuel transport from the tanks to the aircraft aprons.

4.1.17 ATM Surveillance Facilities

A study of the Cayman Islands Air Navigation System (ANS) is being undertaken simultaneously with the ADP. The outcomes of the study are provided separately to the airport master plan for ORIA.

4.1.17.1 Secondary Surveillance Radar (SSR)

Figure 4.12: Secondary Surveillance Radar (SSR), ORIA

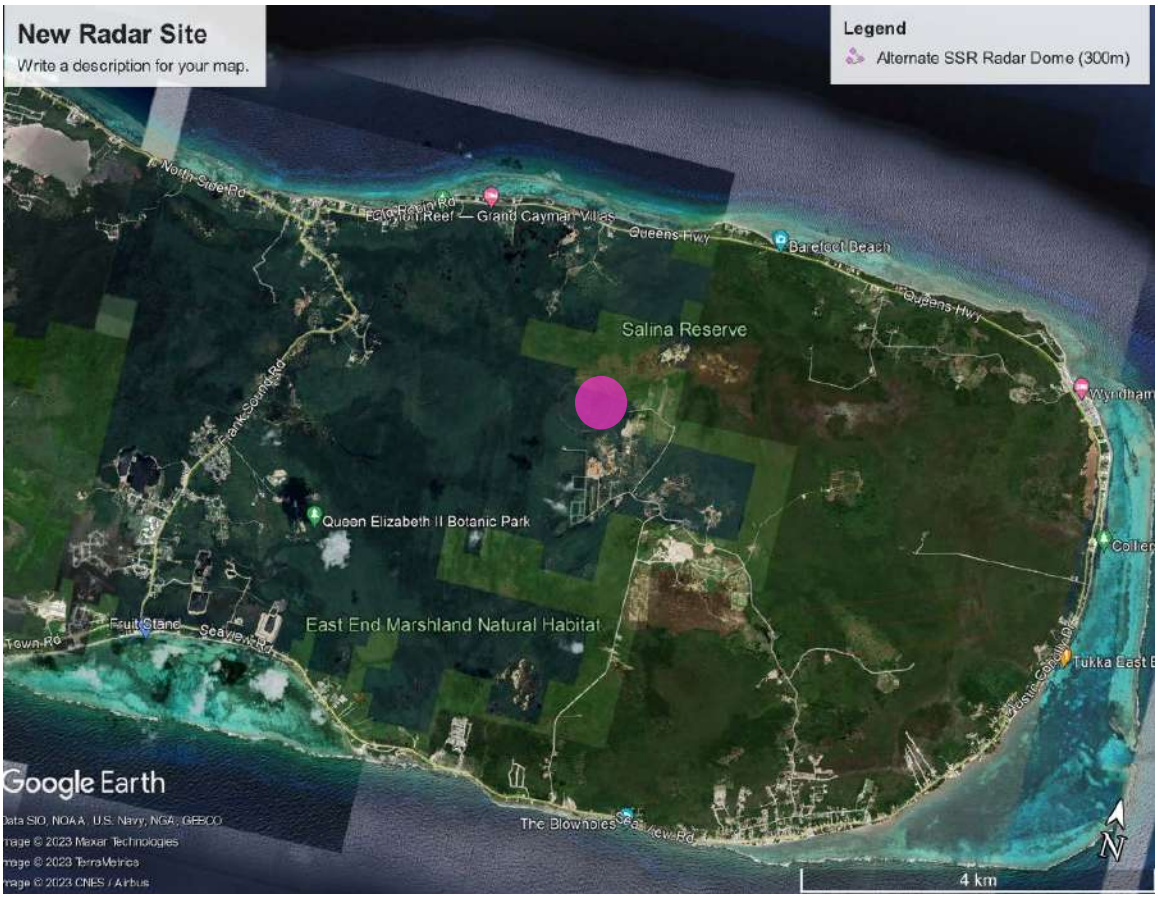


A secondary surveillance radar (SSR) owned by COCENSA (Central American Corporation for Air Navigation Services) is located on lands leased from the CIAA north of Taxiway G, east of the terminal area. Surveillance data has not yet been integrated into the ANS for ORIA, and the lease term is expiring in October 2025.

The SSR has a 300 m setback from other buildings and structures, which severely limits space available for other airport facility developments at ORIA. In addition, electronic interference limits are imposed on any building development within 1 kilometre, limiting heights of adjacent, proposed facility developments. This facility should be removed from ORIA property and relocated, at minimum, to unlock the potential for utilizing the land in this area of the airport for higher and better uses, such as a GA Terminal and apron.

A land swap with Lands and Survey is up for consideration and approval by CIG and therefore it is likely that the SSR Tower will be relocated in 2024 to the east end of Grand Cayman, as shown in Figure 4.15.

Figure 4.13: New Secondary Surveillance Radar Site



4.1.17.2 Doppler's Very High-Frequency Omni-Directional Range (DVOR)

The DVOR antenna with distance measuring equipment, positioned on the land west of threshold Runway 08 and east of the Cricket Club, is redundant and is to be decommissioned by 2025.

4.2 Landside Facilities

4.2.1 Landside Access Roads

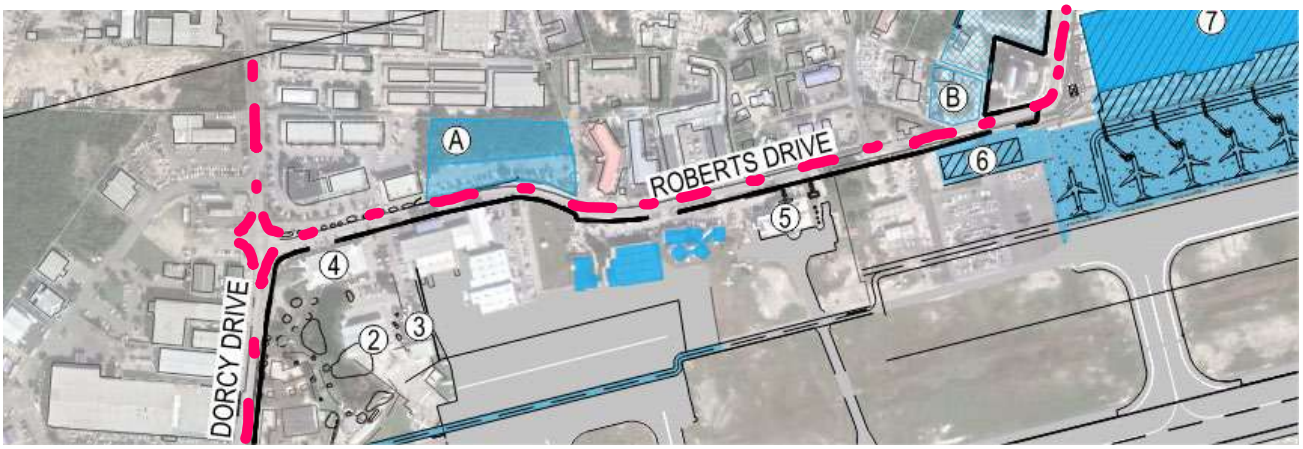
In 2016, the NRA completed a significant study of approach roads to the airport and, as of the writing of this report, were in the process of opening up Phase 1 expansion of a new airport access road. In the short to medium term, this road will connect the airport to Camana Bay and Seven Mile Beach.

There are a few roads adjacent to ORIA that support traffic into and out of the airport landside. The closest road is Roberts Drive, running west and northwest of the airport. It is the main access road to which the airport is connected on the landside. There are four (4) intersections off Roberts Drive providing access for vehicles; the main entrance to ORIA is off the roundabout at Red Gate Road and Roberts Drive. The second entrance is for traffic utilizing the gravel/turf parking lots at the north end of the landside parking area, also providing access to Andy's Rent-A-Car facility. The third entrance is an authorized vehicle/employee checkpoint at the southwest corner of the terminal and Roberts Drive, opposite the CAACI Headquarters building. The fourth entrance/exit point is the authorized airport vehicle and equipment entrance from Roberts Drive into the airport to the west of the passenger terminal building and GSE storage area. This access point will be replaced with a new Checkpoint 2 further to the west.

In addition to the four (4) main airport access/egress points, there are numerous business operations with direct access off Roberts Drive west of the commercial apron, including ground handling companies, Cayan Airways, Air Agencies and Island Air, government agencies, and CDS Cargo.

As depicted in Figure 4.14 over page, Roberts Drive ends at Dorcy Drive, northwest of the airport. Dorcy Drive runs north-south past Roberts Drive, turning west into Crewe Road. Crewe Road runs west from the roundabout at Dorcy Drive and then south past the west end of Runway 08 – 26. Crewe Road is heavily used and constantly busy. Because Crew Road cuts across a zone earmarked for future runway expansion, the CIAA previously suggested that that portion of it should be closed or relocated. However, the National Roads Authority (NRA) does not favour this thinking.

Figure 4.14: Landside Roads at ORIA



The primary reason that the NRA is unwilling to close/relocate Crewe Road is simply the volume of traffic that it accommodates and the sheer cost and challenge of creating new/expanded road intersections west of the existing Crewe Road (i.e., North South Road / Bobby Thompson Way, and Smith Road on the south side of ORIA) without negatively impacting already constrained road systems running adjacent. The National Roads Authority made this statement regarding the closure/relocation of Crewe Road to enable a runway extension to the west:

> *"With the anticipated development and traffic growth within the next 3 to 18 years, Crewe Road between Smith Road and Dorcy Drive will continue to be a vital connection during both the AM and PM peaks. Traffic operations are expected to significantly deteriorate if this road is to be closed not only at the intersection level but also at a segment level and from a system-wide perspective. The minimum roadway infrastructure needs require up to a ten-lane cross-section on Huldah Avenue between Elgin Avenue and Smith Road in 2036 to mitigate the impacts from the closure; intersections include multiple turn lanes or by-pass lanes to accommodate the volume demand."*

Previous studies completed by the NRA and their consultants in 2019 provided an evaluation of the impacts of the closure of Crewe Road.

Figure 4.15: Crewe Road Relocation Study Image



A new airport connector road is planned by the NRA, to improve connectivity from ORIA to Seven Mile Beach, and the major tourist resort areas in George Town. The image overpage in Figure 4.16 indicates the planned connector road into ORIA from the north into David Foster Drive.

Figure 4.16: Airport Connector Road (Gazetted as Boundary Plan 588 on December 7, 2016



4.2.2 Terminal Curb

There is currently a single terminal curbside at ORIA for taxis and public car drop-off and pick-up. There is a by-pass lane across from the terminal, but this is used by commercial services deliveries to the terminal. There are two (2) through lanes in addition to the single curbside lane, generally where the taxis wait.

The physical layout of the landside curb is currently challenged by regulations enforced by Air Safety Standards International (ASSI), overseeing security at the larger commercial service airport under the Overseas Territories Aviation Requirements (OTARs). ASSI believes that ORIA should meet the applicable regulatory recommendations of ICAO Annex 17, Standard 4.8:

> "…*ensure that each entity conducting general aviation operations, including corporate aviation operations, using aircraft with a maximum take-off mass greater than 5,700 kg, has established, implemented and maintained a written operator security programme that meets the requirements of the national civil aviation security programme of that State."*

As such, the CIAA has been directed to become fully compliant with ICAO Annex 17, Standard 4.8 and OTARs Part 178 & 179 such that the terminal be additionally secured by relocating the vehicle curb at least 30 m (~100 ft.) from the terminal face. The adjacent parking lot will also be impacted. The CIAA has put temporary security measures in place to support an increase in security until such time that the infrastructure changes can be implemented. ASSI has indicated that they require improvements by the first quarter of 2025.

A by-product of this new requirement is that there may be an opportunity for the establishment of a green or commercial plaza between the terminal and relocated curbside, resulting in new services, the potential for an improved passenger experience and new, non-aeronautical revenues.

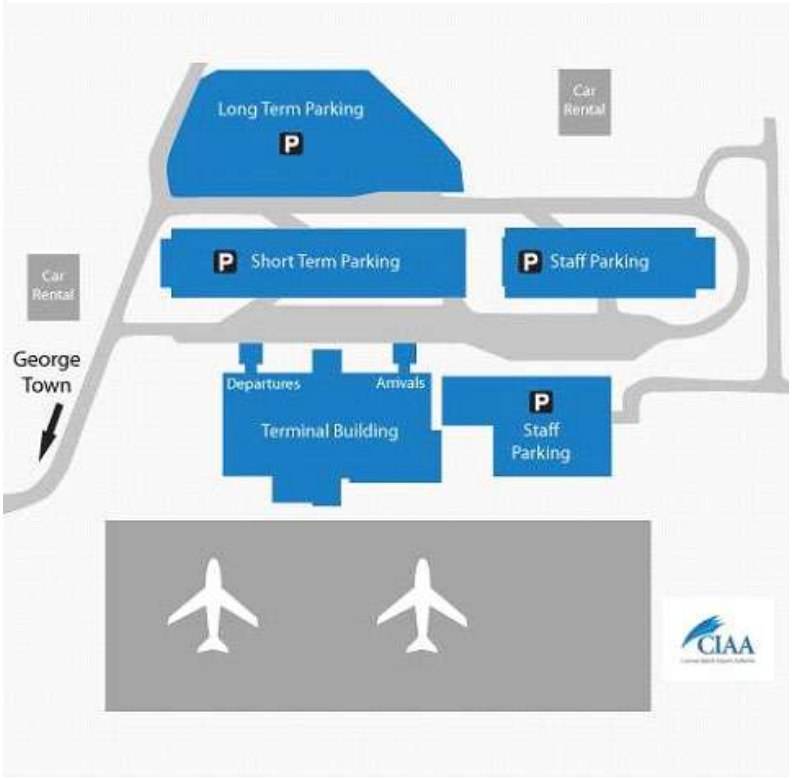
During rain events, passengers are exposed to the elements while waiting for a taxi or accessing rental car agencies offsite. There are canopies over portions of the existing curbs, but in peak periods during rain events, there are few areas remaining under canopies where passengers can shelter. This results in pedestrian congestion on the curb in front of the terminal entrance doors.

Taxi vehicles are available on the curb closest to the terminal, and assistance is available. The challenge is typically a lack of taxis in off-peak hours and a lack of taxis that take credit cards during peak periods. There is no taxi layby parking area to enable drivers to relax between flights and peak periods, and there are no operational agreements requiring a minimum number of taxis available at any time during the published flight schedules. In addition, a service level agreement with key performance criteria clearly established would support the availability of taxis and could be considered by CIAA. The management of the taxi queue and peak hour taxi customers may be improved through the modernization of the system and provision of a taxi layby area.

4.2.3 Parking Lots

The landside parking facilities at ORIA/GCM are all open-surface lots. There are two (2) public parking lots on site: one (1) for short-term and one (1) for long-term parking. The demand for parking space generally exceeds capacity during busy seasons, and in peak periods, there is often no parking available for passengers or staff. Staff/employees of the airport are directed to specific areas to the east of the public lots and, in peak tourism periods, to other extremities of the airport property to allow enough space for public parking.

Figure 4.17: ORIA Parking Lot Configuration



4.2.4 Ground Transportation Services

There are three types of ground transportation services available to the public at ORIA. Rental cars are available off-airport. There are no on-airport rental car parking lots on the airport property, resulting in a lack of potential non-aeronautical revenues for the CIAA. The rental car operators each have their own off-site facilities that passengers must walk to, crossing from the terminal curb either across the parking lots to the north (to Andy's) or to the west across Roberts Drive, where several rental car agencies are based, including Alamo, Avis, Apex, Budget, Discount, Dollar, Economy, Firefly, Fox, Hertz, Marshall's, National, Payless and Thrifty.

The most common form of transportation for residents is by private car, while most business travellers and tourists use taxis, followed by rental cars (off-site). Taxi rates are regulated and found through a CIG regulated application (CI:GO App) which determines the cost based on distance, passenger numbers, and baggage.

Figure 4.18: ORIA Terminal Curb & Taxi Stand



4.2.5 Off-Airport Parking Lots

There are two (2) commercial parking lots owned by the CIAA, which are located close to and northwest of the airport:

i) Off Dorcy Drive, on the southeast corner of Fosters customer parking lot, across from the Airport Children Park

ii) Off Roberts Drive, north of the CAL hangar.

Figure 4.19: Off-Airport Parking Lot (A) and Foster's Parking Parcel (1)



The first lot (Figure 4.19, item 1) is in the Fosters parking lot and is partially utilized by Fosters customers for parking, but the majority of this lot is a grass island. The second parking lot (and treed area, Figure 4.19, item A) is utilized by employees and visitors to CAL's headquarters and hangar. It was observed that the parking lots are at capacity, with no other overflow parking available in the vicinity.

Both parking lots are available for CIAA to develop further or to develop new non-aeronautical revenue opportunities in partnership with the private companies utilizing them. A small café in the Fosters parking lot already caters to airplane spotters and local residents enjoying an opportunity to socialize there. The parking lot on Roberts Drive, next to the Cayman Airways HQ building and Hangar, could be further developed for multi-level parking that supports the demand that currently exists.

4.2.6 Airport Childrens Park

The CIAA maintains a public park at the west end of the airport, immediately west of the MRCU ponds near the Airport Post Office. This public park is spacious and is used regularly by small groups of people, including families with children, employees of the airport (during lunch breaks), as well as plane spotters and aircraft enthusiasts. The airport security fence and MRCU ponds separate the park from the airport, as indicated in Figure 4.20.

Figure 4.20: Airport Children's Park



4.2.7 Fire Training Centre

There is a Fire Department training centre at the airport; it is located north of Taxiway G, close to the eastern shore of North Sound. The fire training centre includes a mock building, and a mock aircraft, so that the Fire Department can train for domestic emergencies, and aircraft rescue and fire fighting (ARFF) officers can train for aircraft emergencies. The Fire Department indicated that additional space was required to expand the training grounds. Although this training site could be located off-airport, CIFS indicated that it would be advantageous for them to have an on-airport training facility.

4.2.8 Cayman Islands Gun Club Shooting Range

The Cayman Islands Gun Club is located east of the main terminal building and is surrounded by the mangrove forest north of Taxiway G and Secondary Surveillance Radar (SSR) site. The sounds of gunfire can be heard from the airport, so this land use is clearly inappropriate for an airport. This area may be capable of supporting other services, such as a fire training centre or future lands for aircraft hangars. Discussions have been held between CIAA and key stakeholders regarding the suggested relocation of the facility.

4.2.9 Air Navigation System Aids

There are a few key air navigation system aids at ORIA; the air navigation system (ANS) was reviewed separately in 2022. The ANS is due for potential replacement and upgradation in 2024.

An existing SSR, operated by a third party, is located east of the terminal aprons and north of Taxiway G. The data is not currently utilized by the CIAA but provides airspace navigational support to the Flight Information Region based in Kingston, Jamaica and covers Cuba and Central America.

A VOR/DME is located several hundred feet west of Crewe Road. It is due to be decommissioned by 2025.

Future ANS equipment such ADS-B, AIM and AMHS are being contemplated, among other ideas for improving the CIAAs air traffic control capabilities, separate to the ADP.

4.3 Terminal Facilities

ORIA is served by a single-passenger terminal originally constructed in 1984 and subsequently expanded in 2019. The terminal building is located centrally, north of Runway 08-26.

4.3.1 Terminal Renovations, 2019

The air terminal at Owen Roberts International Airport was completely renovated between October 2015 and July 2019. The building renovations included capacity improvements in all areas, the development of new second-floor space for airport and airline administration offices, and upgrades to electrical and HVAC systems to conform with current building code requirements. However, due to significant growth in passenger traffic through the end of 2019, the passenger demand in the peak hours was found to be exceeding the forecast demand as depicted in the previous master plan.

4.3.2 Current Air Terminal Building

The most obvious deficiency of the existing terminal configuration is its inability to process passengers during peak periods. It is common to find departing passengers in long queues at check-in and security, and once through security, there is limited seating or concession space available to accommodate the demand in the departure hall. There are only 9 gates for 12 aircraft stands.

Similarly, arriving passengers are often queued up in the arrival customs and immigration processor. These key airport processors were observed to be functional, but demand was obviously exceeding capacity during peak periods, resulting in less-than-acceptable levels of service. Check-in for a family of four (4) international passengers was observed to take 45 to 55 minutes, followed by 30 to 45 minutes in security queues.



Figure 4.21: Floor Plan, ORIA Terminal

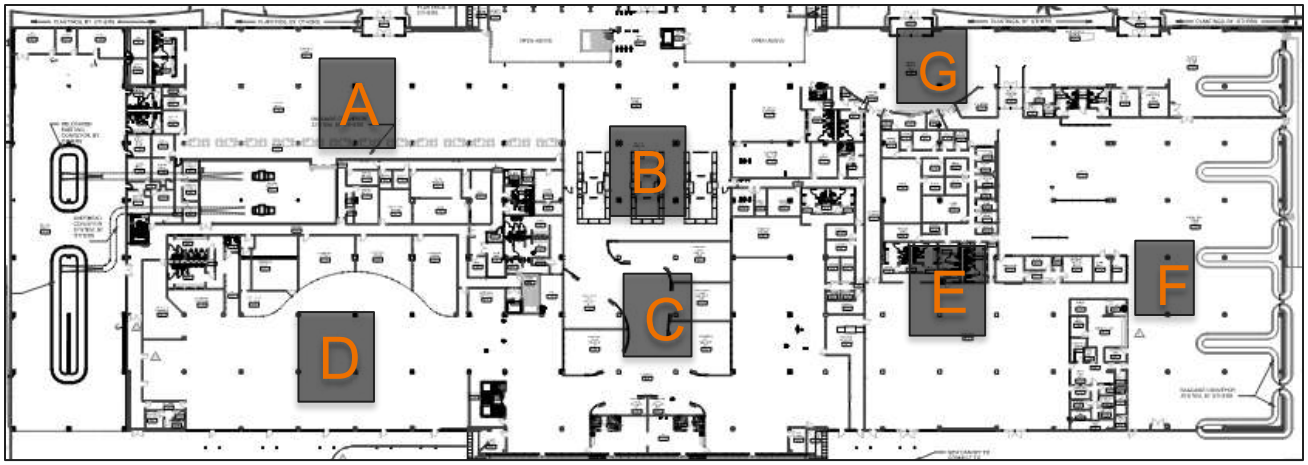
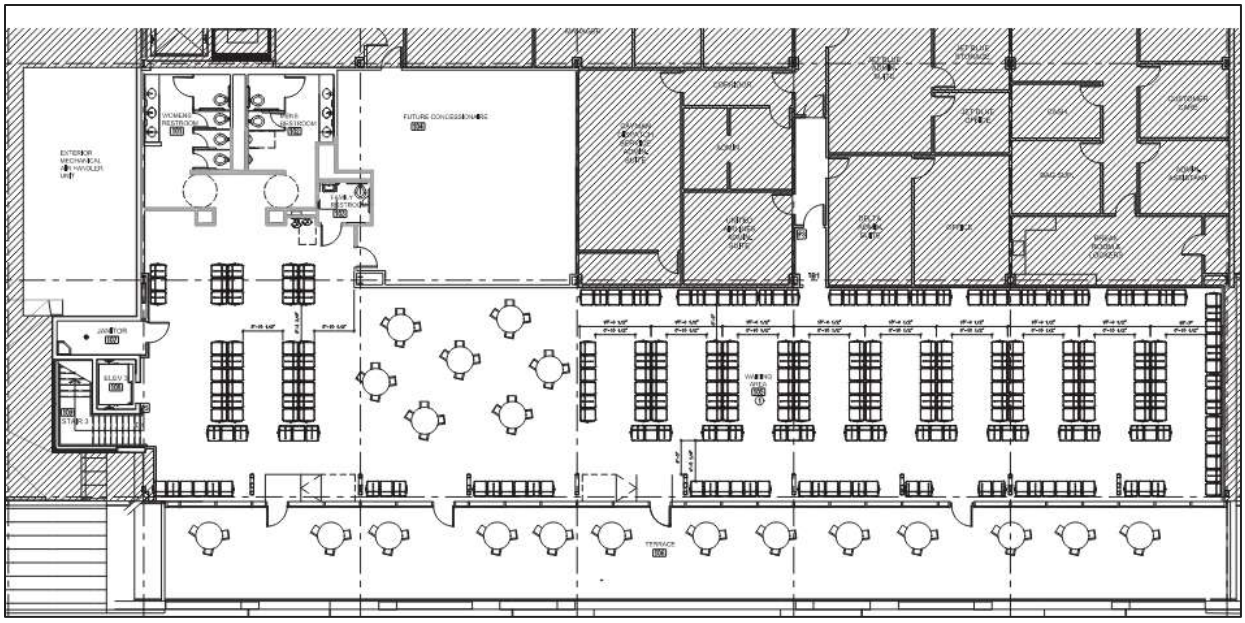


Figure 4.21 above indicates the terminal floor plan, and the functional areas are shown as follows: A – landside departures hall and check-in counters; B – passenger security screening; C – duty free and retail; D – departures areas and food court; E – customs and immigration facilities; F – baggage claim area; and G landside arrivals hall and exit to terminal curb / taxi queue.

The CIAA has plans to ***expand the commercial offering*** through new duty-free concessions and a new private lounge or airline lounge (e.g., Sir Turtle, Plaza Premium, Star Alliance, OneWorld Alliance, etc.), but the project was paused due to the COVID-19 pandemic and a resulting reduction in passenger travel. An excellent space exists on the mezzanine above the departures hall that overlooks the aircraft parking apron to the south, under the white arch. The following Figure 4.22 indicates the planned space for mezzanine.

Figure 4.22: Mezzanine Level – Commercial Lounge Floor Plan, ORIA Terminal



The CIAA identified that ***a common complaint from passengers is the lack of space in the departure hold rooms***. Figure 4.23 below indicates the departures area in blue, and the retail areas in lavender. Boarding can be a challenge at times, as passengers queue up for document verification through the seating areas. The ground handling companies and airlines operating at ORIA has similarly indicated the need to expand the domestic hold rooms. The peak hour overcapacity in the departure hold rooms is a common occurrence which puts a significant strain on the terminal building's air conditioning system.

Figure 4.23: Departure Hold Rooms



The ***security*** equipment is in the process of being upgraded to a more modern system, including CTX machines, as opposed to second-generation dual view metal detectors. The realignment made in 2022 could be improved, but there is limited space available to increase the number of security lanes. The queues generally occur in the main departures hall just east of the check-in counters. The security equipment is scheduled for an upgrade in 2024, which will enhance the peak hour throughput capacity and hopefully will result in shorter queues.

The ***baggage handling system*** appears to be problematic from the airlines' and ground handlers' perspectives. They complain that the baggage belts are too high off the ground, and their employees have difficulty lifting bags onto the takeaway belt. As such, additional male employees are required to lift heavy bags onto the takeaway belt. They also complained that the space behind the counters, in front of the takeaway belt, is too narrow. They suggested drop/feeder belts with integrated weigh scales at the check-in desks, which would reduce the labour required behind the counters. Currently, portions of the arrivals baggage system and baggage conveyors are uncovered, and they should all be covered and protected from rain and the natural elements. In addition, baggage tug drivers must drive into a fenced off, but otherwise unsecure area in order to drop the baggage off at the inbound baggage belt and claim areas. These areas should remain sterile to prevent the need for security screening of baggage tug drivers on their return to the aircraft apron. The airlines indicated that additional office and storage space was required for delayed baggage, including secure storage of baggage.

The ***check-in*** counters are not necessarily dedicated to specific airlines, but certain carriers remain at particular counters to a large degree. There are opportunities to improve their use during peak hours with additional self-check-in/bag-tag machines, self-baggage drop equipment, and new check-in counters. The common-use equipment and a common-use passenger processing system (CUPPS) is due to be upgraded. The CIAA IT Department investigated the requirements and feasibility of upgrading the check-in processor to support a more efficient process and have obtained the buy-in and cooperation of the airlines to transition to a shared-use

system, scheduled to be upgraded in 2025. The airlines and ground handlers all support improved baggage handling systems, self-check-in and self-bag drop facilities.

Another major concern expressed by passengers and visitors is the ***lack of protection from the weather*** outside the air terminal building. Passengers are walking to/from aircraft under the hot sun or in the rain across long distances on the terminal aircraft apron. Visitors, passengers, and employees alike must walk to/from the parking lot or off-site car rental sites to/from the terminal exposed to the elements. The cool, air-conditioned terminal is a relief from the heat, but when wet from rain, the change in temperatures can be uncomfortable for passengers. The airlines and ground handlers also indicated their support for air bridges and improved landside cover on the terminal curbs and over some parking areas. Air bridges should have ground power and pre-conditioned air available, further reducing the numbers and types of equipment required by ground handling companies. In addition, the number of ground handling and security employees could be reduced to more cost-effective levels.

There are no US Customs Pre-Clearance facilities at ORIA. The CIAA has previously explored the idea, but for a variety of reasons (the primary reason being the high cost), there is no longer any interest in such facilities at ORIA.

The airlines have indicated that during peak periods, there are ***not enough aircraft stands and gates***. Airlines clearly indicated the need for landside baggage storage facilities. The majority of tourists must check out of their hotels and resorts in the morning and wait for many hours prior to their flights. The airlines complained that there is no baggage storage or passenger amenities available on the landside of the terminal.

The CICBC indicated their desire to upgrade their ***customs and immigration*** processing systems and continue to move towards a more digitalized process. However, passengers have complained, and there is evidence of arrivals inspection processes taking longer than industry standards. The addition of digital kiosks in 2022 will improve this process in the short term. In the longer term, the CICBC has expressed the need for additional immigration processing space.

CIAA, the airlines, and ground handling companies experience many challenges in maintaining the ***separation of domestic and international passengers***, as well as ***between arriving and departing passengers on the apron***, as evidenced by observations during peak hour operations in the terminal building. All parties agree that passenger circulation, routing, and separation must be improved.

The airlines stated that they believe the ***IT System*** to be inadequate, as it cannot support effective, efficient, coordinated airport operations information between key stakeholders. The CIAA is exploring the upgrade of the IT System, particularly for FIDS, BIDS, and CUPPS systems. In addition, the airlines and ground handling companies have said the PA system has been problematic and is often out of service, requiring attention in the short term by CIAA.

In general, the growth in passenger demand has put stress on the newly renovated airport terminal. An expansion of the terminal is dependent on the traffic forecast, but it is evident that demand in 2019 regularly exceeded the terminal's capability and capacity during peak periods.

Full size drawings of the existing airport facilities at ORIA are in Appendix D.

4.4 Charles Kirkconnell International Airport, Cayman Brac

CKIA is a certified international aerodrome located on Cayman Brac Island and is operated by CIAA. The airport was originally built in 1955 with an air link to Grand Cayman. It is the primary gateway through which residents and visitors can access Little Cayman, Grand Cayman, and destinations beyond. Full size drawings can be found in Appendix E.

Figure 4.24: Existing Conditions, CKIA



Domestic air service at CKIA is provided by CAL, utilizing the B737-MAX 8, Saab 340, and DHC-6 Twin Otter aircraft types. The Twin Otter is the only aircraft that provides service to Little Cayman from Cayman Brac and Grand Cayman. International air service into CKIA (MIA to CYB) was previously provided by Cayman Airways, but post-pandemic (2023) is no longer provided.

4.4.1 Airside Facilities

CKIA has a single, lighted, non-instrument asphalt runway, Runway 09-27, measuring 6,000 feet (1,829 m) long by 150 feet (45 m) wide. The runway is grooved, and the pavement appears to be in good condition structurally, but there is some evidence of surface deterioration, particularly under the paint markings applied. The CIAA is contemplating resurfacing a portion of the runway to resolve this issue.

There is a beach at the west end of Runway 09-27 (pre-threshold 09) and a known sea turtle habitat north of the runway strip. The RESA at the west end is non-compliant. The east end of Runway 09-27 (pre-threshold 27) has a sandy, grass runway strip end and RESA, beyond which there is a pond. The various ponds predate the airport.

The Westerly Ponds, on the south side of the runway strip attract significant bird populations, which create a hazard for aircraft. The ponds are environmentally protected and there are a number of public viewing areas and docks for bird watching in the vicinity. However, the northern edges of the Westerly Ponds are within the Runway 09-27 strip, making the runway strip non-compliant with applicable aerodrome standards described in ICAO Annex 14, Volume 1, section 3.4 Runway Strips.

There is no parallel taxiway and only a single taxiway at CKIA – Taxiway A – which is a 90-degree taxiway connecting Runway 09-27 and the terminal apron. The taxiway is 23 m (75 ft.) wide and 135 m (443 ft.) long, asphalt construction. Aircraft entering the apron from Taxiway A may be delayed due to the presence of a B737-MAX 8 operated by CAL, which cannot be safely passed without maintaining the minimum wingtip to object clearances required.

The airport serves domestic and some international traffic. There are a few counters for CICBC for customs and immigration processing, but the arrivals hall, customs desks and baggage claim area can be congested during a single B737Max 8 aircraft operation. The current building is efficient, and the floor size is sufficient for smaller domestic flights when no customs and immigration services are required. However, CAL has complained that the terminal building at CKIA is undersized for the B737-MAX 8. The check-in, security and hold rooms are all too small to accommodate upwards of 200 people for a single flight. The baggage system is also undersized for CAL operations. A new hold baggage screening system is required to ensure 100% of all baggage, small and large, can be screened. The arrivals process is slow due to insufficient space for the CICBC to ensure efficient customs and immigration services.

The terminal apron has three (3) parking positions and enough space for either two (2) Code C aircraft or one (1) Code C and two (2) Code B aircraft simultaneously. There is a service road for baggage handlers and fuel trucks to access the aircraft stands. All parking stands are operated as power-in/power-out stands. There is a jet blast concern when more than one (1) aircraft is in position on the ramp, particularly from the larger B737-MAX 8.

CKIA hosts a dedicated ARFF/emergency response services road immediately west of Taxiway Alpha. It runs from the Fire Station north-south providing direct access to Runway 09-27. The Fire Station houses a Level 6 ARFF service provided by the CIFS.

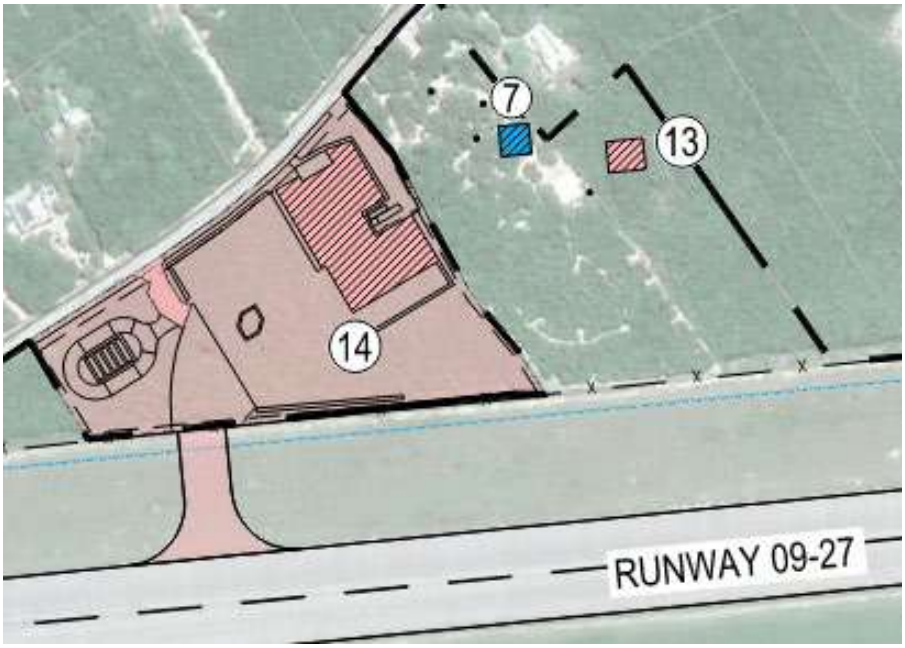
A small maintenance garage houses airport maintenance and operations equipment and electrical supplies. The maintenance garage is undersized and is supplemented by additional storage sheds.

An Air Traffic Control tower is located at the Terminal Building. The Tower is supplemented by a camera located on the north side of the runway strip, at about the halfway point of the runway. This remote camera provides visibility to the full length of the runway strip by air traffic controllers in the tower who do not have a line of sight to either runway ends.

A weather station is being contemplated at a location (item #13) near the ATC camera tower (item #7 in the figure below) and which will be operated by the Cayman Islands National Weather Service (MET).

The CIAA is considering an adjacent land development opportunity for a potential FBO/GA terminal, hangar and aircraft parking apron (item #14) proposed by a private, third-party developer who owns a site directly north of the runway strip and west of the ATC camera tower.

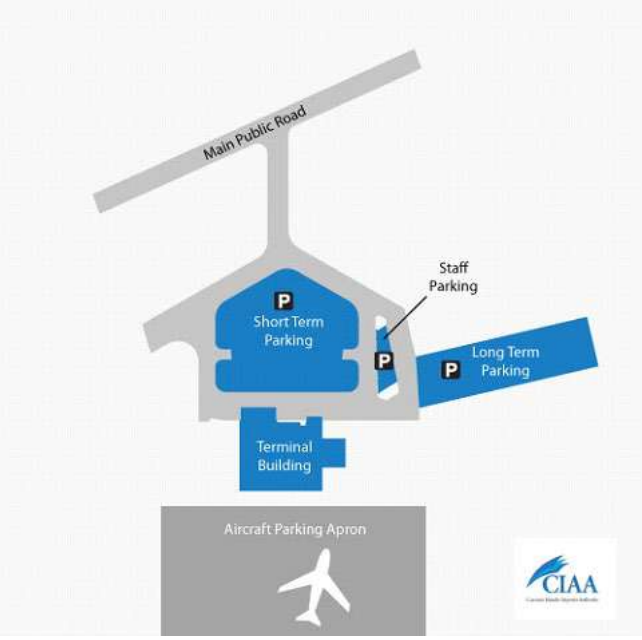
Figure 4.25: Third-Party Aviation (FBO) Facilities, MET and Future ATC



4.4.2 Landside Facilities

There is a single-vehicle access road and circulation road into the airport from the main public road, West End Road. The airport circulation road passes the staff, short- and long-term parking lots with easy entrance and exits back onto the circulation road. The road continues past the air terminal building. The terminal curb has a lane for passenger pick-up /drop-off by taxis and private cars and two (2) passing lanes.

Figure 4.26: Landside Parking Lot Configuration, CKIA



There are three (3) ground-level parking lots - employee, short- and long-term parking. The short-term lot is directly north of the terminal, while the long-term and employee lots are on the east side of the terminal access road.

The parking lots will be impacted should the 30 m (100 ft.) setback from the terminal to vehicle lanes be implemented at CKIA. The parking lot is currently sized for up to roughly 70,000 annual passengers and employees and a busy day demand of approximately 407 passengers by 2041.

There are no rental car pick-up or drop-off spots at the airport, although this service is available.

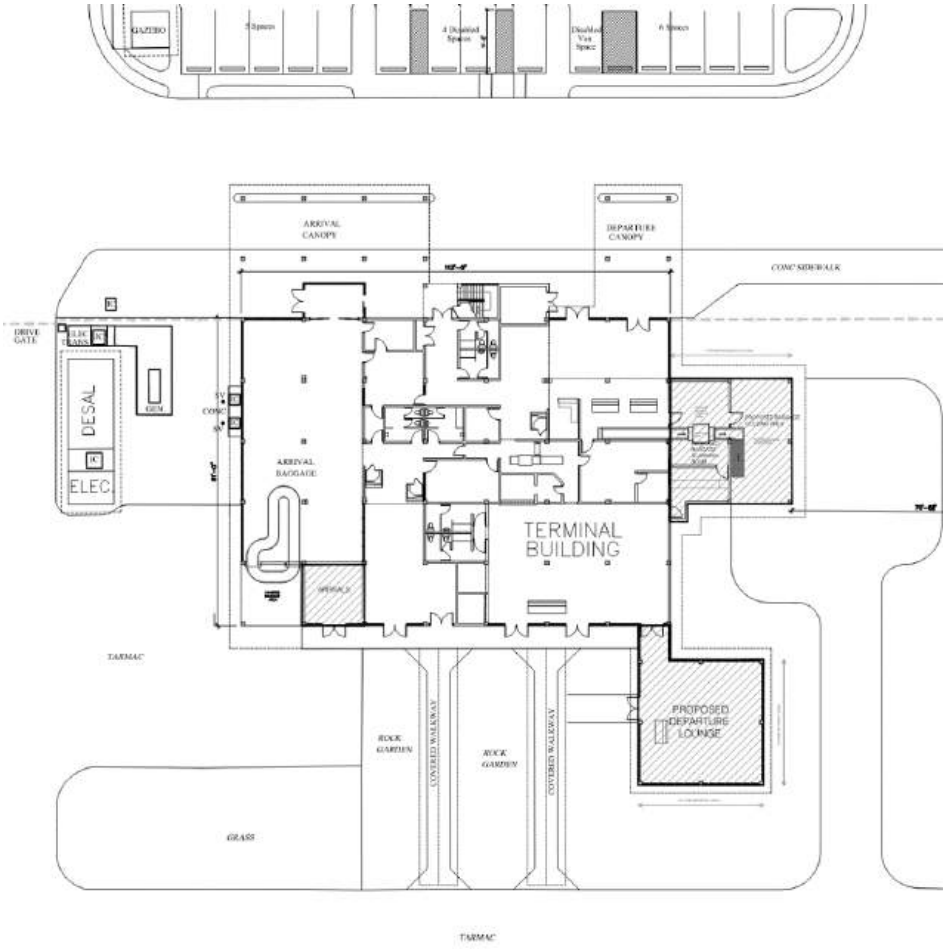
Private cars are the primary mode of ground transport on Cayman Brac. Taxis are available on request to passengers arriving at the airport.

4.4.3 Terminal Facilities

The terminal building at CKIA is generally in good condition, considering its age, but it is also generally undersized, and the layout and configuration lead to operational inefficiencies. The terminal is better suited to smaller aircraft sizes than larger Code C aircraft, such as the B737-MAX 8 occasionally flown in by CAL. The terminal has a small, dedicated check-in area immediately upon entry into the building. Once past the check-in counters, passengers must make a sharp left turn and another left turn through security. The security processor is undersized, and its layout/configuration is not conducive to higher throughput.

Upon exit from security, the departures hold rooms have a good view of the aircraft parking apron. There are three (3) to four (4) concessions at which passengers can purchase snacks, beverages, or souvenirs. A separate departure hold room can be cordoned off to separate departing international passengers from domestic ones.

Figure 4.27: Existing Air Terminal Building, CKIA



The airside entrance into the arrivals hall from the aircraft apron passes by the washrooms and two to three immigration counters (in use only during international arrivals). Beyond the immigration counters, passengers arrive in a small hall with a single, flat-plate baggage carousel. The customs counter precedes the passenger's exit from the terminal building onto the terminal curb.

4.4.4 Other Facilities

A meteorological antenna and building are planned to be central to the runway on the north side, (item #13).

The Water Authority has offices and water tanks on a site immediately east of the main aircraft parking apron. The Water Authority indicated that it is developing an alternate water treatment facility elsewhere on Cayman Brac and that the tanks next to the airport may be removed in future. This provides an opportunity for the CIAA to acquire this land parcel to support a future apron east expansion and potentially space for a GA aircraft hangar.

The Westerly Ponds, on the south side of the runway, encroach marginally into the runway strip; this is noted by the CAACI, who recommended filling in all the ponds surrounding the airfield. This would have a significant impact on the environment, as the ponds are home to several populations of bird species (e.g., Frigates and Red-Footed Boobie birds). Tourists are regularly drawn to the ponds to view the birds, and there are public viewing areas available on the south side of the ponds.

In addition, ASSI noted security concerns at the Brac; the fence is not continuous around the entire airport, particularly due to the location of the sea and beach at the west end and the ponds on the south side. A full perimeter road is required but cannot be constructed off the runway strip until the ponds are removed from the runway strip. Lastly, the runway strip has become flooded during tropical storms; drainage improvements may be considered during the runway strip widening to the south.

4.5 Edward Bodden Airfield, Little Cayman

The Edward Bodden Airfield (LCB) is a registered, not certified, aerodrome located on Little Cayman Islands, immediately west of Blossom Village. A full size drawing of the existing airfield at EBA is in Appendix F. There is a single runway, connecting taxiway, and an aircraft parking apron adjacent to a small terminal building and ARFF vehicle shelter. A small parking lot is located adjacent to the terminal, and the landside access road runs east/west past the apron – directly over the taxiway – and parallel to the runway (south of the runway). Power lines and trees are located within the runway strip; the aerodrome does not meet applicable aerodrome standards required for commercial passenger services.

Figure 4.28: Existing Conditions, Edward Bodden Airfield, Little Cayman



4.5.1 Airside Facilities

The Little Cayman Airstrip, aka Edward Bodden Airfield on Little Cayman, is a tar and chip-seal pavement structure, approximately 35 feet (10.7 m) wide by 3,000 feet (914.4 m) long as indicated in Figure 4.28 above. It is a short and very narrow, slightly curved runway that has a hump in the middle, with pavement slopes that exceed the maximum recommended by ICAO Annex 14. There are no runway edge lights nor runway identification paint markings, although there is a threshold bar at the west end, preceded by a taxiway loop. The east end has a displaced runway threshold, marked by white arrows, along with a taxiway lead-in line from the runway centerline to the apron (across Guy Banks Road).

The runway strip is generally well maintained, with evidence of grass cutting. The runway strip is also narrow. Wildlife, particularly birds and the indigenous rock iguana are regularly reported on it. There is no fence. The narrow runway strip is surrounded by a mangrove forest to the north, ponds to the west, Blossom Village to the east, and private property and the road to the south. There is no parallel taxiway. Guy Banks Road runs parallel to the runway along the south edge of the runway strip and crosses a small, connecting taxiway between the runway and aircraft parking apron. Several power poles, streetlights, and trees that all penetrate the runway's transitional surface are of significant concern.

An aircraft may only exit the runway at the single taxiway at the east end of the runway strip. Cayman Airways is responsible for setting up vehicle traffic barriers prior to each flight (arrivals and departures) to ensure the safety of the public and that no vehicles drive onto the runway strip during an aircraft arrival or departure operation. Private aircraft landing/departing EBA do so at their own risk and may or may not follow any prescribed safety measures implemented by CAL. The airfield has no ATC tower.

The aerodrome does not appear to meet any applicable standards or recommended practices. The aerodrome is considered 'uncertifiable' in the opinions of the planners and the CAACI. Many modifications to the site, and significant acquisition of private property is required to create a fully certified aerodrome adherent to applicable safety regulations and standards to allow safe scheduled commercial air services to continue without challenge in future. The CAACI is unlikely to continue to provide exemptions to CAL to operate commercial services to Little Cayman unless a plan is in place to rectify the regulatory challenges. The CIAA will not accept the liability of operating an uncertified aerodrome.

4.5.2 Landside Facilities

There is a small, two-lane paved road that enters the aerodrome from Blossom Village to the east and runs past the small terminal parking lot, across the taxiway, and parallel to the runway on the west side, all within the runway strip. Access to the road is controlled with a rope barrier and stop signs operated by CAL personnel at each end of the runway strip. The safety personnel pull the rope barrier and signs across the road and warn drivers to stop during an arriving or departing CAL flight. Indications are that no such controls would be in place should a private aircraft use the airfield.

The small parking lot has room for resort and hotel shuttle vans and a few private cars to pick up or drop off passengers. The ARFF shed, attached to the east side of the air terminal building, is connected to the road by a short driveway. The ARFF shelter houses a single, relatively new Rosenbauer model of airport rescue fire fighting (ARFF) truck operated by the CIFS. The shelter is undersized and not large enough to adequately enclose the fire truck, ARFF equipment and materials/parts storage it contains.

There are no security screening facilities at EBA; CAL is responsible for passenger security. As indicated, ASSI has concerns about lack of security at EBA.

Running north-south across the east end of the runway strip off Guy Banks Road is a driveway that leads to a hangar. It is not possible for aircraft to taxi to the hangar from the runway without using Guy Banks Road as a taxiway. The hangar does not currently appear to be used for aircraft storage or maintenance purposes but for storage of other private materials and equipment.

There is a privately operated boutique and coffee shop on the south side of Guy Banks Road, around the mid-point of the runway. A small hotel (Paradise Villas) building is directly east of the extended runway and is the likely cause of the runway threshold displacement (resulting in a shorter useable runway length). A restaurant (the Hungry Iguana) and villas are located immediately east and south of the extended runway centerline along the southern coast of Little Cayman.

4.5.3 Terminal Facilities

The air terminal building at EBA is a small, quaint facility that accommodates small passenger loads of up to twelve (12) passengers at a time. There is a common room for departing passengers to wait with approximately fifteen (15) seats. Cayman Airways has a small room with a public-facing check-in counter and weigh scale, behind which is a small office and a narrow corridor to the back door opening onto the apron used for moving bags onto the hand-pulled baggage cart on the aircraft apron. The building is air-conditioned.

There are benches under a veranda where arriving passengers can wait for their baggage. Passengers are invited to retrieve their own bags directly from the baggage cart once the ground handler pulls them into position near the terminal.

Figure 4.29: Edward Bodden Airfield, Terminal Building



4.5.4 Alternate Aerodrome Site

The CIG has land available for the development of an aerodrome to replace the existing Edward Bodden airfield on Little Cayman. This land was originally set aside, and site preparation started in approximately 2000 – 2002, but construction was discontinued for reasons that remain unclear. Some declare that there were issues with groundwater and equipment sinking in the bog, while others have indicated a political and environmental challenge posed by the local population.

The project team visited the alternate aerodrome site; there was evidence of some land clearing, but the property was largely covered in vegetation, with only vehicle trails remaining visible.

Figure 4.30: Location of CIAA-Owned Alternate Aerodrome Lands, Little Cayman

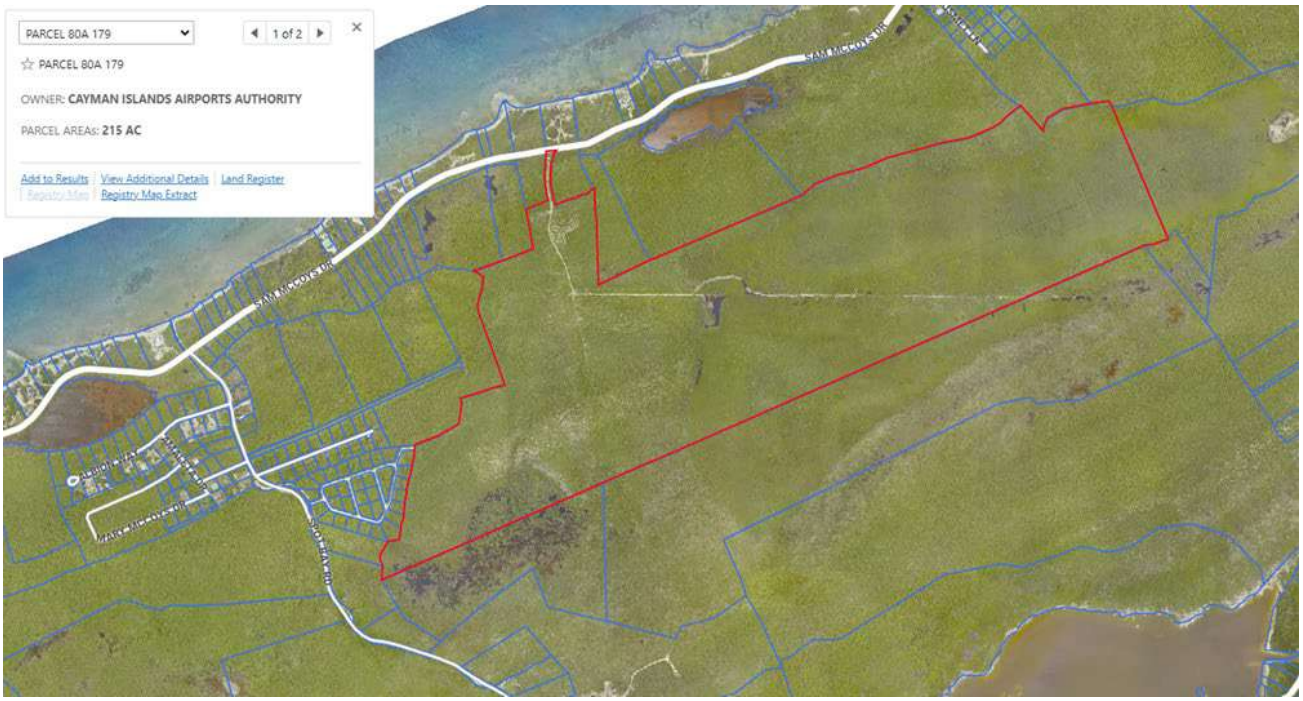


Figure 4.31: Location of CIG / Crown-Owned Land for Alternate Aerodrome Lands, Little Cayman



5 Environmental and Regulatory Review

5.1 Environmental Regulatory Framework

The Cayman Islands Airports Authority (CIAA) is a statutory authority under the Ministry of Tourism & Ports, as of March 2023. Its activities, including the development of these Master Plan options, are subject to review and permission from the Ministry of Tourism & Ports. This section provides additional details on the regulatory approval process applicable to the potential development options discussed in the Airport Development Project.

5.2 Environmental Regulatory Approval Process

The Cayman Islands Airport Authority must obtain environmental approvals from the Cayman Islands National Conservation Council (NCC) to proceed with actual project development in alignment with environmental objectives and regulations alike. The CIAA has been regularly updating and discussing the Airports Development Project with Department of Environment, (DoE) who is a representative within the NCC.

The existing conditions, potential impacts and associated mitigation measures shall be determined through environmental impact assessments (EIA) prior to any project construction. The specific permits and approvals required will be determined by the development options that are ultimately selected for construction. The summary table below provides information on the key permitting requirements and potential applicability to the Master Plan development options based on current (October 2022) legislation. Any changes to regulations, processes or policies within the Cayman Islands may impact the requirements for future developments.

5.3 Current Environmental Challenges

The key environmental issues and concerns discovered during the master planning process include the following:

- Deforestation and, specifically, loss of mangrove forest
- Shoreline vulnerability to erosion
- Vulnerability of sea turtle nesting sites on sandy beaches
- Potential loss of critically endangered species
- Potential for fuel and oil spills contamination of groundwater
- Potential for loss of naturally occurring ponds, bodies of water near airports (Cayman Brac, Little Cayman)

These items were considered in all contemplated airport development plan projects. The key outcome of these known environmental risks and the potential project is the need for environmental impact assessments for several contemplated airport projects. The specific EIAs will be developed separately from the airport master plans. The goal would be to begin the EIAs quickly to ensure that the CIAA and CIG are able to prepare informed designs for projects, particularly those which have a potential environmental impact.



5.4 Applicable Environmental Regulations

The project team reviewed a number of environmental regulations which pertain to projects that are undertaken in the Cayman Islands. In particular, the DoE alerted CIAA and Stantec to the 2021 Revision to the Cayman Islands Development and Planning Act ('the Act') Supplement No. 7 published with Legislation Gazette No. 7 of 22 January 2021.

The Act is made up of six (6) active Parts (while some older Parts have been repealed), which outline the following:

Part 1: Central Administration

- Appointment of staff
- duties of the Authority (DoE)
- Cooperation with Government departments

Part 2: Development Plans

- Preparation of development plans
- Amendment of development plans
- Approval of development plans

Part 3: Control of Development Land

- Provisions for development
- Applications and process for planning permissions
- Enforcement of planning, notices, and penalties for failure to comply with notices
- Preservation of trees and woodlands, mangrove buffer
- Application of Part 3 to development in Cayman Brac and Little Cayman

Part 3A: Land Adversely Affecting Amenity of Neighbourhood

- Requirements for proper maintenance of land
- Execution and cost of works required
- Penalties for non-conformance with requirements/notices

The following summary table summarizes the potential environmental permits and approvals that might be required for the proper execution of the projects identified in the ADP.

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Table 5.1: Summary of Potential Environmental Permit and Approval Requirements (Includes DOE Review Comments)

Environmental feature	Administering Body(ies)	Legislation/Policy/Guideline/Code of Practice	Summary	Applicability to Project	Reference/Resources
Impacts to wildlife and triggering of an Environmental Impact Assessment					
Impacts to wildlife	Department of Environment – Environmental Management Unit, Cayman Islands, National Conservation Council	National Conservation Law, 2014	Protects species of wildlife listed in Parts 1 and 2 of Schedule 1 (considered endangered or threatened species) and enacts the establishment of conservation plans for Schedule 1 species. To obtain an exemption to the Law, the proponent must submit an application to the Council and obtain a permit under section 20 (3)(b).	Yes – Field studies should be undertaken prior to construction to verify the presence of Schedule 1 listed species. Permit likely required should works be anticipated to impact Schedule 1 species or their habitat. Most notably, at Little Cayman, disturbance to Rock Iguana, identified as a Schedule 1 species, is anticipated to be impacted by the Project (Master Plan 2014) and has been identified in the Project area. A permit under section 20 will be required if the Project is anticipated to impact this species or any other listed Schedule 1 species. Should the Project not comply with a species conservation plan, this will also trigger the need for a permit under section 20. Conservation Plan for Rock Iguana in the Cayman Islands is provided in the *'Reference/Resource'* column for reference.	National Conservation Law – Cayman Islands Department of Environment (doe.ky) http://www.iucn-isg.org/wp-content/uploads/2013/03/Sister_Isles_Rock_Iguana_SMP_2011-2014.pdf Please also consult with other conservation plans that may be applicable based on the results of field studies.
Impacts to wildlife and triggering of an Environmental Impact Assessment	Department of Environment – Environmental Management Unit, Cayman Islands, National Conservation Council	National Conservation Law, 2014	Section 41 of the National Conservation Law sets out the parameters which trigger the need for an environmental impact assessment (EIA). As provided in section 41 (3) and section 43, at the discretion of the Council an EIA may be required to obtain approval, permit, or license to complete work. As per section 43 (2), an EIA *'shall- (a) assess the proposed action having regard to its direct, indirect and cumulative impact and the need to- (i) protect and improve public health and social and living conditions; (ii) preserve natural resources, ecological functions and biological diversity; (iii) protect and conserve protected areas and conservation areas; (iv) protect and conserve protected, endemic and migratory species and their habitats; and (v) avoid any adverse effects of climate change on the quality of the environment; (b) be carried out by a person approved by the Council; and (c) comply with any directives of the Council and regulations made under the Law.'*	TBD – Through ongoing discussions with the Department of Environment, it may be determined that an EIA is required. From early discussions, it is anticipated that multiple EIAs will be needed. Approach would most likely be to consider the individual airport developments separately and conduct separate EIAs, as required.	https://doe.ky/wp-content/uploads/2015/01/NationalConservationLaw-Es052014_web.pdf
Impacts to turtles	Department of Environment – Environmental Management Unit, Cayman Islands, National Conservation Council	The Marine Conservation Law, 2003; The Marine Conservation (Turtle Protection) Regulations, 2008	The Marine Conservation Law, Turtle Protection Regulations establishes the protection of various turtle species and prohibits the illegal possession of turtles, turtle eggs, and sets out regulations on the licensing of traditional fishing.	TBD - Potentially applicable depending on activities planned during the 'no disturbance' period. Potential considered low.	http://gazettes.gov.ky/portal/pls/portal/docs/1/11525719.PDF

Environmental feature	Administering Body(ies)	Legislation/Policy/Guideline/Code of Practice	Summary	Applicability to Project	Reference/Resources
Impacts to wildlife	Department of Environment – Environmental Management Unit, Cayman Islands	National Biodiversity Action Plan	The Cayman Islands National Biodiversity Action Plan was drafted in fulfilment of obligations under the Convention of Biological Diversity. The Plan was drafted along the lines of: • preservation of key habitats, through Habitat Action Plans (HAPs) and • preservation of key individual species, through Species Action Plans (SAPs). The CINBAP will therefore *"...seek to establish and maintain a diverse system of national protected* *areas, to protected areas for wildlife, develop and improve sustainable recreational opportunities, and* *where feasible, restore aspects of the environment, towards recovering some of the natural value* *which has been lost from these islands in recent years."* The CINBAP includes a number of Habitat and Species Action Plans which are considered relevant • to the Project. • Local Habitat Action Plan for Mangrove • Local Habitat Action Plan for Coastal Shrubland • Habitat Action Plan for Pools, Ponds And Mangrove Lagoons • Habitat Action Plan for Dry Shrubland • Habitat Action Plan for Forest And Woodland • Habitat Action Plan for Sandy Beach and Cobble • Species Action Plan for Marine Turtles • Species Action Plan for Silver Thatch • Species Action Plan for Rock Iguana • Species Action Plan for Red-Footed Booby • Species Action Plan for West Indian Whistling-Duck	Yes – If Project is anticipated to impact Schedule 1 species. The proponent should consult the various Habitat Action Plans and Species Action Plans.	https://doe.ky/about-us/sections/
In-water work or works taking place within the shoreline or Mangrove Buffer zone					
Building, dredging, and works in Cayman waters	Cayman Islands, National Conservation Council	National Conservation Law, 2014	Section 21 (1) regulates building, dredging, and other works taking place in Cayman waters. Subject to this section, Council may grant a permit to a proponent exempting them, subject to any limitations and conditions specified in the permit, from any of the provisions of the Law.	Yes - To complete in-water works, such as those anticipated for the extension of the Charles Kirkconnell International Airport (CKIA, Cayman Brac) runway end safety area, a permit will be required under section 21 of the National Conservation Law. A permit or permission to alter the shoreline in the form of the removal of sand, gravel, pebbles, stone, coral, or other filing, will also be required under the Development and Planning Act, 2021; and Development and Planning Regulations, 2022. See column below.	National Conservation Law – Cayman Islands Department of Environment (doe.ky) https://www.planning.ky/wp-content/uploads/docs/Development-and-Planning-Regulations-2022-revision-1.pdf

Environmental feature	Administering Body(ies)	Legislation/Policy/Guideline/Code of Practice	Summary	Applicability to Project	Reference/Resources
Alteration to the shoreline in the form of the removal of sand, gravel, pebbles, stone, coral, or other filing	Central Planning Authority (CPA) – reviews development and planning matters for Grand Cayman Development Control Board – reviews development and planning matters for Cayman Brac and Little Cayman	Development and Planning Act, 2021 Revisions	As per section 28 (1), should the Project result in the removal of sand, gravel, pebbles, stone, coral, or other filing from any area between mean high-water mark and five hundred feet inland thereof, or from any land covered by water, permission from the Authority is required.	Yes – may apply to works being completed to undertake the extension of the Charles Kirkconnell International Airport (CKIA, Cayman Brac) runway end safety area as well as works taking place at Owen Roberts International Airport (ORIA, Grand Cayman) eastern extent.	https://www.planning.ky/wp-content/uploads/docs/DEVELOPMENT-AND-PLANNING-ACT-2021-REVISION.pdf
Development, access, and setbacks related to Mangrove Buffer Zones	Central Planning Authority (CPA) – reviews development and planning matters for Grand Cayman Development Control Board – reviews development and planning matters for Cayman Brac and Little Cayman	Development and Planning Act, 2021 Revisions; and Development and Planning Regulations, 2022 Revision	Further to the Act, which prohibits development within designated Mangrove Buffer zones, the Regulation considers impacts to the ecological function of mangrove habitat: which includes mangroves habitat that: 18.1.1 *'(a) service as a nursery and natural habitat for marine life, birds, insects, reptiles and crustaceans; (b) filtration of overland run-off to the sea and ground water aquifer recharge; (c) export of organic particulate and soluble organic matter to coastal areas; and (d) coastal protection, and the protection of the Islands against storms and hurricanes.'* <u>Development in Mangrove Buffer Zones</u> Under section 18 (2), development within a Mangrove Buffer Zone may be permitted, in exceptional circumstance, and *'only where equivalent storm protection is provided by some other means and it can be demonstrated to the Authority that the ecological role of the peripheral mangroves will not be substantially adversely affected by the proposed development'.* <u>Access through Mangrove Buffer Zones</u> As per Section 18, an application to the CPA or Development Control Board is required to access through a Mangrove Buffer zone. <u>Setbacks</u> Development shall adhere to a setback of a minimum fifteen feet from the inland boundary of a Mangrove Buffer zone, unless, as per section 18 (5) it is the opinion of the Authority, that it is not feasible to achieve this standard, in which case the minimum setback shall be at the discretion of the Authority.	Yes – A tidally flooded mangrove shrubland and tidally flooded mangrove forest and woodland area are located in the eastern extent of the Owen Roberts International Airport (ORIA, Grand Cayman) Project Area. This mangrove buffer is protected under the planning law; while the North Sound area just east of the airstrip is not. During both construction and operation, impacts to these features are anticipated to result in changes in hydrological and sediment transport regimes due to altered flow; entry of suspended sediments; wetland function; and community diversity. An exemption from section 18 of the Development and Planning Regulations will be required to complete works at Owen Roberts International Airport given potential impacts, and encroachment of the mangrove buffer zone setback. Approval from the local planning authority is also required for setback encroachment. An exemption may also be required for works at Little Cayman Airport (LCB) should the project footprint include the expansion into the south adjacent pools, ponds, and mangrove lagoon (mapped on Exhibit 18 of the 2014 Master Plan).	https://www.planning.ky/wp-content/uploads/docs/Development-and-Planning-Regulations-2022-revision-1.pdf

Environmental feature	Administering Body(ies)	Legislation/Policy/Guideline/Code of Practice	Summary	Applicability to Project	Reference/Resources
Development on or abutting shorelines	Central Planning Authority (CPA) – reviews development and planning matters for Grand Cayman Development Control Board – reviews development and planning matters for Cayman Brac and Little Cayman	Development and Planning Act, 2021 Revisions; and Development and Planning Regulations, 2022 Revision	Section 8 (10) introduces the concept of setbacks in relation to shoreline. Of specific relevance to this Project is the setback required from the high-water mark where the shoreline is beach or mangrove: '*in areas where the shoreline is beach or mangrove (except in a Hotel/Tourism zone), all structures and buildings, including ancillary buildings, walls and structures, shall be setback a minimum of seventy-five feet from the high-water mark.'* Further, the Authority has the legal right to stipulate a lesser setback under certain conditions and at its own discretion: *(11) Notwithstanding paragraphs (a) to (h) of sub regulation (10), the Authority may grant* *permission for a setback to be located at a lesser distance than that prescribed in those* *paragraphs, having regard to-* *(a) the elevation of the property and its environs;* *(b) the geology of the property;* *(c) the storm/beach ridge;* *(d) the existence of a protective reef adjacent to the proposed development;* *(e) the location of adjacent development; and* *(f) any other material consideration which the Authority considers will affect the proposal.*	Yes – permission required to complete works at Charles Kirkconnell International Airport (CKIA, Cayman Brac) and Owen Roberts International Airport (ORIA, Grand Cayman) which encroach shoreline setbacks.	https://www.planning.ky/wp-content/uploads/DP_Law_VER2015.pdf
Impacts to protected areas					
Protected Area	Cayman Islands, National Conservation Council	National Conservation Law, 2014	Section 11 (2). Prohibits and regulates any activity that is likely, individually, or cumulatively, to harm or adversely affect a protected area or that is otherwise not compatible with the purposes for which a protected area was established. To obtain an exemption to section 11 (2), the proponent must submit an application to the Council to obtain a permit under section 20 (2)(a).	TBD - Impacts to designated protected areas are not anticipated; however, at the discretion of the Council a permit or EIA may be required should impacts to the Booby Pond Nature Reserve, adjacent to Charles Kirkconnell International Airport (CKIA, Cayman Brac) be identified.	National Conservation Law – Cayman Islands Department of Environment (doe.ky)

Environmental feature	Administering Body(ies)	Legislation/Policy/Guideline/Code of Practice	Summary	Applicability to Project	Reference/Resources
Protected Environmental Sites	National Trust	National Trust Law, 2010	The purpose of the Trust is to preserve the historic, natural, and maritime heritage of the islands through the preservation of areas, sires, buildings, etc.; maintain conservation; and protect flora and fauna. Of relevance to this project are the environmental sites maintained by the Trust (of which there are 12 total). The closet in proximity to the Project are the Booby Pond Nature Reserve and The Splits, both located on Cayman Brac. Although the extent of The Splits is unknown, this site accounts for 26.1 acres-land, on the shoreline of the west end of Cayman Brac. It has been identified as a breeding site for yellow-crowned Night Herons, Tri-colored Herons, and Green Herons as well as two endemic species of freshwater fish; it is also a popular watering hole for local and migratory birds. Approximately 5 km east of the Cayman Brac Project is the Redfooted Boobies Nature Reserve. This reserve is protected under the National Trust Law and, additionally, the area has been designated an Animal Sanctuary and a wetland of international importance under the United Nations RAMSAR Convention. As per the Master Plan (2014), the conservation of the natural environment is of significance to the Cayman Islands including during and after any construction activities, and the Department of Environment (DOE), the Environmental Assessment Board (EAB) are to be closely involved.	N/A – The Project is not anticipated to interact with the various environmental sites protected by the National Trust. Should impacts be anticipated, notably at Cayman Brac, consultation with the administering body will be required.	https://nationaltrust.org.ky/wp-content/uploads/2019/08/NTCI-Law-2010-Revision.pdf
Wastewater					
Discharge of wastewater	Cayman Islands, National Conservation Council	National Conservation Law, 2014	Section 11 2.d. prohibits or regulates the dumping of discharge of water or other substances.	Yes – applies to all Project sites where discharge is anticipated during construction or operation.	National Conservation Law – Cayman Islands Department of Environment (doe.ky)
Destruction or removal of trees and woodland habitat					
Destruction or removal of trees and woodland habitat	Central Planning Authority (CPA) – reviews development and planning matters for Grand Cayman Development Control Board – reviews development and planning matters for Cayman Brac and Little Cayman	Development and Planning Act, 2021 Revisions	Section 25 (1) regulates the removal or destruction of trees (including individual trees, groups of trees, or woodlands), and includes conditions for replanting woodland habitat.	Yes - Should the Project be anticipated to result in the removal/destruction of trees, an application and payment to the appropriate administering body will be required to obtain a Tree Preservation Order.	https://www.planning.ky/wp-content/uploads/docs/DEVELOPMENT-AND-PLANNING-ACT-2021-REVISION.pdf

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6 Air Traffic Forecast

This section aims to forecast the demand for air traffic at the Cayman Islands Airports.

6.1 Scope of the Forecast

The work centres on three (3) airports namely Owen Roberts International Airport (ORIA or GCM), Captain Charles Kirkconnell International Airport (CKIA or CYB) and Edward Bodden Airfield (LYB).

The scope of forecasting work involves the evaluation of the current and historical profiles of traffic at the three airports and to determine their likely future evolution and provide an air traffic estimate over the next 20 years.

Concerning our forecast methodology, it centers on a top-down and bottom-up model. Long term traffic demand is based on a top-down model centered around the economy, demographics and tourism which are the main drivers of long-term aviation demand. In parallel, a bottom-up model based on demand-side factors and supply-side factors (such as the anticipated airline development) was developed. This model centers on the short and medium term.

For the forecast task, DKMA was requested to provide an independent view based on its experience and knowledge gained over the years from undertaking similar studies; and its knowledge of travel market trends, airline strategies, and the degree of flexibility which airlines have to adapt to the changing environment. In parallel consultations were held with key stakeholders.

6.2 Key Study Objectives

The main objectives of this report are to:

- Analyse past and recent trends in airport activity as well as the main socio-economic factors that influence its evolution.
- Project annual passenger volumes, cargo volumes and aircraft movements.
- Project peak hour passengers and peak hour movements.
- Develop nominal day flight schedules for 2041. (Note: the nominal flight schedules were developed for George Town/Owen Roberts International Airport (GCM) and Captain Charles Kirkconnell International Airport (CYB) only).

6.3 Main Sources of Data

For this study the main source of data used were the following:

- Airport traffic statistics provided by the Cayman Islands Airports Authority (CIAA).
- For other airports in the world traffic statistics were provided by ACI and ENAC.
- Socio-economic data provided by the Economics and Statistics Office (ESO) and the OECD (Organisation for Economic Co-operation and Development).
- Tourism data provided by the ESO, the World Trade and Travel Council (WTTC) and the World Bank.
- The OAG which provided airline seating capacity data.

6.4 Forecasting Definitions

To avoid any confusion concerning semantics, it should be noted that, for the purposes of this study, we have adopted the following terms and definitions:

- Owen Roberts International Airport (GCM / ORIA) is sometimes referred to as Grand Cayman International Airport;
- Captain Charles Kirkconnell International Airport (CYB / CKIA) is sometimes referred to as Cayman Brac Airport; and
- Edward Bodden Airfield (EBA / LYB) is sometimes referred to as Little Cayman Airport.

6.5 The Socio-economic and Tourism Profile

This section sets the stage for the assumptions concerning the economic growth rates, demographic trends and tourism projections that are outlined in the Assumptions section below.

Accordingly, this section reviews and assesses:

- The performance of the Cayman Islands' economy;
- The evolution of the Cayman Islands' demographic profile; and
- The Cayman Islands' tourism sector.

6.5.1 The Economy

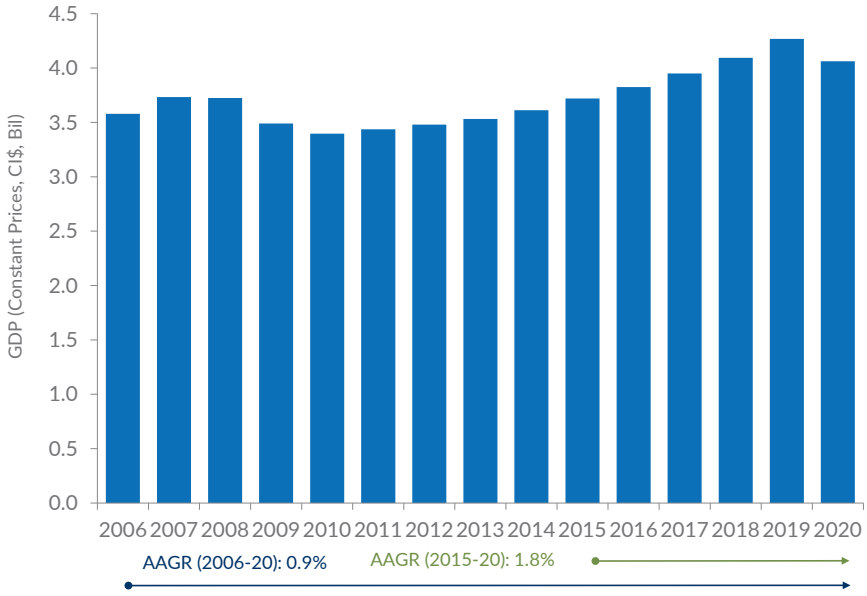
The Cayman Islands economy depends on banking, tourism, and other services, and the country boasts among the highest per capita income in the world.

The beauty and climate of the islands have made them a haven for tourists. Over the year the government invested heavily in promoting tourism. According to the WTTC[1], in 2019 travel and tourism accounted for 21% of the total economy and 36.8% of total employment. To compare, in the Caribbean as a whole travel and tourism accounted for 14% of the total economy and 15.2% of total employment in 2019.

The Cayman Islands is one of the world's leading providers of institutionally focused, specialised financial services and a preferred destination for the structuring and domiciling of sophisticated financial services products. The success of the financial services industry is attributed to the country's sound regulatory regime and political and economic stability, supported by highly skilled and experienced service providers. Additionally, they are vigilant in ensuring adherence to recognised and relevant international standards and committed to supporting global efforts to fight financial crime.

The main employment of the Cayman Islands is in clerical and service work and in the construction industry. Agriculture occupies only a small number of Caymanians, and most of the country's food must be imported. The exports are limited, and the major imports are machinery and transport equipment, other manufactured items, fuels, and foods. The United States is the Cayman Islands' primary trading partner in both imports and exports.

Figure 6.1: GDP, Cayman Islands, 2006-2020

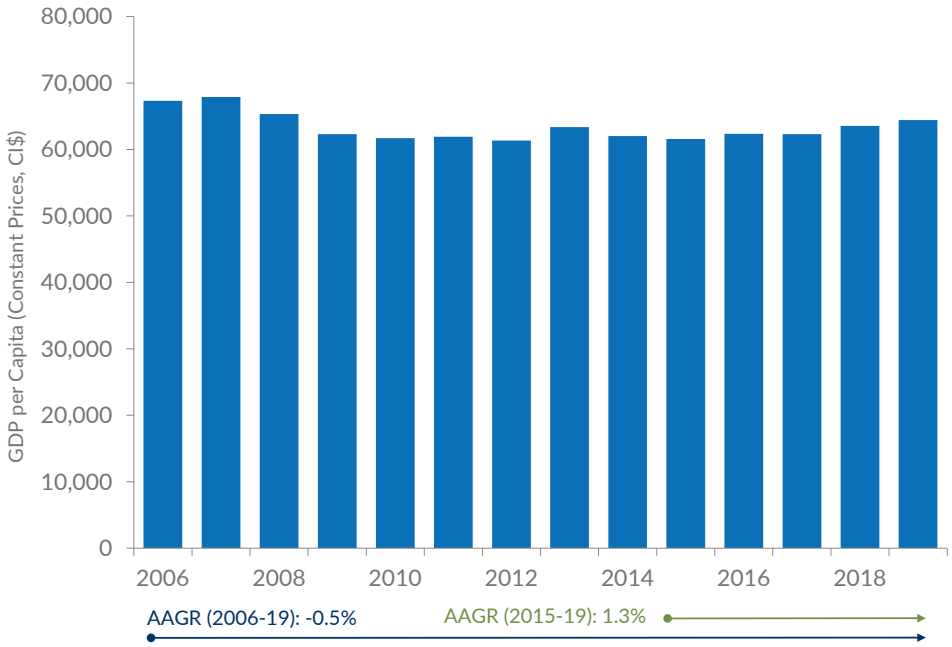


Source: Economics and Statistics Office (ESO)

[1] WTTC: World Travel and Tourism Council.

Despite the residents of the Cayman Islands having one of the highest GDP per capita in the world, GPD declined between 2006 and 2015 and recently started growing again (+1.3% p.a. between 2016-2019).

Figure 6.2: GDP per Capita, Cayman Islands, 2006-2019



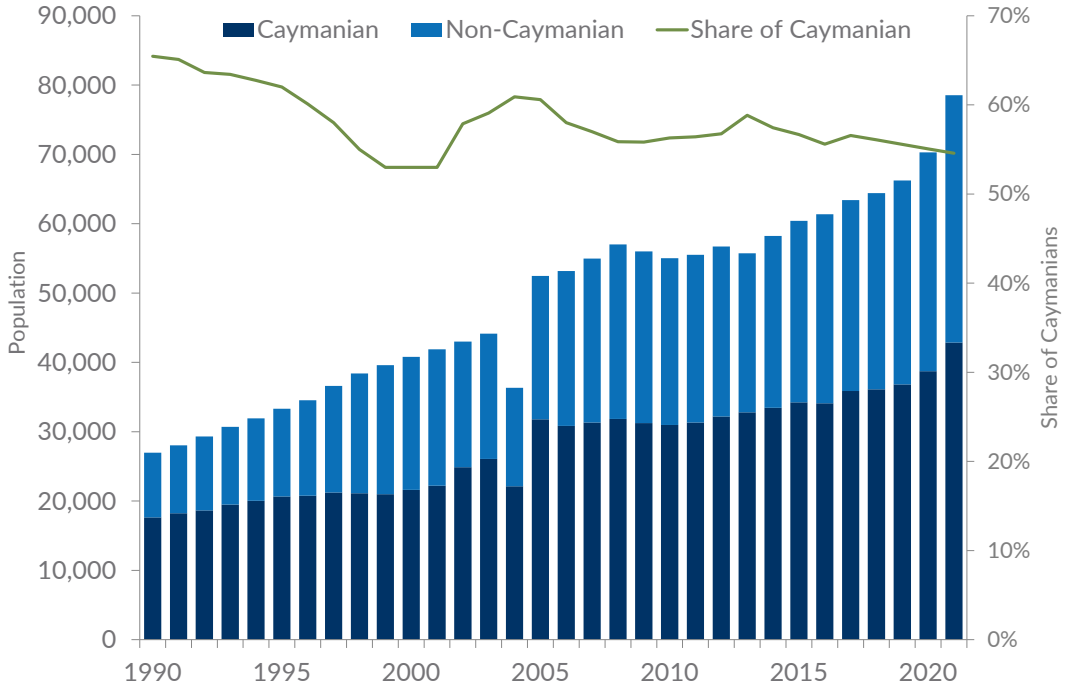
Source: Economics and Statistics Office (ESO)

6.5.2 Demographics

It is estimated that the total population grew at an average annual rate of 3.2% between 2001 and 2021 and this rapid pace of growth partially explains why the GDP per capita (see above) declined for a period of time. As of 2021, based on the preliminary census survey, the population is estimated at 78,554 in-habitants. That pace of growth is rapid and at that pace it would take less than 20 years for the population to double in size. Its population is young with nearly 45%[2] being under the age of 35 years. (Note: The 2004 drop in population level is as a result of the temporary relocation of some residents abroad in the aftermath of Hurricane Ivan.)

[2] Based on 2017 statistics.

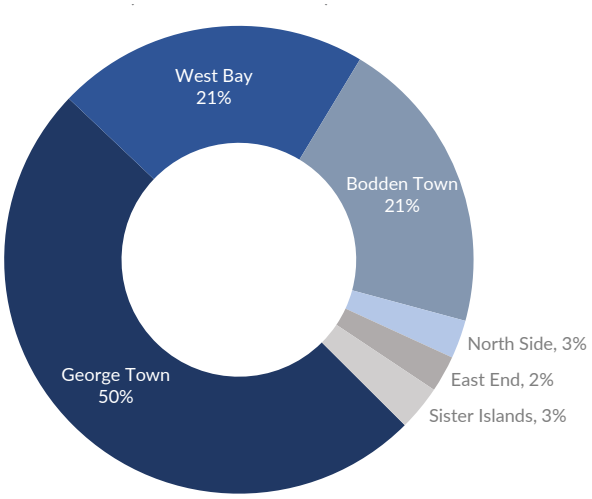
Figure 6.3: Population, Cayman Islands, 1990-2021



Source: Economics and Statistics Office (ESO)

The majority of the population resides on Grand Cayman and within Grand Cayman, the main population centre is George Town (where more than half of the country's population lives). At the other end of the spectrum the population of Cayman Brac and Little Cayman combined accounts for about 3% of the total.

Figure 6.4: Population by District (2021 Census Data)

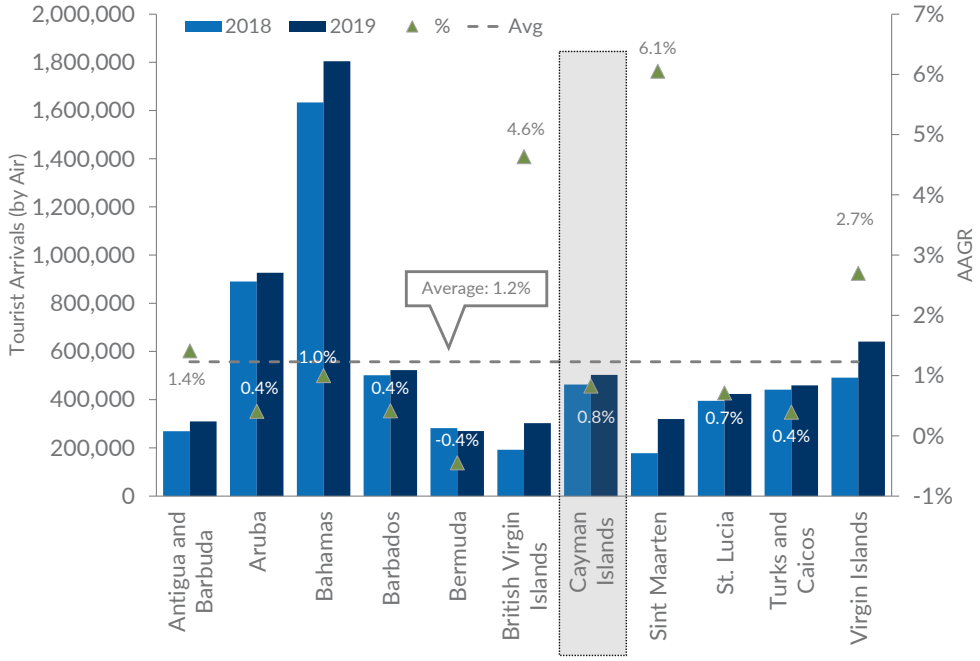


Source: Economics and Statistics Office (ESO)

6.5.3 Tourism

Tourism is a leading sector in the economy and as can be seen in the following chart, volume-wise the Cayman Islands' air tourism sector is comparable with other air tourism sectors in the Caribbean (except Aruba and the Bahamas which are much larger).

Figure 6.5: Tourist Arrivals (Air) Volumes and Growth For a Selected List of Countries



Source: Various Sources

Impact of the pandemic: According to the WTTC[3], around the world the travel and tourism sector suffered a loss of almost US$4.9 trillion to reach US$4.6 trillion in 2020, with the contribution to GDP dropping by a staggering 50.4% compared to 2019. In 2019, the travel and tourism sector contributed 10.4% to global GDP; a share which decreased to 5.5% in 2020 due to ongoing restrictions to mobility. In 2020, 62 million jobs were lost, representing a drop of 18.5%, leaving just 272 million employed across the sector globally, compared to 334 million in 2019. 2021 marked the start of a slow recovery and that year the tourism sector increased by USD$ 1 trillion (+21.7%) and the share of GDP increased to 6.1%. 18.2 million jobs were recovered representing an increase of 6.7% year-over-year.

In 2020 the WTTC has estimated that tourism in the Cayman Islands declined by 60.8% (compared to -53.2% for the Caribbean) and its contribution to the economy represented 8.7% of the total economy compared to 20.7% the year before. In 2020 tourism reached USD$ 481 million (vs. USD$ 1,228 million in 2019). In terms of employment, it is estimated 28.8% of the jobs were lost (compared to 25.8% for the Caribbean). In 2021

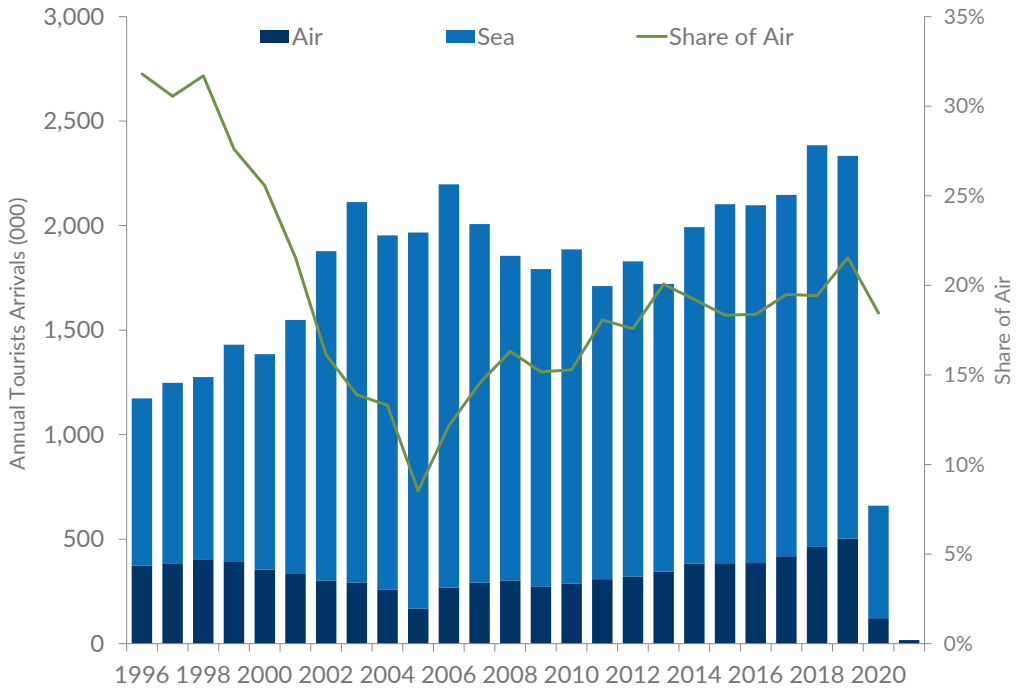
[3] WTTC: World Travel & Tourism Council

the industry started to rebound accounting for an estimated 10.7% of the economy (+27.5%) and reached USD$ 613 million. In parallel jobs also started to recover reaching 11,400 jobs (+12.2%). While this marks the start of the recovery the industry remains well below the 2019 levels when it accounted for 20.7% of the economy and over 13,000 jobs.

Between 1996 and 2019 (i.e., pre-pandemic) visitor arrivals to the Cayman Islands increased annually by 3.0% and the main mode of entry is by sea[4]. In 2019 there were 2.3 million tourist arrivals of which about half a million arrived by air. While most tourists arrive by sea, recently arrivals by air have been growing more rapidly than arrivals by sea and as a result the share of arrivals by air has steadily increased over the last few years. In 2019 (pre-pandemic) 21.5% of tourists arrived by air (compared to 15.2% in 2009).

In 2020, tourist arrivals decreased by 72% to reach 670,000 tourists and further fell in 2021 to reach 17,300 tourists. In 2021, because the cruise ship industry was halted, the small number of tourists all arrived by air. To sum up, over a two-year period the tourism sector saw its number of visitors decrease by 98%.

Figure 6.6: Historical Tourist Arrivals by Mode of Transportation, Cayman Islands, 1996-2021

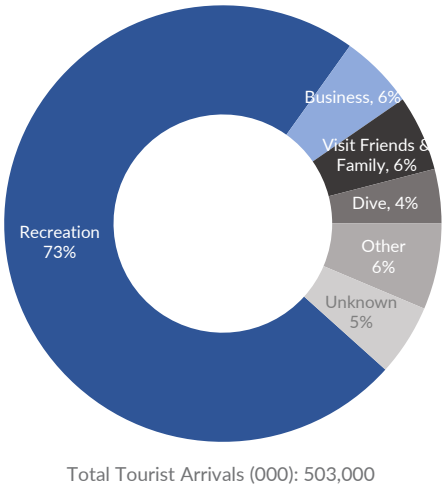


Source: Economics and Statistics Office

[4] Arrivals by sea include cruise ship passengers who generally come to shore for less than 24 hours.

No surprisingly, the purpose of trip of nearly three quarters of the tourist arrivals by air come on a recreational basis and this segment has been growing above the industry average (5.2% p.a. between 2014-2019 vs. 4.5% p.a. in total). Only the 'other' category has grown more quickly but it represents a small number of tourists. Note: The analysis is based on 2019 data because it is the last year for which a complete and reliable data set was available.

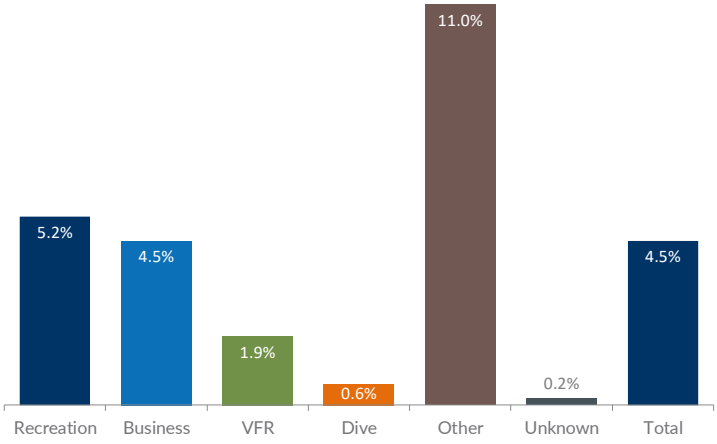
Figure 6.7: Purpose of Trip, Tourist Arrivals by Air, Cayman Islands, 2019



Source: Economics and Statistics Office

In March 2020, the pandemic prompted the closure of the Cayman Islands' borders with the objective of limiting international travel to mitigate the spread of the virus. At the end of 2021, some travel restrictions were eased but in parallel a series of rules at entry were put in place to limit the spread of the virus[5]. At the start of the pandemic, and up to October 2020, the Cayman Islands recorded less than 500 tourist arrivals by month. For the next 12 months (November 2020 to October 2021) it recorded less than 1,000 tourist arrivals but by November 2021 we note an improvement[6].

Figure 6.8: Purpose of Trip, Tourist Arrivals by Air, Cayman Islands, Growth between 2014 and 2019

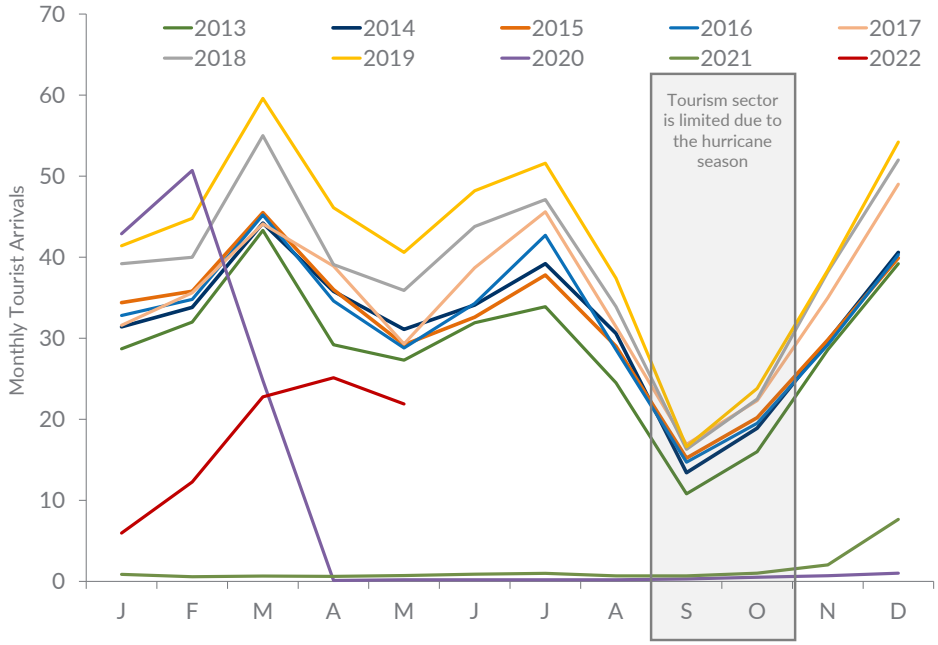


Source: Economics and Statistics Office

[5] For example, only fully vaccinated tourists can enter the country.
[6] To compare, on average, in 2019, over 40,000 tourists arrived each month.

As can be seen in the next graphic, in 2022 the recovery is well on its way and in June 2022 the country further relaxed the rules of entry by no longer requiring a pre-Covid test to enter the country and the mandatory mask wearing on the Islands was removed. However, some rules remain such as only fully vaccinated tourists can enter the country.

Figure 6.9: Monthly Tourist Arrivals, 2013-2022 (YTD)



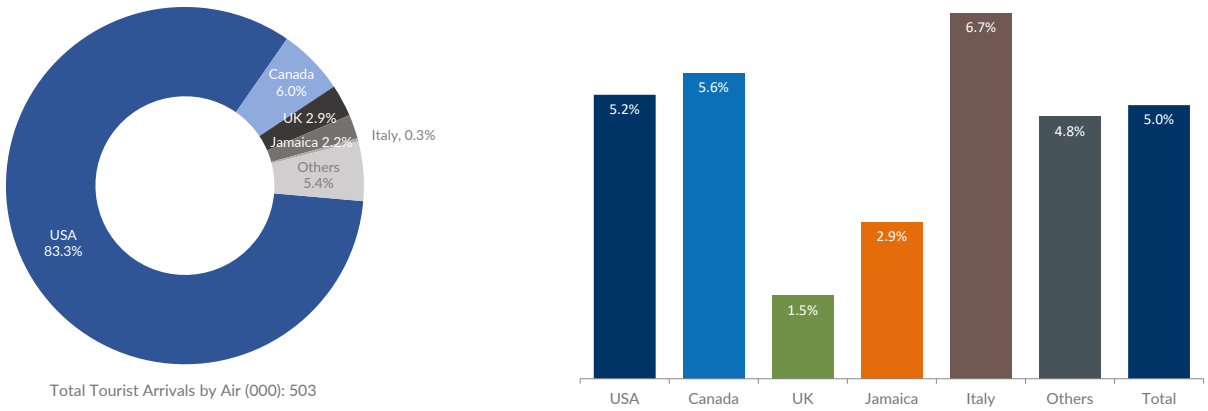
Source: Visit Cayman Islands (Cayman's official tourism website)

Historically the majority of the tourists originate from the USA and this share has been steadily increasing over the years to reach 83.3% in 2019. While it is reassuring to be able to count on a single country for the majority of a country's visitors it is also a risky proposition to rely so much on a single country as its source market. If possible, over time, it would be beneficial if the Cayman Islands came to rely less on the USA and for diversification to materialise, it would be important to have an enhanced air route network to the country.

Given that the Cayman Islands is a British overseas territory naturally a number of visitors to the country are from the UK but overall, they represent a small share of visitors, (3.9% in 2019) and this market has been slow growing.

Note: The analysis is based on 2019 data because it's the last year for which we have a complete and reliable data set.

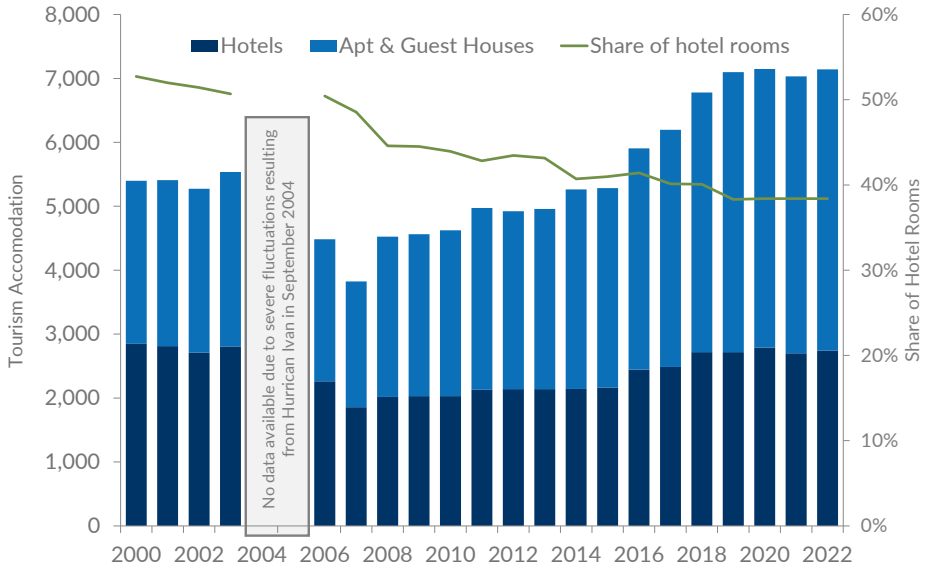
Figure 6.10: Tourist Arrivals by Air by Country (2019) and Purpose of Trip, Tourist Arrivals by Air, Cayman Islands, Growth between 2006 and 2019



Source: Economics and Statistics Office

The Cayman Islands Department of Tourism (DoT) tracks accommodations on the islands. More precisely it tracks the accommodation types and room counts. As can be seen in the chart below, the accommodation expanded from 2006 (post Hurricane Ivan) to 2019. During the pandemic we note a small decrease in the accommodation, and it is safe to assume that a number of owners probably simply closed part of their facilities while they wait for the pandemic to end, and some might have taken the opportunity to renovate their facilities. Since a low in 2006 the accommodation has increased by over 60% (3.6% per annum).

Figure 6.11: Tourism Accommodation, Cayman Islands, 2000-2022



Source: ESO and Visit Cayman Islands (Cayman's official tourism website)

6.6 Air Traffic Development at the Cayman Islands

Airports are the lifelines of island communities, who are heavily dependent on the outside world for goods and services that might not be available locally (such as commodities), and in extreme circumstances (hurricanes and earthquakes) they can be vital for emergency supplies and evacuations. The Cayman Islands Airports Authority (CIAA) is responsible for Cayman's airport facilities, which consists of two (2) international airports, Owen Roberts International Airport (ORIA/GCM) on Grand Cayman and Charles Kirkconnell International Airport (CKIA/CYB) on Cayman Brac and Edward Bodden Airfield (EBA/LYB) on Little Cayman.

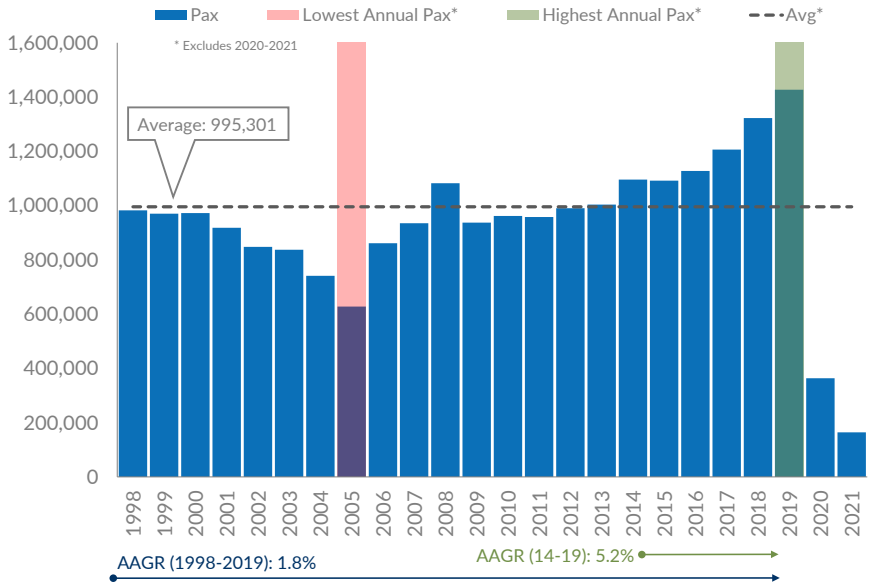
6.7 Owen Roberts International Airport (GCM)

As mentioned, the Cayman Islands have two (2) international airports and Owen Roberts International Airport is the main international airport/port of entry as well as the main base for Cayman Airways (the national carrier).

6.7.1 Passengers

Between 1998 and 2021 passengers have declined by -7.5% annually and in 2021 the airport handled a low of 138,222 passengers. In 2019 (pre-Covid) Grand Cayman Airport handled 1.4 million passengers and demand had steadily grown since 1998 (+1.8% per annum). In September 2004 hurricane Ivan caused serve damage to the Cayman Islands and traffic volumes hit a low point in 2005 but a few years later the effects of the hurricane had largely dissipated and from that year on traffic steadily developed except in 2009 when the world (and the Cayman Islands) were impacted by the global financial crisis.

Figure 6.12: Past Trend in Total Passengers, Owen Roberts Int'l Airport, 1999-2021

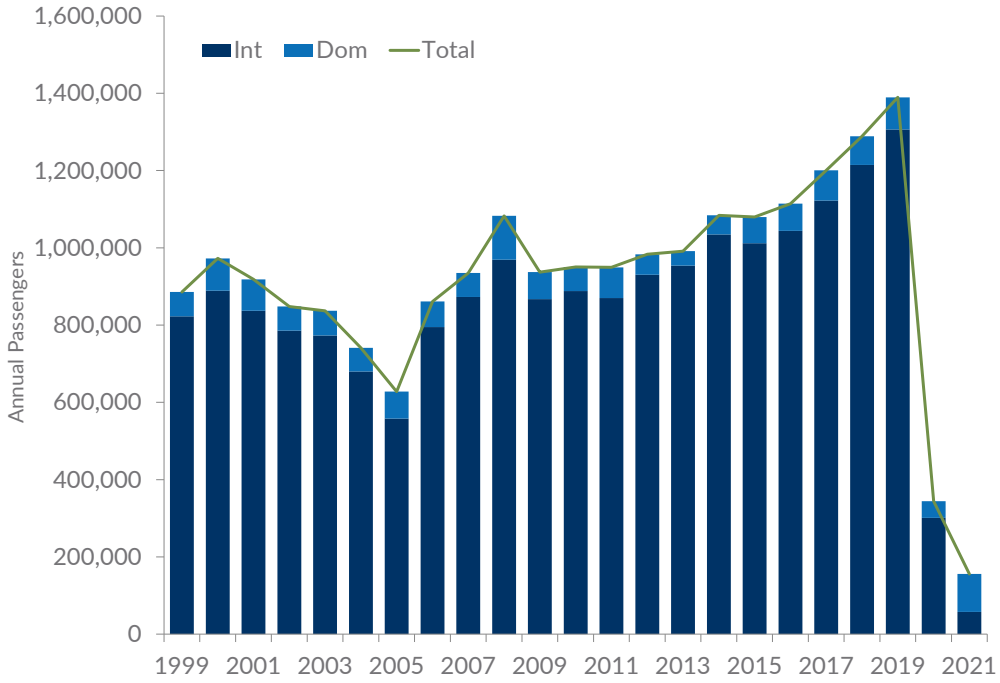


Source: Economics and Statistics Office and CIAA

Prior to the pandemic, domestic traffic accounted for about 6% of passengers and this figure has marginally declined over the years. In terms of volumes, in 2019 the airport handled nearly 83,000 domestic passengers and many of these passengers where in fact international tourists connecting from an international flight to a domestic flight. In terms of destinations, the majority of the domestic passengers fly to/from Cayman Brac (CYB).

In 2021 domestic passengers increased compared to 2019 and this increase is linked to residents who, unable to travel abroad because of the pandemic, opted for a domestic trip.

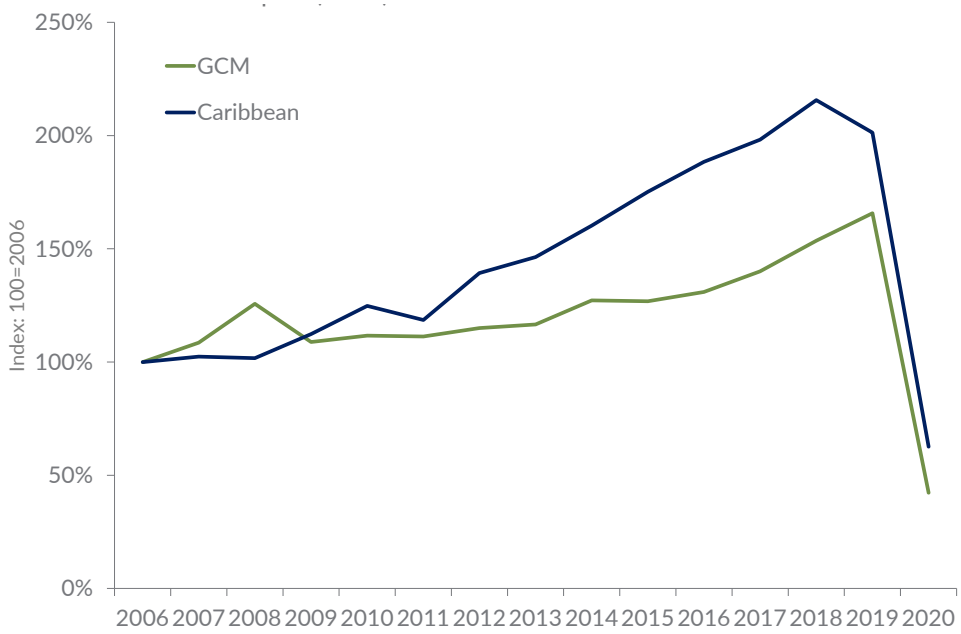
Figure 6.13: International vs. Domestic Passengers, Owen Roberts Int'l Airport, 1999-2021



Source: Economics and Statistics Office

Prior to the pandemic, passenger growth in the Caribbean was experiencing steady growth as can be seen in the next chart. To be more precise, between 2006 and 2019 it is estimated that demand doubled in size. Within the Caribbean region Owen Roberts International Airport (GCM) experienced a more modest growth averaging 4.0% per annum (compared to 5.5% per annum for the Caribbean). The pandemic came with damaging travel restrictions which brought much of international travel to a grinding halt and given that the region (and GCM) is highly dependent on tourists from abroad it had a devastating impact on the air travel (and the tourism industry).

Figure 6.14: Index of Air Passenger Growth, Owen Roberts Int'l Airport (GCM) vs. Caribbean

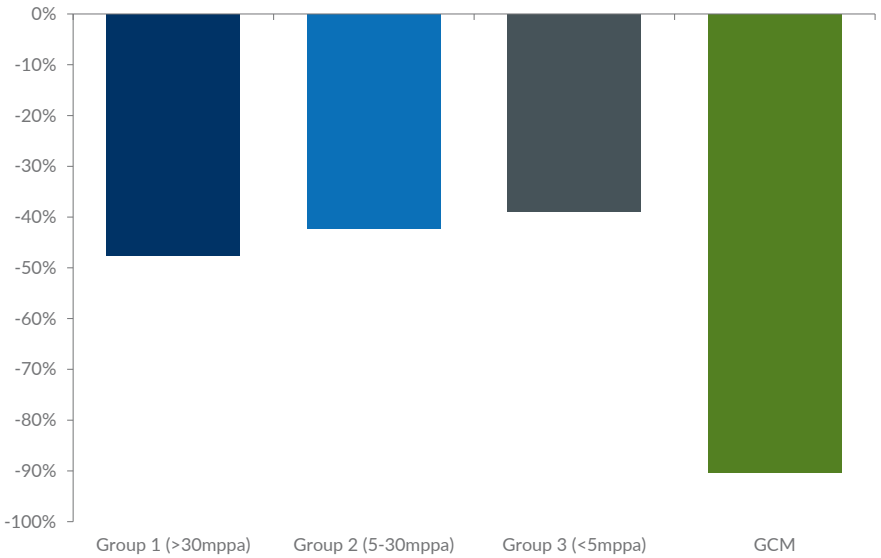


Source: ACI, Economics and Statistics Office and CIAA

Since the start of the pandemic all the airports in the world experienced a significant decline in demand and those which rely on international markets typically experienced a greater decline compared to those who could rely on a large domestic market. Around the world airports which handle a large number of international passengers tend to be large hub airports and as such these airports typically suffered more than small airports (which tend to rely to a great extent on domestic traffic). The closures of international borders and/or quarantine rules largely explain the decline of international routes. In parallel, domestic markets were not immune but for some travellers they became a form of refuge, and a number of citizens took “stay at home vacations” (also called “staycation”).

As can be seen in the next chart, within the smaller group of airports (defined as 5 million passengers or less in 2019) Grand Cayman Airport suffered more than its peers. In fact, the traffic decline at Grand Cayman Airport is even worse than the loss experienced at large airports (defined as “Group 1” having over 30 million passenger). This can be directly attributed to the fact that Grand Cayman Airport, contrary to most small airports, has very limited domestic market and as a result the closure of international borders had a dramatic impact on the airport’s activities.

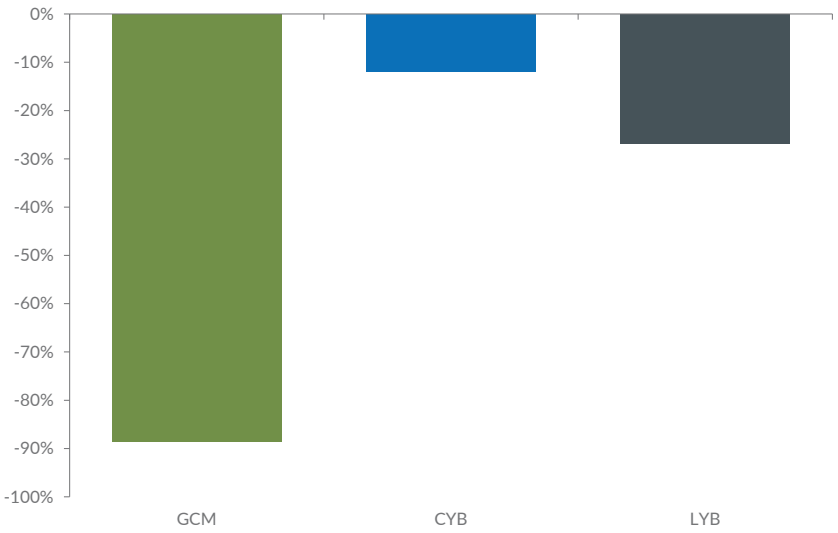
Figure 6.15: Air Passengers Decline at Owen Roberts Int'l Airport vs. Airport Groups (2019-2021)



Source: Economics and Statistics Office and Various Airport Statistics

The next chart highlights the passengers decline between 2019 and 2021 for the three (3) airports in the Cayman Islands, and without surprise, Grand Cayman Airport, which is the international gateway, has suffered to a much greater extent that the two (2) smaller airports.

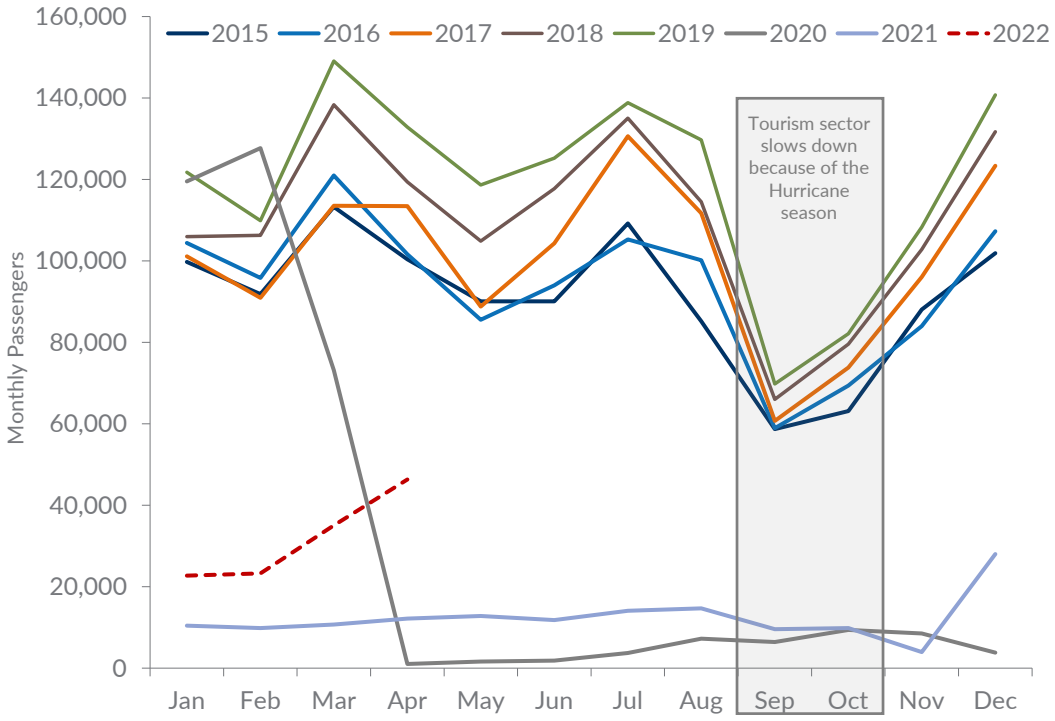
Figure 6.16: Air Passengers Decline, Cayman Islands Airport (2019-2021)



Source: Economics and Statistics Office and Various Airport Statistics

As already indicated in 2019 Grand Cayman Airport handled 1,427,100 passengers which was a historically high number. January 2020 was comparable to January 2019 and strong growth was experienced in February 2020 but starting in March 2020, with the closures of international borders because of the Covid pandemic, traffic declined significantly for the remainder of the year. On average, once the borders closed, the airport handled less than 5,000 passengers per month compared to almost 120,000 the previous year. 2021 was slightly better (~ 10,000 monthly passengers) but in December the borders re-opened (with strict travel rules for travellers) and as a result in December 2021 Grand Cayman Airport handled nearly 30,000 passengers. In 2022 we note a steady rebound however, as we can see in the next chart, the monthly passengers remain well below the historical monthly averages but in June 2022 the government further relaxed the rules on entry (pre-Covid test no longer required) which should stimulate demand.

Figure 6.17: Monthly, Passengers, Owen Roberts Int'l Airport, 2015-2020

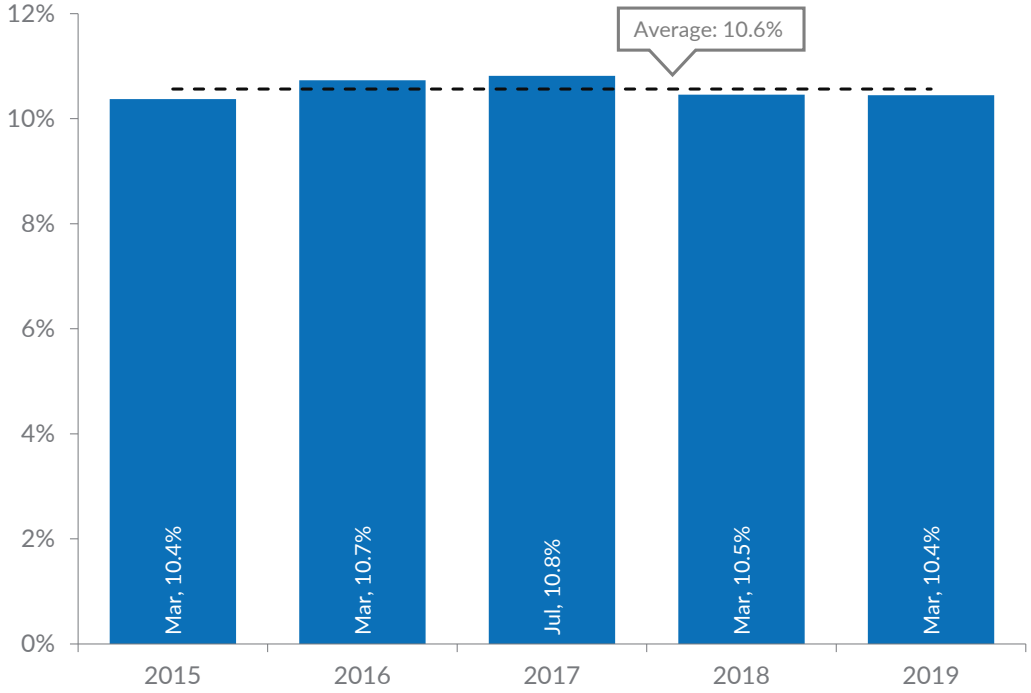


Source: Economics and Statistics Office and CIAA

Grand Cayman Airport, like any airport in the world, experiences seasonal variations. At Grand Cayman Airport, the peak month varies by year but typically it occurs during the winter months, which is expected given that Grand Cayman Airport caters to tourists seeking a sunny and warm destination. Also, during the month of September and October the activities are substantially reduced essentially due to the risk of hurricanes and as a result these two (2) months are typically the least busy at Grand Cayman Airport. Over the past few years, the peak months passengers (and the share of annual) have been the following:

- March 2015: 10.4%;
- March 2016: 10.7%;
- July 2017: 10.8%;
- March 2018: 10.5%; and
- March 2019: 10.4%.

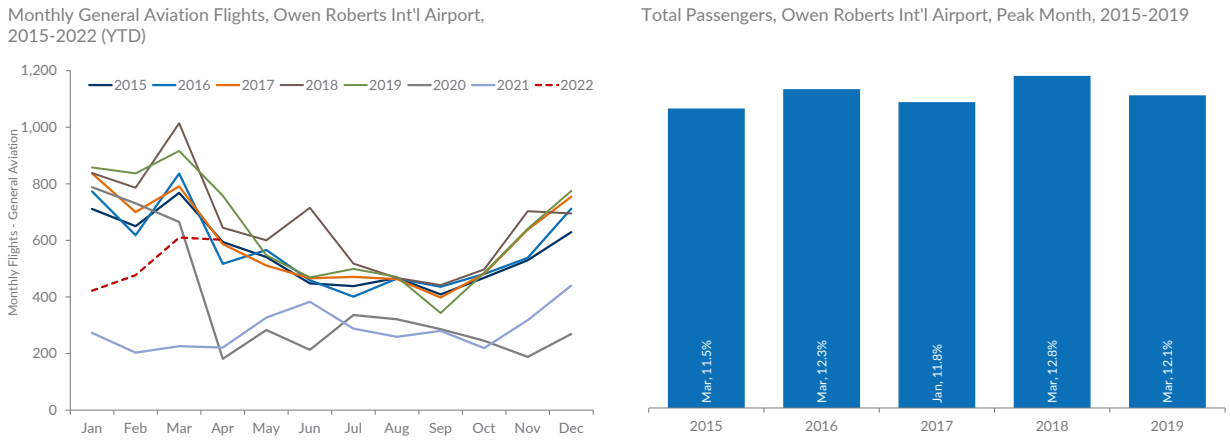
Figure 6.18: Total Passengers, Owen Roberts Int'l Airport, Peak Month, 2016-2020



Source: Economics and Statistics Office

General Aviation Demand: General Aviation (GA) demand has grown over the last few years as tourism increased and the economy develops. As can be seen in the next charts, GA activity is seasonal and similar to commercial activities, GA peaks in March (spring break) and in December/ January (Christmas holidays).

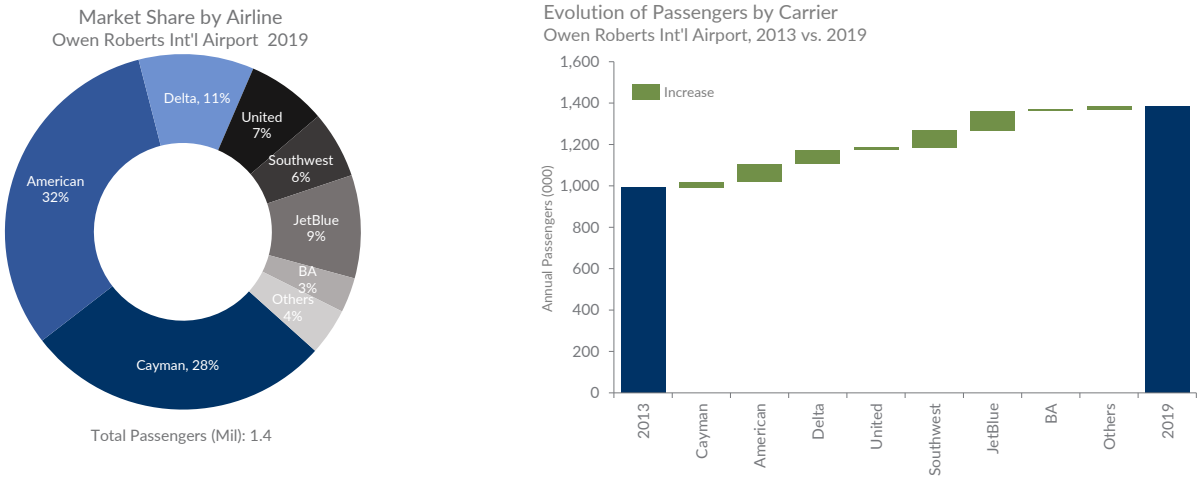
Figure 6.19: Monthly General Aviation Flights, Owen Roberts Int'l Airport, 2015-2022 (YTD) and Total Passengers, Owen Roberts Int'l Airport, Peak Month, 2015-2019



Source: CIAA

In 2019, according to the CIAA 11 scheduled carriers served Grand Cayman Airport and this figure has been stable over the years. With over 30% of the passenger demand, American Airlines was the largest carrier followed by Cayman Airways, the national carrier, which handled nearly 30% of the passenger demand. Since 2013, all the carriers have increased the number of passengers at the airport (see following chart on page 82 on the right-hand side). While the number of carriers during that period has been fairly stable, we do note changes in the landscape. In particular, we note the entry in 2018 of the low-cost airline Southwest and the rapid expansion of JetBlue and American. Between 2013 and 2019 the airport handled about 400,000 additional passengers of which nearly 70% were handled by these three (3) carriers. Said differently, these three (3) carriers are responsible for most of the recent development at Grand Cayman Airport.

Figure 6.20: Market Share by Airline, Owen Roberts Int'l Airport, 2019, and Evolution of Passengers by Carrier, Owen Roberts Int'l Airport, 2013 vs. 2019ds



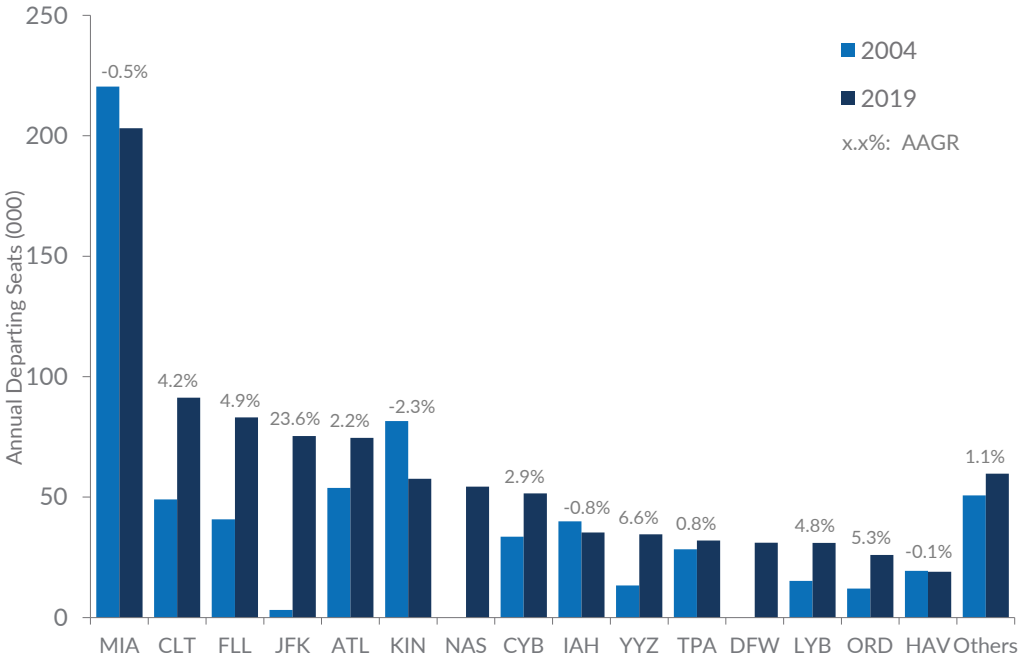
Source: CIAA

Over the years the number of routes served has steadily increased and by 2019, according to the OAG, the network counted 25 routes: two (2) domestic (CYB & LYB) and 23 international routes. Except for the route to London-Heathrow, most other routes are medium-haul (US/ Canada) supplemented by a few short-haul/ Caribbean route (e.g., Havana). By far the largest market is Miami (MIA) which is a large US hub airport for American which enables one-stop service to many cities in the world. Many other hubs are also connected to Owen Roberts International Airport, and they include Atlanta, London-LHR, New York-JFK and Toronto-Pearson. Some of the new routes that opened since 2004 include Nassau (NAS) that opened in 2005 and is operated by British Airways[7] or Dallas-Fort Worth (DFW) that opened in 2012 and was initially operated by Cayman Airways (2012-2017) and since 2013 has been operated by American.

During the pandemic, the two (2) domestic routes never ceased to operate but the international network, being shut down due to the pandemic, is starting to rebuild. In 2022 the capacity remains lower than in 2019 but in terms of international routes 23 are now served (which is close to the 25 international routes operated pre-pandemic). In November 2022 Cayman Airways opened a new, non-stop service to Los Angeles (LAX).

[7] British Airways is a one-stop flight to London-Heathrow.

Figure 6.21: Evolution of Departing Seats by Route, Owen Roberts Int'l Airport, 2004 vs. 2019



Source: OAG

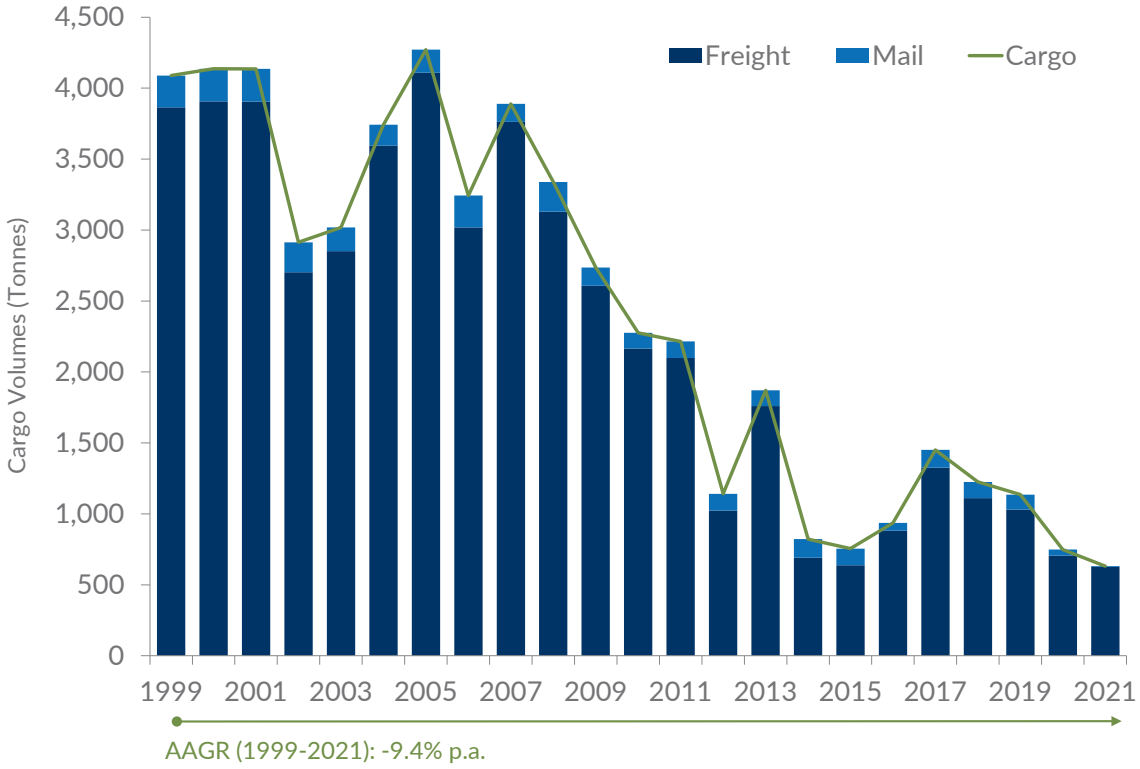
6.7.2 Air Cargo

The Cayman Islands are highly dependent on tourism and the goods produced in country are limited meaning that the country is greatly reliant on cargo to import most of its goods. While the country is dependent on cargo imports most arrive by sea[8]. As can be seen in the next figure on page 84, cargo volumes are small[9] and after a burst of construction following Hurricane Ivan, the cargo market has been declining for years. The vast majority of the cargo is freight, and it is not shown in the chart but typically the inbound represents about 80% of the cargo volumes and only 20% is outbound. Because the country is so dependent on imports, international cargo will naturally represent the majority of the volumes (in 2019 it represented 85% of the total volumes).

[8] Cargo which is not time sensitive will typically arrive by sea which is less expensive than air.

[9] In 2019, the daily average cargo volume was about 3 tonnes.

Figure 6.22: Cargo Volumes, Owen Roberts Int'l Airport, 1999-2021



Source: CIAA and Economics and Statistics Office

6.7.3 Aircraft Movements

According to the CIAA, aircraft movements totalled 12,295 in 2021 (vs. 27,381 in 2019). Prior to the pandemic and excluding 2004 when Cayman Islands was hit by a hurricane, aircraft movements have steadily increased over time. Not surprisingly, non-scheduled GA aircraft movements are an important component of the operations at the Grand Cayman Airport. As can be seen in the chart it varies year over year and in 2019 non-scheduled accounted for 23.3% of the movements.

Figure 6.23: Aircraft Movements, Owen Roberts Int'l Airport, 1999-2021

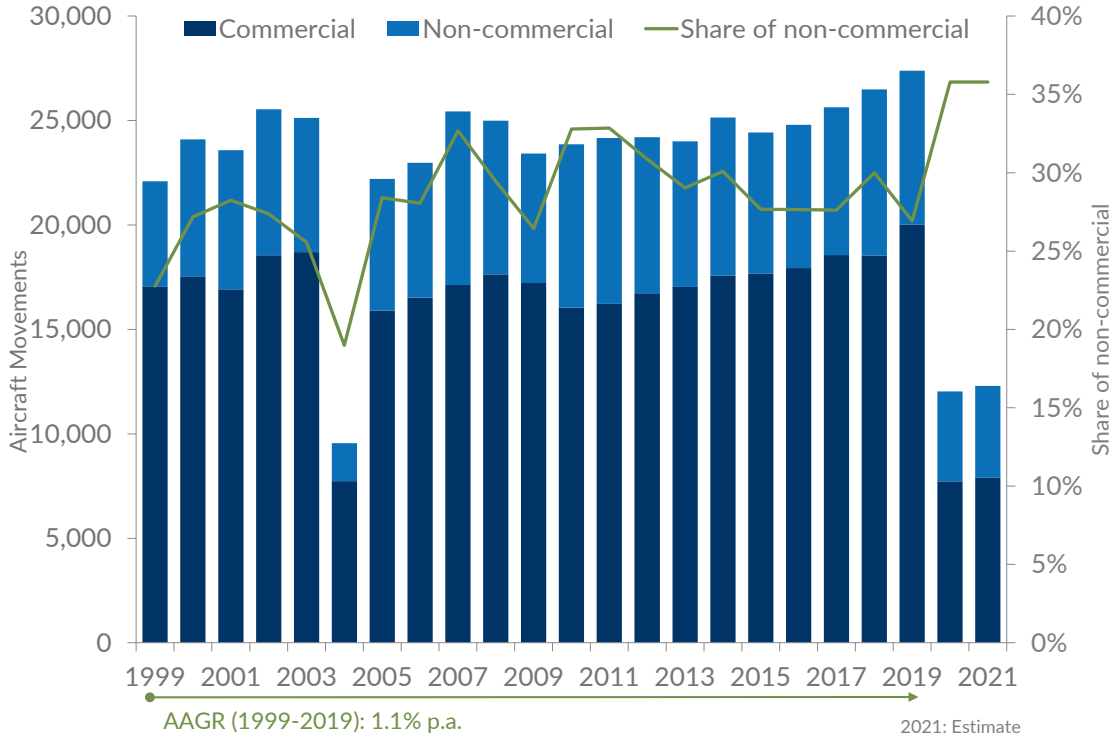
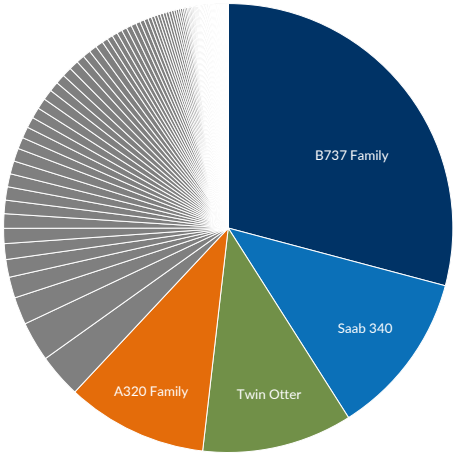


Figure 6.24: Aircraft/Families of Aircraft, 2019

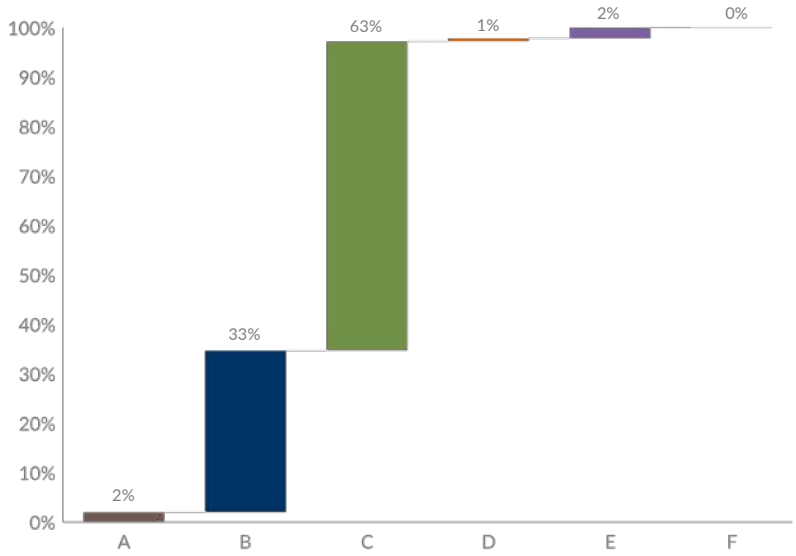


Source: CIAA and Economics and Statistics Office

Based on 2019 statistics provided by the CIAA, prior to the pandemic, the majority of scheduled flight activity centred on ICAO Code C aircraft. The majority of Code C flights were operated by the B-737 family of aircraft [10]and to a lesser degree the A320 family of aircraft. Typically, these aircraft operate on international routes but we also note a number of domestic flights (to/from Cayman Brac (CYB)). While some jets operate domestically, normally domestic flights are operated by turboprops (Saab 340 & Twin Otter) which are two aircraft type that belong to the ICAO Code B category. Collectively these 4 aircraft/ families of aircraft accounted for 62% of all flights in 2019 (commercial and non-commercial combined; see chart on the left-hand side).

The airport also handled a few Code A commercial aircraft (<2%), Code D represented less than 1% of the flights (Delta operated a Boeing B-757 which has since been retired) and finally British Airways' London/ Nassau service was operated with a Code E aircraft (Boeing B-777) which represented about 2% of movements. In total 160 different type of aircraft operated at the Owen Roberts Airport and the most important non-commercial aircraft type was the Cessna Centurion followed by two (2) helicopters (the Eurocopter EC145 and the Eurocopter AS350).

Figure 6.25: Commercial Flights by ICAO Categories, 2019



Source: CIAA

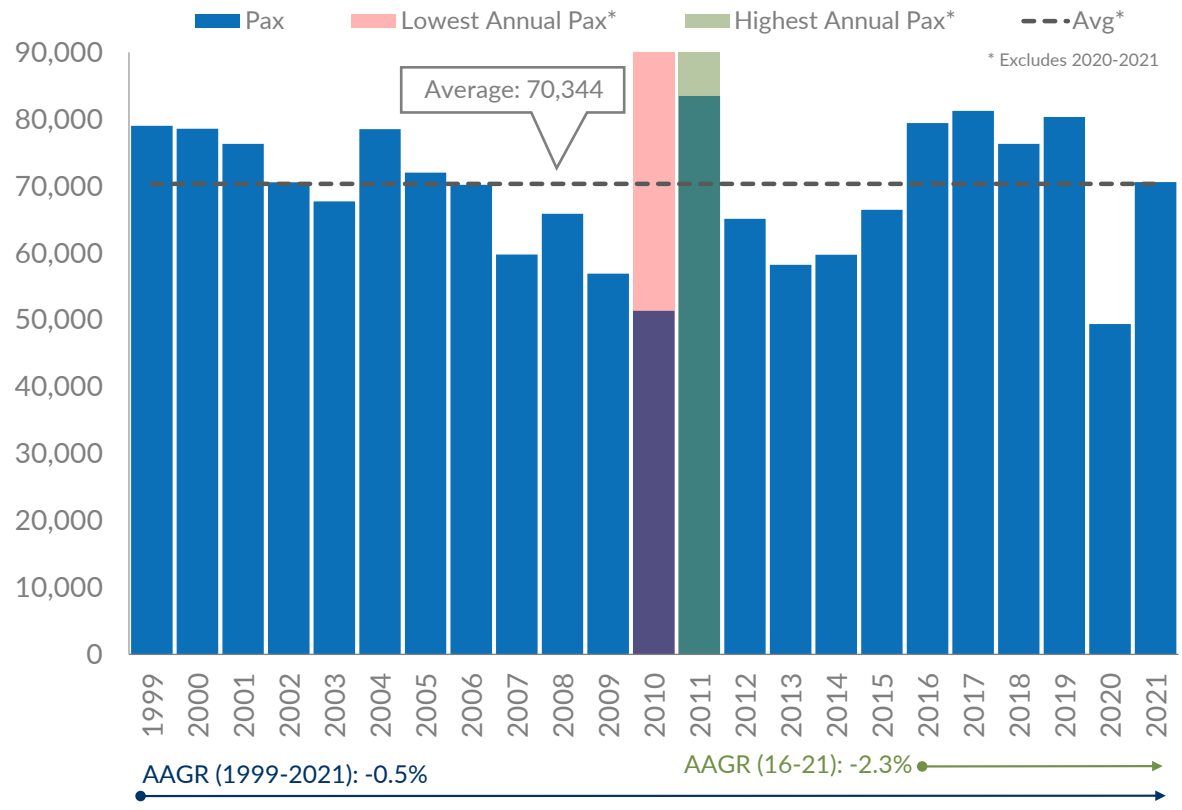
[10] In 2019 Cayman Airways operated the Boeing B-737-300 and these have since been retired and replaced by the Boeing B-737 MAX 8.

6.8 Charles Kirkconnell International Airport (CYB)

As already indicated the Cayman Islands have two (2) international airports and Charles Kirkconnell International Airport is the second international airport and serves Cayman Brac. Cayman Brac is an island that lies about 90 miles (145 km) north-east of Grand Cayman and 5 miles (8 km) east of Little Cayman. The population is estimated at roughly 2,000 inhabitants.

Between 1999 and 2021 passengers have decreased annually by 0.5% and in 2021 the airport handled 70,597 passengers compared to 80,332 passengers in 2019 (pre-Covid). As can be seen in the next chart annual passenger demand is relatively constant at about 70,000 passengers. The airport serves mostly the local residents who travel back and forth to Grand Cayman and some tourists who visit Cayman Brac. Because a portion of the demand is composed of locals, and that domestic operations continued during the pandemic, by 2021, the airport had recuperated about 90% of its 2019 traffic volumes.

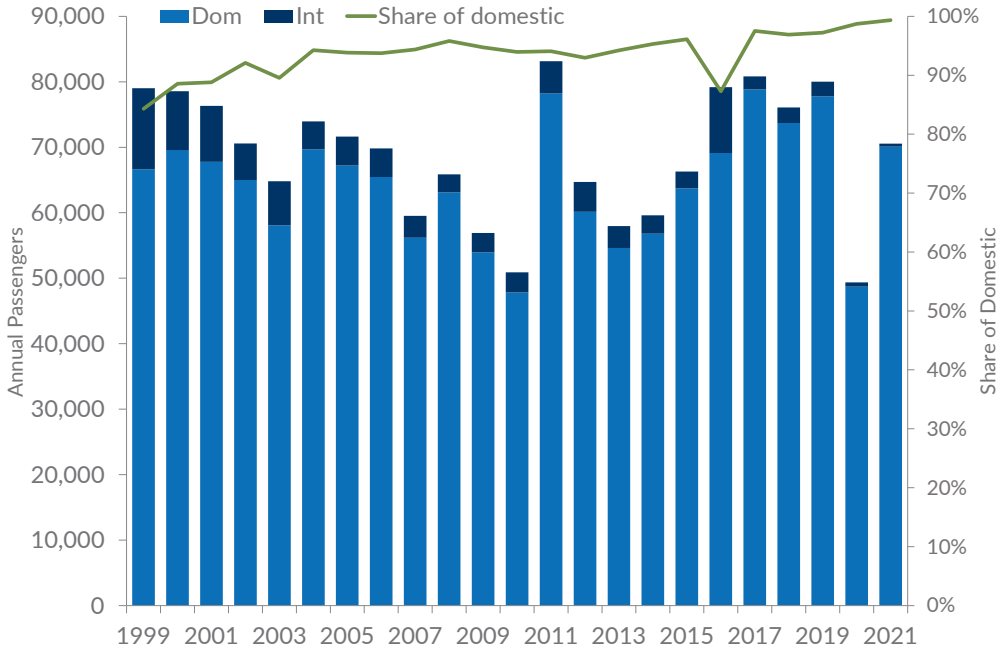
Figure 6.26: Total Passengers, Charles Kirkconnell Int'l Airport, 1999-2021



Source: Economics and Statistics Office and CIAA

As can be seen in the next chart, the vast majority of the passengers are domestic, and the share of the domestic activity has steadily increased over the years.

Figure 6.27: International vs. Domestic Passengers, Charles Kirkconnell Int'l Airport, 1999-2021



Source: Economics and Statistics Office and CIAA

Pre-pandemic commercial service to the Cayman Brac Airport consisted of about 13 daily flights (~ 300 daily seats) which were all operated by Cayman Airways. Two (2) destinations were served namely Grand Cayman and Little Cayman. Grand Cayman accounted for 78% of the seats (67% of the flights) and the operations where mostly turboprops (Saab 340 and Twin Otter) complemented by some jet flights (B737-300[11]). Without surprise, all commercial flights to Little Cayman (LYB) were operated with turboprop aircraft, namely the DHC-6 Twin Otters.

As can be seen in the next chart, the annual movements have fluctuated greatly over the years. Movements peaked in 2014 (nearly 15,000 movements) but have been since then been declining and the five-year period up to Covid (i.e., 2014-2019) Cayman Brac Airport averaged 5,400 movements of which about 95% were commercial flights.

[11] By 2021 Cayman Airways had retired its B-737-300 and replaced them with B-737 MAX 8s.

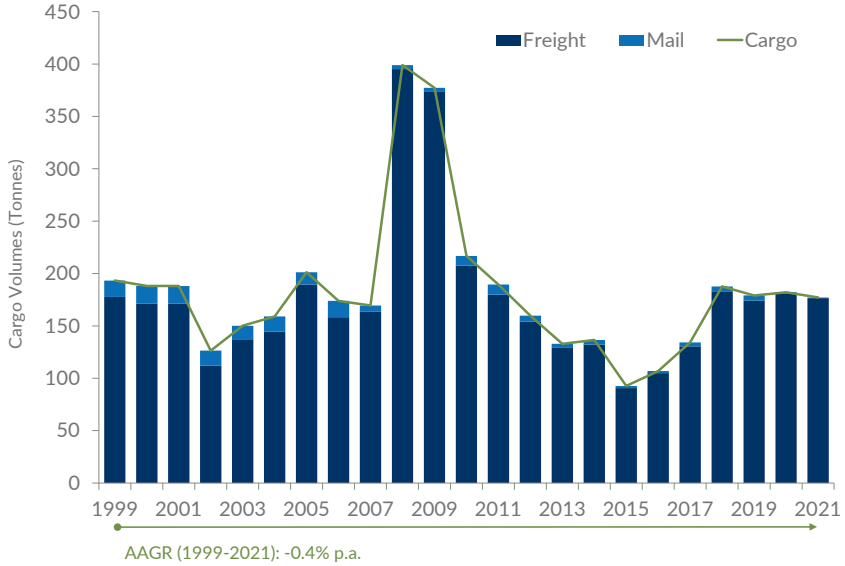
Figure 6.28: Commercial vs. Non-Commercial Movements, Charles Kirkconnell Int'l Airport, 1999-2021



Source: Economics and Statistics Office and CIAA

Historical cargo volumes are shown on the next chart on page 89. Except for 2008 and 2009 cargo volumes typically average 164 tonnes annually and the vast majority is inbound (deplaned) and is flown entirely on domestic routes (more precisely flown in from Grand Cayman Airport). The vast majority of the cargo is freight and mail accounts for less than 5% of the cargo volumes.

Figure 6.29: Cargo Volumes, Charles Kirkconnell Int'l Airport, 1999-2021



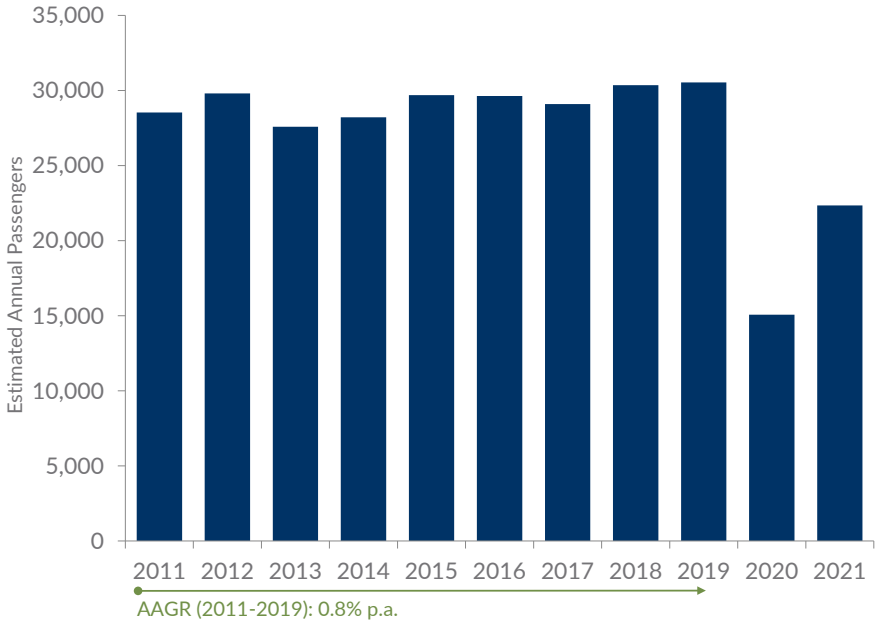
Source: Economics and Statistics Office and CIAA

6.9 Edward Bodden Airfield (LYB)

The third and smallest airport in the Cayman Islands is Edward Bodden Airfield which is a domestic airport/ airfield serving Little Cayman. Little Cayman is the smallest of three (3) Islands comprising the Cayman Islands. It is located in the Caribbean Sea, approximately 60 miles (96 km) northeast of East End, Grand Cayman and five miles (8 km) west of West End, Cayman Brac. Little Cayman is the least populous island, with a permanent population estimated at about 200 residents.

With regards to passengers, the airport does not compile statistics, but Cayman Airways provided their figures and as can be seen in the next chart, not surprisingly, demand is small and up until Covid was fairly stable. Between 2011 and 2019, demand grew annually by 0.8% and in 2019 it is estimated that Little Cayman had 30,537 passengers. Passengers can reach Little Cayman via Grand Cayman or via Cayman Brac and the majority rely on the Grand Cayman route (e.g., in 2019 nearly 70% flew on that route). Similar to Cayman Brac, because the passenger demand at Little Cayman centres on domestic operations, the Airport did experience a setback due to the pandemic, but it was a lot less significant than at Grand Cayman Airport. (Note: Figures on non-commercial passengers were not available but are estimated to be marginal).

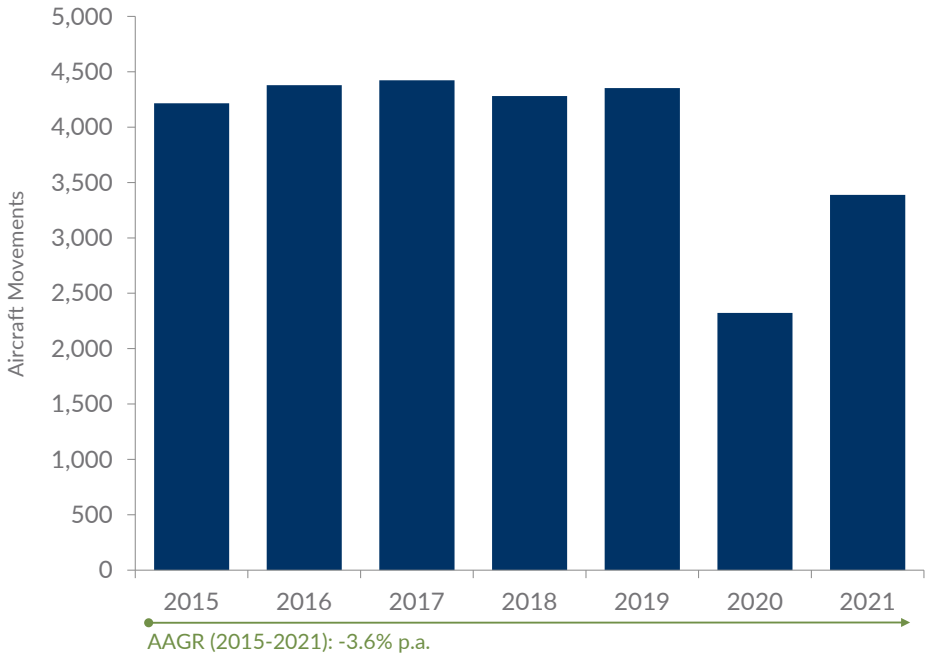
Figure 6.30: Estimated Passengers, Edward Bodden Airfield, 2011-2021



Source: Cayman Airways Statistics

In terms of aircraft movements, based on tower log data, Edward Bodden Airfield (EBA / LYB) has schedule service to both Grand Cayman (GCM) and Cayman Brac (CYB). Between 2015 and 2021 all scheduled flights are turboprops (Twin Otter) and are operated by Cayman Airways. As already indicated two (2) domestic routes are served and on average there is about seven (7) passengers per flight. Non-commercial operations are marginal (less than 200 annual movements) and represents about 4% of the total annual movements. A great number of these flights are helicopter flights.

Figure 6.31: Aircraft Movements, Edward Bodden Airfield, 2015-2021



Source: DKMA estimates based on Tower Log Data

6.10 Forecast Methodology

The framework for this forecast was based upon the development of a consensus between a likely set of forecasts of demand, accompanied by potential adjustments (up or down) resulting from changes to basic assumptions underlying the likely set of forecasts. By way of explanation, a long-term forecast of aviation demand carries inherent uncertainties, and these uncertainties grow as the timeframe extends.

Broadly speaking projections are based on demand-side factors (GDP, tourism, and population) and supply-side factors (e.g., route development). By way of forecast models, a regression model was developed for Grand Cayman Airport (GCM) and the models for Cayman Brac (CYB) and Little Cayman (LYB) were based on past trend analysis and judgment.

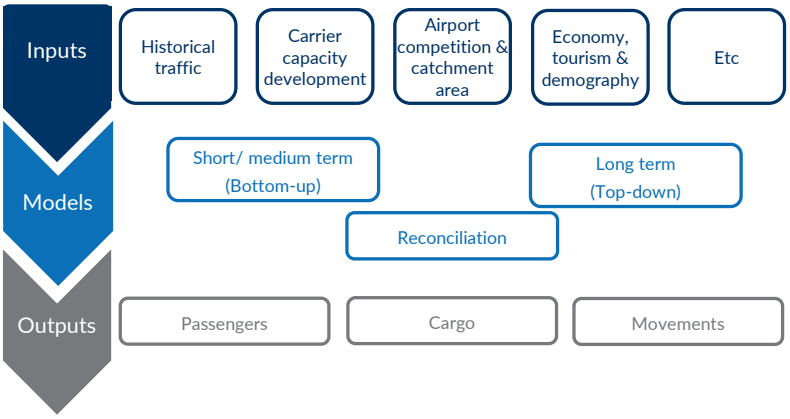
6.10.1 Owen Roberts International Airport (GCM)

6.10.1.1 Passenger Traffic

Total traffic at any airport in the world is made up of a series of 'micro' traffic components that can be broken down in many ways, such as traffic by carrier type, local passengers versus connecting passengers, etc.. All of these 'micro' traffic components become building blocks which, when added together, derive total passengers.

To prepare a reliable forecast, a dual approach combining top-down, and bottom-up forecasts are one of the cornerstones to success. The top-down, driven by classic 'macro' drivers such as the economy (including tourism) and population, is deemed important. However, the bottom-up approach is equally important and enables the forecaster to model in greater detail all the 'micro' traffic components and their likely future evolution. The following diagram illustrates the traffic forecast methodology.

Figure 6.32: Traffic Forecast Methodology



The forecaster never relies solely on the use of econometric models for producing a forecast of annual demand as local culture and local conditions preclude such a prescriptive approach. The forecaster believes that:

- Econometric models cannot consider non-quantifiable factors which are of prime importance in terms of identifying future traffic development. Also, econometric models imply some continuity throughout the forecast period and experience reveals that this is not always the case.
- In many cases, the forecast assumptions derived from interviews/discussions with the local experts such as airlines or airport staff are not easily quantifiable.

Therefore, to prepare the long-term passenger forecast, the Consultant has combined two (2) complementary approaches to alleviate the weakness described above. The approaches are the following:

- A short term 2022-2023 passenger traffic forecast based on planned route development, airline capacity and estimated load factors.
- A long-term annual passenger traffic forecast based on a regression driven by the economy. This top-down approach covers the remainder of the forecast period.

For each of these two (2) stages, it is important to incorporate an element of judgment in the process of constructing traffic figures in tandem with analysing quantifiable data. A judgment-based forecast permits a wide range of information to be brought to bear on the forecast.

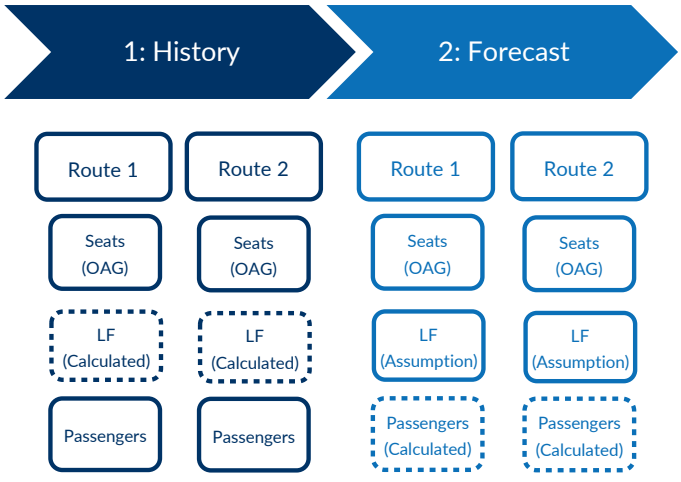
Short Term Passenger Forecast: For the short-term forecast, the forecast team had some consultation with Cayman Airways and their views were taken into account when preparing the forecast. In addition, the forecast team relied upon two (2) data sources to determine passenger demand: namely the airport monthly passenger traffic statistics for the period January 2019 to April 2022, and the OAG flight schedules for airlines serving Owen Roberts Airport (from January 2019 to December 2023).

The OAG shows:

- How many flights are scheduled in the near future and for historical years;
- Which carrier will operate the flights;
- The origin-destination of flights; and
- Which aircraft type will be deployed together with its seating capacity.

The following diagram illustrates the short-term passenger traffic forecast methodology.

Figure 6.33: Short-Term Passenger Traffic Forecast Methodology



Route 1= Domestic; Route 2=International
OAG=Official Airline Group; LF=Load Factor

Having constructed the monthly trends in total departing seats for January 2019 to April 2022, and comparing them with actual traffic, it was possible to derive estimated load factors by month.

Starting with May 2022 load factors assumptions were made and when applied to the OAG capacity, passengers were projected/derived. The load factor assumptions took into consideration the historical seasonal traffic patterns, economic development, and possible recovery from the pandemic.

Rebound from the Covid-19 pandemic: In terms of timing and pace of recovery, given that the traffic decline on the domestic routes was much less than on international routes, it suggested that the domestic routes should recover somewhat faster. International traffic should take longer to recover because, while international borders have re-opened, some countries have regulations in place (e.g., mandatory vaccination) which will make it impossible for a group of people to travel plus for a subset of passengers being 'far from home' might be perceived as 'riskier.' Given that Grand Cayman Airport relies mostly on international travel (and that mandatory vaccination is currently in place) it will take a few years for demand to fully rebound. (Note: for more information on this topic please see the 'forecast result' section of the report.)

Long Term Passenger Forecast: The long-term passenger forecast was based on econometric analysis which postulates a relationship between a dependent variable and one or more independent/explanatory variables. This relationship (correlation) is determined by running regressions of the dependent variable on the independent variable(s). For Grand Cayman Airport, the dependent variable is the historical passenger traffic development, while the explanatory variable is the one that typically has the most influence on demand for air travel, namely the economy (GDP).

Several regressions were performed by the team such as regressions of total passenger traffic on different combinations of variables (including a Yield variable), inclusion or not of dummy variables, and different time periods. In the end, the forecast team selected a regression based on total passengers and because it provided the most robust results. Based on the regression model an initial passenger demand was estimated. Then the team benchmarked these initial results and if needed some adjustments were made.

6.10.1.2 Air Cargo Traffic

The methodology for cargo was somewhat different, as the nature of the statistics for air cargo differs greatly from those for passenger traffic. Several computerized regression analyses were tested, and none provided good results. Because the regression results were not conclusive, the team based the cargo forecast on the following:

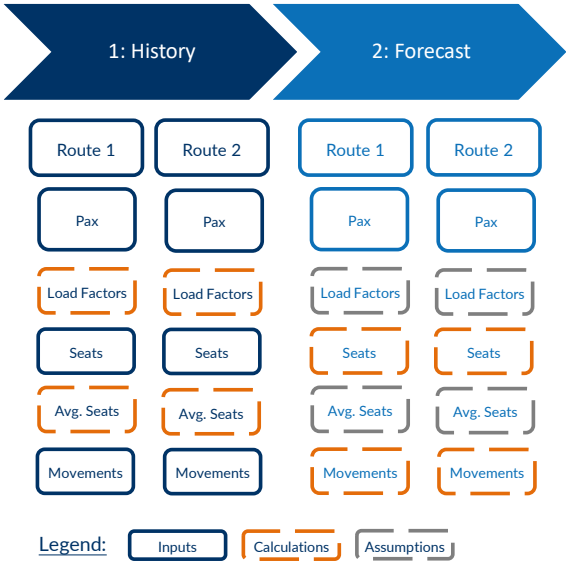
- Trend analyses and extrapolations;
- Judgment forecast; and
- Benchmarks with industry forecasts.



6.10.1.3 Aircraft Movements

The projection of commercial aircraft movements requires the construction of links between annual passenger traffic and aircraft movements. The first link is between historical passenger traffic and available seating capacity. From this, we derived historical load factors and average aircraft size. Assumptions were made regarding future load factors and average aircraft size to derive projected seats and aircraft movements. The following diagram highlights the process.

Figure 6.34: Process - Future Load Factors and Average Aircraft Size



For non-commercial activities the movements were added based on past trends, the team's experience/ judgement, and stake-holders information.

6.10.2 Captain Charles Kirkconnell International Airport (CYB) and Edward Bodden Airfield (LYB)

For these two (2) smaller airports, historical data was limited (e.g., GDP figures for these two (2) islands are non-existent) which limited the options in terms of forecast methodology.

A first step to forecast air activity was to study the historical data (time series) and determine the trend in traffic development. In the context of long-term forecasting, the traffic trend represents the development in traffic over many years, isolating from short-term fluctuations in traffic levels. When extrapolating from the traffic trend, we assumed that the factors which determined the historical development of the traffic will continue to operate in the future.

A second step was to estimate (on a judgemental basis) how long it might take demand to recover to the 2019 levels (i.e., pre-pandemic) and if we anticipate some specific route developments (e.g., direct non-stop international routes for Cayman Brac (CYB)).

6.11 Forecast Assumptions

The forecast assumptions centre upon demand-side and supply-side drivers.

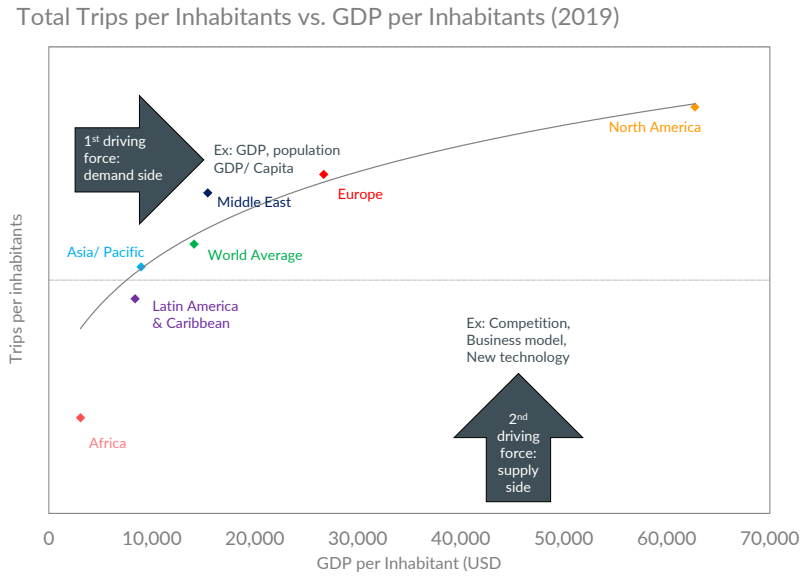
In the coming years, some of the key trends impacting the global demand-side for air travel will include:

- Recovering from the Covid-19 pandemic.
- Slowing economic growth in mature economies.
- The rise in international tourism, particularly to/ from the previously less-developed countries.

These factors mean that trends which were evident pre-pandemic, namely GDP growth rates below 3% in the mature markets and GDP rates higher than 4% in the less mature markets, are likely to continue in the future.

As can be seen in the next chart, regions with more developed economies (illustrated by GDP per inhabitants) translates into a more developed air transport industry (illustrated by the total trips per inhabitants).

Figure 6.35: Total Trips per Inhabitants vs. GDP per Inhabitants (2019)

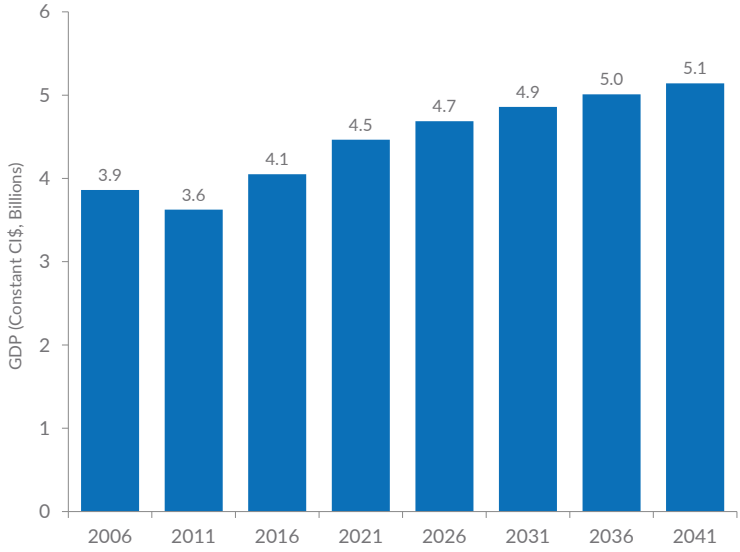


Source: DKMA Analysis

6.11.1 Demand Side: Socio-economic, Population and Tourism Assumptions

Typically, socioeconomic development (GDP) has the most influence on demand for air transportation. Between 2006 and 2020, the Cayman Islands' economy has grown at an average annual rate of 0.9% (1.4% if we exclude 2020). Moving forward, over the next 20 years, the economy is projected to grow by 0.9% (2021-2041)[12].

Figure 6.36: Historical and Forecasted GDP in the Cayman Islands



Source: Economics and Statistics Office and DKMA Analysis

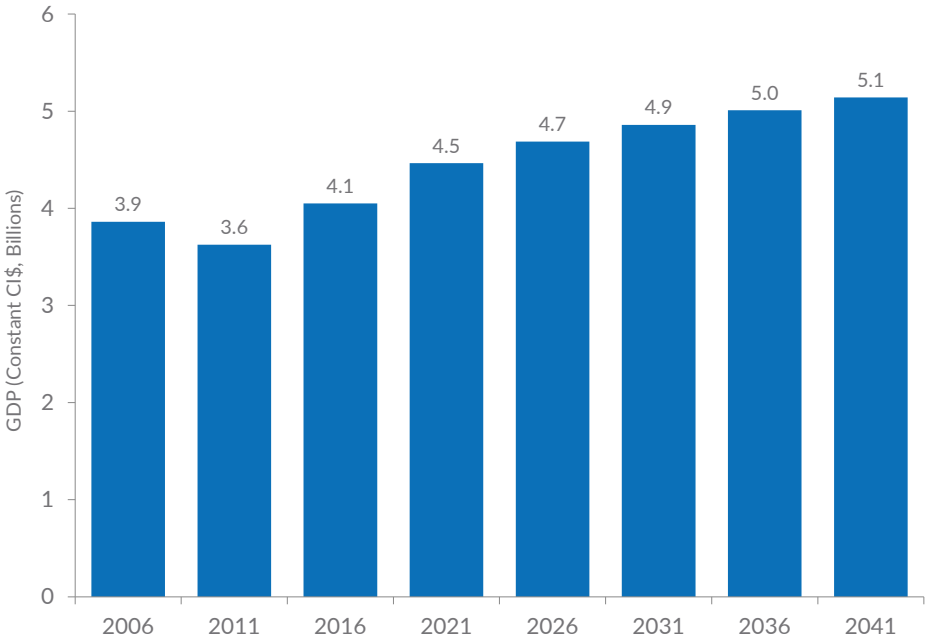
Population is an important factor in terms of future air passenger demand since a growing local population will generate more passengers for an airport and the carriers who serve it. As can be seen in the next chart on page 98, the US Bureau of Census projects that the Cayman Islands' population will grow at an annual average rate of 1.5% over the forecast horizon, rising from approximately 78,554 in 2021[13] to 105,579 at the end of the forecast. Note: The Cayman Islands Government (CIG) does not publish long-term population projections.

Between 2006 and 2019, the consultancy team has estimated that the average the trips per resident has declined somewhat (3.0 trips per resident in 2006 versus 2.7 in 2019). For the forecast we anticipate a reversal of trend and have estimated that the trips per residents would increase.

[12] 2020-2041: 1.2% p.a.

[13] 2021 figures are based on the preliminary 2021 Census data.

Figure 6.37: Historical and Forecasted GDP in the Cayman Islands



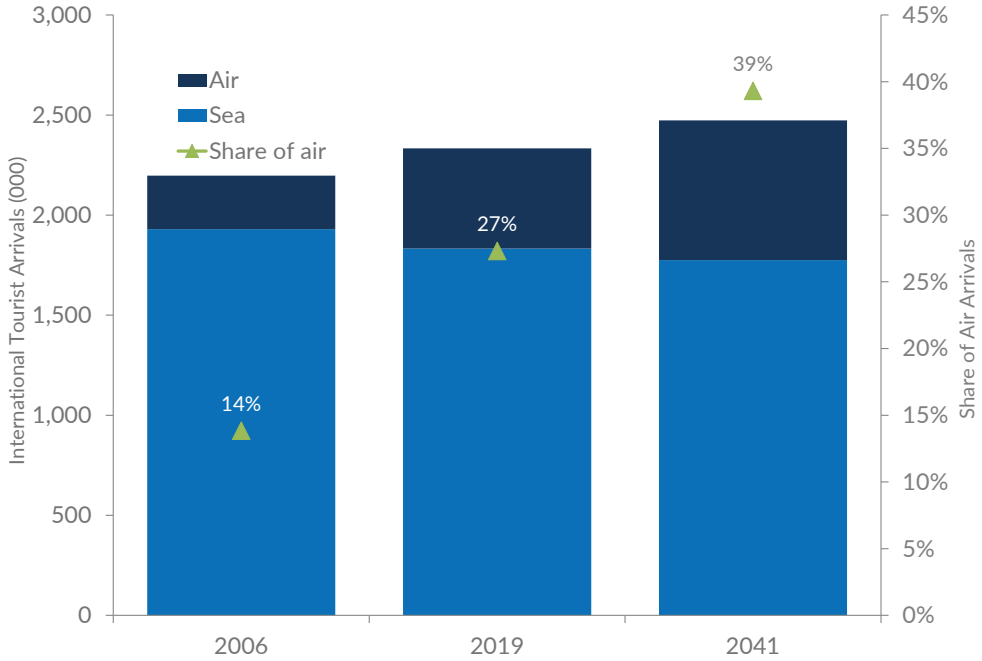
Source: Economics and Statistics Office and US Census Bureau

The Department of Tourism Offices (DoT) has prepared a forecast but has not released it. However, the DoT has provided some insights which, unsurprisingly, anticipate on-going growth of the tourism sector. Some of the highlights are the following:

- The tourism sector will continue to centre on 'low volume/ high yield' tourists.
- Historically the majority of the tourists were cruise ship arrivals. In 2006, 1.9 million tourists arrived by cruise ship, but this figure had declined to 1.8 million by 2019. As a result, the share of the cruise ship industry has declined from 88% in 2006 to 79% in 2019. In the future the majority of the tourists will continue to arrive by cruise ship, but their share is anticipated to continue to decrease.
- Compared to cruise ship arrivals, air tourist arrivals are much smaller but have been developing more rapidly that cruise ship arrivals and this trend will continue in the future. To compare, in 2019 502,700 tourists arrived by air which represented an annual growth of 4.9% between 2006 and 2019 compared to -0.4% for cruise ship arrivals. The DoT hasn't provided specific figures but believes that (a) the growth of air travel will slow down and (b) that 700,000 tourists arriving by air is an achievable and reasonable figure.
  - Two (2) elements which limit the growth of tourists arriving by air: (a) demand is highly seasonal (and hard to change because the Cayman Islands is in the hurricane belt) and (b) size of the Cayman Islands.

Based on this, DKMA has assumed that over the next 20-years tourism would grow annually by 0.3%[14], the cruise ship arrivals would decline annually by 0.1% and air arrivals increase by 1.5% annually. By 2041 we have assumed that air tourist arrivals would reach 700,000.

Figure 6.38: International Tourist Arrival: Historical and Projections

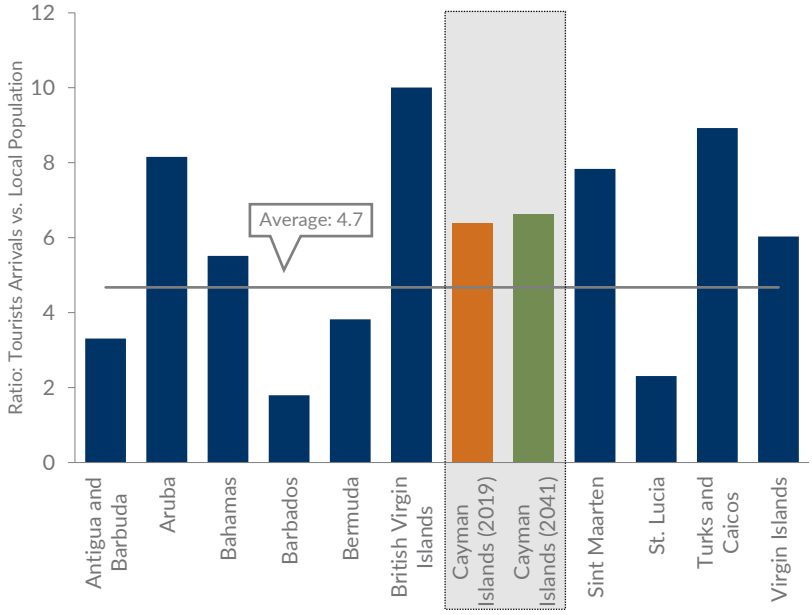


Source: DKMA Analysis

To see if the tourism projections seemed reasonable, we estimated the number of tourists arriving by air versus local residents. This ratio was estimated for the Cayman Islands (2019 and 2041) and other Caribbean countries which are also dependent on tourism. As can be seen in the next chart, it is estimated that the Cayman Islands had 6.4 tourists per resident in 2019 and this ratio is projected to be fairly stable in the future (6.6 in 2041). As can be seen, compared to other countries in the Caribbean these figures are well above the average (4.7) and in fact among the highest. Given the notes above (i.e., the seasonality and size of the Cayman Islands) the air tourist projections seen reasonable.

[14] Between 2006 and 2019 tourist arrivals (all modes of transportation) increased by 0.5% annually.

Figure 6.39: Ratio: Tourist Arrivals (Air) vs. Local Population



Source: DKMA Analysis

In terms of country of origin, historically most of the tourists originated from the USA. In the future we anticipate that this will continue to be the case, but we do anticipate a slightly more diverse base of tourists.

6.12 Supply Side: Carrier Development and Airport Development

6.12.1 Airports are Unconstrained

Currently the three (3) airports under study have a series of constraints (e.g., runway at Little Cayman). However, given that the forecast is part of a master plan exercise which itself is a blueprint for the Airports' development the forecast is based on the three (3) airports being unconstrained.

Note: As indicated the forecasts are unconstrained however, in the case of Little Cayman we took into consideration that any new runway built would have to be a maximum of 30 meters wide. This has no bearing on the size of the future passenger demand but does have an impact on the type of aircraft which can operate at the airport (more of this below).

6.12.2 Route Development

An airport's network is constantly evolving, and its size and development is driven by such factors as economic growth, legislation/liberalization, competition, demographics, aircraft capability (size, range, speed), tourism trends, governmental policy, and airline models to name a few. In the future, network expansion will be a vital component of an airport's development and, put very simply, an expanding network fuels passenger growth.

Owen Roberts International Airport (GCM): Today Owen Roberts International Airport is the main international gateway to the country, and this is expected to remain the case for the entire forecast. In the future it is assumed that Owen Roberts International Airport will be unconstrained and based on this the Consultant has assumed that a number of new direct routes will be served. More precisely, we expect the international route network to continue to focus largely on medium-haul international routes (Miami or Toronto for example) supplemented by Caribbean (short-haul) routes and a few long-haul flights (e.g., London). With regards to the long-haul flights, today the London service (operated by British Airways) is a one-stop service via Nassau (NAS). However, because the forecast is unconstrained, we have assumed that in the future long-haul flights will be able to operate non-stop (and with no payload restrictions). Aside from the international routes, Owen Roberts International Airport is also the gateway for domestic service with commercial operations to Cayman Brac (CYB) and Little Cayman (LYB). In the future the number of domestic routes will stay the same and the commercial service will continue to be operated by Cayman Airways.

Cayman Brac (CYB): Cayman Brac is the second largest airport in the country, and this will remain the case during the forecast. Today nearly 100% of the commercial passengers are domestic and this will be the case during the forecast. However, we anticipate some international service to develop in the future as the tourism infrastructures are developed on the island. More specifically, we anticipate some non-stop direct service to/ from the USA which is the largest tourist market for the Cayman Islands. However, given that the international markets will be much better served from Owen Roberts International Airport (more routes and more frequencies) most of the international tourists are anticipated to first land at Owen Roberts International Airport and then connect to Cayman Brac.

Little Cayman (LYB): Today, and in the future, all commercial service on Little Cayman will be domestic (service to both Cayman Brac and Owen Roberts International Airport).

6.12.3 Type of Aircraft

Cayman Airways: Cayman Airways has recently retired its fleet of Boeing B-737-300 (120 seats) and replaced it with the much larger Boeing B-737 MAX 8 (160 seats). We have assumed that these aircraft will operate during the entire forecast but because they are much larger than the Boeing B-737-300, in the short and medium term, the passenger load factors will be lower than historical values. It will be lower because of the size of the new aircraft but also as the industry emerges from the pandemic load factors are anticipated to be lower as demand is rebuilt.

In the near future, Cayman Airways will need to find a replacement for its fleet of aging Saab 340s. The airline is not well advanced in its turboprop fleet replacement project but has indicated that it would, in all probability, replace the Saabs with larger turboprops.

- Turboprops are ideally suited for the domestic operations plus would enable more intra-Caribbean flights. This would enable the airline to add frequencies on existing routes and operate new routes.
- Often flights (most notably in Little Cayman) are payload restricted and some luggage cannot board at the same time as passengers. A larger turboprop would enable flights with no (or much less) payload restrictions.
- On some routes it would enable the airline to replace some B-737s flights (e.g., to/ from CYB) with a turboprop but in exchange increase the daily frequencies on these same routes. (Note: The carrier has experienced first-hand how demand can be stimulated with greater frequencies.) Moreover, if Cayman Airways were able to free a number of B-737 domestic frequencies in exchange it could increase its presence on the international market.

We have assumed that the airline would start to replace its Saab 340s at the end of 2025 and the replacement would be complete in 2026. With regards to the turboprop, we have assumed that Cayman Airways would operate the ATR 72 (with 68 seats). (Note: We considered the Dash 8 Q-400 as a replacement aircraft but this aircraft can only operate on a runway of at least 45 meters wide and since we have assumed that Little Cayman would have a runway of a maximum of 30 meters, this eliminated the Q-400.)

With regards to the Twin Otters operated by Cayman Airways we have assume that this aircraft type, or an aircraft of similar size, would operate during the entire forecast. Given that we have estimated that in 2019 there was about 7 passengers per flight to/from Little Cayman a small aircraft seems necessary. However, the ATR 72 will be extremely handy during peak operations (e.g., Saturdays)

Other carriers: With regards to other carriers, we have assumed that international medium-haul operations, would be best served by Code C jet aircraft (e.g., Airbus A320 family or Boeing B-737 family). In addition to jets, we also assume that turboprops would be well suited to serve short-haul Intra-Caribbean flights. And lastly for long-haul flights we have assumed that airlines would operate Code E aircraft and given the size of the demand that a smaller size Code E (e.g., B-787 or Airbus A-350) would be better suited that a B-777.

Finally, we have assumed that no Code D aircraft will operate and the Airbus A321XLR, while it would be right sized for European service, will not have the range to reach the Cayman Islands non-stop. Therefore, we have assumed that it would not operate in the Cayman Islands.



6.12.4 Forecast Scenarios Assumptions

To understand the risks attached to the baseline forecast, a high and low forecast scenario was prepared. With that in mind, the high and low projections are based on assumptions with the greatest impact on the demand which in the case of the Cayman Islands is a faster or slower developing tourism sector.

6.12.4.1 High Growth Scenario:

Under the high scenario, a greater volume of tourists is projected to visit the Cayman Islands by air and for this to materialise this would require investments in marketing/promotion, accommodation, infrastructure (e.g., roads), etc. While this scenario anticipates stronger tourism growth this scenario assume that the Cayman Islands would continue to focus on a 'low volume/high yield' tourism strategy. Under this scenario, it is assumed that nearly 1 million tourists would arrive by air in 2041.

6.12.4.2 Low Growth Scenario:

With regards to the tourist demand, under the low scenario, the Consultancy team has also retained a 'low volume/high yield' scenario but the pace of development of this sector is anticipated to be slower than what was is expected in the baseline forecast. Under this scenario, it is assumed that less than 600,000 tourists would arrive by air in 2041.

The table below summarises the key tourism assumptions under the three (3) scenarios.

Table 6.1: Tourism: Summary of Forecast Assumptions

Tourism: Summary of Forecast Assumptions			
	2019	2041	AAGR
Arrivals by Air (000)			
Low	503	560	0.5%
Base	503	700	1.5%
High	503	950	2.9%
Share of Arrivals by Air			
Low	22%	24%	
Base	22%	28%	
High	22%	36%	
Ratio: Tourists (Air) vs. Residents			
Low	6.4	5.3	
Base	6.4	6.6	
High	6.4	9.0	

Source: DKMA Analysis

6.13 Forecast Results

6.13.1 Baseline Forecast Results

The annual baseline forecasts cover passenger traffic, aircraft movements and cargo volumes for the Owen Roberts International Airport (GCM) and Charles Kirkconnell International Airport (CYB). For the smaller Edward Bodden Airfield (LYB) only passengers and movements have been projected.

Note: This section provides commentary on the key forecast results and the detailed forecast results may be found in the accompanying Excel files.

Table 6.2: Summary by Airport: Total Passengers (000) and Growth

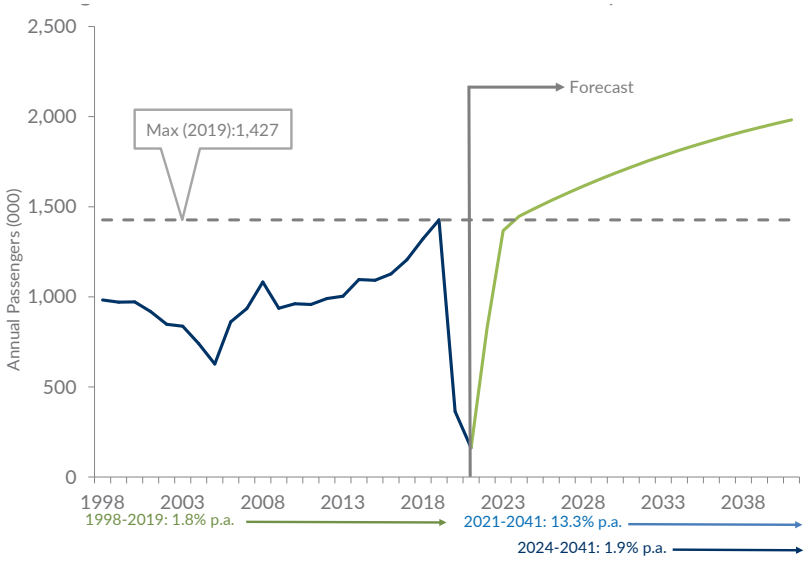
	2019 (H)	2021 (H)	2041 (F)	2019-2021	2019-2041	2021-2041	Trend
GCM	1,427	162	1,983	-66.3%	1.5%	13.3%	
CYB	80	71	97	-6.3%	0.9%	1.6%	
LYB	31	22	39	-14.5%	1.2%	2.9%	

6.13.2 Owen Roberts International Airport (GCM)

6.13.2.1 Passenger Forecast

In the future, on the heels of a growing economy (itself driven by an expanding tourism sector) air passenger demand at Grand Cayman International Airport is expected to reach nearly 2 million passengers by 2041.

Figure 6.40: Passenger: Historical vs. Forecast, Owen Roberts Int'l Airport



Source: DKMA Analysis

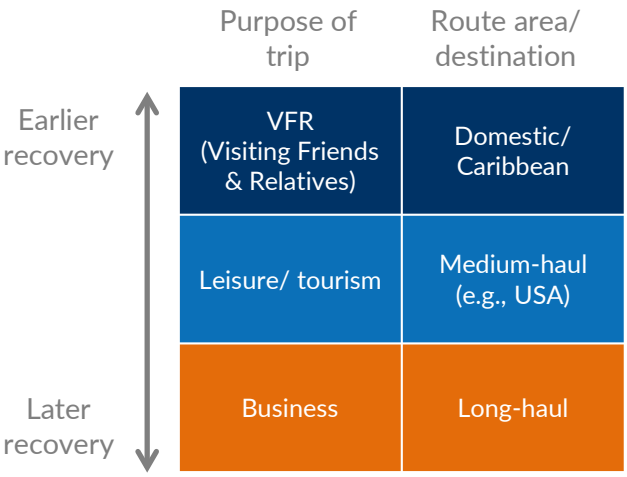
As can be seen in Figure 6.40, for the entire forecast period (i.e., 2021 through 2041) passenger demand is projected to increase annually by 13.3%. If we exclude the rebound from the pandemic, the anticipated growth rate between 2024 and 2041 is 1.9% p.a., and by way of comparison, between 1998 and 2019, air traffic increased annually by 1.8%. In the short-term, as the industry recovers from the pandemic, growth will be very strong, and 2019 passenger levels are expected to be reached by 2024. Between 2021 and 2024 this represents an annual increase of 107%.

In 2041 we anticipate that 95% of the demand will be international (vs. 94% in 2019) and of this international demand, 87% is projected to be to/ from the USA (compared to 92% in 2019).

Short Term and Medium-term Forecast: While it is well understood that the air transport industry is cyclical by nature, the current downturn is unprecedented in its duration, scope, and magnitude. Stay at home orders imposed by various governments as well as the closures of international borders has resulted in a decline of over 45% of passengers over the last two (2) years around the world and 88% at Owen Roberts International Airport.

More than two (2) years after the start of the pandemic the ingredients for a durable passenger demand recovery are in place. More specifically, there is optimism about the long-term economic prospects; unemployment, which was a major concern during the pandemic, no longer is, international borders are reopened, and pent-up demand exists. However, all is not perfect since most economies must deal with high inflation, there is a risk of recession in the short-term and for some countries (including the Cayman Islands) some travel restrictions remain in place.

Figure 6.41: Overview of Market Recovery



On balance Owen Roberts International Airport should reach its 2019 passenger levels by 2024. Most of the passenger demand at Owen Roberts International Airport is international medium-haul tourism oriented and this market should recover fairly because pent-up demand exists, and Cayman Airways is well positioned re-start flights. Indeed, compared to foreign airlines, Cayman Airways has no staff issues and has taken delivery of their B-737 MAX8s (which have replaced the much smaller B-737-300). As a result, Cayman Airways should reach its 2019 figures in 2023. However, many foreign airlines are struggling with their operations (most notably many airlines have staff issues) and since foreign carriers accounted for about 70% of the passengers at Owen Roberts International Airport prior to the pandemic, we anticipate that passenger demand at the airport will have fully recovered by 2024. Because Cayman Airways is expected to rebound more quickly than its competitors, this should enable the carrier to increase its market share.

Long Term Forecast: Airports have historically been an important infrastructural necessity for the economy and development of a region/ country. Owen Roberts International Airport is no exception, and the Airport is expected to remain the gateway to the country.

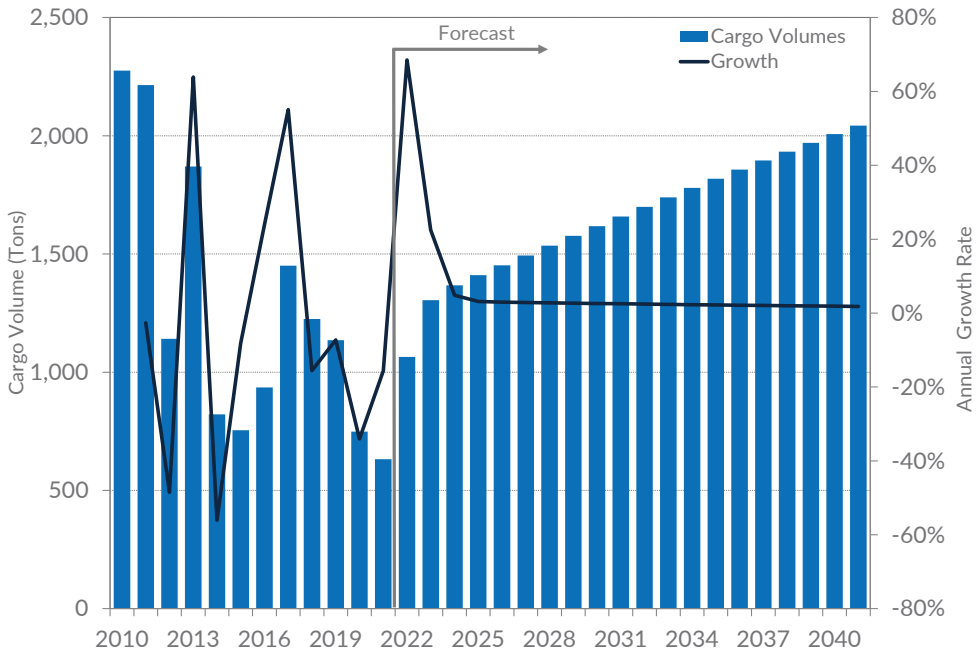
Over time, tourism arrivals are anticipated to diversify but most tourist arrivals will continue to be North Americans, and this will naturally favour the development of the medium-haul international routes. Flights will typically be operated by Code C jet aircraft, and we expect that a multitude of carriers will serve these routes including Cayman Airways, low-cost carriers (e.g., Southwest) or legacy carriers (e.g., American).

Aside from North America, some tourists will also arrive from other continents. While these markets are important, most are not expected to be large enough to justify direct long-haul flights. Instead, we expect a large number of tourists to reach the Cayman Islands via a connecting airport which in most cases will be a North American hub (e.g., Miami with American Airlines) but also from London-Heathrow via Nassau. Finally, we anticipate that when Cayman Airways replaces their Saab 340s with ATR 72s that this will enable the airline to increase intra-Caribbean flights. In 2019 we estimated that 70% of the passengers at Grand Cayman Airport were visitors (i.e., tourists) and this share is anticipated to marginally increase to 71% by 2041.

6.13.2.2 Air Cargo

Overall cargo volumes at Owen Roberts International Airport are small and, after peaking in 2013, they have steadily declined. In the future, most of the freight is expected to continue be handled by sea transport and, in the absence of specific investments in air cargo project, air cargo demand is anticipated to remain small at the Grand Cayman Airport. The vast majority of cargo will remain international and be mostly inbound in nature. In the short term, as the carriers start to re-open international routes, this will enable air cargo to recover since most cargo transits on passenger flights. Over the next 20-year cargo volumes are projected to grow annually by 6.0% p.a. (or 2.7% p.a. between 2024 and 2041).

Figure 6.42: Total Cargo Volumes: History and Forecast, Owen Roberts Int'l Airport



Source: DKMA Analysis

6.13.2.3 Aircraft Movements

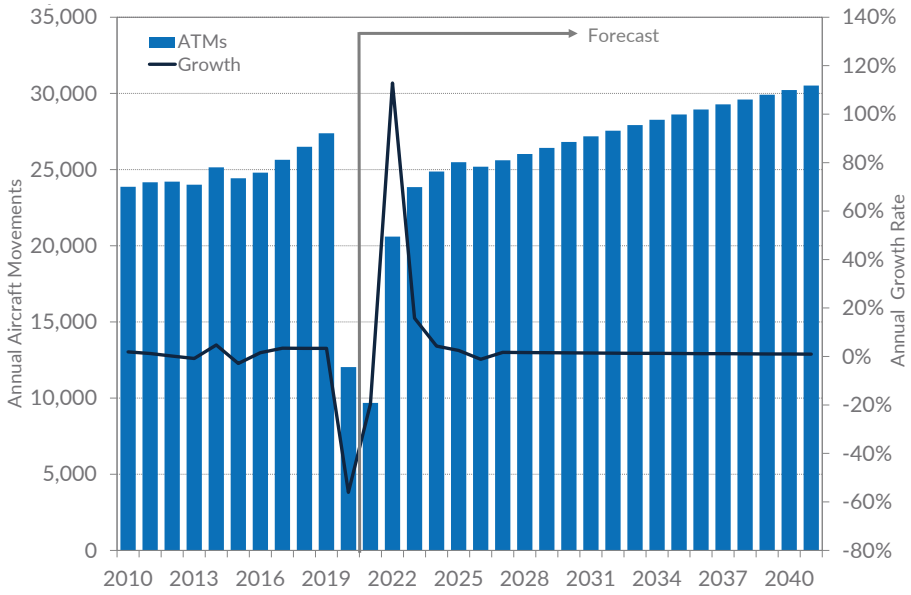
During the forecast horizon, the aircraft movements are projected develop less rapidly than passenger demand (13.3% p.a. for passengers vs. 5.9% p.a. for movements). Several factors explain this:

- Over time passenger load factors are anticipated to increase.
- Over time the average aircraft size will also increase and in particular we note two (2) factors that greatly impact average aircraft size/aircraft movements:
  - Cayman Airways has recently replaced its Boeing B-737-300 (with 120 seats) with the larger Boeing B-737 MAX 8 (with 160 seats). This is an increase capacity of 33%.
  - We have assumed that Cayman Airways would replace it's Saab 340s (34 seats) with the ATR 72 (68 seats).

As can be seen in the next graphic on page 107, by 2041 it is anticipated that Grand Cayman Airport will handle 30,511 movements and of which 17,555 will be commercial flights and the remainder, 12,656, are anticipated to be non-commercial flights.

It is estimated that in 2019, 63% of all commercial flights were using ICAO Code C aircraft, 33% were flights using Code B aircraft (e.g., Saab 340s) with the remainder, a mix of Code A, D and E. Given that in the future most we anticipate that the Saab 340s will be replaced by ATR 72s (which are Code Cs as opposed to Code Bs) this will translate into 93% of the commercial being Code C flights by 2041. The Code D flights which were Boeing B-757s (operated by Delta) have been retired and no other Code D flights are anticipated. Grand Cayman Airport will continue to have some Code E flights (long-haul flights to/from London).

Figure 6.43: Total Aircraft Movements: History and Forecast, Owen Roberts Int'l Airport



Source: DKMA Analysis

6.13.2.4 Peak Hour Forecasts and Nominal Schedules

Because it is essential to ensure that an airport's facilities meet future traffic demand, one critical element of a forecast is the conversion of annual demand into a peak hour values and nominal schedules. Based on historical analysis, forecasters have determined that there is a gradual decline in the peak hour percentage of annual traffic as annual activity increases. Also, when estimating future changes in the peak period percentage, one must consider where the current peak period percentage lies in comparison with other airports of similar activity levels. For example, if it is already at the low end of the range, peak spreading is likely to be much less than if it lies at the high end of the range. Other factors that can influence the extent of peak spreading include:

- Average aircraft size: If airlines reduce the average size of the aircraft serving an airport, flight frequency increases but the size of the aircraft serving the peak decreases. This tends to increase peak spreading. Alternatively, peak spreading is less likely if the average aircraft size increases. In the case of Owen Roberts International Airport, we expect larger aircraft to be deployed and therefore this is expected to limit the peak spreading. (For example, in 2019 Cayman Airways operated Boeing B737-300 with 120 seats and these have been replaced by the larger Boeing B737 MAX 8 with 160 seats).
- The number of airlines: When airport growth is achieved by adding additional airlines, they often compete during the peak, thereby reducing the extent of peak spreading. Conversely, when growth is achieved by existing airlines adding new flights, the flights tend to be added during off-peak hours, thereby increasing the degree of peak spreading.
- Type of passenger service: International flights normally operate within restricted windows and therefore, new international service to an existing region is less likely to result in peak spreading than new domestic service.

There are many definitions of the peak hour for design purposes that are in use by airport authorities. All of them try to define an acceptable portion of the users that will receive not less than an adequate level of service during one year of operation. To define/identify the peak hour most methodologies require a complete air traffic control tower log data[15] set but for this study, this was not available; therefore, the Consultant relied upon the IATA methodology which does not require such a data set.

IATA has a very specific definition of the busy day that needs to be evaluated for airport capacity requirement determination: A busy day is defined as the second busiest day in an average week during the peak month. An average weekly pattern of passenger traffic is calculated for that month.

The passenger peak month in 2019[16] was in March when the airport handled 149,056 passengers which represented 10.4% of the total 2019 passenger demand. According to OAG[17], during that month, the commercial air carriers at Grand Cayman Airport operated 207,955 seats translating into an 71.7% passenger

[15] Tower log data was available for the study, but it covered movements only.
[16] We have 2020 monthly data but since traffic was greatly affected by the pandemic it would not have been prudent to base the analysis on that year.
[17] OAG: Official Airline Guide

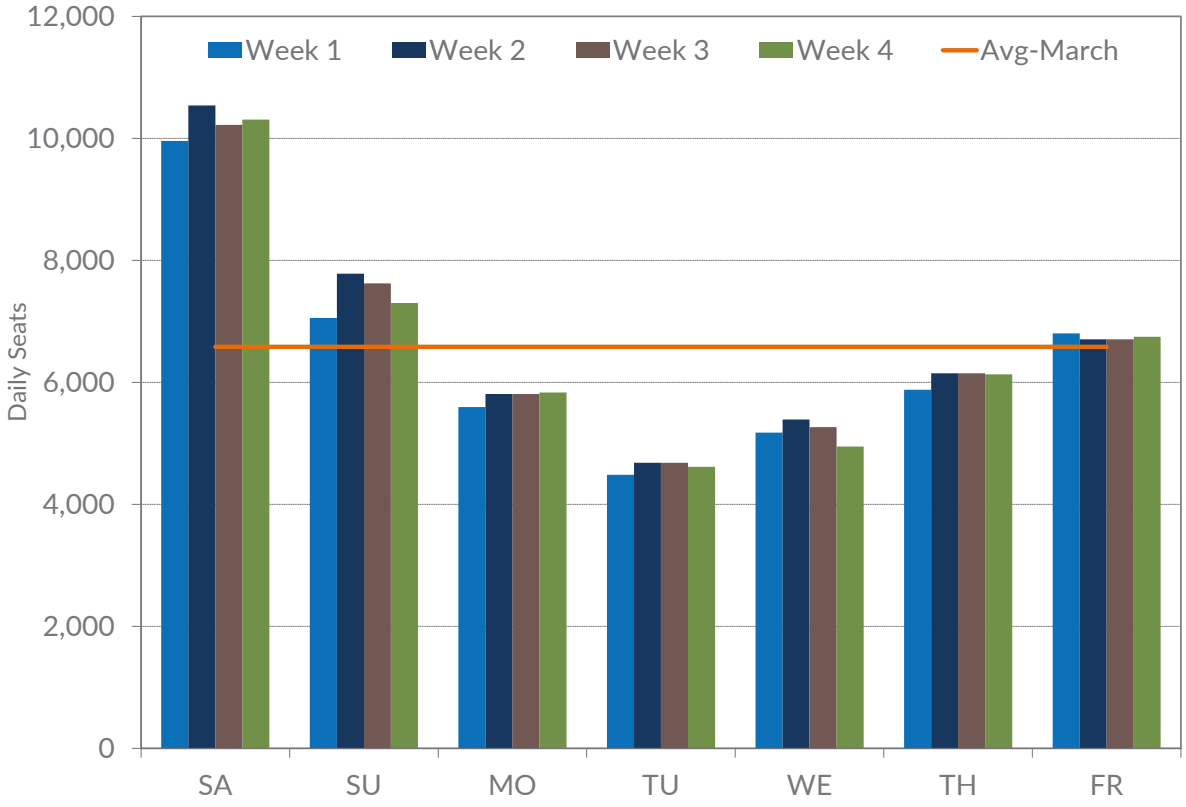


load factor (PLF). This is a value lower than the estimated annual average PLF (74.6%). This is counter intuitive, but it should be noted that in March 2019, the seat capacity at Grand Cayman Airport was very high (10.9% of the annual seats) leading to this anomaly. That month American Airline had scheduled a number of additional flights.

Following the IATA methodology, the Consultant analysed the daily and weekly passenger flows in March 2019 and discovered that during an average week in March Grand Cayman Airport had 6,584 seats. The week closest to this value was Week No. 4 with 6,555 seats (i.e., 29 seats less than the weekly average).

Generally speaking, weekly operations at Owen Roberts International Airport are very peaky and the busiest day is normally a Saturday (see the following chart). The tourism industry, which is the key driver of demand, has a large number of guests who stay for a week in the country, and typically guests arrive and leave on a Saturday. During Week No. 4 the busiest day was Saturday with 10,308 seats (22.0% of the weekly seats) and the second busiest day was Sunday with 7,301 seats (16% of the weekly seats) and Friday was the third busiest (6,747 seats). Based on the IATA methodology we selected Sunday March 24, 2019, as the busy day.

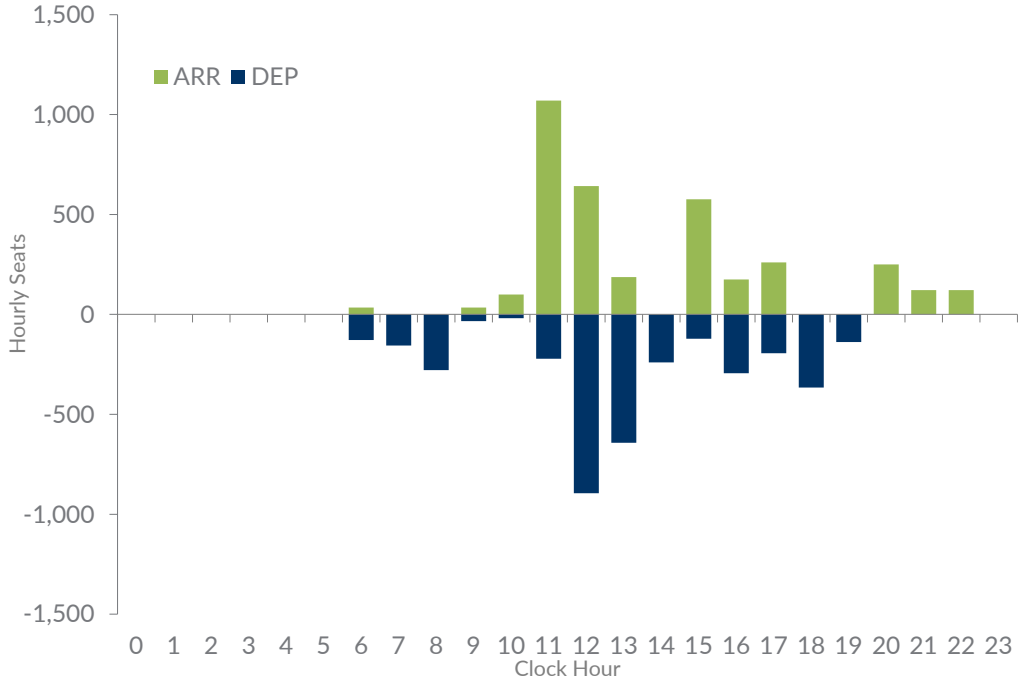
Figure 6.44: Daily Seats, March 2019, Owen Roberts Int'l Airport



Source: OAG data

The next chart shows the hourly distribution of arrival and departing seats for March 24.

Figure 6.45: Hourly Seats, Owen Roberts Int'l Airport, March 24, 2019



Source: OAG data

As can be seen in next Table 6.3, on March 24th 2019, based on a 77.5% PLF we estimate that the Airport handled 5,658 passengers and operated 7,301 seats. To identify the peak hour passengers, it was necessary for the Consultant to first identify the peak hour in seats then assume a PLF to then estimate the peak hour passengers. The total peak hour[18] was at 12:00 with 1,537 seats accounting for 21% of all seats that day. In terms of passengers, they are estimated at 1,191. (Note: The estimated PLF during the peak hour is naturally estimated to be somewhat higher than during the rest of the day. Also, the PLF during the peak hour arrivals versus departure is different because a PLF was estimated for the domestic and international route and the mix of routes differs between peak hour arrivals and departures.)

[18] The total peak hour is defined as the peak hour for all commercial passenger traffic i.e., arrivals and departures combined.

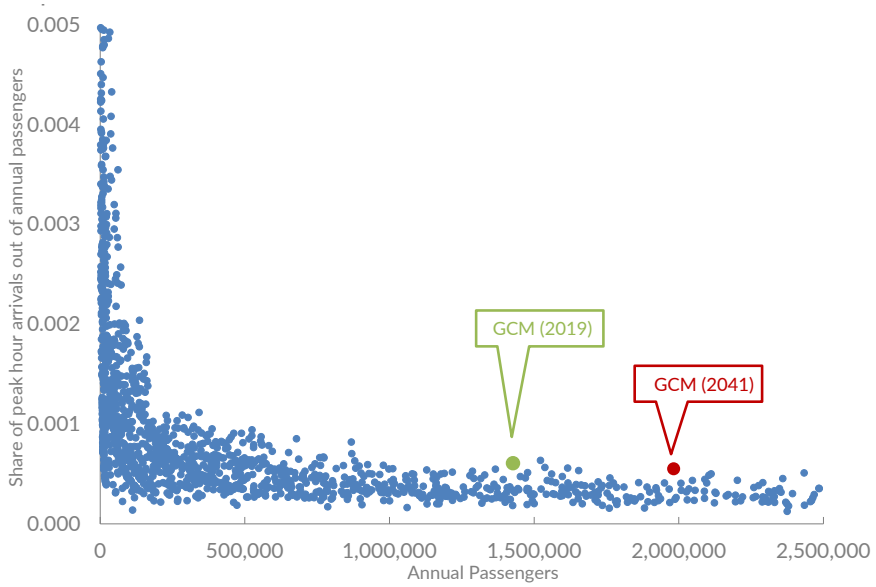
Table 6.3: Owen Roberts Airport, Peak Activity, 2019

Owen Roberts Airport, Peak Activity, 2019				
	Period	Seats	Pax	Est. PLF
Annual (000)	2019	1,913	1,427	74.6%
Busy Month (000)	March	208	149	71.7%
Busy Day	24-Mar	7,301	5,658	77.5%
Busy Hour (ARR)	11:00	1,070	865	80.9%
Busy Hour (DEP)	12:00	895	733	81.9%
Busy Hour (Total)	12:00	1,537	1,259	81.9%

Source: DKMA Analysis

These peak hours were then projected, and the next chart illustrates the 2019 peak hour arrivals vs. the annual passengers at Owen Roberts International Airport compared to other airports in the world. As can be seen in Figure 6.46, the 2019 peak hour ratio at Owen Roberts International Airport is at the high end compared to airports of similar size. When projecting future peaks, as annual demand grows, peak spreading is anticipated but in the case of Grand Cayman Airport, because we expect to see a noticeable shift towards larger aircraft[19] and the nature of the medium-haul international flights (which have windows of operations), this will somewhat limit the peak spreading. As can be seen in the chart, by 2041 the peak hour will tend to remain on the higher end compared to airports of similar size.

Figure 6.46: Relationship between Annual and Peak Hour Passengers at Selected World Airports - Arrivals



Source: DKMA Analysis

[19] Between 2019 and 2041 two key changes are noted: Cayman Airways replaced its B737-300 with B737 MAX 8 and we anticipate that the Saab 340s will be replaced by larger ATR 72s.

For the peak hour movements, we had access to the Airport's 2019 tower log data which served as the basis to estimate peak hour movements. The maximum number of aircraft movements in an hour that year was 26 while the average hourly movements was 2. We estimated the peak hour movements based on the 95th percentile, the 97th percentile, and the 30th busy hour methodologies, and the different methodologies show little variation. On March 24th 2019, at 11:00, the airport had 16 flights which corresponds to the 95th percentile.

Figure 6.47: Summary of Peak Hour Movements, 2019

Summary of Peak Hour Movements, 2019	
Avg. Hourly Movements	2
Max Hourly Movements	26
95%tile Hourly Movements	16
97%tile Hourly Movements	18
30th Hourly Movements	18
24 Mar (@ 11:00)	16

Similar to peak hour passengers, peak hour aircraft movement forecasts were developed by first estimating the likely future ratios of peak hour to annual traffic by traffic segment allowing for a small reduction in "peakiness" of flights over the day as the number of flights increase. Peak hour movement forecasts were then determined by multiplying the annual traffic values by these projected peak-to-annual passenger ratios.

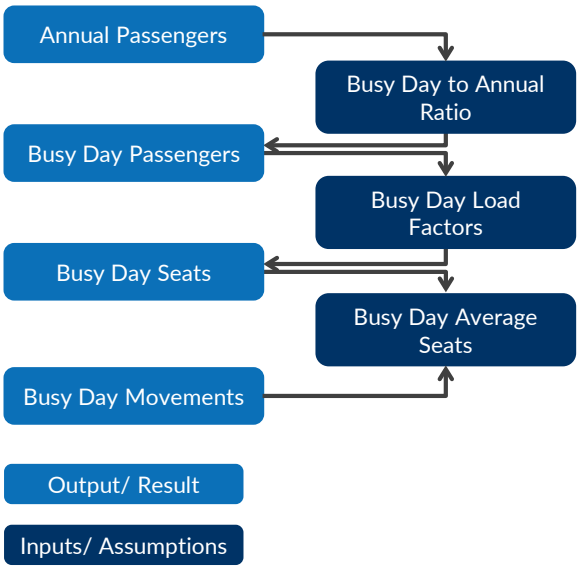
Nominal Flight Schedule: A forecast of airline schedules in some future year is considered 'nominal' in the sense that it represents a combination of assumptions, all of which are subject to uncertainty. A nominal flight schedule can be thought of as a pattern of arrivals and departures during a typical busy day and is prepared under the assumption that facilities will be available to accommodate demands on the system.

The forecast methodology for projecting busy day activities is a combination of bottom-up and top-down as we want to ensure consistency between growth in annual traffic and growth in busy day traffic.

Our busy day/nominal schedule is based on March 24th, 2019, and a nominal schedule had to be prepared for 2041.

The charts below summarise the passenger and movement profiles in 2019 and 2041. As can be seen, broadly speaking, the hourly operating pattern in 2041 follows the 2019 pattern.

Figure 6.48: Forecast Methodology for Projecting Busy Day Activities



However, we do note some differences:

- Between 2019 and 2041 the annual passenger demand is projected to increase by 1.5% p.a. and because we anticipate that annual demand will spread somewhat in the future the busy day passenger demand is anticipated to increase by 1.3% p.a.
- The arrival passengers at 1,500 and the departure passengers at 1,700 increases fairly significantly. This is linked to the long-haul flight to/from London-Heathrow (LHR) which today is a one-stop (via Nassau) but anticipated to become non-stop in the future. Naturally, this will translate into a large increase of hourly passengers.
- In 2019 the peak hour passenger arrivals are greater than passenger departures and this imbalance is estimated to remain in place in the future.
  - **Peak hour passenger arrivals** are anticipated to increase from 865 in 2019 to **1,089** in 2041. (Both at 1100)
  - **Peak hour passenger departures** are anticipated to increase from 733 in 2019 to **930** in 2041. (Both at 1200)
  - **Total peak hour passengers are anticipated to increase from 1,259 in 2019 to 1,573 in 2041**. (Both at 1200)
- **Peak hour movements will increase from 16 to 18**. In 2019 this occurred at 1200 and by 2041 we expect this peak to be reached at 1200 but also at 1100.
- Between 2019 and 2041 six (6) commercial flights have been added. Most of the demand will be accommodated by increased load factors and the deployment of larger aircraft.



Figure 6.49: Hourly Passenger Arrivals, Grand Cayman Airport

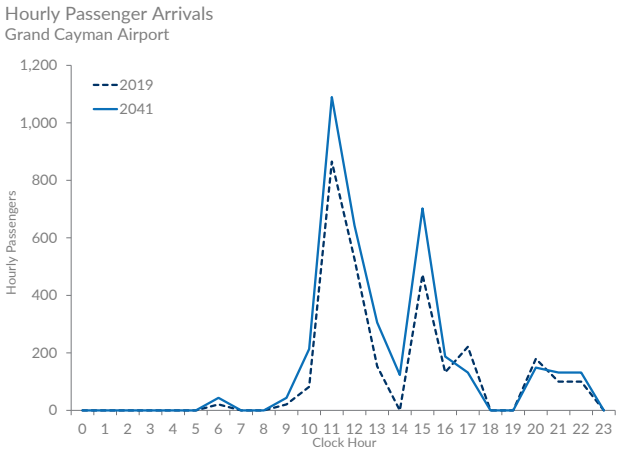


Figure 6.50: Hourly Passenger Departures, Grand Cayman Airport

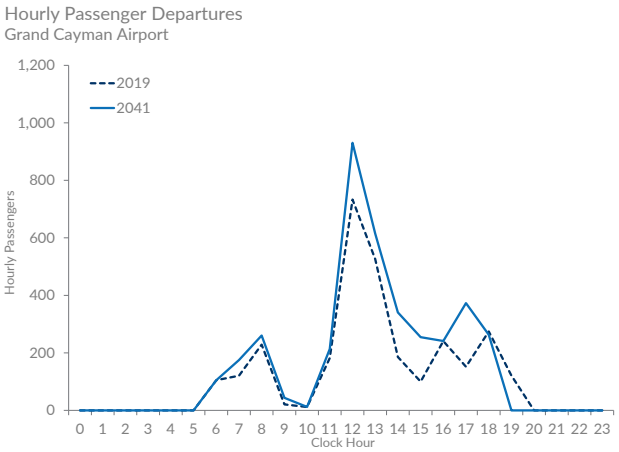


Figure 6.51: Hourly Passenger Total, Grand Cayman Airport

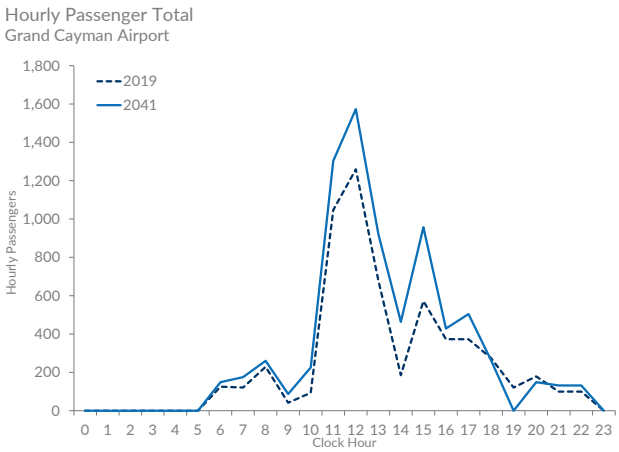
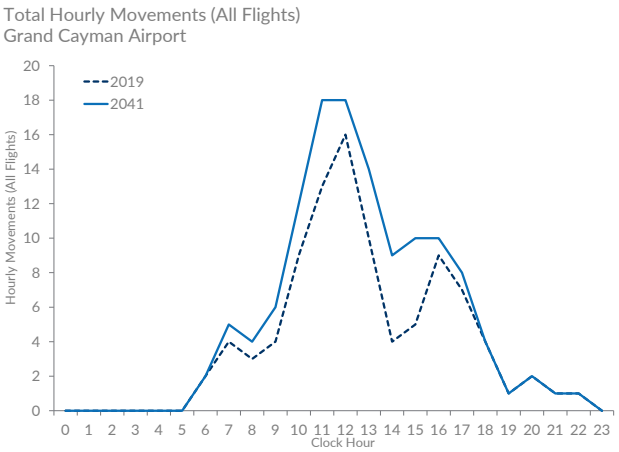


Figure 6.52: Total Hourly Movements (All Flights), Grand Cayman Airport



Source: DKMA Analysis

6.13.2.5 Forecast Scenarios

To understand the risks attached to the baseline forecast, a high and low forecast scenario was prepared. As indicated earlier the forecast scenarios focus on faster or slower overall air tourism growth in the Cayman Islands.

The next charts highlight the differences between the low, base, and high scenarios. By 2041, if the high scenario is achieved, demand at Grand Cayman Airport would be about 30% higher than in the baseline case and under a low scenario demand would be about 15% lower.

Figure 6.53: Forecast Scenarios: Total Passenger Volumes, Owen Roberts Int'l Airport

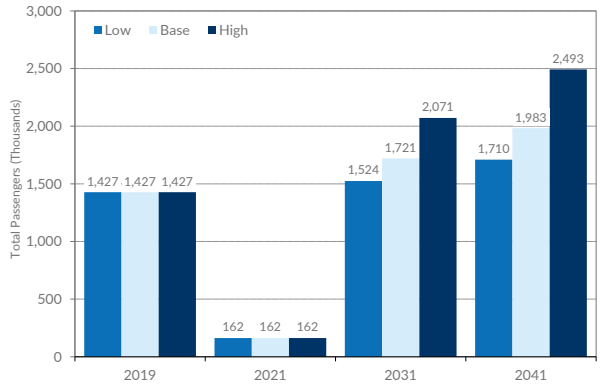
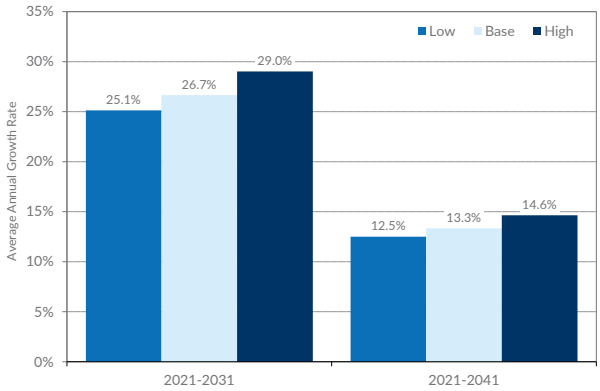


Figure 6.54: Forecast Scenarios: Growth Rates, Owen Roberts Int'l Airport



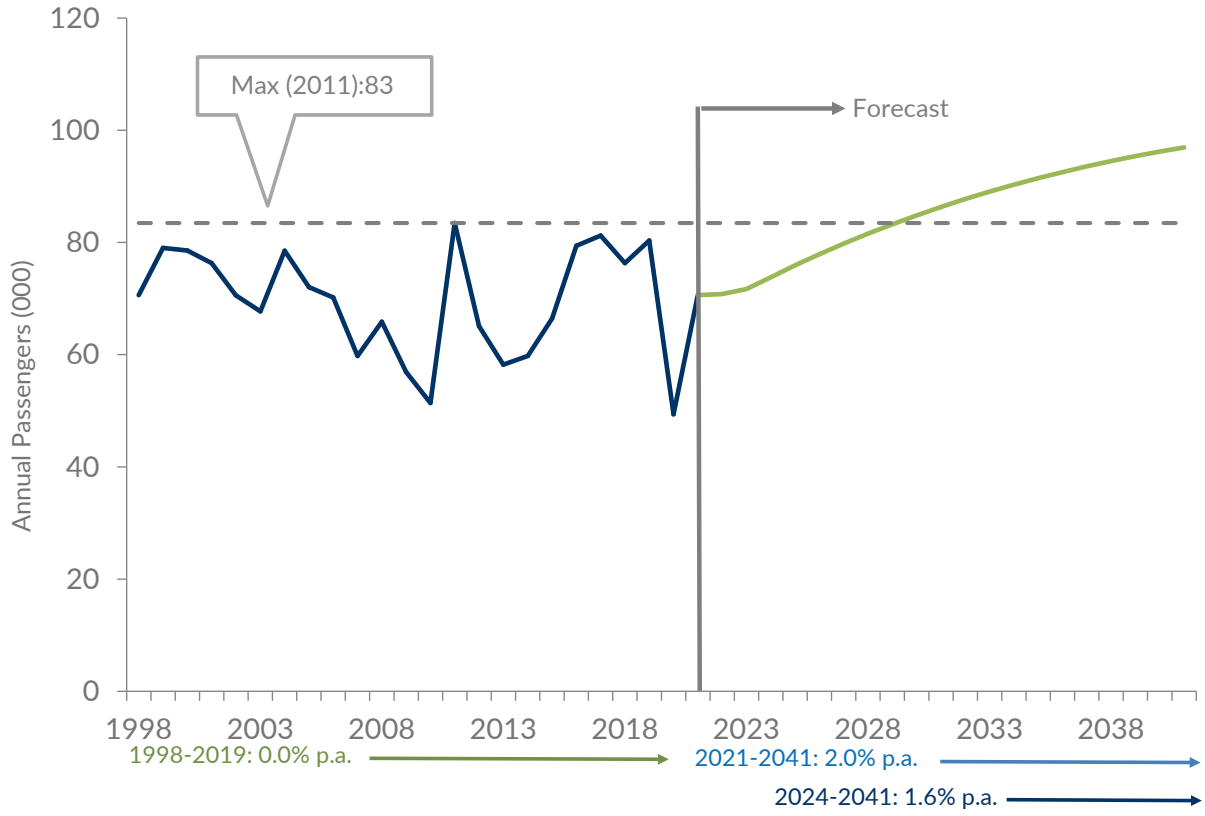
Source: DKMA Analysis

6.13.3 Charles Kirkconnell International Airport (CYB)

The baseline forecast assumes that traffic will continue to grow at a moderate rate and will not be limited by the available infrastructure. Most traffic at Cayman Brac will be domestic, but a limited number of international flights will also be offered more precisely to/from the USA. In 2019 international passengers accounted for less than 3% of the passengers and this is anticipated to reach 7% by 2041 (about 6,500 international passengers). It should be noted that we anticipate international demand to be much larger than this, but we have assumed that most of this demand will be handled via a connection at Owen Roberts International Airport (i.e., a passengers will arrive at Grand Cayman Airport on an international flight and connect on a domestic flight to Cayman Brac).

By 2041 we anticipate that Cayman Brac will handle nearly 100,000 passengers and have nearly 3,600 flights of which 85% will be commercial flights. Most of these flights will be turboprops but we do anticipate some jet aircraft to be operated. Note: Compared to 2019, aircraft movements are expected to drop, as the Saab 340s are anticipated to be replaced by the larger ATR 72s.

Figure 6.55: Passenger: Historical vs. Forecast, Charles Kirkconnell Int'l Airport

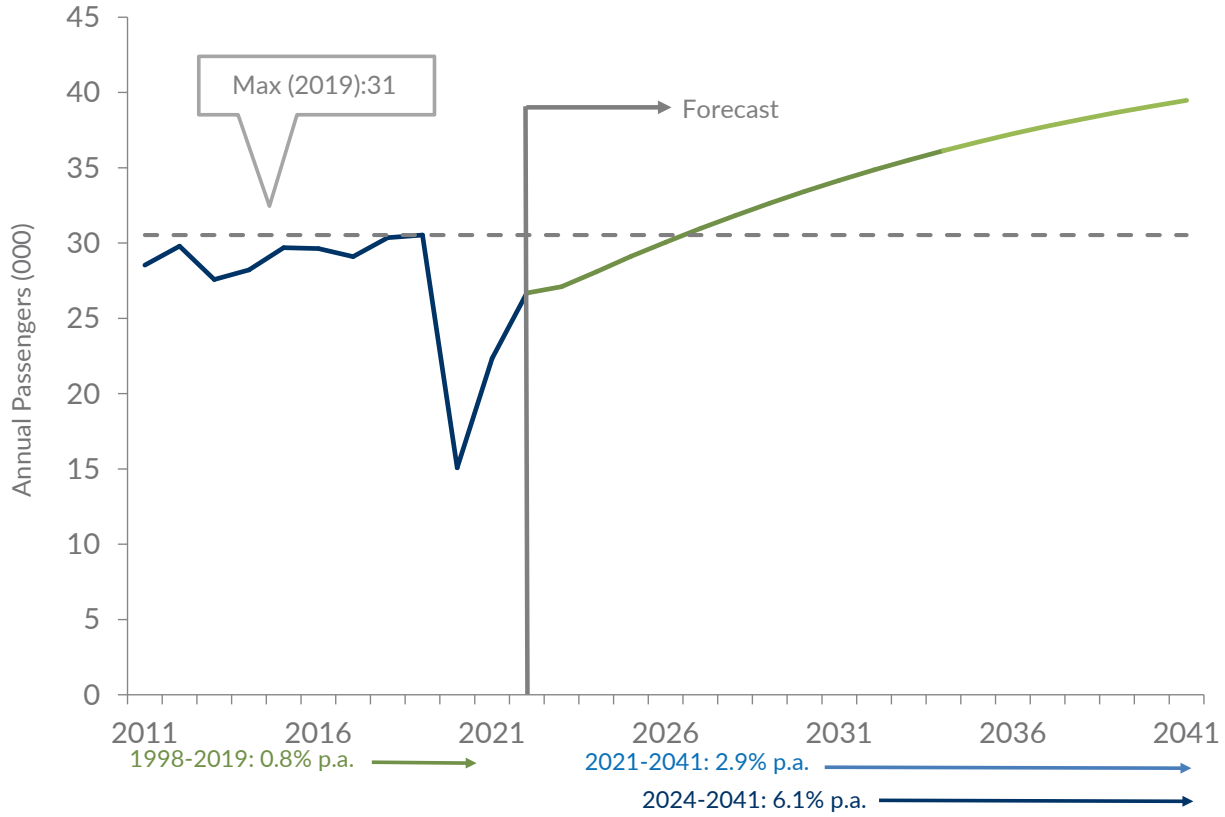


Source: DKMA Analysis

6.13.4 Edward Bodden Airfield (LYB)

Edward Bodden Airfield is the smallest of the three (3) airports in the Cayman Islands. In the future the airport/airfield will focus only on domestic operations, and we anticipate that passenger demand will nearly reach 40,000 passengers by 2041. By 2041 we anticipate 3,056 flights of which 2,947 will be commercial flights (all turboprop flights). Note: Aircraft movements are expected to drop substantially, as some Twin Otters flights are anticipated to be replaced by the larger ATR 72s.

Figure 6.56: Passenger: Historical vs. Forecast, Edward Bodden Airfield



Source: DKMA Analysis

7 Airport Facility Requirements

7.1 Future Facility Requirements

The key to understanding future facility requirements is knowing the triggers of future demand and what facilities and process improvements can be provided to accommodate such demand. There are different triggers to demand each airport sub-system processor, such as the runway, the terminal and landside parking, as examples. Each must provide a method to accommodate the demand in an economical manner. For example, aircraft movements in the peak hour (demand) exceed capacity in the peak hour; the trigger is the level of acceptable delays. If a flight is delayed in the peak hour for longer than an acceptable timeframe, then such delays indicate the trigger. That trigger, in this example, is the development of a fully parallel taxiway to Runway 08-26 at ORIA.

A significant decrease in the level of service in a passenger terminal may be indicated in a number of areas within the terminal, including the length of queues at departures check-in counters, security screening, and for passenger immigration and customs screening and related services on arrival. Growing queues, longer wait times, and delayed flights result in poor passenger experiences and level of service deteriorating below levels acceptable to the CIAA.

In order to improve the passenger experience and, ultimately, the level of service at the Cayman Airports, an investment in facilities will be required that match the requirements identified in the planning years. Each short, medium, and long-term facility requirement is considered, with the future planning year (2043) indicating the facility requirements that will enable the CIAA to accommodate demand while maintaining the desired level of service and providing the space and processing capabilities and technologies to accomplish this.

The facility requirements are identified for each of the three (3) airports in the Cayman Islands aviation system and for each landside, terminal, and airside facility. Facility requirements are based on the 2041 planning year's passenger demand; aircraft movements and landside vehicle traffic are interpolated from future passenger demand, while specific terminal facilities are determined directly from the peak hour traffic forecast based on the nominal schedule created in Section 6.

7.2 Owen Roberts International Airport, Grand Cayman

7.2.1 Airside Facility Requirements

ORIA is served by a single runway 6,596 ft. (2,010 m) long by 150 ft. (46 m) wide, a partial parallel taxiway (Golf, or G), a commercial aircraft apron and a general aviation aircraft apron. Runway 08-26 runway strip is non-instrument (visual) and measures:

- 246 ft. (75 m) on each side of the runway centreline for a total strip width of 482 ft. (150 m) and
- 200 ft. (61 m) from each runway threshold/end, for a total strip length of 6,996 ft. (2,132 m)

The Runway Strip meets the minimum requirements for length and width for a non-instrument runway; however, the runway strip holds standing water in several areas along the south side of the runway, and in areas along the northeast side of the runway strip, between the main commercial apron and the eastern end of Golf Taxiway and on the northern/northeastern portion of the runway strip.

Based on observations that the runway strip holds standing water much of the year (if not continuously), an airfield drainage study and corrective action plan and design is required to remove and keep water from the surface of the runway strip. A comprehensive airfield drainage study and report will be required in order to resolve the concerns of the operator and regulator.

Runway 08-26 can accommodate short-haul and medium-range Code A through E aircraft, the largest being a Boeing 777 operated by British Airways. The most common aircraft today is the Code C narrowbody aircraft operated by various North American commercial airlines, including Cayman Airways' Boeing 737 MAX 8.

The capacity of the runway system is limited by a few key factors:

1. Location of taxiway entrance and exit taxiways
2. Lack of a fully parallel taxiway to the runway (G taxiway is a partial parallel taxiway)
3. The mix of aircraft is from small to medium, with only a few large aircraft movements
4. The ATC system does not currently utilize radar, and long separation distances are maintained by ATC controllers, which reduces the number of aircraft that can operate during peak hours.

The runway at ORIA is non-instrument, using VFR (visual flight rules). The current estimated runway capacity is an average of eighteen (18) movements (a takeoff or landing) per hour. It is estimated that with a complete parallel taxiway available for Code C and smaller aircraft, the runway capacity could be increased to thirty (30) movements per hour.

7.2.2 Critical Aircraft and Aircraft Mix

The aircraft mix at ORIA is:

- 5% Code A
- 10% Code B
- 84% Code C
- 0% Code D
- 1% Code E.

The most common aircraft in the peak hour is the Code C B737-MAX 8. The critical aircraft in terms of runway and taxiway facilities planning is the Code E B-777-300ER. Consideration will be given to the future demand for widebody aircraft at ORIA, which includes Boeing 787 and Airbus 350.

Peak-hour aircraft movements, as indicated in Section 6, are expected to increase from sixteen (16) to twenty (20) aircraft movements per hour. The typical or practical capacity of the runway today is reported to be an average of eighteen (18) movements per hour, with the majority (66% or greater) being commercial aircraft operations in the peak hour. The increase in peak-hour aircraft movements warrants an improvement to the taxiway system. The implementation of a parallel, or partial parallel taxiway, will reduce runway occupancy times and increase hourly capacity. Any future extension to the runway would also necessitate a fully parallel taxiway to the extended runway threshold.

7.2.3 Runway and Taxiway System

Runway 08-26 is a non-instrument, Code E-capable runway. There are 90-degree entrance/exit taxiways of the runway end at A, B and G and additionally at C, D, E, and F taxiways. There is no parallel taxiway on the north side of the runway, except for a portion of the G taxiway; there is no taxiway to the south of the runway. This presents a significant limitation to runway capacity since aircraft are required to backtrack prior to each departure and after most landings.

Taxiways A, B, E, F and G are all capable of accommodating Code E aircraft, while taxiways C and D are only capable of handling Code C aircraft (typically bound for the GA apron and Cayman Airways hangar).

To reduce delays and to increase hourly runway capacity, it is recommended that a parallel taxiway system be developed on the north side of Runway 08-26. The parallel taxiway should be capable of handling large Code E aircraft (such as the B-777); however, the last western section connecting with the threshold of Runway 08 is only capable of accommodating a Code C aircraft due to the proximity to Roberts Drive. As there are no wide-body aircraft operating in the busy hours (which are predominantly narrowbody aircraft), the larger widebody aircraft (in fact, most aircraft) currently enter the runway just west of the existing GA aircraft aprons, turn into B from the runway, and re-enter the runway from A onto the threshold of Runway 08.

7.2.4 Commercial Apron

The commercial apron must accommodate the peak-hour demand for airline parking positions while ensuring some redundancy to enable temporary overflow parking should there be a pushback delay, or a gate stand hold due to air traffic conflicts. There are up to twelve (12) commercial aircraft stands at the terminal, in 2023. If the two (2) Multiple Aircraft Ramp System (MARS) stands are used for Code E widebody aircraft, there would be only 8 Code C stands remaining. If the MARS Code E stands are utilized for Code C aircraft, there would be a total of twelve (12) Code C stands available for peak hour operations in 2023.

The peak hour demand for aircraft stands as forecasted will be:

- Code B Aircraft: 1 to 2 aircraft stands
- Code C Aircraft: 15 to 17 aircraft stands
- Code E Aircraft: 1 to 2 aircraft stands
- Redundancy: 1 to 2 aircraft stands
- **Total: 18 to 23 aircraft stands**

Code E and B aircraft stands are typically not required during peak hours. We, therefore, recommend the use of Multiple Aircraft Ramp System (MARS) gates (whereby two (2) Code B aircraft may take the place of a Code C stand, or two (2) Code C aircraft may take the place of a Code E stand).

The short-term requirement for Code C parking positions is most critical, requiring a minimum of ten (10) Code C capable stands operating simultaneously in the peak hour between 2023 and 2027. The medium-term requirement for Code C parking positions is fourteen (14) aircraft stands from 2028 through 2032. The long-term requirement for Code C parking stands is fifteen (15) aircraft stands from 2033 through 2042.

Additional stands will likely be required for redundancy purposes, and to prevent cumulative delays from occurring due to a single aircraft push-back delay from the terminal. Apron space must made available in other areas of the airport to accommodate overflow aircraft that cannot get to the terminal during peak hours, and which require a safe parking area.

A total of ten (10) aircraft can be bridged to the terminal; the rest of the stands will be utilized as remote gates, with buses providing passenger transportation to aircraft. The average size of commercial aircraft is expected to increase, as CAL has done recently with the replacement of B737-500/600 with the B737-MAX 8 aircraft. CAL also expects to replace the smaller Code B Saab 340 with larger, 50 - 76 seat ATR-42/-72 or DH-8-Q400 aircraft. This shift will have the long-term effect of reducing the requirement for additional gates during peak hours.



7.2.5 General Aviation Apron

Prior to the pandemic, there was significant demand for GA aircraft parking at ORIA. Business jets and privately operated turboprop aircraft require parking positions from a few hours to several days or over a week in peak months. Island Air, the existing FBO at ORIA, has been known to park aircraft wingtip to wingtip, three (3) to four (4) aircraft deep in a 'stacked' parking fashion typical of busy GA aprons. This practice is inefficient and leads to an increase in aircraft incidents which require costly repairs and delay operations, which is a detriment to users who may choose to go elsewhere in future.

The future demand for aircraft parking at ORIA should accommodate at least forty (40) aircraft on the ramp, the majority being Code A and Code B, with some larger Code C business jet aircraft. Phasing the expansion of GA aprons will allow the CIAA to monitor shifting demand over time and delay expansion should the demand dwindle from past peaks.

A number of hangars are required to accommodate the demand for aircraft storage indoors. Although the existing Island Air hangar, and potentially the Cayman Airways hangar, could be utilized for GA aircraft storage, there are no other suitable hangars at ORIA. Such demand for hangars is common globally; the larger Bombardier Global 7500 is a $100 million USD airplane; owners prefer this hardware be protected when possible.

7.2.6 Landside Facility Requirements

The landside curb will require expansion for additional lanes to support passenger drop-off and pick-up by private car and by taxi operators. In order to accommodate the future demand for landside ground transportation services and private vehicle pick-up and drop-off on the terminal curb, additional lanes will be required. There is currently congestion on the terminal curb during peak hours, particularly worsened during rain events due to the lack of cover for passengers waiting for rides on the curb.

The length of the curb is estimated based on the passenger profile and mode of transportation use; the majority of passengers use private car, followed by rental cars, taxis, and shuttles. It was determined that in order to accommodate ground vehicle demand in the planning year 2041, the departure curbs must accommodate the peak hour departing passengers' modal choice as follows:

- Private Car drop-off/pick-up: 23 vehicles/hour
- Shuttle Vans: 17 vehicles/hour
- Taxis: 102 vehicles/hour

By 2041, it was estimated that of the 50% of departing passengers using the terminal curb, 10% would come to ORIA via private cars, 30% by pre-booked shuttle vans, and 60% by taxi. Of the 50% of departing passengers ***not*** using the terminal curb, these passengers are split between private cars using the parking lot and rental car customers.

The hold time and load factors estimated for the departures vehicles on the terminal curb are as follows:

Table 7.1: Hold Time and Load Factors (Departure Vehicles)

Parking Area	Holding Time (minutes)	Load Factor (persons / vehicle)
Public Pick-up / Drop off Curbs	5	1.5
Shuttle Vans	10	6
Private Taxi	4	2

It was determined that in order to accommodate ground vehicle demand in the planning year 2041, the arrivals curbs must accommodate 50% of the peak hour arrival passengers' modal choice as follows:

- Private Car drop-off/pick-up: 36 vehicles/hour
- Shuttle Vans: 27 vehicles/hour
- Taxis: 164 vehicles/hour

By 2041, it was estimated that of the 50% of arriving passengers using the terminal curb, 10% would come to ORIA via private cars, 30% by shuttle van, and 60% by taxi. Of the 50% of arriving passengers ***not*** using the terminal curb, these passengers' modal split is between private cars using the parking lot and rental car customers.

The hold time and load factors estimated for the arrivals vehicles on the terminal curb are as follows:

Table 7.2: Hold Time and Load Factors (Arrival Vehicles)

Parking Area	Holding Time (minutes)	Load Factor (persons / vehicle)
Public Pick-up / Drop off Curbs	5	1.5
Shuttle Van	30	6
Private Taxi	4	2

The future modal split is somewhat dependent on factors such as value proposition, personal choice, and cost of the chosen mode of transport. The low cost of parking and the usually full parking lots indicate that most residents typically park and fly when travelling from ORIA. Employees also require parking facilities, but their numbers are limited during peak months. The majority of tourists either rent a car, hail a taxi, or pre-book a shuttle van, so the airport requires terminal curbs and layby parking lots for taxis and shuttle vans.

7.2.7 Passenger Terminal Requirements

Passenger processing facilities within the air terminal building at ORIA are currently operating under older models of equipment, and the facilitation of passenger processes can be improved with digitalization, touchless technologies, self-service options, and a number of other improvements over time. It is assumed that the long processing times currently being experienced by travellers will be improved drastically once an optimization and modernization of equipment and facilities occur.



7.2.7.1 Check-in Facilities

Passenger self-service check-in facilities are currently operating slower than optimal. The processing of departing passengers takes longer than the IATA suggested processing time (120 seconds per passenger today vs. the 90 seconds recommended by IATA for an Optimal Level of Service). With the introduction of new facilities and equipment, average check-in times should be reduced from 120 to 90 seconds per passenger for self-service check-in. This assumes that up to 70% of passengers will utilize new facilities, such as self-check-in and self-bag drops, when made available. The increase in self-serve options at ORIA will improve the overall efficiency of the check-in process, particularly for those who check in online in advance, reducing the number of traditional check-in counters and increasing need for self-service kiosks and bag drop facilities.

By 2041, it is estimated that fifteen (15) self-service check-in kiosks will be required.

The potential for improving check-in is augmented by the potential use of self-serve baggage drop facilities. It is assumed that up to 60% of departing peak-hour passengers will utilize self-service baggage drop facilities in the terminal. As such, it is estimated **that twelve (12) self-serve baggage drop positions would be required to support the passenger self-service check-in process by 2041**.

In the 2041 planning year, it is estimated that the majority of tourists will be family units - typically, 40% of these passengers will utilize the traditional check-in counters. At least **forty-two (42) traditional check-in counters are required to support the peak-hour operations at ORIA by 2041**. This would allow each departure flight to utilize three (3) counters, with counters for widebody aircraft departures opening three (3) hours prior to a flight and narrowbody aircraft departures opening 2.5 hours prior to a flight (and closing 30 minutes before a flight). The additional CUPPS systems must be integrated with the Airport Operations Data Base (AODB) to improve check-in facilitation by the airlines and to support seamless communications, and enable modern digital solutions.

7.2.7.2 Baggage Make-Up Positions

Passengers departing bags are delivered to the aircraft via a system of carousels, chutes, or laterals to baggage make-up positions, where they are loaded into baggage carts or ULDs (unit load devices) for delivery to the apron and loaded onto the aircraft. The number of make-up positions allocated per flight will vary depending on the expected volume of baggage, the flight-build time (the time it takes to load all the carts or ULDs required for a flight), and the number of segregations into which bags must be sorted. This can vary from one or two positions for small aircraft to ten or more for large, widebody aircraft with complex terminating and transfer products.

Utilizing the nominal schedule and common peak hour make-up positions required for the planning year 2041, we have determined the number of baggage make-up positions required and the length of baggage make-up carousels. Based on a peak hour of fourteen (14) (thirteen (13) scheduled, +1 redundant gate stand position) simultaneous aircraft movements in 2041, we have determined that **fifty-six (56) make-up positions and 700 feet (213 m) length of baggage carousel frontage are required**.

7.2.7.3 Security Screening

The security screening configuration and the number of processing units are considered a constraint to passenger flow and a choke point in the ORIA terminal building. In addition, the processing time is considered quite slow (currently estimated at 320 seconds per passenger). We assume that security processing times will be improved to 30 seconds per passenger by 2031 (and through to the 2041 planning year).

We have considered the passenger profiles from the check-in processors (the processes that precede security screening) and have calculated the number of security lanes required to accommodate the common peak hour demand. A maximum queueing time of 10 minutes was used based on improved processing times. The space requirements are estimated to be 1.2 square yards (1 m^2) per peak hour passenger in the security queue and not greater than 100 passengers in the queue by the planning year 2041. As such, it was determined that seven (7) security processing positions are required by 2041. Additional units are also required currently (2022-2023) based on observations and the lengths of security queues during peak hours.

The current building layout limits the configuration of the security processors, with likely no more than three (3) security processing units available simultaneously, leading to ongoing security queue management in peak hours. This may be alleviated by replacing existing security equipment with modern, higher-throughput computer tomography X-ray (CTX) machines to screen hand luggage. However, as with improved processing times at each previous processor in the terminal, the peak hour demand will shift from one processor to the next and as such, the peak demand will end up in the departures hold rooms, as noted in the next section. The CIAA is planning to introduce this new technology in 2024, which will improve the efficiency of the security processor.

7.2.7.4 Boarding Gates and Departure Hold Rooms

The number of boarding gates, the size of departure hold rooms and the number of seats available for departing passengers is estimated based on the level of service chosen (optimal) and are driven by the number of passengers estimated and the number of flights operating in the peak hour. We utilize a buffer of 25% to account for potential aircraft delays in the peak hours, and for the number of gates required, we assume a gate occupancy time of 75 minutes, 2.75 sq. yards (2.2 m^2) per seated passenger and 1.8 sq. ft. (1.5 m^2) for each standing passenger, with seating to passenger ratio of 70% of the passengers for each gate.

A total of **twelve (12) narrowbody departure hold rooms and boarding gates will be required by 2041**, based on the nominal schedule developed and the peak hour aircraft using the gates (all narrowbody, Code C). A total of **108 seats are required for each gate**, and a total **area of 361 square yards (302 m^2) is needed for each departure hold room**.

A total of **two (2) widebody boarding gates are required** to accommodate the larger number of passengers departing on long-haul flights. The total **space required is 471 sq. ft. (394 m^2) for each widebody departure hold room,** and a total of **139 seats are required for each widebody gate**, apart from general circulation space.

7.2.7.5 Aircraft Gate Stands

By 2041, ORIA will require a total of **sixteen (16) narrowbody (NB) and two (2) widebody (WB) aircraft stands in the peak hour**, which includes a 25% buffer.

Since long-haul, widebody aircraft operations do not occur in the peak hour (dominated by short haul narrowbody flight operations), the result is the opportunity to utilize the MARS concept, which allows a widebody to park in the place of two (2) narrowbody aircraft.

As such, the layout provided for ORIA includes up to sixteen (16) narrowbody aircraft stands or fourteen (14) narrowbody positions, plus two (2) widebody (Code E) aircraft stands. The 2041 design day flight schedule indicates eleven (11) narrowbody aircraft and one (1) widebody aircraft operating simultaneously in the peak hour; therefore, having a total of sixteen (16) stands (or 14 NB plus 2 WB stands) supports the future demand in the design day flight schedule.

7.2.7.6 Immigration Facilities (CICBC)

Arriving international passengers are required to proceed through the CICBC immigration processing facility at ORIA. It is a three-step process, starting with immigration processing, then baggage claim, and finally, customs inspection. The immigration area contains both traditional counters (staffed) and automated kiosks. We have estimated the requirements for both types of processors.

We estimate 2,265 peak-hour arriving passengers by the 2041 planning year and that 60% of all arriving passengers will use the traditional counters. We assume that each passenger has 1.44 sq. yards (1.2 m^2) space and spends no longer than 10 minutes in the queue. Processing times are estimated at 100 seconds in 2019 and reduced to 60 seconds by 2031 – 2041, based on the assumption that CICBC staff will improve their processing efficiency in future. As such, **thirteen (13) traditional counters and an area of 158 sq. yards (132 m^2) space for queueing will be required by 2041**, although additional counters and space are likely required in the interim period due to slower processing rates.

Similarly, we calculate the demand for self-serve kiosks in the immigration hall will be approximately 40% of all arriving peak hour passengers, taking 60 seconds per passenger and a maximum of 10 minutes in the immigration queue, and with 1.44 sq. yards (1.2 m^2) for each peak hour arriving, passenger. As such, we calculate the need for eight (**8) kiosks and a queueing area of 100 sq. ft. (84 m^2) by planning year 2041**, although additional kiosks and space will be required in the interim period due to slower processing times.

7.2.7.7 Baggage Reclaim Belts

Arriving passenger baggage is transported from the aircraft to the terminal by tug and cart and offloaded directly onto flat plate baggage reclaim belts. We estimate the number of baggage reclaim belts for both narrowbody and widebody aircraft and have assumed the ratio of passengers to bags at 90% and the ratio of one (1) bag to one (1) passenger, with a bag claim occupancy time of 20 minutes per belt.

We calculated the **demand for six (6) baggage reclaim belts for peak hour arriving narrowbody aircraft**, **with each carousel length being at least 210 ft. (64 m) long**. Additionally, **two (2) baggage reclaim belts are required for arriving widebody aircraft, each with a length of 318 ft. (97 m)** and an assumed bag claim occupancy time of 45 minutes, in the planning year 2041.

By the planning year 2041, there will be a need for at least **one (1) baggage reclaim belt dedicated to the smaller domestic flights**. Similarly, at least **seven (7) baggage reclaim belts will be required for international peak-hour flights**.

7.2.7.8 Customs Processing

Based on the peak hour arriving passenger demand in 2041, we assumed that 5% of arriving passengers have declarations to make, that the queue is no longer than five (5) minutes, that the customs processing time takes 300 seconds, and that each passenger in the queue needs 2.15 sq. yards (1.8 m^2) of space. We calculated that **seven (7) primary inspection booths are required**, and **a 13 sq. yard (11 m^2) area is required for customs queueing**.

7.2.8 Summary 2041 planning year requirements

Table 7.3: Summary 2041 Planning Year Requirements

Existing capacity 2022				Demand capacity 2041		
	GCM Airport			Requirements		
	classic	auto	total	Classic (incl. buffer)	Automated (incl. buffer)	Total (incl. buffer)
Check In	39	24 Kiosks but no Bag drop	39	29	12 (BD)	41
Security Screening	4	-	4	7	-	7
Immigration	12	12	24	13	8	21
Gates	7 (NB)	2 (WB)	9	12 (NB)	2 (WB)	14
Baggage Reclaim	5 (NB)	-	5	6 (NB)	2 (WB)	8
Customs Control	4	-	4	7	-	7
AC Stands	8 (12NB)	2 (-WB)	12	16 (NB)	2 (WB)	16

BD = Bag drop
NB = Narrowbody aircraft
WB = Widebody aircraft

7.3 Charles Kirkconnell International Airport, Cayman Brac

The requirements for CKIA were determined for the 2019 and 2041 planning years (a 20-year timeframe from 2022). The 2041 planning year provides the basis for infrastructure and facility requirements to accommodate the air traffic and passenger-related demand. Based on the current demand profile and the cost of providing CICBC customs and immigration services, the CIAA will need to consider whether or not CKIA should continue to support international operations at a loss, as the market for international passengers is very small.

7.3.1 Airside Facility Requirements

CKIA is served by a single runway, a single 90-degree runway entrance/exit taxiway, and a commercial aircraft apron for up to 2 Code C aircraft.

Runway 09-27 is capable of accommodating short-haul Code A through Code C aircraft operations, the largest being a Boeing 737 MAX 8 operated by Cayman Airways. The most common aircraft operating at CKIA are those operated by CAL, including the Boeing 737 MAX 8, Saab 340, and the DHC-6 Twin Otter.

The capacity of the runway system is limited by a few key factors:

- Location of taxiway entrance and exit taxiways (or lack thereof)
- Lack of a complete taxiway parallel to the runway
- The mix of aircraft is small to medium size aircraft
- The ATC system is based on line-of-sight and controller vision of aircraft in the vicinity or on the airfield. The ATC tower does not have line of sight to the Runway 09 or 27 thresholds, therefore, a CCTV system mounted on a tall pole, east of the ATC tower and more central to the runway, is utilized to improve visibility of the entire runway.

The current estimated capacity of this non-instrument runway is an average of sixteen (16) movements (landings or take-offs) per hour, based on VFR. It is estimated that with a complete parallel taxiway available for Code C and smaller aircraft, the runway capacity could be increased to thirty (30) movements per hour or greater.

7.3.2 Critical Aircraft and Aircraft Mix

The critical aircraft mix at CKIA is as follows:

- 15% Code A
- 65% Code B
- 20% Code C
- 0% Code D
- 0% Code E



The most common aircraft in the peak hour is the CAL-operated Saab 340. The critical aircraft in terms of runway, taxiway and apron facilities planning is the Code C Boeing 737 MAX 8 aircraft.

Peak hour aircraft movements, as indicated in Section 6, are *NOT* expected to increase beyond two (2) to three (3) aircraft movements per hour. The future replacement of the Saab 340 and DHC-6 Twin Otter by CAL will likely result in a larger turboprop aircraft with fifty (50) to seventy-five (75) seats, such as an ATR-42 or ATR-72, but no significant increase in movements.

The typical or practical capacity of the runway today is reported to be an average of two (2) movements per hour, with all being commercial aircraft operations. There is no need to provide additional runway capacity for the peak hour operations within the study horizon, but subsequent master plans should review this requirement and the amount of aircraft activity.

7.3.3 Runway and Taxiway System

Runway 09-27 is a non-instrument, Code C-capable runway. There is a single 90-degree entrance/exit taxiway A connecting the runway to the aircraft parking apron. There are no parallel taxiway nor runway turnaround bays at the runway ends.

To improve the efficiency of aircraft operations, it is recommended that an aircraft turn bay be provided at each runway end. This will support the turnaround of the B737 MAX 8 aircraft at the runway end, prior to departure, after a backtrack, or after landing, prior to the backtrack to the parking apron.

7.3.4 Commercial Apron

The commercial apron must accommodate the peak-hour demand for airline parking positions while ensuring some redundancy to enable temporary overflow parking should there be a push-back delay, or a gate stand hold due to air traffic conflicts.

The peak hour demand described in Section 6 of this report indicates the following demand for aircraft stands at CKIA:

- Code B Aircraft: 1 aircraft stand
- Code C Aircraft: 2 aircraft stands
- Redundancy: 1 aircraft stand (a Code B will take the place of a Code C stand)
- **Total Aircraft Stands: 3 to 4 stands are required to accommodate parking demand.**

A minimum of two (2) aircraft stands is required in typical peak hour conditions, with the ability to ensure a third aircraft stand can also be operated simultaneously. This will ensure that both CAL Saab 340 and the B737-MAX 8 aircraft can be positioned, and potentially a second B737 MAX 8 from an international (Miami, USA) destination.

7.3.5 General Aviation Apron

There are currently limited facilities available for GA aircraft operators at CKIA. There is no dedicated GA apron. GA aircraft must park at the main apron adjacent to the terminal, which may be problematic during commercial carrier operations (security, safety, setbacks, etc.).

Prior to 2019, there was limited demand for GA aircraft parking at CKIA. Business jets and privately operated turboprop aircraft infrequently utilize the airport as there are no facilities for long-term parking or hangarage. There are no hangars at CKIA.

An adjacent landowner has expressed interest to the CIAA to develop a GA terminal, hangar, apron, and taxiway to the runway, should an agreement be reached. This would provide an opportunity for new GA activity to be accommodated at CKIA without significant investment by the CIAA or CIG.

7.3.6 Landside Facility Requirements

The landside curb is shared by arriving and departing passenger ground transportation services. The landside curb has two lanes to accommodate passenger drop-off and pick-up by private car, taxi and by pre-booked shuttle van operators. In order to accommodate the future demand for landside ground transportation services and private vehicle pick-up and drop-off on the terminal curb, there is a potential that additional curb length may be required. There is no congestion on the terminal curb during peak hours currently but given a modest growth in passenger traffic through to the planning year 2041, it is likely that additional curb length will be required to support ground transportation services.

The length of the curb is estimated based on the passenger profile and mode of transportation. The majority of passengers use private cars, followed by taxis, shuttle vans and rental cars.

By 2041, it is estimated that of the 50% of departing passengers using the departures portion of the landside curb, 10% will come to CKIA by private car, 30% by shuttle van, and 60% by taxi. Of the 50% of departing passengers ***not*** using the terminal curb, these passengers typically use the parking lot as they arrive in private cars.

It was determined that in order to accommodate ground vehicle demand in the planning year 2041, the departure curbs must accommodate 50% of the peak hour departing passengers' modal choice as follows:

- Private Car drop-off/pick-up: 2 vehicles/hour
- Shuttle Vans: 1 vehicle/hour
- Taxis: 8 vehicles/hour

The hold time and load factors estimated for the departures vehicles on the terminal curb are as follows:

Table 7.4: Hold Time and Load Factors (Departure Vehicles)

Parking Area	Holding Time (minutes)	Load Factor (persons / vehicle)
Public Pick-up / Drop off Curbs	5	1.5
Shuttle Van	10	6
Private Taxi	4	2

It was determined that in order to accommodate ground vehicle demand in the planning year 2041, the arrivals portion of the landside curb must accommodate 50% of the peak hour arrival passengers' modal choice as follows:

- Private Car drop-off/pick-up: 2 vehicles/hour
- Shuttle Vans: 1 vehicle / hour
- Taxis: 9 to 13 vehicles/hour

By 2041, it was estimated that of the 50% of arriving passengers using the terminal curb, 10% will come to CKIA via private cars, 30% by shuttle van, and 60% by taxi. Of the 50% of arriving passengers ***not*** using the terminal curb, these passengers' modal choice is typically the private car, and they use the parking lots. There are limited rental car customers at CKIA.

The hold time and load factors estimated for the arrivals vehicles on the terminal curb are as follows:

Table 7.5: Hold Time and Load Factors (Arrival Vehicles)

Parking Area	Holding Time (minutes)	Load Factor (persons / vehicle)
Public Pick-up / Drop off Curbs	5	1.5
Shuttle Van	30	6
Private Taxi	4	2

Most employees come to the airport via private car or shuttle van. It was observed that the parking lot generally has spaces available, although, in peak tourist periods, parking may be limited.

Some parking lot expansion might be required in future if the 100 ft (30 m) terminal setback rule were to come into effect. The alternative is to develop the next terminal in future with a terminal face that has blast protection that is meant to withstand an attack on the airport. Should the terminal face not be strengthened, and new domestic and international flights grow at CKIA, it is anticipated that CIAA will be required to implement the additional security measures in the form of blast protection at the terminal face or a setback of 100 ft (30 m) to public vehicles.

7.3.7 Passenger Terminal Requirements

The air terminal building at CKIA processes passengers with outdated equipment. Passenger processing can be improved over time by introducing digitalization, touchless technologies, self-service options, and other improvements. It is assumed that the current, long processing times may be improved drastically once an optimization and modernization of equipment and facilities occur.

We used IATA's ADRM 12th Edition to determine the space requirements for CKIA. The IATA Level of Service (LOS) parameters are shown in the table below. The LOS guidelines provide the space requirements per peak hour passenger to manage the level of service in the terminal at a particular processor. The "Optimal" LOS requirements are highlighted in green.

Table 7.6: IATA Level of Service (LOS) Parameters

LoS Guidelines		SPACE GUIDELINES [sqm/PAX]			QUEUING TIME GUIDELINES [minutes]					
					Economy Class			Business Class / First Class / Fast Track		
LoS Parameter:		Over-Design	Optimum	Sub-Optimum	Over-Design	Optimum	Sub-Optimum	Over-Design	Optimum	Sub-Optimum
Public Departure Hall		> 2.3	2.0 - 2.3	< 2.0	n/a			n/a		
Check-In	Self-Service Kiosk (Boarding Pass / Bag Tagging)	> 1.8	1.3 - 1.8	< 1.3	< 1	1 - 2	> 2	< 1	1 - 2	> 2
	Bag Drop Desk (queue width 1.4 - 1.6m)	> 1.8	1.3 - 1.8	< 1.3	< 1	1 - 5	> 5	< 1	1 - 3	> 3
	Check-in Desk (queue width: 1.4 - 1.6m)	> 1.8	1.3 - 1.8	< 1.3	< 10	10 - 20	> 20	< 3	Business Class 3 - 5	> 5
								< 1	First Class 1 - 3	> 3
Security Control (queue width: 1.2m)		> 1.2	1.0 - 1.2	< 1.0	< 5	5 - 10	> 10	< 1	Fast Track 1 - 3	> 3
Emigration Control (Outbound Passport Control) (queue width: 1.2m)	Staffed Emigration Desk	> 1.2	1.0 - 1.2	< 1.0	< 5	5 - 10	> 10	< 1	Fast Track 1 - 3	> 3
	Automatic Border Control	> 1.2	1.0 - 1.2	< 1.0	<1	1 - 5	>5	n/a		
Gate Holdrooms	Seating	> 2.2	1.8 - 2.2	< 1.8	n/a			n/a		
	Standing	> 1.5	1.2 - 1.5	<1.2						
Immigration Control (Inbound Passport Control) (queue width: 1.2m)	Staffed Immigration Desk	> 1.2	1.0 - 1.2	< 1.0	< 5	5 - 10	> 10	<1	Fast Track 1-5	>5
	Automatic Border Control	> 1.2	1.0 - 1.2	< 1.0	<1	1 - 5	>5	n/a		
Baggage Reclaim (1)	Narrow Body Aircraft	> 1.7	1.5 - 1.7	< 1.5	< 0	0 / 15	> 15	< 0	0 / 15	> 15
	Wide Body Aircraft	> 1.7	1.5 - 1.7	< 1.5	< 0	0 / 25	> 25			
Customs Control (2)		> 1.8	1.3 - 1.8	< 1.3	< 1	1 - 5	> 5	< 1	1 - 5	> 5
Public Arrival Hall		> 2.3	2.0 - 2.3	< 2.0	n/a			n/a		

Key processors within the air terminal building include check-in, security control, immigration control, boarding gates and hold rooms, baggage reclaim and customs control. Processors consider the 2041 passenger presentation profile for peak hour passenger demand. For all other processors, the peak hour of the maximum output of the previous processor counts as the input for planning purposes.

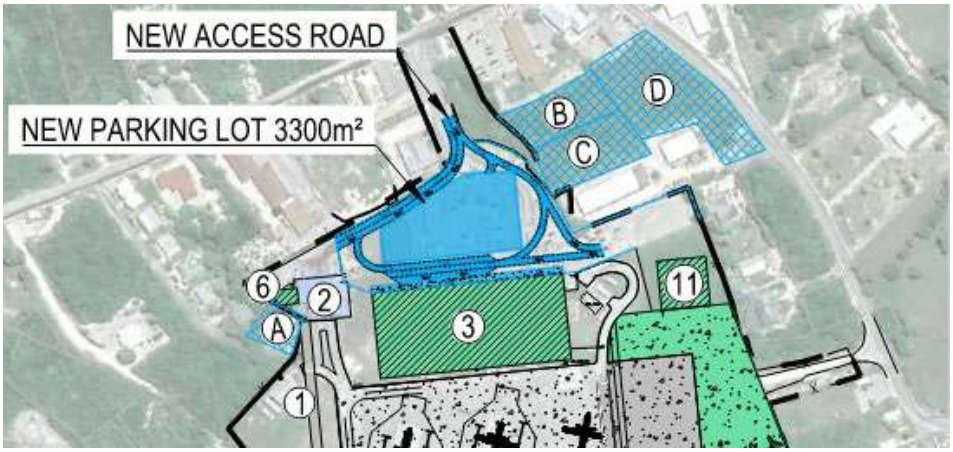
The peak hour passenger demand is likely to occur on a Sunday and is calculated to be as high as fifty-seven (57) passengers per hour by 2041. However, in the short to medium term, from 2019 through 2031, it is estimated that there will be seventy-four (74) passengers to accommodate in the peak hour. The average size or gauge of aircraft is reduced in future with the addition of larger 50 to 75-seat turboprops (capable of accommodating international and domestic air services at CKIA) and eliminating the requirement for regular, larger Boeing 737 MAX 8 jets unless required for demand and/or fleet scheduling purposes.

7.3.7.1 Landside Access, Parking and Terminal Curb

The volume of traffic at CKIA in future planning year 2041 can be accommodated with an access and circulation road configuration similar to that which exists today. The peak hour traffic will require additional parking spaces and terminal curb lengths to be provided with a new air terminal building (in future).

Two options were presented for long-term planning; the first option does not require significant changes to the terminal based on current security regulations and requirements indicated by ASSI. This option proposes additional parking areas (items A, B, C and D as shown in Figure 7.1 below) that can be added to support the growing volume of passenger traffic in future, as indicated in the figure below.

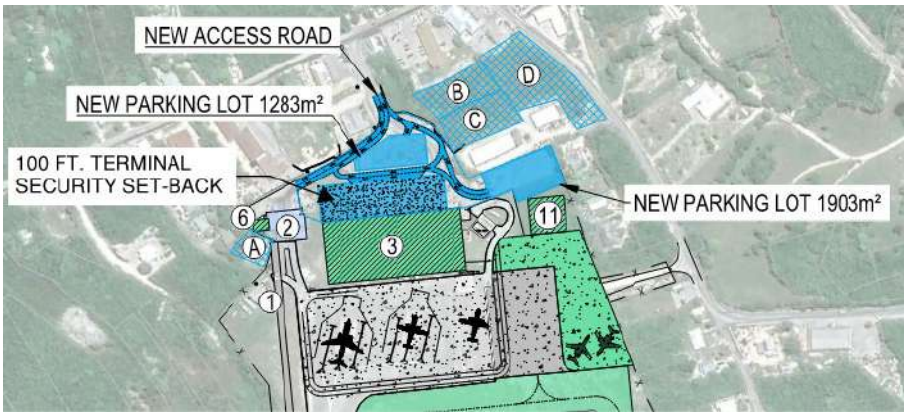
Figure 7.1: CKIA Landside Expansion (No Terminal Setback)



BUILDING INDEX	
No.	DESCRIPTION
1	AIRPORT MAINTENANCE
2	RESCUE FIRE FIGHTING SERVICES
3	TERMINAL BUILDING
4	CONTROL TOWER
5	WEATHER STATION NWS/MET/WX
6	AIRPORT MAINTENANCE EXPANSION
7	NEW RUNWAY TURNPAD
8	RUNWAY STRIP EXPANSION
9	VEGETATION REMOVAL
10	REALIGNMENT OF PUBLIC ROAD
11	PRIVATE HANGAR

There is a possibility that ASSI may require CKIA to meet security regulations pertaining to the 100 ft. (30 m) setback from terminal face to curb. We can see the impact of this development in the following figure. This would result in a landside pedestrian plaza, similar to that described in the ORIA landside section of this report.

Figure 7.2: CKIA Landside Expansion (With 100 ft. Terminal Setback)



BUILDING INDEX	
No.	DESCRIPTION
1	AIRPORT MAINTENANCE
2	RESCUE FIRE FIGHTING SERVICES
3	TERMINAL BUILDING
4	CONTROL TOWER
5	WEATHER STATION NWS/MET/WX
6	AIRPORT MAINTENANCE EXPANSION
7	NEW RUNWAY TURNPAD
8	RUNWAY STRIP EXPANSION
9	VEGETATION REMOVAL
10	REALIGNMENT OF PUBLIC ROAD
11	PRIVATE HANGAR

The new curb lanes will allow for additional ground transportation and public vehicles on the public curb in the peak hour, in addition to providing two through lanes past the curb lane to ensure traffic continues to flow efficiently in peak hour traffic conditions.

A separate access road should be considered for Rubis fuel trucks, in order to segregate fuel delivery trucks from the airport access by passenger vehicles.

A new and expanded terminal parking lot of 35,520 square foot (3,300 m^2) will be required to support parking demand in 2041.

Additional land acquisition, (as shown in parcels B, C, and D in the figures above) is required to ensure the airport can expand the landside to provide additional parking spaces in future. The alternative is to construct a multi-level parking lot on the existing landside.

7.3.7.2 Check-in Facilities

To determine the passenger demand in the 2041 planning year peak hour, it was assumed that 40% of passengers use a traditional check-in counter and 50% would use online check-in, while only 10% of peak hour passengers would use self-serve check-in facilities in the terminal. We assumed that 90% of passengers would have at least one bag on average and that 60% of peak-hour passengers (PHP) would use self-serve baggage tagging and self-service baggage drop facilities by 2041.

Table 7.7: Check-In Ratios

Check-In Ratio	Dim.	2019	2026	2031	2041
Traditonal Check In	% of total	40%	40%	40%	40%
Online Check In	% of total	50%	50%	50%	50%
Kiosk Check In	% of total	10%	10%	10%	10%
Baggage Ratio (PAX with Baggage)	% of total	90%	90%	90%	90%
Baggage Drop Off Only	% of total	60%	60%	60%	60%
Kiosk Bag Tag	% of total	60%	60%	60%	60%

It is assumed that departing passengers will spend an average of 15 minutes in the queue for check-in at CKIA. Based on an optimal IATA level of service, each PHP will require 1.8 m^2 in the queue, for a total of 133 m^2 through 2031, which may be reduced to 103 m^2 after 2031, pending the gauge of commercial aircraft operating in the peak hour.

A **minimum of three (3) self-serve check-in kiosks are required to satisfy peak hour passenger demand by 2031**; however, we recommend that the total number of kiosks be increased to improve space utilization in the check-in area. It is assumed that 70% of PHP will use the self-serve check-in kiosks at CKIA by 2041 and that self-serve check-in processing time will improve from 120 seconds per PHP to only 90 seconds per PHP. It is estimated that 60% of PHP will utilize the self-baggage drop facilities by 2041, and baggage drop-off time will reduce from 180 seconds to 80 seconds per PHP with improved or optimized baggage processes in future. An estimated **15 m^2 will be required to support self-baggage drop facilities at CKIA**.

The **queuing area for traditional counters is calculated to be a minimum of 27 m^2**, but we suggest that based on slower-than-optimal check-in times in 2019, additional space and counters be provided to accommodate future PHP demand while maintaining an optimal level of service in the terminal. The current facilities are limited in space, and it was observed and reported that passenger check-in queues often extend out through the landside terminal doors onto the terminal curb. **A minimum of four (4) traditional check-in counters are required to support passenger demand by 2041**.

The potential for improving check-in is supported by the potential use of self-serve baggage drop facilities. It is assumed that up to 60% of departing peak-hour passengers will utilize self-service baggage drop facilities in the terminal. As such, it is estimated **that a minimum of two (2) self-serve baggage drop positions are required to support the passenger self-service check-in process by 2041**.

For future flexibility and ease of configuration, we suggest increasing the available space for additional self-service kiosks and bag drop positions and traditional counters, which allows the ability to add counters for new airlines in future.

7.3.7.3 Baggage Make-Up Positions

Passengers departing bags are delivered to the aircraft via a system of carousels, chutes, or laterals to baggage make-up positions, where they are loaded into baggage carts or ULDs for delivery to the apron and loading onto the aircraft. The number of make-up positions allocated per flight will vary depending on the expected volume of baggage, the flight-build time (the time it takes to load all the bags for a flight onto carts or ULDs), and the number of segregations into which bags must be sorted (e.g., priority vs. regular bags). This can vary from one (1) or two (2) positions for small aircraft to ten (10) or more for large, widebody aircraft with complex terminating and transfer products.

Utilizing the nominal schedule and common peak hour make-up positions required for the planning year 2041, we have determined the number of baggage make-up positions required and the length of baggage make-up carousels. Based on a peak hour of two (2) simultaneous aircraft movements in 2041, we have determined that **twelve (12) make-up positions and a minimum of 47 m length of baggage carousel frontage are required**.

7.3.7.4 Security Screening

The security screening configuration and the number of processing units are considered a constraint to passenger flow and a choke point in the CKIA terminal building. The processing time is generally good at 80 seconds per PHP; we assume that security processing times will be improved by 2031 to 30 seconds per passenger (through the 2041 planning year).

It is assumed that passengers will spend an average of 10 minutes in the security queue and will require 1.2 m^2 each for an estimated 89 m^2 through 2031, after which this space may be reduced to 69 m^2 (pending reduction in the gauge of commercial aircraft in the peak hour). At least three (3) security processing channels are required through 2031, which may be reduced by 2041 if the gauge of aircraft operating in the peak hour is reduced by that time.

The current building size and layout limit the configuration of the security processor to not more than one (1) processing unit available at a time, leading to ongoing security queue management concerns in peak hours. This may be alleviated by **replacing existing security equipment with modern, higher-throughput security screening equipment (CTX machines) and expanding the security processing area to enable at least two (2) security processing units by 2031 through 2041**.

7.3.7.5 Boarding Gates and Departure Hold Rooms

Based on the IATA ADRM (12th Edition), it is calculated that the **air terminal building will require at least three (3) to four (4) narrowbody boarding gates** to accommodate simultaneous flights and passenger demand in 2041.

No widebody boarding gates or departure holding rooms are required in future.



An average of 1.5 m^2 is required for each standing passenger, and 2.2 m^2 is required for each seated passenger. It is assumed that seating will be provided for 70% of peak-hour passengers. It is assumed that each flight has a gate occupancy time of 75 minutes, with a required **one hundred-eight (108) seats per departure hold room and a total of 306 m^2 space required for the gate lounge area**.

The number of boarding gates, the size of departure hold rooms and the number of seats available for departing passengers are estimated based on an *Optimal* level of service and are driven by passenger demand forecast and the number of flights operating in the peak hour.

7.3.7.6 Aircraft Gate Stands

To **accommodate the peak hour aircraft parking demand in 2041, a total of three (3) Code C stands are required** (including a 25% buffer). Additional aircraft parking areas for GA aircraft and smaller Code B commercial aircraft storage (hangarage is desirable based on potential services to Little Cayman from Cayman Brac and the potential for new private aviation demand to be facilitated at CKIA.

7.3.7.7 Immigration Facilities (CICBC)

Arriving international passengers are required to proceed through the CICBC immigration processing facility at CKIA. There are two (2) traditional counters (staffed) but no automated kiosks at CKIA CICBC. We have estimated the requirements for both types of processors in future. In 2022 – 2023, CAL had not yet returned to service the Cayman Brac to Miami flights.

We estimate 57 to 74 peak-hour arriving passengers by the 2041 planning year and that 75% of all arriving passengers will use the traditional counters. We assume that each passenger needs 1.2 m^2 of space and spends no longer than 10 minutes in the queue. Processing times observed at 100 seconds in 2019 are reduced to only 60 seconds by 2031 through 2041 based on assumptions of improved CICBC staff processing capabilities in future. As such, **four (4) traditional counters and an area of 109.1 m^2 space for queueing will be required by 2041**, although additional counters and space are likely required in the interim period due to slower processing times.

Similarly, we calculate the demand for self-serve kiosks in the immigration hall will be approximately 40% of all arriving peak-hour passengers, taking 60 seconds per passenger and a maximum of 10 minutes in the immigration queue, and with 1.2 m^2 for each peak-hour arriving passenger. As such, we calculate the need for **six** (**6) kiosks and a queueing area of 35.6 m^2 by planning year 2041**, although additional kiosks and space may be required in the interim period due to slower processing times.

7.3.7.8 Baggage Reclaim Belts

Arriving passenger baggage is transported into the terminal from the aircraft by tug and cart and offloaded onto baggage reclaim belts. We estimate the number of baggage reclaim belts for narrowbody aircraft and have assumed the ratio of passengers to bags at 90% and the average ratio of one (1) bag per passenger, with a bag claim occupancy time of 20 minutes.

Although only one (1) baggage reclaim belt is required in the peak hour in 2041, based on an average of only 2 Code C aircraft movements in the peak hour (each with 160 seats per aircraft and an average 85% load factor), a second baggage reclaim belt is required should there be a domestic and international flight occurring simultaneously at CKIA. This also provides some operational redundancy should one belt be out of service. **CKIA will therefore require two (2) baggage reclaim belts and a total of 64 m of carousel frontage length**.

7.3.7.9 Customs Processing

Based on the peak hour arriving passenger demand in 2041, it is assumed that 5% of arriving passengers have declarations to make; that the queue wait time is no longer than 5 minutes; that the customs processing time takes 300 seconds; and that each passenger in the queue needs 1.8 m of space. We calculated that **three (3) primary inspection booths are required**, and **an area of 28.3 m^2 is required for customs queueing**.

7.3.8 Summary 2041 planning year requirements

Table 7.8: Summary 2041 Planning Year Requirements

	Existing Capacity 2022			Demand Capacity 2041		
	CYB Airport			CYB Airport Requirements		
According ADRM Calculations	Classic	Auto	Total	Classic (incl. buffer)	Automated (incl. buffer)	Total (incl.
Check-in	2	0 (BD)	2	4	3 (BD)	7
Security Screening	1	-	1	2	-	2
Immigration	3	0	3	6	4	10
Gates	2 (NB)	-	2	4 (NB)	0 (WB)	4
Baggage Reclaim	1 (NB belt)	-	1	2 (NB belts)	0 (WB)	2
Customs Control	3	-	3	4 positions	-	4
Aircraft Stands	2 (NB)	0 WB	2	3 (NB)	0 WB	3

Notes:
BD = Bag drop
NB = Narrowbody aircraft
WB = Widebody aircraft

7.4 New Little Cayman Airport, Little Cayman

The New Little Cayman Aerodrome (LCB2) is a replacement to EBA / LCB; the new airport is to be located on government land set aside for such purposes over two decades ago. There are no other sites available for the development of an aerodrome that was explored, in large part because a site selection study was not part of the ADP.

There will be a runway, a short taxiway, an aircraft parking apron, a terminal, landside facilities, curb and parking lot facilities and a maintenance building with an ARFF shelter.

The requirements for LCB2 were determined for the 2041 planning year (a 20-year timeframe from 2022). The 2041 planning year provides the basis for infrastructure and facility requirements to accommodate air traffic and passenger-related demand.

LCB2 must be a fully certified public airport that meets all applicable aerodrome standards found in the ICAO Annexes 14 and 17, and which meets the standards and requirements found in the OTARs Part 139 and Part 178, and which satisfies the CAACI's concerns related to aviation and public safety on Little Cayman.

7.4.1 Airside Facility Requirements

LCB2 will be served by **a single runway,** a single, 90-degree runway entrance/exit taxiway, and a small commercial **aircraft apron for one (1) Code C aircraft, one (1) Code B aircraft and possibly space for a few small GA aircraft**.

The new runway will be capable of accommodating short-haul Code A through Code C aircraft operations, the largest being an ATR-42 or ATR-72 from Grand Cayman in future. The only commercial aircraft operating at LCB today is the DHC-6 Twin Otter operated by CAL. LCB2 will not accommodate international air traffic.

The capacity of the runway system will be limited in the initial phases of the airport, and no parallel taxiway will be required for the foreseeable future due to the estimated low volume of aircraft movements forecast for Little Cayman. The mix of aircraft is small to medium size aircraft. The runway may require movement restrictions during certain times of the day when bird migration to/from Little Cayman Island occurs (at dawn and dusk). Otherwise, the runway is to be lighted and available 24/7 for MEDEVAC aircraft operations to conduct urgent or time-sensitive patient transfers by air (fixed and/or rotary wing capable).

7.4.1.1 CRITICAL AIRCRAFT AND AIRCRAFT MIX

The critical aircraft mix at LCB2 is as follows:

- 15% Code A
- 75% Code B
- 10% Code C
- 0% Code D
- 0% Code E



The most common aircraft in the 2041 planning year peak hour is the CAL-operated Saab 340 and or its future replacement (an ATR-42 /-72). The critical aircraft in terms of runway, taxiway and apron facilities planning is the Code C ATR-72 aircraft.

Peak-hour aircraft movements, as indicated in Section 6, are not expected to increase beyond two (2) to three (3) aircraft movements per hour. The future replacement of the Saab 340 and DHC-6 Twin Otter by CAL will likely result in a larger turboprop aircraft with 50 to 75 seats, such as an ATR-42 or ATR-72, but no significant increase in movements.

7.4.1.2 RUNWAY AND TAXIWAY SYSTEM

The future Runway 07-25 (alignment based on wind rose provided by CIAA) is a planned, non-instrument, Code C capable runway. There is to be a single 90-degree entrance/exit taxiway A connecting the aircraft parking apron to the central point of the runway. There are no parallel taxiways nor runway turnaround bays at the runway ends required in the initial phases. There is sufficient time for aircraft to conduct backtracking operations on the runway, maintaining a visual and listening watch for other air traffic.

7.4.1.3 AIRCRAFT APRON

The aircraft apron must accommodate the peak-hour demand for airline parking positions while ensuring some redundancy to enable temporary overflow parking should there be a push-back delay, or a gate stand hold due to air traffic conflicts. The *estimated* peak hour demand for aircraft stands is:

- Code B Aircraft: 1 aircraft stand
- Code C Aircraft: 1 aircraft stand
- Redundancy: 2 to 3 GA aircraft parking stands, 1 helicopter stand
- **Total Aircraft Stands: 4 to 5 stands are required to accommodate parking demand.**

7.4.2 Landside Facility Requirements

7.4.2.1 LANDSIDE ACCESS ROAD

The landside access road is a single-lane bi-directional road from the south side of Little Cayman, at Spot Bay Road, connecting the airport with the majority of tourism resorts and hotels.

7.4.2.2 TERMINAL CURB

There is dual lane terminal curb, with one curb lane for passenger drop-off and pick-up, and an adjacent drive-through lane shared by both arriving and departing passengers arriving at LCB2 by taxi, private vehicle, or pre-booked shuttle van.

The landside curb has a small parking lot to accommodate passenger drop-off and pick-up by pre-booked shuttle van operators. The length of the curb is estimated based on the passenger profile and mode of transportation. Most passengers arrive by pre-booked shuttle vans.

By 2041, it is estimated that of the 50% of departing passengers using the departures portion of the landside curb, 10% will come to CKIA by private car, 20% by taxi, and 70% by shuttle van. Of the 50% of departing passengers not using the terminal curb, they would typically use the parking lot as they arrive in private cars.

Ground vehicle services available and modal choices for the planning year 2041 are estimated as follows:

- Private Car drop-off/pick-up: 1 vehicle/hour
- Taxis: 1 vehicle/hour
- Hotel Transfer Shuttle Vans: 4 vehicles/hour

The parking lot will only be large enough for approximately twenty (20) private vehicles to park, perhaps passengers who may be cottage owners or residents that are travelling on business from LCB2 and airport employees.

7.4.3 LCB2 Air Terminal Building

The planned air terminal building at LCB2 must accommodate the future passenger demand on a peak travel day, typically a Saturday when divers and tourists are travelling to/from Little Cayman. Such aircraft may be as large as a 75-seat ATR-72. The planned terminal can support two (2) 30-seat Saab 340 aircraft or a single ATR-72 aircraft with an average 85% passenger load factor.

The terminal would incorporate the following facilities and processors:

- 2 domestic check-in counters and 2 to 4 kiosks available for self-service check-in and 1 self-service baggage drop position
- 1 security screening checkpoint
- 1 departures hold room with a capacity of up to 80 people
- 1 arrivals hall large enough to accommodate up to 80 people
- 1 baggage reclaim belt, a simple system
- 1 terminal curb with space for 1 private van, 1 taxi and 3 to 4 hotel/resort shuttle vans

A combined service building with a maintenance garage and ARFF storage building is also required.

A perimeter road (packed gravel) is required for airport staff to conduct wildlife and security perimeter patrols; a fence or other barrier is required between the airport landside and airside parking areas to prevent unauthorized access.

As the airport layout, terminal concept and landside configuration are subject to an in-depth environmental impact assessment, a detailed planning model was not developed. However, the future demand for passengers at LCB2 is not greater than 30,000 to 40,000 passengers per year, and as such, demand does not appear to require additional facilities.

8 Airport Planning and Development Options

The planning of alternate development options is an important aspect of airport master planning. Each of the Cayman Islands aerodromes have limited land for development, runway and apron, terminal, and landside facility expansion, so consideration must be given to feasible development alternatives that facilitate future air traffic, passenger, and landside transportation demand.

The development of feasible configurations for each of airside, landside and terminals allows planners and airport operators the ability to recognize suitable aspects of each planning alternative that supports the larger airport development in a manner which supports safe, efficient, and cost-effective solutions to future demand scenarios.

8.1 Evaluation Criteria and Review

The following evaluation criteria and objectives were adopted for the ADP and utilized for adopting the preferred development options at each airport.

8.1.1 Airside Evaluation Criteria

- Must meet applicable requirements as indicated in current edition of ICAO Annex 14 and 17, and as required by the CIAA to maintain safe airport operational environments for aircraft operators, in the short term (0 to 5 years).
- Must be capable of accommodating peak hour operations of aircraft, passengers, and landside vehicles in the 2041 planning year.
- Must enable sustainable, efficient taxiing operations that realize reduction in fuel burn.
- Must be capable of accommodating the future fleet mix, including widebody (Code E) aircraft and small, GA aircraft at ORIA (limited to Code C at CKIA, and limited to Code B or C at EBA/LCB2.
- Must be cost effective.
- Must be the least disruptive to existing airfield operations and aircraft movements.
- Must be environmentally sustainable, both in the construction and operational phases of the proposed infrastructure.
- Must meet the requirements of the Green Book and be viable as per the ADP OBC.

8.1.2 Terminal Evaluation Criteria

- Must be capable of reducing passenger queues.
- Must meet applicable security requirements as indicated by the ASSI and as currently read in the OTARs.
- Makes use of the recently renovated and expanded air terminal building in a cost-effective manner.
- Must be structurally capable of supporting building expansion.

- Must be capable of accommodating peak hour demand and annual passenger volumes through 2041 and beyond while maintaining an 'Optimal' level of service as per the IATA ADRM (12th Edition).
- Must incorporate digitized and secure, common use systems that improve the efficiency of terminal operations for the CIAA, the airlines, and passengers.
- Must be able to protect passengers from the elements between the air terminal and the aircraft on the airside, and between the terminal and terminal curb on the landside.
- Must reduce walking distances for passengers that chose rental car options.
- Must be capable of accommodating the future demand and fleet mix on the commercial or terminal aircraft parking apron.
- Must be capable of optimizing security screening processes for both passengers and baggage.

8.1.3 Landside Evaluation Criteria

- Must meet applicable requirements as indicated in current edition of ICAO Annex 14 and 17, and as required by the CIAA to maintain safe / secure airport landside environments for the public, in the short term (0 to 5 years).
- Must be capable of reducing congestion for vehicles entering the airport which leads to reduced travel time to the airport.
- Must be capable of improving vehicle traffic flow into (entering) and out of (exiting) the airport.
- Must be capable of accommodating all rental car providers with facilities on airport.
- Must be capable of providing capacity for parking through the future planning year 2041.
- Must be capable of facilitating the mix of ground transportation services efficiently on the terminal curbs through the 2041 planning year.
- Must be cognizant of pedestrians and the pedestrian environment at and around the airport.
- Must accommodate employees parking at the airport, including airport, airline, ground handlers, fuelers and concession operators conducting business at the airport.

8.1.4 Environmental Evaluation Criteria

- The ENCA Green Book methodology to be applied to contemplated airport projects, which must meet the regulatory requirements for environmental protection and mitigation and requirements.
- Must be sustainable developments that reduces the overall environmental footprint while supporting future passenger and air traffic demand at the airports.
- Considers innovative approaches to production of green power and reduction in carbon emissions.
- Provides opportunities for the CIAA to implement water harvesting and recycling systems and requires all aircraft hangars to have oil/water separator equipment installed to prevent ground water contamination.

8.2 Airport Development Alternatives

8.2.1 ORIA General Aviation Terminal

Two main options were considered to support the current and future GA demand:

A) Develop a new GA terminal on the current site (west side of Fire Hall)

B) Move the GA Area to the area north of G Taxiway, close to North Sound (east of terminal)

The development of a GA terminal on the existing site is somewhat challenging due to the following constraints:

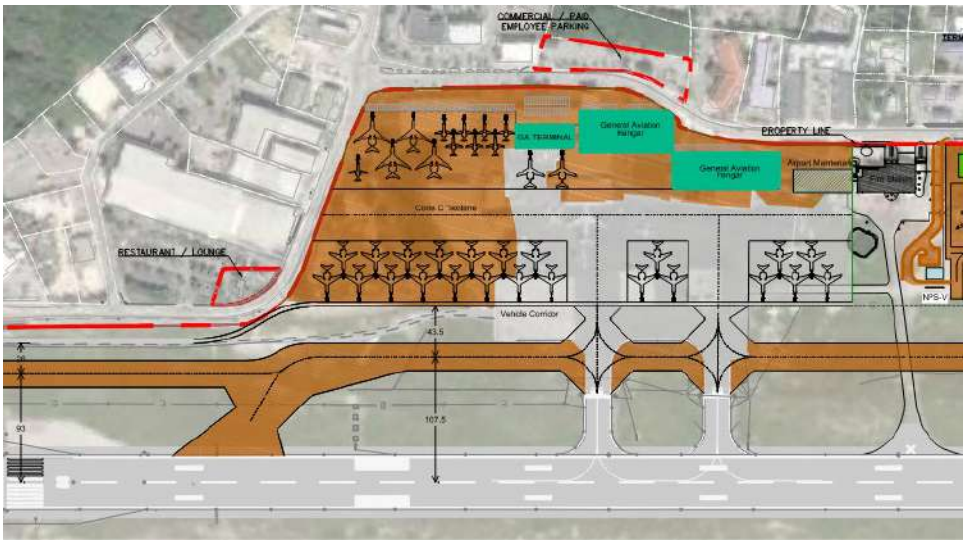
i) A modest apron expansion could occur but is limited by future parallel taxiway, the firehall and the Cayman Airways hangar and cargo areas. An apron expansion that accommodates future demand results in the demolition and relocation of the cargo and airmail facilities, the Cayman, and Island Air hangars.

ii) There is minimal space for landside parking close to a new GA terminal; a valet service and off-site parking resolves this issue yet requires CIAA to acquire additional parking space (close to the Cayman Airways Headquarters building on Roberts Drive.

iii) The surrounding aviation developments are industrial in nature, such as cargo operations, the Mosquito Research Centre facilities, ground handling operations and airport employee rest areas and washrooms. This type of surrounding development do not support the development of a high-end GA Terminal and apron.

The development of the new GA terminal in the current location (west of the Fire Station) resulted in the following alternative layout for consideration:

Figure 8.1: GA Terminal and Apron Expansion Alternative at Existing Location (West)



Consideration was given to an expansion of GA on the east side of the airport, north of Golf Taxiway. This area is currently populated by the SSR antennae and the Fire Training Area. The development of the GA terminal and aprons closer to North Sound at the east end of the airport would result in the following:

i. With G taxiway already newly constructed, taxiway links from G to a new GA apron would be short; the second taxiway link could be utilized by both GA aircraft and commercial aircraft destined for the main terminal apron.

ii. There is space for efficient, but safe allocation of space, the majority of which are on brownfield lands but does not require the demolition of existing facilities.

iii. Space for a separate heliport for Police/Medevac/Tourism helicopters is available north of the proposed GA Terminal.

iv. There is currently road access available to the proposed site which can be utilized by vehicles destined for the GA terminal.

v. A contemplated future marine dock can be located on North Sound with access to the GA site, reducing vehicle traffic on Roberts Drive.

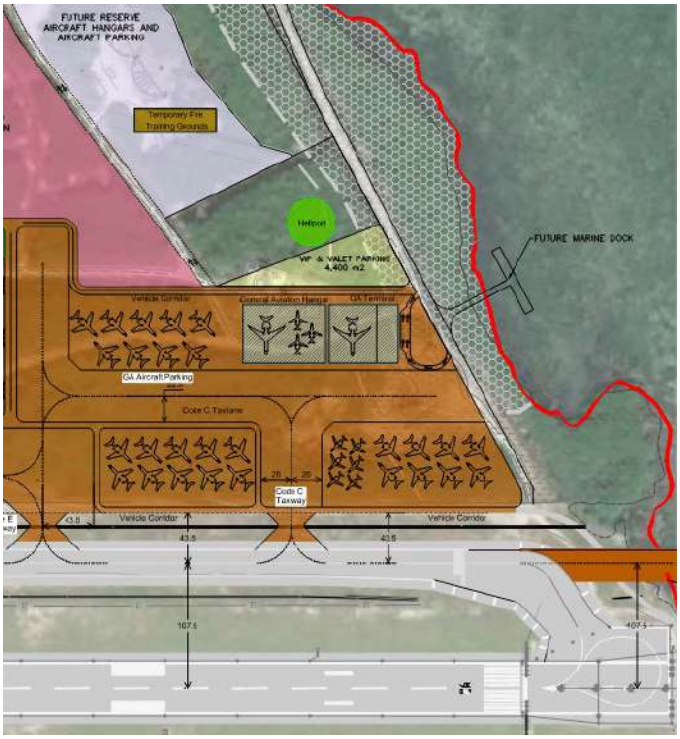
vi. There is room for expansion to the north, beyond the airport master planning period if required.

vii. The proposed area is less industrial (once the Fire Training Center, SSR Radar and Gun Club are all relocated) and has a natural quality with the mangroves and views to the North Sound, supporting a better experience for high net-worth individuals.



The development of a new GA terminal closer to the North Sound on the east end, north of G, resulted in the following alternative layout for consideration:

Figure 8.2: GA Terminal, North Sound Alternative



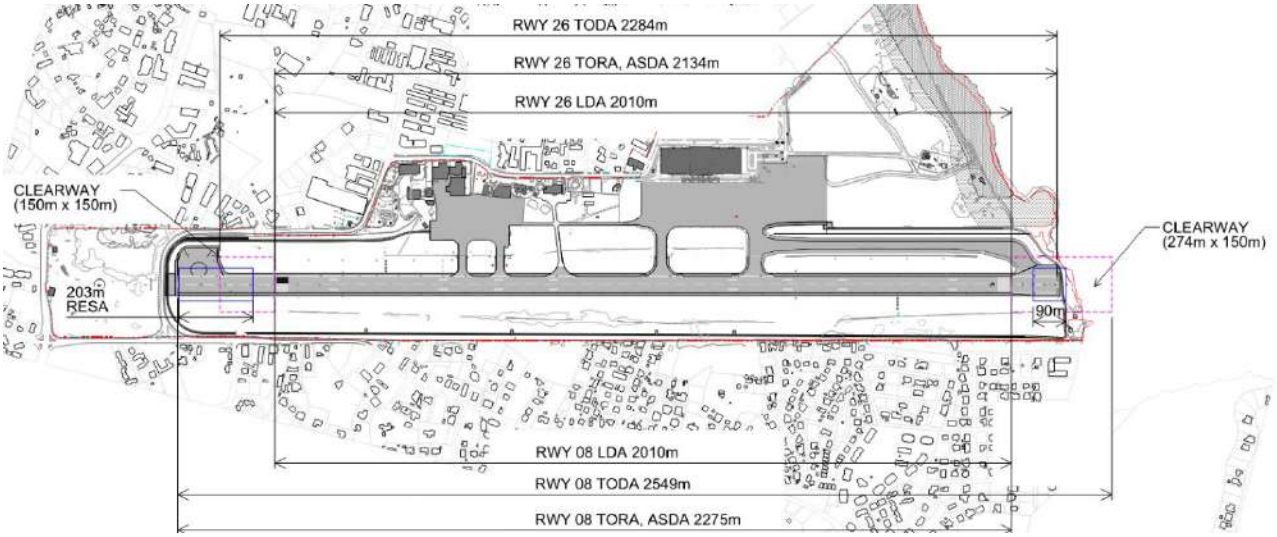
8.2.2 ORIA Airside Development Options

A number of alternatives were considered for the expansion of the airside operational areas at ORIA. The focus for the runway and runway strip environment, followed by the development of taxiways and apron areas necessary to support aircraft operations and future air traffic demand.

8.2.2.1 RESA Extensions

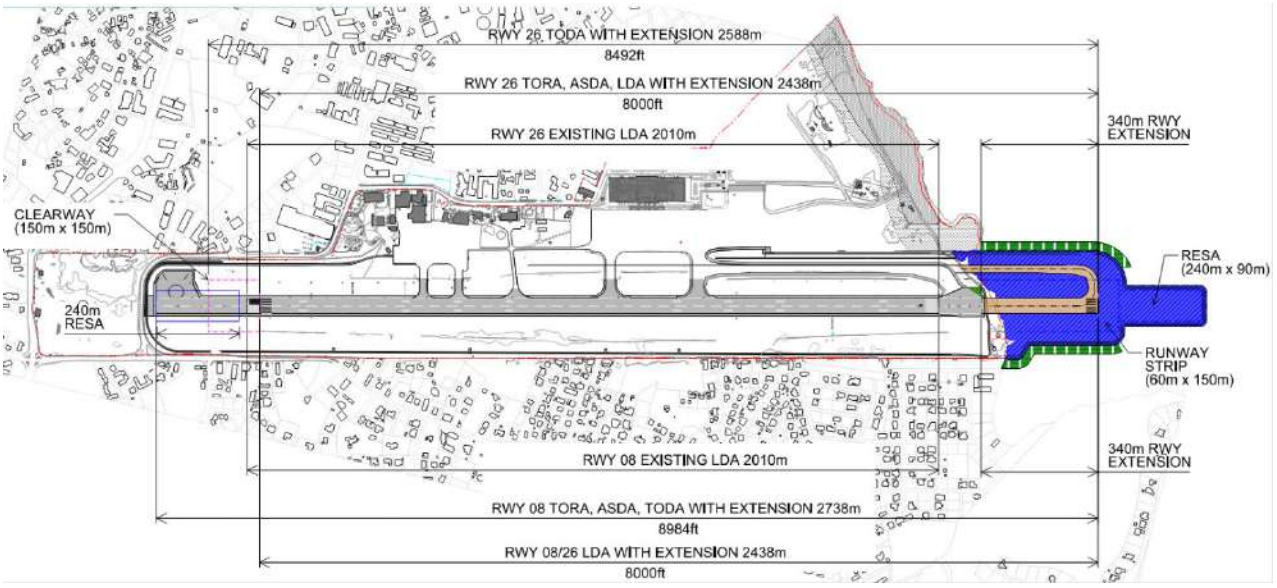
Both partial and full-length RESAs (runway end safety areas) were considered in planning runway improvements at ORIA. The existing RESAs for each of Runways 08 and 26 meet the minimum recommended standards for length, 295 ft. (90 m) beyond the 197 ft. (60 m) runway strip ends, by 295 ft. (90 m) wide (double the width of the 150 ft wide (45 m) runway). A separate risk assessment is required to determine the acceptable level of safety for aircraft operations at ORIA today.

Figure 8.3: Existing RESA for Runway 08 and 26, ORIA



Based on the forecast, and assuming new long-haul air services by widebody aircraft operating begin with a runway extension planned, it was determined that full-length 787 ft. (240 m) RESA length beyond the runway strip end, is recommended for Runway 08-26. Therefore, the Runway 08 RESA should be extended from 90 m to 240 m long; likewise, the Runway 26 RESA should be extended from 203 m to 240 m long.

Figure 8.4: Runway 08-26 with 240m x 90m RESA



8.2.2.2 Runway 08-26 Extension

As can be seen in the previous figure, a runway extension was contemplated as part of this airport master plan. The forecast determined the requirements for future potential for long haul, widebody aircraft services bringing passengers directly from the UK or other destinations. The Ministry of Tourism and Transport indicated that the opportunity to attract additional long-haul passenger air services was curtailed due to the existing runway length. Both BA and Virgin Atlantic have indicated the need for a longer runway to support non-stop long-haul flights. Two runway extension were considered:

a) An extension in the landing distance available (LDA) to accommodate the existing long-haul service provided by British Airways using a B-787 to LHR, (London Heathrow); and

b) An extension that would accommodate a broader widebody aircraft fleet mix yet focussed on the aircraft most likely to operate on a London, UK to George Town direct route.

Both options were determined to be feasible based on desktop analysis and obstacle survey information provided; however, it is recommended that a marine vessel and obstacle hazard assessment be completed as a separate study, prior to any detailed design of a contemplated runway extension.

Alternative A: 200 m Extension, GCM – LHR Non-Stop Flight (787-8)

The payload/range analysis focused on flights operated by the Boeing 787-8 and three (3) payload scenarios:

- 85% passenger load factor;
- 100% passenger load factor;
- 85% of maximum payload.

Corresponding take-off runway length requirements for the Boeing 787-8 aircraft at these payloads are summarized in Table 8.1 and Table 8.2.

Table 8.1: Boeing 787-8 Take-off Runway Length

Maximum Number of Passengers[1]	Load Factor	Payload (lbs)[2]	Take-off Weight (Payload + Fuel to LHR[3])	Runway Length (ft/m)[4]
359	0.85	61,030	425,000	7,072/2,155
359	100	71,800	438,000	7,488/2,282
359	100	80,750[5]	448,000	8,112/2,472

Notes:

1 Based on all-economy class seating (787 Airplane Characteristics for Airport Planning, Rev N, October 2021).

2 Based on 200lb/passenger plus baggage

3 GCM to LHR: 4,173nm

4 Based on take-off on the average hottest day of the year at GCM. Take-off weight determined from F.A.R Takeoff Runway Length Requirements performance charts given in Boeing Airplane Characteristics for Airport Planning publications. Take-off length corrected for elevation, runway slope and temperature.

5 Maximum payload includes maximum passengers plus cargo.

The analysis included the take-off runway required by the Boeing 787-9 at 85% of maximum payload.

Table 8.2: Boeing 787-9 Take-off Runway Length

Maximum Number of Passengers[1]	Load Factor	Payload (lbs)[2]	Take-off Weight (Payload + Fuel to LHR[3])	Runway Length (ft/m)[4]
406	100	102,000[5]	504,000	8,120/2,504

Notes:

1 Based on all-economy class seating (787 Airplane Characteristics for Airport Planning, Rev N, October 2021).

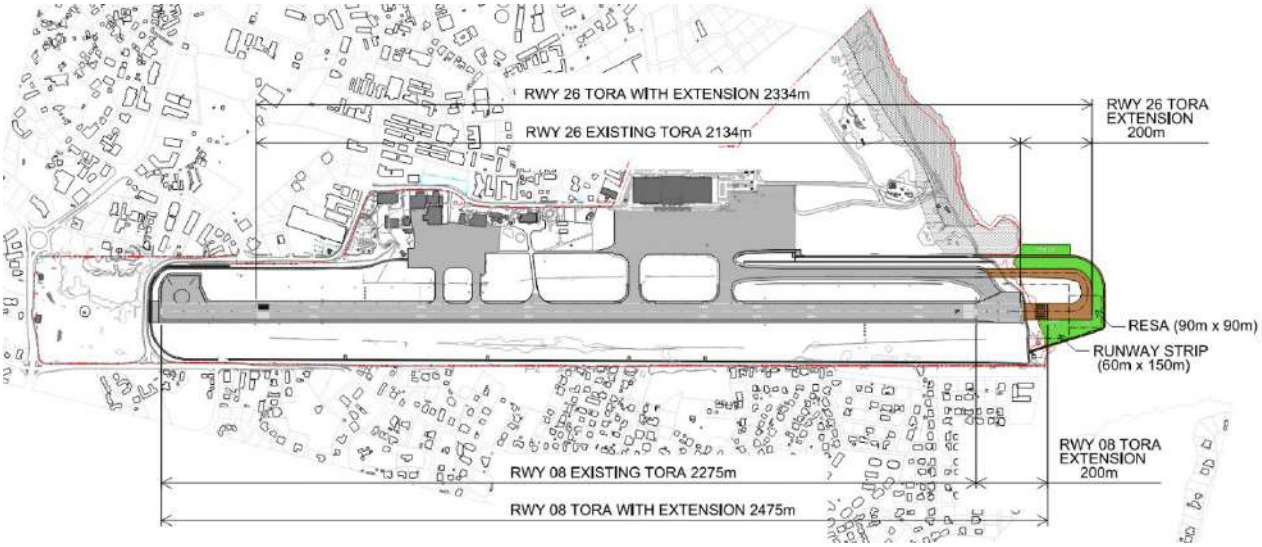
2 Based on 200lb/passenger plus baggage

3 GCM to LHR: 4,173nm

4 Based on take-off on the average hottest day of the year at GCM. Take-off weight determined from F.A.R Takeoff Runway Length Requirements performance charts given in Boeing Airplane Characteristics for Airport Planning publications. Take-off length corrected for elevation, runway slope and temperature.

5 Maximum payload includes maximum passengers plus cargo.

Figure 8.5: Contemplated 200m Extension, Runway 08-26



It was decided that the analysis supported a 200m eastward extension resulting in the following increases in TORA (Figure 8.5 above):

- RWY 08 TORA from 7,464ft/2,275m to 8,120ft/2,475m;
- RWY 26 TORA from 7,001ft/2,134m to 7,250ft/2,334m.

The extension was discussed with British Airways, who claimed that this would significantly benefit many of their aircraft types in terms of permitting more flights non-stop to LHR with maximum passengers plus baggage.

Alternative B: 340m Extension, GCM – LHR+ Non-Stop Flights (B787/B777/++)

Based on a request from the Ministry of Tourism to Virgin Atlantic Airlines, the master planning team prepared a second option for a runway length with a minimum landing distance available (LDA) from Runway 08-26 of at least 8,000 foot (2,439m).

The OLS and obstacle environment for Runway 08-26, and the potential marine vessels transiting through the North Sound are both limiting factors for an 8,000 ft. LDA.

The extension of Runway 08-26 would enable long-haul flights from destinations from further away than just London and would potentially open up a larger market of tourists able to visit the Cayman Islands.

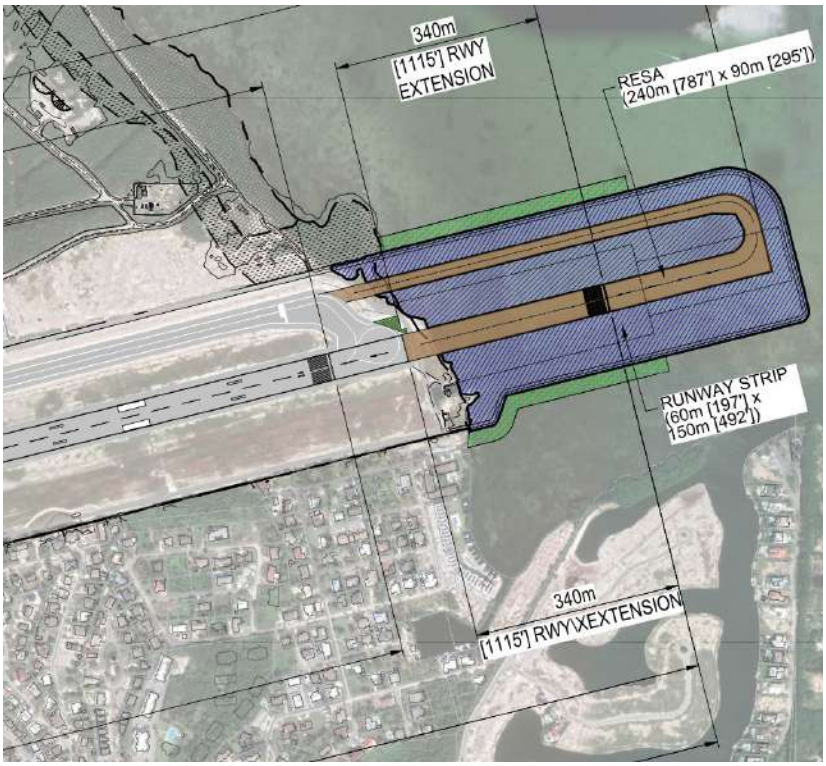
Two options for Alternative B were proposed:

B.1: Runway Extension (to 8,000 ft. LDA) with started extension to increase take-off run available (TORA) from Runway 26

B.2: Runway Extension (to 8,000 LDA) with no starter extension to increase TORA from Runway 26

The figure below indicates the layout of the Runway 08-26 with an LDA of 8,000 ft. (2,439 m).

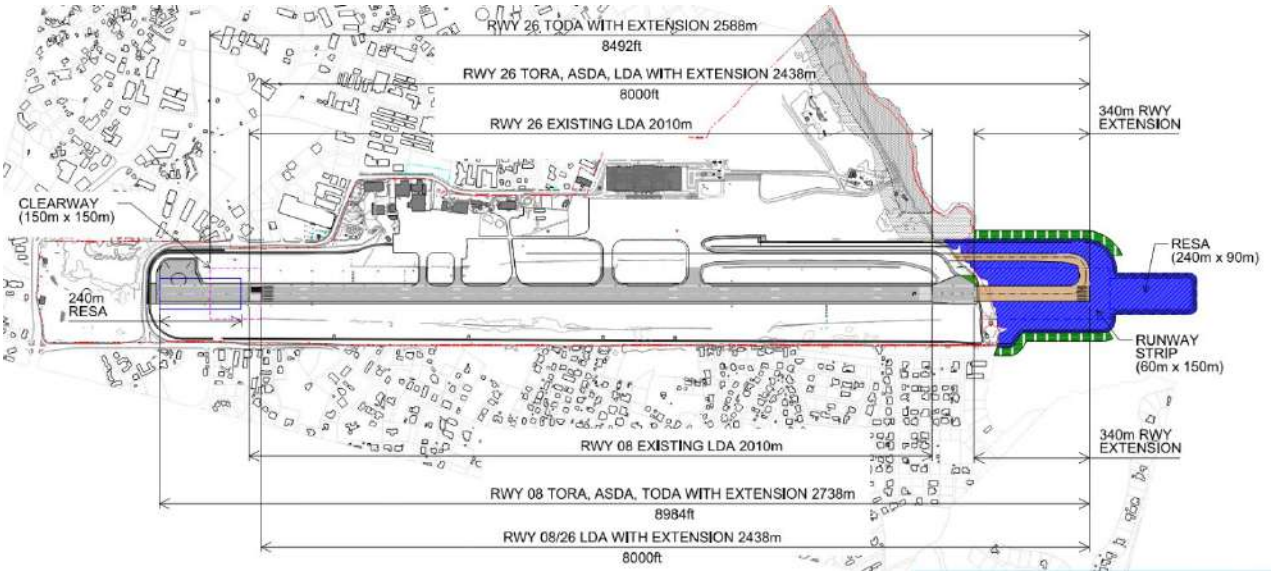
Figure 8.6: Contemplated Runway 08-26 Extension to 8,000 ft LDA, with Start Extension



The runway starter extension increases the TORA for Runway 26 significantly; however, this runway is rarely used (generally brief periods during tropical storms).

The figure below indicates the layout of Runway 08-26 with an 8,000 ft. LDA without a runway starter extension.

Figure 8.7: Contemplated Runway Extension, 240m RESA, no Starter Extension

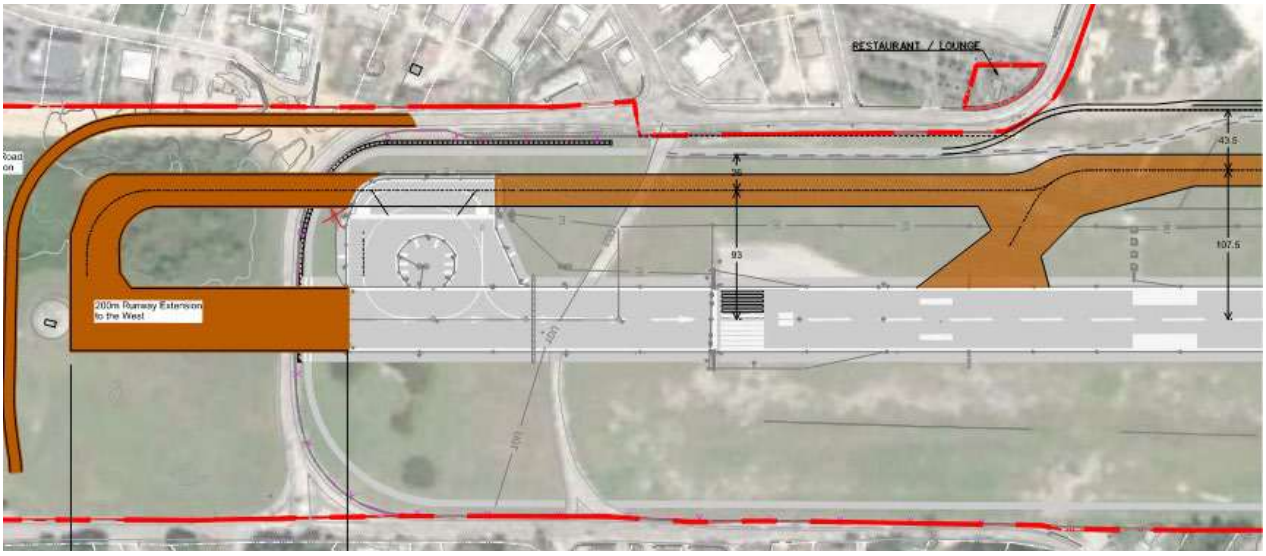


The Runway 08-26 extension with a starter strip has a much greater impact on marine activities in the North Sound, however, both options for runway extension indicate a full-length (240 m) RESA to enhance the level of safety of the runway environment at ORIA.

The VOR/DME antennae is to be decommissioned in the near future; the lands that this equipment sits on is well suited for the extension of a fully compliant RESA at the west end of Runway 08-26. The cricket field may be impacted in this case. If the Runway 08 threshold were to be relocated further west, this action would require the removal of obstacles (building tops, antennae) in George Town, to the west of ORIA. By improving the obstacle environment west of Runway 08-26 and by relocating Crewe Road, the CIAA could thereby reduce the amount of runway extension required into the North Sound.

However, a runway extension to the west was dismissed early in the process; the NRA was adamant that Crewe Road could not be easily relocated due to its critical nature accommodating heavy, daily vehicle use. Although the lands between the existing runway's west end, and the Cayman Cricket Club lands, will be available for use, the obstacle environment to the west of the airport lands, is a key factor in dismissing this option. However, this option may become feasible in future, should the NRA have an alternate plan for traffic management around the west end of the airport.

Figure 8.8: Contemplated Runway 08-26, 200m Extension West



8.2.2.3 Taxiway Network

There are limited taxiway expansion options; the key is to improve the peak hour capacity of Runway 08-26 and to alleviate the hotspots that are located at Taxiway A and B, and at the intersection of Taxiway F and G.

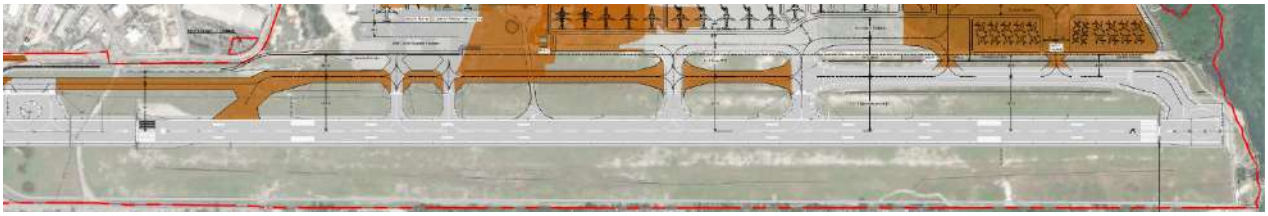
The apron depth was found to be key to the expansion of the taxiway network. The apron depth allows for the potential of a Code E taxi lane on the south edge of the main commercial apron and GA apron, while leaving space for a full-length, parallel taxiway.

The alternatives explored included the use of a full-length Code E parallel taxiway vs a partial-length Code E parallel taxiway with the final west portion as a Code C only (whereby code E aircraft will be required to enter the runway west of the MRCU Hangar.

The second alternative was found to be feasible, whereby consideration for the full-length parallel Code E taxiway was dismissed due to the high cost of relocation of existing services, facilities, and other business on Roberts Drive.

The following taxiway layout was proposed, as shown in Figure 8.9.

Figure 8.9: Proposed Full-Length Parallel Taxiway



8.2.2.4 Apron Expansion Alternatives

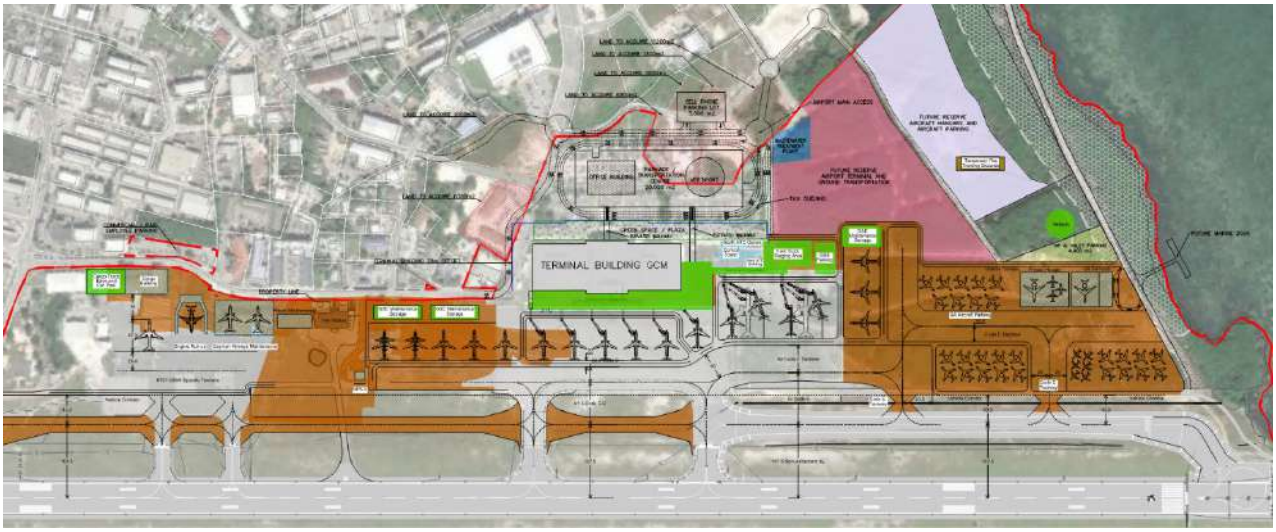
The apron expansions contemplated at ORIA as part of this master plan include the following:

a) Main apron expansion to accommodate the future commercial aircraft in the peak hour
b) General Aviation apron expansion to accommodate future GA demand in peak months.

The space available around the terminal allows for expansion in either a linear manner or in an 'L' shaped configuration, turning north (as indicated in the previous master plan).

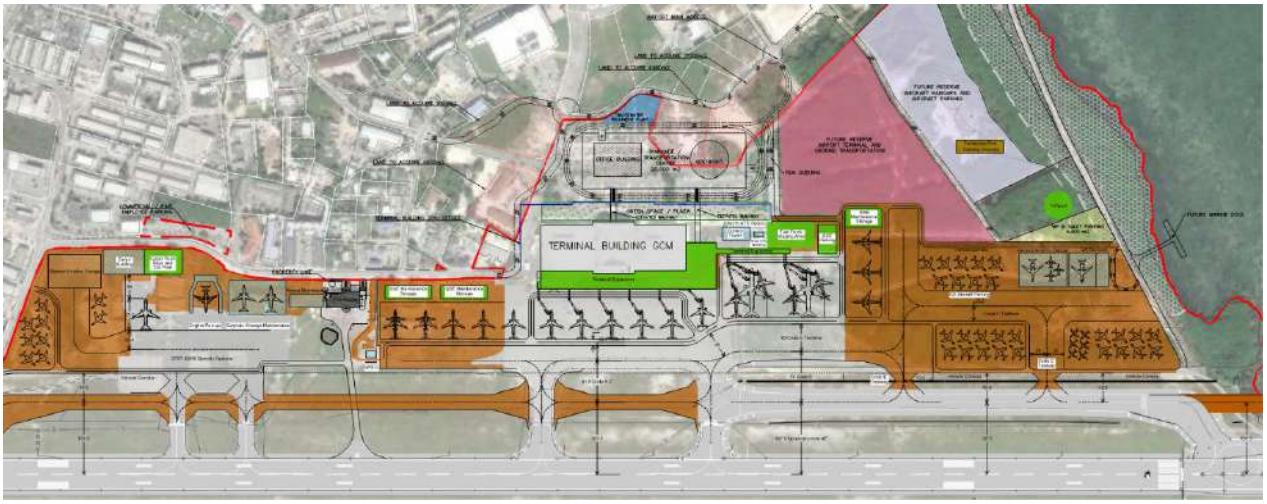
The following GA and passenger apron concept, with landside and terminal configuration options include the GA area to the east (North Sound site), a linear passenger terminal configuration and a landside layout that includes the requirement to acquire the property north of the existing public parking lot. The planned Ground Transportation Center (GTC) is proposed to be three (3) levels. No changes required to the MRCU facility.

Figure 8.10: Apron, Terminal & Landside Expansion Alternative 1



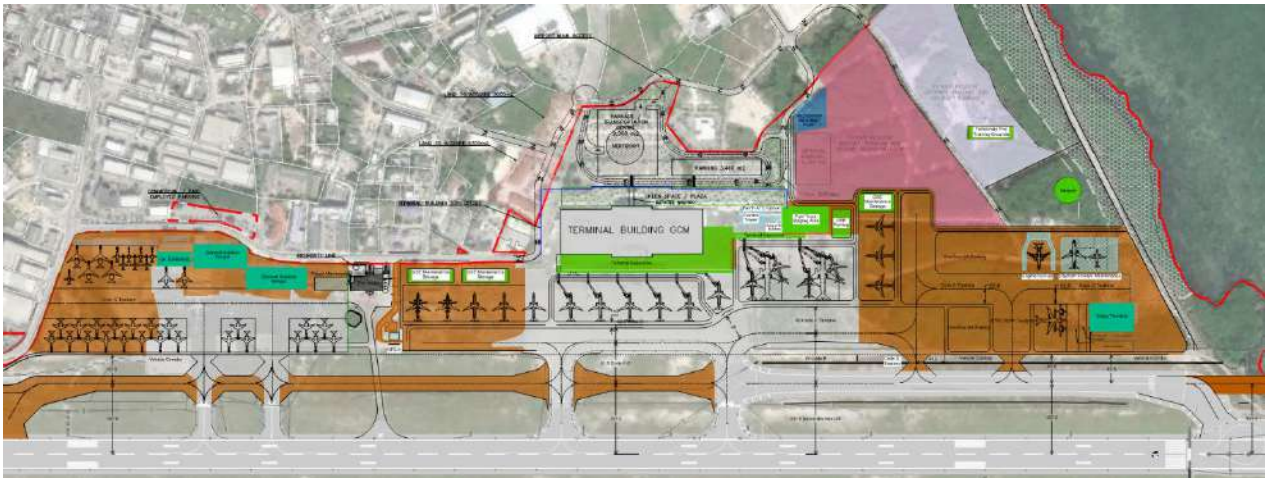
The following figure indicates a similar terminal apron and building configuration, but additional GA hangar and a dedicated cargo area is provided in the west end, and MRCU is relocated to accommodate a larger GA aircraft parking apron next to the cargo apron. Additional landside acquisition (in the light pink and blue hatched areas) is required, in addition to that indicted in the first alternative above. The GTC is proposed to be three (3) levels and will provide space for covered, public parking in addition to provision of covered space for rental car concessions including parking stalls for rental cars. The top floor will be the foundation for an office tower, the number of levels and space required yet to be determined. A vertiport is also contemplated.

Figure 8.11: Apron, Terminal & Landside Expansion Alternative 2



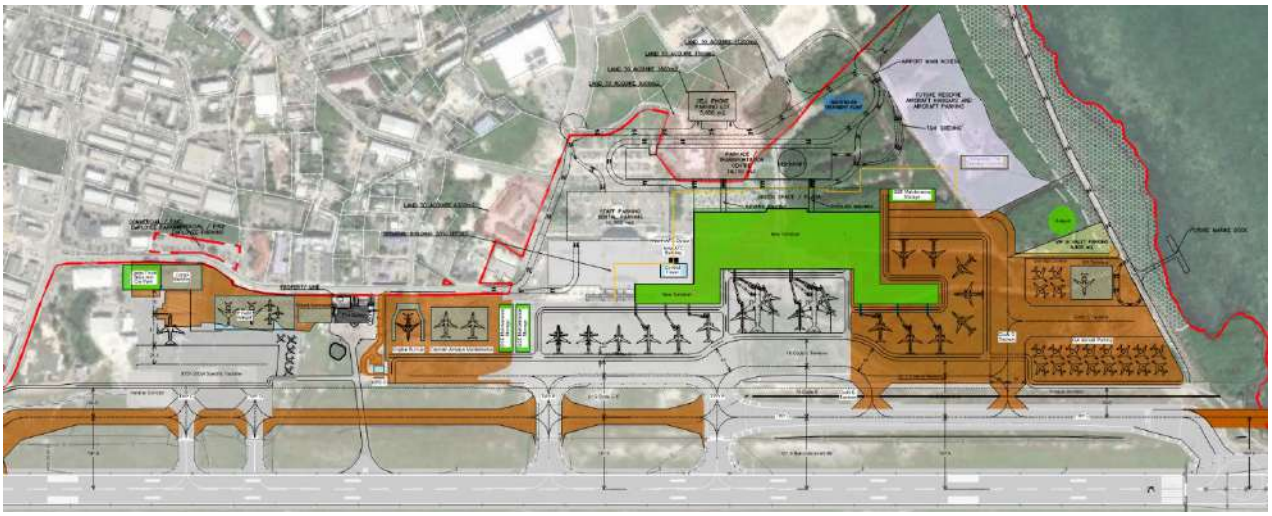
The next alternative proposes that all GA activity remain in the west end, and other facilities removed to accommodate the future demand for aircraft parking with additional hangars and hangar alignments. This alternative also reduces the amount of landside property acquisition needed to accomplish the plan. However, the GTC is proposed to be five (5) levels in this alternative. The Cayman Airways hangar and heavy aircraft maintenance bays are relocated to the North Sound Site, and the GA terminal remains in the west.

Figure 8.12: Apron, Terminal & Landside Expansion Alternative 3



The last alternative developed combined the airside, landside, and terminal concepts to achieve a concept that requires a new air terminal building, and demolition of the existing terminal. The landside layout requires additional property acquisition and the need to develop the landside mangrove area to a larger extent. The air terminal building is a horseshoe configuration, with the widebody MARS stands in the center. This alternative plan splits the GA hangar and apron spaces available between the west and east ends.

Figure 8.13: Apron, Terminal & Landside Expansion Alternative 4

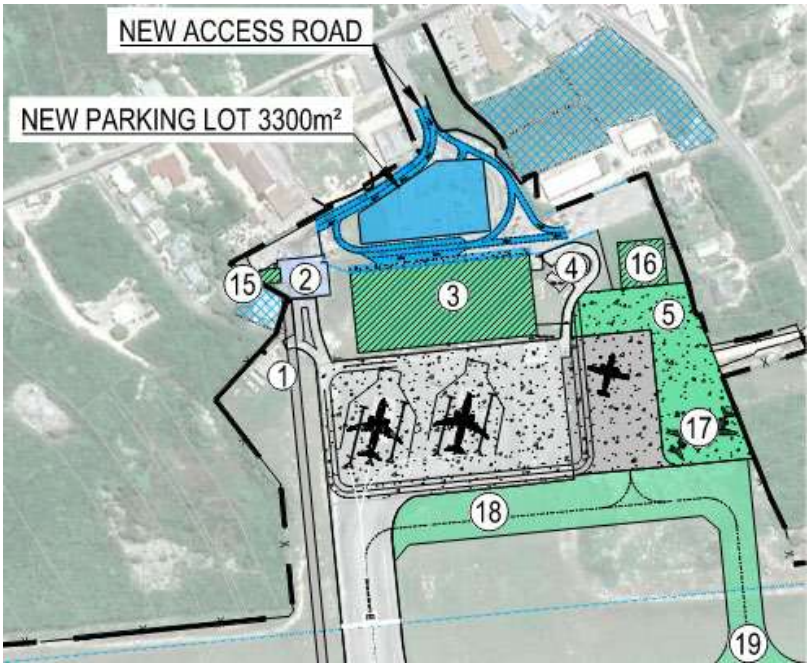


8.2.3 CKIA

Two main alternatives were considered for CKIA, based on potential regulations that may impact the airport. In particular, the 100 ft (30 m) setback from the terminal to the terminal curb and public vehicles may become a reality for Cayman Brac in future pending the results of future security audits by ASSI. A similar regulation is being enforced at ORIA and should the airport become busier, the CKIA may also be required to meet the standard for a 100 ft. (30 m) setback.

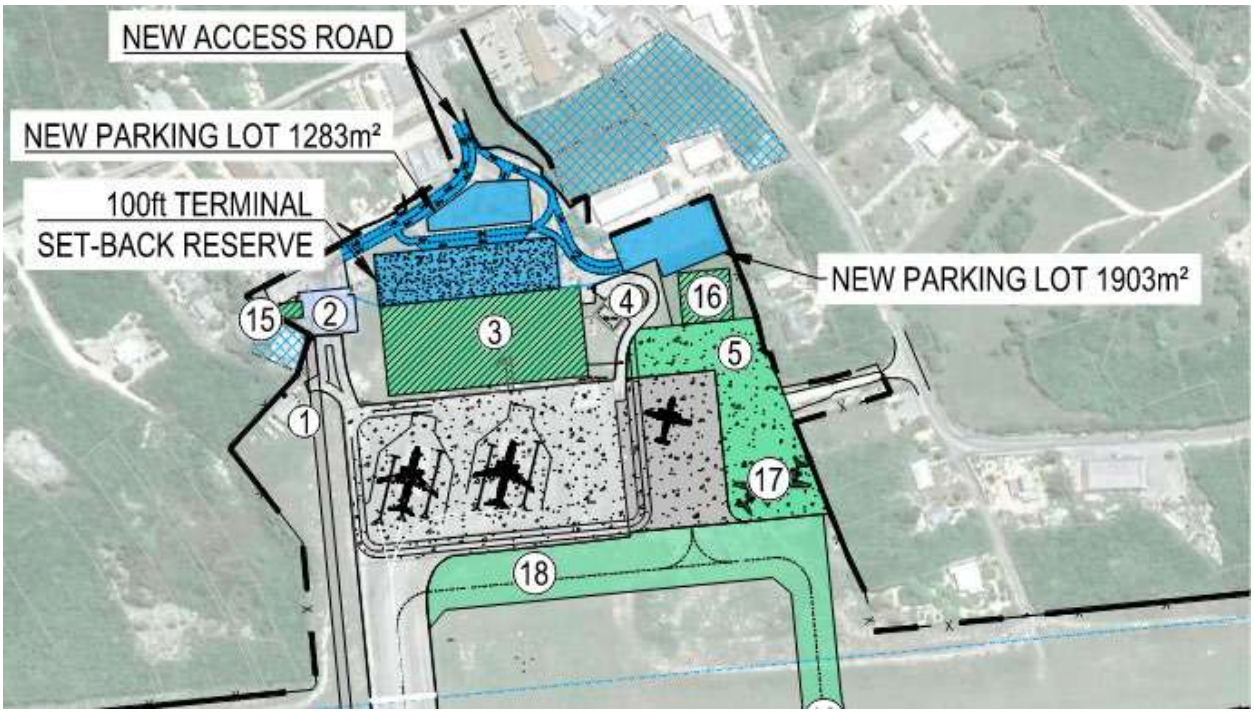
The first alternative considers terminal expansion without the need for the 100 ft. (30 m) setback, although additional space for parking is still required. These areas are shown in the blue hatched area and are lands that must be acquired.

Figure 8.14: CKIA Layout Alternative Development Option 1 – No 100 ft. Setback from Terminal



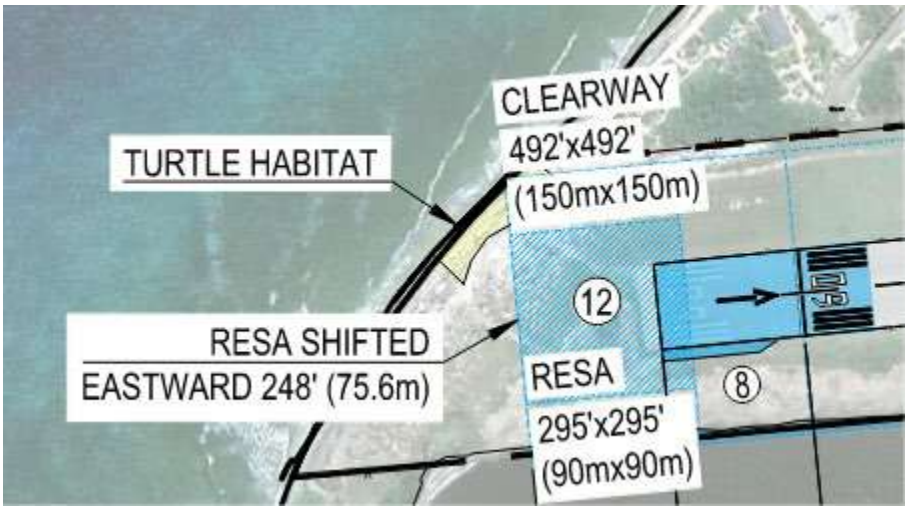
The next iterative plan shows the terminal with a 100 ft. (30 m) setback included; this constrains the landside area significantly and requires additional access road, circulation, and parking lot expansion.

Figure 8.15: CKIA Alternative Layout Development Option 2, with 100 ft. Setback from Terminal



Alternatives for the development of RESAs at CKIA were considered; however, since the planning team learned of the potential for turtle nesting sites on the beach west and north of the runway, it was decided that the RESAs must remain away from the potential turtle nesting sites. In addition, the significant depth of the water off the west end of Runway 09-27 suggests that extending the RESA west would be uneconomical. Figure 8.16 indicates the displaced threshold for Runway 09, as a result of keeping the RESA away from the potential turtle nesting sites.

Figure 8.16: Runway 27 RESA (West End)



8.2.4 Edward Bodden Airfield

Three main alternatives were considered to develop an airport on Little Cayman Islands that meets the needs of residents, the airline and current aerodrome operator, (CAL) and the CIAA as a potential future operator, while meeting applicable aerodrome standards based on ICAO Annex 14.

a) Expand the existing aerodrome to meet a Code 2C non-instrument runway standard
b) Close the existing aerodrome, and build a new aerodrome on lands designated by CIG
    i. Code 2C non-instrument runway, 4,000 ft. long
    ii. Code 3C non-instrument runway, 5,000 ft. long
    iii. Code 3C non-precision instrument runway
c) Close the existing aerodrome, develop a new public heliport with a new ferry service between Cayman Brac and Little Cayman
d) Close the existing aerodrome, develop a new water aerodrome with a new ferry service between Cayman Brac and Little Cayman.

The alternatives were developed understanding that residents generally held a strong preference to leaving the aerodrome unchanged, to maintain the unique, charming Island characteristics and culture. However, this master plan must accomplish the requirements while planning alternatives that meet all applicable regulatory requirements.

The Little Cayman alternatives considered the predominant winds, the obstacle environment, residential and resort locations, wildlife hazards and other environmental conditions. It is understood that a full EIA will be required for the preferred development.

Full size drawings of all alternatives are provided in Appendix E.

8.2.4.1 EBA, Expansion to 3,934 ft. Code 2C Non-Instrument Runway

This alternative has a significant impact on Blossom Village and some resort buildings east of the runway, and the bird strike hazard remains high in this location. The ponds to the west of the runway will be impacted and infilled, and Guy Banks Road must be relocated/rerouted out of the runway strip, likely north, around the airport. A 3,924 ft. length runway is not feasible in this location and the widening of the runway strip will require significant clearing of trees and vegetation, on known rock iguana habitat. The widening of the runway strip would negatively impact neighbouring residents and would necessitate acquisition of a significant number of private properties around the aerodrome. Some buildings would need to be removed, and access to beachfront properties may be severely restricted.

Figure 8.17: Existing LCB, Expand to 4,000 ft Code 2C Non-Instrument Runway

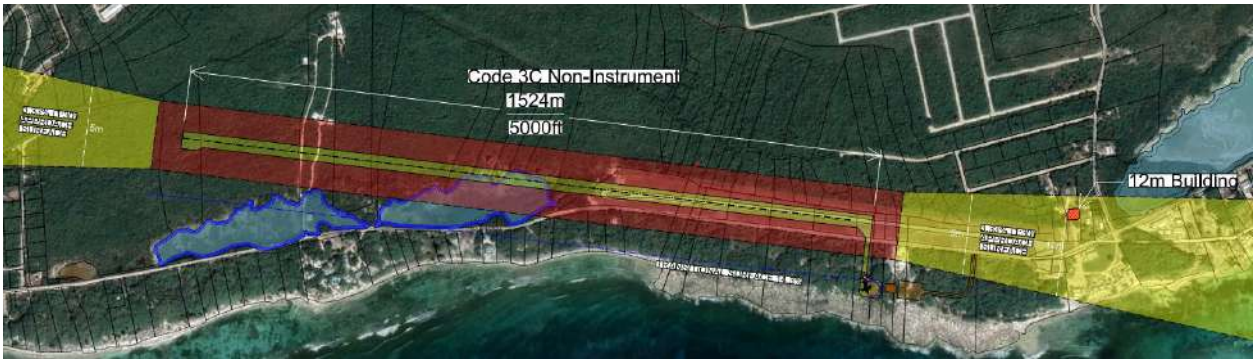


8.2.4.2 LCB, Expansion to 5,000 ft. Code 3C Non-Instrument Runway

This alternative has a significant impact on Blossom Village and some resort buildings east of the runway, and the bird strike hazard remains high in this location. The ponds to the west of the runway will be impacted and infilled, and Guy Banks Road must be relocated/rerouted out of the runway strip, likely north, around the airport. A 5,000 ft. length runway in this location is not feasible and the widening of the runway strip will require significant clearing of trees and vegetation in a known iguana habitat.

The widening of the runway strip would also negatively impact neighbouring residents and would necessitate acquisition of a significant number of private properties around the aerodrome. Some buildings would need to be removed, and access to beachfront properties may be severely restricted.

Figure 8.18: LCB, Expansion to 5000ft, Code 3C Non-Instrument Runway



A longer, wider runway strip required for an instrument runway strip was found to be excessive and not in alignment with the need to reduce environmental impact on Little Cayman.

8.2.4.3 Close the Existing Aerodrome, Develop a New Aerodrome

This option utilizes the alternate lands set aside by CIG for the development of a new aerodrome. A new aerodrome will be further from the south shore and residential resort areas immediately east of the existing aerodrome. A new runway can be aligned with predominant winds and improve aircraft operations. The new aerodrome site can accommodate a longer runway, from 3,934 ft. (1,199 m) to 5,000 ft. (1,524 m) with either a non-instrument or a non-precision instrument runway strip.

Figure 8.19: New Aerodrome, 3,934 ft. Non-Instrument Runway

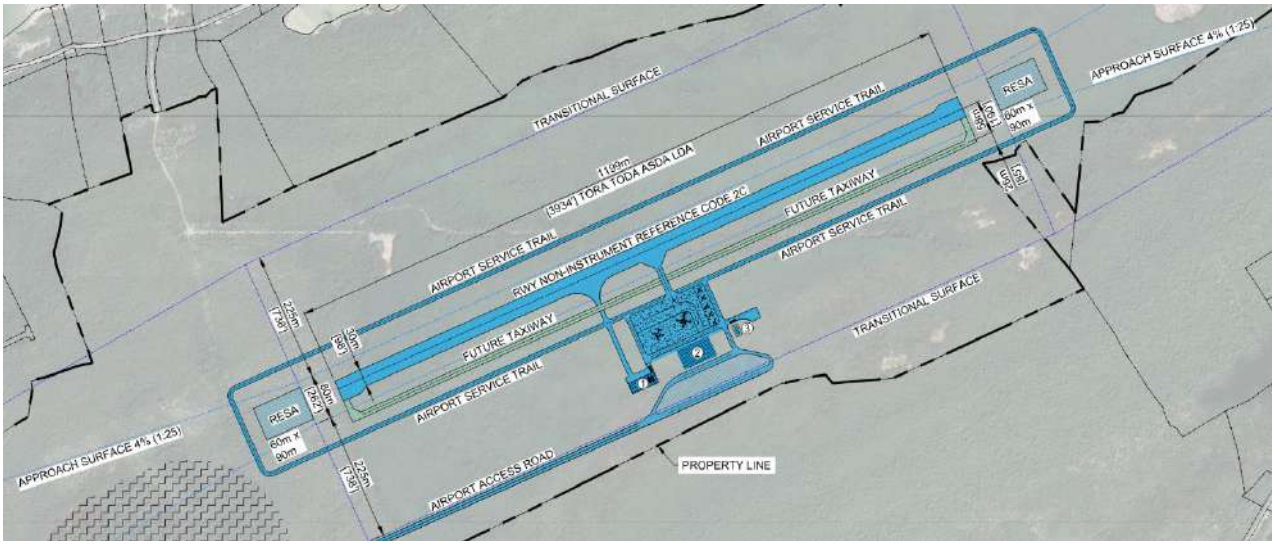
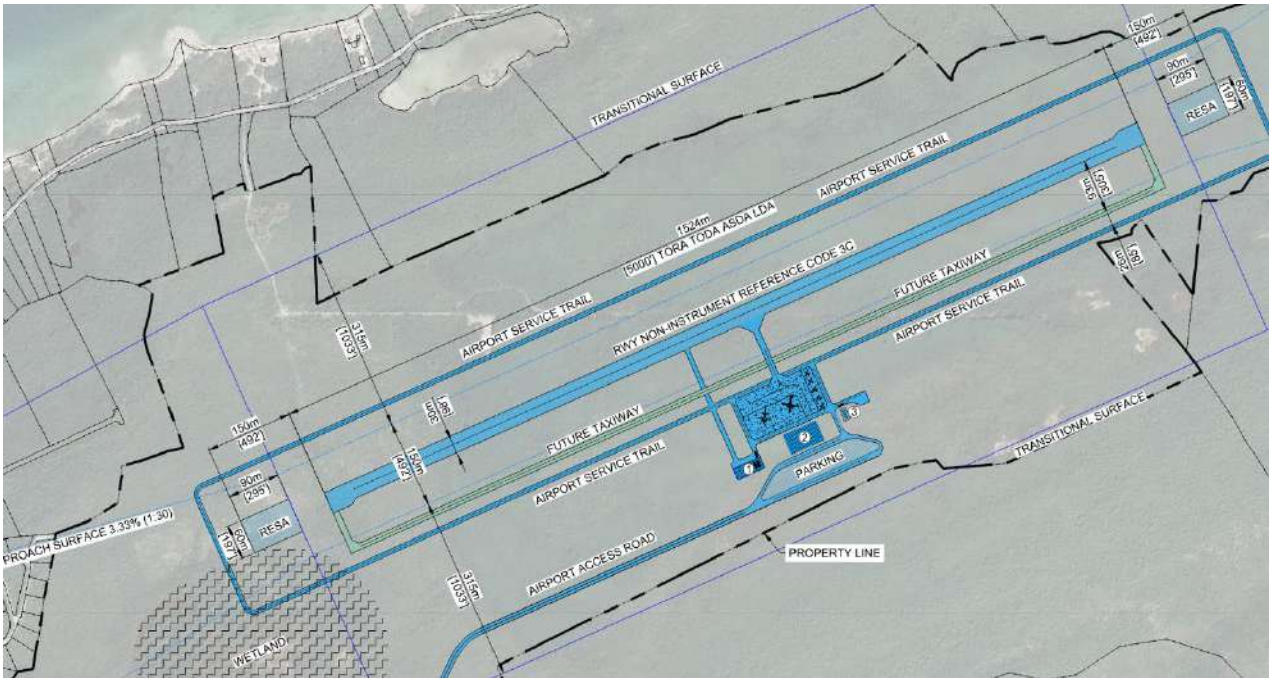


Figure 8.20: New Aerodrome, 5,000 ft Non-Instrument, Code 3C



The longer, wider runway strip required for a Code 3C Instrument Runway operation has a much greater impact on the environment

8.2.4.4 Close Existing Aerodrome, Replace with Heliport (and Ferry Service)

Figure 8.21: Potential Ferry Terminal Location Plan



This option requires additional public transportation services for Little Cayman in the form of a ferry service, as the cost of helicopter services is generally not one that residents and resort operators on Little Cayman prefer. The heliport option provides ongoing Medevac services which can be operated 24/7 if the heliport is lighted. Although it is yet to be determined where a ferry terminal and dock would be located, it was suggested that the closest feasible location is on the north shore, north-west of the new aerodrome site, as shown in Figure 8.21.

Figure 8.22: Close Existing Aerodrome, Replace with Heliport (and Ferry Service)



8.2.4.5 Close Existing Aerodrome, Replace with Water Aerodrome (and Ferry Service)

This option requires additional public transportation services for Little Cayman in the form of a ferry service; seaplane air services are limited to small aircraft; the DHC-6 Twin Otter can be operated with floats, but the passenger and baggage load will be limited and may not be feasible operationally. CAL is opposed to consideration of a water aerodrome due to complexity of operations, and impact of salt water on aircraft.

Figure 8.23: Contemplated Water Aerodrome, Little Cayman



The water aerodrome represents an alternative that is potentially environmentally friendly, but which would impose other marine exclusion zones on an already popular area for diving and other water activities off the south side of Little Cayman inside the reef, as depicted in the image above.

8.3 Preferred Development Option, ORIA

8.3.1 Airside

8.3.1.1 Runway 08-26 Extension

To meet the requirements that enable Runway 08-26 to support wide-body aircraft flying new, long-haul destinations, (such as LHR – GCM) and conferring with chief pilots of two (2) airlines, an extension was contemplated, and ultimately the runway declared distances (Landing Distance Available, or LDA) were increased by 1,404 ft. (428 m) to obtain a landing distance minimum of 8,000 ft. (2,439 m).

The extension of the LDA to 8,000 ft. (2,439 m) for each Runway 08 and 26 supports the demand serviced by future widebody aircraft such as the B787, B777 and A-350 aircraft operating on long-haul destinations. The declared distances table provided below, indicates the existing and proposed extension to runway declared distances.

Table 8.3: Declared Distances Table, Runway 08-26 (Extended)

DECLARED DISTANCES				
EXISTING RUNWAY				
RUNWAY	TORA	TODA	ASDA	LDA
08	7,463ft (2,275m)	8,362ft (2,549m)	7,463ft (2,275m)	6,594ft(2,010m)
26	7,001ft (2,134m)	7,493ft (2,284m)	7,001ft (2,134m)	6,594ft(2,010m)
PROPOSED RUNWAY				
08	8,984ft (2,738m)	8,984ft (2,738m)	8,984ft (2,738m)	8,000ft (2,438m)
26	8,000ft (2,438m)	8,492ft (2,588m)	8,000ft (2,438m)	8,000ft (2,438m)

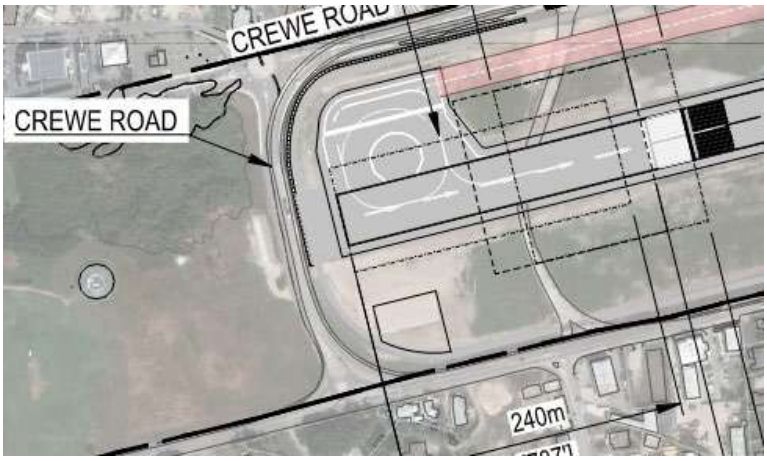
8.3.1.2 RESA (Runway End Safety Areas)

Fully compliant RESAs, meet minimum length and width requirements for runway end safety areas (RESA) is required at each end of the runway to serve the growing aircraft mix of Code C narrowbody and Code E, widebody aircraft at ORIA. A proposed runway extension would necessitate the development of RESA that meet the requirements as indicated in the latest version of ICAO Annex 14.

The existing west-end RESA (for Runway 26) is to be extended from the current 666 ft. (203 m) length to the fully compliant length of 787 ft. (240 m). The east-end RESA (for Runway 08) is to be extended from the current 295 ft., (90 m) to 787 ft., (240 m). The development of a full-length, 787 ft. Long (240 m) RESA at each runway end supports the CIAAs objective to comply with ICAO, OTARs and CAACI standards to provide a higher level of safety for both narrowbody and widebody aircraft operators at ORIA. The development of the runway extension demands compliance with the latest standards for the runway based on feedback from the CAACI. The runway extension project provides for a Runway 08 starter extensions, and a full-length parallel taxiway to the ends of both Runway 08 and 26.

The ‘runway starter extension for Runways 08 enables departing aircraft to use the pre-threshold pavements as a starter strip, enabling aircraft to begin their take-off roll pre-threshold, extending take-off distance declared distances for Runway 08.

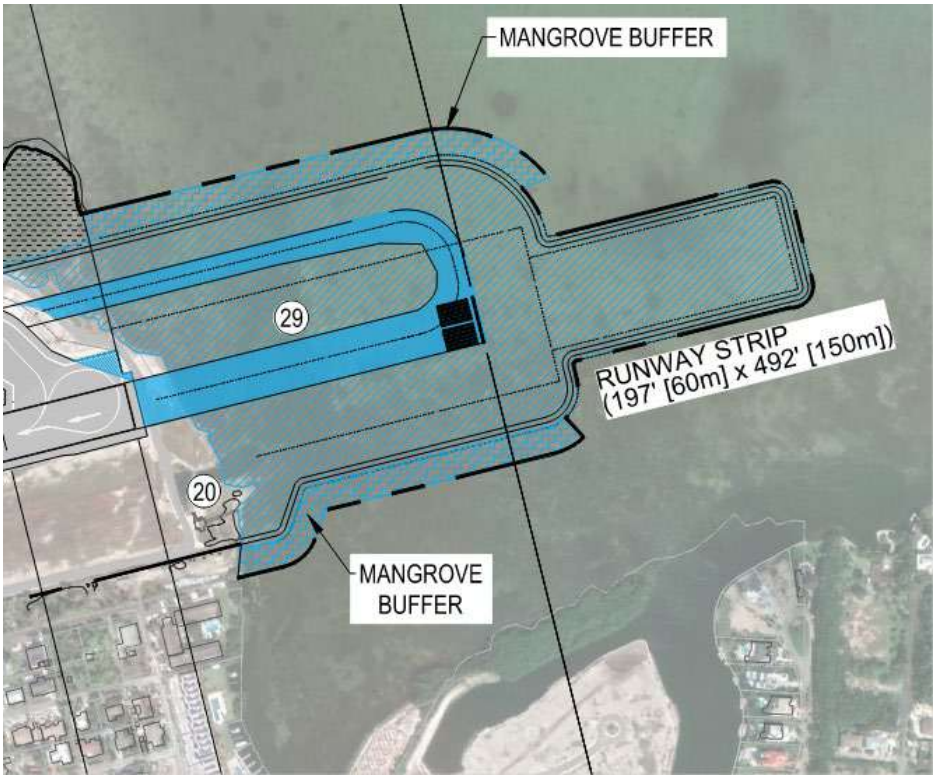
Figure 8.24: Runway 26 RESA



Due to the current conflict between Crewe Road at the west end of ORIA, and the obstacle environment (buildings) west of Runway 08-26, the runway or RESA cannot be extended to the west in the short or medium term. The CIAA may wish to continue to explore the potential of relocation of Crewe Road further to the west with the National Roads Authority to better utilize the lands west of Runway 08-26. Such an outcome was discounted in this master plan due to the NRA's emphatic opposition to the relocation of Crewe Road to accommodate the Runway 08-26 extension.

These soon to be vacant lands (after the VOR/DME antennae is decommissioned) are well suited for the extension of a fully compliant RESA at the west end. The cricket field may be impacted in this case. If the Runway 08 threshold were to be relocated further west, this action would require the removal of obstacles (building tops, antennae) in George Town, to the west of ORIA. By improving the obstacle environment west of Runway 08-26 and by relocating Crewe Road, the CIAA could thereby reduce the amount of runway extension required into the North Sound. However, this endeavour cannot be accomplished in the short to medium term and therefore was discounted.

Figure 8.25: Runway 08 RESA



The consultant team proposed that the CIAA extend the runway to the east as shown in the image in Figure 8.25 to enable an 8,000 ft. landing distance available for each runway, with a fully compliant RESA at each end. The option for a starter strip at the east end of Runway 08-26 extension may or may not be incorporated into the

runway extension project. A runway starter strip may not be required, pending further technical analysis, following the detailed design and the completion of an EIA.

The recommended runway extension into North Sound, with the associated RESA works, could begin upon completion of the EIA, and without the need for removal of building obstacles, nor the relocation of Crewe Road to the west. Additionally, it is recommended that CIAA continue to pursue the relocation of Crewe Road such that the jet-blast deflector can be removed, and the Runway End Safety Area could be extended towards the west, even if the threshold is not relocated. The jet-blast deflector, and ground vehicle traffic on Crewe Road, are still considered obstacles to aviation due to its proximity to the Runway 08 pre-threshold environment. The RESA for Runway 26 is 121 ft. (37 m) short of the minimum recommended RESA length of 787 ft. (240 m) length. Resolving this issue is accomplished by extending the runway to the east and extending the Runway 26 RESA to 787 ft. (240 m).

8.3.1.3 Other Runway Strip Related Projects

8.3.1.3.1 Coastal Resiliency

A mangrove buffer is planned along the north and south shores of the runway extension into North Sound to offset losses incurred due to the construction, subject to the requirements for a full EIA.

8.3.1.3.2 Fire Boat Relocation

The Marine Fire Service Station and boat launch is currently in the runway strip and is considered an obstacle and a hazard to aviation. Therefore, it is recommended that the Fire Boat be relocated north of the Runway 08-26 strip next to the proposed seawall / marine dock.

8.3.1.3.3 Strategic Airfield Storm and Surface Water Drainage Plan

The Runway 08-26 strip improvements are required to adequately drain standing water from the airfield and runway strip. While the runway extension and RESA improvement projects are critical to the CIG, drainage of the runway strip is a priority and should be completed to improve compliance with aerodrome regulatory requirements and to reduce the hazards associated with standing water, primarily the attraction to birds. It is recommended that the CIAA complete a comprehensive airfield drainage study and design for improvements. This project may also be subject to an EIA, pending review by the NCC.

8.3.2 ORIA Landside Facilities

The landside transportation and facility planning involved assessing and proposing solutions for the airport access roads, terminal curbside and security setbacks, parking, and future on-site car rental facilities. The building index is indicated below in Figure 8.26 which provides guidance for the next following image in Figure 8.27.

Figure 8.26: ORIA Preferred Airport Development, Building Index

BUILDING INDEX	
No.	DESCRIPTION
1	PROPOSED LANDSIDE COMMERCIAL
2	AIRPORT CHILDREN'S PARK
3	MOSQUITO RESERCH HANGAR / FACILITIES
4	AIRPORT POST OFFICE
5	CAYMAN ISLANDS AGRICULTURAL INSPECTION
6	CICBC OFFICES / CARGO WEARHOUSE
7	CAYMAN AIRWAYS HANGAR
8	GENERAL AVIATION TERMINAL
9	ISLAND AIR HANGAR
10	ATC TOWER / BEACON HOUSE
11	FIRE STATION
12	AIRPORT MAINTENANCE & OPERATIONS
13	SECURITY CHECKPOINT #1
14	COMMERCIAL TERMINAL APRON
15	AIR TERMINAL BUILDING

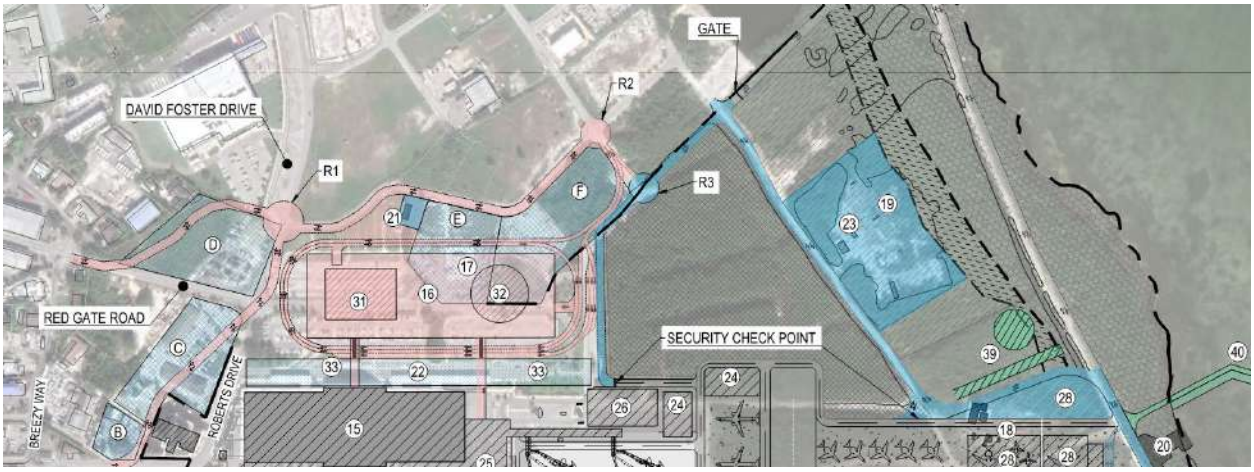
BUILDING INDEX	
No.	DESCRIPTION
16	LANDSIDE, SURFACE PARKING
17	ACE / ANDY'S RENT A CAR
18	CONSECA SECONDARY RADAR
19	GUN CLUB
20	FIRE BOAT DOCK / LAUNCH
21	WASTERWATER TREATMENT PLANT
22	100FT SET-BACK TO CURB / GREEN PLAZA
23	RELOCATED FIRE TRAINING CENTRE / FUTURE RESERVE -HANGARS
24	GSE EQUIPMENT MAINTENANCE & STORAGE
25	AIR TERMINAL BUILDING EXPANSION
26	FUEL TRUCK STAGING AREA
27	GENERAL AVIATION APRON EXPANSION (EAST)
28	NEW GENERAL AVIATION TERMINAL (EAST) & PARKING
29	RUNWAY 08-26 EXTENSION TO 8,000 FT (WITH FULL RESA)
30	NEW ATC TOWER & ATM BUILDING

BUILDING INDEX	
No.	DESCRIPTION
31	OFFICE BUILDING (ABOVE ROOF OF GTC)
32	VERTIPORT
33	2nd LEVEL COVERED WALKWAY, GTC TO TERMINAL (x2)
34	FULL-LENGTH PARALLEL TAXIWAY
35	RUNWAY STRIP DRAINAGE IMPROVEMENTS
36	EXPANDED CARGO AIRCRAFT APRON
37	AIRCRAFT ENGINE RUN-UP ENCLOSURE
38	COMMERCIAL APRON EXPANSION (RELOCATE CHECKPOINT #1)
39	NEW HELIPORT AND HELIPORT OPERATIONS BUILDING
40	MARINE DOCK AND SEAWALL / BREAKWATER



Figure 8.27 below illustrates the overall proposed landside access, parking and circulation roads layout at ORIA.

Figure 8.27: ORIA Proposed Landside Layout



The proposed layout considers a one-way flow once entering the airport property, as illustrated with red arrows. The primary access to the airport uses two-way roads, including Owen Roberts Dr and Red Gate Rd, interconnected by a new roundabout, which facilitates access to the airport and its vicinities. Vehicles will use another new roundabout at the northeast corner of the airport land to enter the airport, the curb, ground transportation centre, or taxi waiting area, indicated in Figure 8.27 above.

Three (3) roundabouts have been proposed for the new landside development. They are located at crucial airport intersections and allow easy and accessible flow from the main entrance at Roberts Drive to the General Aviation Terminal access. The roundabouts will promote improved traffic flow, reduce vehicle emissions, and fuel consumption, and increase safety for pedestrians and drivers by reducing the number of collisions. A new, separate access point for fuel trucks is provided east of the ATB complex. In addition, a secure airside / landside access gate is provided south of the new Fire Training Centre, such that emergency services vehicles and ARFF trucks can quickly access the airside near the new GA Terminal and apron with onward access to Golf Taxiway and Runway 08-26.

The final proposed development includes clearance of 100 ft. (30 m) from the terminal building to any curb or road. With that, Roberts Drive must be realigned on the west side of the ATB, and the curb west of the airport will no longer exist. Instead, Roberts Drive will run around the back of the existing Civil Aviation Authority building as shown in Figure 8.27 above.

The proposed changes involve land acquisitions, which consist of the lands Northeast of the existing long-term parking, the land between Owen Roberts Dr and Red Gate Rd. (Northwest Corner) and the car rental land northwest of Owen Roberts Dr. In total, seven (7) properties, indicated by Areas A through G, to be acquired for landside developments. Item G is specific to acquisition of a potential site for the new ATC Tower on the south side of the airport. Area A north of the runway, with which will be dedicated to commercial/paid and employee parking Figure 8.27 above shows the acquisition of lands:

- Area A: 1.02 acres, (4,124 m^2)
- Area B: 0.47 acres, (1,900 m^2)
- Area C: 1.92 acres, (7,755 m^2)
- Area D: 2.25 acres, (9,100 m^2)
- Area E: 1.71 acres, (6,900 m^2)
- Area F: 2.77 acres, (11,200 m^2)
- Area G: 4.06 acres, (16,460 m^2)

Most of the land to be acquired is currently being utilized by the current alignment of streets, and the car rental companies which can be relocated to the new proposed Ground Transportation Centre (GTC). The car rental companies will be accommodated in the new GTC with offices and appropriate parking stalls, with direct access to the airport and easy access to passengers under protection from the elements, a key aspect of the passenger experience currently absent from that experienced by passengers and visitors at ORIA.

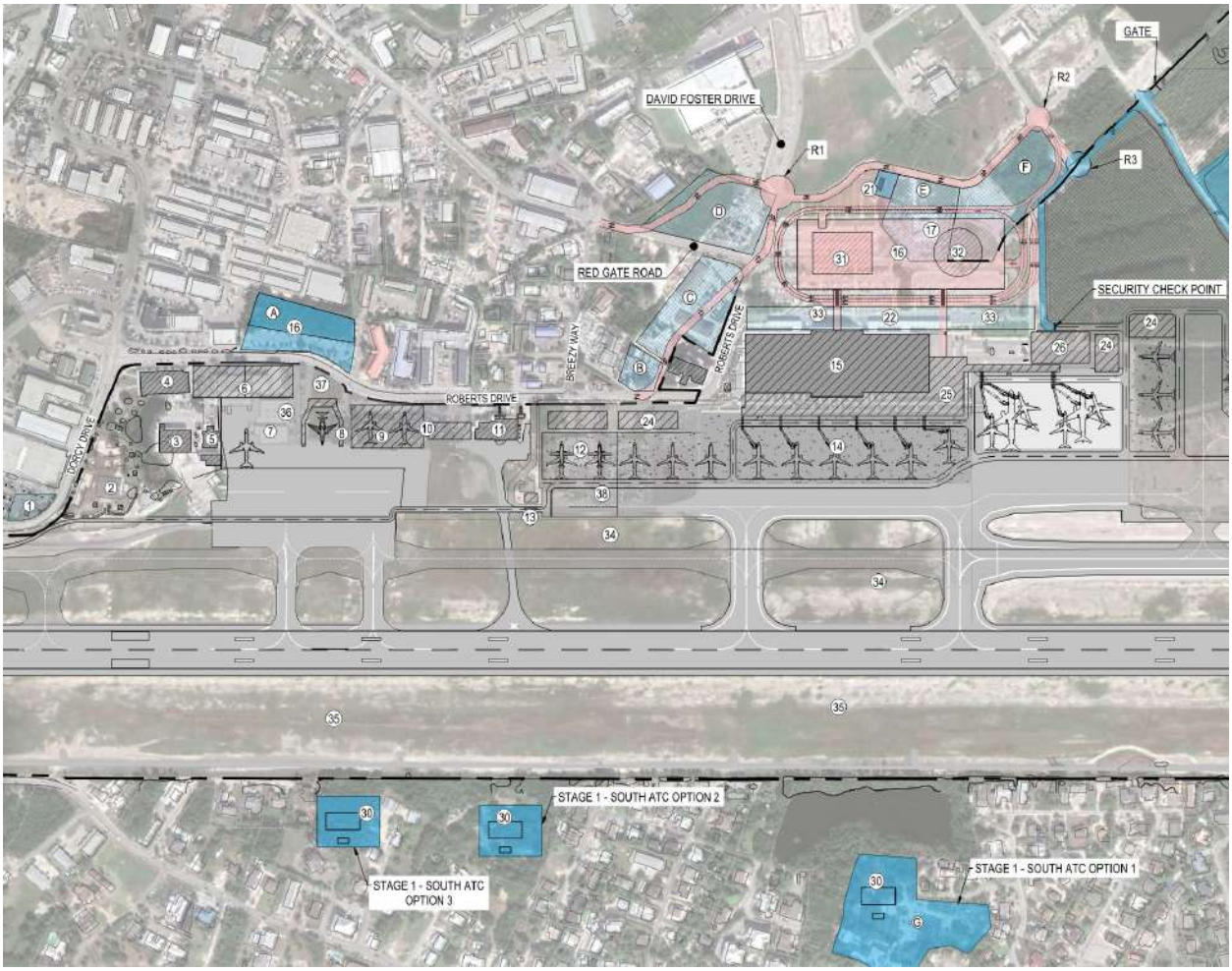
The requirement for the 100 ft. (30 m) setback from terminal is another reason for land acquisition and another reason to take the opportunity to improve the ground traffic immediately around the airport while improving safety for pedestrians, whilst enabling security enhancements at the airport.

The existing parking is located at ground level, with area for short term, long term, and staff parking. With the changes in the road system around the airport and the need to move the terminal curb due to OTARs security regulations being implemented requiring a setback of 100 ft. (30.5 m) from the terminal face, the space available for parking is reduced. Passengers demand that car rentals be closer to the terminal to improve the

passenger experience and to eliminate the need for passengers to walk outdoors unprotected from the elements to the existing car rental offices off-airport. The proposed land acquisitions adjacent to the airport make it possible to construct a new Ground Transportation Centre that may house short- and long-term parking, employee parking and all of the car rental companies and their facilities (parking, car maintenance and wash bays, counters) in addition.

The proposed multiple-floor Ground Transportation Centre (Figure 8.28), located immediately north of the terminal building, (across from the terminal curbs) comprises three (3) parking floors above grade, with an office building and a vertiport on the top floor (uncovered parking). Public bus and pre-booked vans will also be positioned on ground level curbs at the GTC with protection from the elements for ease and comfort of passenger embarkation and offloading.

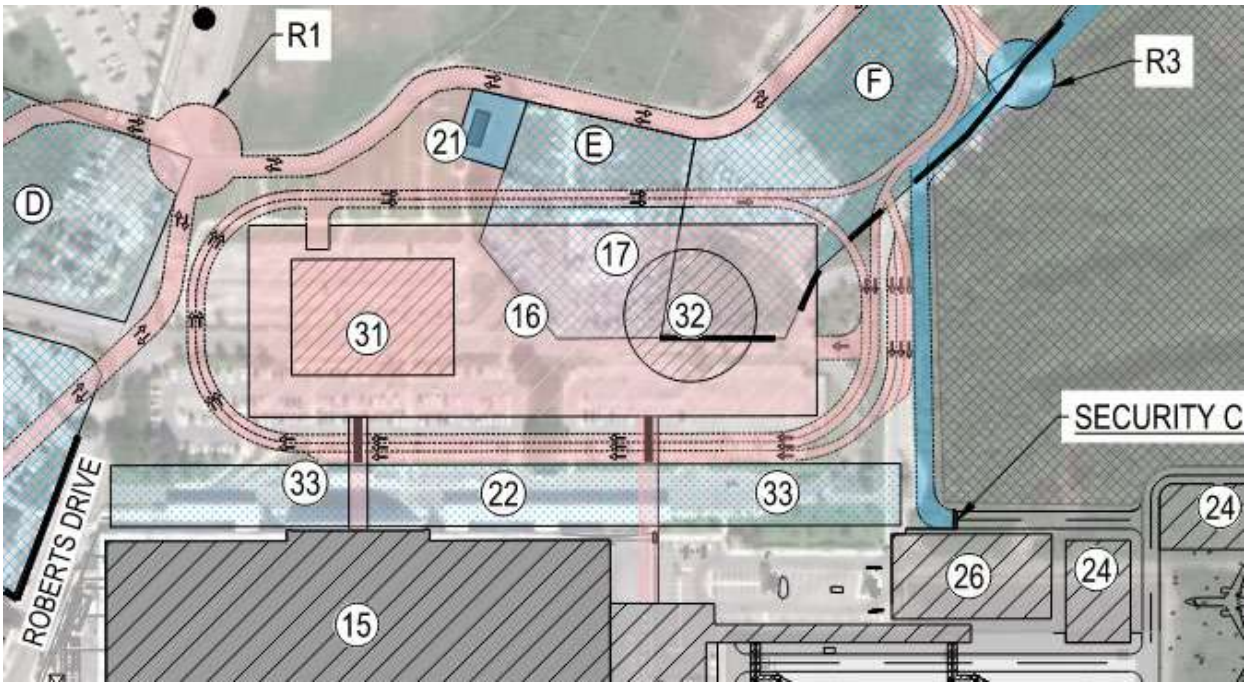
Figure 8.28: ORIA, Key Land Acquisitions



Short-term public parking and car rental return spaces may be located on the ground level, with 215,000 sq ft., (20,000 m^2) and it can accommodate up to 600 stalls (220% more than today). The first level (above grade) will be dedicated to long-term parking, with approximately 215,000 sq ft. (20,000 m^2) accommodating 600 stalls (340% more than today) to accommodate future demand in 2041. Approximately 129,000 sq ft., (12,000 m^2) space on the second level may be dedicated to rental car parking spaces (rental car pick-up, rental car drop-off on ground level). The remainder of the second level, 75,500 sq ft., (7,000 m^2) may be dedicated to employee parking, with approximately 200 stalls (50% more than today) which will greatly improve parking capacity for all segments landsides.

Figure 8.29 indicates the top level of the GTC with item #31 showing the proposed office building on roof level to provide space for relocated offices removed from 2nd floor of the terminal building. The GTC has connected, covered walkways to the 2nd level of the Terminal building, shown as Items #33 on Figure 8.29. Item #5 depicts the location of a future vertiport. The expanded terminal building is indicated in the grey hatch. Item #21 indicates the location of the new wastewater treatment plant. Areas E, and F are proposed land acquisitions to accommodate future landside road alignments meant to ease congestion and improve the efficiency of landside traffic circulation at and adjacent to ORIA.

Figure 8.29: ORIA, Airport Ground Transportation Centre (GTC)



The road lanes are typically 12 ft. (3.7 m) wide for both through traffic and maneuvering. A wider 14 ft. (4.3 m) lane was considered for curb loading and unloading. The road curves are 130 ft. (40 m) radii curves or greater for smooth maneuvers. The access to the ground transportation centre is located after the second roundabout that provides access to the airport. The two-lane one-way road becomes a three-lane curb in front of the terminal. The taxi waiting area is in front of the terminal, with three lanes each 150 ft. (45.8 m) long. The curb length was calculated based on the ratio of cars, vans and taxis, their sizes and average waiting times for both arrivals and departures. **The total curb length required and proposed in front of the terminal building is 656 ft. (200 m)**. Much of the new curbside will be covered, in addition to large sections in the new landside plaza.

The curb as proposed is set back 100 ft. (30.5 m) from the terminal building, creating an area for a landside, pedestrian plaza, and a key opportunity to create retail and entertainment opportunities for passengers and visitors, resulting in new non-aeronautical revenue streams for the CIAA. Figure 8.29 above, this hatched area is indicated by the #22. Above the pedestrian plaza, two (2) connecting overhead walkways are proposed, connecting the GTC with the terminal building on the second level (item #33) and providing protection from the elements to passengers, particularly in the rainy season.

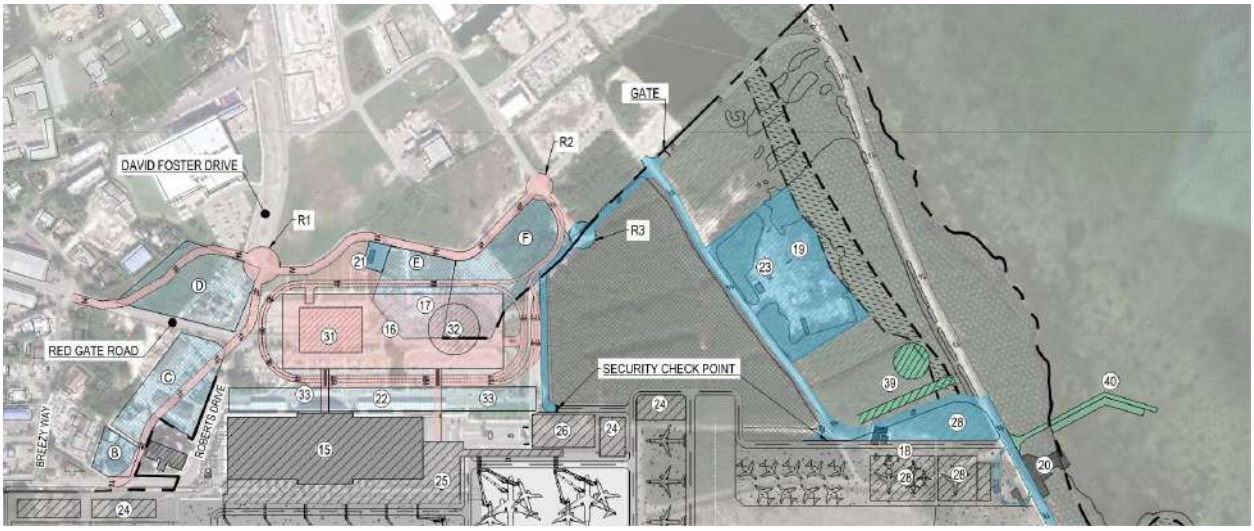
The landside access to the airport extends to the east of the terminal building. After the second new roundabout, a new road access to the airside is proposed. The access point (security checkpoint) will be north of the fuel truck staging area (area #26 Figure 8.30). This road is connected to the airside roadway system.

The current wastewater treatment plant located near the existing long-term parking and Andy's rental cars will be moved to accommodate the new proposed GTC. The new location for the wastewater treatment plant is north of the proposed GTC, between the airport access road, and east of the new roundabout at Owen Roberts Dr. This area is close to the existing wastewater treatment plant but is a more extensive area which will accommodate the larger, newer plant.

A third roundabout (item #R3) is proposed southeast of the second (item #R2) roundabout, providing access to the GA, heliport, and ambulance facilities, or to the fuel truck access check point, as illustrated in Figure 8.30. The roundabout divides the route between the aviation facilities and the airport perimeter road (authorized access). Both roads after the third roundabout are two-way roads that extend to the GA terminal at the southeast corner of the airport land. A 50,000 ft. (4,650 m^2) VIP and Valet parking lot is proposed north of the GA terminal and south of the heliport and ambulance facilities.

An additional security check-point may be required between the parking area and the general aviation terminal curbside, which is a one-way road with a single curbside lane, which becomes two lanes in front of the terminal, if permitted from a security perspective. The road extends beyond the GA terminal, through an airside secure gate and checkpoint, and connects to the airside perimeter road system. The road system proposed will also provide easy access and parking to the future marine dock.

Figure 8.30: ORIA, Preferred Landside Development, East Side



8.3.3 Air Terminal Building

The most feasible expansion of the terminal building is towards the south; this would result in the terminal having greater depth between the terminal curb and aircraft parking apron. Expansion to the east is also feasible; by longitudinally extending the terminal to the east towards, the terminal can be better connected to the Code E / widebody aircraft stands to the east of the terminal. The linear configuration of the passenger terminal building remains in place; the extension to the east also enables the aircraft apron to similarly be extended to the east (and to the west) with the terminal expansion. Beyond the master plan period, the terminal and commercial aprons may need to be further expanded. There are two large plots of land available to the northeast of the passenger terminal that will be held in RESERVE for future terminal and commercial apron expansion, and potentially the expansion of private hangars north of the future GA Terminal.

It is feasible to upgrade portions of the existing building structure to accommodate roof level expansion. A major renovation to much of the existing terminal processors can be completed which will unify the terminal building, support the need to improve building and processor capacity, and ultimately to elevate the passenger experience.

A contemplated three-level expansion wraps around the south and east of the existing building creating space for a 14-gate international and domestic concourse. Upgrades to the south-east portion of the existing roof and supporting structure will unlock the additional L2 floor area required in the preferred option.

A major renovation of the building's interior will support the expansion. Key elements of the renovation work include:

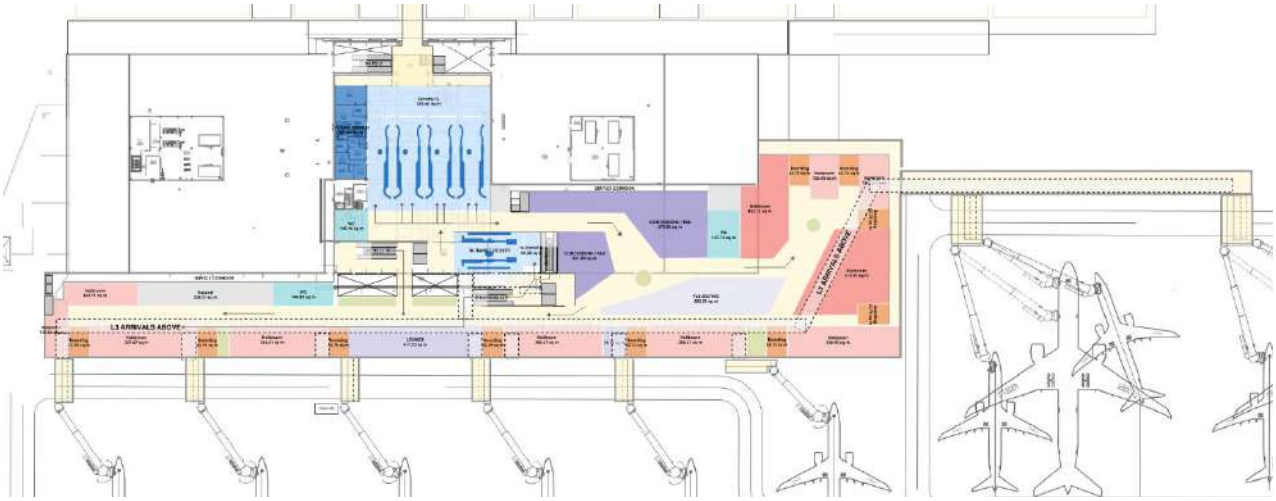
- relocating the security checkpoint from L1 to L2
- provision of an employee / VIP screening checkpoints, separate from passenger screening
- developing the check in hall to accommodate future requirements for kiosks, counters, and additional self bag drop facilities
- increasing the outbound baggage capacity and additional security screening equipment to hold baggage screening (HBS) system along the outbound baggage system
- optimize the immigration and customs processes to reduce queues by providing additional counters and self-serve kiosks to enable a more efficient process, while enabling flexibility for future expansion of the CICBC area
- adding additional bag carousels to accommodate future capacity and wide-body flights
- creation of a L1 departure concourse with four (4) gates served by bussing operations to take passengers to aircraft stands to the east and west extremities of the commercial aircraft aprons
- renovation of L1 support space, the relocation and expansion of a secure loading dock and additional service elevators,
- provision of employee rest areas, lunchrooms and washrooms that are accessible to ground handling and airline staff, in addition to airport operations
- Creation of an in-transit passenger routing back into the departures area
- Developing the new mezzanine level commercial (private) passenger lounge
- Provision of electrical charging infrastructure for GSE equipment and quieter office spaces for airlines and ground handling company employees, and
- relocation of the main IT room currently on Level 2.



Figure 8.31: Preferred Air Terminal Expansion – Main Floor Plan



Figure 8.32: Preferred Air Terminal Expansion – Second Floor Plan



8.3.3.1 Architecture:

The renovation and expansion of the existing ORIA terminal will increase the capacity and enhance passenger experience into the future. The proposed terminal architecture is intended to evoke a unique sense of place that reflects the identity of the Cayman Islands.

The creation of the landside pedestrian plaza was initiated to create separation between the terminal curbside and the building, as mandated by ASSI. However, the new plaza at the front door to the terminal not only enhances terminal security but also provides a welcoming and relaxing landscaped approach for passengers. The landscaping will feature plant species native to the Cayman Islands to support the sense of place. Ample covered area will protect arriving and departing passengers from the elements as they move between the drop-off area and the terminal. This pedestrian entry plaza will incorporate retail and entertainment concessions, providing new non-aeronautical revenues for the CIAA. The entrances to the check in hall will be prominent to help guide passengers intuitively in the right direction.

Functional Areas – Departures:

- Check In / Departures Hall (public area)
- Landside Concessions / Lounges / Food & Beverage / Entertainment
- Security Screening
- L1 and L2 Duty Free / Retail / Concessions / Food & Beverage
- L1 and L2 Hold rooms

The linear check-in hall layout will be optimized to provide ample space for passengers as they make their way through a combination of self serve kiosks, staffed check in counters, or automated bag drops as required.

Space for additional landside concession offerings will be created at Level 1 that could accommodate premium customer lounges, food and beverage, or retail. This will be primarily in the centre under the triple height arched space as the focal point for the landside areas.

A second level covered pedestrian walkway will provide protection from the elements for passengers moving between the GTC and the air terminal building, particularly during rain events.

After checking in and inducting their checked baggage, passengers will ascend to the second level security checkpoint via a set of new escalators and/or elevator. The security checkpoint will be bright and generously sized to facilitate efficient passenger flow and support a sense of calm throughout the security process. Where possible, views through security to the airside and aircraft will help to orient passengers. Revesting areas at the end of the security process allow for passengers to make way for others behind them and provide space to pause to collect themselves before moving through to the concourse.

Moving east after clearing security, passengers flow through to the double height concourse. In a few steps, passengers enter the concessions node where Cayman Islands inspired offerings of retail, food and beverage are provided. The concessions node is the main focal point of the departure concourse. It is arranged to encourage passengers to dwell close to the amenities while having a good line-of-sight to any of the gates. Food court and casual style seating is proposed in this area. This would be an excellent location to incorporate a large art sculpture or a special architectural feature that reflects the Cayman Islands culture as it would enhance the sense of place while supporting wayfinding.

Ten gates and associated hold rooms are provided at the Level 2 concourse. Interior landscaping areas are distributed along the concourse. Spacious seating and boarding areas with multiple seating options are provided in each hold room with clear lines of sight to the boarding podiums and gate information displays. Clear boarding areas are provided in front of the boarding podiums to allow for queuing to occur off the main concourse circulation area.

Four (4) gates are located on Level 1 of the terminal which are accessible from Level 2 via escalators and elevators. A selection of retail and amenities are located in this area. Domestic passengers departing from these gates may be bussed to their aircraft. Access to busses will be covered by the concourse level above giving ample protection from the elements; cover from busses to aircraft requires ground handlers and airlines to acquire cover for their passenger boarding ramps. If busses are not provided in future, passenger pathways must be clearly defined on the apron with painted markings and if possible are kept under cover.

The boarding portals and gate numbers will be architecturally prominent to support wayfinding and celebrate the moment of walking to the aircraft. As the passenger’s final touchpoint in the terminal, the boarding portals are an opportunity to make a lasting impression.



Functional Areas – Arrivals:

- L3 Arrivals corridor
- In-transit
- Immigration
- Bag Claim
- Customs
- Arrivals Hall

The journey from the aircraft to the immigration area takes passengers up to the Level 3 walkway. Accessed via a series of ramps in the fixed bridges, escalators and elevators, the Level 3 walkway passes above the Level 2 departures concourse below. This allows arriving passengers to share in the experience of the large concourse space, appreciate the view of interior landscaping and art or even enjoy the music of a band playing on Level 2. The walkway leads to a bank of escalators and elevators that go down first to Level 2, giving the option for in-transit passengers to take a dedicated security lane, and then down to Level 1 and into the immigration hall.

Unscreened domestic passengers arriving at Level 1 will be able to collect their bags from a dedicated carousel and exit via a dedicated corridor to the check-in hall on the landside.

In-transit passengers will proceed through a security screening checkpoint and once through CICBC facilities, they may relax in the departures area, boarding gate lounges, food and beverage areas, or private lounges.

The immigration hall will incorporate the latest processing technology to securely and efficiently welcome customers to the Cayman Islands. The layout of the immigration hall affords potential future expansion to the south if required.

Passengers then move through to the bag hall where each carousel is clearly identified with a combination of large signage and interior architectural features. Additional baggage carousels have been added to support peak hour passenger throughput in future years. An additional washroom is provided to serve the bag hall.

Once passengers have collected their bags and cleared customs, they make their way into the arrivals hall and a Cayman Islands welcome in the meet & greet area. From this point, the expanded concessions offerings in the centre of the landside concourse are visible as well as views out of the terminal towards the pick-up area and Ground Transportation Centre.

The Ground Transportation Centre (GTC) is the hub for a new central and covered rental car on Level 2, public parking, ground loading positions for public buses, pre-booked shuttle vans, and taxis. Access to the GTC from the terminal is available via the entry plaza, and over raised/lighted/marked crosswalks on Ground Level and via a second level, covered pedestrian walkway.

A new truck loading dock with adequate security systems in place, and ice making machines, are recommended, and provided in concept with the terminal expansion. These ‘back-of-house’ facilities are necessary to support terminal concessions, the airlines, and for deliveries to secure areas of the terminal.

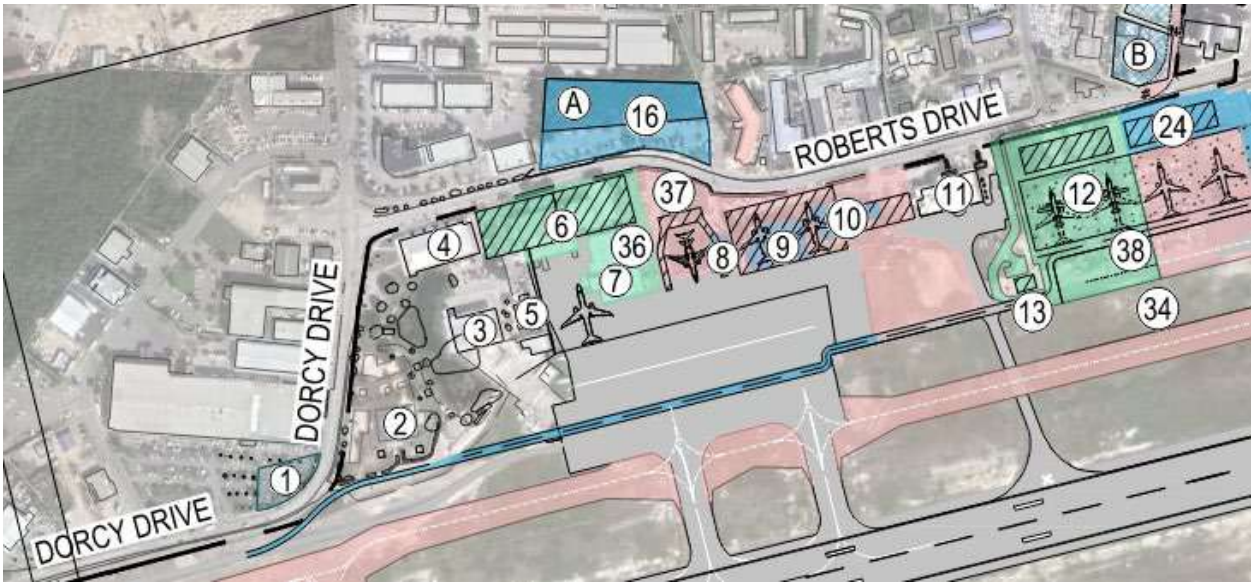


8.3.4 Other

Figure 8.33 depicts the layout of the other future contemplated airport facilities including:

- #11 – Airport Fire Station (existing
- #24 – Ground Handling Maintenance / Storage Facilities
- #16 – Landside Parking
- #37 – Engine Run-Up Facility
- #9 – New Cayman Airways Hangar
- #10 – Airport Maintenance Facility
- #6 / 36 – Airport Cargo Building / Cargo Apron
- #38 – Airport Security Checkpoint #1 (relocated)

Figure 8.33: ORIA, Location of Other Planned Airport Facilities



8.3.4.1 Airport Maintenance Facility

A new airport maintenance facility is recommended at ORIA; the existing facility is undersized and approaching the end of its useful lifecycle. Such facility should straddle the landside / airside divide, west of the air terminal building and potentially replacing the Beacon House buildings and ATC tower in future.

8.3.4.2 Cayman Airways Hangar

A new, larger hangar is required to support the growing operations of CAL and their fleet of aircraft, currently four (4) Boeing 737 MAX 8, two (2) 30-seat Saab 340s, and two (2) DeHavilland DHC-6 Twin Otters. The preferred location of the hangar would be just west of the planned airport maintenance facility.

8.3.4.3 Aircraft Engine Ground Run-Up Enclosure

This new facility would enable aircraft maintenance service providers to perform aircraft engine run-ups in a walled facility, which would reduce the impact of noise on the airport's neighbours and allow aircraft maintenance and repair organizations (MROs) to undertake new services at ORIA required to support airline operations. This new facility would eliminate the need for aircraft engine run-ups on the runway, improving runway capacity and availability.

8.3.4.4 Fuel Truck Access

A new vehicles access point, Checkpoint #2 to the east of the passenger terminal, has been provided to enable aircraft fuel trucks to access the airside efficiently from their fuel storage depot north-east of the airport. The ASSI have agreed to allowing fuel trucks to use Checkpoint #1 in the meantime.

8.3.4.5 Relocated Access / Checkpoint #1

In future, when new terminal aircraft stands are required to the west, Checkpoint #1 (shown as item #38 in Figure 8.33 above) must be relocated to a point just east of the Fire Station.

8.3.4.6 New Cargo Facilities

In future, when demand for new cargo requires larger, modern processing facilities, the location (items #6 in Figure 8.33) near the current cargo and airmail facilities will be re-developed. The new cargo centre will include an area for landside truck docks and parking, and a CICBC warehouse / offices, with temperature-controlled storage and other enhanced cargo sortation facilities.

The preferred airport development options for ORIA, for the short, medium and long term phases of development, are provided in Appendix H.

8.4 Cayman Brac, Charles Kirkconnell International Airport

The overall options for the proposed Cayman Brac Airport are illustrated in Figure 8.34 and Figure 8.35. Section 8.4.1 describes the airside, which is the same for both options. For the landside, Options 1 and 2 are described in Section 8.4.2. A full-size drawing is available in Appendix F.

Figure 8.34: Preferred Airport Layout Option 1, CKIA

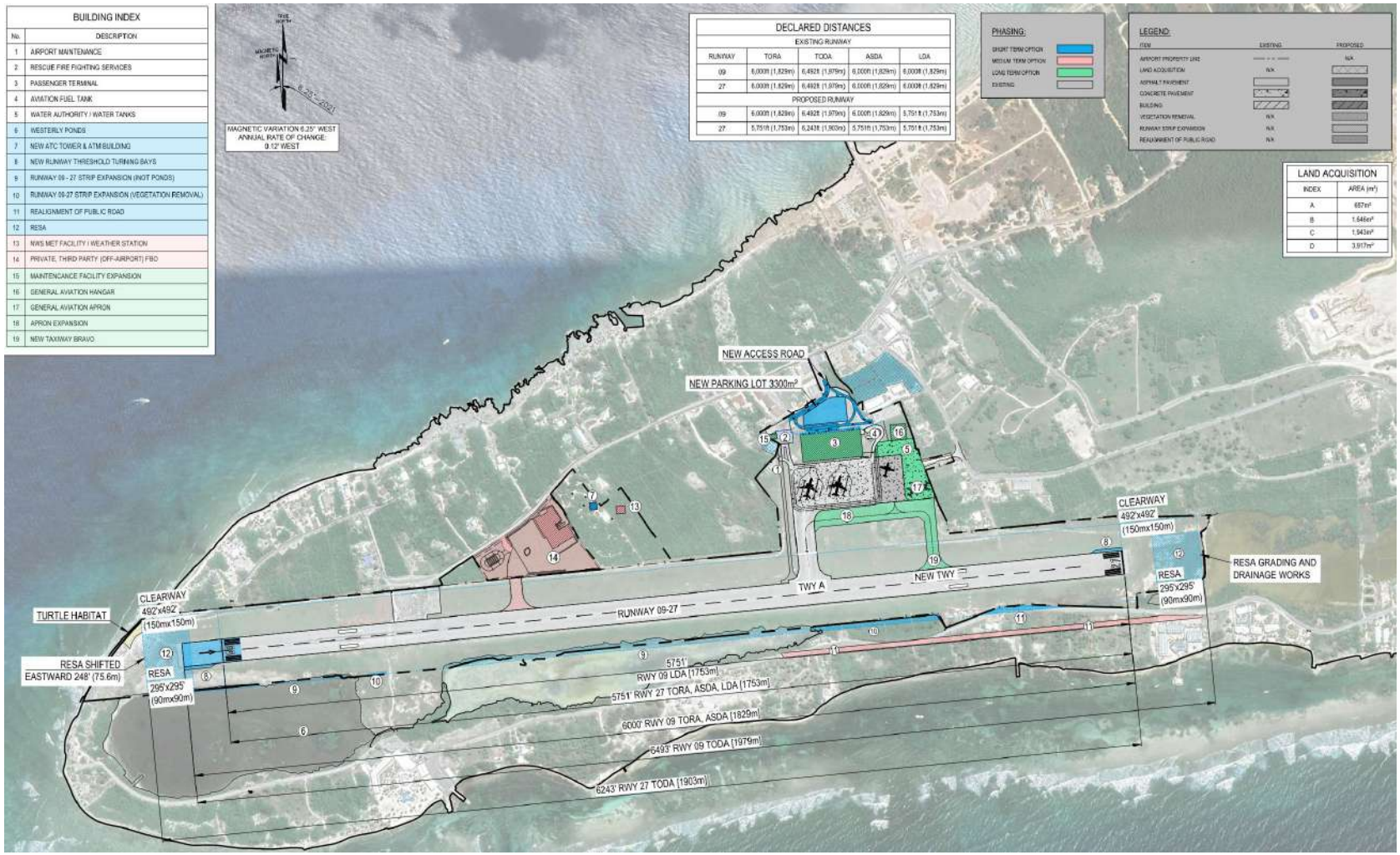
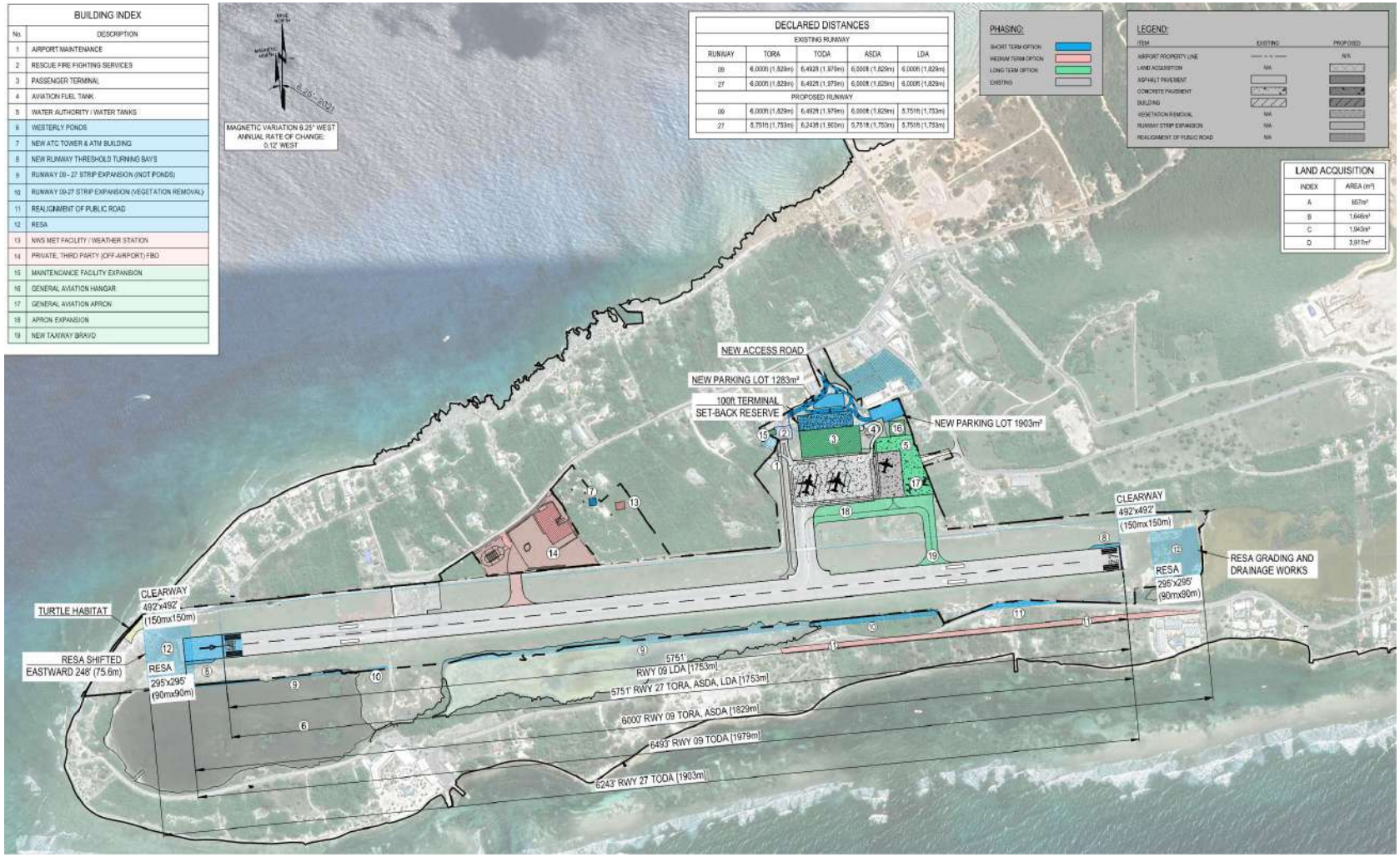


Figure 8.35: Alternate Airport Layout Option 2, CKIA



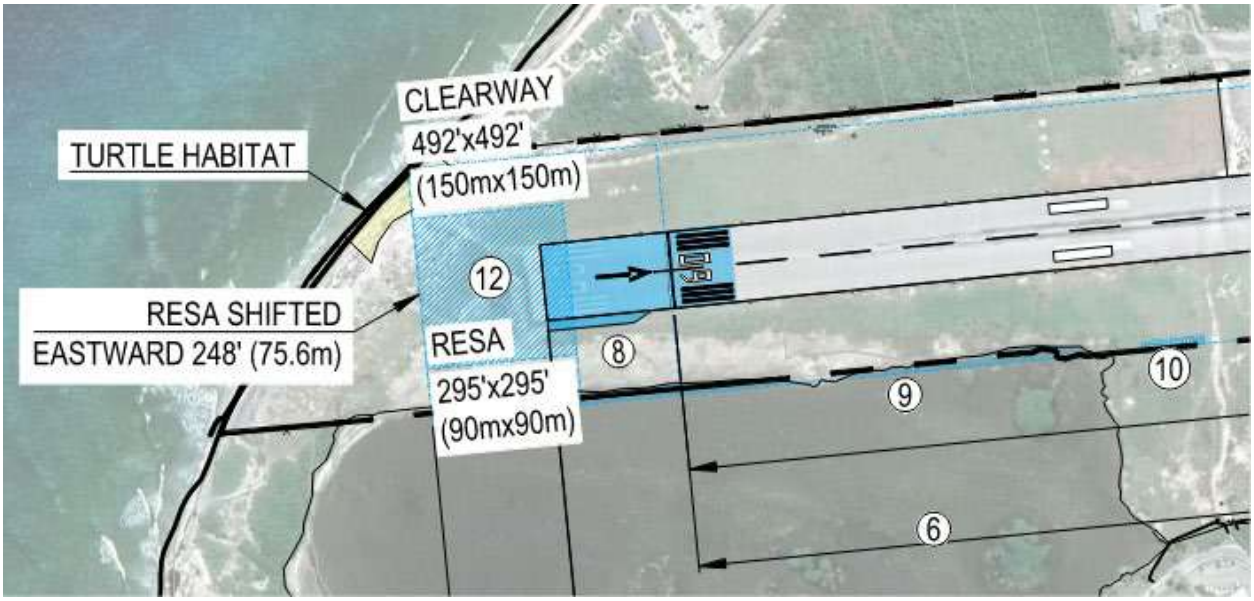
The second option indicates a 100 ft. (30 m) set-back for terminal security purposes, which may be required by ASSI in future.

8.4.1 Airside

The aircraft fleet mix of Cayman Brac Airport is predicted to grow. However, the type of aircraft operating at the airport should remain the same. The airport is to stay under the same classification. Runway 09-27 is now a non-instrument asphalt runway measuring 6,000 feet (1,829 m) long by 150 feet (45 m) wide.

The Cayman Brac airport is located at the southwest corner of Cayman Brac. Runway 09 end is close to the ocean, where a turtle habitat is under environmental restriction. Because of the non-compliant RESA, there is a need to displace the runway threshold east by a minimum of 250 feet (75.6 m) due to the turtle habitat preservation area, as shown in Figure 8.36. The clearway measures 492 ft. x 492 ft. (150 m x 150 m) while the new RESA (item #12) measures 295 ft. x 295 ft. (90 m x 90 m). The new turn bays are indicated by item #8. The blue hatch, (item #6) in the figure below indicates the expansion of the runway strip into the Westerly ponds.

Figure 8.36: RESA and Threshold 09 Aircraft Turn Bay



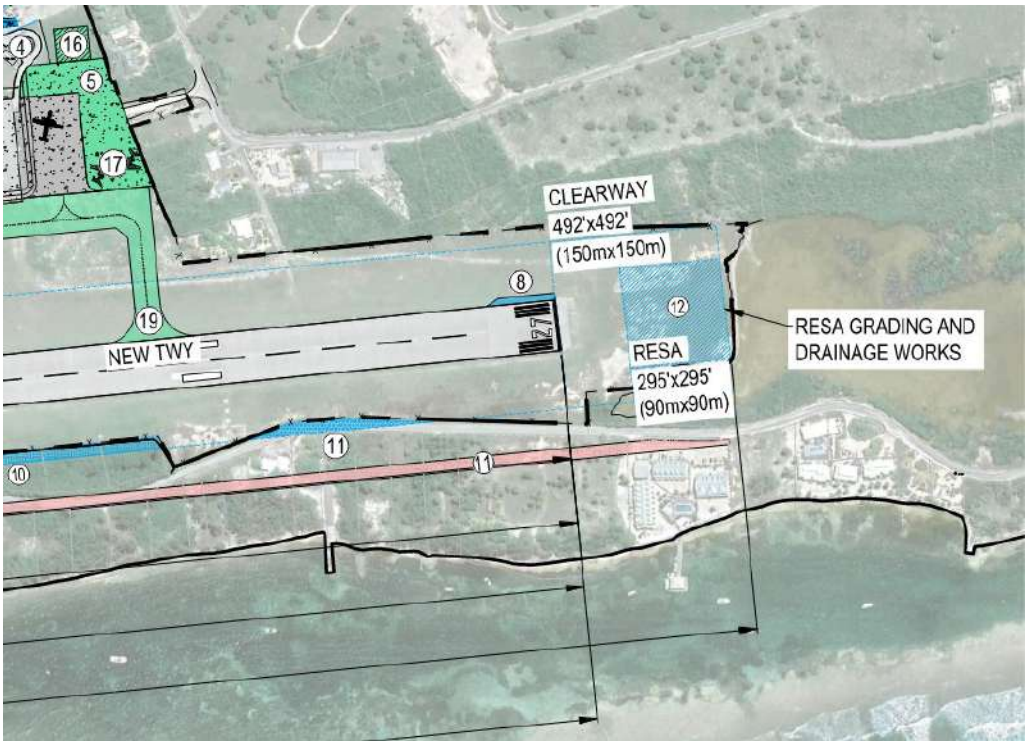
Relocating the RESA and the threshold 09 reduces the declared distances of Runway 27, except for the Landing Distance. Runway 09 will have a starter strip which maintains its existing declared distances. Table 8.4 shows the declared distances table for the existing and proposed runways.

Table 8.4: CKIA, Runway 09 – 27 Declared Distances

DECLARED DISTANCES				
EXISTING RUNWAY				
RUNWAY	TORA	TODA	ASDA	LDA
09	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	6,000ft (1,829m)
27	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	6,000ft (1,829m)
PROPOSED RUNWAY				
09	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	5,751ft (1,753m)
27	5,751ft (1,753m)	6,243ft (1,903m)	5,751ft (1,753m)	5,751ft (1,753m)

Runway threshold 27 will remain at the existing location. However, a new runway end safety area must be added with 295 ft. by 295 ft. (90 m x 90 m) which requires grading, and drainage works to make it compliant, as illustrated in Figure 8.37.

Figure 8.37: CKIA, Runway 09 RESA & Threshold 27 Turn Bay



For both runway ends (09 and 27), runway turn pads must be added to accommodate aircraft 180 degree turns, (item #8 on Figure 8.36 and Figure 8.37).

The northern edge of the ponds, located on the south side of the runway, are actually within the runway strip. The runway strip must be expanded to the south such that the strip width meets applicable aerodrome standards, as indicated by item #9 in Figure 837. Some vegetation within the runway strip (item # 10, on Figure 837 and Figure 838) also should be removed. The road south of the runway (item #11, Figure 8.37) -must also be realigned due to runway strip compliance and to remove the hazardous obstacles to aviation that vehicles, power poles and trees represent.

As the ponds are ***not*** being filled nor removed and will remain in place with additional bird and wildlife mitigation measures required at CKIA. With the addition of a perimeter road and additional resources dedicated to wildlife management operations, the CIAA will be better able to manage the bird hazards.

Accommodating the future demand at the airport includes improving the apron and taxiway facilities. Today the apron can accommodate a single Code C aircraft and one Code B aircraft simultaneously. The proposed commercial apron includes an expansion allowing for two Code C aircraft and one Code B aircraft simultaneously, see Figure 8.38. A new taxiway is proposed for the apron access, which is planned parallel to the existing Taxiway A. South of the existing apron, an apron taxi lane parallel to the runway will connect Taxiway A and the new taxiway. The apron expansion includes an area for GA aircraft east of the commercial apron, including a private hangar (#11) connecting the landside and airside (Figure 8.38). These airside expansion initiatives are essential to ensuring adequate aprons space is available to accommodate future demand by commercial air services, in addition to the opportunity to serve additional general aviation aircraft that are not common today due to the lack of facilities available.

Figure 8.38: CKIA, Preferred Apron and Taxiway Development

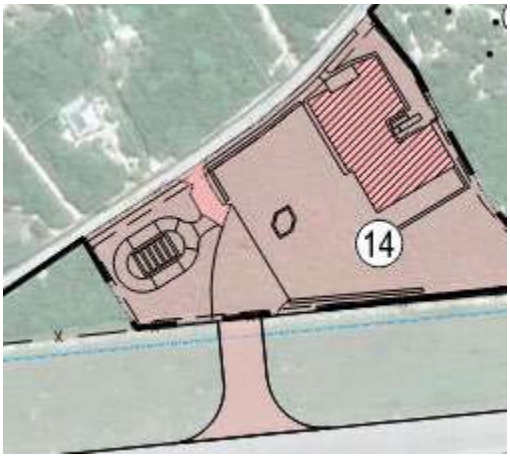


Service vehicles can access the airport maintenance facilities and rescue firefighting services without interfering in the aircraft operation at the apron from the new road, indicated as Items #1; Item #2 indicates the existing Airport Fire Hall, with space for expansion of airport maintenance facilities (item #15) in Figure 8.38. Landside access roads are connected to the existing facilities.

An area just off the airport property, north of Runway 09-27 and west of the future ATC Tower and MET facilities, is planned as a new GA terminal with aircraft apron and hangars. This third party, private development requires the support of the CIAA, and this concept is under consideration. If it is to proceed, a new taxiway link will be required for aircraft to access the private aviation facility from the runway, and vice versa, as illustrated in Figure 8.39.

The existing air traffic control (ATC) tower will be abandoned, and a new, taller ATC Tower will be constructed further west along the north side of the runway strip on CIAA owned property. The new ATC Tower location will provide better visibility to all key airport facilities, including both runway thresholds, the parking aprons, and taxiways. See the Building Index List (#4 is ATC Tower) on Figure 8.39. The meteorological facility with the weather station will be constructed adjacent to the control tower; some additional land acquisition may be required, see Item #9 in Figure 8.39.

Figure 8.39: Private (Non-CIAA) General Aviation Development, CKIA



8.4.2 Landside

Two (2) landside options are considered. The first option maintains the parking facility similar to the existing conditions. The second one provides the 100 ft., (30 m) clearance from the terminal building to the curb, access roads, and parking. The general concept of Options 1 and 2 are shown in Figure 8.40 and Figure 8.41, respectively.

Figure 8.40: CKIA, Preferred Airport Landside Development Option 1

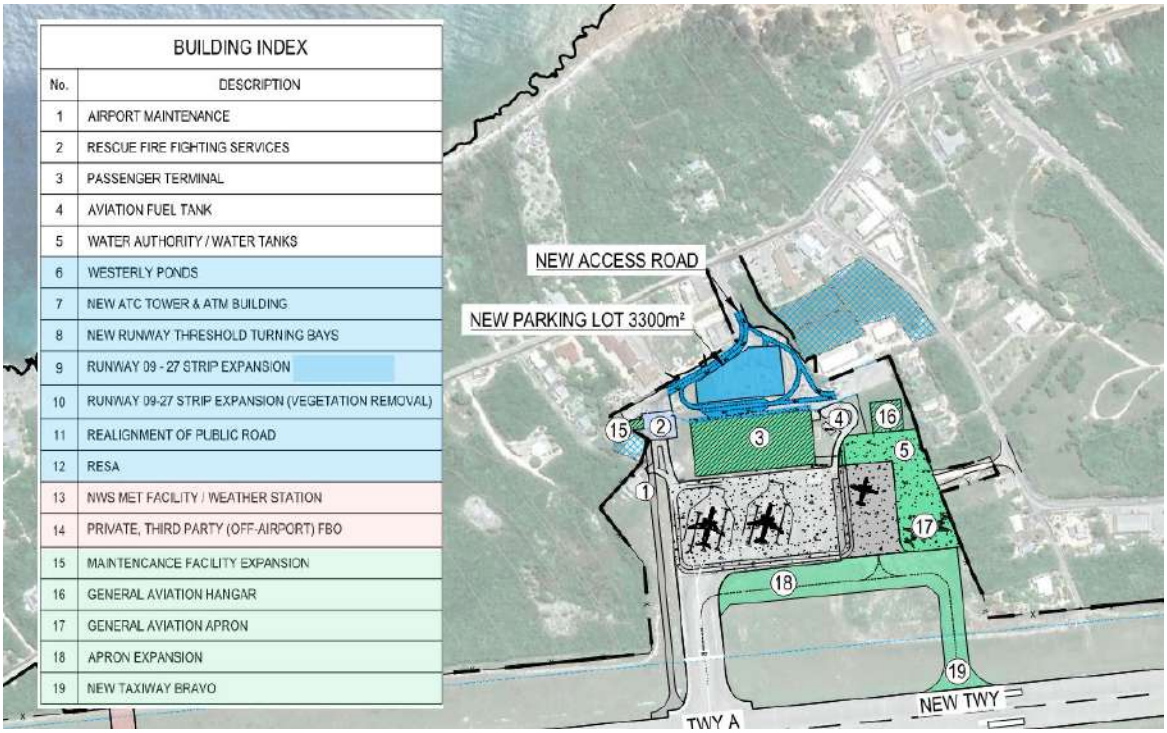
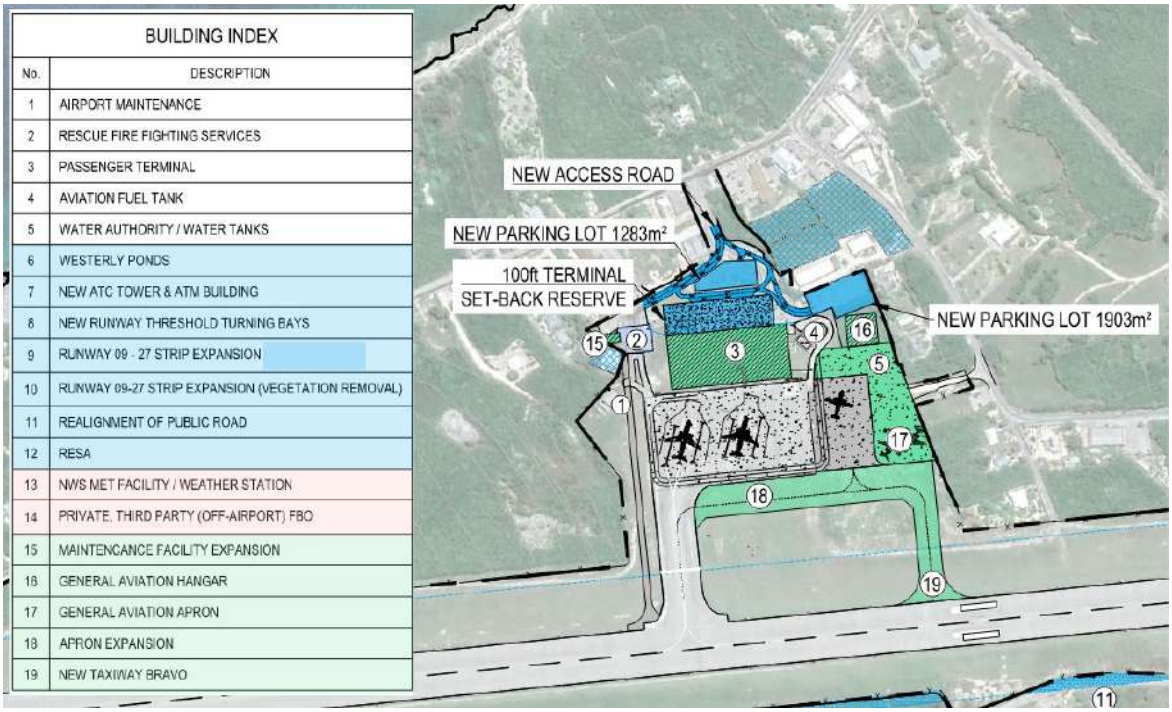


Figure 8.41: CKIA, Preferred Landside Development, Option 2 (100 ft. Setback from Terminal)



Both options propose a new access road to the airport land, including access to the terminal building, maintenance, firefighting, private hangar, and general aviation facilities. The existing access road is to be realigned to optimize parking availability.

The proposed land acquisitions (marked A, B, C and D in Figure 8.40 and Figure 8.41) are the same for both options. Land acquisition A will be used to expand the airport maintenance facilities. Land acquisitions B, C and D will be used to develop the landside parking and improve airport access.

Landside Development Option 1

Refer to Figure 8.40 - Landside Development Option 1 to reference the additional land acquisitions required. A one-way access road is proposed for the airport terminal and parking lot. The one-lane road becomes three lanes across the terminal so vehicles can load and unload at the curb. The access to the main parking lot will be at the entrance of the airport property. A two-way road is proposed to access the airport maintenance facilities and rescue firefighting services located west of the terminal building. Vehicles accessing the maintenance and firefighting facilities are not required to pass by the parking lot entrance or the terminal building curb. Additional lands must be acquired to accommodate the larger parking lots, upgraded, and relocated airport entrance/exit and circulation roads.

The new proposed parking lot is larger than the existing facility by 0.81 acres (3,300 m^2). The area east of the airport, where vehicles use it as an open parking lot, should remain the same as the existing one. The access to the site is forked, similarly to the primary airport access round-about. This area will also access the terminal curb through a one-way lane. This area can be used for commercial vehicles, parking, or access to the new proposed private hangar and general aviation apron.

Landside Development Option 2

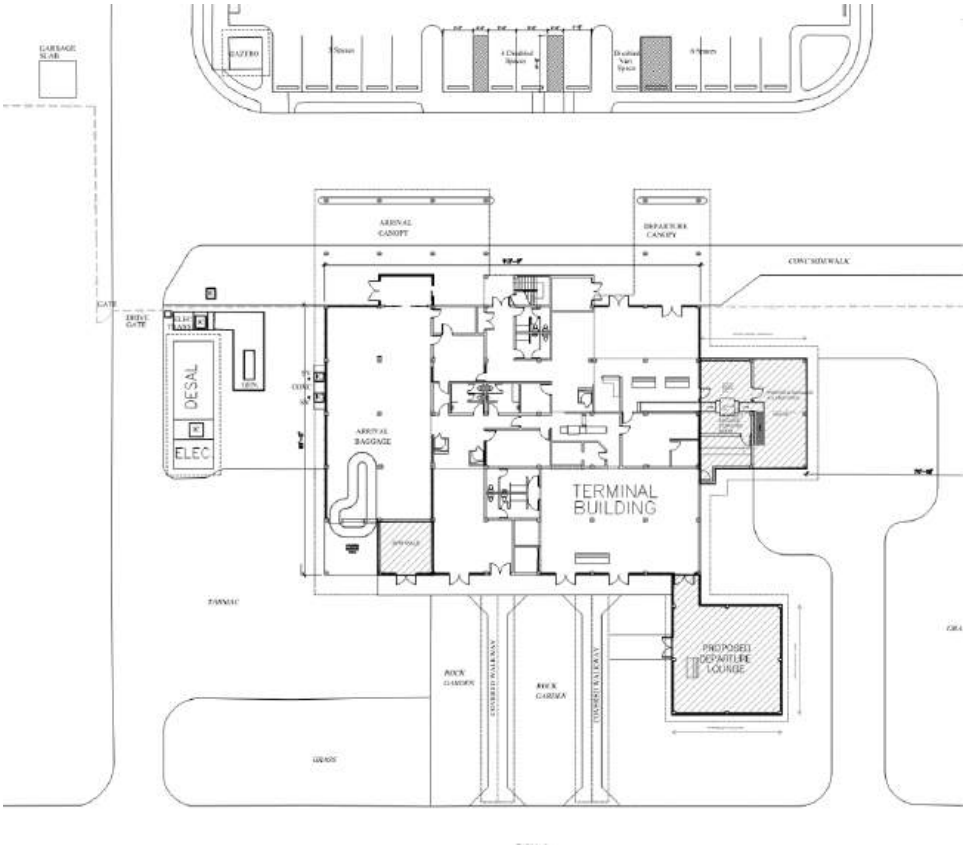
Refer to Figure 8.41 - Landside Development Option 2 to reference the additional land acquisitions required. A one-way access road is proposed for the airport terminal and parking lot. The one-lane road becomes two lanes in front of the terminal so vehicles can load and unload at the curb. The access to the main parking lot will be at the entrance of the airport property. A two-way road is proposed to access the airport maintenance facilities and rescue firefighting services located west of the terminal building. Vehicles accessing the maintenance and firefighting facilities are not required to pass by the parking lot access or the terminal building curb.

The landside development Option 2 accommodates the 100 ft. (30.5 m) clearance from the terminal building to any roads, curbs, or parking lot. As a result, the area in front of the terminal building is reduced, and the parking lot is only 0.32 acres (1,283 m^2). A second parking lot is therefore proposed east of the terminal building, at 0.47 acres (1,903 m^3). The access to the second parking lot is the same as the primary airport access, which is forked. This area will also have access to the terminal curb and is easily accessible to the new proposed private hangar and GA apron.

8.4.3 Terminal

The Cayman Brac International Airport terminal development reflects the passenger growth forecasted. Within 5 to 10 years, the airport terminal will no longer be capable of supporting a good level of service nor will the space and processors be sufficient to process passengers efficiently in the peak hours, leading to an erosion of passenger experience, longer queues and ultimately flight delays.

Figure 8.42: Existing Terminal Layout, CKIA



Based on the limited land area available within the airport property boundary, it was determined that the terminal must expand at its current location to ensure that the aircraft apron and landside infrastructure do not need to be relocated at great cost and inconvenience. As such, two (2) feasible alternatives were considered:

A) Expand the existing ATB in its current location

B) Demolish and replace the existing ATB with a new building on current site of the ATB.

Several factors led the CIAA and consultant team to determine that a new building would be required.

- The existing ATB is less than 40% of the size required by planning year 2041.
- Building life cycle is nearing the end of its useful life.
- The existing terminal configuration is not conducive to larger aircraft types such as multiple ATR-42 or B737 MAX 8 aircraft.
- Expansion of the existing building is difficult, complex, and operationally disruptive.
- The Rubis fuel farm and associated fueling facilities are immediately east of the ATB, resulting in little to no room to expand without relocating the Rubis fueling facilities.
- The CIAA airport Fire Hall and maintenance facilities are well west of the ATB and there is space between the Fire Hall and ATB for building expansion. However, there is a diesel generator located at the northwest corner of the ATB which must be relocated.
- There is a need for a new ATC Tower elsewhere at CKIA due to limited line of site visibility from the current ATB.

As such, the evaluation of alternatives determined that the demolition of the existing ATB and replacement with a new, modern facility that is capable of supporting future demand and optimal passenger facilitation. Considering that the airport may continue to support international passenger flights, it is prudent to plan for improved international passenger facilities at the CKIA ATB that align with the objectives of the CICBC, CAACI and the airport operator, CIAA.

Figure 8.43: Proposed New ATB Configuration, CKIA



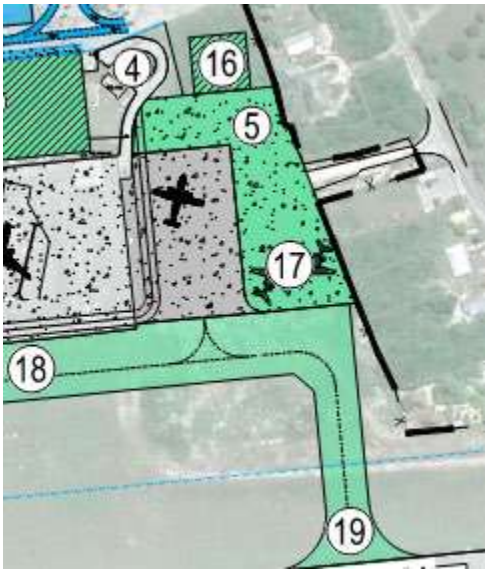
8.4.4 Other Aviation Facilities

A private FBO facility, on private land (adjacent to the airport boundary west of the terminal area, and north of the runway) has been presented to the CIAA for review. A concept was provided, which has been incorporated into the land use plan, pending approval and agreements with CIAA. The key issue to consider is the approval of direct access from the private FBO onto the airfield and runway. There are both monetary and regulatory issues to be resolved before a private, off-airport development is permitted access onto the runway.

Another GA development for expanded apron parking and hangar (item #10 in Figure 8.44) is proposed for the area currently occupied by the Water Authority and which may be cleared when replaced by a new water facility off airport. This hangar and apron could be built and operated by the CIAA in support of and to accommodate GA aircraft operators. It could be leased to a private, third-party GA operator; either way, facilitating GA at CKIA would create new aeronautical and non-aeronautical revenue streams for the CIAA.

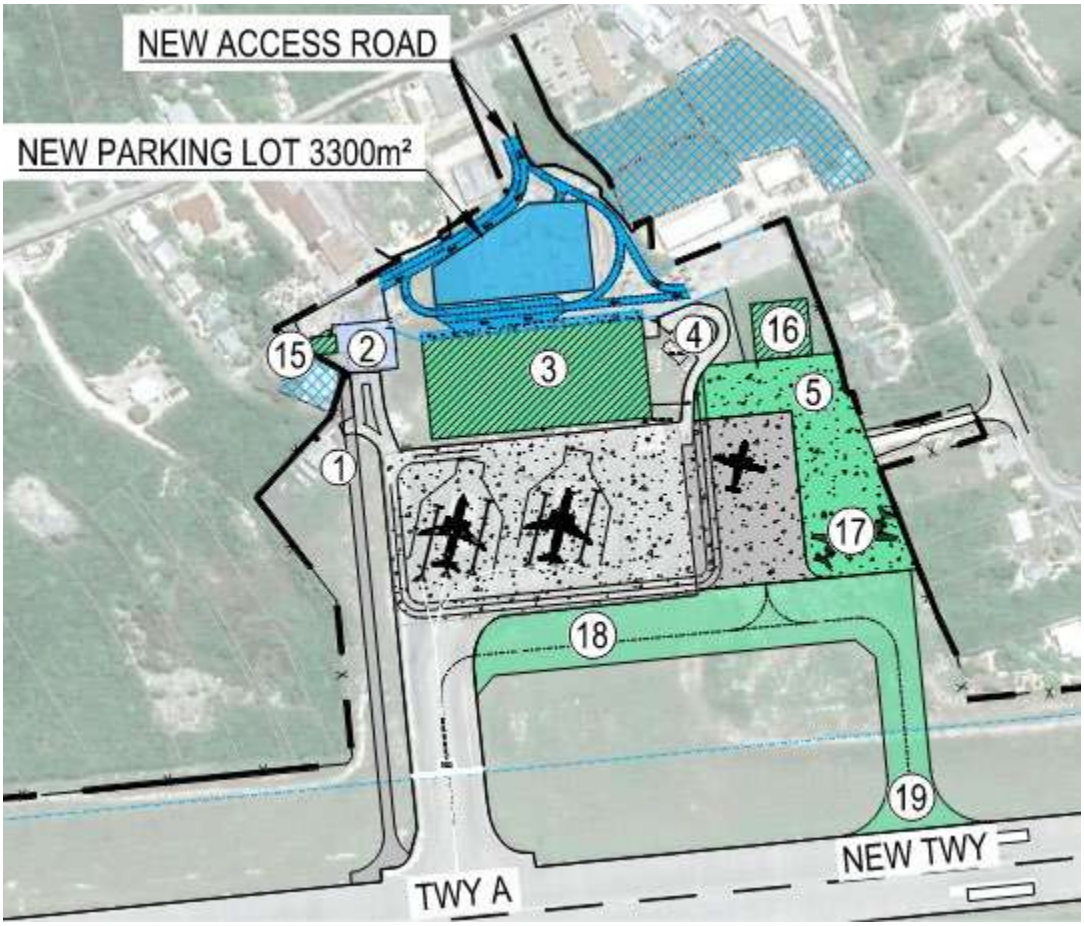
Such hangar (item #16) and apron (#17) area could be accessed by a separate entrance into the airport on the east side of the contemplated GA area, as indicated in the Figure 8.44 below:

Figure 8.44: New GA Hangar and Apron, East Side of Commercial Apron



Space for an expanded Airport Maintenance Facility (#15 in Figure 8.45 below) is proposed in the area immediately west of the existing Fire Hall as indicated by the letter ‘A’ in the image below. The CIFS may require space for additional ARFF vehicle bays in future, while additional building space is currently needed for CKIA airport operations and maintenance services.

Figure 8.45: Expanded Fire Hall and Airport Maintenance Facility



The preferred airport development options for CKIA, in the short, medium and long term, are provided in Appendix I. Development of either option is dependent on future security regulations in force at CKIA, including the determination of the 100 ft. setback from the terminal building, should it be required.

8.5 Edward Bodden Airfield, EBA

The proposed new airport location is towards the southwestern end of Little Cayman, approximately 1,500 m northeast of the existing airport. The approximate location of the current EBA (LCB) and the proposed location for the new airport (LCB2) are illustrated in Figure 8.46.

Figure 8.46: Existing EBA and Alternate Airport Site, (LCB2) Little Cayman



8.5.1 Airside

Three options for the new airport (LCB2) runway were considered: i) 2C non-precision, ii) 2C non-instrument, and iii) 3C non-instrument.

Summary of each option:

- 2C non-precision: lighted runway 3,934 ft. (1199 m) x 100 ft. (30 m), runway strip 460 ft. (140 m), approach surface 3.33% (1:30), and a protected area for a potential future taxiway parallel to the runway centerline – Figure 8.47
- 2C non-instrument: lighted runway 3,934 ft. (1199 m) x 100 ft. (30 m), runway strip 262 ft., (80 m) approach surface 4% (1:25) future taxiway parallel to runway centerline – Figure 8.48
- 3C non-instrument: lighted runway 5,000 ft. (1524 m) x 100 ft. (30 m), runway strip 492 ft. (150 m), approach surface 3.33% (1:30), future taxiway parallel to the runway centerline – Figure 8.49

Figure 8.47: New Airport, LCB2: Code 2C Non-Precision Instrument Runway

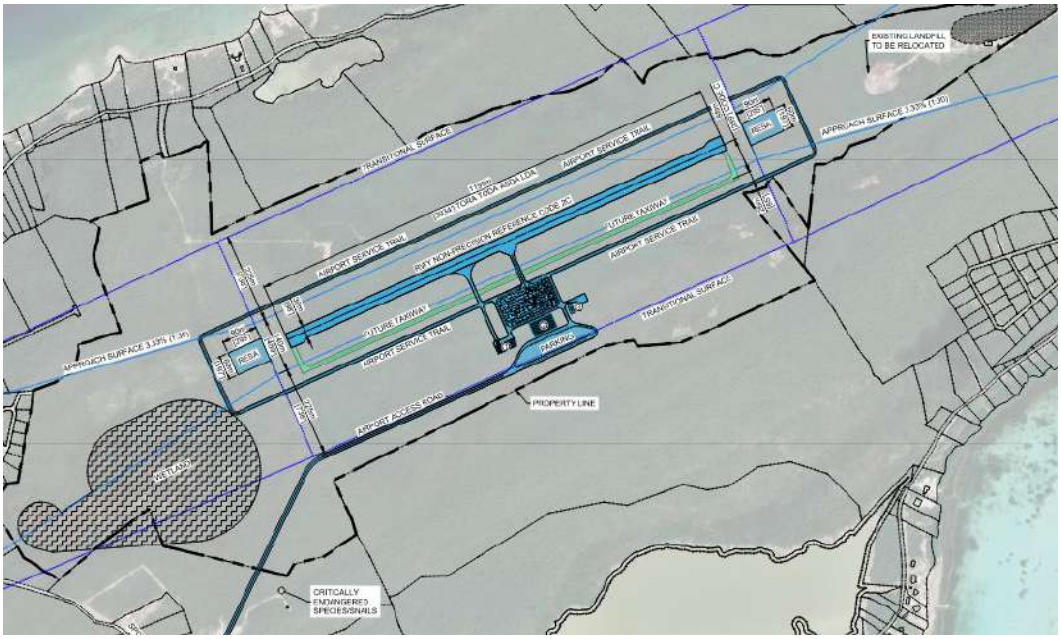


Figure 8.48: New Airport, LCB2: Code 2C Non-Instrument Runway

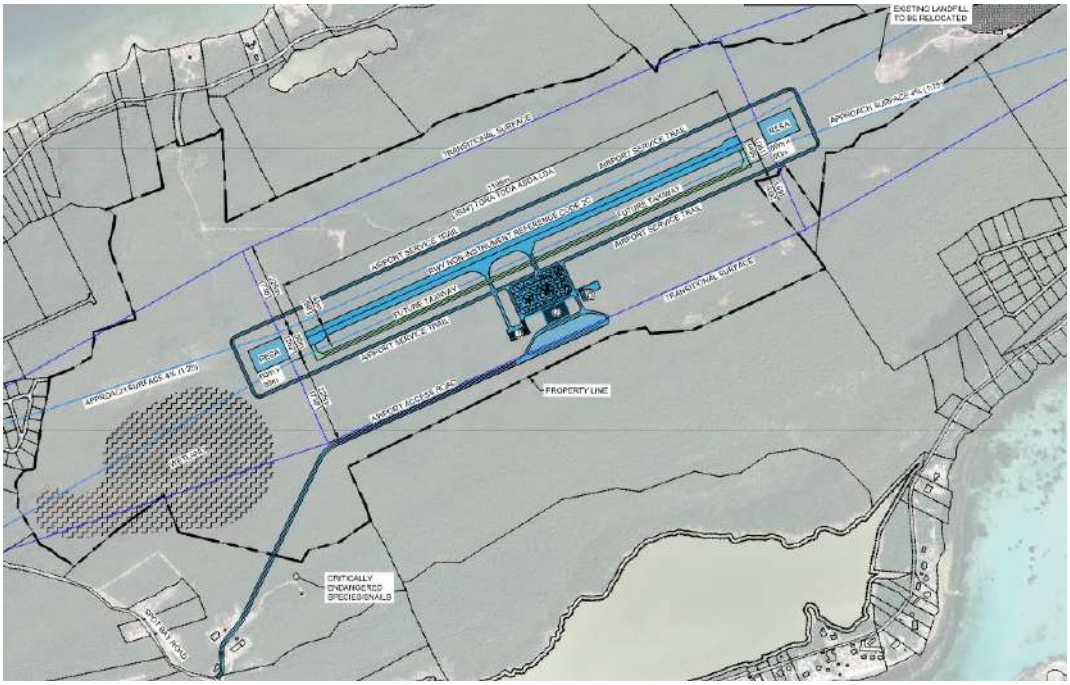


Figure 8.49: New Airport, LCB2: Code 3C Non-Precision Instrument Runway



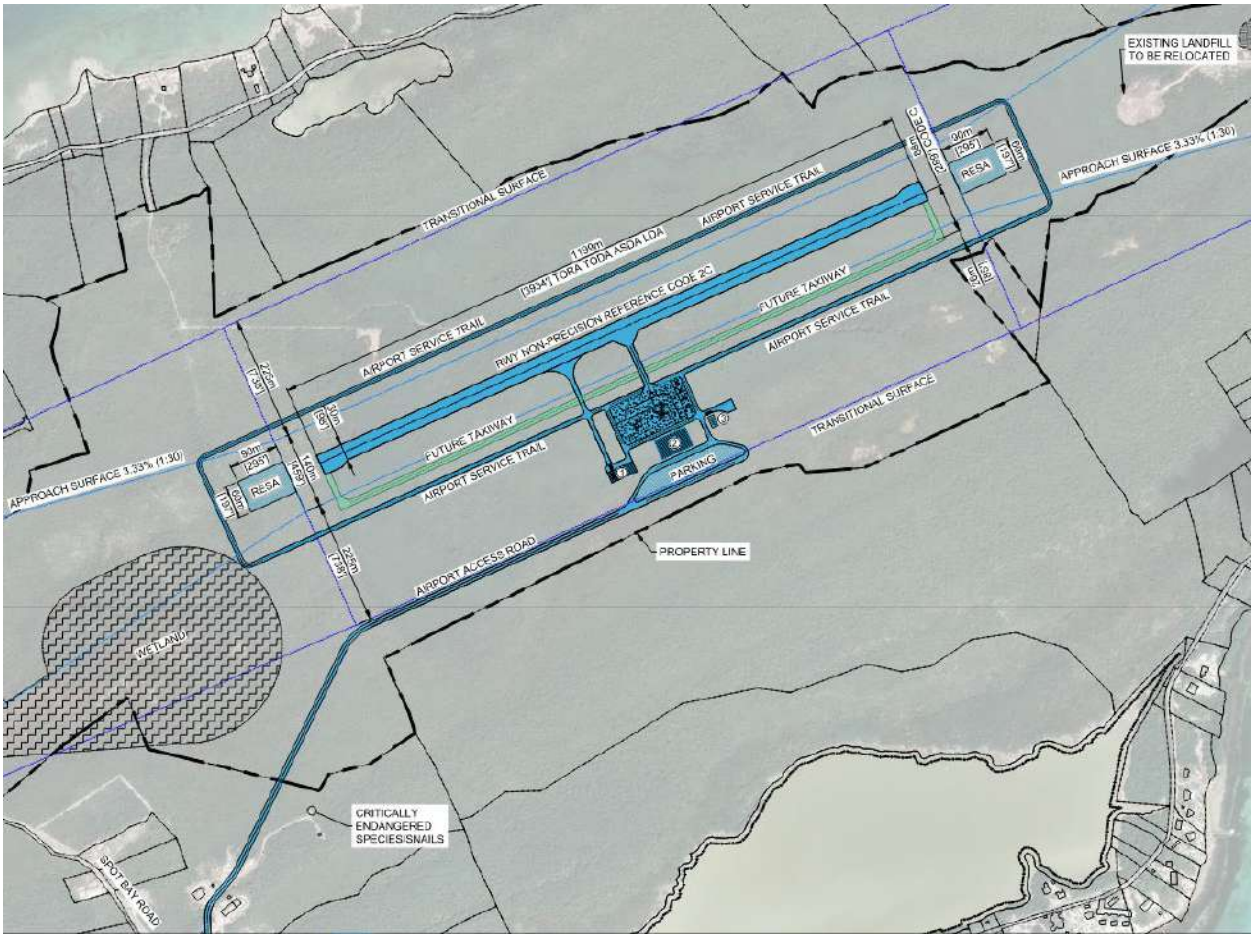
The preferred new airport development option is the 2C non-precision instrument runway. This airport layout plan resulted in a minimal impact to the environmental, optimizes aircraft operations based on the predominant wind directions, and facilitate the access of passengers to the airport. The preferred airport layout is illustrated in Figure 8.50. The planned new runway is a non-precision, reference Code 2C, 3,933 ft. (1,199 m) long by 100 ft. (30 m) wide. The runway strip measures 460 ft (140 m) each side of the runway centerline and the RESAs measure 295 ft., (90 m) long by 197 ft., (60 m) wide is provided at both ends. A future parallel taxiway is shown in plan, which is 290 ft. (88 m) distance from the runway centreline, but it is unlikely that the aircraft peak hour traffic would require this infrastructure.

An airport service perimeter trail around the airfield is planned.

The airfield will be lighted, enabling 24/7 access by Medevac flights; night flights are currently not possible at Edward Bodden Airfield.

The preferred airport development options for the New Little Cayman Airport (LYB2) for the short, medium and long term, are provide in Appendix J.

Figure 8.50: Proposed LCB2: 2C Non-Precision Instrument Runway



The runway is accessible by a single taxiway perpendicular to the runway at the runway centre point, that connects to the aircraft parking apron. The aircraft parking apron is in front of the terminal building where it accommodates commercial and general aviation aircraft parking. See Figure 8.50 for details. An aircraft maintenance area (index #1) and a fuel facility (#3) are planned on both sides of the passenger terminal, as illustrated in Figure 8.50. The existing landfill located northeast of the runway is to be closed, as it is considered an attractant to birds and other wildlife that could potentially interfere with safe aviation operations in the vicinity of the airport.

The runway was purposefully positioned such that it would remain away from any seasonal wetlands located southwest of the runway and the proposed residential areas northwest of the extended runway centerline.

8.5.2 Landside Facilities

The landside includes the main airport access road from the existing Spot Bay Road to the southwest which has been aligned to bypass critically endangered species (tiny snails) for environmental protection. Figure 8.50 shows the airport access road connecting Spot Bay Road to the parking lot and terminal building. An EIA will provide the details and insights into other necessary modifications to the airport land use plan and layout required to ensure a sustainable airport development that respects and mitigates impacts to the environment prior to the new Little Cayman Airport being developed.

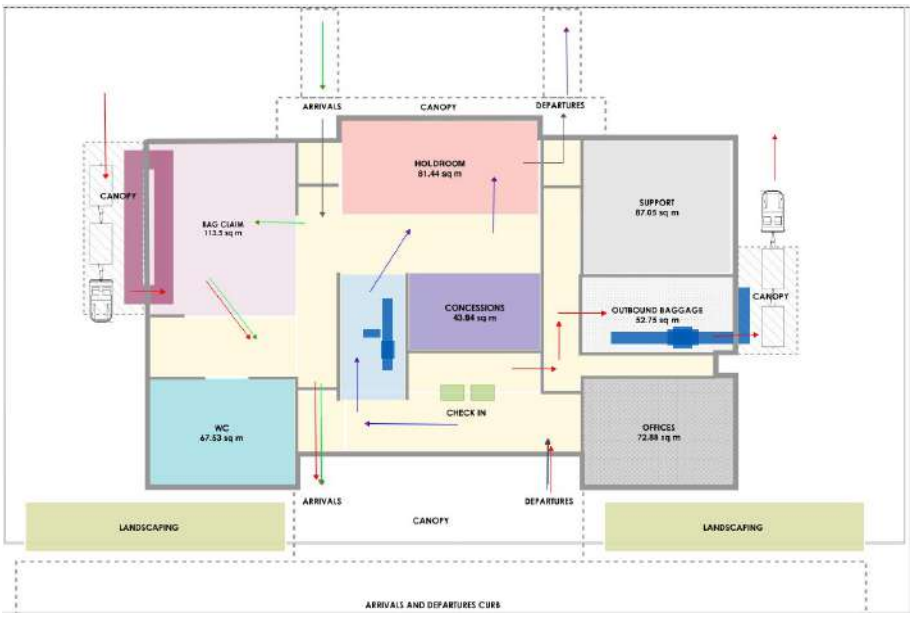
A small parking lot allows space for up to twenty (20) vehicles and is generally considered short-term parking based on the nature of ground transportation on Little Cayman. The landside parking and terminal curb space is best utilized for passenger drop-off and pick-up by private car, taxis, and resort shuttle vans. An organized parking and curb alignment will ensure safe and efficient modal changes for passengers and visitors alike.

8.5.3 Terminal

The air terminal facility at LCB2 (NEW Little Cayman Airport) is planned to accommodate a single Code C (ATR-42 or ATR-72) or two Code B (Saab 340, DHC-6 Twin Otter) passenger aircraft in the peak hour. The security regulator has stated that if LCB2 has aircraft operating over 10,000 kg, then all aerodrome security regulations become applicable including the requirement for passenger security screening, something that is not currently in place at EBA.

Departing passengers shall enter the building on landside and immediately proceed to check-in and baggage drop counters. Passengers proceed through a single security screening checkpoint into a common secure departure lounge area. Baggage is moved by conveyor belts through the CTX screening machines, to the east end of the terminal through a chute in the ATB east wall, for ground handlers to load onto carts prior to being loaded directly onto the aircraft. Domestic outbound passengers may mingle with inbound arriving passengers, as they would have been screened in either ORIA or CKIA. Departing passengers will board the aircraft after walking onto the apron from the terminal, guided by the airline representatives. This will be clarified in future with ASSI at the time of terminal design to ensure the terminal meets the current security standards and requirements.

Figure 8.51: Proposed Air Terminal Building at LCB2



Arriving passengers will walk from the aircraft across the apron and into the ATB where they can collect their baggage which arrives by conveyor belt through the west wall after being offloaded by the ground handlers. Arriving passengers can exit the terminal directly onto the landside curb. Both arriving and departing passengers have access to the washrooms and concessions within the terminal; canopies providing protection from the elements are planned over the landside curb to protect a few passengers, and over the ground handlers' baggage pick-up and drop-off carousels.

8.5.4 Other

A firehall and a maintenance garage are provided to the west of the ATB, with direct road access onto the runway by ARFF vehicles.

The maintenance garage is required for repair and storage of airport maintenance equipment, (such as grass cutting equipment, tractors) and storage of airfield maintenance and operations supplies. Airfield lighting supplies and repairs can also be conducted from this combined services building.

An aviation fuel tank and dispensing pumps are planned for the aircraft parking apron; this facility allows airlines such as CAL to reduce fuel loads for aircraft operating with heavier passenger loads from ORIA and CKIA due to short distances. However, if the fuel was unavailable, (as it is today at EBA) then airlines must plan for a heavier fuel load for the returning flight, making the landing aircraft heavier and potentially reducing the revenue generating passenger loads.

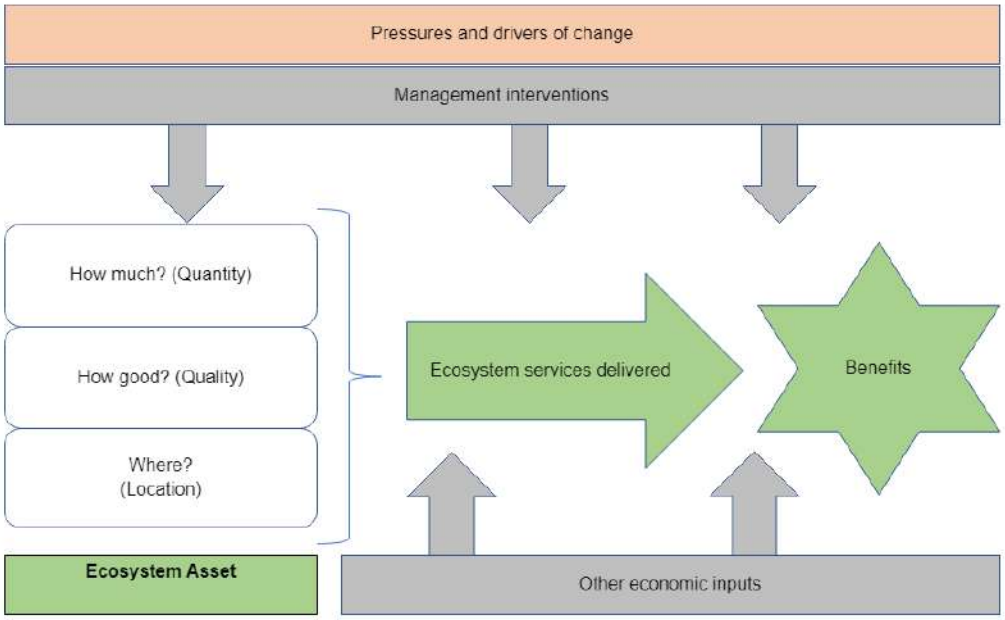
9 Environmental Context & Analysis of Airport Development Options

9.1 Introduction

The ENCA (Environmental Natural Capital Approach) methodology was adopted as per the Green Book requirements. We used a natural capital approach to provide us with a framework (Figure 9.1 below) to better understand how different design options may have varying effects on the environment. The advantage of this approach is that it does not always require monetary valuation and since it is a shared framework that can be applied across different disciplines from engineering to environmental assessments to provide a common understanding of the value of nature.

Taking a natural capital approach recognizes the spatial variation of environmental issues while identifying ways in which economic and social activity is dependent upon the natural environment. This approach enables a more comprehensive cost to benefit analysis and risk assessment while providing a basis for uniform and systematic accounting over time across a range of alternatives or options. Consequently, it reduces the risk of devaluing the natural environment whether monetized or not and being ignored in decision making.

Figure 9.1: The Natural Capital Framework



9.2 Methodology

We modified and used the Microsoft Excel ENCA template in the Green Book to gather relevant information for each design option identified in the shortlisted appraisal for the three islands – Little Cayman, Cayman Brac and Grand Cayman. We followed the four-step methodology recommended in the Green Book's Enabling a Natural Capital Approach (ENCA). Since the screening questions suggested potential impacts on the islands' environment as well as on the welfare of the population, we followed an 'impact pathway approach to the assessment.'

Step 1: Understand the environmental context of the proposal

For each design option, we first described the proposed features with their location, spatial extent, and time to implement the measure. Then we overlayed these features on the land use base map with aerial imagery from Google Earth to qualitatively analyze the scale and spatial reach of the specific intervention.

We used the typology of 'broad habitats' provided in the template, which included freshwater, woodlands, coastal margins, marine, mountains, and semi-natural grasslands, urban and enclosed farmland. For a detailed description and analysis of the impacted habitat for each design option shortlisted for appraisal, please see Appendix G.

Step 2: Consider how natural assets might be affected

As our next step, we looked at a range of natural assets like land use, atmosphere, water bodies, natural resources, species, wildlife habitats and soils that may be specifically affected and the nature of the effects – physical, spatial, or biological. For this, we considered whether the impacts are localized or widespread; discrete or diffused; modest or significant; and in the immediate, short, or long timeframe. We looked at the critical habitat data provided by the Cayman Islands Department of Environment (DOE) to determine whether any of the features in the design options directly impacted critical habitat. For a detailed description and analysis of the impacted assets for each design option shortlisted for appraisal, please see Appendix G.

Step 3: Welfare implications

In this step, we considered each option's potentially harmful impacts or any natural benefits. We considered multiple impacts, including noise, air and water pollution, habitat loss, recreation, etc., while ensuring no double counting when those impacts overlapped. For example, in the case of Option 1 (A1) for Grand Cayman, an existing playground is proposed to be removed and a terminal placed in its stead. This will impact the welfare by a loss of recreational value but also convert a green space into hardened/concrete structure, thus impacting stormwater runoff.

We qualitatively assessed the range and intensity of the impacts associated with the changes. While some of these effects can be quantified, a valuation estimate was not within the scope of this project. For a detailed description and analysis of the impacted assets for each design option, please see Appendix G.



Step 4: Uncertainties and optimize outcomes

Finally, using subject matter expertise and judgement, we analyzed each option for its inherent risks and potential opportunities for mitigation. In this step, we considered the critical factors that have the most influence on the measures presented in each option. We also looked at ways to manage these and mitigate risks and, finally, looked for opportunities presented in the proposed design features.

9.3 Analysis

All options shortlisted for appraisal were considered, and then options were identified/selected as 'preferred options' for each island. The preferred options were chosen through consultation with the CIAA and were then analyzed using the ENCA. Table 9.1 shows all the options shortlisted for appraisal, with the preferred options to which the ENCA was applied described in green text.

After completing the four methodology steps, we created a matrix with each option for the three islands and ranked the overall impacts as 'High,' Medium,' and 'Low' (Table 9.2). This ranking was based on professional judgment and subject matter expertise. Further information would be needed to provide a valuation estimate. Not currently within the scope of the project. Additionally, there would be the need for appropriate investigations and data collection as part of an EIA prior to any of the options being developed. For a detailed description and analysis of the impacted assets for each design option shortlisted for appraisal, please see Appendix G.

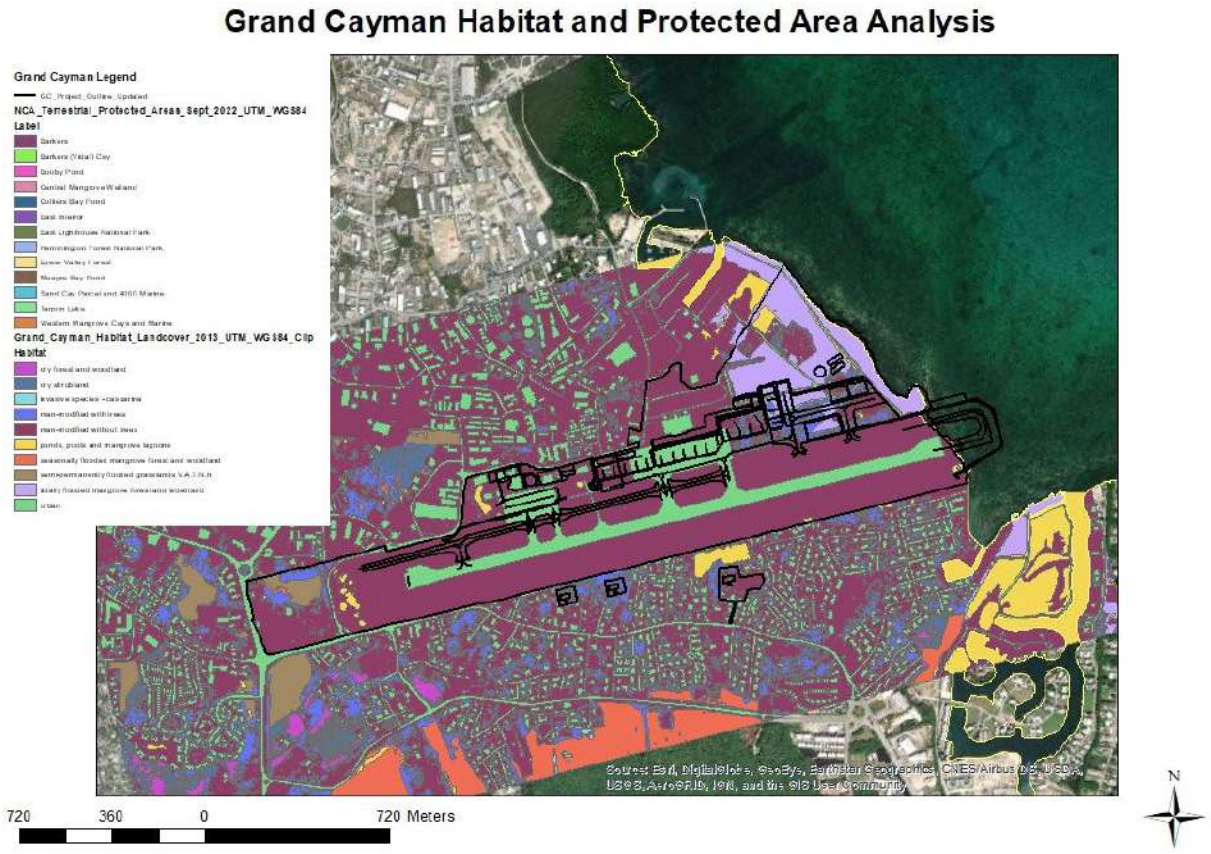


Table 9.1: Shortlisted Options for Appraisal

Grand Cayman A1	Grand Cayman A2	Cayman Brac	Little Cayman
Option 1 Status quo: All GA traffic served from current location with capacity constraints and a dated facility.	Option 1 Status quo: All GA traffic served from current location with capacity constraints and a dated facility	Option 1 Status quo: business as usual.	Option 1 Status quo - business as usual.
Option 2 Upgrade existing terminal building, minor apron expansion.	Option 2 Do minimum - minimal upgrades, no expansion to current airside and landside infrastructure to cater for limited growth in aircraft movements and passengers.	Option 2 Do minimum - minimal upgrades (no expansion) to current airside and landside infrastructure to cater for limited growth in aircraft movements and passengers. Relinquish International status. Exemptions to regulations continue (regardless of international status).	Option 2 Do minimum - minimal upgrades / expansion to current airside or landside infrastructure, cater for limited growth in aircraft movements and passengers. Exemptions to regulations continue.
Option 3 Replace existing GA terminal building and expand aircraft parking apron, expand, or build new hangars adjacent to GA Terminal and on the existing playground	Option 3 Moderate upgrades and expansion to current airside and landside infrastructure to cater for moderate growth in aircraft movements and passengers.	Option 3 Minimal upgrades and expansion to current airside and landside infrastructure to cater for low growth in aircraft movements and passengers. Modify lands as needed to meet regulatory requirements and applicable standards.	Option 3 Close Existing Airport and Build New Airport and new airside and landside infrastructure to cater for the most-likely forecast growth in aircraft movements and passengers. Build to meet all applicable regulatory requirements and standards.
Option 4 Expand aircraft parking at the North Sound site, replace the existing / new terminal building at existing site.	Option 4 Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers.	Option 4 Moderate upgrades and expansion to current airside and landside infrastructure.	Option 4 Sell or Close Existing Airport, to be replaced by Ferry / Helicopter / Seaplane service
Option 6 Relocate and upgrade the GA terminal/ aircraft parking to the North Sound site.	Option 6 Upgrades and expansion to current airside and landside infrastructure to cater for growth in aircraft movements and passengers exceeding forecasts.	Option 5 Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers. Acquire lands / meet all applicable regulatory requirements and standards.	

9.3.1 GRAND CAYMAN

Figure 9.2: Grand Cayman Airport Layout and Habitat and Protected Areas Analysis



9.3.1.1 Project A1 Option 3

Replace the existing GA terminal building and, expand the aircraft parking apron, expand, or build new hangars adjacent to GA Terminal and on the existing playground.

Risks

- The proposed design includes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system - resulting in lost aquatic habitat and associated species.
- The expansion also requires the removal of mangrove areas, and of 'ponds, pools and mangrove lagoons' will lead to the loss of associated species.
- Existing forested habitats and associated species will be removed/lost.

- Increased tourism and increased operations will put increased pressure on the freshwater supply.
- Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events.
- Sea level rise and extreme weather events can affect proposed structures.

Mitigate Risks

- Permission needed from DOE/planning to remove mangroves or a Section 20 Permit.
- Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply.
- A coastal study should be done to determine the effect of the change on the shoreline.
- Based on the risk tolerance of the CIAA, we are assuming that the design parameters consider Sea Level Rise (SLR) scenarios. Further climate change risk modelling, including SLR and extreme weather events, is needed.

Opportunities

- An updated airport with additional air traffic could increase tourism and make emergency access to the island easier.

9.3.1.2 Project A1 Option 4

Expand aircraft parking at the North Sound site and replace the existing/new terminal building at the existing site.

Risks

- The proposed design includes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system - resulting in lost aquatic habitat and associated species.
- Expansion also requires the removal of mangrove areas, and of 'ponds, pools and mangrove lagoons' will lead to the loss of associated species.
- Existing forested habitats and associated species will be removed/lost.
- Increased tourism and increased operations will put increased pressure on the freshwater supply.
- Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events.
- Sea level rise and extreme weather events can affect proposed structures.

Mitigate Risks

- Permission needed from DOE/planning to remove mangroves or a Section 20 Permit.
- Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply.
- A coastal study should be done to determine the effect of the change on the shoreline.
- Based on the risk tolerance of the CIAA, we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modelling, including SLR and extreme weather events, is needed.

Opportunities

- An updated airport with additional air traffic could increase tourism and make emergency access to the island easier.

9.3.1.3 Project A1 Option 6

Relocate and upgrade the GA terminal/ aircraft parking to the North Sound site. Relocate the Fire Training Center to the Gun Club grounds.

Risks

- Existing forested habitat and associated species will be removed/lost.
- Increased tourism and increased operations will put increased pressure on the freshwater supply.
- Sea level rise and extreme weather events can affect proposed structures.

Mitigate Risks

- Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply.
- Potential for EIA scoping for Fire Training Center chemical catchment system on site.

Opportunities

- An updated airport with additional air traffic could increase tourism and make emergency access to the island easier.

9.3.1.4 Project A2 Option 4

Upgrades and expansion to current airside and landside infrastructure to cater to the forecast growth in aircraft movements and passengers.

Risks:

- The proposed design includes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system - resulting in lost aquatic habitat and associated species.
- Expansion also requires the removal of mangrove areas, and of 'ponds, pools and mangrove lagoons' will lead to the loss of associated species.
- Existing forested habitats and associated species will be removed/lost.
- Increased tourism and increased operations will put increased pressure on the freshwater supply.
- Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events.
- Sea level rise and extreme weather events can affect proposed structures.

Mitigate Risks

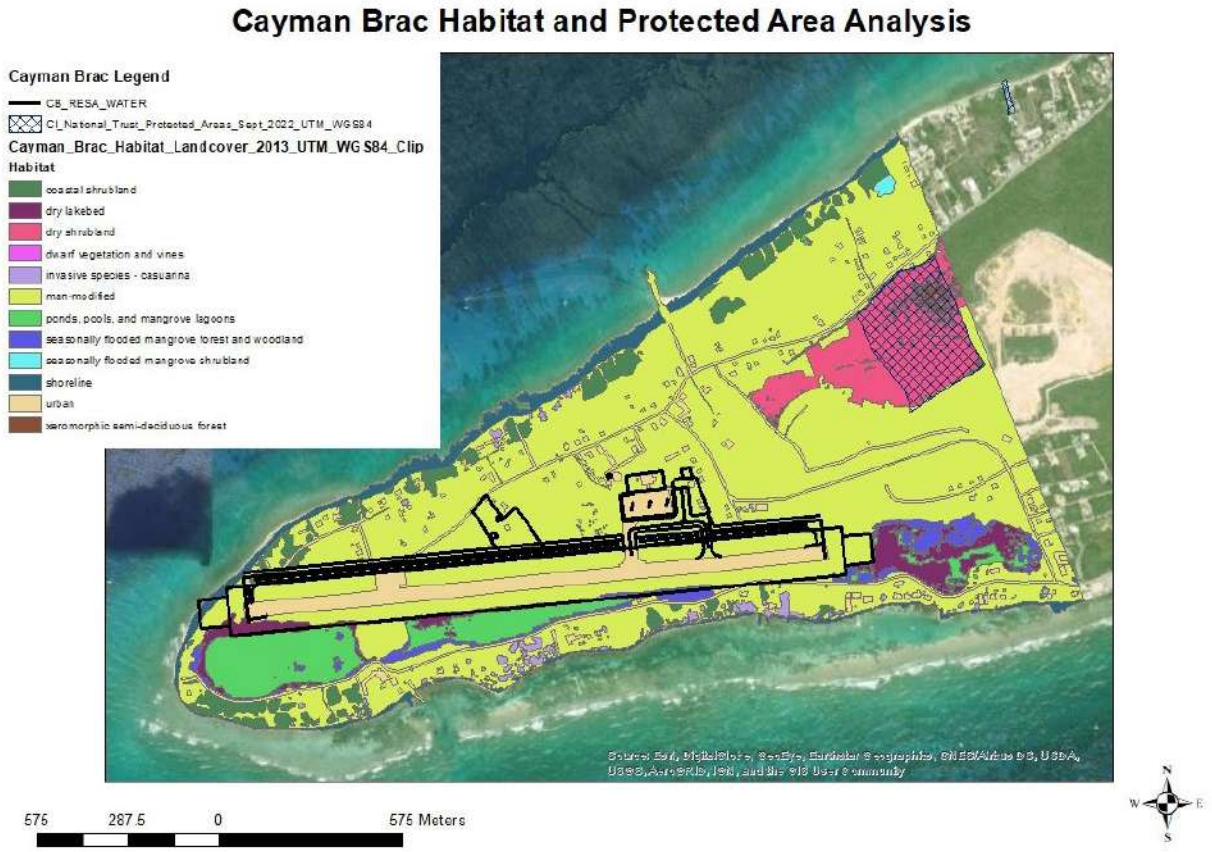
- Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply.
- A coastal study should be done to determine the effect of the change in the shoreline.

Opportunities

- An updated airport with additional air traffic could increase tourism and make emergency access to the island easier.

9.3.2 Cayman Brac

Figure 9.3: Cayman Brac Airport Layout and Habitat and Protected Areas Analysis



9.3.2.1 Option 3

Minimal upgrades and expansion to current airside and landside infrastructure to cater for low growth in aircraft movements and passengers. Modify lands as needed to meet regulatory requirements and applicable standards.

Risks

- Existing forested habitats (including seasonally flooded mangroves) and associated species will be removed/lost.
- Fill is proposed to be placed in two ponds adjacent to the airport, which would result in a loss of pond habitat and associated species.
- Increased tourism and increased operations will put increased pressure on the freshwater supply.
- Sea level rise and extreme weather events can affect proposed structures.

Mitigate Risks

- Permission needed from DOE/planning to remove mangroves or a Section 20 Permit.
- Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply.
- Based on the risk tolerance of the CIAA, we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modelling, including SLR and extreme weather events, is needed.

Opportunities

- An updated airport with additional air traffic could increase tourism and make emergency access to the island easier.

9.3.2.2 Option 5

Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers. Acquire lands/meet all applicable regulatory requirements and standards.

Risks:

- Existing forested habitats and associated species will be removed/lost. Fill is proposed to be placed in two ponds adjacent to the airport, which would result in a loss of pond habitat and associated species.
- Expansion into the ocean will result in lost aquatic habitat and associated species.
- Increased tourism and increased operations will put increased pressure on the freshwater supply.
- Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events.
- Sea level rise and extreme weather events can affect proposed structures.

Mitigate Risks

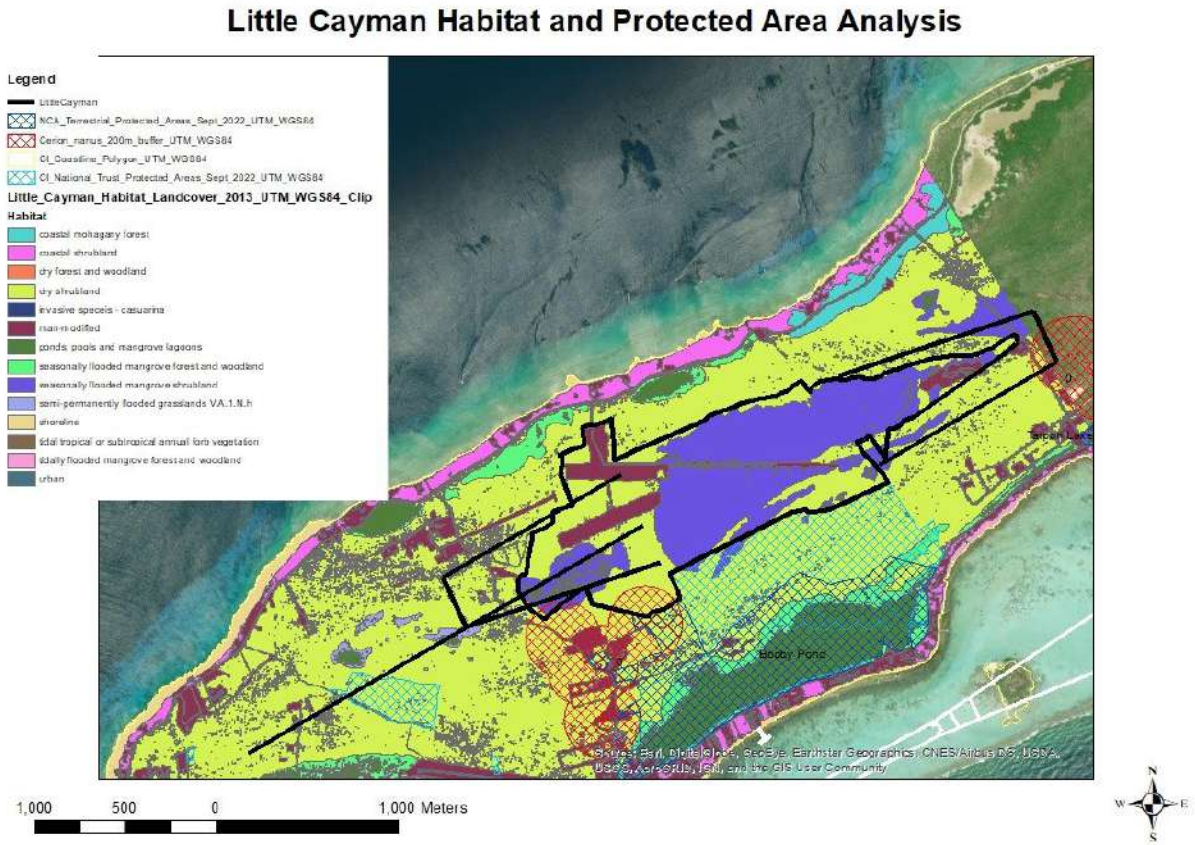
- Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply.
- A coastal study should be done to determine the effect of the change on the shoreline.
- Based on the risk tolerance of the CIAA, we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modelling, including SLR and extreme weather events, is needed.

Opportunities

- An updated airport with additional air traffic could increase tourism and make emergency access to the island easier.

9.3.3 Little Cayman

Figure 9.4: Little Cayman Airport layout and Habitat and protected Areas Analysis



9.3.3.1 Option 3

Close Existing Airports and Build New Airports and new airside and landside infrastructure to cater to the most-likely forecast growth in aircraft movements and passengers. Build to meet all applicable regulatory requirements and standards.

Risks

- Existing forested habitat and associated species will be removed/lost
- 600 m of proposed airport access road runs through Cerion Nanus land snail habitat
- 130 m of proposed airport access road runs through the Booby Pond Nature Reserve
- Sea level rise and extreme weather events can affect proposed structures

Mitigate Risks

- Based on the risk tolerance of the CIAA, we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modelling, including SLR and extreme weather events, is needed.

Opportunities

- An updated airport with additional air traffic could increase tourism and make emergency access to the island easier.

9.3.3.2 Option 4

Sell or Close Existing Airport to be replaced by Ferry/Helicopter/Seaplane service.

Risks:

- Increased seaplane and ferry traffic may have an effect on aquatic life.
- Proposed dock expansion extends into nearshore waters, shading existing habitat.
- In the event of an emergency/need for evacuation or provision of services, discontinuation of the current airport may affect vital services.
- Sea level rise and extreme weather events can affect proposed structures

Mitigate Risks

- Emergency evacuation plan, provision of services plan, emergency plans in place
- Based on the risk tolerance of the CIAA, we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modelling, including SLR and extreme weather events, is needed.

Opportunities

- Discontinued use of existing airport cuts down on emissions and resources needed to run the facility.

Table 9.2: Relative Overall Potential Environmental Impact of Preferred Options

Island	Options	Description	Impact
Grand Cayman	Option 3 (A1)	Replace the existing GA terminal building and expand aircraft parking apron, expand, or build new hangars adjacent to GA Terminal and on the existing playground.	**Medium**
	Option 4 (A1)	Expand aircraft parking at the North Sound site, replace the existing / new terminal building at existing site.	**High**
	Option 6 (A1)	Relocate and upgrade the GA terminal/ aircraft parking to the North Sound site. Construction of purpose -built hangars.	**Low**
	Option 4 (A2)	Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers.	**Low**
Cayman Brac	Option 3	Minimal upgrades and expansion to current airside and landside infrastructure to cater for low growth in aircraft movements and passengers. Modify lands as needed to meet regulatory requirements and applicable standards.	**Low**
	Option 6	Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers. Acquire lands / meet all applicable regulatory requirements and standards	**High**
Little Cayman	Option 3	Close Existing Airport and Build New Airport and new airside and landside infrastructure to cater for the most-likely forecast growth in aircraft movements and passengers. Build to meet all applicable regulatory requirements and standards.	**High**
	Option 4	Sell or Close Existing Airport, to be replaced by Ferry / Helicopter / Seaplane service	**Low**

Note:
**Ranking is relative, not quantitative and is per island.

9.4 Environmental Context and Conclusions (ECC)

9.4.1 ECC #1:

The ENCA analyses allowed high-level comparisons of the potential environmental impacts of the options.

9.4.2 ECC #2:

The comparisons are among options at each location/island and do not include comparisons of relative impacts across islands.

9.4.3 ECC #3:

Information presented in this section is not intended to be a stand-alone document but rather will be included in the airport master planning document. The format in which the information is presented in the Master Plan may be different from that presented in this document.

9.4.4 ECC #4:

The ENCA analysis is not intended to be a substitute for an environmental or social impact assessment of any of the considered options.

9.4.5 ECC #5:

The environmental option analysis provided information that was then input to a wider option analysis which included other components/variables to be considered in the airport master planning process.

9.4.6 ECC #6:

Regulations and best practices require that an environmental impact assessment (EIA) be completed for any option(s) that is eventually chosen for development. Any required permits will also need to be obtained.

10 Outline Business Case Summary

10.1 Overview of the Outline Business Case

The Outline Business Case was prepared in support of the proposed Airports Development Projects for the Cayman Islands. The OBC covers the Master Planning for the development of the following Projects:

Project A1: **The General Aviation (GA) terminal at Owen Roberts International Airport (ORIA), Grand Cayman**

Project A2: **Owen Roberts International Airport (ORIA), Grand Cayman**

Project B: **Charles Kirkconnell International Airport (CKIA), Cayman Brac**

Project C: **Edward Bodden Airfield (EBA), Little Cayman**

The aim of the OBC and the Master Planning Project is to evaluate the requirements of each of the Airports, to ensure that each airport is capable of coping with the forecast levels of demand. Furthermore, the interconnectivity of the sister islands, the conveyance of a strong brand image for the Cayman Islands, environmental issues and health and safety factors are also important considerations for any expansion or development of the Cayman Islands Airports.

The OBC outlines the context against which a long list of airport development options has been evaluated, and it identifies the key drivers for change. The OBC also details value for money (Economic Case) and affordability (Financial Case) considerations. Finally, it provides guidance on preferred procurement routes (Commercial Case) and management (Management Case) arrangements required to deliver each project.

The OBC has been prepared using the agreed standard and format for business cases using the Five Case Model, which comprises the following key components:

Strategic case Examines how the scope of the Projects fits within the existing policy in the Cayman Islands and outlines a case for change in terms of existing and future needs.

Economic Case Evaluates the long list of options identified in detail. It has elements of qualitative and quantitative analysis. It culminates in the identification of a Preferred Option for each Project.

Commercial Case Outlines the proposed procurement route in relation to the Preferred Option for each Project outlined in the economic case.

Financial Case Assesses the overall affordability of the Preferred Options in terms of funding and financing.

Management Case Addresses the achievability of the Preferred Options, including how the Projects will be delivered and how the risks will be managed. It builds on the SOC by setting out in more detail the actions that will be required to ensure the successful delivery of the Projects in accordance with best practices.

The development of the OBC with the contemplated Airports Master Planned projects complies with the requirements detailed in the Green Book Guidance for the development of an OBC using the Five Case Model.

10.2 Short List of Options

From the revised long list of options, prepared jointly by the CIAA and its consultants (with ultimate approval from the Steering Committee), based upon a detailed discussion of the strengths, weaknesses, opportunities, and threats (as outlined by the Green Book), the following options were short-listed and carried forward for further development in the OBC and for further development of the ADP:

10.2.1 Project A.1 – General Aviation Terminal

Option 1: Status quo: All GA traffic served from the current location with capacity constraints and a dated facility;

Option 2: Upgrade existing terminal building, minor apron expansion;

Option 3: Replace the existing GA terminal building and expand the aircraft parking apron; expand or build new hangars adjacent to GA Terminal and on the existing playground;

Option 4: Expand aircraft parking at the North Sound site, replace the existing/new terminal building at the existing site; and

Option 6: Relocate and upgrade the GA terminal/ aircraft parking to the North Sound site.

10.2.2 Project A.2 – Owen Roberts International Airport

Option 1: Status quo: business as usual;

Option 2: Do minimum - minimal upgrades, no expansion to current airside and landside infrastructure to cater for limited growth in aircraft movements and passengers;

Option 3: Moderate upgrades and expansion to current airside and landside infrastructure to cater for moderate growth in aircraft movements and passengers;

Option 4: Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers; and

Option 5: Upgrades and expansion to current airside and landside infrastructure to cater for growth in aircraft movements and passengers exceeding forecasts.

10.2.3 Project B – Charles Kirkconnell International Airport

Option 1: Status quo: business as usual;

Option 2: Do minimum - minimal upgrades (no expansion) to current airside and landside infrastructure to cater to limited growth in aircraft movements and passengers. Relinquish International status. Exemptions to regulations continue (regardless of international status);

Option 3: Minimal upgrades and expansion to current airside and landside infrastructure to cater for low growth in aircraft movements and passengers. Modify lands as needed to meet regulatory requirements and applicable standards;

Option 4: Moderate upgrades and expansion to current airside and landside infrastructure; and

Option 5: Upgrades and expansion to current airside and landside infrastructure to cater to the forecast growth in aircraft movements and passengers. Acquire lands/meet all applicable regulatory requirements and standards.

10.2.4 Project C – Little Cayman Airfield

Option 1: Status quo: business as usual;

Option 2: Do minimum - minimal upgrades/expansion to current airside or landside infrastructure, cater for limited growth in aircraft movements and passengers. Exemptions to regulations continue;

Option 4: Close Existing Airport and Build New Airport and new airside and landside infrastructure to cater to the most-likely forecast growth in aircraft movements and passengers. Build to meet all applicable regulatory requirements and standards; and

Option 5: Sell or Close Existing Airport to be replaced by Ferry/Helicopter/Seaplane service.

Each short-listed option was evaluated against quantitative (economic), benefits and risk appraisal criteria. Key findings from the economic appraisals projected over a 60-year period (as specified in the latest Green Book Guidance) are presented below:

Table 10.1: Key findings from the economic appraisals projected over a 60-year period

	Project A.1 - Option 6	Project A.2 – Option 4	Project B – Option 5	Project C – Option 4
Undiscounted cost	($7,626,763)	$252,220,956	($336,849,611)	($129,111,641)
Economic appraisal (NPSV)	($23,405,995)	($79,380,056)	($159,111,818)	($72,141,349)
Ranking	2	1	3	2
Significant Unquantifiable benefits	Further increased capacity for future air traffic growth (i.e., potentially less costly in the long term) Greater revenue opportunity for CIAA or 3rd party operator if hangar, g/a terminal and aprons are collated Majority of east-end apron is to be constructed on brownfield / cleared lands. Hangars, GA terminal together will enable reduction in aircraft fuel burn and emissions Would allow for boat transfers/water taxis, which would drastically improve the user experience for HNWIs. Higher GA terminal satisfaction, which may lead to increased tourism (i.e., higher revenues for businesses in Cayman)	Increased capacity for future air traffic growth (i.e., potentially less costly in the long term) Improved facilitation of movement of people, goods and services, due to reduced time, lower costs from development of innovative, technology-based solutions which benefit airlines, cargo and mail shippers, and consumers	Further terminal satisfaction, which is expected to lead to increased tourism (i.e., higher revenues for businesses in Cayman) Further improved efficiency from the upgrades/expansion Further increased capacity for future air traffic growth (i.e., potentially less costly in the long term) Improvements in facilitation will lead to more efficient airport operations, benefiting the airlines, passengers and shippers, and aircraft operators	Increased capacity for future air traffic growth (i.e., potentially less costly in the long term) Further reduced risk of accidents and therefore associated costs May lead to increased revenues (i.e., higher airport revenues and increase in revenues for businesses in Little Cayman) Would facilitate more efficient medevac/ hurricane evacuation services as well as night-time flights Would allow for a better quality of service (i.e., larger planes) Reduced risk of accidents
Significant Unquantifiable benefits ranking	1	1	1	1

Note:

*A rank of 1 is the option with the lowest NPSV

10.3 Overall Findings: The Preferred Options

The methodology adopted to select the Preferred Options is consistent with the methodology used on other projects in the Cayman Islands, and we believe it to be in accordance with the latest Green Book Guidance. The overall ranking is based on the results of each appraisal category. Based on the scoring results summarized above, the Steering Committee selected the following as the Preferred Options:

Project A1: *Option 6: Relocate and upgrade the GA terminal/ aircraft parking to the North Sound site.*

Project A2: *Option 4: Upgrades and expansion to current airside and landside infrastructure to cater to the forecast growth in aircraft movements and passengers.*

Project B: *Option 5: Upgrades and expansion to current airside and landside infrastructure to cater to the forecast growth in aircraft movements and passengers. Acquire lands / meet applicable regulatory requirements and standards.*

Project C: *Option 4: Close Existing Airport and Build New Airport, including airside and landside infrastructure, to cater to the most-likely forecast growth in aircraft movements and passengers. Build to meet all applicable regulatory requirements and standards.*

It should be noted that the Preferred Options above were not necessarily the options with the lowest Net Present Value ("NPV"). However, they did all score highly in the benefits and risk appraisals. The Steering Committee, taking into account the Green Book Guidance and feedback from stakeholders, evaluated VFM with equal importance to economics, benefits and risks. The Preferred Options scored highly enough on the risks and benefits appraisals to offset any lower ranking in the economic appraisals, as shown in the table above.

10.4 Value for Money Assessment of the Preferred Options for Projects A.1, A.2, B and C

Value for Money (VfM) is a balanced judgement about finding the best way to use public resources to deliver policy objectives. The process starts with the rationale informing the setting of SMART objectives. A long-list appraisal can only be conducted once SMART objectives are set.

A shortlist of viable options can then be created. The shortlist is then compared using Cost Benefit Analysis (CBA), taking into consideration the risks, any relevant policy objectives, and qualitative factors. Only by following these steps in sequence can the Preferred Option then be identified at the end of this process as having the best VfM.

The following Table 10.2 analyses both nominal and discounted net present social values (i.e., including the quantitative benefits, costs, and risks, as well as capital costs).

Table 10.2: VfM Assessment Summary

Preferred option by project	Costs	
	Nominal costs	NPSV discounted (3.5% / 3.0%)
Project A.1	($7,626,763)	($23,405,995)
Project A.2	$252,220,956	($79,380,056)
Project B	($336,849,611)	($159,111,818)
Project C	($129,111,641)	($72,141,349)
Total costs	**($221,367,058)**	**($334,039,219)**

An initial affordability target for the Projects was not set out in the SOC. As a result, during the OBC process, the consultant team explored the high-level cost estimates of the short-listed options for each Project with the Steering Committee, and then more detailed capital cost estimates for the Preferred Options were created by the cost consultants.

The estimated capital expenditure cost for all Projects is CI$653m. A breakdown of the estimated costs for the Projects is as follows:

Table 10.3: Base Cost and Optimism Bias for Project A.1, Project A.2, Project B, and Project C

	Project A.1	Project A.2	Project B	Project C	Total cost
	$(000)s	$(000)s	$(000)s	$(000)s	$(000)s
Base cost	42,061	490,761	74,259	46,141	653,223
Optimism bias	4,206	49,076	7,426	4,614	65,322
Total Capex	**46,267**	**539,838**	**81,685**	**50,755**	**718,545**

Value for Money has been evaluated on an aggregate basis for all four projects. This is based on the scope outlined in the ADP terms of reference and the overall dependencies within the Projects. The Value for Money analysis was prepared by the OBC team and approved by the Steering Committee on the 1st of November 2022.

Further analysis and commentary on this matter can be found in the Financial Case section.

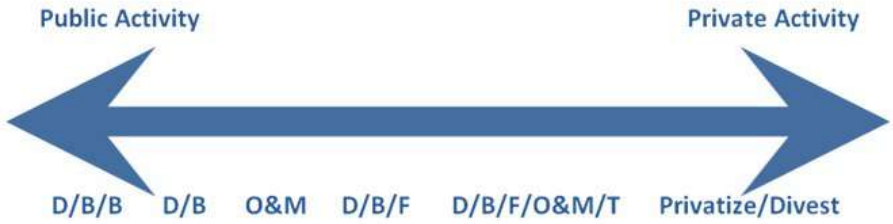
10.5 Commercial Case

The Commercial case considers the selection of the preferred procurement route for each of the Projects.

10.5.1 Preliminary Assessment of Traditional vs. P3 Procurement Strategies

The following potential procurement routes were considered:

Figure 10.1: Potential Procurement Routes



D/B/B	Public Design/Bid/Build
D/B	Design/Build
O&M	Operate and Maintain
F	Finance
T	Transfer to Public Ownership

Source: NCPPP

The following assertions, which were discussed with the Steering Committee, support the use of traditional procurement methods for the execution of the four Projects (A1, A2, B and C) as opposed to a P3 structure:

- Projects are expected to be delivered using proven design and construction concepts. While some innovation is expected from the bidder, there is limited scope that a private delivery model can provide over and above what would be available through a traditional model.
- Technical complexities relate primarily to the need to use existing buildings in the design (Projects A2 and B). This constraint is unlikely to be mitigated by the use of a private delivery model.
- CIAA has recently completed the extension of the ORIA terminal (in 2019), which was delivered using traditional delivery methods, and whilst there were some lessons learned from these works, there appears to be no obvious benefits from using a P3 approach for future works.
- Revenue generation associated with the Projects would be hard to distinguish from the business-as-usual or “do nothing” option revenues. Thus, it may be more complex to pass on-demand risk to a private sector partner.

- Projects B and C are unlikely to achieve any form of return on investment or payback on the required capital expenditures. Without the ability to generate a return, the onus would be on CIAA and/or CIG to fund any P3 partner's required returns directly. Given the small size of these projects as well, it is unlikely that a P3 approach would generate any interest in these standalone projects.
- Long-term lifecycle and maintenance requirements are expected to be routine in nature. CIAA has experience in procuring relevant solutions.
- A P3 procurement process would likely involve lengthier procurement timelines versus a traditional process. It is the Steering Committee's stated need to complete one or more of the Projects as a matter of national priority.
- At this stage, it is our understanding that CIAA is committed to funding the capital expenditure and ongoing lifecycle and maintenance expenditure of the Project through its own revenues, surpluses and, where necessary, CIG debt (which at 3.5% is expected to be cheaper than any potential external funding sources, including a P3 approach).

10.5.2 Selected Procurement Route

Due mostly to the expected timing and phasing of the Projects, it is proposed that each project would need to be procured separately. However, additional options to package combinations of the Projects will be explored during the next stage. This may be particularly important for generating interest from contractors for Projects B and C, which might otherwise appear too small for contractors to be prepared to work through the complexities of undertaking projects in Cayman Brac and Little Cayman.

Upon consideration of CIAA and CIG's preference to be actively involved in the design development and with the Senior Project Manager having analyzed the time scales for implementing the Design, Build (single or two-stage approach) and Design, Bid, Build (traditional) methods, the ***ADP Steering Committee decided to proceed with the Design, Bid, Build method as the preferred procurement route.***

10.6 Financial Case

10.6.1 Capital Costs Affordability Assessment

There was no initial affordability target set out in the SOC. The capital costs for the Preferred Option for Projects A1, A2, B and C are estimated to be CI$653m (2022 dollars*)*. There is consequently no capital affordability gap for the Preferred Options at the OBC stage, and the Steering Committee requests that the "affordability envelope" be set as per the expected cost ranges contained therein.

10.7 Management Case

The Projects are an integral part of the Strategic Policy Initiatives of CIG. In the wake of Covid-19, CIG has made clear that one of its main priorities is to rebuild and improve its tourism industry. More specifically, the exact priority with regard to the Ministry of Travel and Tourism is as follows:

> *"Continued enhancement of tourism marketing to high value source markets while ensuring a safe and stable recovery plan when the country initiates a phased reopening of borders; diversification of tourism products along with a greater focus on sustainable Ecotourism; reintegration of Caymanians within the Tourism sector to fill the void of expatriate workers who returned home due to the pandemic; continuing service by Cayman Airways to strategic tourism markets; continued enhancement of the air and sea port to meet the growth of the country; revision of public transport legislation in order to enhance and better regulate public transport; utilization of environmentally cleaner modes of public transport; and the continued implementation of the National Tourism Plan."*

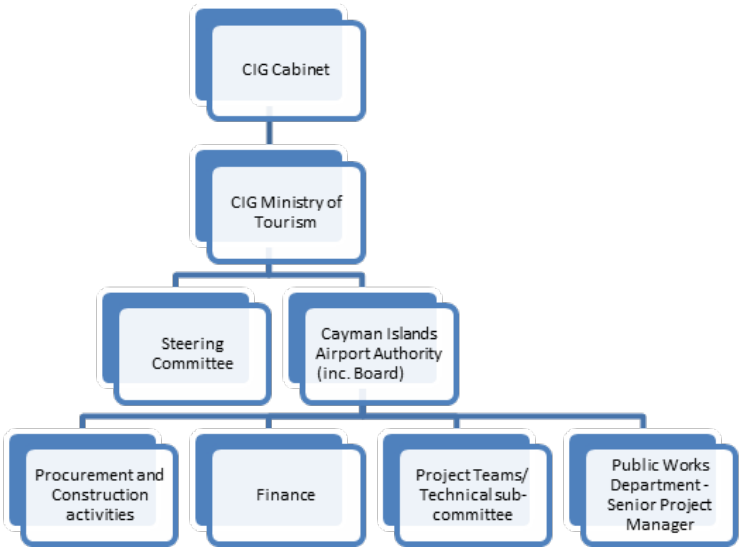
It is expected that each Project will be completed under the aegis of CIAA. The construction phase of each Project will also fall under the guidance and Project Management of PWD.

The primary objectives of the project management process are to ensure the following:

- Construction and Refurbishment of any buildings, facilities and infrastructure on time, budget and in accordance with the design brief.
- Effective and proactive lines of accountability and responsibility for the project deliverables.
- Effective user involvement at all stages of the Projects.

The proposed governance structure is envisaged to be as follows:

Figure 10.2: Proposed Governance Arrangements



10.8 Summary of OBC

The analysis above is fully supported by members of the Steering Committee who, as advisors to the Senior Responsible Officer, put forward the Projects for further approvals. Project values are indicated in estimated 2022 Caymanian dollars. The Projects put forward by the Steering Committee comprise:

Project A1: Relocate and upgrade the GA terminal/ aircraft parking to the North Sound site.
Affordability envelope (capital cost): $42m

Project A2: Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers.
Affordability envelope (capital cost): $491m

Project B: Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers. Acquire lands/meet all applicable regulatory requirements and standards.
Affordability envelope (capital cost): $74m

Project C: Close Existing Airport and Build New Airport, new airside and landside infrastructure to cater for the most-likely forecast growth in aircraft movements and passengers. Build to meet all applicable regulatory requirements and standards.
Affordability envelope (capital cost): $46m

The estimated aggregate capital cost for the Projects is CI$653m (excluding optimism bias adjustments).

Further development, procurement and execution of this process will occur at the next stage.

Project management and governance activities will be conducted as outlined in this OBC, with further development as necessary.

11 Summary Recommendations & Airports Development Phasing

The implementation and execution of the contemplated projects outlined in this master plan are subject to funding availability and Cayman Islands Government approvals. The master plan summary of the recommended projects A.1, A.2, B and C, at the three (3) Cayman Islands airports, is presented below in Table 11.1 and is spread over a twenty-year planning horizon. This project phasing, implementation, and percentage of spend (per each project cost estimate total) will change based on timing of budget approvals and project approvals.

In the short term, the Cayman Islands Government has approved, in 2023, a revised project implementation plan, presented below in Table 11.2. The approved projects are specifically the General Aviation Terminal Project, the CKIA Runway Strip Widening Project, The Air Traffic Management Surveillance Project and the ORIA runway Extension Project. In addition to these approved projects the Cayman Islands Government has additionally approved “seed funds”, provided by the Department of Tourism and Ports, for the Conceptual Design of the Terminal Expansion Project and an Environmental Impact Assessment for the Little Cayman Airport Relocation Project.

Table 11.1: 20-Year Projects Implementation Schedule & Value (%) per Annum

S= Short Term M= Medium Term Long= Long Term			% of Total Value Estimate																		
			Short Term					Medium Term					Long Term								
Priority	Description of Sub-Project	Project Base	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
	General Aviation Terminal, ORIA, Grand Cayman																				
S	New G/A Terminal east side, North Sound site	A.1	10	40	50																
S	New Hangar next to g/a terminal	A.1			10	40	50														
S/M	New apron, north-sound	A.1	10		15	25		25	25												
	Owen Roberts International Airport, Grand Cayman																				
S/M	Land acquisition (ATC Tower location, Andy's and Car Rental properties, Budget and lot near CAL plot (LT)	A.2	25	25				25	15				10								
S/M	Terminal Expansion	A.2	5	5	20	15	25	25	5												
S/M	Apron expansion, and rehabilitation	A.2	5	20					20	20	15	10	10								
S	Runway extension	A.2	5	5	80	10															
M	Full Parallel taxiway	A.2								5	20	75									
L	Cargo / Future MRO/Engine Run-up Aprons	A.2																	10	40	50
L	Marine Dock / Seawall for water taxi services interface with airport	A.2											5	45	50						
M	Landside works	A.2		10					10	30	50										
L	Heliport, Medevac/Police/Tourism Center	A.2											10	40	50						
S	New ATC Tower and ATM System	A.2	5	45	50																
M	Airfield drainage improvements and pumping station	A.2	5							10	85										
	Charles Kirkconnell International Airport, Cayman Brac																				
S	Landside expansion to accommodate 30m set-back security regulation	B					100														
L	Terminal expansion, meets future requirements	B											10	15	25	25	25				
L	Maintenance facility expansion	B															10	10	80		
S	Runway strip and RESA works (REVIEW)	B	5	95																	
M	Rehabilitate Runway, Taxiway, Apron,	B								5	50	45									
M/L	Site Works, fencing, contingency, fees, etc. (MORE DETAIL)	B							10	10	10	10	10	10	10	10	10	10			
M	Apron expansion and 2nd taxiway to runway from apron	B								5	55	40									
L	General Aviation apron	B															10	40	50		
L	ATC Tower	B												10	40	50					
	New Edward Bodden Airport, Little Cayman																				
S	EIA, Runway, NEW taxiway, apron	C	5	5	10	30	40	10													
S	Access road, terminal curb road and parking lot	C	5	5	80	10															
S	Airport perimeter road and fence	C					10	50	40												
S	Site Clearing	C			25	75															
S	Terminal	C	5	5			40	50													

11.1 20-Year Project Implementation Plan

The 20-Year Project Implementation Plan for the ADP is subject to funding and requires approvals from the Cayman Islands Government prior to implementation.

As such, the following projects are considered in chronological order, divided by airport:

11.1.1 Short-Term (2023-2027)

11.1.1.1 ORIA

The initial projects required to meet demand in the short-term at ORIA include the following projects:

Phase 1: Environmental Impact Assessments

- Runway extension and runway strip drainage
- Other projects as designated by the NCC

Phase 2: Design

- Facility design
  - Runway drainage improvements and extension
  - Commercial Apron and Taxiway Expansion
  - New GA Terminal, Aprons and Taxiway
  - Conceptual design of the GTC and Landside Access and Related Facilities
  - Conceptual design of the Air Terminal Building Expansion

Phase 3: Construction

- New GA Terminal, Hangar, and apron (east side near North Sound)
- Runway Extension, to the east (into North Sound)
  - Phase 1: EIA
  - Phase 2: Design
  - Phase 3: Construction
- New ATC Tower and ATM Surveillance System
- Commercial Apron Expansion and Rehabilitation
- GTC and Landside Access and Related Facilities
- Air Terminal Building Expansion

The need for the following activities is separate from the above phases but should be considered early in the projects:

- Land Acquisition for
  - ATC Tower (South / Central to planned Runway 08-26)
  - Rental Car Properties, Andy's Rental Car
  - Landside lot close to CAL plot.

The preferred airport development options for ORIA, in the short, medium and long term, are provided in Appendix H.

11.1.1.2 CKIA

The projects only required to meet regulatory requirements are contemplated in the short-term at CKIA and which include the following:

- Landside expansion to accommodate the potential future 30 m (100 ft.) set-back security regulations (regulatory compliance)
- Runway strip improvements (regulatory compliance)
- A minimum of a 90 m RESA (runway end safety area) constructed for each end, Runway 09-27

The preferred airport development options for CKIA, in the short, medium and long term, are provided in Appendix I.

11.1.1.3 New Airport, Little Cayman Island

The projects required to enable the CIG and CIAA to develop the new airport (LCB2) on Little Cayman Island in the short-term to include the following:

- Phase 1: EIA
  - new aerodrome facilities (runway, terminal, parking lot and road access, perimeter trail)
- Phase 2: Geotechnical and Topographic (and Obstacle) Surveys
- Phase 3: Design, Updated Cost Estimates
- Phase 4: Construction of New Airport (timeline begins in year 3, but may be extended out to medium term pending information obtained in phases 1, 2, and 3)

The preferred airport development options for the New Little Cayman Airport (LYB2) for the short, medium and long term, are provide in Appendix J.

11.1.2 Medium-Term (2028 – 2032)

11.1.2.1 ORIA

The projects required to meet demand in the medium term at ORIA include the following:

- Ongoing Land Acquisition (continued from short-term above, as required)
- Air Terminal Building Expansion
- Commercial (Main) Apron Expansion
- New fully parallel taxiway (Golf to Bravo Taxiway)
- Airfield and runway strip drainage improvements, pumping station
- Landside Ground Transportation Centre/Parking Structure

11.1.2.2 CKIA

The projects required to meet demand in the medium term at CKIA include the following:

- Runway 09-27 surface rehabilitation
- Airfield site works, fencing and related projects
- Commercial Apron expansion
- New Taxiway B link from apron to runway

11.1.2.3 New Airport, Little Cayman Island

The projects required to meet demand and development requirements in the medium term at LCB2 include the following:

- Airport construction continued from the short-term phase (runway, taxiway, apron, terminal, maintenance garage/ARFF Fire Hall, perimeter road, fuel tanks and pumps, landside facilities, access road, and signage).

11.1.3 Long-Term (2033 – 2042)

11.1.3.1 ORIA

The projects required to meet demand in the long term at ORIA include the following:

- Development of the cargo area
- Marine dock and Seawall on North Sound, north of the GA Terminal
- New Heliport for Police/Medevac/Tourism helicopters, north of the GA Terminal

11.1.3.2 CKIA

The projects required to meet demand in the long term at CKIA include the following:

- Air Terminal Building Expansion
- New GA Apron (adjacent to Private Hangar Lease lot)
- New ATC Tower

11.1.3.3 New Airport, Little Cayman Island

- Ongoing airport maintenance
- Potential perimeter security/wildlife fencing

During the writing of this report, the CIG has approved the OBC but on a revised schedule, based in large part on the availability of funding required to accomplish the 20-year capital plan. The revised plan is provided below in Table 11.2.

A set of full-size renderings of the four Airport Development Projects (Projects A-1, A-2, B and C) is provided in Appendix K.

Table 11.2: CIG APPROVED 20-Year Project Implementation Schedule & Value (%) per Annum

S= Short Term M= Medium Term L= Long Term				% of Total Value Estimate																		
				Short Term					Medium Term					Long Term								
Priority	Priority	Description of Sub-Project	Project	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
YES	S	New G/A Terminal east side, North Sound site	A.1				1%	29%	70%													
	S	New Hangar next to g/a terminal	A.1				1%	37%	62%													
YES	S/M	New apron, north-sound	A.1	3%	4%			20%	73%													
		Project A.1 (GA facility) total:																				
YES	S/M	Land acquisition (ATC Tower location, Andy's and Car Rental properties, Budget and lot near CAL plot (LT)	A.2							25%	25%		25%	15%				10%				
YES	S/M	Terminal Expansion	A.2			1%	2%	2%	5%	10%	15%	25%	25%	15%								
	S/M	Apron expansion, and rehabilitation	A.2							5%	20%				20%	20%	15%	10%	10%			
YES	S	Runway extension	A.2	2%	2%	54%	42%															
	M	Full Parallel taxiway	A.2											5%	20%	75%						
	L	Cargo / Future MRO/Engine Run-up Aprons	A.2																	10%	40%	50%
	L	Marine Dock / Seawall for water taxi services at airport	A.2											5%	45%	50%						
YES	S/M	Landside works	A.2									10%	10%	30%	50%							
	L	Heliport, Medevac/Police/Tourism Center	A.2											10%	40%	50%						
YES	S	New ATC Tower and ATM System	A.2	3%	26%	19%					5%		5%	25%	17%							
YES	M	Airfield drainage improvements and pumping station	A.2							5%			10%	85%								
		Project A.2 (ORIA) total:																				
	S	Landside expansion to accommodate 30m set-back security regulation	B											100%								
	L	Terminal expansion, meets future requirements	B											10%	15%	25%	25%	25%				
	L	Maintenance facility expansion	B															10%	10%	80%		
YES	S	Runway strip and RESA works	B	2%	1%		97%															
	M	Rehabilitate Runway, Taxiway, Apron,	B												5%	50%	45%					
	M/L	Site Works, fencing, contingency site works	B										10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
	M	Apron expansion and 2nd taxiway to runway from apron,	B												5%	55%	40%					
	L	General Aviation apron	B																	10%	40%	50%
	L	ATC Tower	B																10%	40%	50%	
		Project B (CKIA) total:																				
YES	S	Environmental Impact Assessment	C	37%	63%																	
YES	S	EIA, Runway, NEW taxiway, apron	C			5%	5%	10%	30%	40%	10%											
YES	S	Access road, terminal curb road and parking lot	C			5%	5%	80%	10%													
YES	S	Airport perimeter road and fence	C					10%	50%	40%												
YES	S	Site Clearing, fill and other preparation	C			25%	75%															
YES	S	Terminal	C						5%	5%	40%	50%										

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Appendices

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Appendix A Stakeholder Interviews

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Entity	Date Meeting held	Attendee 1	Attendee 2	Attendee 3	Attendee 4
American Airlines	04.10.2021	Nadine	Anagracia D.		
Air Traffic Control	25.05.2021	Erick B.	Bobby B.		
Car Rentals	08.10.2021	Brian K.	Paige F.		
Cayman Airways	02.09.2021	Paul T.	Ivan F.		
Cayman Finance Ltd	22.10.2021	Jude S.			
Cayman Flying Club	26.10.2021	Tim	Jason		
Customs and Border Control	20.09.2021	Charles C.			
CDS	24.06.2021	Erimando E.	Jonathon E.		
Central Carribbean Marine Institute	19.10.2021	Kate H.			
Chamber of Commerce	05.10.2021	Will P.			
Civil Aviation Authority #1	10.06.2021	Alastair R.	Robert H	Craig S.	Nikki M.
Civil Aviation Authority meet #2	28.06.2021	Alastair R.	Nikki M.	Richard S.	
CI Tourist Association	24.09.2021	Marc L.			
CKIA	11.06.2021	Miguel M.	Derron		
Commercial and Customer Service	21.06.2021	Bianca MD.	Ivis M.		
Delta Airlines	09.09.2021	Kevin B.	Marva R.		
Dept. of Environmental Health	24.08.2021	Richard S.			
Department of Environment	22.06.2021	Gina	Fred	Wendy J.	
Department of Tourism	08.09.2021	Rosa P.	Tom. L	Ricardo S.	Gary H.
Executive Air	16.11.2021	Dale			
CIAA Executives	24.06.2021	Albert A.	Wayne D.		
CIAA Facilities	23.06.2021	Eimer P.	Nicholas J.	Kemar B.	Derick J.
FADS	25.06.2021	Dara F.	Frank F.	Randy	
Island Air	07.09.2021	Marcus C.			
Fire Department	17.06.2021	Brevan	Paul W.	Tatum	
Fosters	26.11.2021	Woody F.			
Gene Thompson	07.10.2021	Gene T.	Rahul M.	Andrew V.	
Health City	17.09.2021	Shomani S.			
HMCI	25.11.2021	Danielle C	David B.		
Health Services Authority	01.09.2021	Dr. Simmons	Dr Williams	Steve D.	
InvestCayman	14.12.2021	Jane S.			
Information Technology	03.06.2021	Mark W.	Paul J.		
Jet Blue	20.08.2021	Benjani L.	Winston W.		
Medical Services/Aitheras	27.10.2021	Mark S.			
MET	05.10.2021	John T.			
MRCU	18.06.2021	Richard C.	Ben T.		
National Trust	29.09.2021	Annick J.	Catherine C.		
National Roads Authority	30.09.2021	Edward H.	Denis T.		
CIAA Operations #1	18.06.2021	Jeremy J.			
Operations Meeting # 2	27.05.2021	Andy G.			
Police (Airbourne)	15.09.2021	Steve F.			
Police (land Operations)	27.09.2021	Kurt W.	Malcolm K.		
RUBiS	22.09.2021	Andres B	Greg C.		
CIAA Safety	02.06.2021	Andrew M.			
CIAA Security	26.05.2021	Chad Y.	Denniston		
Sister Islands Committees	15.10.2021	Greg M.	Debra V.		
SOL Petroleum	21.09.2021	Ricardo C.	Myron B.		
SouthWest	11.09.2021	Shalico			
United	10.09.2021	Phil			
Water Authority	22.06.2021	Hendrik V.	Yasmin J.	Trenton F.	

Appendix B Stakeholder Meeting Notes

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STAKEHOLDER ENGAGEMENT SURVEY DATA

Key stakeholder consultations were held to ensure that the most comprehensive database of representations and concerns expressed by the various stakeholders were considered in any future analysis, alternative development and final recommendations. Consultations took place over the period of May 2021 through to December 2021 and took the form of in person group presentations or interviews, individual interviews and/or digital conferencing.

The following data set summarizes the entire key stakeholder consultations completed.

During the course of the master planning process additional contact with the groups/individuals will be made available through the CIAAs Project Manager if required.

Master Plan Qualitative Data Collection Meeting

American Airlines 04.10.2021

Attendees:

Nadine Jennings
Anagracia D'Souza

Meeting Focus on American Airline's Operations and the interaction with CIAA - Topics for discussion:

- Overview of the 2014 comments
- American Airlines' Key Points and Observations

Discussion on the 12 points identified by American Airlines and recorded in the 2014 Master Plan:

1) *PwC / WSP outline of process*
- Informational
2) *Route planning, interest in DFW*
- This route was introduced in 2016 - Daily service in the winter and weekends in summer.
3) *Pre-clearance (not a priority)*
- No longer required. American Airlines has seen the issues in other airports that have pre-clearance. Bermuda is a good example. When there is a shortage of TSA manpower in the US this has major effects on TSA staff at origin airports, resulting in slower processing and higher passenger complaints.
4) *Would support boarding bridges and US preclearance.*
- Boarding bridges are still required to keep passengers out of the rain when enplaning and deplaning. It does not necessarily have to be jetbridges, which are high cost, but a mechanism that keeps passengers dry. The customer experience is what really matters.
5) *Departure lounge is a priority*
- Capacity is still an issue during peak passenger hours. AA process on average 13 flights in a space of a few hours on peak days and there are times that multiple flights would need to be processed through one gate. There are not enough gates.
6) *Getting bags back when there is a cancelled flight is a problem.*
- This is still a problem. The redevelopment did not address this issue. A process needs to be put in place where bags can be efficiently returned to the passenger. If possible, conveyor 5 could be used for returns, this could work. Any future design should have a dedicated conveyor for this purpose. A route needs to be identified for passengers that are in the departure hall that have a cancelled flight to enable them to return to the public side to collect their bag at a designated point in the terminal.
7) *No area for uncleared bags.*
- There is no area for delayed bags to be stored for pickup. Any future design in terminal 2 would need to have airline bag offices or a delayed bag room with individual spaces for airlines.
8) *Need for wheelchair storage*
- This has been addressed.

9) *Need for covered walkway to gates – understanding that it is to be constructed in near future.*

- A passenger walkway was constructed, however the walkway is inadequate. There is cross contamination of arriving and departing passengers. A wider walkway is required and if necessary the flower beds can be sacrificed to enable a wider walkway. As immigration processing is a slow process the walkway has become a holding area for passengers waiting to get into the immigration area. A covered holding area outside immigration is required to keep the walkway clear. Pathways within the walkway need to be able to be easily locked off to enable easy direction of passengers, whether arriving or departing, such that the two types of passenger do not mix.

10) *Would like to see space for additional kiosks*

- This has been addressed.

11) *Would like to see improved security screening*

- AA only has two issues with the SSCP. There is a requirement for a special lane for crew/VIPs/ staff etc. and improvement of the passenger flow throughput needs to be increased.

12) *Would like to see prayer room and locker area for passengers.*

- There is no prayer room and this is still a requirement. A left luggage (Locker) area has been requested by passengers and this could be a revenue generator for the CIAA. Bags would have to be screened before storage.

Discussion on Updated Key Points and Observations:

- The parking for both passengers and employees is inadequate. There needs to be more parking.
- Wheelchair attendants are required to be curbside especially now the curb is further away. People that need assistance need a process in place such that they can request help.
- The parking pay machines that are in the check in area are problematic. On busy days people that are paying for their parking are contributing to the crowded check in area. There are requests to the airlines for change and assistance. The pay machines should be relocated.
- The CUPPS service support is inadequate and needs to improve. Response times are inadequate and their operational hours are not aligned with flight times. The day to day management of CUPPS needs to improve. There needs to be a 24/7 response and a dedicated number to reach the service provider.
- The queuing area in front of the check in desks is not adequate and is not deep enough. During peak passenger hours this is a problem and does not enhance the passenger experience. There needs to be a bag drop for passengers that have processed their bags at a kiosk. There is no exit lane from the front of the check in counters. The area is too small therefore any future design would need to provide adequate space requirements during peak hours.
- The main door to check in enters onto an area where the three major airlines are processing passengers. There needs to be airline signage on the outside of the terminal to indicate the correct door to specific airlines. The far door in the west needs to be an automatic slider door for passenger convenience.

- The bag belts behind the counters feed two bag conveyors in the BMA. There should not be two major airlines on the smaller bag conveyors due to capacity issues. CUPPS management needs to ensure that three major airlines are not on the small belt.
- The bag search rooms are not adequately staffed which lead to delays. The bag screening process is not ideal. Bags, post search, are being put on the wrong conveyor and being lost.
- Due to passengers arriving early to check in, the passenger after check in may leave the terminal, however, if their bag is randomly picked out for search the passenger cannot be found and this is an issue and a resolution needs to be found.
- The CIAA should look at the Cayman Islands as a transit point for future development.
- The PA system does not work. There are blackout areas that announcements do not get heard. Specifically the food court. The PA system needs adjustments and the sound attenuation in the terminal is not good.
- CBC search parties are now getting involved with departing passengers and are selecting passengers for search. This is not an issue but selection of passengers must not happen when the gate is open. Better coordination is required by the CBC.
- The check in scales are not adequately sized. The scales need to be wider. Additionally the gap behind the check in desks and the take-away conveyor is much too narrow. Future design must allow for adequate clearances.
- The Bag Make Up area is too small for the amount of flights during peak hours. The two conveyors are inadequate and the area is too small. Future bag make up areas need to be larger. Cargo should be screened elsewhere to reduce throughputs.
- There are no airside offices. Any airside offices should be by the apron for ease of operation. Any future design should have airline offices by the ramp.
- The bag search room needs to have conveyor feeds to and from the room to put the bag back on the BMA conveyors. There are problems to retrieve bags after a bag has been searched due to no process to hand the screened bag back to the airline for loading.
- Delayed bags need to be stored in a cage or in an airline bag office.
- Airline operatives need training on the apron fire extinguishers. These are not owned by the airlines and apron staffs do not know how to operate these fire extinguishers.
- No issue with the airfield. AA is curious to see how the recent development to airfield infrastructure improves operations.
- The apron needs portable restrooms and water fountains for apron staff.
- In the administrative areas there needs to be restrooms in the airline administrative office.

Master Plan Qualitative Data Collection Meeting

Air traffic Control – 25.05.2027

Attendees:

Erick Bodden
Bobby Boggess

Meeting Focus on ORIA - Topics for discussion:

- ATC Tower Location
- Visibility
- What Technical Issues need addressing
    - Cyber Security
    - Drone Control
- Traffic/Slot Management
- Surveillance:
    - Tail recognition software
    - Surveillance equipment
- What improvements are needed on the airfield
    - Parallel Taxiway/Isolation Pad/Runway Extension east of west
- Thoughts on Remote ATC in the Brac

ATC Location

- The new location should be on the south side. The tower needs to be located somewhere laterally in the middle of the field. This will give all round visibility
- The existing ATCT is 5 stories and the new tower should be a minimum of 7 stories.
- The tower should have adequate facilities for staff, breakroom, equipment room and approach control room.
- There is potential support to have remote ATC management for the Brac and can be discussed.
- There must be a requirement for a contingency for a non-approach assist event if internet is lost.

There needs to be a better way to share "current status" information

- Real time status information to all stakeholders
    - This would allow better control of slot management
    - Frequentis – hardware purchase
    - Tail Recognition Software – remove ATC involvement

Much better Improved Surveillance

- Automatic Dependent Surveillance – Broadcast ADS-B

        - NextGen ADS-B is transforming all segments of aviation. Real-time precision, shared situational awareness, advanced applications for pilots and controllers alike.
        - Real-time ADS-B is now the preferred method of surveillance for air traffic control in the NAS
        - General aviation is safer with ADS-B traffic, weather, and flight-information services
        - Safety and efficiency improve with advanced ADS-B applications
        - ADS-B improves safety and efficiency in the air and on runways, reduces costs, and lessens harmful effects on the environment
        - Multilateral (MLAT) solution - MLAT is only available inside a subset of an ADS-B coverage footprint
    - RADAR not used to capacity – Consenza connection not in use but available – purchase of hardware required
    - Drone monitoring (DJI) – situation awareness
        - A comprehensive drone detection platform that rapidly identifies UAV communication links, gathering information such as flight status, paths, and other information in real-time. This monitoring data stream helps users make an informed response as soon as possible
        - Could this monitoring system improve bird Control/monitoring movements

Emergency Crisis Event

- Controllers need a secondary location to conduct operation in the event the primary is out of service
- Potential to keep existing tower and secondary backup location after new is operational

Airfield Observations

- 100% Parallel Taxiway completion is a critical
- Expand runway to the east not the west. Landing distance does not increase if expansion is to the west
- The code E taxiway does not need to be extended if the runway is extended east
- Keep the isolation pad – useful for engine warmups and emergency issues – potential hold area for overnight heavy equipment parking
- No known requirement for a parallel taxiway on the south side

Technical Issues that need addressing

- Procedure/equipment to control drone flights that have entered airport airspace
- Backup Internet feed for phones, computers, etc.

Next meeting will be scheduled for the week of the 7th June

Master Plan Qualitative Data Collection Meeting

Car Rental Group – 08.10.2021

Attendees:

Brian Krug
Paige Foster

Meeting focus on the Car Rental Centre and Airports Operations - Topics for discussion:

- Overview of the 2014 comments
- Car Rental Group Key Points and Observations

Discussion on the 19 points identified by Car Rentals and recorded in the 2014 Master Plan:

1) *13 different car rental companies.*
- There is no change since 2014. There are 13 major car rental companies currently operating in Grand Cayman, however several parent companies make up the 13. For example, Budget and Apex, Avis and Payless, Hertz and Firefly, Dollar and Thrifty and National and Alamo. There are others newer companies coming on line and the issue is the lack of space for incoming rental car agencies. Any future design will need to take into consideration adequate space for all.

2) *Peak day is around 100 cars/rental agency.*
- This has increased since 2014. Pre COVID figures in 2019 showed over 150 rentals per day

3) *Car rental companies are currently off-site, which was a cost decision on their part. Existing land leases is limited. Expansion and growth limited.*
- Most companies do not want to be in the airport terminal and choose to remain off airport due to the projected crowding issue around a small arrivals area, the impacts to processing renters efficiently and paying rental space. The majority of the land around the airport is now leased and/or not for sale, therefore any expansion is limited.

4) *Concerns that there is inadequate way finding signage in the terminal.*
- This is considered complete and adequate; however, there have been some complaints that Andy's rental car company is not adequately signed and airport approach road signage that indicates where to return cars is not ideal.

5) *Need for potential rental car parking on airport or use of a shuttle with designated parking position on the terminal curb*
- This should still be a consideration especially now the curb side has been moved 30m from the terminal. The issue is that ALL car rental companies need to come together to subsidize any car rental shuttle. There have been several complaints from passengers that have indicated that the distance is too far, too exposed and a shuttle should be provided.

6) *Government does not permit hotel or car rental shuttles at airport.*
- This is still the case.

7) *Existing rental car locations have no opportunity for expansion.*
- See line item 3 for detail

8) *Airport does not receive any revenues from car rental agencies.*
- This is still the case. The car rentals companies are operating off of Airport property and therefore the airport does not receive any compensation from passenger throughput.

9) *Need for covered walkway to car rental location.*

- No change. There is still no coverage from the terminal to the car rental facility and this is a source of complaint from passengers that are exposed to weather.

10) Current bus coaches are 22 seats – likely to increase to 30 seats. There are five (5) companies who provide pre-arranged transportation service.

- This is just informational

11) Too few porters at the airport.

- Renters are assisted if they are in a wheelchair; however, the larger complaint is that there are not enough baggage carts not porters. There should not only be storage of carts at the arrivals but also at the car rental centre for passenger use.

12) Need to improvement to ground transportation curb and bus/taxi staging area.

- This is considered complete.

13) Complaints: congestions particularly during pick hours, concession areas are to small - limit sales, more seating area would increase sales, insufficient storage areas, need for a duty-free concession at arrivals, people who are in queue don't shop, deliveries are difficult - lost sales,

- No discussion - This does not pertain to car rentals

14) Need for a modern space, more frontage, the uniform frontage standard,

- No discussion - This does not pertain to car rentals

15) Customers complain about long wait at the taxi dispatch

- No discussion - This does not pertain to car rentals

16) Advertising system needs to be reviewed, develop logistics of ad space for lease, more wall space

- No discussion - This does not pertain to car rentals

17) Want to keep local flavour, character

- This is considered complete

18) Concerns re: possible arrival of the new concessions, will the space allocation priority be based on how long in the facility

- This does not pertain to car rentals, however, see bullet point 6 below.

19) Leases uncertainty doesn't allow/limits investment.

- No discussion - This does not pertain to car rentals

Car Rental Group Key Points and Observations:

- There have been discussions within the car rental agencies that the Foster's owned land behind the current car rental facility has a potential to build a new expanded car rental center. There are some caveats to this approach due to the current facility having individual ownership/strata and the need to have a majority vote prior to any developments. Since the pandemic began, discussions have petered out however it is the expectation that, post COVID, discussions will resume on the possibility of a new car rental center or the possibility that the land be used for additional parking for cars and associated processing. It is unlikely that any development will proceed until there is a full return to back to 2019 levels
- There are three major complaints that need to be addressed: 1) Cover for passengers to protect from the weather 2) assistance for elderly and infirm to accompany them to and from the car rental center 3) Elderly or families with large amount of baggage require carts. Therefore, more carts for passenger use, to and from the car rental center.
- The current car rental facility has major challenges during peak passenger hours. The current agency offices are undersized due to the increased traffic that peaked in 2019 and there

needs to be some redevelopment to improve the passenger experience when renting or returning a car. It is not clear at this time how these changes will occur or when.

- Any new General Aviation Terminal needs to have reserved spaces for car pick up and drop off for GA passengers. This is a common occurrence and a GA passenger's expectation is to pick up and drop off the vehicle at the GA terminal with no fuss. Any management of these transactions should be managed by the FBO in agreement with the car rental company.
- The new loop road configuration is going to impact the car rental facility. It has been observed that passengers are already being dropped off on the road adjacent to the car rental facility. Vehicle owners are parking in the entrance to the car rental facility and even in rental car parking spaces. This will increase as the island opens back up and become a major safety concern and must be controlled.
- If the CIAA designates an area in any new terminal for car rental what is the process to determine which company can operate in this area? Any new area would have to be sized adequately to accommodate all car rental agencies.
- If there is a new terminal in the east then the preference would be to keep the car rental center in its current location and a regular shuttle transports passengers to and from the terminal. It should be noted that if a car rental center is built in the east and there is a need for two car rental centers (one for each terminal) then there will be added cost with respects to lease rent, staffing, utilities etc. These costs will be passed onto the passenger.
- A return facility or car drop off at the new terminal location would be advantageous for passenger experience
- If any CIAA owned car rental center is proposed it is essential to include the car rental center companies to ensure that accommodations are ideal.
- Car rental agencies are not concerned with any alternative outlets for transportation needs. The newer web based concepts of private individuals renting out their vehicle are not prevalent in the Cayman Islands as yet. There are some minor rental outlets that are operating potentially without licenses but do not a major impact on current operations.
- Hire by hour car share schemes are small and currently do not have any impact on airport ca rental operations.
- All alternative self-drive transport will be a concern in the future, as the demographic changes and coming of age individuals are more tolerant with web based schemes the potential to impact car rental agencies may increase.
- If the airport adopts a slot management system and introduce more night flights, this will put pressure on the car agencies from a manning standpoint. It would not be cost productive to have all car rental companies staffed late into the night to accommodate passengers. Before any slot management system and introduction of flights outside of the peak period is approve, the car rental companies should be allowed to voice concerns and discussions on what options are available to ensure all passengers are catered for.
- There are no name brand car rental companies on the Brac or LCY and there are no plans to introduce a car rental facility. The demand is very low and any car rentals are from small local enterprises.

Master Plan Qualitative Data Collection Meeting

Cayman Airways 02.09.2021

Attendees:

Ivan Forbes
Paul Tibbetts

Meeting Focus on HAS Operations and interaction with CIAA - Topic for discussion:

- Key Points and Observations

Discussion on 19 points (shown in red) identified by Cayman Airways and recorded in the 2014 Master Plan:

1) *PWC / WSP outline of process*
   - There was no discussion on this note. The note just outlined the master Planning Process conducted by WSP
2) *Expected future volumes and fleet capacity / upgrades*
   - This has been completed
3) *Route planning*
   - Added routes have been implemented
4) *Cayman Brac development*
   - This concerned international destinations from the Brac and routes were implemented. The issue at that time was the immigration process and capacity for international flights in the Brac needed to be activated. This was completed; however, some issues still exist with respect to capacity. There is a possibility that in-transit traffic going into and out of Cuba may again, due to current and future sanctions, be handled through the Brac which may have a large impact on current immigration and capacity demands
5) *Discussion of CA's strategic role for promotion of CI*
   - This has been completed
6) *Would like to see preclearance – would improve connection times if they could arrive at domestic gates in US.*
   - Cayman Airways would be supportive of pre-clearance for passengers leaving the Cayman Islands
7) *A common use club lounge would be desirable.*
   - This has been completed
8) *A major concern is the departures hold room. It is Important that the hall be expanded.*
   - The terminal departure hall has been expanded, however, there are positive signs that the new departure hall is reaching capacity and an additional expansion or new terminal may be required.
9) *Need for an in-transit lounge to accommodate flights to Cuba.*
   - This is not only for flights to Cuba and other destinations. There is still a requirement and Cayman Airways, and other airlines, would like to see a lounge to accommodate in-transit passengers. This would help all airline passengers processing in transit. This would be essential to add to any design programming in a new Terminal 2. It was noted that in any future design the international and domestic passengers will need to be separated.
10) *Would like to develop Grand Cayman as a hub for the Caribbean and Central America.*

- This is still part of the Cayman Airways Master Plan. Other carriers are potentially interested in this concept. If implemented will have an effect on terminal capacities.

11) *Suggested that as a short-term solution the airport purchase boarding ramps to accommodate disabled passengers.*

- Cayman Airways purchased mobile gangways that are accessible to disabled passengers. This is considered complete at this time but Cayman Airways is very supportive of adding CIAA supplied Jetways in the future.

12) *Cayman Airways handles approximately 250,000 lbs of cargo a month. Airline charters a Convair 580 3 times a week for air cargo.*

- The current cargo area is not large enough. Cargo has doubled since 2014 and the Cayman Airways Master Plan is to increase cargo volume. Volume is increasing and space in the current hanger is limited and another hanger will be required. Cayman Airways is supportive of moving their operations to the west to the potential Fosters Supermarket area.

13) *Cargo warehouse is operated by customs, sometimes cargo spills over to the Cayman hangar.*

- Customs have asked Cayman Airways to slow down their cargo operations during the busy festive season which is counter intuitive to growth. Customs have, in the past, requested storage space in the Cayman Airways hanger during high volume times due to their lack of storage. A solution needs to be put in place as soon as possible. All cargo, domestic and international, is mixed together which compounds the processing issues. Separation of these two types of cargo would improve processing efficiency reducing the increasing demand for storage area. Cayman Airways is supportive of a dedicated cargo area with dedicated cold storage, customs bonded warehouse etc.

14) *Need for an engine run up area – currently uses the runway during off hours.*

- Cayman Airways currently use the runway to perform their run up maintenance process. This is not ideal and Cayman Airways is requesting an engine blast wall be included in any airfield future design. Maybe this could be built into any design of the new cargo area.

15) *Current hangar is satisfactory, but would like to see additional storage space to accommodate seats and containers if they move to combi aircraft.*

- Cayman Airways have moved away from combi aircraft and this is considered complete. However, the Cayman Airways hanger is too small for the Max 8 and there is a need for a new hanger but the question is who is responsible for building the hanger. Ideally two hangers are required for both large and small aircraft. It should be noted that other airlines use the current Cayman Airways hanger for maintenance.

16) *Looking for regional turboprop aircraft for regional flights to Cayman Brac and Caribbean destinations. Aircraft would likely be a combi (ATR42). A smaller aircraft may be used for flights between Cayman Brac and Little Cayman.*

- Cayman Airways transitioned to the SAAB. Cayman Airways would like to standardize on aircraft however; the issue is that LCY needs to be revamped such that the SAAB could service LCY and the twin otters can be retired. There is a need for a cost benefit analysis to determine whether relocating the airport or continue with maintaining and flying the smaller aircraft. In addition there is a need to have a domestic terminal in Grand Cayman to support LCY traffic and due to the potential for increasing international to and from the Brac a domestic terminal /area at CKIA to separate entirely international and domestic passengers, which would also facilitate LCY flights.

17) *Cayman Brac - potential to operate connections between Miami and Cuba for Cubans holding Spanish passports.*

- This was implemented however has since been on hold. There is a strong possibility this may be resurrected in the future. See bullet #9

18) As of June 1 airline will be able to accommodate international arrivals and departures from Cayman Brac. Currently modifying terminal to include HBS and in-transit hold room.

- This has been completed

19) Expanded ramp-ready room required.

- This has been completed and a room has been made available to Cayman Airways in the BMA

Discussion on other key points and observations:

- Capacity issues at the check in area are adequate and the introduction of the slot management system may further enhance capacity. Cayman Airways do not support curbside check in; however, a check in service may work. A dedicated area for passengers to check in outside the terminal using a service company may be of benefit.
- Cayman Airways are supportive so touchless check in and the CUSS units are useful. A Cayman Airways App is coming on line soon which is another step towards the touchless process. The addition of CIAA supplied equipment to read a bar coded boarding pass would be an improvement for Cayman Airways passenger processing through the SSCP, and during the boarding process. However, the Wi-Fi is not adequate at the airport and this is a hindrance to any of the new technologies coming on line. This needs to be improved.
- It is known that the SSCP is a "choke point" for passenger processing. Cayman Airways have received no passenger complaints, however, there needs to be a minimum of 5 lanes. 4 lanes for passengers and one lane to be dedicated for staff and VIPs, Crew, etc.
- Cayman Airways have no knowledge of cooling issues in the departure hall and apart from capacity issues no comments.
- The PA system does not function correctly. The system needs to be overhauled and commissioned correctly.
- The service from the IT support team (AirInc) is not ideal. Better response times and corrective action and stocking of paper, ink etc. needs to improve.
- Assignment of gates needs to improve. A passenger leaving the terminal during the boarding process is problematic as there are very little directions and guidance. The potential for passengers to exchange boarding passes are high. Arriving and departing passengers must not mix and a system must be put in place to reduce passenger mixing.
- On the Brac the runway turn pads are not adequate and aircraft tire wear is excessive. The turn pads need to be improved.
- The Cayman Brac terminal is too small for the passenger loading from the Max 8 aircraft. Potentially 200 passengers require check in which currently is undersized and the hold room is too small and exceeds occupancy levels. There is only one baggage belt and this system needs to be expanded.
- HBS are required to examine a large % of bags for search due to the HBS screening equipment being old and not able to scan for explosives. There needs to be an upgrade of scanners to reduce this requirement to search this large % of bags. The efficiency of passenger throughput would increase substantially if this % was reduced.
- Complaints from passengers leaving the aircraft and open to the weather are very low, however, complaints have been received regarding the wait outside the terminal due to slow, movement through the immigration hall and is a source of major irritation.

Improvements need to be made on the immigration processes to allow for faster throughput. It is noted that there now are ten immigration kiosks installed which may improve throughputs. To be seen.

- Kiosks are a good step however; a global entry system would be a good addition to raise efficiency, especially for Cayman citizens.
- There have been some complaints from tug drivers for the additional time required to drive to the bag claim area, however this is not a major issue.
- The bag claim area does leak due to the lack of cover over the conveyors. A cover needs to be installed where the tug drivers introduce the bags into the terminal
- A marked usable pathway for domestic passengers needs to be established. A walkway to carousel 5 for domestic passengers, potentially on the outside or perimeter of the tug drive, would be an advantage.
- Could the old commissary building be used as an arrivals domestic terminal? This would be a good location for a small terminal for domestic passengers only. Small aircraft (SAAB and Twin Otter) loads only
- Cayman Airways have a 5 year Business Plan which is not to be released to the CIAA as yet due to a Cayman Airways Board change. Cayman Airways will share the plan with the CIAA when approved by the new Board. There are some potential radical changes that may affect ORIA Operations. Cayman Airways are exploring the potential to not fly to US major hubs but fly to minor hubs and include longer range destinations to US west coast, Canada, South America and Europe. Longer destination flights will impact Airport operational open hours.
- The CIAA needs to put together a more incentive based plan for airlines. Airlines will explore other alternatives but it is important that the CIAA recognizes these potentials with incentives to make these changes. These changes would impact passenger loadings and increase revenue for the CIAA.
- Cayman Airways are concerned that the slot management system will include stand and gate management. It is critical that gate assignments align to the gate for peak passenger efficiencies. As the host carrier, Cayman Airways need extended parking times and this is a prime factor to be considered while assignments are being decided.

Master Plan Qualitative Data Collection Meeting r2

Cayman Finance Ltd (CF) - 22.10.2021

Attendees:

Jude Scott

Meeting focus on the Cayman Islands Financial Sector Future Development and relationship with air travel:

Discussion on Key Points and Cayman Finance Observations:

Overview:

- Cayman Finance (CF) has been in operation for close to 20 years and represents the entire financial services industry in the Cayman Islands. The role of CF is to "protect, promote, develop and grow" the financial services industry in the Cayman Islands. CF supports all the industry associations as well as organizations within the industry and individual member firms by assisting in promotional work, strategic engagement, growing and protecting the industry, and working very closely with government, the regulator and international as well as local media.
- The financial services industry in the Cayman Islands drives the Cayman Islands economy. The industry represents approximately 50% of GDP and 50% of all government revenues. It is estimated that the Financial Services Industry employs approximately 8,000 people in the Cayman Islands.
- It is clear that the financial services industry in the Cayman Islands is very robust. As the financial services industry continues to grow in Cayman it is expected that employment levels will increase and these new employees will work and reside in Cayman. The projected growth is unknown however, as noted in the following bullet points, the expectation for these new employees to make Cayman their home will rise exponentially based on need.
- In 2020 certain financial sectors, regardless of the pandemic, showed significant growth which was partly due to the global nature of finance. Regardless of whether the markets are going up or down there are always investors, globally, that are interested in investing into funds. The financial services industry in the Cayman Islands is currently home to approximately 80% of international investment funds.
- In 2020, during the pandemic, Cayman Finance was able to support the Industry, Government and the Regulator as it implemented a new licensing regime for a certain category of funds which increased government revenues by over $30M in 2021. With the increase in licenses, it is expected that these regulated entities will increase the number of employees working and residing in Cayman.
- In addition to the above, in 2018 the government put in place economic substance requirements for certain types of entities such as holding companies, IP companies, etc. This has attracted new companies and companies that are already in Cayman to increase the number of employees working and living in Cayman.
- CF has for the past 5 years been involved in a pilot project to attract and encourage "Family Offices" to move to the Cayman Islands. These "offices" could be an individual or a family that are wealthy enough to establish themselves in a similar fashion as a large corporation. These family offices are hiring additional high caliber people, to come and work and live in Cayman, to manage their financial investments and legal matters.
- Additionally, CF has worked with the Industry and Government and established a re-insurance sector here in the Cayman Islands which over the last 5 years have seen positive growth and this sector has brought employees and jobs to the Cayman Islands and continues to grow.
- One new sector that CF has a focus on is Financial Technology (FinTech). This technology, as it develops, is considered in the future to be in high demand. As Cayman has developed itself as a

financial hub, it has positioned itself as a financial center and a first choice to use this new technology that promotes a secure, safe and more efficient method of managing transactions globally. In the near future, this is expected to be an industry that may have a strong presence in the Cayman Islands. This future industry is expected to bring further companies and high caliber employees to live and work in Cayman.

Key Points and Observations:

- US Pre-clearance of Customs and Immigration is a must for a business traveler and Cayman needs to pursue implementation at the earliest opportunity. The cost to support the service, which is minimal compared to the benefit to the country, could be recouped by adding the cost to airport travel taxes.
- The airport needs jet bridges. This is a must for any new terminal design.
- There needs to be enhancement to the Immigration and Customs processes which would make them more efficient. An expedited lane for business travelers is a requirement.
- The baggage screening process through the Security Screening Check Point needs to be improved with respect to expediency. An expedited lane for First class, Business Class and Premier travelers is a requirement.
- The business travel experience must be improved. A high quality First Class/Business Class lounge is essential for the business traveler to allow for quiet areas to work. Additionally, stakeholders that would have a vested interest, such as hotels or business travelers, would financially support VIP areas. A collaborative approach between the CIAA and all stakeholders would ensure the lounge is designed correctly and is adequate for their requirements. A VIP lounge could be set up as a regular revenue generator for the CIAA. For example, a hotel might choose price the lounge into their room rate such that the visitor would not experience a separate cost at the airport, the visitor would have a great experience and CIAA would get regular revenue stream.
- The recent newly renovated terminal design, although an improvement, does not deliver the passenger experience that is expected. There are still long lines, cramped areas, and inefficient processes that make for a low level of service compared to what travellers expect of the Cayman Islands product. Any new design would need to address these shortfcomings to better reflect the Cayman brand.
- Further equipment investment is necessary to reduce the percentage of random screening of bags (HBS) currently required as it is not a good customer experience to have to hand search bags with passengers present.
- The curb-side passenger drop of and pick-up is essential for passenger satisfaction and these areas should be protected from the weather.
- There is a need for more public parking. The short term parking capacity in front of the terminal needs to be expanded.
- A positive outcome from the pandemic resulted in the development of a new way of conducting financial business and working remotely has proven to be established and accepted globally. International business travel will return however, but due to the realignment of life style values, the expectation is that the business trips will be more frequent but much shorter in duration.
- The General Aviation (GA) terminal is in need of a major overhaul or replacement. The terminal is the first impression of the Cayman Islands that these wealthy people see and the last impression when they leave. The GA Terminal needs to be of a high quality to enhance the private plane business visitor's experience. Currently it does not. Any new terminal design and operation would have to exceed competitor islands GA facilities with respect to décor, services, trained staff such that it meets the expectations and positive experience of a high net worth individual.
- Wealthy people that are aircraft owners need aircraft hangers. There is no hanger space available for private owners to store their aircraft, to protect and secure the aircraft from the weather and other neighboring parked aircraft. Hangers promote longer stays for high net worth people and will be a revenue source for the CIAA. If space for hangers is not available on Grand Cayman then potentially hanger storage space on the Brac may be a solution. Private aircraft owners would have no issue parking their aircraft in the Brac when not in use if suitable hangers are available.

- There is probably no requirement for a hotel at the airport. A feasibility study would need to be conducted if one is to be considered.
- An on airport conferencing center possibly has potential but would need to be properly evaluated to ensure it does not compete with existing facilities; as well, logistics such as F&B and AV and demand for large conferences would take time to develop. A feasibility study would need to be conducted.
- If future international regulatory taxation pressures and restrictions are put on the global financial services industry then this would likely increase the demand for more physical presence and more financial services persons to be located in Cayman. A good example of this would be that as the Financial Technology sector grows and tech companies claim Cayman as their tax domicile then more employees would likely be resident and working in Cayman to work to support these requirements.
- Public-Private-Partnering of future airport infrastructure projects could be funded by issuing notes (municipal bonds) to local entities and the public. These notes could be purchased locally and would incentivize Caymanian people to “buy in” to their airport. There are a huge amount of potential investors on island that would invest in what would be a sound return on investment. This concept needs to be explored.

Master Plan Qualitative Data Collection Meeting r2

Cayman Flying Club (CFC) - 26.10.2021

Attendees:

Tim Adam (club advisor)
Jason Butcher (Interim President)

Meeting focus on the CFC origination, services and Airport interaction:

Overview of The Cayman Flying Club:

- The Cayman Flying Club (CFC) was last established between 1994 and was disbanded circa 2004. There has not been a flying club in the Cayman Islands for the last two decades. There is a robust interest for a flying school in Grand Cayman and several recent CFC meetings have been held with prospective members showing the enthusiasm for a new club which will have access to learn how to fly.
- The future planned CFC will be run as a non-profit organization (NPO). In its infancy, the CFC has currently 8 Board Directors.
- The club will be financially supported by the members and private donations from outside entities.
- CFC has already 45 members, a mix of flyers and non-flyers, and this is expected to rise when the club becomes established.
- The focus of the flight school will be on aviation education, flight pilot training and access to aircraft for recreational purposes.
- Through the NPO, the CFC will lease planes from private owners and or organizations for use for their members.
- The CFC has no associations with other clubs at this time but the intention is to affiliate with a club/s in the USA. There is the intent to have multiple associations with other overseas clubs; however, there are huge advantages to having affiliations with FAA approved flight schools.
- As the CFC is an NPO the foundation will carry no liability insurance. It is the expectation that all aircraft owners will carry the liability. An individual pilot can carry renters insurance.

Planned Club Services

- The CFC is envisaging having a minimum of 4 aircraft available for school purposes at all times.
- Some CFC members may group purchase aircraft which may add to the fleet.
- It is the intention that planes will be leased by the CFC and be serviced by their own mechanic or by the owners, depending on the arrangement.
- The CFC is considering a mechanics training program for future aircraft technicians.

- CFC pilot training will focus on single engine aircraft but will potentially expand and add instruction on twin engine planes.
- The CFC will offer an aircraft rental service to make available aircraft to members for recreation purposes.
- The CFC will purchase flight simulators for training purposes.
- The CFC has no intentions to manage glider training, drones or skydiving.

Key Points for Master Planning:

- The CFC will need a small clubhouse on the airfield along with a training room. To have a presence on the airfield is essential for training purposes.
- The club area footprint is suggested to be no more than 600 sq. ft. on two levels for a total of 1200 sq. ft. The upper level would be the training room and the expectation would be to have a lunch/snack room, bathroom facility and a small office.
- The best location for a training room and clubhouse would be adjacent to any new GA Terminal. All the available facilities in any new GA Terminal, from dispatch, weather briefing room, flight planning area, ingress/egress security, the school, snack bar etc. all necessary for a GA operation would be available to CFC pilots. Additionally having local access to the FBO maintenance hangar for minor club maintenance issues would also be an advantage.
- The CFC would be willing to lease space from a future FBO operator of a GA terminal if an area for a school was built into the GA facility under direction from the CIAA
- There is no expectation, in the short term, that the CFC will add to the aircraft mix on the current GA Apron, however, over time this may change if members begin to purchase their own aircraft.
- The CFC has no issues with any aircraft parking facility south of the runway. However, any taxiway and associated ramp would have to be funded by the CIAA.
- There are no requirements for the CIAA to support the CFC financially; however the CIAA has agreed to waiver all landing fees for training purposes.
- The club is expected to begin operation and have access to one plane by the first quarter 2022.
- The CFC will potentially lease hanger space if it becomes available. There has been some discussion from a group of members that have an interest in building a hangar. The CFC would be interested in leasing land for the potential of building a hanger but the land would need to be adjacent to the club.
- In the future there needs to be some research done on future aviation fuels and whether the airport needs to make plans on adapting to this variety of alternative fuels. Diesel, Hydrogen and electric are alternative fuels for aircraft and any future airport infrastructure development should include the possibility providing these types of fuels for aircraft.

Master Plan Qualitative Data Collection Meeting r1

Customs and Border Control (CBC) 20.09.2021

Attendees:

Charles Clifford

Meeting Focus on CBC Operations and the interaction with CIAA - Topics for discussion:

- Overview of the 2014 comments
- CBC Key Points and Observations

Discussion on the 12 points identified by CBC and recorded in the 2014 Master Plan:

1) Customs hall is too small.

- The Airport Authority has rebuilt the terminal and the immigration/customs halls have expanded. However, there have been capacity issues during peak passenger hours resulting in overcrowding and long wait times for processing. This is due to the majority of airlines arriving in a 4-5 hour window. In 2019 passenger levels had already reached levels that would warrant another expansion, however, due to the pandemic these plans have been put on hold. The immigration hall has adequate capacity now but it is assumed that post pandemic passenger levels will return.

2) Need to separate domestic arrivals from international arrivals

- Any design for Terminal 2 would need to include, for security reasons, the separation of domestic and international travelers. If it was possible for domestic and international travelers to be separated in the existing terminal it would enhance security and be beneficial to increased passenger throughputs times.

3) Requirement for a raised rover/supervisor position that can look over the immigration queue.

- This is still a need for a raised podium. Currently there is no ability to observe all passengers while they are in the queue lane. Any new terminal design will require a raised podium

4) Immigration needs to have interview booths as part of secondary immigration area. They do not need to be enclosed rooms.

- The current existing layout is sufficient.

5) Enclosed interview rooms need to be soundproof.

- The current rooms are sufficiently soundproofed. In any future design there does need to be a dedicated fully equipped sound proof interview room for evidential needs. At this point any interviewee using this room would have been detained prior to be relocated to the prison.

6) Room required for forensic investigation.

- This needs to be included in any future design for future terminal 2. If this room could be added in the existing terminal it would be beneficial. The concern is that it is necessary to make sure that there is no cross contamination of evidence.

7) Room required for English testing.

- The rules for English testing have changed and an English Testing room is no longer required.

8) Need to be on standby power.

- This has been completed. The entire terminal is on standby power

9) Looking at automated gates for residents.

- There is no requirement for automatic gates

10) Need for 16 booths plus 2 gates for residents.

- There are currently 12 booth positions and 10 kiosks. This is considered complete

11) Training room is required

- There is a training room in the old customs area but the room is too small now for training When the CBC amalgamated both Customs and Immigration the old Customs training room does not have the capacity for the number of staff from both entities. A larger room is required. Any future design of terminal 2 would need to include a training room within the terminal.

12) 22/24 staff on duty.

- This comment was non-descriptive and it is unknown what this relates to.

Discussion on Updated Key Points and Observations:

- The highest priority for the CBC is to divide the domestic and International passengers. This needs to be done as soon as possible. If development of Terminal 2 has no current schedule start date then the division of domestic and international passengers is critical to be adapted in the existing airport.
- CBC is in the early stages of the merger. A priority and an early goal for CBC is to design and begin operation of a single check point. Instead of having an immigration and customs checkpoint there would only be one unified checkpoint. This may need some major changes in the existing terminal or be included in the design of the Terminal 2. This single check point concept embraces the intelligence risk management approach and would increase passenger throughput times and increase security.
- The current CBC warehouse and administration offices are marked for upgrades. The current warehouse is in a deteriorated condition and funding is in place for the next budget cycle to refurbish. There is still ongoing discussion as to whether the existing administration building is to be relocated off site, possibly in Bodden Town, and the warehouse to be extended over the current administration building site therefore increase capacity. CBC has some interest in the Cayman Airways hanger and whether this could be fit for use. If Cayman Airways was to relocate to the east then this potentially may become available.
- The CBC supports any airport expansion to the west over the Fosters Supermarket site and potentially relocating CBC to this area and being part of a new Cargo center, sharing with Cayman Airways. This location would work for CBC. The only issue with this approach is the timing and when this could happen may not tie in with CBC plans for remediating the current warehouse or completely replacing the warehouse. This remediation has to be done in the next budget cycle due to the current condition of the building. There is a possibility that temporary off-site warehousing may solve the timing issue but this comes with significant risks and is to be avoided. To be discussed.
- There are current crowding issues with the cargo planes and private GA traffic. The current GA operations is a little disjointed and this is due to the process flow of traffic in this area is not ideal. CBC share this area with Agriculture and Cayman Airways and the

small apron footprint is indicative that expanding the GA apron is key and if possible relocating the GA operation away from cargo operations.

- The CBC check out-bound passengers but have no room for searching an individual in the SSCP. Any future terminal design would require a search room for CBC.
- There is a possibility that CBC administration may move out to Bodden town and share a facility with Fire and Police, however, there is no strong indication at this time that this would happen anytime soon due to budget constraints.
- With any new GA terminal, CBC will need search rooms. There is also a need for a canine room. This facility needs to be included in the new GA terminal and a canine room in both departures and arrivals for any new design for Terminal 2,

Master Plan Qualitative Data Collection Meeting #1

CDS 24.06.2021

Attendees:
Erimando E.
Jonathon E.

Meeting to discuss Ground Operations at ORIA

Ground Operations at ORIA

- Passenger Cover is essential for any future planning both landside and airside
- Jet bridges are Essential in any new terminal – Note this would reduce costs due to the security staff on the ramp would be significantly reduced
- The Existing GSE area needs to expand to the road. The area is maxed out and more room needed
- If the terminal 2 expansion moves forward then a GSE area needs to be in the west. The east location is too far away from Terminal 2
- Ground Handlers need an airside office preferably in the building at ramp level
- There needs to be a purpose built GSE mechanics shop for maintenance. The shop needs to have office, break room and conveniences. This shop does not need to be in the sterile area and is preferably outside the perimeter. Current existing conditions is field maintenance is occurring in the GSE area and the area is becoming messy with oil spills etc.
- When the Terminal 2 is built what will happen to the existing terminal? Can the terminal be used as an FBO?
- There is need for a central cargo center. The center caters only to cargo planes and has cold and secure storage with offices, break rooms and hangers
- Slot management is critical to prevent at peak times the cluster of planes on the ground
- The existing Terminal check in is undersized for peak passenger loads
- The take away belt behind check in desks needs to be lower or recessed in the floor to reduce lifting. Preferably a cross connect conveyor operated by the agent would remove all necessary labor to move bags to the takeaway conveyor
- The gap between the check in desks and the take away conveyor is too narrow and there have been several complaints regarding the requirement to pass behind the agent and making body contact
- The bag Claim conveyors need to be completely covered.
- The bag claim should be sterile to prevent the need off searching the tug driver on the return
- The current BMA has capacity issues. The tug lanes are too narrow and movement is restricted
- The Offices in the BMA should have been located on the ramp side of the terminal
- Passenger Bag Tagging is supported with a bag drop

- It is recommended that the CIAA have a central ice room managed by them. Ices making bagging machines are available. This is a potential revenue generator and the management of sterility is addressed on a regular basis. This has been an audit issue
- There is no loading dock in the terminal or at cargo/GA ramp
- Will be switching to all electric equipment and will need charging stations in GSE areas
- When Jet Bridges are installed they must have GPU and PCA
- There are no toilets on the ramp for ramp workers.
- The lavatory cart station is inadequate. There is no lighting. No wash down capability
- An airside gate for an employee entrance where screening can take place is required.

Master Plan Qualitative Data Collection Meeting r3

Central Caribbean Marine Institute (CCMI) - 19.10.2021

Attendees:

Kate Holden

Meeting focuses on the CCMI and past and future Airport Development:

Discussion on Key Points and CCMI Observations:

Overview:

- The research station is based on the north shore of Little Cayman.
- CCMI is an independent non-profit organization that is managed by a local board and are permitted and monitored by the Cayman Islands Department of the Environment.
- CCMI is not a lobbying body but a research unit.
- The research station has been operational since 2003 and manages between 200 to 300 international students and visiting researchers per year. In addition to this influx, CCMI manages over 200 visiting pupils per year from Caymanian primary and high schools. CCMI also awards over 100 scholarships per year. During an average year, CCMI transports in and out of Little Cayman approximately 600 individuals which equates to approximately 600 flights per year.
- The research station is built with sustainability and efficiency in mind with composting bathrooms, energy efficient, has solar power and has a rain water catchment system.
- The research focus is on coral reef resiliency and how reefs can adapt to the changing climate. Research on reef restorations is a concentration and determining what corals can be more resilient to heat and disease.

Little Cayman:

- Pollution from aircraft emissions is a concern especially if traffic increases and if there is an introduction of different aircraft types (jets). There should be a sustainable outlook to any proposed type of aircraft that fly to Little Cayman from a noise and carbon emission perspective.
- A study on the carbon footprint relating to any aircraft operations needs to be conducted and emissions mitigated as much as possible.
- Noise pollution is also a factor that needs to be studied and managed.
- A helicopter service, in lieu of an airplane service, would not be practical for CCMI as generally large groups are transported at any one time. The helicopter would have to be large enough to accommodate between 10 and 20 individuals which would likely raise the noise levels above the current standard. If any proposed large helicopter that could carry the same payload as the twin otter was proven to be noise efficient (equal or less than current noise levels) a helicopter service in lieu of a plane service may be acceptable.

- Little Cayman is well known for its healthy reef structure and is a source of attraction to divers and eco-tourists. This is due in part to the low level of infrastructure development and associated stressors.
- Any development plans on Little Cayman, from an airport perspective, should be sustainable and environmentally acceptable. Full inclusion with all environmental groups should be undertaken during the planning stages to ensure that Little Cayman is subjected to very low environmental impacts.
- CCMI have contacts with the Brac to hire a boat service to carry individuals between the islands, however, a water ferry service is weather dependent and is not practical as a replacement to an air service.
- Little Cayman does not have a dive rescue service on island and any medevac helicopter rescue has to come from Grand Cayman. Any rescue helicopter will have to have a winch component to lift individuals from the water which is essential for a water rescue; therefore if a helicopter service was introduced to Little Cayman and the craft was to permanently reside on the Brac or Little Cayman the helicopter could serve, in addition to ferry purposes, for medevac rescue provided it had a winch.
- It is unclear if a seaplane service is practical and a feasibility study would have to be conducted. However, what is known is that any sea service is reliant on the weather, would add noise and pollution to the water and any mooring or dock would have environmental impacts.
- Any relocation of the Little Cayman airport to the north would increase vehicular traffic movements to and from the airport. This would increase the road footprint and would add carbon emissions throughout the nesting habitats.
- There needs to be on Little Cayman a strategy drafted before any development proposals are put forward, to ensure that the branding of the island as an eco-tourist destination is preserved. A sensitive and sustainable strategy needs to be in place that aligns with the Little Cayman brand such that the island is protected from over development and subsequent negative environmental impacts. The island is small and any expansive infrastructure development would irrevocably damage the eco systems quite quickly.
- Tourism is good and is supported on the island. Tourism supports local businesses and raises awareness of what Little Cayman is and what the island has to offer, however this needs to be managed sustainably.

Master Plan Qualitative Data Collection Meeting

Chamber of Commerce (CoC) – 05.10.2021

Attendees:

Wil Pineau

Meeting focus - Topics for discussion:

- Overview of the 2014 comments
- Key points and observations of the Chamber of Commerce 2021 Master Plan Survey
- Additional points outlined by the Chamber of Commerce

Discussion on the 10 points identified by Chamber of Commerce and recorded in the 2014 Master Plan:

1) *CoC expressed concern about redevelopment of airports on the sister islands and that there is not the need to undertake major development. Important to prepare a priority list and undertake improvements that can be adequately funded. "Need to address low hanging fruit".*

- Priorities were focused on the ORIA and the development of the terminal and airfield. The terminal was upgraded in 2019 and the airfield runway extension, taxiway and expanded apron were completed in 2020. This is considered to have been addressed.

2) *CoC indicated that cargo lift is very important and that adequate cargo facilities are required.*

- This statement is still current as the current cargo centre is not fit for requirements. The centre is too small and congested and in need of expansion. It is unclear what the comment about a cargo lift refers to.

3) *Consideration should be given to a second airport on Grand Cayman Island that could be used for GA and air cargo.*

- The CoC concern is that Grand Cayman relies on one airport and there is no back up airport to service the island in the event that ORIA is not operable. Any additional airport would have its main function as a servicing cargo centre and managing GA. The additional airport would have to be located in the east. In the future, should ORIA be relocated to the east and the current location shut down and handed over to commercial enterprises?

4) *Need for a robust airport that can withstand hurricanes and return to service as soon as possible.*

- This has been completed. The new terminal is built to a 15# hurricane rating

5) *Standby power should support airport functionality. Presently only portions of the ATB are connected to standby power.*

- This has been completed. A 1750KVA generator has been installed during the terminal rebuild and covers all the power requirements for the airport terminal in the event of a power shutdown.

6) *Major concern about capacity and level of service. Tourism compares similar Caribbean destinations and so should the Airport: "which airports do we measure against and which type of passenger / customer are we after?"*

- Cayman's strategy is now focusing on attracting the High Net worth individual. If this focus is transferring from the package cruise ship tourist to the high net worth individual. What efforts are in place to attract for the type conferences that could accommodate over 4000 attendees?

7) *There is the belief that the airport does not meet 'international standards', which is a concern.*

- This has been addressed.

8) *Overall customer service is perceived to be low due to capacity constraints and staff training.*

- Capacity constraints are still prevalent due to the continued escalating passenger growth leading up to pre-COVID. It is expected that these figures will return post COVID and efforts must be put in place to address the capacity issue and improving on the passenger experience to ensure repeat visits.

9) *There is a GA impact that needs to be fixed.*

- This statement is still current and needs to be addressed. Aircraft parking capacity is an issue. Private aircraft owners are looking for improved parking conditions or they will look elsewhere to visit. GA terminal improvements are not a priority but aircraft parking is.

10) *The CoC also provided a letter summarizing its concerns and priorities with respect to the Airports.*

- A copy of the letter has been forwarded to the CIAA for reference.

Key Points and Observations of the Chamber of Commerce 2021 Master Plan Survey:

- A multi question survey was conducted within their member group in September 2021 by the CoC in response to a request for data gathering to be included in the CIAA new Airport Master Plan.
- 50 respondents from the Chamber of Commerce data base participated in the survey.
- 8 questions were offered. 7 questions were mandatory and 1 was optional.
- The following is a brief summary of each question responses:

    - On question #1 "does the airport support the business community?" the answers were mixed with 40% stating yes and 38% no. Primary areas of concern were the design and modernity of the expanded and refurbished terminal were lacking, parking was insufficient, curb side protection for passengers from the weather, and passenger volume management was inefficient. The level of hurricane protection for the new terminal was a concern. There is dissatisfaction to the lack of attention to the different types of travelers which does not relate to a positive passenger experience.
    - Question #2 "Does the Airport contribute to the economic prosperity of the islands?" 70% rated highly that the airport is a major factor in supporting successful business activities in the Cayman Islands. Connectivity is essential for both the

commercial sector and tourism; however, comments outlined on the poor efficiency of the road transportation system to and from the airport should be a priority.

- Question # 3 is centered on General Aviation (GA) and whether GA operations at the airports supported commercial enterprise. 38% were satisfied; however 30% gave the impression that the airport GA service did not. The answers were mixed and not necessarily related to GA; however pertinent comments reflected that the GA operation at ORIA needs upgrading if the intent is to grow cargo and attract exclusive clientele.
- Question #4 followed and asked "Does the Airport's system satisfy future commercial development?" 40% stated that this was not the case with only 20% acknowledging that it does. The concern was the lack of modernity and functionality of the airport terminal. Adding jet ways for disabled passengers, improving curbside traffic flow, and the need to improve passenger services overall are key issues that need to be addressed. Additional routes to other Caribbean destinations were listed. A major consideration that needs to be addressed is the omission of terminal expansion potential which would address the capacity issue at peak hours.
- Question #5 outlined "Are current destinations satisfactory to support commercial activity?" 44% responded that current destinations offered are adequate and 26% responded that services and destinations are unsatisfactory. Tampa and Orlando were offered as examples of re-introduced destinations. Other Caribbean destinations should be offered for future commercial development. Respondents were varied on the advantage of having other destination such as Europe, Central America the west coast and Canada.
- Concerning the Cargo Center, Question #6 asked if the current size of the customs and cargo center and their processes satisfactory? 30% responded that they were unsatisfied with the Cargo Center. Long processing times and poor service were in addition to the fact that the service lacks clarity and is cumbersome. The facility is dated, too small and needs improvement.
- Question #7 asked "What can the airport do better?" There were many varied answers but most were directed at the inadequacies of the terminal design and the need to improve the passenger experience with better catering choices and business lounges. For a more thorough overview of responses, reference to the survey is required.
- Additional recommendations were asked in Question# 8. 24 respondents added further comments in their survey responses. Reference to the modernity and design of the terminal could be improved. Accessibility from the parking areas to the terminal and from the terminal to the aircraft are concerns. Refer to the survey for the full list of responses.
- Comments on the Sister islands were varied and are briefly outlined as follows:
    - Flight frequency and international flights to the Brac need to increase.
    - The airport terminal at the Brac needs to modernize and expand
    - "Leave Little Cayman alone"

  Refer to the survey for the full list of responses.

Additional Points Outlined by the Chamber of Commerce:

- There is a need to improve the service given to high net worth passengers. Both high net worth commercial and general aviation passengers are not receiving the level of service and incentives that other islands are delivering and what is expected. It is essential to raise this level of service to match or exceed the passenger experience that our competitor islands are delivering.
- Concerns that the long term parking is not paved or lit. This should be done as soon as possible
- There should be efforts to engage with COPA to utilize Cayman as a hub

Appendix 1 (attached)

- **Airport Master Plan Survey – Survey Analysis and Report - September 2021**

Master Plan Qualitative Data Collection Meeting #1

Civil Aviation Authority 10.06.2021

Attendees:

Alistair Robertson
Craig Smith
Robert Harris
Nikki McCoy

Topics for discussion:

- Review of 2014 Master Plan CAA comments
- ORIA Discussion
- CKIA Discussion
- Other

Review of 2014 Master Plan CAA Comments *(2014 comments in italics):*

- *"Overseas Territory Aviation Requirements (OTARS) used as regulations – try to meet minimum requirements of ICAO. There is a provision for deviations under OTARS. Now OTARS directive effective 01.01.2014".* CIAA need to be more diligent in meeting OTAR requirements to maintain safety levels – CICAA are not opposed to deviations but need to be reviewed.
- *"Standards are to be followed but there is opportunity for deviations where operational mitigation measures "*- Industry Standard and Regulations, and Recommended Practices are to be followed as UK has them on the same safety level that both are requirements to be met.
- *"Zoning assessment needs to include review of ships mooring in harbor"* -North Sound – need a zoning assessment apart of the airport safeguarding law. Port Authority charts have it marked as a restricted area. The area is also marked by lighted buoys but these are minimum and not effective. CIAA needs to insure that the inspection of them is added to the inspection checklist that they are in place and functioning. Note that BCU do have a memo of understanding regarding zoning and future construction and the CIAA needs to ensure that an ALP safeguarding chart is current and in place. This ILS map needs to be included in the Master Plan
- *"Certification application is available on line. CAA should be involved early in the process and would provide approvals. Normally takes three (3) months for certification or new facility applications"*-Deviation cannot be obtained via website
- *"AOM/AIP – 90m minimum required"*- Standard is 90m Recommend is 240m. In long term will be looking to go 240m east and west of runway.
- *"Airport is currently considered non instrument in order to minimize deviations"*- Instrument system not required because of residential area
- *"Unwritten agreement – CIAA has authority to make regulations regarding obstructions off airport which is not currently being exercised"*- Currently for obstructions to flight paths the standard is held at an instrument runway standard – Now a written agreement.

- *"At Grand Cayman no provision for protection of an extended runway are currently in place"* – Comment remains
- *"CIAA preference is for the new site location in Little Cayman since significant investment and studies already completed"*- Little Cayman – Land was gifted to CAA to build a new airport facility. Study was conducted in the 1990s. The site was cleared but work was stopped. Wild life may be an issue at this site. CIG is at high risk. Current strip is not on Crown land and not to standard Cayman Airways travels to and from with an exemption, Private aircraft go at their own risk.
- *"There have been a number of bird strikes on Grand Cayman"*- Improved drainage on the field is required to reduce gatherings of flocks during flooding caused by excessive rain events
- *"ON April 1st there may be a possible transfer of airport/aviation security responsibility to the CIAA"* – Transfer was enacted.
- *"The VOR does not have adequate electronic zoning, and therefore was replaced with a Doppler type, which is less susceptible to interference. VOR is enroute VOR and could be replaced – possible location could be used for approaches into Cayman Brac."*-
- *"CIAA supports the closure and relocation of Crewe Road at the west end of runway and would be willing to provide political support"*- Comment remains
- *While RESA is shown in the AIP for Brac, it is not approved since it extends into the water* – RESA on east end needs to be extended to 240m. A land purchase will be required and pond filled.
- *"There is a potential exemption for the graded area impacts at Brac but solutions should be proposed for filling"*- Westerly and Easterly ponds south of the runway need to be filled. The south perimeter road needs to be realigned to be out of the 75m strip
- *"CAA is available during the Master Plan for regulatory support"* - Supported
- *"Met with Richard Smith – over 37 years of experience"* – No comment
- *"Confirmed that ICAO Annex 14 and OTARS Part 139 are applicable"* – No Comment
- *"Developments should include provisions for minimum RESA's, and where practical, construct to full 240m. Mr. Smith understands the sensitivities of environmental and other constraints but minimum 90m is required".*- Noted above
- *"Would be acceptable to CAACI if LCA only included RESA length equal to what was required to clear the trees off the end of the runway".*-
- *"Suggested CIAA is to make their own regulations to control obstacles, not CAACI. None currently in place".*
- *"For ORIA noted that safeguarding plan for airport is in place with planning department based on 300m runway strip including transitional and approach/take off surfaces. No safeguarding is in place for extensions".*
- *"For LCA, CICAA advises there have been numerous studies in the past and that the existing Master Plan was approved by planning in 2002. Plans to scope LCA to make it more financially feasible".* LCA is important to Tourism and needs to remain open; therefore an airstrip that conforms to regulation is a must.
- *"CAACI noted it will be important for LCA to have a wildlife management plan".* - Comment remains

ORIA Discussion:

- The parallel taxiway completion in its entirety is critical
- The General Aviation current location is the best location for future expansion
- CAA will support the ATC tower relocating to the south side – better visibility
- Suggested Airdrome Fire can move to South with tower keeping Domestic Fire in the original location with Access to air side that can assist the Air fire fighters in airside accidents.
- There is a need for an alternative helicopter pad location that prevents the helicopter from using the runway for approach and takeoff
- The isolation pad is a requirement of Annex 14
- The preferred runway extension is in an easterly direction. As study needs to be done to ensure the latest code E aircraft are included in any design length. The code E taxiway would also need to be extended.
- When thinking to extend runway to the east consider planting mangroves on both side and trimmed low to avoid obstructions and improve security. This may appease DOE and the mangroves will help hold the ground with its roots
- There are several trees in the east, near the Cayman Islands Yacht Club, that may or will be penetrating the OLS if the runway is extended east.
- CAA supports the Fire Service launch berth site to move north beyond the strip
- The needs to be a provision for radar surveillance. Connectivity with the COCENSA would improve efficiencies
- CAA would support a linear footprint for Terminal 2 – better visibility and less radical turning movement s would improve safety and simplify flow.
- CAA concerned with current Master Plan hotspot (4 point intersection) – possibly stagger
- For existing buildings in the area that might have to be relocated, consider having car parking under the buildings to limit foot print.

CKIA Discussion:

- Cayman Brac – Line of sight from tower needs to be improved. Currently installing cameras in blind spots – if possible a land appropriation plan to be drafted
- Land to the East needs to remediated and purchased and pond filled
- Additional apron taxi way is an immediate need with shoulders
- Increase apron to the south for wing tip clearances for taxiing aircraft
- Runway upgrades must include turn pads for the Max 8
- The runway strip is not clear and a plan needs to be in place to accommodate an obstacle free runway strip.
- Perimeter access roads are needed
- Security breach at the end of runway needs to be addressed – Fencing on CKIA is inadequate and does not meet requirements.
- Road to south would have to be realigned to access gate 3 and take put of strip
- Potential ability to expand the apron to the east to accommodate more stands – may need to relocate water treatment facility and land purchases.
- ATC tower not fit for purpose, relocation survey to be done. Possible location would be CIAA owned land to the west and central to runway
- Fire Station has no visual of runway; they are to have access to the camera feed of runway. Encourage CIAA to relocate Fire Department and potentially incorporate with new ATC tower relocation

- Possibility of going remote Tower control from Grand Cayman is an option and CAA will support. If this is done the Tower can be refitted for the Fire watch tower.
- Possibly change status of the Brac airport from international status. The advantage of this is much less stringent standards and less investment required. Investment should be based on cost efficiencies and flight frequencies

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Master Plan Qualitative Data Collection Meeting #2 revision 3

Civil Aviation Authority 28.06.2021

Attendees:

Alistair Robertson
Richard Smith
Nikki McCoy

Topics for discussion:

- ORIA Discussion
- CKIA Discussion
- LCY Discussion

Preamble: This second meeting with CAA was held to meet with the Director General of Civil Aviation who was not present at the first meeting. The discussion was centered on ORIA and CKIA and followed with a brief discussion on LCY. The following are the brief notes taken at the meeting that reflect the Director's observations and outlining critical issues that need or will need to be addressed t all three airports.

ORIA Discussion:

- The runway extension was always considered the best direction is to go to the East. No issues with going east and should be the primary option. There have been many studies done over the years and Public works may have information (Brian Tomlinson) on these studies. These need to be reviewed. Prior to the 2014 Master Plan the Government had a moratorium on dredging in the North Sound which promoted an extension to the west. The best area to fill was between 12 and 23ft, but the moratorium did not allow any dredging below 12ft. One study done in circa 2004/2005 showed using shot rock which did not require dredging. The study for dredging was more economical because of hydro compaction but the government did not agree, however, shot rock could be an option that the government could allow however this is the more expensive option.
- Crew road is established and CAA has attempted to prevent enhancements, however the road has been enhanced and it is unlikely that the road will be removed.
- Surface Storm Water is an issue, attracting Birds and is critical to address. This has been an issue for a long while.
- The major issue with the GA terminal is capacity. As GA traffic increases and larger GA aircraft are arriving in Cayman the parking capacity will become critical. CAA has no issues with leaving the GA in existing location or putting the GA terminal in the west but the capacity must be addressed. It has been mentioned in past CAA audit findings that the lack of parking space on the current GA apron, together with the diverse and unmanaged activities that take place there, pose a threat to safety. There is better aircraft protection from prevailing winds in the existing location. Expansion in either location is not a safety

concern for the CICAA providing there is sufficient space and the activities are properly managed. The CAA would like to see a new GA terminal

- It is clear that GA traffic will increase and the capacity for parking must increase to meet demand.
- The CICAA is not totally against overflow parking on the south side of the airfield. However, this is not a desirable solution to parking capacity issues due to the limited space available on the south side. The risk of infringing upon the transitional surfaces, the presence of the airport perimeter road and the risk of reducing runway capacity due to aircraft crossing the runway may prove to be impractical.
- Relocating the Fire Service to the south side could open up more capacity on the north side of the runway and could benefit domestic coverage in an emergency due to shorter response times. However, it is suggested that Crewe Road will need to be widened and upgraded to allow rapid egress for responding domestic Fire Service vehicles.
- CAA supports relocating the ATCT to the south side.
- The parallel taxiway is critical to be completed.
- The issue of not building the Code C taxiway (the west portion of the parallel taxiway) is an airport decision; however, it is believed that the relatively low cost of completing the taxiway would be far outweighed by the long term gains to be achieved by increased runway capacity.
- In the event that the runway is extended to the east, the parallel taxiway should also be extended the full length of extension to the east to support it. To not do this would reduce the runway capacity as aircraft would take longer to clear the runway because of the requirement to back track to taxiway golf.
- CAA advised that there is still Government talk about an airport in the east end of the island for GA Traffic. However, it is considered that this will never happen.
- The question was asked if ORIA should move to the east. The CAA opinion is that the value of the land currently occupied by ORIA, although high, would not come close to the multi-million dollar cost of a relocation project. In addition, the 2004 Jacobs Master Plan report concluded leaving ORIA in its current location.
- With the projected growth in traffic managing the airspace is critical. A surveillance system should be adopted to maintain efficiencies and safety. The current method of separating aircraft is by procedural control, a very inefficient system, requiring large margins of time, space and altitude to ensure the safe separation of inbound and outbound aircraft. This system should be updated as soon as possible to take advantage of modern technology.
- Remote management of the ATC from ORIA is possible however not desirable. There is a political issue relating to losing jobs in CKIA. It can be done through technology, however, could turn into a major political issue.

CKIA Discussion:

- The cameras solution for the lack of visibility from the ATCT has been accepted by the CAA. This is accepted by the CAA as a long term fix.
- Lightning protection for the new antenna is essential
- The flooding on the west end is an issue and a solution should be found. There have been attempts in the past to mitigate flooding. Pumps and culverts have been put in place; however, these measures have not been successful.

- Filling of the ponds has been discussed over decades and no solution has been found to date. At one point the ponds were a protected however this is now not in effect. Filling the ponds would enhance safety.
- The CAA perspective is that when we reach a point where the pandemic is behind us the capacity pressure on the CKIA terminal will abate from a tourism standpoint however, historical data on aircraft movements is showing that the potential for tourism on LCY will increase and be busier than CKIA post COVID.
- Critical issues that need addressing are to have expanded apron to add stands for at least two Max 8s and better management of the ATC from a facility perspective. An area for more GA parking is critical
- The road that is in the strip can be managed by traffic lights however it is very difficult to manage successfully. It is preferable to relocate the road out of the strip which would require land appropriation.
- A perimeter access road is important to safety and security.
- The CKIA International status is not an issue for the CAA. CAA agrees that certain rules would drop away if the CKIA does not have international status, however, it is clear that there are political implications to any decisions made about the change of status of CKIA or its ability to generate local employment but this is a political perspective. The international status came about many years ago to allow flights to the island to support hotels; however, this support is no longer required. This is a question for DOT if there is future planning on hotel growth on the Brac.
- The whole of the south side does not comply with regulation. Compliance is key and a plan to meet compliance over time is necessary

LCY Discussion:

- There is an approved plan for the LCY. This was approved by the government in 2002. Action on the plan has been stalled for 20 years. Preliminary clearing work began in 2002/2003 preparing for excavation but this work stopped.
- There is a concern that the government is now using the area reserved for development as a dump. This attracts wildlife and increases the risk of bird strikes.
- CAA only allows the Cayman Airways Express (CAE) to provide the commercial services vital to maintaining the community. Because the LYB airport is uncertified, the CAACI issues CAE with an annual Exemption from the SARPs subject to inspection and regular emergency exercises. However, in doing so, the Cayman Islands Government is at risk in the event of a major incident. Additionally, landowners should be concerned because they may also carry the liability
- If a landowner sells land that is on the strip this would effectively shut the strip down. The land use is not guaranteed.
- It is possible that the aircraft movement could increase and be more than CKIA.
- The land to the north has been vested to the CIAA where an airstrip could be constructed to regulation.
- The local population are relatively silent for airport development however; the main concern is medevac flights. Tourism will be a main driver for development.
- To summarize, the 2014 plan for LCY needs to be reinvigorated, discussed and decisions made. An approved plan of action needs to be put in place.
- The CAA commented that the Islands need a Master Development plan to have a full understanding of development on all three islands.

Master Plan Qualitative Data Collection Meeting r2

Cayman Islands Tourist Association (CITA) - 24.09.2021

Attendees:

Marc Langevin

Meeting with the Cayman Islands Tourist Association - Topics for discussion:

- Overview of the 2014 comments
- CITA Points and Observations

Discussion on the 2 points identified by the Police and recorded in the 2014 Master Plan:

1) Stakeholders are losing faith in the airport in that no action is being taken to improve the airport. Need to undertake improvements in the short term.

- The terminal was refurbished and expanded in 2019. This comment is now considered completed and faith has been restored.

2) ATB has space constraints and there is a need for adequate staffing of immigration and customs functions.

- This has improved but the staffing levels are still too low and passenger throughput times are still very slow. This needs to be addressed to improve the passenger experience.

3) Traveller experience very important. First and last impressions very important. Cayman is a prestige destination and the airport experience should reflect that. Need for an airport ambassador program (volunteers) that can welcome and assist air travellers.

- The statement of "first and last impressions are very important" has not changed. An ambassador program has been implemented and is working well

4) AOC Chair indicated they have been visited by IATA representative who indicated he can provide assistance in the redevelopment of the airport.

- The terminal was refurbished and expanded in 2019. This comment is now considered complete.

5) Many visits to Cayman Islands are of a short duration, therefore processing at airport should be equally short.

- This is still an issue. Processes are slow and antiquated. The use of technology can much reduce wait and throughput times to allow a more pleasant passenger experience.

6) Airport should be designed to withstand hurricanes and act as an emergency shelter.

- The terminal has been designed to hurricane standard, however the terminal is not designated as a shelter, albeit will become one during a major hurricane.

7) Expanding role as connection is important – cater to Cubans holding Spanish passports that are travelling from the US.

- At that time there was discussions on opening markets in the Central American arena , Panama, Costa Rica, Cubs, etc. and the impetus was to expand the airport to accommodate these additional destinations including Cubans with Spanish passports. There were talks with COPA to develop Cayman as a hub, however, this concept has expired and no further discussions are ongoing at this time.

8) Western US/Canada is a potential market that should be promoted.

- Currently these markets are highly important to be promoted. The introduction of the Cayman Airways Max 8 aircraft which has the longer reach, both US and Canadian destinations should be explored for potential. See below.

9) North America remains the primary target market, less focus on development of UK / European markets.

- CITA do not agree with the European markets being a potential for growth. Cayman is not a destination that continental Europeans would be attracted to, due to the conservative nature of the island and cost. Most British travellers arrive on island for business or to visit family. Coupled with the lack of package holidays, no direct flights, the European market is not a market to focus on and more focus should be put on direct flights to and from the US and Canadian markets.

10) Existing arrangements for deplaning do provide some unique charm

- Cayman Airways have now installed ramp/stairs to accommodate deplaning. It is unclear as to why there are not covered ramp/stairs available for all deplanements. The cost is minimal. The cost of Jet bridges for the small percentage of time where they would be required is not a good return on investment; however, covered ramps would be a simple economic fix to this problem.

11) Need to introduce new technologies to enhance passenger experience including CUPPS, self-serve kiosks and automated immigration process.

- The issue that needs to be addressed is how to make the process easy to get through the airport. All immigration cards and customs declaration cards could be filled out digitally at home before the journey begins. Duty payments could be processed on line before the journey. Work permits, passport and other details can all be loaded prior to the journey beginning. Technology is an essential tool to make the passenger experience satisfactory.

Discussion on Updated Key Points and Observations:

- Immigration still needs to improve their processes. Segregation of VIPs, Crew, Residents and domestic passengers are important to rapidly process these “types” of passenger to improve throughputs which is a large source of complaint. The introduction of kiosks is a step forward however needs to be seen if this is enough improvement.
- The South American market is a hard sell to attract tourists to Cayman. Cayman is a very expensive destination and cannot compete with other lesser expensive islands in the Caribbean. The high net worth South American is traditionally more “flashy” and want to display their wealth therefore will make destinations such as St Bart’s their tourist destination. Concentration on the North American market would be more productive.
- The two states that are currently or could be a great market for Cayman are California and New York. This is due in part to their adoption of the COVID vaccination required by the Health Service Authority. Additionally, due to its location, New York remains a rich source of tourists and has direct flights to Cayman. With respect to California, Cayman is the closest Caribbean country, not including Mexico and if direct destinations opened up on the west coast then Cayman, which is a 5 hour flight, could potentially challenge traditional west coast destinations such as Hawaii and Mexico.
- LAX is not a first choice airport to make as an origination/destination due to excessive cost difficult accessibility. CITA recommends John Wayne airport as a prime substitute if Cayman

Airways was to pursue the west coast as a destination. Orange County is more accessible and less expensive to operate out of.

- US and Canadian vaccination certifications approval by CIG is highly important in the coming months. There are several other origination cities that are currently banned from entering the Cayman Islands and are high producers of tourists, Houston (TX), Dallas (TX), and Atlanta (GA). These cities/states have not adopted the mandatory requirement enforced by the Cayman Islands Government. The Cayman Islands Government needs to place into effect a system that approves vaccination certification from alternative states or these potential tourists will choose alternative destinations.
- CITA confirm that direct flights are a key ingredient for a traveler's choice of destination.
- Denver has a high potential as a market for Cayman. The city is growing and there is a huge area around Denver that has high net wealth. Other destinations have merit worthy of exploring as potential markets for Cayman such as Vancouver, Minneapolis, Chicago and San Francisco.
- The development of the GA Terminal is essential if the Cayman Islands are serious about attracting the high net worth individual. The current facility is in bad shape and not unlike the main terminal the GA terminal is the first and last impression the arriving and departing high net worth person sees. The capacity of the GA apron is to cramped and this is not attractive to the high net worth visitor who own very expensive aircraft.
- The airfield location of the GA terminal is not important, however, the experience through the terminal and the ability to safely park their plane are the two most important factors in any GA development.
- A marine access on the airfield for passenger use is a plus for these types of passenger. Not so much the convenience, it is more the experience of taking a water boat to their destination. A marine access could also be attractive to home owners that have a boat and pick up their visitors at the airport. Additionally, high net worth individuals have their own boats which they have delivered to the island for their use during their stay. A marina at the airport would be a safe harbor for these visiting boats.
- There is a need to create connectivity between the airport and on island destinations (seven mile beach) to relieve the traffic congestion that is experienced today.
- The lines in the SSCP are long and take too much time to process. Having the tubs available below the conveyor belt for easy access would improve throughput times which would improve the passenger experience.
- There is a need for TSA pre-check line to speed the process. A dedicated line for pre-check, crew, fast track passenger etc. is required. Because there is no dedicated line currently in place, this promotes early check in due to the forecasted lines which plays into a major factor with regards to capacity issues at the airport during peak passenger hours.
- There is no potential for a VIP lounge, however a business case would show whether there was a need
- Parking has a 5 minute stay over limit before payment. This time limit is too low and should be extended.
- A cell phone lot would be an asset for people picking up passengers
- Flight information on the airport website which would show where the passenger is in the terminal (immigration/luggage/customs) would assist people picking up passengers.

- CITA advises the airport that the pandemic costs could be transferred/offset to the passengers. An increase of $5 per passenger could offset costs associated with COVID
- There is no call for a hotel at the airport due to the proximity of seven mile beach. However, there may be a need for passengers that have travelled from the sister islands and taking an international flight the next day. A small on-airport hotel maybe attractive.
- All hotels have a conference center so there is no need for a conference center at the airport. However, some offshore banking business people may need a small conference center (private rooms) for private meetings. A good location for this would be at the GA terminal.
- The terminal does need a business center that allows private conversations.

Master Plan Qualitative Data Collection Meeting #1

CKIA 11.06.2021

Attendees:

Miguel Martin
Darren Connolly

Topics for discussion:

- Airfield Deficiencies
- Potential Land Acquisition
- Terminal Status

Airfield Deficiencies

- A priority requirement is to expand the apron in a southerly direction to allow wing tip clearances for the Max 8 aircraft to pass
- Increased traffic has identified the need for an additional code C taxiway leading to the apron
- If traffic increase further then there will be a need to expand the apron in an easterly direction to accommodate 2 more Code C stands and GA parking
- There may be a need to relocate the water treatment plant to allow this expansion
- It is noted that the Fire Service is to expand their current facility. Potentially the current GSE building could is being shared by the Fire Service and not desirable. PW to meet with the Fire Service to determine their master plan for CKIA
- A new GSE building is proposed to be built along proposed emergency access road. This is shown on the 2014 Master plan
- With the introduction of the Max 8 there is a requirement to add a turnaround on both 09 and 27 ends of the runway. This could be in two stages; however, the 09 would be the primary turn pad to install.
- Runway strengthening and resurfacing needs to be done as a priority
- A robust route to access gate #3 is required due to the current land condition is marshy
- The tower has limited visual capability and it is uncertain if the current tower design can support further elevations. A new tower is required to improve visibility and a suggested location is towards the center of the runway on airport property west of the apron
- The Fire service have little airfield visibility however are satisfied with camera coverage. Potentially the Fire Station could be included in the design of the new tower location and be dedicated to airfield only and the existing fire station could be domestic service only. Open for discussion
- The deficiencies of the 150m strip needs to be addressed. The access road, fence lines etc.

Potential Land Improvements and Acquisition:

- Attached is a sketch of potential land acquisitions that would benefit the CKIA.
- Although Crown property the westerly and easterly ponds should be filled. This could be a phased fill schedule over several years
- The CAA has proposed that a 240m RESA be established. Land purchase to the east of 27 would be required to establish this distance. Pond would have to be filled
- Vegetative areas outlined in the 2014 Master plan are still a current problem and regular trimming is required. Potential land acquisition in these areas would be an advantage, however, any removal of certain species may be of have environment impact
- Two properties west of the fire station are available. One is owned by the government and should be procured by the airport
- Lands to the north and south of the water treatment plant potentially available and would be an asset to the airport for visibility.

Terminal Deficiencies:

- Due to increased traffic the current terminal capacity has been exceeded. If continued traffic experiences are foreseen then the following needs to be addressed:
    - Departure Hall/seating
    - Check in capacity – CUPPS inclusivity
    - BHS upgrades - Arrivals only one conveyor - Departures only one conveyor
    - Limited concessions – revenue loss - need to expand
    - Linked Flight Information system to the ORIA
    - A complete overhaul of the SSCP – throughput times are unacceptable – touchless screening would be a plus for throughput

Other:

- If continuing increases in passenger loading then sewage disposal may become a problem. Have already incurred high levels of smells due to high use
- If continuing increases in passenger loading then there needs to be expanded parking
- Automated parking ticketing system – linked to ORIA

❖ Next meeting will be scheduled for the week of the 28th June

Master Plan Qualitative Data Collection Meeting #1 rev 1

Customer Service 21.06.2021

Attendees:

Bianca Moore-Downey
Ivis Matute

Meeting Focus on ORIA

- Landside
- Terminal
- Airside

Landside at ORIA

- Taxi wait times are extreme – lack of taxis available – this is due in part to the government not paying tariffs – problem are prevalent in the evenings
- There is competition with the Port Authority during cruise ship operations. A solution is required to keeping taxis at the airport to support passenger needs
- Security has advised that the lanes outside the terminal are to be switched. This will effect gate barriers, the taxi booth and taxi parking
- There is not enough parking for buses – the employee lot is shared and there is a need for more parking for buses so the employee lot needs to be relocated or an alternate lot for bus parking.
- There is no dedicated parking for limousines
- General Passenger Parking is under capacity and more spaces are needed during peak times
- Long term parking is n need of upgrades – resurfacing and paint striping are necessary – There is a need for lighting of long term parking
- The landside canopy is inadequate and does not protect the passenger from inclement weather. Any future design of terminal needs to have a full canopy to keep passengers and staff out of the weather.
- The AMANO ticket equipment was installed in 2015 and will need to be upgrades in the next few years
- There is an issue with the AMANO equipment being in the elements – frequent maintenance on burnt out components due to hot ambient temperatures – Equipment needs to be covered
- Security has advised that the exits form the parking lots in front of the building are in the wrong location as no personal vehicles will not be allowed in front of the building
- Any future terminal will require a car rental center located near the new terminal or there will be a requirement for shuttles.
- If a garage is built in the new terminal it will require parking technology to aid the passenger in exit/parking/FIDs/etc.
- The new garage could present additional revenue potential by offering car wash, maintenance, valet parking etc.

Terminal at ORIA

- The check in area is already experiencing capacity issues during peak times.

- Passenger self-bag tagging would be good with a bag drop counter lane
- There is no bag scales for passenger use and assortment area for rearranging baggage. These scales should be calibrated to the same standard as the counter scales
- The existing CUSS units are in the wrong location by the columns. These CUSS areas are impacted by passenger lines. CUSS units should be by the wall
- There is no Bureau De Change and passengers frequently ask for this facility
- The pre- SSCP area is inadequate as during peak hours the lines exceed the space – Potentially touchless technology will reduce wait times , however, more lanes need to be opened up
- The landside restaurant is critical
- There are privacy complaints at the SSCP. An individual screening room is required for passengers that request privacy
- There needs to be more options in the Mall
- The Food Court does not have enough seating. The court is too small for the capacity of passengers during peak hours
- The 2nd Floor lounge stairway 2 is critical and essential to be added
- There is no Food and Beverage available on the east end of the departure lounge and this is where American Airlines are located and have the most passengers. Possible revenue loss. Simple solution is to relocate AA.
- Doors at gates are not wide enough for boarding two flights at one time. There could be a better utilization of CUPPS to handle this issue
- The terminal departure hall reaches capacity at peak hours and not enough space or seating
- There is no employee break room in the terminal (landside or Airside)
- Immigration need to occupy ALL booths during peak times
- There is no counter in Immigration for passengers to fill out forms. This is a source of complaint form passengers that have not filled their forms out on the plane.
- Passengers frequently ask about Pre-Clearance
- CBC have noted that the bathroom in the Customs area is not in the correct location
- The customs cashier queuing location is too small
- The cart re-entry needs to improve or have an alternate route
- There needs to be an analysis of the ground transportation desk on its use and effectiveness
- Any future tourism booth needs to be in a more prominent location preferably in the bag claim area
- The terminal walls need wall protection
- The PA Volume ambient noise sensors are not working and need addressing
- Additional Flight Information Displays are needs in the arrivals – preferably by the info desk
- Any future Terminal is to have higher ceilings preferable a minimum of 16ft
- There needs to be directory signage in the terminal (“You Are Here”)
- There are not enough charging stations
- There are still issues with A/C Cooling in Immigration during peak hours which is acerbated by heat gain through perimeter windows
-

Airside at ORIA

- Need alcoves or areas to store wheelchairs such they are not in the walkway
- The airside canopy is inadequate in many ways: Limited shade, not wide enough, no protection from driven rain.

- There is no directional signage in the canopy
- The Musicians Gazebo is necessary

Master Plan Qualitative Data Collection Meeting r1

Delta Airlines 09.09.2021

Attendees:

Kevin Bolen
Marva Reid

Meeting Focus on Delta Operations and the interaction with CIAA - Topics for discussion:

- Overview of the 2014 comments
- Island Air Key Points and Observations

Discussion on the 3 points identified by Delta Airlines and recorded in the 2014 Master Plan:

1) *WSP outline of process*
   - No discussion as this is a note to identify that the process of the Master plan was laid out in 2014 by WSP to Delta
2) *Delta general update on traffic performance and outlook*
   - No discussion as there was no notes recorded by WSP. It is assumed that in 2014 there was a brief discussion on the current Delta performance at ORIA.
3) *No additional gateways planned in short term but considering JFK non-stop for future*
   - Delta confirmed that the JFK non-stop flight was introduced in 2015 and remained a destination until March 2020 pre-COVID. It is expected that this destination will return when the island re-opens post COVID.

Discussion on Updated Key Points and Observations:

- Delta confirmed that negotiations are ongoing with Virgin Atlantic about a direct flight from LHR to GCM. The aircraft will be an A350. This was looked at 3 years ago but never implemented. No decision has been made as to when the maiden flight is planned due to the Pandemic and discussions continue.
- A positive outcome of the pandemic and how it has affected airport operations is that it has now been confirmed that the BA777 can fly directly to the UK. This is valuable information that Delta Cayman will share with Delta head office that this direct trans-Atlantic flight is possible which may influence the decision to introduce the Virgin Atlantic non-stop flight from the UK. Delta passengers prefer non-stop flights
- The Delta consensus of opinion is that the return of flights to Cayman will be tepid at first and then ramp up slowly as demand increases. Delta confirmed that they hopefully will resume flights in 2021, however, frequency is not known at this time.
- The terminal has many shortfalls:
  - The expansion did not gain much more space in all areas, therefore capacity issues are still prevalent

- The departure hall should have been extended further south to the apron walkway to gain more space.
- There was no consideration to expanding up to another 2nd level such that jet bridges and more passenger capacity could be gained. Not sure if this is still a possibility but should be looked at
- Curbside check in could be implemented which could ease congestion in the check in area. However this does not solve the issue of capacity in the departure hall. Delta believes that the terminal is over capacity on peak days/hour and expansion is required.
- Delta is an airline that controls the passenger flow throughput and will not process a passenger outside of the three hour window. This has a potential to be a negative impact to airport revenue generation for passengers that want to arrive at the airport sooner and stay longer to shop, eat and be entertained. However, this comes back to the capacity issue and having the ability to "house " passengers for long departure times
- There is nothing to attract passengers for longer stays. There is no VIP lounge, entertainment is minimal and there are no bars or restaurants that a passenger can sit down at. There is limited selection of "high end" merchandise and pricing is high.
- There is no VIP lounge. Delta would share a lounge but would like their own lounge for their high value passengers
- Delta believes the CUSS kiosks should have been on the back wall and not mounted around the column. This location around the columns takes space away from the queuing area.

- Touchless technology is being tried out by Delta however, the Delta major hubs will experiment first with this technology prior it coming to Cayman.
- There could be a call for remote check in at hotels etc. This has been mentioned many times. This may help capacity issues at the terminal during peak times.
- Delta uses RFID tags and believes that all airlines, per IATA, will follow suit at some point. CIAA needs to have the capability on all CUPPS locations to accommodate RFID. Delta is restricted at present to the only check in kiosks that have the RFID capability.
- Delta is now using the digital immigration forms. This is a further enhancement for passenger experience. Delta firmly believes other airlines will follow suit.
- The stanchions in the check in are a problem. The stanchions should be permanently fixed. This will enhance the look of the terminal and eliminate stains as existing stanchions when moved leave stains on the floor.
- The SSCP lines are too long. The CIAA need to purchase an AFD scanner to improve passenger throughput
- ASSI regulations are not helping with the throughput in the SSCP. For example; liquids limitations are slowing process down. Could this be revised?
- The Security personnel have been reported as very unhelpful and there have been some passenger complaints about attitude. This needs to improve.
- Expansion of the SSCP is required. The SSCP is too small, especially the queuing area and does not have a special lane for VIP. Crews, etc.

- CIAA Customer Service have the impression that they can bring their VIP passenger to the front of the check in or gate, however, there is no agreement with Delta for this service. This needs to change. As Delta will not prioritize these selected passengers.
- The merchandise sold in the airport terminal is not incentivized. The same product is sold for the same price outside of the airport.
- There should be sliding doors at the gates and should only open when the passenger needs to exit. This would help with cooling deficiencies.
- The apron walkway needs to have separation of arriving passengers and departing passengers. Also the walkway needs to be enclosed to protect the passengers from the elements.
- There are no known issues on the airfield. There have been no comments or complaints from aircraft crew
- Jetways or ways to keep passengers dry during inclement weather and proper drainage is needed on the existing and new apron. However, feedback has shown that vacationing passengers do like to exit the plane on stairs rather than jetways, it is only local passengers that want Jetways
- The immigration maximum capacity is reached during peak hours. However, the immigration kiosks recently introduced may improve throughputs.
- There needs to be an ATM at the CBC area cashier's office for passengers to access cash.
- The airport Wi-Fi is inadequate and needs to be upgraded. This is becoming a real issue as many passengers now are moving towards paperless technology for processing.
- There needs to be a pet relief area.
- Signage – more defined and clear signage throughout the terminal in the applicable areas. The external sign that reads TICKETING/CHECKIN should be removed and replaced with DEPARTURES

Master Plan Qualitative Data Collection Meeting

Department of Environmental Health 24.08.2021

Attendees:

Richard Simms

Meeting Focus on all three Airports (ORIA; CKIA and LCA) - Topic for discussion:

- Key Points and Observations

- Relationship with the Authority is very Good – Safety Officer is very engaged with DOEH
- The DOEH would like to see waste stream sorting at the airport in the future
- DOEH will supply recycle bins and the authority will sort on site and DOEH will remove form site
- A separation plan needs to be adopted and adhered too to be effective
- Hazardous waste is handled by DOEH however no medical waste is currently handled by DOEH from the airport. DOEH would support any medical waste collection from the airport, specifically bathroom collection of hypodermic needles
- Oil waste is currently handled by the individual stakeholder and is taken to the landfill. This process is working well and every transfer from the airport is documented and recorded for data collection. It is the DOEH perspective that there is no need for a centralized oil reservoir dump site at the airport.
- The DOEH requires a Spill protection plan that they can work with. The DOEH is responsible for, along with the Fire Department, any surface spills. Any spills below surface are the responsibility of the Water Authority and if the spill reaches the water then the responsibility lies with the DOE.
- The relationship with the airport at CKIA and LCA is as robust as the relationship with ORIA. The same issues are prevalent at these two airports with the need to have waste stream sorting at the airport prior to the landfill.
- It is the expectation once the Grand Cayman REGEN project has been completed and the transfer station is on line the landfills on both sister islands will be capped and transfer of waste will be to the Grand Cayman facility which makes waste stream sortation even more valuable prior to shipping.
- The proposed alternative location for the airport on LCA is not desirable due to the proximity of the landfill and the alternative location. There would be an increased risk of bird strikes if the airport were to be relocated. Once the transfer station (REGEN) project has been completed and in operation on Grand Cayman the landfill on LCA will be capped and waste will be transferred from the sister islands. Until then, the alternative location would not be supported by DOEH

Master Plan Qualitative Data Collection Meeting #1

Department of the Environment 22.06.2021

Attendees:

Meeting to discuss ORIA and CKIA

- Review of Master Plan 2014 DoE comments
- Discussion on other Issues

Review of Master Plan 2014 DoE comments

- The Department of the Environment is now acting on behalf of the National Conservation Council (NCC)
- All planning and/or development must be approved by the Council
- A screening of an EIA for any development is essential for any approvals
- Studies are ongoing and the main concern is to determine the flight lines of the birds and their interaction with the airport on Little Cayman. Nesting is now clustered around the airport and the issue is significant for future planning
- It is evident that returning foraging birds are returning at dusk and flight lines are directly over the alternative location for a new runway strip in the north of the island. Bird strikes would be escalated if the airfield was relocated to this area
- DoE would prefer that the airport remains in its current location
- There is a concern and confusion as to who purchased the land to the north of the Boobie pond for a potential alternative site and what development is planned for this area. The land was purchased without any consultation with the DoE as there was an attempt to clear (presumed by the PWD) some land at some point but the area is very marshy and excavation equipment has reportedly been lost during the clearing process.
- DoE will forward the latest Development and Planning Law 2021 to the PWD
- GIS data is available if available if required and is relatively up to date
- There are still no development or visionary plans for the Cayman Brac and the Little Cayman. It is essential that these plans are in place to ensure environmentally appropriate future development
- A high level of concern for the aircraft hangar site proposed by a private entity impacting the rock iguana habitat north of the CKIA runway. DoE have encouraged a iguana proof fence to prevent intrusion on to the airfield. It was noted that iguana strikes on the runway does not appear to be a problem.
- The DoE requested that information regarding land crab intrusions onto the field. PWD to follow up.
- The DoE corrected the statement that the Doe drafts the Terms of Reference. This is not the case, the environmental consultant drafts the terms and the DoE reviews and approves.

- Any development on the airport will trigger a screening opinionof what is required. The new Master plan in its early stages needs to be presented to the DoE for a screening process and a determination as to whether an EIA is required. It is highly likely that an EIA will be required. The EIA Directive will be forwarded to the PWD
- The screening opinion needs to be agreed by the NCC and then will follow the process outlined in the directive that will indicate what consultant is required and the relationship between the consultants. This process will have oversight by the Environmental Assessment Board which is a sub-committee of the NCC
- The ponds that are the root of the flooding are important. Management of the water level in the Westerly and Easterly Ponds is preferable than filling the ponds
- The west end remains to be a turtle nesting area and requires protection
- The area to the east of the airport in the North sound is NOT a protected marine environment but potential still has environmental value

Other Issues

- The mangrove buffer requirements are outlined in the Development and planning regulations. It is interpreted that >15ft buffer be maintained at all times
- There is a major concern as to the development of the island to accommodate passenger increases and the resulting impact on the island's infrastructure will be unsustainable. Increased numbers of visitors to the island could have severe environmental impacts.

Master Plan Qualitative Data Collection Meeting

Department of Tourism - 08.09.2021

Attendees:

Rosa Harris
Tom Ludington
Ricardo Smith
Gary Hendricks

Meeting Focus on current tourism development since 2014 and future projections. In two Parts:

1) Discussion on the 33 points and observations identified by the DOT and recorded in the 2014 Master Plan
2) Discussion on Updated Key Points and Observations

Discussion on 33 points and observations identified by the DOT and recorded in the 2014 Master Plan:

1) Airlift impacts hotel development. In 2013 there were 320,000 arriving visitors (640,000 E/D of a total of approximately 1 million E/D passengers). This was approximately 7% above estimates.
    - Up to 2019 the island over performed. At the end of 2019 the arriving visitors total was 502,000. The one million entered in 2014 included permanent residents. The room stock and air capacity are correlated so as the islands room capacity grows and confidence grows with airlines this increases as more rooms come on board. In 2015 there were approximately 5200 rooms; we are currently at approximately 7000 rooms from a count of 4800 in 2014. The reason for this was the introduction of Airbnb and a number of new hotels coming on line. In the next few years several other hotels are coming becoming operational and room availability will increase further.
2) In the short term DOT looking at 2% growth. Historical growth has been in the 3% to 5% range. 80% from the US, 6% from Canada and 7% from UK.
    - Using 2019 figures the regional breakdowns are consistent to 2014 figures.
3) DOT sees South America (Argentina/Brazil) as potential markets.
    - These market destinations are still valid. South American countries have stabilized economically and politically which may drive these markets. Discussions continue to explore possibilities. Due to their seasonal opposites these destinations are prime for development.
4) Grand Cayman has approx. 2,300 condo units and 2,100 hotel units. Trying to move away from condos to full service hotels and boutique (40-50 room) hotels.
    - No discussion
5) Health City – 2,000 beds
    - This hotel concept was abandoned
6) Camana Bay – multiple hotel sites, potential for approximately1, 000 new hotel rooms in the future. Kimpton (hotel 263 rooms) under construction.
    - Dart has built the Kimpton Hotel. Refurbished the Comfort Suites (The Hampton), a plan for a family hotel north of the Kimpton and plans for the Royal Palms site (5 star Four Seasons) with 200 rooms. All plans are on hold until the pandemic is over. In addition to this Dart are interested in the GA terminal development and develop GA traffic.

7) Prime tourist time is Dec – April.
    - No discussion
8) Requested zip code data from DOT.
    - This was a request to capture information on where visitors originated. DOT confirmed that they now have in place a much more robust data survey collection with an extensive data bank
9) DOT would like to see more lift into sister islands and direct international access into Cayman Brac.
    - The sister islands have a low room count (260 rooms) and there is no indication that this will change any time soon. There is a quiet essence to these islands that is attractive to visitors. There are many visitors to Grand Cayman that may revert to the sister islands to experience the unique environment that used to be on GC. There is potential for direct flights from the USA for divers and environmental centred visitors; however there is a lack of rooms available. If tourism development increases on the Brac this will impact the terminal capacities.
10) DOT would like to see more promotion of island hopping.
    - There is currently a DOT campaign in place that will encourage visitors to visit the two sister islands during their stay in Cayman. There is currently no tracking on how many travellers would be interested in island hopping, however if this concept develops this may have impacts on CKIA and LCY capacities.
11) Cayman Brac best suited to boutique hotels. Island is limited with respect to utilities and services. Water is provided by desalinization plants.
    - No change. Due to the recent beach erosion on 7 mile beach, any new hotel design needs to be a small footprint for environmental reasons. Significant vertical construction is not desired to maintain the island feel.
12) Concerns regarding ability of airports to support mass evacuation of passengers in the event of a hurricane. Need to accommodate sheltering of passengers in the event that not all passengers can get evacuated in time.
    - The terminal is now hurricane rated albeit not designated as a shelter. A remote facility is needed for travellers to check in their bags prior to arriving at the airport due to the fact that hotels evict travellers in the event of a storm. The issue of managing this influx of people arriving at the airport during a major hurricane still needs to be addressed.
13) Need for infusion of culture into airport – use of feature walls and media presentations.
    - The new terminal appears to be very sterile. The art displays at the terminal need to be more patriotic. The current displays do not represent Cayman. More inclusive and iconic art displays need to be introduced.
14) Visitor experience is very important – need for improved levels of service.
    - No discussion
15) DOT prefers to use air stairs rather than boarding bridges. Walking experience to terminal is important.
    - The DOT does not support jet bridges. Vacationers have given feedback that they prefer to exit the aircraft on stairs. The feedback, however, is mixed as business passenger would prefer jet bridges. A potential solution to this is to install expanding covered walkways. DOT may conduct a survey to establish what passengers want.
16) DOT looking at Latin Markets and in longer term China and Russia, package tours are required and need to train tourism industry in Chinese language and culture. Promote in Europe in 10-15 years. Need for a relaxation in visa requirements.
    - This was discussed – see bullet point 3. China is still a possibility and discussions were positive pre COVID but the assertion is that discussions will continue post COVID. Russia and Columbia still remain countries of interest to the DOT however, they still have visa restrictions.
17) In long term there is a need for more room capacity. Looking for high level of service.
    - This was discussed see bullet point below.
18) Lots of competition for tourism.
    - This was discussed see bullet point below.
19) There has been a general increase in air arrivals with an average of 3-5% over the last few years.
    - This was discussed see bullet point below.

20) 2014/2015 is expected to demonstrate at least a 2% increase.
    - This was discussed see bullet point below.

21) 80% of visitors are from the US, 7% are from the UK and Europe, 6% are Canadian.
    - This was discussed see bullet point below.
22) There is a look towards the Brazil and Argentina market.
    - This was discussed see bullet point 3 above
23) At present the room stock is 5117. An increase of 1000 rooms is expected in the next 5 years.
    - This was discussed see bullet point below.
24) There is a larger room stock in the condo sector. The outlook is for the islands to develop the Boutique Hotels product.
    - This was discussed see bullet point below.
25) For the sister islands, they focus is on Cayman Brac from a development perspective what should lead to direct flights.
    - This was discussed see bullet point below.
26) Cayman Brac lacks piped water. This is now being implemented
    - A water treatment plant has been completed and is in service
27) Development Projects:
    a. Grand Cayman
        Cayman Enterprise City
        Health City
        Caymana Bay -Kimpton providing 263 rooms
        Hyatt Redevelopment -300 rooms (163 on website?)
        Beach Bay providing 190 rooms
        The Four Seasons providing 200 rooms
        The “Blakes” providing 50 rooms. - This was never pursued.
    b. Cayman Brac:
        Le Sol Boutique Hotel
    - This was discussed see bullet point below.
28) The concept of mass evacuation is a concern.
    - This was discussed see bullet point below.
29) The need to adhere to what is considered the Cayman vibe. There should be an infusion of culture and soul in architecture to welcome people
    - This was discussed see bullet point below.
30) Jet bridges are not considered critical at this stage.
    - This was discussed see bullet point 15 above.
31) Targeting of long haul routes. In the short term would be Brazil, Argentina and possibly Russia. In the longer term China but significant changes will have to be made, not the least will be learning the language.
    - Finn Air was interested in GC as a destination from Helsinki however, the block hours required was too high and played a major influence in the decision not to proceed. Advanced discussions are ongoing with Euro Wings out of Germany. Euro Wings are looking for incentives and this will be presented to government. It appears that there is much more interest in tourists travelling from Europe and choosing Cayman as a holiday destination.
32) There is also the need to consider targeting large groups. The present market for this is the American mid-west.
    - This was discussed see bullet point below.
33) European visitors more interested in package tourism.
    - This is the catalyst for change post pandemic. The DOT will invest more time in promoting European travellers to come to Cayman. DOT considers Europe to be a major influence on tourism development due to slow pandemic responses in USA and how this may negatively affect tourism. Pandemic responses in Europe have been more dynamic and if rigid government regulations pertaining to USA vaccinations and quarantine regulations, then European travellers may make up the shortfall in numbers from the USA.

Discussion on Updated Key Points and Observations:

- The Hotel Mandarin Oriental is still a possibility. The first phase will only bring on approximately 90 hotel rooms. The hotel development is to start small but owner/residences will outnumber hotel rooms in this phase
- There are several other hotels/properties are in construction or are coming on line in the near future
    - Indigo
    - Curio
    - Hyatt
    - The Cottages – a healing resort
    - Rum Point Residences
    - Revive
    - Barefoot Beach – however there are potential funding issues
- The expectation over the next five years is for room growth to rise by 1500 rooms. This raises the total of rooms available in Grand Cayman to approximately 8500.
- The stretch goal for DOT is to grow airport passenger throughput during the post COVID recovery period. Getting the figures back up to 500,000 of arriving visitors within one year and then to grow this figure to 625,000 thereafter. It is the DOTs projection that there is a cap at 700,000 air arriving passengers.
- A competitor, Aruba, has a consistent 800,000 air arriving passengers per year but this is due to the availability of a large number of time shares. This stabilizes their air arriving passenger numbers, whereas Grand Cayman is a seasonal destination. DOT is looking at ways to fill the troughs, however, it is unreasonable to consider arriving air passenger numbers in the 800K to 1M range per year as a goal for the Cayman Islands. These numbers are high considering how small the Cayman Islands are.
- In addition to this, Aruba market themselves as out of the hurricane belt which helps their consistent numbers. However, as Cayman is in the hurricane belt this is a distraction to visitors to the Cayman Islands during the hurricane season which, naturally are the slow months.
- Consumer confidence is now on the rise. International trips are on the increase and the Caribbean area is up month to month so this is indicative that people are travelling. The demand is returning, however, there is a direct correlation to how many protocols and or quarantine periods are in place and whether visitors will travel to that destination. Travelers want as few restrictions as possible or they will not fly to that destination.
- The consensus is the US is returning to normalcy. Passengers are willing to travel and take the risks and living with the COVID. Business travel is coming back but has stalled due to the delta variant but the assumption is that the travelling public will return to Cayman provided that the quarantine rule is dropped and there is an acceptance of the USA CDC vaccination card.
- Season 2022/23 is the DOT projection to return to 2019 figures. Group bookings play a big part in this return as these types of reservations are booked 18 months to 2 years out. Currently group reservationists are looking at 2023; however, there are

hesitations due to Cayman not accepting verification of vaccinations and no clear indication that this will be resolved. This needs to be established very soon.

- Group business is extremely important to tourism as hotels build their base with group bookings and then transients fill the remainder. Transient numbers in the Caribbean are high at the moment and if these remain high then hotels may reject the group reservations due to establishing higher yields and this will affect room rates which in turn may distract tourism due to the higher cost of rooms. This also affects the loyalty points programs that hotels have adopted as higher room costs will absorb higher points used.
- Other factors need to be considered such as economy recovery in countries such as USA and Canada and how that impacts the tourism industry recovery.
- Airlines seem to be stable, however, some airlines have downsized and how will this impact their return out of the pandemic which may also impact tourism regrowth due to the availability of aircraft in service.
- An important factor is how and when Cayman will reopen. Currently scheduled to open in November, if the protocols and regulations are too strict then there will be an impact to the visitors making a decision to come to the island and have a high detrimental effect on Cayman tourism.
- Additional considerations are the economic impacts to the hospitality industry over the last 1 ½ years. Facilities have been shut down and revenues have been very low or non-existent therefore there is no funding for revitalizing tired, outdated and distressed facilities. Other island destinations that have opened have welcomed new development, have funding to improve and upgrade their current facilities. This will place these competitors in a dominant position over Cayman and be more attractive to tourists. Bonds are being formed with other island destinations and these will be hard to reverse. A good example of this cause an effect is when other islands were heavily impacted by hurricanes in 2018 and tourists turned to Cayman for the destination. The reverse is now happening.
- Cayman has many advantages over their competitors, however, it is important to note that if Cayman continues to “stay out of the game” the erosion of past loyalties will fall away and Cayman will cease to be a destination of choice. Cayman will have to develop their brand awareness as the effects of the pandemic decreases.
- The DOT has never been able to correlate the real estate, the financials service and tourism. There is no reporting mechanism in place that connects them. It is known that visitors that report that they are arriving on business (currently 4% pa), however, it is much higher than that. All these industries impact visitations to the Cayman Islands and a mechanism needs to be in place to get a true understanding of who is visiting and why.
- There are several “like for like” competitors in the Caribbean basin, however, elements within these countries do differ. Aruba, BVI, St Lucia, Barbados, Turks and Caicos and USVI are all similar with respects to air passenger volumes. Barbados is a close relative that Cayman pays attention to as their air service appears to mimic the same air service as Cayman. Barbados is a good example of the impact on tourism to direct air service. After the introduction of JetBlue direct “mint” service from the USA the annual passenger arrivals went from approx. 450,000 to 600,000. Another

major competitor, from a group booking standpoint, is Aruba. Located out of the hurricane belt, Aruba can take bookings all year round. These destinations could become major influences on tourism in Cayman if the island does not open up with fewer restrictions and more incentives very soon.

- Cayman Airways now have the capability to reach further destinations with the possibilities of tourism growth to the Cayman Islands. However, funding is a major component to developing a far reaching destination. For example to expand into Los Angeles the cost to the Department of Tourism to start up is approximately $6M to ensure there is a return on investment. Los Angeles, Denver, San Francisco, Vancouver and Phoenix are all destinations that are being considered as prime opportunities but to do it right would need funding. There would need to be a significant investment in Cayman Airways also to maintain these destinations; therefore the government would have to make a strategic decision on developing these destinations. The Denver route, introduced in 2018 met and exceeded expectations, prior to the Max8 debacle and COVID, which could be observed as a foundation to explore these other North American destinations.
- The DOT recommends that the airport opens up their operation hours and give incentives for airlines. Other islands give large incentives to airlines to operate which, historically, which Cayman has never had to do. As increasing competition develops from competitors and the airport eager to return to 2019 revenue figures, then the airport will need to potentially revise their approach to opening up incentives to airlines.
- Aircraft manufacturers are moving away from building larger planes and manufacturing smaller, lighter, more efficient and longer range aircraft. This may change the dynamics with respect to travel to Cayman. It is the DOT's perspective that smaller aircraft makes the discussion easier with airlines, with lower passenger loads, to make Cayman as a destination. Again, the topic of incentives becomes extremely important for airlines. These smaller aircraft also will impact the need not to lengthen the runway if larger aircraft no longer arrive in Grand Cayman.
- The GA Terminal development is very important to address the luxury destination brand. As more and more higher end travelers work remotely there is projections that GA travel will increase and the GA Terminal gateway to Cayman is an essential marketing tool to encourage high net worth individuals to work remotely in Cayman.
- Any future design of a terminal or renovation of an existing terminal will require a dedicated space as an emergency response to processing passengers inbound and outbound. There needs to be within the terminal the capability to closing off sections of space to contain the current issue at that time. Mechanical systems need to be designed to be able to close off recirculated air. Areas need to be flexible such that areas can be contained to enable sanitization, maintain social distancing and potential to process passengers depending on their health status.
- Border control needs to improve their throughput times in the Immigration hall. This is a source of complaint from travelers.
- The rental car location needs to be closer and the route to the center needs to be covered. A counter in the airport would be an advantage and the ability to pick up the vehicle outside the terminal.

- ORIA needs to be a destination airport. Revise operating hours to allow business development opportunities to expand. There needs to be more offerings to passengers, such as lounges, entertainment centers, full service restaurants, etc.
- The taxi pickup and drop off is in reverse to what is should be. The taxi should drop off and then pick up not the other way round. This would reduce traffic volumes significantly
- Pre-Clearance would be welcomed by many US tourists. Aruba and the Bahamas have implemented this and could have an influence on a traveler choosing a destination.
- The terminal needs a VIP lounge. Cayman is a luxury destination and the expectation from high net worth passengers is the ability to use a VIP lounge with all high end services. The expectation is that this service is available.
- The expectation for high net worth people concession merchandise need to be more upscale. The current selection is mediocre and more high end products are required to be available. As Cayman brands itself as a high end destination there is an expectation that high end merchandise needs to be available.
- Any future terminal décor needs to be less sterile. Any aesthetic approach to a new terminal will need to be more unique and indigenous to Cayman. A softening of the finishes to make the terminal less “cold”. Acoustics play a large part into the passenger experience; therefore adequate sound attenuation is essential. Way finding furniture and finishes are useful for passenger comfort.
- Passenger experience is key to returning travelers. The departure hall needs to have more conveniences. Hotels have checked out passengers early and the airport needs to be a welcome destination where travelers can have a good experience with expanded shopping, full service restaurants, a business center, escort services from check in to boarding, entertainment areas.
- The use of technology improves customer experience with respect to wayfinding, and entertainment.
- A 150 bed Airport hotel is needed and an airport conference center would be a major asset for Cayman.
- The DOT has information that the Boeing 777 will soon be retired and will be replaced by the 777X. Any future designs should take into consideration this larger aircraft.

Master Plan Qualitative Data Collection Meeting

Executive Air Services (EAS) - 16.11.2021

Attendees:

Dale Hill

Meeting focus on the EAS operations and the interaction with ORIA Airport Operations:

Discussion on Key Points and EAS Observations:

- EAS has been have been operating out of Grand Cayman since 1979
- Their primary role is to supply air ambulance services for the two hospitals, HSA and Health City, for any patients that have to be transported to the USA.
- 100% of air flights are to the USA. There was a service to other islands but
- They are contacted either by the hospital or the insurance company to manage the flight. The instruction, date and time, is given to perform the flight then EAS contacts the flight operator and manages the process of immigration cards, meeting the ambulance and aircraft, etc.
- EAS works on a commission for the flight. EAS acts as an agent that puts the flight operator in touch with the medevac requestor.
- EAS do not own any aircraft. There have been several studies on whether aircraft should be waiting on island for a medevac but it has been proved unsustainable due to the infrequency and unpredictability of medevac requests.
- Medevacs from other Caribbean islands have reduced to nothing during the pandemic period, however, prior to the pandemic Health City had a contract with the Cruise liners to utilize Cayman as their choice for medical treatment for their employees when needed. This did demand medevac services to and from Cayman. It is expected that this service requirement will return post pandemic.
- Pre pandemic there was on average about 9 to 10 flights per month. Approximately 360 flights per year.
- The majority of the flight operators that EAS use operate out of Florida, primarily Fort Lauderdale.
- EAS has no issues with the process while in Grand Cayman (ORIA). The system is very smooth and all involved work well. The only potential improvement is to have a dedicated gate for the ambulance that is local to the aircraft parking area.
- It is assumed that the medevac business will be much reduced when the Health City and new hospital, Astor MedCity is completed that will increase the medical services available in Cayman. This will much reduce the need to fly patients to the USA. However, the increase in lower cost medical services may increase demand from other Caribbean islands.
- There is no requirement to medevac patients from the Brac and Little Cayman; however, it is possible that a request, although infrequent, for a medevac from the Brac to the USA can be received.

Master Plan Qualitative Data Collection Meeting #1

Facilities 23.06.2021

Attendees:
Eimer Powery
Kemar Brooks
Derick Johnson
Nicholas Johnson

Meeting to discuss ORIA and CKIA

ORIA

- The old apron (Stands 1 through 8) needs to be repaved and spill protection included
- The Facilities support an extension to the east as extending to the west only increases TODA and not LDA.
- Parking issues at ORIA – need multi-level parking garage
- There needs to be covered walkways in the parking lots and to the terminal to cover passengers from the elements – these covers may house solar panels for energy generation
- Airside canopy is inadequate and needs replacing with improved weather protection
- There needs to be a comprehensive drainage plan for the airfield.
- The location of the GA terminal needs to be thoroughly analyzed
- The completion of the parallel taxiway is critical
- There is potential to build revenue form Cargo and an area is required to set up cargo facilities.
- Cayman Airways may resist moving from their current location as their hanger location is close to the ramp and the hanger is their workshop
- There needs to be an asphalt pavement plan in place for all areas including parking
- Perimeter fencing needs to be upgraded to meet UK regulations (including the secondary fence on south side)
- The new fuel farm location needs to be known to ensure access to the airfield
- The radar site needs to be relocated
- The size of the training ground needs to be known for planning purposes
- The Ground Service Equipment area in the east needs to be expanded into empty area
- The sewer farm is old and needs to be replaced with improved processing and sizing
- There needs to be an assessment identifying potential land appropriation around the perimeter of the airport boundary.
- If the runway extension is to the west is land to the west of Huldah avenue required to be purchased
- All navigation equipment needs to be upgraded
- Upgrade of all electrical systems airside
- Potential cost savings by installing a solar energy farm
- A complete analysis needs to be looked at the OLS and any objects penetrating the imaginary surfaces
- A survey needs to be completed to fully understand the equipment needed to maintain an airport

- The ATCT needs to be relocated – south side is supported, however, the existing tower needs to remain as a backup in the event the primary goes down.
- The airfield electrical vault needs to be relocated. The vault is very vulnerable due to the current location not being within the airfield perimeter.

CKIA

- The main apron pavement needs to be repaved and needs to include spill protection system
- Runway overlay needs to be done and added turn pads on both ends
- The 2nd taxiway is critical and expansion of the ramp to the south is needed for wing tip clearances
- There is inadequate capacity for parking – needs to be expanded
- There needs to be a full airside drainage plan
- There needs to be an assessment identifying potential land appropriation around the perimeter of the airport boundary. Specifically land to the east for an added RESA length
- There needs to be an asphalt pavement plan in place for all areas including parking
- Perimeter fencing needs to be upgraded to meet UK regulations
- The airfield has no perimeter road and is required
- The terminal is in need of multiple upgrades in all areas
- There is a potential for hanger rental revenue is provided
- The airport needs a new tower or the existing tower needs a structural survey to understand if the current building is structurally sound to increase height
- The current airfield vault needs to be recoated and increased in size
- There needs to be two new generators that supply the field and the terminal, however, must be large enough to support both areas in the event of failure on one generator.

Master Plan Qualitative Data Collection Meeting #1

FADS 25.06.2021

Attendees:
Dara Flowers
Frank Flowers
Randy

Meeting to discuss Ground Operations at ORIA
Observations at CKIA

Ground Operations at ORIA

- The FBO location in the east is exposed to North Easterly winds which is undesirable and will require more hangars to protect the aircraft
- If the FBO location is to remain in its current location is better
- FBO critical as there is no aircraft, inclusive of cargo, parking at peak times
- Current 2014 Master Plan does not have enough aircraft parking for future operations
- Current issues with Code E push back on gate 13. BA is rejecting. Ensure for future design that push backs are standard.
- The Terminal dog leg profile is not desirable and a linear approach is better
- There are no offices on the ramp for ground handlers. Critical to add in new terminal
- There are significant costs and increases in efficiencies to operating on the ramp without bridges. If bridges are included in the new terminal however if the airlines left on the old terminal then there would be significant costs. Rotating gates and terminals may be fair. Ground loading bridges might work
- GSE parking needs to expand and need to be both ends of the larger ramp when Terminal 2 has been built
- FADS is planning on electric equipment – charging stations are needed
- If there are offices in the airport terminal for ground handling equipment there still will be a need for GSE parking on or off the ramp
- Lav. stations that are connected to the terminal would increase efficiency
- The current check in is undersized for peak loads
- The conveyor heights in the check in area need to be lowered or recessed for minimal lifting. Prefer to have cross over conveyor operated by the agent.
- Space between the check in and take away conveyor is too narrow
- The existing GSE area requires asphalt not chips
- There is no Wi-Fi in the landside of the terminal. This is a requirement for passenger LOS
- The gates in the terminal departure hall are too narrow and there are not enough exits
- There needs to be more scanners at the podiums
- There are queuing problems at the gates. This needs to be addressed
- There needs to be a fast lane for 1st class passengers.

- An analysis of curb side check in should be conducted
- The HBS search room and Bag Search coordination does not work efficiently and needs looking at. There needs to be a better flow. This may change with touchless processes.
- Passenger self-bag tagging with scales would be a good addition. Including a bag drop
- The check in offices are very small and do not have any storage rooms for airline paraphernalia
- The BHS on inbound needs a cover
- The BMA does not have a dedicated counter/station and does not have a center to perform paperwork
- An ice room is required to maintain sanitary levels
- Smart Carts would be a revenue generator
- The BMA tug lanes are too narrow and the circulation is restricted
- The break room is not large enough and no room for lockers
- There seems to be voltage fluctuation at outlets and activating breakers. If charging stations are used then this needs to be managed.
- The terminal 2 design MUST have cover for passengers when dropped off and covers for BHS to protect the passenger's luggage
- There needs to be a contingency for returning aircraft that have technical issues and the bags are returned to the passenger. Dedicated conveyor that brings bags back to the passenger without having the passenger go through Customs.
- A contingency needs to be in place to deal with complete blackouts. There appears to be no plan for a complete failure of emergency power
- The PA system is not functioning correctly and the ambient noise sensors are not working. This needs to be addressed
- FADS recommends that the caterer (Goddard's – 926-4041) at the current FBO location be contacted to understand their needs supporting GA aircraft
- The terminal needs, and will need in Terminal 2, a VIP lounge. The demand is there.
- The workflow of processing VIPs out of Protocol needs to be improved
- Future design needs a GSE maintenance bldg./area on site
- A separate airside employee entrance is needed to access the airside and not seen by the public.
- There are no Toilets for ramp staff on the apron
- Piped fuel to the ramp would be a revenue generator

CKIA Observations:

- The terminal has capacity issues and all areas are over capacity
- FADS recommends discussion the master plan with Lucy Walter (Cayman Airways-743-8690) to get a good idea of ground handling operations on CKIA

Master Plan Qualitative Data Collection Meeting

Current FBO – Island Air 07.09.2021

Attendees:

Marcus Cumber - CEO

Meeting Focus on Island Air Operations and interaction with CIAA - Topic for discussion:

- Overview of the 2014 comments
- Island Air Key Points and Observations
-

Discussion on the 22 points/issues identified by Island Air and recorded in the 2014 Master Plan:

1) *WSP outline of process*

- No discussion as this is a note to identify that the process of the Master plan was laid out in 2014 by WSP to Island Air

2) *Provide FBO services and manage/operate GA terminal on behalf of the airport. Capital infrastructure is the responsibility of the CIAA.*

- No real discussion as this was a WSP notation reflecting on what Island Air does and how the FBO supports the Airport. Island Air confirmed again that the CIAA is responsible for all capital infrastructure projects.

3) *Islands Air general update on traffic performance and outlook*

- In 2014, WSP questioned Island Air on how the market will grow in the next 5 to 10 years. Since 2014, Island Air has grown and the primary reason for this growth is because the hotel "Kimpton" opened along with other smaller developments. It is predicted that with other high end developments coming on line in the near future such as Water Colors, Water Mark Fin, etc. it is expected that the trend will continue. Island Air is currently seeing steady growth of approximately 1-2% per annum.

4) *Margin pressure from fuel supply*

- Aviation fuel on the Cayman Islands is still very expensive due to the small volume consumed, which is a direct consequence of the high fuel cost. There is in place currently an approximate $0.70 cents per gallon government tax on fuel and a throughput fee of $0.18c per gal. (Global average is around $0.02/0.03c per gal) which is one of the highest fees in the world. The root cause of this drop in revenue is that aircraft generally only purchase minimal fuel needed due to the high cost and therefore, only "top up" and fuel up elsewhere, for example in the USA. To sell more fuel and increase revenues the cost per gallon needs to be competitive with other regions.

5) *Potential impact of medical tourism*

- This was a very exciting proposition in 2014 but this concept never became established and medical tourism is considered dormant at this time. Health City, the proponent of medical tourism, is now targeting local medical business. If the new cancer center comes on line health tourism may be revitalized but this is very uncertain.

6) *Apron becomes congested about 3-4 times per year. With planning for approximately 53 aircraft (peak).*

- These peak times are Thanksgiving, Xmas, New Year and Easter. There are additional spikes on weekends. For example Martin Luther King weekend. Most of the American holiday "winter" weekends between November and June. However, it is unlikely that there will be 53 planes on the apron at any one time due to a shift in how GA is developing and moving towards "time share" type GA operators. For the foreseeable future, Island Air is projecting 2014 apron parking figures as the island opens up post pandemic restrictions and with NetJet operating becoming a major player in GA activities, Island Air does not see immediate return to 2019 figures due to many customers having moved elsewhere due to COVID restrictions. There has been negative feedback from GA users that due to the draconian measures implemented by the government, these measures have "put off" high net worth visitors who have now adopted other islands for their vacations and have indicated that they may never return.

7) *They believe that a 15,000 sq. ft. expansion to the east would satisfy their needs.*

- Island Air would, at their expense, asphalt the apron area to the Fire Road and this should satisfy current parking issues. There would need to be some negotiation of lease arrangement with the Authority such that Island Air would be in a position to recoup their outlay for this work performed.

8) *Do not operate aircraft any more.*

- Island Air does not have an inventory of aircraft that they operate. There is no future plan to get back into this business at this time.

9) *Very poor GA terminal experience – need for improved facility.*

- It is clear that the current GA terminal is old and needs to be replaced. Island Air proposed a new GA Terminal concept plans to the CIAA/Board in 2017/18 which did not result in any progress and no decisions were made. The Island Air concept area footprint for the GA terminal is approximately 6000sq ft. and would be located in the current GA terminal location and parallel green field site. Island Air is still willing to develop the terminal, however, there would need to be some order of lease negotiation with the Authority such that Island Air would be in a position to recoup their outlay.

10) *Ground handles courier flights – SAAB and Metroliner*

- Island Air do not ground handle courier flights anymore. CDS manages this. Island Air is not interested, now or in the future, in getting involved in this business sector. However, the IBC cargo plane does purchase fuel using Island Air, however, this quantifies to minimal fuel sales.

11) *Previously provided proposal to develop a new GA terminal in exchange for exclusive FBO rights (30 year lease).*

- Island Air is still interested in developing a new GA terminal and expanded apron (See bullet point above). The 30 year lease statement was arbitrary and not set as the business model would have to be known to determine the true required terms of lease.

12) *Island Air is willing to work with the airport in developing a new GA terminal. Concerns that if it goes to competition that big operators would move in and push Island Air out.*

- Island Air has a real concern that large operators could be a major threat to the smaller FBO by undercutting prices. There is no capacity for two FBO on airport due to the low throughput of GA traffic and related low fuel sales. Currently the annual fuel sales are approximately 1.2 million gallons. It is widely known within the industry that the trigger point where two FBOs on any one airfield could be sustained is equal to or over 3 million gallons per year. Past forecasts have not shown any indication of increased growth of this magnitude. For any major development to be funded by the Operator, fuel sales are an essential component to recouping these cost outlays. Any dilution of fuel sales would make any development untenable.

13) *Island Air has some hangar space available for itinerant aircraft. Police helicopter is stored in the hangar.*

- The Police helicopter/s and private helicopters are being stored in the hanger (approximately 50% occupancy) for a nominal rent

14) *MRCU hangar is being torn down. This could be used for expanded apron space. (West of cargo apron).*

- The MRCU hanger has been re-built since 2014. Island Air would like to see GA aircraft parking to the west of the MRCU, however there are limitations on aircraft size being parked due to tail heights. An advantage to the MRCU hanger (hurricane rated) is that the police helicopters are stored in their hanger during severe inclement weather.

15) *An air ambulance based in Grand Cayman would be desirable.*

- This was enterprise was tried however it failed. There are approximately 75 medevac movements each year and with all overhead costs included made island based medevac flights non-profitable. Lean operators in Florida, for example, have cheaper overheads therefore an on-site medevac operator could not compete. Additionally, there are no time advantages to having an on-site operator. The time to process a patient after a determination that a medevac is needed, the location of a medevac operator in Florida allows them to be no more than 2 hours away. Processing patients through a medevac portal does take several hours to process therefore having an on-site operator gains no advantage.

16) *Fuel is expensive in Grand Cayman ($6.00/gal versus $4.50 in Miami)*

- These costs have not changed and are still similar to 2014

17) *Island Air expects GA activity to be flat for the next two years.*

- Prior to 2014 there were no new Hotels on the horizon hence this prediction stated that growth would be flat. There are now 4 to 5 high end developments that have been completed or are in process, which will increase GA Traffic. If the Mandarin Orange Hotel project in Pease Bay takes off, it is certain that GA traffic will increase. Dart, may develop a hotel at Barkers, Starfish point and other locations, however, no solid information on development dates published. An interesting point is that a number of the high end condominium complexes on seven mile beach are being purchased by individuals that are already property owners on island and are only moving to the new location. Therefore this has no impact to GA growth. It is unknown at this time if these vacated properties will increase an influx of new property owners, however, Island Air is projecting steady growth of up to 2% per annum

18) *Need for more stands for airplanes*

- This is noted above. The current GA apron needs to expand to manage peak times for aircraft parking

19) *Space requirements on parking apron should be looked into*

- See above

20) *There is need for proper RADAR to assist in flight sequencing*

- A surveillance system in required to improve efficiencies. IN addition to a radar system, the parallel taxiway is essential to improve aircraft airfield throughput and increase efficiencies. A full parallel taxiway could improve efficiencies from 18 current peak aircraft movements up to approximately 28 movements per hour

21) *General concerns for existing terminal capacity*

- This has been completed

22) *Need for more up-to-date electrical rooms.*

- This has been completed

Discussion on Updated Key Points and Observations:

- What has changed from 2014 is that private plane ownership was high and in and around 2009, NetJet, a charter GA company, began operating and GA users began to realize alternatives to plane ownership. Aircraft ownership using Cayman as a destination began to drop and the usage of "timeshare" aircraft using NetJet has increased. This change is having a limiting reducing effect on parking capacity on the apron. Aircraft are not residing overnight and have a quick turnaround therefore less space is required during peak times. It is expected that this trend will continue, however, it is yet to be seen if "time share" will impact over the long term.
- There is no requirement for a restaurant in any new GA terminal. Passengers do not intend to eat or refresh in the terminal. When the aircraft is ready the passenger will then come to the terminal and move immediately to the plane.
- Island Air would like to see the partial parallel taxiway completed. This should be a priority.
- Island Air would like to see the GA terminal project begin and a determination made on where this terminal will be located and what is the expectation on schedule.
- From a GA perspective, Island Air would like to develop the east side, by the gun club, for a GA apron and hangars and link into the new future fuel farm off airport property.
- Island Air sees the need for a dock on the east end for a boat taxi for GA passengers to take a boat to the 7 mile beach hotels, Rum Point and countryside which would be a marine access point to the future new Mandarin Orange complex.
- There has been an increase in domestic, not international, GA traffic however there is caution as to whether this is because the current domestic airline schedules are sporadic and passengers are reverting to GA travel because this is only what is available. Will this change back once airlines are fully organized? This is very probable.
- Island Air have no objections to sharing a berth/dock with the Fire Launch
- There is no need for a holding area for medevac patients in the GA terminal. Coordination with the EMS does not require any patient waiting at the terminal.

- Any Operator investment costs in a new GA terminal would need to be recouped and there is not enough revenue available if two operators are in play (see bullet point above). If the location for the GA Terminal is to be in the east then there is a potential to develop the current central location into revenue generating military/government hub. If Island Air was to develop the east end area into GA, then the central current GA apron could be turned into revenue generating enterprise working with the US military, US CBP and Police.
- The cost of fuel is extremely high and is likely, over time, to increase. An idea to reduce these costs would be to have the Cayman Islands Government purchase fuel directly from oil refiners in South America, Trinidad, Dominican and others to purchase fuel for only government use. This would bring prices down and eventually the private sector would be persuaded, over time, to buy into this alternative. The goal would be to reduce the cost of fuel to everyone in the Cayman Islands.

Master Plan Qualitative Data Collection Meeting #1

Fire Department 17.06.2021

Attendees:

Paul Walker
Brevan Elliot
Tatum Whitman

Meeting Focus on ORIA - Topics for discussion:

- Fire Department Facilities at ORIA
- Fire Department Facilities at CKIA
- Other

Fire Department Facilities at ORIA

- No formal long term Master plan in place. However have a Risk Assessment and management plan that spans for 2 to 3 years. Fire Department (FD) advised that they will forward for Master Plan reference purposes.
- Discussion on dividing the domestic FD coverage and the airfield coverage. FD advised that this is to be discouraged as this weakens the operational capability. FD would oppose any move to segregation
- The issue of location was discussed and the FD advised that the current location was ideal to meet regulatory response times on the field. However, if the FD station was to move to the south side then this is also ideal and would still conform to domestic response times. The FD would approve this site for relocation
- The FD advised that the current training ground and proposed area outlined in the 2014 Master Plan are both too small and will need a larger area to accommodate the specific training required for airfield accidents. The FD will submit the total required area for training purposes to allow the Master Plan to allocate the required area, if possible, for training.
- The location of the launch berth was discussed and the FD agreed that the current location is not ideal as this is potentially in an impact zone. The suggestion to move the berth to the north would be supported by the FD
- The FD is concerned with airfield drainage and lack of catchment in the event that an incident would occur and contaminants from fire retardants were to get into the ground water. A drainage plan is required.
- A drainage plan is required around the Central Fire Station as area floods during extreme events
- The FD raised the issue of the limited parking at the central station and additional parking slots were required.
- The advised that the newly installed perimeter access road is a major improvement than what was there before; however, a paved access road is required.

- There are concerns with the current training ground location and flooding. If the training ground was to remain in this location, which is acceptable, then a proper designed drainage plan is required
- The current Central Fire Station is 33 years old and has a fifty year life, so a new first station would need to be addressed within the next 15 years. This may be a good time to relocate to the south side of the airfield

Fire Department Facilities at CKIA

- The FD advised that the training ground is on the bluff and needs to be at the airfield site.
- There is no launch berth on end of runway 09. If possible this is the ideal location, however, a breakwater, due to the rough sea element, would have to be built to protect any launch berth in this location.
- Filling of the ponds on the south side of the airfield and to the east of the field would not be opposed by the FD
- The Brac does not have a perimeter access road and there is a requirement. This is noted on the 2014 Master Plan
- There is minimal staff parking at the Brac Fire Station
- It is desirable to appropriate land to the north of the airport to allow direct access to the Fire Station
- The FD advised that there is current in place plans to extend the Fire Station to the west, an extension to the truck bays and a direct dedicated fire access road to the runway.
- As in ORIA, the FD is concerned with airfield drainage and lack of catchment in the event that an incident would occur and contaminants from fire retardants were to get into the ground water. A drainage plan is required.
- The current water hydrant locations and functionality is not ideal and a plan for relocated and new hydrants is required

Other

- The FD noted and advised that there is currently in place a $3m investment in the fire service facility on LCY and any future development of this airfield would need to coincide with this development to prevent any wasting of funds.
- There is no method or harvesting rainwater. Possible solution for water supply of fire trucks
- The FD advised that they would schedule a meeting with crew members in both the Grand Cayman and Brac to discuss the Master Plan and identify any issues that have not been discussed. FD to revert with notes from these meeting by no later than the end of August 2021.

Master Plan Qualitative Data Collection Meeting r1

Foster's Group (FG) - 26.11.2021

Attendees:

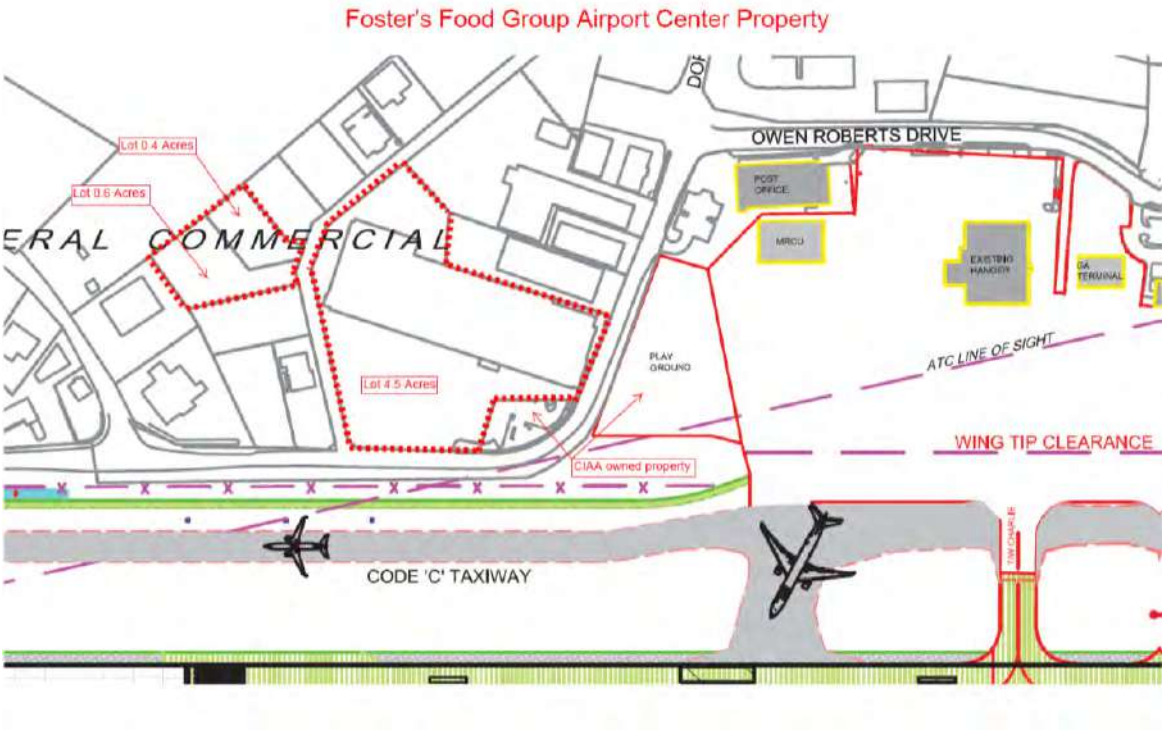
Woody Foster (Managing Director)

Meeting focus and discussion on:

- Future Foster's Expansion Plans
- Potential Foster's property Acquisition

- The Foster's Group (FG) has been aware and has been in discussion with the Airports Authority for many years regarding the need to move out of the airport center location as and when required by the Authority.
- FG has recognized that the Airport's Authority will need to expand the airfield at some point in time and will require purchasing the Airport Center property and FG are anxious to be kept informed of developments ahead of time for their planning purposes.
- FG has been proactive and has had the foresight to purchase land along the Linford Pierson Highway for future development of a new facility to replace the airport center property.
- FG have no current plans to develop the land purchase and will not begin to plan on a new facility until timelines are in place as to when the Authority will purchase the Airport Center property
- Any new development of a facility off of Linford Pierson Highway will require time (up to 5 years)
- FG have current needs and plans to refurbish and expand the Airports Center property, however, if the property is to be sold off to the Authority then the investment in any refurbishment would be moot. A clear understanding of the Authority's motives is required as soon as possible to allow FG to act in either direction.
- FG has three property lots potentially of interest to the Authority. The large lot is approximately 4.5 acres. The two smaller lots to the east are 0.6 and 0.4 acres respectively. (See sketch below).
- FG has no concept of the value of the three properties at this time. A land valuator would have to be engaged to get a full understanding of value when appropriate
- McLendon Drive, between the lots, is government owned.
- FG are open to any negotiation for purchasing of the properties, whether an outright sale, a partnership or any other procurement route. This will need to be discussed.

- FG do use air cargo all the time but just in very small quantities in relation to sea cargo. FG would not need cold storage as they have our own. However, if the air cargo facility had refrigerated facilities so that perishable cargo did not have to endure the hot temperatures this would be good but expensive.
- FG would like to be kept up to date during the process of developing the Master Plan and a collaborative approach is requested to ensure that all parties are working toward to the same goal.



Master Plan Qualitative Data Collection Meeting r1

Aster Cayman Medcity - 07.10.2021

Attendees:

Gene Thompson
Rahul Mandhani
Andrew Vincent

Meeting focus and discussion on:

- Why is this new hospital development a necessity?
- The Aster Cayman Medcity Hospital Development Project
- The ramifications on Airport Operations to and from the Cayman Islands
- Effects the development will bring to the community of the Cayman Islands

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Why is this new hospital development a necessity? :

- The rapid rise in health care tourism globally has been identified by the Cayman Islands Government and private entities that there is an opportunity to market the islands as a health care destination.
- With the continued rise in health care costs in the United States which are increasing at a rate of 6.5% per annum, neighboring Caribbean nations, including the Cayman Islands, are challenged with addressing to mitigate these costs and are looking for alternatives.
- It is the intention of the Cayman Islands Government to assist marketing the Cayman Islands to fill this gap and become an alternative with a cost competitive health care service.
- In 2015 health care costs in the Cayman Islands was $328M but has increased, in 2020, to $487M; and it is expected to continue to rise. Therefore, the aim is to contain within the Cayman Islands a portion of these costs that are being spent abroad by establishing health care facilities on island.
- The Cayman Islands Government estimated liability for health care costs is upwards of $2.3B. This is due in part to the islands increasing age demographic of Caymanians and the cost of health care to support this group. It is crucial that the Government put in place mitigating measures as the cost of health care in the Cayman Islands continues to rise.

The Aster Cayman Medcity Hospital Development Project:

- The new campus site will be located to the north of Georgetown, east of the Easterly Tibbets Highway and just south of the Batabano Road.
- The campus is to include a hospital, senior housing, assisted living, residential housing, a medical college, a wellness center and an area for commercial development.

- The Hospital will be built in four phases and initially will have a capacity of 160 beds with the potential to go up to 500 beds
- The complex will be environmentally sensitive and have sustainability as a major factor in the design
- The 1st phase building footprint is approximately 200,000sqft and will include a helipad.
- The property has been secured, the design level is at approximately 90% complete and the permitting process is expected to be completed by end of 2021. Construction start is scheduled for 1st quarter 2022 with a completion date for phase 1 in 2nd quarter 2023. The agreement with the Cayman Islands Government is to have all four phases completed within 15 years.
- There are strong indications that the demand for senior housing and assisted living may "push" the start date for this phase of construction as early as 3rd quarter 2022.

The ramifications on Airport Operations to and from the Cayman Islands:

- It is expected that there will be an increase in air ambulance movements due to the increase in medical tourism using the Cayman Islands as a medical destination, especially from other Caribbean nations. This may attract alternate airlines, such as Caribbean Air, to begin using Cayman as part of their route itinerary.
- The expectation that in the early stages there will be on average approximately 100 international patient passengers per month which is expected to increase over time.
- As specialist health services come on line, the level of medical outbound flights will be reduced significantly due to treatment options in the new hospital.
- An agreement has been met with a local helicopter service to manage marine emergency medevacs to the new facility. Medcity is exploring the concept that Grand Cayman will be the "go to" center for treatment of marine vessel based emergency patients.
- It is the expectation that with the increase in medical tourism there will be "clusters" of patients at any one time with long wait processing periods especially at peak periods. The CIAA patient VIP service is working well, however, there needs to be a dedicated fast track line through Immigration. In addition to this, allocation of covered parking space for patient transportation curbside is required to reduce any wait times and protection from the weather. Some patients do not have the ability to wait for long periods of time; therefore there needs to be in place a method of processing passenger patients through the terminal efficiently and quickly.
- The new terminal expansion omitted installation of any Jetways. Patients transferring to and from aircraft, potentially in wheelchairs or are infirm, are exposed to the weather. It is essential that Jetways are a consideration in the near future.
- In any future design of a new terminal or modification to the existing terminal, a quiet VIP room for patients that are travelling outbound is required. The concern is there is the potential that Medcity patients could be publicly known, film stars, politicians, etc. It is expected that as Medcity will be offering wellness services, these types of services would attract this type of prominent individual who would require privacy from the general travelling public.

- The current General Aviation service in Grand Cayman is very inadequate and needs to be improved. From a passenger patient standpoint, processing at this location of high net worth individuals is important; however the expectation of any high net worth passenger arriving by GA would demand a high level of service which would more than likely satisfy any patient needs. The more important issues, when it comes to passenger patient processing, are in the main terminal.

Effects the development will bring to the community of the Cayman Islands

- By becoming a health care center in the Caribbean, it is projected that health care costs for Caymanians will drop or at least stabilize by reducing the need to travel abroad for necessary care which can be performed on island.
- The Cayman Islands tourism and financial sectors together are attributing to 90% of the Cayman Islands GDP. Medical Tourism aims to support these two economic pillars of the economy and global medical tourism is projected to grow which is projected to be a major contributor to the economic stability of the Cayman Islands.
- A major advantage to this complex is that the senior housing and the assisted living quarters are adjacent to the hospital. As the age demographic of Caymanians increases there is a need for these types of facilities and related support functions.
- The new medical center will increase the number of expat employees. The expectation is to begin with approximately 200 personnel rising to a 1000 employees over time with a large portion being sourced locally. This employment potential will increase revenues to the Cayman Islands Government.



Master Plan Qualitative Data Collection Meeting r1

Health City 17.09.2021

Attendees:

Shomari Scott

Meeting Focus on Health City Operations and the interaction with CIAA - Topics for discussion:

- Overview of the 2014 comments
- Health City Key Points and Observations

Discussion on the 16 points identified by Delta Airlines and recorded in the 2014 Master Plan:

1) *PwC / WSP outline of process*
- This note recorded that WSP was outlining the Master Planning process – Master Planning is a projection out to the next 20 years.

2) *Health City vision & volume projection*
- No discussion – note is non-descriptive

3) *Health City infrastructure requirements*

4) No discussion – note is non-descriptive

5) *Health City sees the need for passenger boarding bridges*
- This issue has been responded to with the addition of accessible air stairs. Wheelchairs can access these stairs and the safety issue of having wheelchairs "carried" down stairs has been solved. The issue of weather is still an issue however; this is not solely for just medical tourists. Health City's perspective is that the weather issue is still prevalent but is more a passenger comfort issue rather than a patient issue. This can be addressed by adding jetbridges or installing expanded covered walkway that extends out to the aircraft during inclement weather.

6) *HC would like to see a designated pick-up/drop-off at the curb for their vehicles as well as having access to the apron for ambulance*
- This issue has been addressed. CIAA Customer Service now collects the medical passenger and escorts them through the immigration process and hands off to the designated driver on the landside. This is working well and Health City would like this process to remain in place.

7) *HC would like to provide staff to assist client in immigration and customs processing with possibly having their own dedicated lines. Ideal to get patients in and out ASAP.*
- This issue has been addressed. See bullet point (6). The medical passenger is escorted by CIAA Customer Service through the immigration process.

8) *HC looking at the potential for 100,000 annual arrivals*
- This arbitrary number never reached its goal. The average number of medical passengers in 2019 was approximately 5,000pa. In 5 years the number could potentially increase to 20,000pa. The driver for this projected 400% rise is the cost of medical care in the USA. Increasing costs have driven medical procedures such that it is cheaper to travel to Cayman and be treated at Health City then to have the procedure performed in the USA. Self-Insurers are identifying this lower cost service and it is projected that this will continue while medical costs in the USA continue to climb.

9) *HC have not thought about exclusive space, but in meeting there was some discussion about a quiet room for their clients. HC to consider.*

- Due to the medical passengers being escorted by the CIAA Customer Service representatives the need for a quiet space is not necessary. However, any future design for terminal 2, a quiet area on the departures side would be an advantage for medical passengers that were not fully recovered.

10) *Travel experience is very important.*

- Health City has no issues. Medical passengers have given good feedback about their travel experience with Customer Service and their escorting procedures.

11) *In 5 years they hope to have 600 beds and a 190 room hotel. In 15 years hope to have 2000 beds and 800 hotel rooms plus a university*

- This never materialized. There are currently only approximately 100 beds. These projections were based on the 100,000 medical tourists. Apartments (80 beds) were built for stay over patients; however, there are partnerships with on island hotels for patients that need to stay longer, therefore, there are no hotel plans at Health City. Health City is currently in the process of developing a site in Camana Bay and opening a 70 bed radiotherapy hospital which will come on line in 2022/23. There are no plans for a University. Health City has restructured their education model and is now partnering with the University of the West Indies, UCCI and HSA for medical education needs.

12) *Phase I is 350 beds, 190 room hotel plus 90 apartments – currently under construction.*

- The apartments have been built but there is no plans for a hotel (see bullet point 11)

13) *Phase II to start in 2017 to expand facilities is dependent on improvements made to the airport.*

- The airport has made significant changes since 2014 and the above has been addressed

14) *HC also considering the development of an IT Centre that would focus on medical IT/software solutions.*

15) Technology has improved since 2014 therefore medical has moved towards remote procedures. This has no impact on Airport planning.

16) *HC anticipates a staff of approximately 10,000*

- This arbitrary number of staff was never realized. Staff count is currently approximately 350 with an additional staff increase of 250 when the radiotherapy unit comes on line in 2022/2023.

17) *Much of the staff (50% - 60%) will be East Indian – will generate approximately 450 return trips to India – likely avoid travelling through the US because of visa restrictions, so flights through the UK.*

- This was never realized. Staffing that travel through USA are now able to access visas and the introduction of the direct flight to London alleviated this issue regardless.

18) *In the subsequent meeting various follow-up issues were covered, notable affordability of jetways, priority investments for capacity and the need to ensure regular updates and liaison with Health City during the investment program to ensure needs are met and actual medic traffic numbers are tracked.*

- These issues have been addressed. Airport relationships are working well and the partnership is good.

Discussion on Updated Key Points and Observations:

- The 2014 points were drafted prior to Health City opening. Health City opened in February 2014

- The Cayman Islands has seen a large positive economic impact with the introduction of medical services conducted by Health City. There has been an increase in real estate purchases due to the fact that there is a state of the art hospital on island which has been a key element to the decision making process for individuals to invest in Cayman. Additionally, there has been large savings towards Caymanian health care due to the presence of a multi service hospital in Cayman. The need to Medevac passengers off island for treatment has been reduced significantly. It is the expectation that with the additional radiotherapy hospital coming on line these trends will continue to attract investors to invest in Cayman.
- Health City manages Medvac flights in-bound only. HSA do out-bound. The majority, if not all, of medevacs in-bound are emergency flights. Flights originate from a variety of origins. Turks and Caicos, Honduras, Barbados, Trinidad, St Lucia amongst others. There are no flights from USA or Canada. The frequency of emergency flights is approximately 5 to 10 flights per week.
- There are no known issues with regards to patient pick up on the GA ramp.
- There is, on occasion a need to fly a patient from the Brac to Health City. The patient is carried by police helicopter and lands at the hospital as Health City does have a helipad. This works well and there are no known issues.
- Patients are considered visitors to the island. Health City is only concerned with the transportation of the patient and the processing practices, inbound and outbound, and these are working well.

Master Plan Qualitative Data Collection Meeting r2

Hazard Management of the Cayman Islands (HMCI) - 25.11.2021

Attendees:

Danielle Coleman
David Broughton

Meeting focus and discussion on:

- HMCI Operations and the interaction with the Airport's Authority

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- The Evacuation EST Leaders under NEOC are managed by the Authority Safety Department. There are annual emergency planning meetings to discuss past response events and modify the emergency response plan with any revisions that may be required. The Authority plan is submitted to HMCI on an annual basis and is used as the baseline response to any emergency event in the succeeding year.
- The main issue during an evacuation event, identified during hurricane Ivan, was that the roads to and from the airport became blocked with vehicles that were either on their way to the airport or had been abandoned. In response to this, a holding station is now planned to check any vehicle/people that needs to access the airport to prevent access roads becoming blocked and the airport becoming overwhelmed. Currently there is no holding station/area on airport property that has been assigned and the Interim Holding station needs to be finalized by the Airport authority in their capacity as Lead agency under the Evacuation Emergency Support Team (NEOC). Any future airport planning should include a holding station/area to manage the influx of vehicles and people during a major event.
- The airport is closed down during a major storm event and emergency management is managed from the GAB at the National Emergency Operations Center (NEOC). Infrastructure or property assigned to allow for management of this influx during a storm event.
- The airport does not have a dedicated emergency operations center. Any emergency operations center could be located anywhere on the property but would require full visibility of the airfield by video/CCTV/radio or real time observation deck. There is a requirement for dedicated communications to the NEOC and a systems setup to allow for tactical command. A permanent external holding area structure could double up as a command center if room was not available at the ATC or the passenger terminal. Another solution could be to utilize the new MET station for the location of an emergency command center.
- Post storm events include debris clearance and maintaining the airfield security perimeter. This is a joint effort with multiple teams from Government, the Authority and private contractors.
- The MRCU hanger is currently the storage point for airlifted emergency relief supplies, however, this is rated small in size and a larger facility is required to house the sortation and storage/distribution of the emergency supplies with a direct access to the landside. This could be an alternative location for the emergency command center and a muster point for

the maintenance crews. It is important that the facility has direct access to the aircraft to allow for ease of offloading/storing and Customs inspection interaction.

- HMCI work with the Sister Islands emergency response teams, however, these islands are more self-managed. In the Brac, the Emergency command center is located off airport, however, a command center in the Brac is recommended to allow for communications between the ORIA and CKIA.
- Most emergency relief supplies are barged over to the islands and very little airfreight is employed.
- There are no storage facilities on Little Cayman for emergency supplies other than the PWD hurricane shelter which is low in capacity. The current storage located adjacent to the airport terminal is very small and old and needs to be replaced. If storage is to be replaced, a location at the airport would be preferred.
- The airport terminal on Little Cayman is very limited and needs enlarging to allow for better emergency operations during an event. An incident command center and storage attached to the enlarged terminal would be an advantage.

Master Plan Qualitative Data Collection Meeting

Health Services Authority 01.09.2021

Attendees:

Dr. Samuel Williams; Dr. Eryka Simmons; Mr. Stephen Duvall (EMS)

Meeting Focus on HAS Operations and interaction with CIAA - Topic for discussion:

- Key Points and Observations

Discussion on 6 points/issues identified by the HSA and recorded in the 2014 Master Plan:

1) *Need for office (3 staff) and health assessment office.*
- A office has been built in the terminal and this is considered done
2) *Need for storage of supplies in the event of a hurricane – space for one pallet.*
- This has not been done and is still a requirement. Maybe the new GA Terminal design could include a storage room for medical supplies as this is the primary entry point for ambulances.
3) *Terminal building should be designed as hurricane shelter.*
- It was discussed that although the terminal is not designated as a hurricane shelter the building has been built to hurricane standards. All glass in the terminal is rated 15#. This point is considered done.
4) *Terminal should be accessible for passengers with disabilities.*
- It was confirmed that the new terminal has been designed to code and is fully accessible. This is considered done.
5) *Need for a mobile command unit.*
- This is still an issue and a discussion is needed with the Authority to determine the best solution. Potentially a trailer with medical supplies and who is responsible for inspections.
6) *Elevators should be designed to accommodate stretchers.*
- None of the elevators in the new terminal are large enough for a stretcher, however as the new terminal has only two floors then this is not now considered issue, however, in any future design of Terminal 2 a freight elevator which allows access for a gurney/stretcher is required.

Discussion on Updated Key Points and Observations:

- For any design of the a new terminal 2, a service elevator is required to allow for gurneys to access upper levels, perhaps from a loading dock
- There is currently no full time officer in the health office and an officer is only there on an as needed basis therefore, the current health office is satisfactory
- The current location of the health office is not used in the pandemic process, however, the location is good to address any patient that is ill and in immigration that shows symptoms
- The entry and exit of the health office is good. The route has been inspected and approved by HSA
- Any health clinic location in terminal 2 should be similar and local to the immigration hall

- A discussion was had on the potential any future employee wellness checks in the airport reducing employee absenteeism. HSA confirmed that there is nothing planned. The HSA would be open to setting up a wellness clinic to address airport employee needs, however if this was the case, there would be a need to reshape the office into more of a clinic environment
- Coordination with medevac operators is not efficient due to communications with the handler and sometimes there are waits on the apron, regardless, there is no call for a health office in the new GA Terminal. Patients are better left in the ambulance rather than being moved twice. HAS confirmed that is the ambulance has to wait there is no impact on ambulance occupancy times as there are other vehicles available.
- During the GA terminal Design process HSA should be allowed to review and contribute as it is possible that due to the pandemic and controls that may be put in place a health office may be required at the GA Terminal
- Communications with the airport are not ideal and there needs to be a more robust system. Group alerting and necessary redundancy communication devices are needed to ensure communications are acceptable
- HSA has little involvement with medical tourism. Health City is the leader in Health Tourism and another hospital (ASTA) will come on line in the future, however, HSA is only indirectly affected by this sector when requested to help.
- The age demographic is on the rise in the Cayman Islands especially in the Brac and there is no health facility in the airport terminal and there should be one. High net worth retirees are moving to Grand Cayman and the Brac and it is expected that increasing medevac movements will be on the increase. A health office in any expansion of the Brac airport terminal must be included in the Master Plan.
- Helicopters are used quite frequently for medical emergencies and the discussion was had on the potential location of a helipad. The potential location is to relocate the helipad to the east end by runway 26. This allows the helicopter to arrive and depart without effecting runway efficiencies. The location is not an issue with HSA; however a rapid access road is key for emergency vehicles, preferably a dedicated road.
- Currently ambulances enter the GA ramp through Gate 11 (checkpoint 3) and this entry point is important to remain if the new GA terminal is located in this area.
- Any future design of Terminal 2 would need a rapid access road to any loading dock to maintain fast response times. Could this road be incorporated in the dedicated helipad road?
- Emergency management conferences are regular (annual) and are ongoing. Emergency management is developing, however can always improve.
- There is no requirement for a permanent presence of an ambulance in the Fire Station. Reaction times to and from the hospital are adequate and less than 4 minutes. Training is ongoing with the Fire department such that they can play the role of first responder until hospital staff arrives. If the FD moves to the south side this would not give any advantages to the HSA, however, if there is a design process for any new facility the HSA would like to be included in the design process in the event there is a future need for an HSA presence on airport.

- Globally, all airports are in a transition stage due to the current pandemic and any future design of the second terminal, HSA should be involved. Jetways would be a huge advantage for passengers in wheelchairs or with disabilities would be kept out of the weather.
- It was noted that the travelling public are exposed to the weather from the parking lot to the terminal and then are exposed from the terminal to the aircraft. This is not ideal and HSA advised that this should be an item in the new terminal design

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Master Plan Qualitative Data Collection Meeting r1

InvestCayman - 14.12.2021

Attendee:

Jane Scaletta/Director (Ministry of Investment, Innovation and Social Development)

Meeting focus on the role of InvestCayman, its perspectives on island growth and potential impacts to airports

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The role of Invest Cayman:

- InvestCayman is a governmental investment promotion agency working under the Ministry of Innovation and Social Development.
- Aim is to promote the Cayman islands as an investment jurisdiction
- One primary goal is to develop sustainable impact investment in the Cayman Islands. These investments are to act as a catalyst of social and economic change. Two typical examples of investment opportunities would be affordable housing and an improved public transportation system such as a light rail system
- InvestCayman would reach out to potential investors to provide financial backing for these projects or potentially enter into a partnership with the Caymanian Government.
- InvestCayman also supports individual investors in start-up businesses provided it is an investment in Cayman.

Perspectives:

- If the Mandarin Oriental hotel construction proceeds, which is likely to be located in the middle of Grand Cayman on Beach Bay road, this hotel will be the beginning of the luxury market in the east of Grand Cayman. Four Seasons hotel is also considering establishing a site on the east end. Therefore, if high end growth, hotels, villas, etc. continues to increase in the east it may make sense to partner with all or some of these entities to establish a smaller satellite airport in the east. A small airport for private aircraft would be an asset to encourage further development in the east
- A hovercraft ferry service between the islands would be well received. Potentially, this hovercraft port could be off North Sound at the airport.
- Investment for an island wide monorail system as a potential solution to relieve the road congestion. A monorail spur to the airport terminal could be included and should be considered for a future planning
- Cayman Brac infrastructure development, both private and commercial, is projected to expand in the future. Growth of the community on the Brac will increase over time and therefore is a prime investor location. Developments on the bluff and coastal locations would encourage high net worth individuals to invest and this increased population will put pressure on the airport terminal facility.

- For example a sustainable wellness center on the Brac has potential. This could lead to additional tourism figures which would also impact airport infrastructure requirements.
- Any major development on Little Cayman should be carefully considered and the island remains in its natural state as a statement of how the Cayman islands used to be and a rich habitat for wildlife and a destination for undersea divers.
- The projection on growth in Cayman of many industries is apparent. Fintech, Health Tech, Artificial Intelligence, intellectual property management, cyber security and robotics are all prime examples of the growth potential in the Cayman Islands. Efforts are currently ongoing to source investors to set up businesses in the Cayman Islands which will increase population figures and put higher demands on the airport/s. Growth in Cayman Brac is considered to take place within the next ten years.
- InvestCayman recommends having a discussion with Marla Durkharan, an economist and resides in Barbados. An Economist and leading advisor on the Caribbean. InvestCayman recommends the Master planner to contact. Invest Cayman to forward contact details.
- Additionally, InvestCayman recommends that Cabinet members are allowed to contribute to the Master Plan to get a full understanding of their viewpoints with respect to how the Cabinet sees their islands and airports in the future.
- A suggestion would be to consider a revision to the legislation to allow the Authority to borrow money for infrastructure development. To ensure that the Authority manages to stay ahead of infrastructure requirements, the legislation needs to change to allow the Authority to use external finance solutions for infrastructure development. InvestCayman can be instrumental in this change management.
- The General Aviation presence in Cayman needs to improve and supply the services what is expected by high net worth people. The current GA terminal needs improving or restructuring along with additional space for parking. A new GA terminal is critical.
- There needs to be hangarage and incentives to attract GA users. There is an untapped market for these individuals to visit the Cayman Islands.
- Any future RFP for the construction of a GA terminal can be promoted by InvestCayman and published and promoted on the InvestCayman website.
- There needs to be more investment in educational facilities. Currently the school systems are reaching capacity and this is a distraction to potential investors that have young families that will require schooling for their children. If school capacities are not expanded it is highly likely that population growth could be stunted due to this shortfall. Negotiations regarding partnerships with private schools in the UK are ongoing. If these approaches to partnering with private education entities come to fruition, this will attract Cayman companies that offer educational benefits and high net worth families which could have a major impact on passenger throughput.
- Drone delivery of postal packages, medical distribution, etc. is foreseeable in the future. This may impact Airport operations

Master Plan Qualitative Data Collection Meeting #1

Information Technology 03.06.2021

Attendees:

Mark Whiteside
Paul Jackson

Topics for discussion:

- Required Upgrades
- Brac Connectivity
- Backup power and cooling
- IT potential Revenue Generation
- Network access and security
- Other

Required Upgrades

- Replace all core switches in all server rooms (500K)
- CCTV upgrades
- Access control upgrades required
- Touchless Technology for security
- CUPPS upgrade in 2023 -
- Parking Upgrade – Armano – software suite
- Upgrade Firewall
- Wi-Fi re-design to increase capacity

Backup Power and Cooling

- No emergency power backup – recommend two generators – essential components are not covered during a complete power shutdown – Security cameras, access control, CUPPS,
- No requirement for battery backup
- All server rooms are to have "house" cooling with independent backup cooling

Network Access and Security

- Upgraded Firewall
- Develop 3 incoming feeds (Digicel, Flow and C3) Digicel using a Microwave feed (wireless) – will gain redundancy in the event of one failure
- Complete removal of proprietary networks
- Only one feed from ORIA to Beacon House – requirement for redundancy and alternate feed

IT potential Revenue Generation

- Wi-Fi usage by stakeholders
- Ad recognition on Wi-Fi
- IT rack rental space
- Antenna farm space rental

Brac Connectivity

- Analysis of need for CUPPS/CUSS expanded to the Brac
- New Server room
- CCTV upgrades – standardization of hardware?
- Only one feed from Grand Cayman – second feed required.
- Antenna farm required
- Increase Wi-Fi capacity

Other

- All data storage to be managed in the cloud – increased storage capacity
- Flight Information Displays on the ramp

❖ Next meeting will be scheduled for the week of the 14th June

Master Plan Qualitative Data Collection Meeting

South West Airlines 11.08.2021 r2

Attendees:

Shalico Christian

Meeting Focus on ORIA - Topic for discussion:

- Key Points and Observations

- South West is projecting that operations will resume to ORIA on 18th November 2021. For GCM we intend to begin with 7 weekly flights and then by March to increase this to 16 flights per week.
- There needs to be more use of technology in the terminal that will assist passenger throughput efficiencies. 80% of passengers now check in on line. South West is moving in a direction of where the passenger will check in on their phone, scan the phone in the airport and tag the bag. Eventually, the passenger will weigh the bag and if overweight there is the ability to pay and then the bag is processed. No agent is involved. Passengers will board by themselves at the gate by using facial recognition and scanning of boarding pass. This will reduce agent numbers.
- There is a need for curbside check in capability. This will increase efficiencies and reduce capacity issues in the terminal. This is all moving towards "touchless technology"
- Another technology that is a potential throughput enhancer during check is mobile check in equipment. American Airline agents have used these but these were retired due to the equipment failure. However, this technology has improved and is a potential efficiency enhancement. However, this is contingent on a robust Wi-Fi system. The airport needs to invest in a new Wi-Fi system. The current system is slow.
- If this technology is employed and if the curb side check in is introduced then the capacity of the check in area is adequate and would reduce the need to expand and add more check in positions.
- The CUPPS and CUSS units are temperamental and are in need of regular servicing. AirINC response times are inadequate and need improving.
- The current bag tags do not have the instructions on how to attach to the bag. This is problematic for passengers and slows throughput down.
- CUPPS is working well. However, when there are changes to flight schedules due to weather, technical issues, etc. then the AOC response is inadequate to manage the changes as they occur and in real time. The airport needs to manage the gate and stand allocations better. There needs to be a CUPPS manager that is dedicated to management of CUPPS on a daily basis. As it stands the responsible AOC individual is also managing other issues and can quickly be overwhelmed if multiple CUPPS unrelated issues are occurring at the same time and there is a distraction.

- To manage passenger throughput there is a need to reintroduce gates 1 A and B. These two gates are critical to manage gate congestion during peak hours. However, South West understands that the removal of the two gates reduces floor seating area and raises passenger congestion capacity issues. This could be alleviated by utilizing the unused bar area.
- It is the South West viewpoint that the current 9 in total gates and the two disbanded gates 1A and 1B are adequate for boarding during peak hours. South West has submitted to the CIAA a table reflecting all airlines and potential gate allocations at varying times which in essence supports that 11 gates are sufficient with pre-covid aircraft movements. Why does CIAA have multiple documents to manage check in desks, desks and aircraft stands. Could this all be on one document? South West posture that improved management of the gate and stand allocations could improve passenger throughput and alleviate capacity issues
- The AOC is not taking into consideration that a full aircraft at gate 6 is very congested with passengers waiting to board and access to the 2nd floor lounge will be impacted.
- AOC is not making allowances for large aircraft with full passenger loads with respect to location of gates.
- Gate area seating capacities need to be a main consideration in the new Terminal 2 design.
- South West has identified that during pre-Covid levels, at peak times, there were only 12 planes on the apron at any one time. It is the South West position that with the addition of 4 more stands to the original 8 this should be sufficient to maintain operations.
- Wayfinding signage is an issue in the airport terminal. There needs to be a study done on the current signage layout.
- South West would like CIAA to assist in making Cayman Brac as the 1st choice for any of their diverted planes due to unseen circumstances. This reduces turnaround flight time. Cayman Airways is their handler and they have a presence in the Brac.
- South West would like to see CIAA landing fee pricing rate incentives for slots outside of the peak hours. Other charter airlines may be very interested in low peak areas that are included in "all in" vacation packages.
- The CIAA need to revise and open the airport for longer operational hours. These extended operational hours will attract low cost airlines and potentially regular airlines choosing to fly outside peak hours
- In the check in area there should be a dedicated area for passengers to weigh bags before reaching the check in counters. This would reduce passenger check in times and improve efficiencies if a passenger needed to pre-pack luggage due to the bag being over weight
- The terminal 2 design needs to include Jet bridges
- There is a need for on ramp golf carts, supplied by the airlines, for disabled passengers therefore charging stations will be required
- A suggestion from South West is that the CIAA manages all the wheelchair service. This is a potential revenue source paid for by the airlines. Currently the airlines pay the baggage handling companies for this service.
- Car rental Facility. This needs to be addressed. A source of passenger complaint that to get to the current car rental is too far and open to the weather. There needs to be a facility within the terminal. This should be included in any Terminal 2 design
- A pet relief area is needed. Pets that are to travel onto the aircraft with the owner needs to be able to relieve itself in a pet relief area located in the departure area

- Terminal l 2 designs should have in ground fueling, domestic water and electrical connections by the parking stand. This would remove any need for refueling trucks on the apron. This is currently an issue with wing tip clearances especially with the new Max 8 longer wings. This is a potential revenue source for the airport, however would require a fuel farm on the airport.
- In addition to in ground fuel distribution it is important to include Pre Conditioned Air units on the Jet bridges. This is also a potential revenue source for the airport.
- There needs to be a Cargo facility on airport.

Master Plan Qualitative Data Collection Meeting

Medical Services/Aitheras (MSA) - 27.10.2021

Attendees:

Mark Scotland

Meeting focus on the MSA operations and the interaction with ORIA Airport Operations:

Discussion on Key Points and MSA Observations:

Overview of MSA:

- MSA is made up of two companies. Medical Services and the Aitheras Aviation Group. Medical Services is 3 years old and is centered on medical tourism and caters to medical tourists by supporting their transportation needs to and from the terminal and during their stay on island. The Aitheras Aviation Group is 7 years old and is a fixed wing air ambulance company supporting medevac flights into and out of Grand Cayman. The Aitheras Aviation Group has no aircraft domiciled in Grand Cayman.

Medical Services:

- Medical Services works together with the concierge (meet and greet) service that is managed by the CIAA. The concierge service brings the passenger from the aircraft through immigration and customs out to the Medical Services representative on landside. It is a collaborative relationship and works very well. Up to March 2020 the passenger throughput that Medical Services processed was between 40 to 50 per month and showing an increasing trend. It is the expectation that this trend will return once past the pandemic.
- The rising increase of the demand for the concierge service (Medical Services are not the only user) has at peak times found the service to be overwhelmed. Either the service has to be expanded during the peak hours or an alternative solution has to be found. Two solutions could be to outsource the service or supplement the current service with external support. This service has been received well by the passenger and is considered essential to enhance the passenger experience.
- The "type" of medical tourists that Medical Services manage is individuals that are generally healthy; they originate in the USA, are here for a short stay, purchase their medications and then returning. The reason behind this small sector is due to the high cost of pharmaceuticals in the USA. It is less expensive to travel to Cayman three to four times a year to access the cheaper prescription drugs here on island than to purchase the drugs in the USA. This sector of medical tourism is expected to rise as the price of pharmaceuticals in the USA continues to increase.
- Medical Services supports local physicians and not the hospitals. Medical Services transports the individual to and from their hotel and during their stay will transport them to the doctor's office to receive their prescription. Medical Services then sources the cheapest

outlet for the prescription and transports the individual to the pharmacy for medication pick up.

- The reason behind the multiple trips an individual will take is due to prescription refills are only for 90 days. This is due to the FDA only allowing this amount of pharmaceuticals to enter the USA at any one time, therefore repeat travel is necessary.
- The higher priced pharmaceuticals in the USA are between 10 to 25% cheaper in the Cayman Islands.

Aitheras Air Service Group:

- Aitheras are contracted by any medical insurance company to transport patients to and from the Cayman Islands.
- Once a patient has been identified as a flight potential, the insurance company begins the process of sourcing a destination hospital that will accept the patient. Once a hospital has been found a flight is awarded by the insurer, through a competitive bid process, and Aitheras begins the preparations for flight and the hospital begins to prepare the patient for travel. The flight preparation and flight time is approximately 3 hours. If the aircraft was domicile on Grand Cayman the preparation time would be 1hour. However, this preparation time is not the reason for delays. The reasons why some delays to transportation occur are due to the insurer sourcing a destination hospital at the best cost. This complicated, sometimes dangerous and expensive process supports the Caymanian efforts to expand hospital infrastructure in the Cayman Islands which will reduce the number of patient transported overseas.
- It is expected that as Health City expands and the new proposed Astor Medcity hospital becomes operational, the need to medevac patients will reduce significantly. However, it is possible that with these hospitals coming on line, the reverse may happen and patients may be medevac'd to the Cayman Islands due to the high cost of treatment in the USA.
- 99% of the outbound medevac patients are transported to the USA. Before COVID, Aitheras was seeing increasing numbers of flights for inbound patients from a variety of originations such as BVI, Aruba, Curacao and Central America. The potential for these inbound medevac flights to increase will be due to the expanded tertiary care hospitals coming on line in Cayman and the rising costs of health care in the USA. These increases will not only apply to Aitheras, other operators that provide medevac support will provide services to the Cayman Islands.
- There will always be a need for outbound medevac patients. Cruise ship passengers that have their own insurance, for example, will have a need to be transported back to their home country to be taken care of.
- There are no particular issues with the current General Aviation ramp. Communication during a medevac is essential between all stakeholders to ensure a flight arrives and leaves on time and this communication is currently very good. It is Aitheras' viewpoint that this is due to the nature of the service and is recognized by all that all involved ensure that the flight is managed expediently.
- Aitheras does not operate in the Brac. There have been occasions where Aitheras has been requested to transport a patient directly to the USA from the Brac.

Master Plan Qualitative Data Collection Meeting r1

Meteorological Office (MET) – 05.10.2021

Attendees:

John Tibbets

Meeting focus on Met and Airports Interaction - Topics for discussion:

- Overview of the 2014 comments
- MET Key Points and Observations

Discussion on the 4 points identified by MET and recorded in the 2014 Master Plan:

1) *Introductions made on December 20, 2013 during kick off meetings.*
- Informational

2) *Expanded and more robust space is required (20,000 sq. ft.) for their facilities.*
- MET is currently engaged in a construction project of a 20,000sqft new facility that is located outside of the airfield perimeter corner to the south west. See bullet point 3 for more information.

3) *Need to relocate MET compound – influenced by proximity to buildings*
- This was driven by a Civil Aviation Audit Finding saying that the current facility was "Not fit for purpose". See above and bullet point 3 below.

4) *MET can provide historical information for Grand Cayman (1957 -) and some limited information for Cayman Brac (2006 -) – formal request to be issued.*
- One of the responsibilities of the MET is to manage and store a historical meteorological data base. Some of this data comes from the CIAA AWOS which in the past used to only collect data for 60 days and then the data is deleted. Recent changes to the AWOS has resolved this issue. Any historical data would need to be requested from MET

Discussion on Updated Key Points and Observations:

- The new weather measurement mast has been sited at the new proposed facility location. The mast was determined to be 40ft to collect more accurate data. However, this is an issue with the CAA as the wind record in this location, which is off airfield and approximately 600ft from the runway, is not regarded by CIAA/CAA as representative of the wind record on the runway due to the mast's distant proximity, therefore this data is not conducive to air traffic. A mast can be put on the airfield, however, the mast would have to be frangible and this does not satisfy the Weather Service mandate as the mast would collapse in a major hurricane and deny the weather service wind data at that time. Discussions are ongoing as to the best resolution to this issue.

- The CIAA/ATC gets their wind measurements from the Automatic Weather Observing System (AWOS) located on the airfield. This mast is owned by the CIAA but jointly used by the MET.
- The new MET building and associated parking is projected to break ground in first quarter 2022 and the expectation is to occupy in 1st quarter 2023. The new facility will have the full capability of an "upper air" station (Currently located in the General Aviation Terminal). Included in the design, with aviation in mind, the facility will have 3 floors. The planned location of the weather observer will be located on the second floor overlooking the runway and having the ability to see around 75% of the sky. The building design also allows the observer to go to the roof to see the entire sky. The current budget to construct the building is approximately $3M and the project is being managed by PWD
- The current location of the MET office in the existing GA terminal needs to remain until their new facility has been built. This may have an effect on the GA Project if determined that the existing GA terminal is to be demolished. The MET would find a premature relocation extremely problematic due to the need to keep certain key equipment functioning and to provide services from near the airport. This should be avoided if possible.
- MET is in the process of installing a network of automatic weather stations on all three islands. An automatic weather stations is planned for east Cayman Brac. MET is also planning on building a weather station office on the Brac. A manned weather station has been in operation since 2006 due to ICAO requirements in response to the Brac being designated as an international airport. The preferred location for the future weather station is to be located on or very near the airport. The location of this new office has been proposed to be in the CIAA owned property near the playground which overlooks the runway, however this area is currently earmarked for a CIAA managed FBO. These conceptual locations are still in discussion and an agreement needs to be established. The office is planned to be in place by 2025
- In year 2025, when the weather station office is due to be complete, the staffing of the office could be an issue as currently all MET representatives on the Brac are actually CIAA staff that have joint airport responsibilities. The opening of the office could have major impacts on CIAA staffing levels if a number of staff leaves to work for the MET. A coordinated strategy needs to be put in place before any construction begins.
- MET have plans to put two weather stations on LCY. The footprint (30ftx30ft) of these two stations is very small and should not have any environmental impacts; however these stations need to be located away from large obstacles. One proposed location is in the North East of the island and the other is in the south west adjacent to the runway. These conceptual locations are still in discussion and an agreement on location needs to be established with the CIAA/DOE/and NT.
- The MET is in the same ministry as the DOE and coordination of any installation of a weather station, especially the south west location which is in conservation land, would be manageable as the MET has a great relationship with the DOE.
- With regards to the planned automatic weather stations in Grand Cayman, one is located at the new MET office site, two will be in West Bay, One George Town, one in Northside, One in Savanah and one in the East End.

- The eastern districts AWOS will be equipped with evaporator pans. As this area in the east is considered a farming area the data on evaporation rates would be very useful for farmers to access. Additional equipment to be added to the automatic weather station at the new MET office site will be equipped with a ceilometer to measure cloud base formation elevations and a lightning detection system. The lightning system will have three locators to pinpoint where the lightning is predicted to strike.
- Currently the CIAA relies on the MET weather radar for lightning strike predictions in the vicinity of the airport which has low level accuracy.
- There is no communication link planned from the new MET office to the CIAA/ATC to allow the CIAA to access data. The CIAA and the CAA has advised the MET that any automatic weather data cannot be used by the CIAA for airport use; however a communication link has been budgeted by the MET to link the ATC tower to the new MET office in the event that this decision is reversed and whether the ATC can access this data. Discussions are ongoing.
- The MET office, when fully staffed, will have two positions that are aviation specific. The first position will be a Manager for Aviation Meteorology which is due to come on line first quarter 2022. The second position will be a Quality Management Officer which will cover aviation as well as other areas. Time to come on line TBD.
- When the new GA Terminal is built the MET do require a small office for their use. The office function will be for pilots to collect weather data and a hot line that connects to the new MET office such that up to date weather information is readily available.
- The CIAA is requesting a 24/7 service, however, staffing levels at this time does not allow it. This 24/7 coverage is to accommodate emergency flights and the possibility of flights operating beyond airport regular operational hours. Discussions are ongoing.

Master Plan Qualitative Data Collection Meeting #1

MRCU 18.06.2021

Attendees:

Ben Tressider
Richard Clough

Meeting Focus on ORIA - Topics for discussion:

- MRCU Operations at ORIA
- MRCU Operations at CKIA
- Other

MRCU Operations at ORIA

- Currently MRCU need to spray product on the south side of the runway due to mosquitos breeding on surface water after significant rain events. Critical that the airfield has a proper drainage plan
- MRCU advised that the current location of the hanger and pesticide evaporator system is adequate and ideally placed for taxiway Charlie. Currently MRCU gain take off from Charlie and exit on Charlie. MRCU would not support a move as the building is only 8 years old and has had a $9M investment. MRCU are satisfied with their current location, however, if an airstrip were to be opened on the east end of the island they would support a move. This is due in part to increasing regular flight operations and MRCU have to "fit" in between these flights.
- It was noted that the 2014 Master Plan ALP identified #2 as "The Cayman Flying Club, however it is actually Pesticide storage.
- It was noted that the 2014 Master Plan ALP identified #4 as "Express Cargo" however, it is actually belongs to Agriculture.
- MRCU advised that their operation is seasonal from end of May to December and there is a marked reduction in sorties in the dry season from January to May.
- The issue of removing canals (dykes) on the east end would not be a problem. Less to spray if the mangroves are removed, however any potential removal should be discussed with the Water Authority
- One of the main problems is the parking of the general aviation planes and cargo planes. At peak times there is very little room for taxiing and the expansion of the parking area should be a critical issue to resolve.

MRCU Operations at CKIA

- MRCU advised that the current operation works out of a container and there should be a facility/hanger for a single aircraft, storage for pesticide and the ability to store the loader vehicle during inclement weather. The location of this facility should be remote and away from the apron and have a dedicated taxiway onto the main runway. The facility should have

a pesticide catchment system and evaporator to contain spills. A suggested area would be the property owned by the CIAA in the west.

- MRCU are to forward an amount of area required for this facility for master Planning purposes
- MRCU advised that there may be a need for night time operations for mosquito population management in the Brac

Other

- MRCU advised that there is no requirement to land and operate from LCY. All operations are from the Brac and there is no reasonable reason why this would change in the future.
- A discussion was had on the use of drones. Delivery of pesticides could be performed by autonomous drones in the future. Technology is not advanced enough at the present, however, if vertical take-off and landing (VTOL) craft are utilized then MRCU could be located off airport.

Master Plan Qualitative Data Collection Meeting r2

National Trust - 29.09.2021

Attendees:

Annick Jackman
Catherine Childs

Meeting focus on National Trust Planning and Airports Interaction - Topics for discussion:

- Overview of the 2014 comments
- National Trust Key Points and Observations

Discussion on the 13 points identified by The National Trust and recorded in the 2014 Master Plan:

1) An airport development on the Sister Islands with the potential to host bigger aircrafts causes an undeniable risk to wildlife, even more for birds.

- The statement is still current for both sister islands. The Max 8 aircraft is now servicing the Brac with higher loads of passengers which is putting capacity pressure on island facilities and the environment.
  The development of the Daggaro project proposed different types of aircraft which would impact wildlife specifically by the helicopter movements. Specific types of aircraft for this and future projects would be a concern. Additionally, there were several historic heritage sites around the Degarro development that would have been impacted by noise pollution therefore any future development would need to have noise assessments and environmental impact studies completed prior to any approval

2) Local communities should be involved in any further airport development in Little Cayman

- Any further airport development must involve the local communities on both sister islands prior to any approvals.

3) Suggested water shuttle service between Cayman Brac and Little Cayman as the best scenario in order to avoid any airport within Little Cayman

- This relates to any expansion plans of the airport on LCY. The National trust is not a supporter of any relocation or expansion of the airport on LCY due to the fact that any development would have environmental impacts. The suggestion of a water shuttle service as a substitute to reduce air traffic is still valid. The chance that there would be increased aircraft traffic with any relocated airport would have severe influence on bird habitat location. Additionally any new relocated airport on LCY would encourage different types of jet aircraft other than the twin otter and the jet engine noise pollution would have major impacts on the local bird life that is used to the relatively quiet resonance of the twin otter.

4) The National Trust owns four land parcels around Little Cayman, one of which lies immediately north of the Booby Pond reserve. The objective of that acquisition was for providing a buffer along the section of the Booby Reserve where it has been observed that the birds were moving their nesting areas.

- It has been confirmed that the objective was successful after the buffer was established. Additionally, the National Trust has acquired additional parcels since 2014. Birds have a tendency to shift their nesting patterns and these additional parcels are necessary to allow birds to relocate into these protected areas. Other parcels on the southern part of the island have been acquired also to protect the nesting sites of the for rock iguana habitat

5) Other areas were acquired to protect the iguana habitat. The third was to allow additional similar habitat in the event of a major disturbance such as a hurricane.

- This was done. See above. Additional acquisitions would allow some insurance that in the event of a major hurricane that some areas would remain undamaged by the hurricane for wildlife to migrate to.

6) Even with the acquisition by the National Trust, there are still small parcels of land between the pond and the roads that are privately owned. These were not being aggressively acquired since the plots are very small and almost un-developable.

- No change. These LCY lots are very small, very close to the pond and it is highly unlikely that any development would occur on these sites; therefore the National Trust has no plans to purchase these small lots although they have identified birds nesting in these areas. It is very important to note that the pond is recognized as a Ramsar site (a wetland site designated to be of international importance under the Ramsar Convention) and cannot be developed.

7) Large rock iguanas observed on Little Cayman within the government airport site north of the Booby Pond.

- No change. Iguanas are currently nesting and flourishing in the area of the proposed new airport site and any development will severely impact these nesting sites.

8) The Booby Pond is an important habitat for many migratory species. It is considered as an Important Bird Area (IBA). There are few IBA in Cayman Brac

- No change. An Important Bird Area is an international designation and any area designated as such should be protected.

9) Both DOE and the National Trust indicated that any airport construction / expansion should be at the existing site and not moved to a new site.

- No change.

10) At present, there are no environmental aspects which fall under the UK law. But environmental aspects have been considered within the Framework for Fiscal Responsibility which was assented to by the Cayman Islands under the Public Management and Finance Law. New projects would therefore have to be implemented, among others, within this framework.

- There is a new conservation law introduced since 2014.

11) Endemic orchids have been found within the western end of Little Cayman in similar habitat. This information can be found in the National Biodiversity Action Plan.

- No change. It is believed that the orchids are still established however, this needs to be confirmed by the DOE

12) Stakeholder engagement is important for this project. Local communities should be involved in any further airport development in Little Cayman

- No change.

13) The only other group that considers environmental issues on Little Cayman is the Little Cayman District committee of the National Trust.

- The LCY District Committee needs to be contacted for this master plan. In addition to the District committee, the Central Caribbean Marine Institute (CCMI) also should be contacted.

Discussion on Updated Key Points and Observations:

- The local opinion on the sister islands, specifically NT members, is that there is a concern at the rate and type of development and related disturbance to the environment. The charm of the sister islands is the "quiet " nature of the environment and it will be an advantage to ask local residents to take part in a survey to get a full understanding of their point of view on the types of development planned for the sister islands.
- The new master plan needs to recognize the areas of national importance and areas that are designated as protected. Full recognition of these areas and what they represent will help any decisions on future infrastructure developments.
- The Sister Islands Rock Iguana is a protected species.
- Unsustainable tourism growth on the Brac could have adverse effects on the environment and any infrastructure development would require intensive examination prior to implementation. It is important to remember that tourists travelling to the sister islands are visiting due to the "quiet" nature of the island and undisturbed wildlife habitat. Major infrastructure development could have adverse effects to the very element that the visitors want. Sustainable development should be mandatory for the successful future of the sister islands.
- Any development of a new relocated airport to the east of Grand Cayman would need to be fully examined for environmental impacts and a full environmental assessment conducted if the airport were to be relocated East of Grand Cayman.
- With respect to carbon emissions, airport and runway expansions around the world are now being debated in the context of climate change. Any CIAA driven airport expansions, aircraft changes, or significant increase in flights should be evaluated as part of a countrywide carbon budget.

Master Plan Qualitative Data Collection Meeting r1

National Roads Authority (NRA) - 30.09.2021

Attendees:

Edward Howard
Denis Thibeault

Meeting focus on NRA Planning and Airports Interaction - Topics for discussion:

- Overview of the 2014 comments
- NRA Key Points and Observations

Discussion on the 11 points identified by The NRA and recorded in the 2014 Master Plan:

1) *Generally discussed during Kick off meetings Dec 18-20, 2013.*
    - informational

2) *Require better understanding of road and utility capacities / studies.*
    - Informational

3) *Eastern Road demand is 23,900 movements daily. While Western Road is 17,200 movements.*
    - The NRA has an updated vehicle flow record. A presentation was given to the CIAA on these revised flow patterns in April 2021. The presentation confirmed that closing the eastern road is not possible due to weight of traffic and the limited capacity of north to south arteries.

4) *NRA indicated that eastern road cannot be eliminated because the western road cannot accommodate capacity. Concerns about congestion at the roundabout.*
    - No change. At peak hours the elimination of the eastern road would severely impact the roundabout located by the Farmer's Market.

5) *No recent traffic count studies have been undertaken.*
    - Since 2014 traffic studies have been completed.

6) *Need to look at options for relocation of the eastern road (Crewe), which is located on airport land.*
    - There are no long term plans that NRA is considering that removes the eastern road. The NRA offered the possibility to build a tunnel under the airfield property as a solution.

7) *It is not believed that the NRA has an easement for the eastern road.*
    - This is correct. An easement is registered.

8) *NRA indicated it could provide cost estimates for options to relocate the eastern road.*
    - No estimates were ever done. A 50ft. public vehicular right of way was dedicated in 1995 as confirmed by the Chief Surveyor in correspondence with the NRA and as highlighted in the Land Register for Block 20C Parcel 78 (CIAA lands); therefore, due to current traffic flows it is improbable that any relocation of this road connector is possible.

9) *A new road is proposed that would run north from the airport to 7- mile beach hotels.*
    - This is known as the airport connector road. This connector is still part of the NRA master plan and is in process. A small northern section of road is already complete. A second portion of the road has been permitted as this is a part of the Dart REGEN agreement. However, there is a complicated section of the connector road that requires more geotechnical survey as the base is unsuitable for road construction. The survey should be completed in 2022. This connector road is budgeted at $50M and is considered a 5 year project to be completed in 2026.

10) *There is no legislation in place to protect OLS beyond the airport property. CIAA indicated that they believe they have the powers to implement such legislation.*
    - The CIAA does have the obligation to work with BCU to protect the OLS. It is unclear why this concerns NRA.

11) *NRA shall begin developing initial plans for the road network solution for the required closure of Crewe Road.*
    - See above. There are no plans to develop any relocation of the eastern road at the end of the runway.

Discussion on Updated Key Points and Observations:

- There is a major NRA concern that if the population of the island increases to 100,000 this would have major impacts to the island's road infrastructure. With little room for expansion for roads it is a potential capacity issue which needs to be addressed
- The main airport 4 way intersection by the rental car center is of a concern if the loop road direction is changed. The Burns analysis reflected a traffic light controls however the NRA perspective is to introduce a large roundabout. The current small painted roundabout is not adequate and the NRA expects that the roundabout needs to be made larger. This intersection needs to be fully analyzed in cooperation with a traffic consultant and the CIAA to ensure any development to the loop road and intersection is designed and sized appropriately for the projected peak passenger hour periods.
- There are concerns that the 90 degree turn on the southerly approach road to the airport is dangerous and should be closed or modified. Is it possible that the development of Breezy Way could potentially be a solution to this hairpin curve? The Burns report showed a third lane to ease the curve but this is not the most efficient response to removing the safety aspect of this curve. Further discussion between CIAA, NRA and a traffic analyst is required to develop a solution to this issue.

- RUBiS is opening their new fuel farm in July 2022 and the feeder road to the farm will begin to have heavy traffic entering to what would be the future airport connector road. Again this needs to be fully analyzed with a traffic engineer in collaboration with CIAA and NRA.
- The NRA has been advised that the Fosters Group is interested in selling the supermarket property located at the airport. The Fosters Group has identified a site along the eastern section of the Linford Pierson Highway where it is seeking another anchor at the site which will be developed in a similar fashion as the Governor Square complex on Lime Tree Bay by West Bay road. Additionally, both AL Thompson and Fosters Food Fair at Countryside Shopping Plaza may relocate to a new site east of Savannah.
- The NRA advised that it is in their plans to build a cross cut from the airport post office to an intersection at the Kirk Office location on North Sound Road. The connector will continue on and join Shedden road. There would also be a smaller connector from the cross cut to the eastern end of Shedden road. This connector will ease traffic along the southern edge of Fosters and be a benefit to the Port Authority container storage area. Any land purchase by the airport in this area needs to be coordinated with the NRA to ensure alignment of planning goals.
- If the airport was to purchase the Foster property there will need to be an upgrade of the Kirk Motors roundabout. It is possible that the road that is to the rear of Fosters could be eliminated if the south connector is built.
- NRA believes that the elimination of the properties west of the Kirk Motors roundabout to accommodate a full width parallel taxiway may be problematic and holds no value to NRA
- NRA is aware that any Fosters development on the Linford Pearson Highway is in partnership with AL Thompson. Additionally, for informational purposes, Fosters have plans to develop a super store in the area of the Governor's mansion.
- There are no road development issues on the Brac.
- The NRA is willing to work and assist the CIAA in identifying workable and practical solutions that do not compromise the overall road network capacity and traffic operational efficiency in George Town and the Industrial Park area

Master Plan Qualitative Data Collection Meeting #1

Operations 27.05.2021

Attendees:

Andy Green

Meeting Focus on ORIA - Topics for discussion:

- Airfield Layout Improvements
  - Capacity
  - Runway extension
  - Lighting
  - Isolation pad requirement
  - Remote parking
- Terminal Modifications
- Slot Management
- Communications
- Other

Airfield Layout Improvements

- The runway needs to be extended to the east not the west to gain the advantage of a longer landing distance available.
- An analysis needs to be done with respect to the full length of runway required which is currently assumed to be 9000ft. Planning should be around the 787-10, A350 and the 777-X
- The code E taxiway should extend with the runway to reduce runway occupancy times.
- The isolation should remain. The pad is useful for remote parking, engine run ups, emergencies, etc. Orientation is important and should be aircraft rear facing the prevailing wind. Plan on sizing for parking 4 code 'C' aircraft
- Add one rapid access taxiway onto gulf – remove the 4 way intersection (MPlan 2032)
- Helipad required. Helicopter frequency of operations is increasing. Locate preferably on the south side with a designated secure arrival and departure route that avoids using the runway. A good location would be next to the relocated ATCT on the south side. An alternative location would be in the north sound and built into the isolation pad.
- There is no requirement for a south parallel taxiway
- There is no known reason why GA parking for code B or smaller aircraft could not be parked on the south side
- There is a need for improved fully controllable AGL system. Centerline switchable green lighting with red stop bars
- There needs to be a dedicated Cargo area with exclusive access from the taxiway

Terminal Modifications

- Recommended to have two floors with jetbridges
- Tug road needs to be close to the building and not behind the aircraft
- Advantage to have in pavement refueling points fed from an outside fuel farm
- In pavement electrical connection to avoid using GPUs
- The AOCC has no airfield visibility other than through cameras. Better location would be to establish a presence in the new tower

Slot Management/Communications

- Needs to be better sharing of information regarding aircraft movements. Departments are working autonomously and need to improve on communication
- Currently working on assumptions rather than "real time" data with respect to airspace, parking availability, terminal capacity, etc.
- Need to use software that manages slots such as Airport Coordination Ltd/Safegate, etc.
- Software will manage stand parking with "real time" link with OAG
- Perceived current choke point is the terminal capacity.

- ❖ Improvements/observations on the Brac were not discussed and will be addressed at the next meeting

- ❖ Next meeting will be scheduled for the week of the 7th June. An individual meeting with Jeremy Jackson will be held the week of the 31st May

Master Plan Qualitative Data Collection Meeting #1

Operations 18.06.2021

Attendees:

Jeremy Jackson

Topics for discussion:

- ORIA
- CKIA

ORIA :

- Extension to the runway should be to the west
- Noted that an easterly direction is implausible due the Crew Road never being removed
- In addition the cricket field is a highly political issue and therefore fencing in of the airport boundary is highly unlikely, however, the regulator is requiring protection of this area. This is critical to finalize a solution.
- No issue to meet the criteria of a 240M RESA if extends to the east, however, the 2004 Master Plan (Jacobs Plan) shows the OLS protection. There is a critical need to perform a Grand Harbor analysis and update the OLS chart
- The runway extension should have a pragmatic approach. There is no indication that long haul Airlines are interested is coming to Cayman in the near future due to the high cost vacations. An analysis needs to be conducted to the length of the extension based on the 787
- The parallel taxiway is critical to be completed as soon as possible.
- It is possible that the code C could “break off” at the same point as the Code E aircraft to save on funds for a code C taxiway.
- Important to review the study of the road Master Plan conducted in 2004
- Moving the MRCYU east would open up more area for GA parking
- Customs relocation would open up GA parking
- ATC Tower was condemned in 1990s – overdue to be replaced and is critical
- South side is a good location for a new tower – The Montessori School property would be a good location if purchased as it has access from the road through to the perimeter fence
- Remote control of the Brac could be from the new tower relocation; however, this would not see a reduction in manpower. A dedicated controller would have to be present and the controller could not “double up” with managing traffic at ORIA. Would require a robust technology
- There is no contingency plan for the ATC. There needs to be an investment for a backup system that could manage traffic remotely.
- A heliport is acceptable to be located on the east end.

- RCIPS operations need to be off airport. There is land appropriated for Police activities in Newlands and a heliport could be constructed there.
- Capacity demand – slot management is critical however all airlines need to be in agreement. Air Traffic Services nee dot be included as there will be an increase in human resources and added technology to manage system.
- The Airport Operational hours are unrealistic; currently 7:00am through 9:00pm. These hours of opening nee dot be re-evaluated
- Air Traffic Service s – ADS-B is required in the future

CKIA:

- There are several land appropriations that should be considered. There are two properties in the south that and the road will need to be relocated south to satisfy the 150m strip requirements. This is actually an audit finding.
- Two properties are crown owned and the crown should be approached for appropriation
- All land acquisitions could be appropriated over the next twenty years.
- Land to the east of the runway (currently a pond) will need to be appropriated to accommodate a 240m RESA. This land is not good for anything and would likely be available.
- The south side floods and is in need of a drainage system that mitigates flooding. The outfall to the ocean needs improving or ponds need filling.
- Filling in of the westerly and easterly ponds is a good idea as this area is very marshy and not accessible for trucks. The cost to do this could be spread over 5 to 10 years.
- There needs to be a review of the document of remediation
- The runway is in need of two turn pads. On the west end the pad needs pot be on the south side and the east end the pad needs to be on the north side. This is to accommodate the Max 8
- There is no perimeter road – a Plan needs to be put in place for an access road that is out of the strip
- It was noted that a private developer is potentially setting up an FBO.
- Advised that the visual solution of adding cameras to reach both ends of the runway, the mast for the cameras is on island and will be in place by end of year.
- A discussion was had on expansion of the terminal and the potential of relocating the water treatment farm. Advised that a discussion with the Water Authority is required as the works is potentially going to move to the bluff which would open up terminal expansion and parking to the east.
- Tree obstacles on private property are still an issue along the fence line and a requirement to remove is needed.
- The influx of staycations has dramatically impacted the Terminal and is over capacity. All systems and areas are overwhelmed and in need of expanding is the trend continues.
- Current proposed east location for the RUBiS fuel farm is to propose a west location to aid further expansion of the terminal and parking to the east

Master Plan Qualitative Data Collection Meeting

Police - Flight Operations 15.09.2021

Attendees:

Steve Fitzgerald
Nigel Pitt

Meeting Focus on Police Air Operations on all three islands - Topic for discussion:

- Police Air Operations Key Points and Observations

Discussion on Updated Key Points and Observations:

Note:
Police Air Ops were not included in the 2014 master planning process.

- Police Air Operations Team (PAOT) confirmed that they have no interaction with the terminal police. However, in an emergency, would supply backup if available. PAOT is only involved with flight operations
- There is no capacity to relocate to the Newlands site. This is a marine base, however, there is no land therefore limited to expansion. In addition to this, residential housing is merging into the area which is unsuitable for police helicopter operations.
- It was noted that sometimes helicopter medevac flights land on the cricket field. This is for expeditious speed of transfer of patients and to avoid airport security's slow response in allowing ambulances to gain access to the airfield. A corrective action to avoid these delays would be to have a dedicated area for police operations, on the airfield, with a dedicated road access.
- An ideal location for a dedicated area would be in the eastern part of the field north of runway 26. A helipad location on the North Sound coast line with inbound and outbound access across north sound would eliminate runway occupancy, negate security responses required for ambulances and landing on the cricket field would not be needed. However, depending on the critical nature of the patient, cricket field landings, due to the proximity of the field to the hospital, would potentially still occur.
- If Security still needs to get involved during a medevac on the airfield, an arrangement needs to be put in place such that the police can escort the ambulance during patient pick-up. The ambulance operation is very localized and can easily be "managed" for the short time duration required to transfer the patient.
- The need for a dedicated police flight operations area with hangars, preferably in the east end of the airfield is a priority. Police helicopters could be stored in the hangers managed by the police. This is an airport revenue generating possibility as currently the police rent space in a private hanger which is revenue that the airport could capture.

- The location on airport property of the dedicated police helipad facility could be as far north as possible and away from the runway.
- Any hanger and/or building would have to be hurricane proof.
- The Police helicopters are equipped with ADS-B surveillance. The helicopters have now been equipped with the capability to become incognito, eliminating tracking by unauthorized individuals during operations. The transponders are still “on” and helicopters can still see in but no signal is transmitted out.
- Currently the Airport Tower does not have ADS-B, however, if the CIAA adopts ADS-B; a procedure would be required if the helicopter was to go incognito such that the police movements are known by the ATC. This raises the need for a secondary radar system to track helicopter movement while incognito.
- The police recommend highly that the ATC have the capability to connect to the radar currently managed by COCESNA.
- PAOT would like to see 2 temporary helipads installed further east of taxiway Delta. These could simply be asphalt pads. The reason for this is that at present the Police have to report to AOCC that they are occupying Delta due to parking the helicopters in this location reduces the capacity of taxiway Delta as the proximity affects the wingtip clearances. This would be short term fix before a permanent helipad is put in place.
- There needs to be a change in the recognition of helicopter operations as currently they are considered as an aircraft. If changed to a helicopter status this would reduce runway occupancy times such that the inbound and outbound helicopter movements could cross the runway perpendicular to the south. This is much more expeditious for police operations and will reduce runway occupancy times. The issue is there is currently no helipad. A helipad is required to change this status. Any temporary pad, located east of Delta, would be utilized prior to a permanent helipad being built.
- It is inconvenient to file a flight with AIS. There should not be a need to file a flight plan for police operations. There are too many steps to make this efficient and this is unnecessary bureaucracy. However, if PAOT had a dedicated helipad and hangers, independent of the airfield, the need to file a flight plan is still required.
- The current 2014 master plan shows an isolation pad. The police have no objections to using this area as a helipad if designed correctly but would prefer to be much further north.
- There are major concerns from PAOT that there is a firing range on airport property. The primary concern is that a template (survey) has not been conducted to ensure safety beyond the range. Additionally, there has been information received that there is potential for another range to be located further north of the airport property. No known templates (surveys) have been completed such that a full understanding is in place that there is a high level of safety outside of the range. “No Go” areas are required in North Sound, for mariners, to give North Sound users knowledge that there is a firing range present. Regardless, the existing range is very dangerous and should be removed as soon as possible.
- Fueling is now not an issue as the Police has their own Bowser which acts as a mobile fuel storage tank. Procurement of fuel is on automatic refill once a day, therefore eliminating the possibility of running out of fuel and not subject to fuel supplier operating hours.

- The PAOT has no comment with regard to operations on the Brac. The helipad is located at the Hospital and there are no issues. The pad is dedicated to the Police. No flight plans are required on the Brac, as plans are processed through Grand Cayman
- LCY there are no issues. There is no pad on LCY but there is currently no need for a pad.
- It is important to note that the PAOT require a dedicated police ops area somewhere on the airport property. The Police have helicopters with a value of approximately $25 million and they are currently being housed in a private hanger. The Police would be happy to pay rent to the airport for a dedicated space and not pay to a private entity.

Master Plan Qualitative Data Collection Meeting

Police - 27.09.2021

Attendees:

Kurt Walton
Malcolm Kay

Meeting focus on Police Operations and the interaction with CIAA - Topics for discussion:

- Overview of the 2014 comments
- Police Key Points and Observations

Discussion on the 2 points identified by the Police and recorded in the 2014 Master Plan:

1) Decision needs to be made if police to have a permanent post at airport. At present, pay duty police provide security.

- Originally there was a full time posting of an officer in ORIA. This changed to having officers supplied on their "off" days and paid overtime; however, it is increasing becoming clear that there needs to be a permanent presence in the terminal. Police internal discussions resulted in formulating a plan to place a permanent team at the airport; however it is still undecided if there was going to be officers there on overtime or on regular pay.

2) Requirement for office for 2 officers plus interview room. Would share cell with customs/immigration.

- If a permanent airport presence is required then there will be a need to "house" the police team. An area that would accommodate 2-3 officers and locker room is required. However, an interview room is not required due to a change in processes; therefore, any passenger statement taking can be done in the office area. Police requirement for cell use could be shared with Customs and Border Control.

Discussion on Updated Key Points and Observations:

- If the airport operational hours increase then the number of officers required to accommodate two shifts would also increase. If the airport was to open between 7:00am and 11:00pm that would be two 8 hour shifts and would require a minimum of two officers per day.
- There is a requirement to determine the roles and responsibilities of the police force that is present at the airport. Currently, roles are vague and it is unclear as to what the responsibilities are, therefore, firmer definitions would allow the Police to pre-determine what coverage is required to manage these roles and responsibilities.

- CBC has the same powers of arrest and CBC is a potential organization to be used in the context of a police presence.
- There have been a large number of parking violations and associated disputes that have needed to be processed, however, the understanding is that that with the new loop road configuration these types of incidences will drop.
- The incident response load for more serious issues within the terminal has been very low.
- There is an ASSI statutory requirement to have a police force on the Airport property. This is an ASSI regulation for any international terminal.
- If the airport moves towards having two terminals there needs to be discussion on how both terminals are policed.
- If there is no police presence at the airport and there is an incident that requires a police officer to be engaged, then the response time is no more two minutes from the local police office.
- CKIA does not have a police presence in the airport terminal. Coverage is done remotely. However, CKIA is designated as an international terminal and it is not clear if a police presence is required to fulfill the ASSI regulations. Is there a need for a permanent presence in the CKIA terminal?
- The relationship between the Police department and Airport security department is very communicative and collaborative.

Master Plan Qualitative Data Collection Meeting

RUBiS - 21.09.2021

Attendees:

Andres Barthel
Greg Campeau

Meeting focus on RUBiS Operations and the interaction with CIAA - Topics for discussion:

- Overview of the 2014 comments
- RUBiS Key Points and Observations

Discussion on the 7 points identified by RUBiS and recorded in the 2014 Master Plan:

1) *Provides fuel on all islands. Aviation fuel provided at Grand Cayman and Cayman Brac.*
- Informational – no change, RUBiS supplies fuel to both airports ORIA and CKIA, however, also deliver fuel to a small gas station on Little Cayman for resident use.

2) *Consumption is approximately 504,000 gal. per month.*
- There has been no change - Consumption is still approximately 500,000 per month. Projections, post pandemic, is expected to be in the 2-4% range pa.

3) *Supports joint fuel storage facility.*
- RUBiS have entered a joint operation with SOL. The partnership is developing a new fuel farm north of the airport boundary at a cost of circa $12 million. This facility is expected to come on line in July 2022

4) *Can provide costing for relocation of the existing fuel storage facility.*
- No discussion. Unknown if costings were ever submitted

5) *No requirement to expand fuel storage facility. With pipeline potential to reduce on-airport storage.*
- The fuel farm located on airport property was shut down in 2016. Remote hydrant fuelling to reduce on-airport storage is feasible. See bullet point below

6) *Fuel pipeline is about 30 years old and has a 30 – 40 year lifespan. Pipeline is pressure tested every year.*

7) The pipeline was shut down in 2016 and is now inert.

8) *There is no easement for the pipeline and there is no lease for fuel storage area.*
- The comment regarding that there was no lease in 2014 was that the lease had expired and the facility was operating on a month by month basis under the same conditions until the demolition occurred in 2016. The easement statement was informational.

Discussion on Updated Key Points and Observations:

- There is a RUBiS concern that the introduction of aircraft slot management will reduce the amount of aircraft that will be allowed into Cayman. This will impact fuel sales.
- RUBiS have the agreement with Island Air to supply fuel to general aviation. AV Gas is a very small amount of the fuel sales. Fuel sales are healthy and estimated to be approx. 1.2 million gallons per annum.

- RUBiS supports the notion that two FBO's at ORIA would not work due to the low throughput of fuel sales.
- The new fuel farm will be supplied by the Bridger trucks from the marine terminal and keep stock levels at the facility to a maximum. Smaller distribution trucks (bowsers) will be permanently stationed at the facility and dedicated for airport fueling only. Due to the close proximity of the new fuel farm there is not a requirement for a parking position on the airfield; however there could be a need for a parking slot if there were back to back flights that require fueling in short spaces of time. A location that allowed the bowser to stay on the apron between fillings would eliminate the process of security clearances on each entry/exit.
- There are no known issues with obtaining security clearances to enter the field. However, checkpoint 2 location is not ideal and an entrance for fuel trucks in an easterly location would be much more beneficial especially as any expansion of ramp will be to the east.
- A dedicated fuel entrance would be supported. Is it possible that security clearance priority is given to fuel trucks at the check point such that delays are minimized?
- There is no advantage for auxiliary tanks fed from the new facility on the airfield.
- Remote hydrant fill points are not feasible. The high cost to install and maintain to meet strict environmental and safety regulations with leak detection capability and cathodic protection far outweighs the need for a small airport such as ORIA. The fuel volumes are too low and the return on investment is not apparent.
- With respect to any future design for a new terminal, in some instances Jetbridges can be an obstacle for fueling operations. Proper planning and space requirements are needed to allow for "forward in forward out" for fuel trucks (no backing up Allowed) is factored in to any future design.
- There are no known issues with wing tip clearances. Only when airlines are using the rear door for deplaning there are potential impacts to the process of fueling.
- If airport operating hours expand and slot management "push" aircraft into night operations, better illumination is needed on the old ramp (stands 1 – 8)
- Generally, RUBiS operations and the relationship with the CIAA are good and coordination works well.
- RUBiS have slowed down on development on island due to the increasing costs of materials and the uncertainty of when the pandemic effects will end. The fuel farm is the only development that RUBiS is presently engaged in.
- RUBiS is exploring the possibility of supplying LP Gas to the Cayman Islands.
- RUBiS projections for fuel demand are optimistic and post pandemic it is expected that pre-pandemic levels will return.
- The system for airlines to inform what their fueling needs are works well through the ground handler.
- If transatlantic flights are certain, discussions with the RUBiS/SOL prior to these new routes operating such that an analysis can be done on the practicalities of fueling and as to whether a larger bowser (12,000 gallon capacity) should be purchased for use on the airfield.

Master Plan Qualitative Data Collection Meeting #1

Safety 02.06.2021

Attendees:

Andrew McLaughlin

Meeting Focus on ORIA - Topics for discussion:

- Terminal Improvements
- Airfield Improvements
- Other

Terminal Improvements

- There needs to be a Level of Service (LOS) Agreement between all stakeholders within the terminal. Important determination as this will dictate the size of new terminal required, reduce passenger wait times, improve on capacity seating.
- All development plans must be linked with increasing traffic volumes
- Airport ground traffic needs to be coordinated with the National Roads Authority (NRA)
- It is essential that arriving passengers and departing passengers do not mix
- A single central passenger processing facility
- Commercial opportunities should be “on the way” not “ in the way”
- Auto passenger bag drop facilitation – central bag deposit
- Faster bag screening process
- SSCP has to have an exclusive lane for staff/crew/etc
- Gate doors are singles – upgrade to doubles
- Recommend additional space in the departure hall by extending the terminal south to the covered walkway
- There is mixing of passengers in the walkway – need to revise
- Any new terminal will need jetways
- There should be no passenger waiting outside of the terminal. Improvement is required on immigration space, throughput and/or aircraft scheduling
- No issues with bag claim or customs
- Handling of buses/taxis needs to be better controlled especially when the blast area is taken and in effect. There will be a reduction in parking when this comes into force and a resolution needs to be in place prior (multi story parking?)

Airfield Improvements

- Apron Access from dedicated airline storage spaces/rooms
- There needs to be improvement on keeping passengers out of the weather – extending gangways
- More Ground Handling Equipment parking areas

- Actis monitoring for temperature and humidity control systems
- Perimeter Fence detection systems
- Employee access control points onto airfield
- Drainage on ramp slopes to the terminal – against code and needs to be corrected
- Old ramp lighting is atrocious and needs to be replaced with like on new ramp
- Complaints on wingtip clearances on existing ramp for fuel trucks – need analysis
- Safety has no issues with extending the runway east and would be first choice due to residential area in the west
- Auto Foreign Object Debris (FOD) system on the runway – recommended by the CAA
- There needs to be an improvement in Storm water management – attracting birds when there is standing water
-

Other

- Waste Disposal and Recycling – needs to have a proper program for all stakeholders
- Need to establish a Green Leaf Certification
- We need a 10 year CIP which is updated annually
- ORAT team assigned for re-opening
- Re-locate the safety office to the new ATCT
- Adopt an Automatic Dependent Surveillance (ADS-B) system
- No objections to a remote ATC managing traffic in the Brac
- Managing of slots effects everything on the airport. Needs to improve the slot management
- Agree that the Fire launch needs to be relocated from its current location

- Improvements/observations on the Brac were not discussed and will be addressed at the next meeting
- Next meeting will be scheduled for the week of the 14th June

Master Plan Qualitative Data Collection Meeting

Security 26.05.2021

Attendees:

Chad Yates
Denniston Smith

Meeting Focus on ORIA - Topics for discussion:

- What is the short/long range vision for airport security
- Is the current airport security management reporting system adequate
- What preparations can the airport make to prepare to meet the challenges over the next 3 to 5 years
- In terms of Security Department organization structure what changes could make an improvement
- Security systems equipment and technologies improvements
- Extension of Runway Impacts to Security:

Short/Long Range Vision and Dept. Organization re-structure:

- Will follow the TSA methods – this will have security be involved in screening only. A newly created Airport police department will take on the role of all additional duties pertaining to the security management of the airport.
    - This will require a centralized location for the police department, preferably on the 2nd level. It will need to have autonomy with respect to an equipment room, a control room with CCTV monitoring capability, detention area, etc.
- ASSI – there needs to be in place a strategy for screening compliance with a short/medium and long term outlook in place. To be provided.
- A blast restricted area is required 30m from the terminal face where no public cars are permitted to travel or park. The area will be pedestrianized for all space in front of the terminal and future terminal
- A TSA strategy to Pre-check passengers needs to be drafted and implemented for better efficiencies. This may include infrastructure development to include a purpose built entry into the terminal
- Critical to go to touchless security checks – equipment purchases to accommodate all screening to involve no interaction physical between security staff and passengers. This will de-crease throughput times.
- The creation of a purpose built facility to screen all materials, concession products, personnel entering the secure areas and out of the public eye

Security Systems Equipment and Technologies improvements:

- CCTV and Access equipment upgrades required
  - Cameras required for all street entry points into airport property
  - Camera locations on south side fence line
  - A requirement for a CCTV master plan
- A command center that is managed and operated by the airport police
- Solar powered lighting or improved lighting in the parking lots
- Facial Recognition software

What preparations can the airport make to prepare to meet the challenges over the next 3 to 5 years:

- A Physical Security Plan needs to be drafted – to include:
  - Access control
  - Fencing upgrades and re-design
  - Badging system
  - Access alarms and response software
  - Airport tracking video capability
  - Adoption of a Security Management System (SMS)
- Equipment Plan Strategy – to include:
  - An approved 5 year plan
  - Standardization with Government purchases

Extension of Runway Impacts to Security:

- If extension goes east then a floating or rock barrier needs to be added to restrict marine traffic entering the protected zone
- Will require additional CCTV cameras
- Will increase security patrols potentially marine based
- Will require sufficient lighting

Master Plan Qualitative Data Collection Meeting r2

Sister Islands District Committees - 15.10.2021

Attendees:

Greg McTaggart (Little Cayman)
Debra Vascik (The Brac)

Meeting focuses on the Sister islands and past and future Airport Development:

Discussion on Key Points and Committee Observations:

Overview:

- There are two island district committees that individually represent the Brac and Little Cayman
- The Sister Islands District Committees are affiliated with the National Trust and are involved in many wildlife preservation and monitoring programs. Additionally, there are district committees on Grand Cayman that also fall under the auspices of the National Trust.

The Brac:

- The airport on the Brac is surrounded by wildlife habitat and any expansion to the airport that will intrude into these areas will have a detrimental impact to the natural environment and ultimately have a harmful effect on populations. These areas are wetlands and are essential safe harbors for migratory bird life and endemic species.
- There are zones surrounding the perimeter of the Brac airfield that need to be protected. These areas have a large density of mangroves around natural ponds and are considered wetlands. In the North West area of the airfield there is a sea turtle nesting zone, which is one of a few beach areas on island that support nesting and needs to be protected from further expansion. In addition to this, the newly developed Deggaro site north of the airfield has had a major impact on the Rock Iguana nesting area and any further development of these lots north of the airfield will endanger the indigenous Rock Iguana and must be prohibited.
- Rock Iguanas have been observed inside the airport perimeter on the Brac.
- The Deggaro development is a prime example of the poor planning permit process currently in place. The lack of public outreach for any future developments proposed for the Brac, which would allow comments on environmental issues before decisions are made to proceed, needs to change.
- Any new airport development on the Brac that is essential should be contained in the terminal area to reduce any further environmental impacts.

- The pond at the east end of the Brac runway is a habitat for the Whistling Duck bird and it is critical that the pond be preserved and protected. Additionally, the ponds to the south of the runway are also essential to migratory bird life and indigenous species; therefore, filling of these ponds would be catastrophic to this variety of wildlife.
- Cayman Brac is earnestly being branded by the Cayman Islands as a bird sanctuary and this element is an attraction for bird watchers and tourists. Extensive development and removal of ponds will reduce bird populations and nullify any efforts to boost numbers from this tourism sector which is the antithesis of what the Cayman Islands is branding.
- It is not widely known that a certain species of orchid has now been eradicated on the Brac due to uncontrolled development.
- The international label of the Brac airport should be reconsidered to reduce any further development that is directed from regulators.

Little Cayman:

- There is no disagreement that there is a need to have an air service to Little Cayman.
- The topic of airfield relocation, realignment or expansion on Little Cayman has been a major source of discussion for nearly two decades with no resolution. It is a popular local hope that things will not change too dramatically or quickly and most are generally satisfied with how things exist today.
- In Little Cayman, airport operations can have a major effect on wildlife with respect to bird strikes. There are thousands of birds located on Little Cayman and the Booby Pond Nature Reserve is considered one of the largest nesting, breeding colonies of the Red Footed Booby birds in the western hemisphere. The Magnificent Frigate bird is another bird that is found in large numbers in Little Cayman. Any relocation of the airfield to the north or expansion of the existing facility must not necessitate control or eradication of any bird species or the removal of existing critical habitat in protected areas, i.e. filling of areas of the Booby Pond Reserve. In addition in the case of relocation, loss of undisturbed habitat must be mitigated and offset by the addition to the overall protected terrestrial areas on Little Cayman.
- A helicopter service would have a smaller footprint on the island which is an advantage from an environmental standpoint; however, large passenger helicopters could add noise pollution.
- The incidence of bird strikes is a concern from a safety and environmental standpoint. Records are not available of the amount of bird strikes on Little Cayman however, if the airfield is relocated to north of the Booby Pond then this must not increase the risk of bird strikes and necessitate control or eradication measures.
- More public involvement on any new development needs to be a part of the permitting process.
- A water shuttle service between Little Cayman and the Brac is not considered a solution to connectivity between the Sister Islands. A service would be weather dependent and not practical.
- The safety of the Little Cayman Airport is very good and the reliability and safety record of the service aircraft, the twin Otter, is outstanding.

Summary:

- Noise pollution is a major concern on both the Brac and Little Cayman. Increase in flights and the addition of different aircraft types may adversely affect wildlife, particularly large seabirds. Sensitivity to noise must be managed to allow for noise pollution to be studied and controlled.
- The communities on both the Brac and Little Cayman are disillusioned with the development and permitting process. Historically, development has been progressing at a pace without any considerations for the permanent loss and non-replacement of habitat. If the communities were to be included in any potential development schemes where there could be open dialogue on proposals there may be alternatives that could be acceptable to any environmental impacts.
- The planning process in the Little Cayman and the Brac is not ideal and is geared toward development and growth with no or little consideration given to environmental issues. Planning laws need to be revised that ensure that protections to protect the environment are in place.

Master Plan Qualitative Data Collection Meeting r1

SOL Petroleum - 21.09.2021

Attendees:

Ricardo Ceara
Myron Blair

Meeting focus on SOL Operations and the interaction with CIAA - Topics for discussion:

- Overview of the 2014 comments
- SOL Key Points and Observations

Discussion on the 8 points identified by SOL Petroleum and recorded in the 2014 Master Plan:

1) *Previously ESSO/EXON*
- No discussion. This was just informational

2) *No storage at airport – bowsers transport fuel to the airport from terminal located on coast.*
- No discussion. This was just informational

3) *Need to park bowsers off-airport.*
- This is still an issue. It would be a major advantage to have a parking location for fully fuelled bowsers on the airfield

4) *Does not provide fuel to GA but would like to. Provides fuel to commercial carriers.*
- The current FBO has a contract with RUBiS; however SOL can sell fuel if a customer requests SOL directly.

5) *Would like to see one location for on-airport fuel farm, either shared with RUBIS or co-located on same site*
- A new fuel Storage farm will be located off to the North of the airport boundary and is in the early stages of development. The facility is scheduled to open in July 2022

6) *Consumption is approximately 378,000 gal. Per month.*
- The 2019 annual Jet-A fuel estimated consumption at the airport (SOL) was 6.5 million gallons (546,000 per month). An increase of approximately 44%. SOL's pre-pandemic projections for fuel volumes were to continue increasing 4% annually; however due to the post pandemic unknowns a more conservative increase must be considered.
- *Fuel is trucked to the airport – pipeline not being considered.*
- Trucking fuel from the marine terminal is still the current process but will change when the new airport fuel farm comes on line in 2022. However, it should be noted that the fuel for the new storage facility we still need to move by truck from the marine terminal.

7) *Separation of aircraft on ramp has been an issue. Need for wider separation to accommodate fuel bowser at wingtip.*
- This is still an issue. See bullet point below.

Discussion on Updated Key Points and Observations:

- The Airport Authority has stated that they do not want two fuel farms on the airport. IN response, Sol and RUBiS developed a joint operation and are both currently in the process of developing a fuel farm just north of the airport property. SOL will be the

operating manager for the facility during the first phase of the fuel Farm joint operation. The fuel farm is scheduled to be on line in July 2022. The purpose of this facility is to supply fuel for airport use only. The fuel delivery to the airfield will not change and will be delivered on an as needed basis by fuel bowsers. The fuel farm will be supplied by both the RUBiS and Sol main depots at Jackson Point storage facility. All assets on the fuel farm site are owned by the Joint Operation

- The storage capacity of this fuel farm will be 400,000 gallons. There will be two fuel tanks of 200,000 gallon capacity
- There is no requirement for hydrant systems in any Terminal 2 design due to the size of the airport. There is too low fuel volume at ORIA to warrant installing remote hydrant systems. This could potentially change if volume were to significantly rise; however there are examples of other airports with a fuel volume of >30 million gallons pa that manage with fuel trucks and cannot justify the investment in hydrant systems.
- It is common practice that airlines do not give enough information in advance to SOL about their requirements.
- There is no advantage to having auxiliary fuel tanks on the airfield through direct piping from the fuel farm. These auxiliary tanks would need to comply with all safety standards and would need to meet all standard operating procedures; specifically it becomes another fuel farm.
- There needs to be a parking area for the Bowsers that are full and ready for service. If this is not possible, because the new fuel farm proximity is so close, the only current issue is the need to develop an enhanced security check procedure such that bowsers are not held up at the check point.
- If at all possible a dedicated access (gate) for fuel trucks would be an advantage with special conditions for trucks to self-enter.
- The new fuel farm has come at considerable cost to the joint operation and there will be a need to recoup these costs via the consumer, which potentially will relate to higher fuel costs. It is unclear at this stage what effects this will have with respect to airlines and GA traffic.
- SOL has a permit to sell aviation fuel on the GA ramp and can sell fuel to any customer. However, if a customer wants the FBO to sell fuel to the customer then the current FBO has a contract with RUBiS and will purchase from them.
- The clearance between wingtips is not ideal and it causing challenges moving the trucks between the wingtips. It is Sol's policy that there will be no backing up the truck towards an aircraft. The preference is to drive towards an aircraft and drive forwards away from an aircraft. However, current conditions do not allow this procedure and the approach is to drive towards the aircraft and back away for the aircraft. This is not ideal.
- Studies need to be examined with respect to the distance between the wingtips and the areas in front of the aircraft that would allow free movement of the bowsers without impacting safety. A suggested wingtip clearance would be an additional 15ft over current clearance.
- Clearances around aircraft fueling operations are tight and if there was a need to extricate the bowser in the event of an incident then this may not be possible due to the area constraints. This needs to be examined.

- SOL does not supply AV Gas

Master Plan Qualitative Data Collection Meeting

South West Airlines 11.08.2021 r2

Attendees:

Shalico Christian

Meeting Focus on ORIA - Topic for discussion:

- Key Points and Observations

- South West is projecting that operations will resume to ORIA on 18th November 2021. For GCM we intend to begin with 7 weekly flights and then by March to increase this to 16 flights per week.
- There needs to be more use of technology in the terminal that will assist passenger throughput efficiencies. 80% of passengers now check in on line. South West is moving in a direction of where the passenger will check in on their phone, scan the phone in the airport and tag the bag. Eventually, the passenger will weigh the bag and if overweight there is the ability to pay and then the bag is processed. No agent is involved. Passengers will board by themselves at the gate by using facial recognition and scanning of boarding pass. This will reduce agent numbers.
- There is a need for curbside check in capability. This will increase efficiencies and reduce capacity issues in the terminal. This is all moving towards "touchless technology"
- Another technology that is a potential throughput enhancer during check is mobile check in equipment. American Airline agents have used these but these were retired due to the equipment failure. However, this technology has improved and is a potential efficiency enhancement. However, this is contingent on a robust Wi-Fi system. The airport needs to invest in a new Wi-Fi system. The current system is slow.
- If this technology is employed and if the curb side check in is introduced then the capacity of the check in area is adequate and would reduce the need to expand and add more check in positions.
- The CUPPS and CUSS units are temperamental and are in need of regular servicing. AirINC response times are inadequate and need improving.
- The current bag tags do not have the instructions on how to attach to the bag. This is problematic for passengers and slows throughput down.
- CUPPS is working well. However, when there are changes to flight schedules due to weather, technical issues, etc. then the AOC response is inadequate to manage the changes as they occur and in real time. The airport needs to manage the gate and stand allocations better. There needs to be a CUPPS manager that is dedicated to management of CUPPS on a daily basis. As it stands the responsible AOC individual is also managing other issues and can quickly be overwhelmed if multiple CUPPS unrelated issues are occurring at the same time and there is a distraction.

- To manage passenger throughput there is a need to reintroduce gates 1 A and B. These two gates are critical to manage gate congestion during peak hours. However, South West understands that the removal of the two gates reduces floor seating area and raises passenger congestion capacity issues. This could be alleviated by utilizing the unused bar area.
- It is the South West viewpoint that the current 9 in total gates and the two disbanded gates 1A and 1B are adequate for boarding during peak hours. South West has submitted to the CIAA a table reflecting all airlines and potential gate allocations at varying times which in essence supports that 11 gates are sufficient with pre-covid aircraft movements. Why does CIAA have multiple documents to manage check in desks, desks and aircraft stands. Could this all be on one document? South West posture that improved management of the gate and stand allocations could improve passenger throughput and alleviate capacity issues
- The AOC is not taking into consideration that a full aircraft at gate 6 is very congested with passengers waiting to board and access to the 2nd floor lounge will be impacted.
- AOC is not making allowances for large aircraft with full passenger loads with respect to location of gates.
- Gate area seating capacities need to be a main consideration in the new Terminal 2 design.
- South West has identified that during pre-Covid levels, at peak times, there were only 12 planes on the apron at any one time. It is the South West position that with the addition of 4 more stands to the original 8 this should be sufficient to maintain operations.
- Wayfinding signage is an issue in the airport terminal. There needs to be a study done on the current signage layout.
- South West would like CIAA to assist in making Cayman Brac as the 1st choice for any of their diverted planes due to unseen circumstances. This reduces turnaround flight time. Cayman Airways is their handler and they have a presence in the Brac.
- South West would like to see CIAA landing fee pricing rate incentives for slots outside of the peak hours. Other charter airlines may be very interested in low peak areas that are included in "all in" vacation packages.
- The CIAA need to revise and open the airport for longer operational hours. These extended operational hours will attract low cost airlines and potentially regular airlines choosing to fly outside peak hours
- In the check in area there should be a dedicated area for passengers to weigh bags before reaching the check in counters. This would reduce passenger check in times and improve efficiencies if a passenger needed to pre-pack luggage due to the bag being over weight
- The terminal 2 design needs to include Jet bridges
- There is a need for on ramp golf carts, supplied by the airlines, for disabled passengers therefore charging stations will be required
- A suggestion from South West is that the CIAA manages all the wheelchair service. This is a potential revenue source paid for by the airlines. Currently the airlines pay the baggage handling companies for this service.
- Car rental Facility. This needs to be addressed. A source of passenger complaint that to get to the current car rental is too far and open to the weather. There needs to be a facility within the terminal. This should be included in any Terminal 2 design
- A pet relief area is needed. Pets that are to travel onto the aircraft with the owner needs to be able to relieve itself in a pet relief area located in the departure area

- Terminal l 2 designs should have in ground fueling, domestic water and electrical connections by the parking stand. This would remove any need for refueling trucks on the apron. This is currently an issue with wing tip clearances especially with the new Max 8 longer wings. This is a potential revenue source for the airport, however would require a fuel farm on the airport.
- In addition to in ground fuel distribution it is important to include Pre Conditioned Air units on the Jet bridges. This is also a potential revenue source for the airport.
- There needs to be a Cargo facility on airport.

Master Plan Qualitative Data Collection Meeting

United Airlines 10.08.2021

Attendees:

Phil Ebanks

Meeting Focus on ORIA - Topic for discussion:

- Key Points and Observations Operational Issues

- The CIAA is proposing a slot management system – United's viewpoint is hesitant to implement the system based on no known knowledge of what effect the new additions to the airfield will have on passenger flow and airfield aircraft movements. With the addition of the taxiway, the apron expansion and holding capability on both the 08 and 26 ends, it is unknown at this time how these effects enhances the pre COVID operational issues. United recommends to wait 12 to 18 months before any changes are made. Wait until the advantages of the infrastructure developments are known and then adjust as required or not at all. United is not opposed to slot management, however, this approach could prevent unnecessary costs of a system that may not be required.
- The terminal wayfinding signage is inadequate. A study is required to identify any gaps in the wayfinding.
- Recommendation that the SSCP revisit the slow passenger flow through. This is a choke point on peak hours. Suggestions on improvements on flow would be to have longer lead in tables with the passenger selecting the tubs allowing for expediency.
- The new PA system is not optimal and needs to be surveyed and adjustments made. It is possible that terminal sound attenuation is required. The "echo" of sound reverberation is uncomfortable and the system is not working as designed.
- CUPPS system is adequate and working well. United has no issues.
- United have no plans for RFID bag tags.
- The CUSS units are a major advantage for United and are working well. The CUSS units are invaluable for high passenger service. The only issue is that the disclaimer is not on the bag tags therefore United cannot use the tags. CIAA will not allow United supplied tags.
- United have an issue with the departure gate doors that swing the wrong way. During the summer months the prevailing winds come from the south east and the doors, when open, act as a scoop and allow hot and humid air into the terminal. This has proved to be very uncomfortable in the gate area for gate staff and passengers.
- The apron passenger canopy needs to be redesigned and made wider allowing for passenger segregation
- To summarize, most passenger complaints are centered round the flow throughput. A thorough analysis needs to be performed to identify "choke" points and passenger concerns and identify what can be done to improve throughput from check in to the gate.

Master Plan Qualitative Data Collection Meeting #1 rev 1

Water Authority 22.06.2021

Attendees:
Hendrik V.
Trenton F.
Yasmin J.

Meeting to discuss Authority Oversight at ORIA and CKIA

ORIA

- The Water Authority has no objection to the removal of the dykes on the east of the airport property
- Authority advised that their role is to protect groundwater and to monitor any surface water discharge into the North Sound
- There is no spill protection plan for the airport and there needs to be one. The current apron does not have capability to capture major spills.
- There is no Storm Water Protection Plan and there needs to be one. Collaboration with the NRA would be advised
- During past works on the airfield it was noted that a temporary asphalt plant was erected opposite Fosters store in the 1990s for the resurfacing of the runway and there could be contamination in the vicinity from these operations. The Water Authority is proposing to drill test wells to identify if there is any contamination which will potentially require costly remediation
- There needs to be a site wide survey of all sewage disposals at the airport. Currently there are many individual disposal systems that could be incorporated into main 2/3 systems. When a property is (re) developed, the Water Authority reviews the overall volume of wastewater generated for existing and proposed development and if this exceeds 1,800 GPD an onsite aerobic treatment unit will be required.
- The Fire Department need a catchment system for chemical cleaning and spillage
- There needs to be a comprehensive hazardous waste program put in place
- The Water Authority has no objections to an extension to the east or west. Neither direction has any impact to water mains.
- If the new Terminal 2 has a geothermal system then the Water Authority needs ot be consulted on the design. Geothermal systems use many gallons of ground water and any system will have to be analyzed for ground water impacts that may affect other ground water users
- Advised that is land was appropriated by Foster's Food Store, then there is a water main that will be affected and required to be relocated.
- The National Conservation Council will review proposed development and decide whether an EIA is required. If so, it will be likely that the Water Authority will be on the Environmental Advisory Board and the various issues discussed will be addressed in the EIA process.

CKIA

- The septic system at the airport may be undersized for current loading and may need upgrading
- The Water Works to the east of the terminal is to be relocated to the bluff; however, a date is unknown at his time but will be within the next ten years.
- Discussion on land acquisition on the south side to relocate the road out of the strip would impact the water main and would need to be relocated also

Cayman Islands Airports Development Project | Stakeholder Meeting Notes

Meeting Dates: 20th June 2022 through 23rd June 2022
Locations: Grand Cayman Island | Cayman Brac Islands | Little Cayman Islands
Host: CIAA / PM Roy Williams
Representative Consultants: Stantec | KPMG | Munich Airport International | Chalmers-Gibbs

Stakeholder Meeting and Airport Infrastructure and Site Review Schedule **20th - 24th June 2022**

Attendees: Roy Williams (CIAA-PM) | Philip Van Manen (Stantec PM) | Rian Burger, (Stantec - Principal / Architect)
Sam Story, Jack MacKenzie (KPMG) | William Steward, Luisa Dawson, (Chalmers-Gibbs) | Lutz Wieser, Adam Symalla, (Munich Airport International)
Locations Attended: Owen Roberts International Airport, Grand Cayman | Charles Kirkconnell International Airport, Cayman Brac | Edward Bodden Airfield & Alternate Airport Site, Little Cayman

Revison 1

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	June 19th	June 20th	June 21st	June 22nd	June 23rd	June 24th
8:00	Travel to Island			Travel to the Brac		
9:00		Meeting with the Civil Aviation Authority (at CAA Offices)	Airside Tour and GA Terminal Visit (Start at Beacon House)	Tour of CKIA and Meet with Airport manager	Round Table meeting with CIAA Departments and Munich Consultants	Open
10:00						
11:00		Meeting with CEO and COO	Meeting with Customer Service/Security (Beacon House)			
12:00		Lunch	Department of Environment	Lunch	Lunch	Lunch
13:00		Meet with Ground Handlers	ORIA Terminal Tour and Landside Operations (Start at Beacon House)	Tour of Little Cayman	open	Leave island
14:00		Meet with ATC/CNS/AIS			Steering Committee	
15:00	Philip Arrives	Open	Facilities (Beacon House)			
15:30		Meeting with Airside Operations (Jeremy & Andy)				
16:00			Meeting With CFO (Boardroom)			
16:30			Meeting with all Airlines (Boardroom)			
17:00		Fosters Food Group		Travel Back to Grand Cayman		
17:30						
18:00						

Figure 1: Stakeholder Meeting Schedule, week of June 20th

Meeting #1: Civil Aviation Authority, 20th June at 0900

- Attendees: R. Williams, (CIAA) P. Van Manen, (Stantec) | Robert Harris, Alistair Robertson, and Craig Smith of CAA of Cayman Islands
- Overview of Project Provided by CIAA and Stantec
- Confirm notes and opinions provided by CAA in 2021; nothing changed.

- Confirm reference to ICAO Annex 14, Overseas Territories Aviation Regulations (OTARS) and UK Standards if required.
- Tall ships / mooring of sailboats and other marine vessels in the North Sound required to ensure safety of approach to Runway 26 / take-off path for Runway 08.
- RESA, short-medium term okay with minimum, but long-term achieve recommended 240m x 90 m RESA (beyond Runway Strip).
- Non-Instrument Runway (runway strip not wide enough to enable a non-precision instrument runway)
- OLS to be maintained by CIAA
    - CIAA currently undertaking an update of the OLS / obstacle surveys
    - Future runway expansion will meet latest ICAO Annex 14 standards
- Crewe Road must be relocated further west to enable use of airport lands for runway extension / RESA (significant issue / to be discussed with NRA)
- Isolation Pad for aircraft (security / other emergencies) must be developed
- Airspace – continued coordination with Kingston FIR
- Aircraft taxiing routes at ORIA – limited to Code C at west end and Code E backtrack runway to Threshold Runway 08
    - Majority of takeoffs and landings to the east, arriving / departing Runway 08 vs Runway 26
- Consider Land Swap to improve runway length concerns (make it happen, currently cannot enable a fully loaded, direct to the UK).
- Wide body aircraft peak hour activity is not in the busy, narrow-body peak hour
- Agree with ATC Tower relocation to south side of runway (fundamentally correct)
- ARFF location: opinion is to leave where it is, serving both domestic and airfield response functions for City and CIAA
- South-side drainage improvements are required (standing water attracts birds = hazard to aircraft, increasing likelihood of bird strikes); west-end drainage also required
- Need to improve aircraft push-back procedures / coordination and ramp management
    - Ramp control option suggested
    - Pilots' discretion to push back; clearance to taxi provided by ATC
- Not opposed with potential for a remote ATC tower in Cayman Brac,(CKIA) but aircraft ramp at CKIA must expand to enable safer, more efficient aircraft movements (due to lack of parallel taxiway and only one taxiway connecting the runway to the apron, and Code C aircraft using the apron)
- RESA / OLS issues to be resolved at CKIA
- ATC / Value of ATC is underestimated, and CIAA must increase investment in these critical infrastructure
- Could reduce CKIA to a Code B runway and narrow the runway strip

- Little Cayman Airport a major, long-standing concern with CAA
- Considered essential air services are approved by CAA for CAL to operate
- CAA view is that a new airport is necessary; the existing airport has an approach / departure path directly overhead the bird ponds and significant numbers of large birds
    - A long-term plan for a new airport is necessary
- The existing aerodrome has a variety of landowners, and they are all LIABLE for accidents that may occur there
- Bird strikes, and Blossom Village at east end of runway, are both key concerns of the existing runway
    - East end of runway the threshold is displaced due to buildings

Meeting #2: CIAA Executive, 20th June 11:00

- Attendees: A. Anderson, (CIAA CEO), Wayne DaCosta, (CIAA CAOO) R. Williams, (CIAA PM) P. Van Manen, (Stantec PM)
- Overview of issues, concerns
- CKIA has an annual loss of $2 million
- Little Cayman / (EBA) is a liability for landowners, CAL
    - EBA is day-use only, no lights on small runway
    - Public Works Dept. maintains runway and strip
    - CAL provides traffic control, self-ground handling
- ORIA is a slot managed airport, as of September 2021
    - Very busy peak hours: airlines refuse alternate times and/or demand better slot times
    - Weather delays in US will impact peak hour operations at ORIA
- Airspace / aircraft separation of 5 minutes is the minimal spacing required
    - (Only 12 arrivals an hour?)
    - General aviation traffic keeps the peak hours and busiest hours over capacity, leading to delays
    - Additional taxiway (parallel) is required
- Ground traffic is significant and there is limited terminal curb and limited parking space
- Need to balance capacity across the system and facilitate our guests / passengers with improvements such as cover overhead (do not let rain spoil their arrival / departure) and improve experience
- Passenger (pax) traffic is increasing / air terminal building (ATB) capacity is stretched resulting in overcapacity / internal congestion and domino-effect impact of delays from one processor to another (i.e.: check-in to security to boarding)
- Slot management is not the issue, capacity is the issue (peak hour)
- Tourism is key driver of demand

- Tourism growth based on number of hotel rooms and hotel development (growth)
- Forecast growth follows hotel / tourism industry related room-nights projected growth – speak to Tourism Department
- Improvements to Immigration / Customs processes underway, and new thinking is required; speak to CBC
- Security regulations, requirement for 100ft. setback from terminal to curb at ORIA
- Cover over terminal curb (keep pax dry) and over airside (air bridges) is a necessary consideration
- Surveillance and ATC investments required at ORIA in short-term (ATC tower leaking)

Meeting #3: National Road Authority 20th June 1200

- Attendees: R. Williams, (CIAA PM) and P. Van Manen, (Stantec PM)
- Improved way finding signage required to assist those who rent cars around the airport and are looking to get to the airport
- Apparent lack of cooperation between airlines and airport, resulting in significant traffic peaks (should be smoothed out during the day)
    - Tourism associations cannot change nature of hotel / airline operations
- Re-route landside traffic away from congested airport area
- CIAA considering a ground transportation center for rental cars and visitors
- Recent study of ground traffic indicated Fosters supermarket is central to congestion; they may move in future, relieving some of the congestion taking place around there today
- Traffic volumes in the area require additional study and investments
- New road connecting the north end of the airport and entrance to parking lot with the tourism destined areas on Grand Cayman such as Seven Mile Beach and Carmana Bay will alleviate other congestion around the airport.
- There are a few key areas which have been identified around the airport, and studies will be provided to Stantec for review / integration.
- NRA is opposed to closing / relocating the road at the western end of the runway as doing so must not be in isolation from other traffic / road improvements
- Growing number of vehicles / drivers on Grand Cayman is a real issue; rush hours are slow and getting longer and congestion / accident rates are increasing.
- Fuel Truck traffic from fuel farm to airport / airside is an issue. They should not mix with other traffic, if possible.
- Landside parking is an issue and at peak times, there is no spaces left for parking at ORIA.
- Saturday landside congestion is significant; spread out flights to different days or improve opportunities for remote check-in

Stantec

Meeting #4: Airport Ground Handlers 20th June 1300

- Attendees: CIAA PM, Stantec PM, Munich International, Chalmers-Gibbs, KPMG, FAD, CDS, CAL, Island Air, Air Agency
- Issues:
    - Not enough space for ground handling operations in terminal
    - Equipment parking should be under cover, indoors (not on ramp)
- Fuel Operations
    - Need more space between wings of commercial aircraft for ground handling and fuel operations to occur simultaneously, but not enough space currently
    - New B737-Max8 winglets need more space to move around safely
- Air bridges
    - Needed and should be implemented
    - Will improve the pax experience, allowing cover during rain events
    - Will allow for separation of departing / arriving / domestic / international passengers
    - Weather occurrences delays boarding processes
    - Reduces number of agents required to manage arriving and departing pax
    - Prefer bridge mounted GSE (ground services equipment) such as pre-conditioned air and electrical power for aircraft
- Charging stations required for electric equipment
- Ground Handling Agencies (GHA) should have space for equipment maintenance and repair, storage
    - Would consider a shared facility, pending location
- Separate lanes for security checks for VIPs and VVIPs required
- New Airline Lounges are requested regularly by pax
- Improved space for GHA agents and employees (staff facilities, change and lunchrooms, washrooms)
- Need for ice rooms in terminal
- Expanded baggage build-up areas (outbound bags) and larger dedicated space for security of baggage
- Improved access to washrooms for GHA employees from the ramp / apron
- Space for CBC / Customs officers to process pax from returning aircraft from flights cancelled
- Ongoing CUSS / CUPPs systems issues (technical) between airlines / GHA
    - Improved technology and added space required
- Ramp – water runways towards terminal (ramp must drain away from terminal)
- Cargo screening: currently, cargo must come through hold-bag screening (new large outbound items / cargo screening drop off required)

- Improved lavatory dump is required
    - Aging facility, should adapt to new technology to improve safety and hygiene
- Wheelchair services / attendant seating area required (standing many hours)
    - Cover for attendants
- Wayfinding signage improvements for arriving / departing pax on the ramps
- More baggage carts in the arrivals hall during peak hours
    - Consider installation of 'Smart Carts'

Meeting #5: CIAA Airport and ATC Operations, 20th June 1400

Attendees: CIAA PM, Stantec PM, Munich International, Chalmers-Gibbs, KPMG, CIAA ATC (Sean, Eric, Cleavy) and Eimer Powery, Jeremy Jackson of CIAA

- VOR / DME is aging and may be redundant in future with improved facilities
- Planned review of airspace management and technology planned in 2022
- Bobby, ATC Supervisor suggested a new ATC tower should be 5 to 7 stories (floors) tall, and must be taller than the current ATC Tower,
- Current tower was built in the 1980s and is long past the life expectancy for this tower)
- Was due for replacement 20 years ago, but has been repaired / but currently in need of new refurbishments
- Problems reported with leaking roof (from 5th floor cab to 3rd floor room)
- Problems progressively getting worse
- Moved equipment room – still vulnerable
- Running out of space, no space for approach side position of tower operations (close to departure / ground services controller positions
- ATC equipment covered in plastic to prevent water damage from leaks
- Agree with move of new ATC tower to south side of airport; would address their limited views to aircraft parking aprons (currently limited views)
- Minimum of 4 to 5 positions in tower cab required
- Need added redundancy / an contingency plan facility
    - ATC controllers must have a reliable facility to operate from in order to adequately control air and ground traffic movements of aircraft at ORIA
- Consider avian radar / improved bird management (Robo-bird UAV)
- Concerns regarding drone activity, need to have surveillance capability
- Move to modern ATC operation required (currently paper strips, not digital)
- Full modernization of CNS is required / Consider new equipment (i.e.: ADS-B)
- Add a critically important fully parallel taxiway for the runway at ORIA!
- Taxing and towing of aircraft from maintenance areas, G/A ramps, creates delays and adds to congestion of airfield in the peak hours

- G/A – incorporate self-service fuel facility to alleviate delays in service in peak hours
- New, additional private hangars are required
- Longer runway is required to enable long-haul flights (i.e.: to UK)
- Agree that a runway extension to the east is most logical
    - Extension to the west will have issues with NRA for many years
- A separate heliport is needed for police / medical transport / tourism flights
    - Reduce and eliminate if possible mixed operation of fixed-wing and rotary-wing aircraft operations on the runway (helicopters can operate separate from runway)
- A new MRO / large aircraft hangar(s) are required (Cayman Airways Ltd. (CAL) aircraft are too wide for their current hangar
- An aircraft engine runup area is required
- Improve road / access to airport particularly around west end of airport (move road)
- Drainage and stormwater improvements are required / make hurricane resilient (lift equipment such as FEC, to avoid temporary flooding)
- Improve space for office spaces and Duty Officer use areas
- Future of Fosters: possible to convert to cargo use; catering site; other uses
- Post office / relocate away and improve cargo and CBC facilities
- Fire hall expanding (for domestic improvements)
- Radar Dome is privately held, in support of the FIR airspace radar (overflights tracking) and could be moved
    - Secondary Surveillance Radar (SSR) facility to be relocated to make way for any development at east end of airport
    - SSR lease ends in 2025
- Gun Club – could be moved
    - Consider moving the Fire Training Area to Gun Club

Meeting #6: Fosters Supermarket, 20th June 1700

Attendees: Woody, CEO of Fosters, CIAA PM, Stantec PM

- Discuss future airport master plan at ORIA
- Review lands to the west, including Fosters
- Potential for Fosters to sell land in 7 to 10 years future based on their plans to develop a new Fosters Supermarket in a different part of the city
- Other uses: cargo and/or logistics centre, aircraft parking, other non-aviation uses such as an Aviation Catering centre
- Would CIAA be interested in acquiring this land near ORIA?
    - CIAA PM – to be determined. Suggests Woody communicate his interests with the CEO.

Stantec

Meeting #7: CIAA Customer Service & Security, 21st June 1100
Attendees: CIAA PM, Stantec PM, Munich International, Chalmers-Gibbs, KPMG, Bianca (customer service) and Carl (security)

- Taxi services $60 monthly fee
    - 4 licenced operators
    - Tour operators, pay $1/pax to CIAA
- Public Transport Unit (PTU)
    - Sets fares
- Wait times for a taxi is an issue at peak times and in leanest off-peak times
- No modal split – all car
    - Includes private cars, taxis, tour operator vans, rental cars
    - Public bus said to be inadequate
    - No shared shuttle van / shared ride van services
- Need for a 30 m (100 ft.) setback from terminal to curb
    - ASSI sets regulatory standards for airport security at ORIA
    - Result is need to move existing terminal curb lanes, change parking lot layout and with limited remaining space, build a parking garage
- All rental cars are off airport property
    - No concession fees for airport authority
    - Typical to have a MAG and leasing opportunities with rental car companies if on airport
    - Close proximity of rental car companies near airport limits ability of CIAA to capture revenue from this activity; unless these services can be provided from a CIAA-based property, passengers can walk to these companies at no charge. However, these shared customers (Passengers) do not have adequate facilities and they complain about the rain / long walk off airport and small, outdated facilities (standing outside in queues is common) at offsite rental car facilities.
- New landside development opportunity within the 30 m security buffer
- Terminal curb is currently congested
    - No bus layover area,
    - No taxi queue area except on curb
    - Rental cars in 4 locations offsite, across street only
- Distance from entrance doors to check-in counters is too narrow – need to expand
- Need a pax profile (detailed survey) – to better understand the number of bags per pax
- Security screening – typically long queues
- No VIP screening lanes (Complaints from VIPs)
- 1,000 seats in the departures lounge and very few concessions / (food and beverage, duty free)

Stantec

Meeting # 8: Department of Environment, 21st June 1200
Attendees: R. Williams, CIAA, P. Van Manen, Stantec, and DOE represented by Gina, Lauren, David, Fred, (and two others, names unknown)

- Gina on the Technical Review Committee
  - DoE has the right to review the projects
  - Suggests National Conservation Council sets need for consultations with DoE
  - Regulatory Reviews / Data to be made available to Stantec
- Consider impacts of airport developments on the following:
  - Marine ecology
  - Coastal resiliency /
  - Environmental sustainability
  - Noise impact
- DoE expects consultants to identify key issues related to variety of areas
- DoE indicated the potential for high, impacts on local environment at Little Cayman
  - Consider issues of essential services to Little Cayman;
  - Understands 2 options: continue to use existing airfield, or develop a new airport
  - Planning Level EIA required
  - Consult with the public / Section 41 of the NCC / CCMI
- DoE expects a scoping report
  - EIA is a separate activity prior to project construction and part of preliminary design
  - Currently master planning is concept level only, and reviews overall feasibility and follows the Green Book process as part of the Outline Business Case / OBC
- DoE approval is required before we can go to Cabinet, in Gina's opinion
- Stantec and CIAA to consult and coordinate with DoE; Lauren will communicate with Philip and Roy.
- Sea Level Rise should be considered, if not resolved
- Climate change policy to be considered
- Have a structured engagement plan
- Obtain environmentally sensitive areas from recent LiDAR survey / Study. Data owned by Cayman Islands - Lands and Survey Department – and can be obtained form John Hall, Director.
  - Supports understanding of impacts from proposed airport developments

Meeting #9: CIAA Airport Operations / Facilities, ORIA, 21st June 1300
CIAA PM, CIAA Eimer Powery, Operations Director | Stantec PM | Munich International | Chalmers-Gibbs | KPMG

- Improve baggage (arrivals) belt protection (not covered)

- Apron stands 1-8 are old; need to be renewed
    - Brick inlays make up several of these stands; porous
    - Concrete aircraft stands preferred
    - Asphalt roads, taxiways okay. 0
    - Aircraft fuel spills result in ground water issues and drainage issues
- A comprehensive airport drainage plan is required
- Gold Taxiway, north side – lights, pavement – were under water with heavy rains, mild flooding (better drainage required)
- Fencing, south side, has trees on the property boundary impacting the OLS transitional surface
    - Pave the airport security perimeter road
- Old sewage treatment plant to be replaced eventually
- Consider aircraft fuel spills on pavements, and fuel truck operations
    - Improve
- Runway electrical systems – move FEC to secure location
- Solar farm / solar panels – incorporate where feasible (hangar roofs, outside of runway strip)
- Cayman Brac – requires a new taxiway – from apron to runway, and apron expansion
- Runway requires a runway turn pad at each runway end
- Vault for transformers (wet, hold water) that drains / remains dry and new edge lights
- ATB renovations and expansion needed
- Runway / taxiway pavement surfaces under paint is deteriorating
- Separate G/A area, away from commercial terminal
- Added maintenance space required for storage, materials, equipment, etc.
- Air handling units required for air start of commercial aircraft engines

Meeting #10: CIAA Financial Department, 21st June 1600

Attendees: CIAA PM and CFO, Stantec PM, Munich International, Chalmers-Gibbs, KPMG

- Consultant team requires 2019 financial (base planning year), revenues, expenses
- CFO advised that only financials from the last audited statements are from 2017
- Some additional financials will be provided as required / available
- Government Load to CIAA: repayable over 15 years
- PFC – held in escrow
    - PFC amount is $17 / departing passengers
- Fees and charges, such as parking, require Government Cabinet approval to revise
- 1.4 million pax at ORIA in 2019

Stantec

Meeting #11: Airlines, ORIA, 21st June 1630

Attendees: CIAA PM, Stantec PM, Munich International, Chalmers-Gibbs, KPMG, Philip – United Airlines, Winston, JetBlue, Cayman Airways, (no name), Marva Reed, Delta Airlines, Kevin Bollard, Delta, American, Southwest were also represented (no names)

- Slot management is a challenge, as it limits the number of slots that can be used by an airline at any one time
    - Instead of three flights arriving in an hour from three destinations, United is limited to say one or two
- American reported that demand for Caribbean Region for Nov-Dec 2022 appears strong (they expect pandemic restrictions to ease soon)
- Delta suggested no real growth until mask mandate and vaccine requirements ease
- Jetblue reported high demand for upcoming winter season
    - Restrictions in place in Cayman Islands are holding back pent-up travel demand into Cayman, therefore they are reallocating planes to other markets, such as Jamaica, where there are no restrictions remaining in place
- The lack of affordable living accommodations for employees in Grand Cayman is a challenge for airlines and ground handlers alike
- American reported the issue of protection from the elements on the landside terminal curb (from car to terminal) and on airside with air bridges (for cover over airside connection from aircraft to terminal) is required to improve operational efficiencies and experience for customers
- Delta reported that their passenger survey indicated that 85% of their passengers did not necessarily want bridges, they like the authentic arrival feeling of using airstairs / ramps and walking into the terminal on ground level (when they do not get rained on!)
- Local passengers seem to prefer / request air bridges more often
- Airlines generally agreed that air bridges would result in fewer agents required to manage pax on each flight, and pax could be segregated more easily, in addition to obvious benefits of being protected from the elements
    - Improved safety and security
    - Better experience for passengers with disabilities
    - Climate controlled
- United and Delta indicated a growing trend to use of digital boarding passes and check-in procedures. United indicated 94% of their passengers check-in online in advance.
- Residents and visitors must have their documents verified at the counter, unless the airline accepts digital passports / information
- No USA Pre-Clearance Facilities are desired – resounding NO. Studied, too expensive.
- Improve concessions at the departure gate areas

- Common Use Terminal Equipment (CUTE – CUSS and CUPPS systems) require modernization and technological improvements
- CBC is supportive of enhanced digital tools to improve immigration and customs services
- Additional departure gating seating and space is required
- Checked baggage system is not great – and the security machines are SLOW!
    - Modernize and invest in security systems and baggage conveyor system improvements, from check-in to baggage make-up area, and create more redundancy in the system
    - Height of baggage conveyor system behind check-in desks is too high off the ground, leading to employee productive time-lost due to injury / strains and which requires additional support of ground handling employees; the area behind the desks is crowded
    - Some hand searching of bags, with pax present, is still required.
    - Walk through metal detector units and pax screening lanes can be modernized
- Depth of check-in hall is an issue
    - Too narrow
    - Queuing is a challenge for each airline
- Wayfinding signage could improve – too many asking questions of where to go…
- Noisy in terminal… acoustics not great;
    - PA System seems to be very loud in some areas
- Need for 2nd floor pax lounges (airlines, third party lounge providers, etc.)
- Need for additional employee parking
- Staff Room for airline / Ground Handling employees is required

Meeting #12: Cayman Brac Airport Manager, 22nd June 0900

Attendees: CIAA PM, Stantec PM, Cayman Brac APM, Munich International, Chalmers-Gibbs, KPMG

- Review of issues already identified by others on Grand Cayman, APM in agreement generally
- Added option to accommodate 2 Code C (B737 Max 8 types) on apron simultaneously, along with another smaller Code B (Saab 340) in peak hours
    - Minimum 3 to 4 aircraft stands
- Need new Bravo Taxiway, apron to runway – east of apron
- Access road – direct for ARFF onto Runway now ready
- A B737 Max 8 on Stand 1 blocks access on the apron for aircraft moving from Runway 09-27 and Alpha Taxiway.
    - Expand apron towards runway, if able
- Water reservoir to east will be relocated / can be moved off airport

    - Create a new general aviation ramp / hangars if possible (demand)
- A third party has private land to develop and FBO, and is intent on building a new taxiway to the runway to ensure access to the airport
- OLS is penetrated by various objects
    - Tail of B737 if parked too close to runway
    - Trees and power poles on south side of airport
- ATC Tower has a poor line of sight to west end of runway
- ATB terminal departures hold rooms – limited seating (168 only, total – not enough for two B737s)
- AHU units need to be replaced (building systems are reaching / passing life expectancy)
- No offices to lease/ rent; limited space for airlines and ground handling employees
- No staff rooms; not enough space for CBC and CIAA offices
- Requires a new EOC (currently using board room)
- Need a conference room, more office space
- CBC / improved space for immigration and customs officers, secondary screening
- Cargo – limited space, inbound warehouse is located across road
- No Rental Cars at CKIA
- 80,000 annual pax at CKIA in 2019

Meeting #13: CIAA CEO, 23rd June 0800

Attendees: CIAA CEO and ADP PM, Stantec PM, Munich International

- Deloitte reviewed the org chart in 2014, the year Albert started
- Fresh perspective needed, particularly post-pandemic
- Police, not in terminal; planned in-house security/policing
- How is CIAA focussed on revenue development? Org chart should clearly indicate revenue departments / focus
- CIAA organization should reflect the objectives and should clearly delineate between commercial revenues and operations
- The CIAA Board of Directors is appointed by Cabinet (CIG)
- Why would CAA not be responsible for ATC services (CAA is only regulator now)
- 2014 – CIG reviewed option for a private airport operator, and rejected the notion
- CIG / Cabinet approves / limits parking revenue increases
- Review of org chart required (scope to be added to ADP)

Stantec

Meeting Notes

Ministry of Tourism, Rosa Harris

Project/File:	Cayman Islands Airports Master Plan
Date/Time:	July 14, 2022 / 11:00 am
Location:	Department of Tourism Offices, Grand Cayman
Next Meeting:	TBD
Attendees:	Rosa Harris, Ricardo Smith, Roy Williams, Philip Van Manen
Absentees:	none
Distribution:	CIAA, Stantec, DKMA

Safety Moment: Caution when landing at Cayman Brac Airport – bird hazard!

Item	Action
Introductions Introductions were made at 11:05 am	All
Tourism Objectives and Information Sharing - May not be present at the next Steering Committee meeting, but will send an alternate (Gary) - Tourism has completed their own forecasts for tourists visiting the Cayman Islands; Tourism did not allude to details, as info is not available for publication or sharing at this time. - Information on airlines, routes: Cayman Airways may in future, seek additional routes from Grand Cayman, to Austin, TX; Detroit, MI; Cleveland, OH; LAX, CA. - Cayman Airways must improve the utilization of their fleet of B737-Max8 aircraft - Recovery in passenger traffic to pre-pandemic levels will take at least all of 2022 and 2023 (another year away). - Opportunity to extend runway to accommodate the Virgin Atlantic B787 and/or A350 aircraft; (Eurowings considered service from Helsinki, but 14 hours is a long time/flight leg). Review ORIA declared distances and balanced runway length to determine if the B787 and A350 can operated to Europe (i.e.: London, Paris). - CIG (Cayman Islands Government) has reviewed the Tourism Master Plan which includes benchmarks such as number of visitors, over 507,239 in 2019, which **must double by 2035 (over a million annually).** Not all tourists need to be served by luxury hotels. - Long haul air service is required from UK and France, Italy, and Germany. Likely older, larger B777 is not the critical aircraft (the	Tourism provided information relevant to future airport development / planning. Stantec, to review runway balanced field length requirements for the B787 and A350 aircraft (Virgin Atlantic, BA).

Item	Action
more fuel efficient B787 / A350 models are more likely to replace larger wide bodies) - CA could play a significant role to develop Inter-Caribbean air services - Connections to Miami to grow from GCM - Tourism suggests that the CIAA requires a published business development / marketing plan for GCM which includes incentives to the airlines to begin new service or provide additional frequencies. Structured, incentive program to support viable air route development opportunities. - Must battle perceptions that Cayman Islands is an expensive travel destination; more hotels are coming up with lower room rates than luxury hotels. - COPA / leisure tourism opportunities; must enable more transit facilitation at the GCM terminal, which enables more of a hub and spoke system for Cayman Airways (CA). Tourism believes there are good margins to be made on point-to-point routes from GCM. - Tourism believes that CA must improve redundancy factors, and to do so must expand their B737-Max fleet number. They are aware that the 2-type (B737, ATR-42) may be more suitable, but requires appropriate runways. - CA market share is dominated by US airlines; CA has an opportunity to become part of an Alliance (BA – Oneworld) with American. - Tourism suggests that although CA has their own profitable booking website, they must move to allow other travel booking portals to book travel on Cayman Airways, to expand their catchment, although this will reduce their profitability on ticket sales. - Little Cayman Airport – urgency is required – to decide on the airport and future airport operations. They believe a runway is required, but the CIG must take a policy decision on airport development at Little Cayman. The airport must be a safe place for the public, scheduled airlines, and passengers - Cayman Brac – the airport must remain open to US traffic served by B737 aircraft (or similar Code 3C) by both CA and other American airlines must be maintained. Tourism is opposed to limits to aircraft types (i.e.: turboprops only). - American Airlines may consider serving Cayman Brac; aircraft types to be considered (Ft. Lauderdale, Tampa, Miami). - Hotel rooms in Cayman Islands is increasing; in Grand Cayman, an additional 282 rooms will be available by the end of 2024 with the Indigo Hotels development.	Stantec to review aircraft types that could operate to Cayman Brac from Miami or Tampa Bay (i.e.: A220, EMB-195).

Item	Action
Next Steps - CIAA invited Tourism to further discussion at the Steering Committee meeting to be held August 4, 2022, and virtually as required outside of the SC meetings.	CIAA, Tourism to continue discussions at next Steering Committee meeting on August 4, 2022

The meeting adjourned at 12:00 pm.

The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

Regards,

STANTEC CONSULTING LTD.



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Attachment: [Attachment]

Fire Department/ Air Rescue Think Tank

June 17, 2021

ORIA

- No formal long term Master plan in place. However have a Risk Assessment and management plan that spans for 2 to 3 years.
- In the issue of separating Domestic and Aerodrome, they feel it would be more effective if remain as one entity
- Lack of Parking is a serious issue.
- Current Central Fire station is roughly 33 years old, steps to a new fire station should be taken within the next 15 years. Can remain in same location or move south side with the proposed ATC Tower. Station must remain in a central location of the runway to keep within regulations of time limits
- Training ground to the East is a good location, currently not ideal with space.
- Berthing site could move north even if the new location for Fire Station would be in the south.
- Access road to be upgraded
- Drainage plan is needed for around current station

BRAC

- Training ground is up on the Bluff, having closer to actual fair station would be ideal
- To have a berthing at end of runway, a break water wall will be needed. The area almost always have rough seas and strong currents.
- Filling in of Ponds is not a deal breaker.
- Access road right around the runway is needed.
- Parking is also an issue here
- Expansion plans already in play, Expansion to the south to add more bays for firetrucks and equipment and to the west for maintenance and servicing

- Idealy is to purchase land directly north of the fire station to allow a direct access to main road

- Airside fire well need to be updated to current specifications

- Drainage plan for both GC and CB need to be put in place for contaminated water run off from and fire on runway. As is the water would run off into the sound, ocean / ponds or water table and cause an environmental issue. Recommend a system where the water in contained. Include this same plan for the training grounds.

LITTLE

- 3M investment already in play for a new fire station across from current runway

Appendix C Summary of Public Survey Results

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Community Outreach Survey - Future of the Cayman Islands Airports

The Cayman Islands Airports Authority (CIAA) is in the process of planning the long-term, sustainable development of the Cayman Islands' Airports.

We would love to hear your ideas, concerns and suggestions on building a brighter future for Cayman's Airports.

The survey should take about 10 minutes to complete and is completely anonymous.

* Required

Demographic Info

1. Gender *

- ◯ Female
- ◯ Male
- ◯ Non-binary/non-conforming
- ◯ Not listed
- ◯ Prefer not to say

2. Age *

- ◯ Under 18
- ◯ 18 - 24
- ◯ 25 - 34
- ◯ 35 - 44
- ◯ 45 - 54
- ◯ 55 and over
- ◯ Prefer not to say

3. Residency status *

- ◯ Caymanian
- ◯ Permanent Resident
- ◯ Work Permit Holder
- ◯ Visitor
- ◯ None of the above
- ◯ Prefer not to say

4. How many dependents do you have? *

- ◯ None
- ◯ 1 - 2
- ◯ 3 - 4
- ◯ More than 4
- ◯ Prefer not to say

5. Approximate annual household income *

- ◯ Less than CI$25,000
- ◯ Between CI$25,000 - CI$75,000
- ◯ Between CI$75,000 - CI$125,000
- ◯ More than CI$125,000
- ◯ Prefer not to say

6. Where do you currently reside? *

- ◯ The Cayman Islands
- ◯ Asia
- ◯ Africa
- ◯ North America
- ◯ South America
- ◯ Antarctica
- ◯ Europe
- ◯ Australia
- ◯ Caribbean Islands
- ◯ Pacific Islands
- ◯ Prefer not to say
- ◯ [ ]

Other (Please specify)

7. If currently residing in the Cayman Islands, which district do you reside in? *

- ◯ Grand Cayman - Bodden Town
- ◯ Grand Cayman - East End
- ◯ Grand Cayman - George Town
- ◯ Grand Cayman - North Side
- ◯ Grand Cayman - West Bay
- ◯ Little Cayman
- ◯ Cayman Brac
- ◯ N/A – I do not currently reside in the Cayman Islands

8. What is your primary purpose for travel? *

- ◯ Business
- ◯ Leisure
- ◯ Business and leisure equally
- ◯ Other (Please specify)

9. How often do you travel by air? *

- ◯ Daily
- ◯ Weekly
- ◯ Monthly
- ◯ Seasonal
- ◯ Yearly
- ◯ Never
- ◯ Other (Please specify)

10. Do you live within half a mile of any of the Cayman Islands aerodromes/airports? *

- ◯ Yes
- ◯ No

11. If yes, what is your biggest concern in relation to future developments of the aerodromes/airports?

General

12. How important are the following benefits of the Cayman Islands aviation system to you: *

	Not at all important	Low importance	Neutral	Very important	Extremely important
Delivery of essential goods such as food and supplies	○	○	○	○	○
Facilitating travel to/from destinations within the Cayman Islands	○	○	○	○	○
Facilitating travel to/from destinations outside of the Cayman Islands	○	○	○	○	○
Activities supporting small local businesses	○	○	○	○	○
Activities supporting economic development and employment	○	○	○	○	○
Activities supporting tourism business	○	○	○	○	○
Eliminating mosquitos and mosquito larvae	○	○	○	○	○
Provision of Medevac (Medical Evacuation Flights and Patient Transfers)	○	○	○	○	○
Facilitating emergency rescue/ response during/ in the aftermath of a disaster	○	○	○	○	○

13. How do you see demands on the Cayman Islands' aviation system changing over the next 25 years? *

	Decreased demand	Same	Increased demand
Travel to/from destinations within the Cayman Islands	◯	◯	◯
Travel to/from destinations outside of the Cayman Islands	◯	◯	◯
Medevac (Medical Evacuation Flights and Patient Transfers)	◯	◯	◯
Eliminating mosquitos and mosquito larvae	◯	◯	◯
Air cargo deliveries	◯	◯	◯
To support small business	◯	◯	◯
To support economic development and employment	◯	◯	◯
To support tourism and related businesses	◯	◯	◯

14. How important is it to you that airports with scheduled passenger service (ORIA, CKIA, LCB) showcase the Cayman Islands, celebrate local Caymanian culture and are prominent gateways to the Cayman Islands? *

[scale: 1 - not at all important to 5 - extremely important]

1	2	3	4	5
◯	◯	◯	◯	◯

Environmental and Sustainability Considerations

15. How concerned are you about environmental issues related to the future of the Cayman Islands Airports? *

[scale: 1 - not at all concerned to 5 - extremely concerned]

1	2	3	4	5
○	○	○	○	○

16. Which of the following environmental concerns are important to you? *

	Not at all important	Low importance	Neutral	Very important	Extremely important
Wildlife destruction	○	○	○	○	○
Mangrove destruction	○	○	○	○	○
Increased emissions from increased visitors and number of flights	○	○	○	○	○
Increased waste from increased visitors	○	○	○	○	○
Noise pollution	○	○	○	○	○
Light pollution	○	○	○	○	○
Air quality degradation	○	○	○	○	○
Implementation of sustainable design and building practices	○	○	○	○	○

17. Please let us know if you have any additional environmental/sustainability concerns you would like to raise *

Financial Considerations

18. If the Cayman Islands Government (CIG) were to invest in reconfiguration of the existing aviation system, rank the following in order of importance to you: *

From 1 - 6, 1 being the most important, 6 being the least important

Invest in a new airport or aerodrome for Little Cayman

Invest in a heliport or seaplane facility in Little Cayman

Acquire additional land for a new runway strip and to expand the existing Edward Bodden airfield in Little Cayman such that it can meet aerodrome standards

Transfer aerodrome ownership / operations to the private sector

Explore the addition of new scheduled routes or charter air services at select aerodromes

Provision of a marine ferry service to augment aviation transportation between Little Cayman and Cayman Brac

19. If CIG were to invest in business and general aviation, rank the following in order of importance to you: *

From 1 - 4, 1 being the most important, 4 being the least important

Business/general aviation that supports the economy (i.e.: tourism, local businesses)

Business/general aviation that supports communities (i.e.: air cargo / courier services)

Business/general aviation that supports health and safety (i.e.: Medevac, emergency services)

Business/general aviation for private flying and recreational purposes

20. If CIG were to invest in air carrier and passenger related aviation, rank the following in order of importance to you: *

From 1 - 3, 1 being the most important, 3 being the least important

Improvement of air terminal buildings, passenger facilitation and services

Improvement of connectivity with destinations within the Cayman Islands

Improvement of connectivity with destinations outside of the Cayman Islands

21. To reduce the cost associated with the operation of 3 aerodromes/airports, would you support the Cayman Islands Government transferring responsibilities for select aerodrome sites to their primary user organizations? *

- ◯ Yes
- ◯ No

Fees

22. To supplement the CIG investment in the aerodrome/airport facilities, maintenance and operations, would you support an increase to certain aviation fees, and/or the addition of new fees to reflect operational costs more accurately? *

- ◯ Yes
- ◯ No

23. Select all the aviation fees where you would support an increase and/or the addition of a new fee *

- ☐ Aircraft fees (i.e.: aircraft parking fees, landing fees, ground handling agreements, airport terminal equipment use charges, etc.)
- ☐ Passenger fees (i.e.: airport improvement fees, passenger facilitation charges / fees)
- ☐ Commercial charges (i.e.: terminal space rentals, hangar rental, VIP parking and valet service fees (percentage of gross), ground transportation fees, land leases and building rentals)
- ☐ Parking fees (paid to provide value of lands compared to other uses, and future commercial center to offset aeronautical charges)
- ☐ Aviation fuel surcharge (i.e.: percentage / or negotiated surcharge on commercial fuel sold at airports)
- ☐ Commercial concessions & retail fees (i.e. percentage of gross margin, aeronautical and non-aeronautical land leases)
- ☐ None of the above

Category of Respondent

24. Which of the options below most accurately describes your interest in the airports *

- ◯ Passenger
- ◯ Aviation stakeholder (pilots, concession workers, business operators)

Passengers

25. Does your overall experience using the Cayman Islands' aviation system as a passenger meet your expectations? *

- ◯ Yes
- ◯ No

26. Please choose an aerodrome/airport from the drop-down menu below and answer the following questions based on your experiences as an aviation user at that site. *

- ◯ Owen Roberts International Airport, Grand Cayman
- ◯ Charles Kirkconnell International Airport, Cayman Brac
- ◯ Edward Bodden Airfield, Little Cayman

27. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied) *

From 1 - 10, 1 being the most important, 10 being the least important

Wayfinding signage (ground transport to the airports and inside terminals)

Terminal to aircraft connections (i.e. airbridges connecting terminal to aircraft, buses or walkways)

Safety and security

General aesthetics and appearance of terminals/washrooms

Ground transportation services (i.e.: taxis, parking areas, covered access for curbside parking and taxi drop-off, hotel shuttles, car rental facility within the terminal, public transportation such as buses)

Departure lounge areas (seating, availability of charging stations)

Check-in queuing and service options (self-serve and bag drop)

Shopping opportunities (i.e. souvenir gift shop, duty free, book/magazine shop)

Food and beverage services (i.e. restaurant, coffee bar, vending machines)

Entertainment (i.e. viewing areas, televisions, WiFi access, children's play structures)

28. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site. *

- ◯ Owen Roberts International Airport, Grand Cayman
- ◯ Charles Kirkconnell International Airport, Cayman Brac
- ◯ Edward Bodden Airfield, Little Cayman
- ◯ Not applicable

If you have selected "not applicable" please skip ahead to question 45

29. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied) *

From 1 - 10, 1 being the most important, 10 being the least important

Wayfinding signage (ground transport to the airports and inside terminals)

Terminal to aircraft connections (i.e. airbridges connecting terminal to aircraft, buses or walkways

Safety and security

General aesthetics and appearance of terminals/washrooms

Ground transportation services (i.e.: taxis, parking areas, covered access for curbside parking and taxi drop-off, hotel shuttles, car rental facility within the terminal, public transportation such as buses)

Departure lounge areas (seating, availability of charging stations)

Check-in queuing and service options (self-serve and bag drop)

Shopping opportunities (i.e. souvenir gift shop, duty free, book/magazine shop)

Food and beverage services (i.e. restaurant, coffee bar, vending machines)

Entertainment (i.e. viewing areas, televisions, WiFi access, children's play structures)

30. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site. *

- ◯ Owen Roberts International Airport, Grand Cayman
- ◯ Charles Kirkconnell International Airport, Cayman Brac
- ◯ Edward Bodden Airfield, Little Cayman
- ◯ Not applicable

If you have selected "not applicable" please skip ahead to question 45

31. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied) *

From 1 - 10, 1 being the most important, 10 being the least important

Wayfinding signage (ground transport to the airports and inside terminals)

Terminal to aircraft connections (i.e. airbridges connecting terminal to aircraft, buses or walkways

Safety and security

General aesthetics and appearance of terminals/washrooms

Ground transportation services (i.e.: taxis, parking areas, covered access for curbside parking and taxi drop-off, hotel shuttles, car rental facility within the terminal, public transportation such as buses)

Departure lounge areas (seating, availability of charging stations)

Check-in queuing and service options (self-serve and bag drop)

Shopping opportunities (i.e. souvenir gift shop, duty free, book/magazine shop)

Food and beverage services (i.e. restaurant, coffee bar, vending machines)

Entertainment (i.e. viewing areas, televisions, WiFi access, children's play structures)

32. Do you have higher expectations for your overall experience at the Owen Roberts International Airport in Grand Cayman than elsewhere in the Cayman Islands? *

- ◯ Yes
- ◯ No

Aviation stakeholders

33. Please choose an aerodrome/airport from the drop-down menu below and answer the following questions based on your experiences as an aviation user at that site. *

- ◯ Owen Roberts International Airport, Grand Cayman
- ◯ Charles Kirkconnell International Airport, Cayman Brac
- ◯ Edward Bodden Airfield, Little Cayman

34. Does your overall experience using the aerodrome/airport you have selected meet your expectations? *

- ◯ Yes
- ◯ No

35. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied) *

From 1 - 10, 1 being the most important, 10 being the least important

General maintenance

Wayfinding signage, ease of circulation and terminal seating

Safety and security

Airfield pavement surfaces (including gravel)

Lighting

Navigational aids

Communication

Retail options/Food and Beverage services

Access and parking

Land development and leasing

36. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site. *

- ◯ Owen Roberts International Airport, Grand Cayman
- ◯ Charles Kirkconnell International Airport, Cayman Brac
- ◯ Edward Bodden Airfield, Little Cayman
- ◯ Not applicable

If you have selected "not applicable" please skip ahead to question 42

37. Does your overall experience using the aerodrome/airport you have selected meet your expectations? *

- ◯ Yes
- ◯ No

38. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied) *

From 1 - 10, 1 being the most important, 10 being the least important

General maintenance

Wayfinding signage, ease of circulation and terminal seating

Safety and security

Airfield pavement surfaces (including gravel)

Lighting

Navigational aids

Communication

Retail options/Food and Beverage services

Access and parking

Land development and leasing

39. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site. *

- ◯ Owen Roberts International Airport, Grand Cayman
- ◯ Charles Kirkconnell International Airport, Cayman Brac
- ◯ Edward Bodden Airfield, Little Cayman
- ◯ Not applicable

If you have selected "not applicable" please skip ahead to question 42

40. Does your overall experience using the aerodrome/airport you have selected meet your expectations? *

- ◯ Yes
- ◯ No

41. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied) *

From 1 - 10, 1 being the most important, 10 being the least important

General maintenance

Wayfinding signage, ease of circulation and terminal seating

Safety and security

Airfield pavement surfaces (including gravel)

Lighting

Navigational aids

Communication

Retail options/Food and Beverage services

Access and parking

Land development and leasing

42. Do you have higher expectations for your overall experience at the Owen Roberts International Airport in Grand Cayman than elsewhere in Cayman Islands? *

- ◯ Yes
- ◯ No

43. Are there locations in the Cayman Islands where you would like to see a new aerodrome, heliport or seaplane facility? Please specify. *

44. Do you have specific recommendations for improvements to the aviation system? *

Additional comments

45. Please let us know if you have any additional comments/concerns you would like to raise *

Community Outreach Survey - Future of the Cayman Islands Airports

640	35:16	Active
Responses	Average time to complete	Status

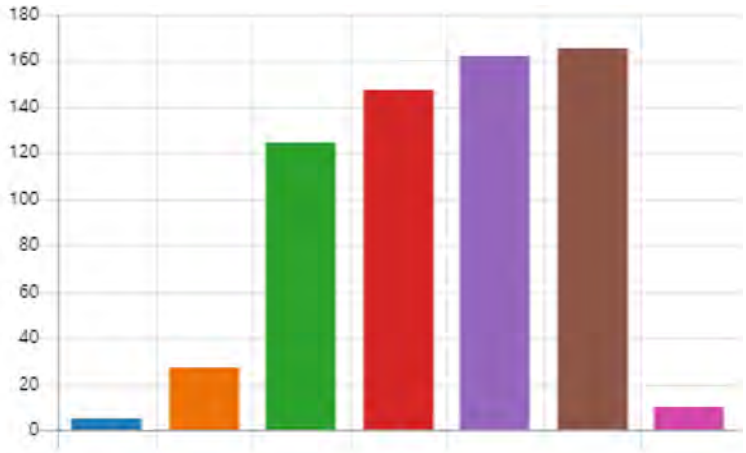
1. Gender

Female	297
Male	332
Non-binary/non-conforming	2
Not listed	0
Prefer not to say	9



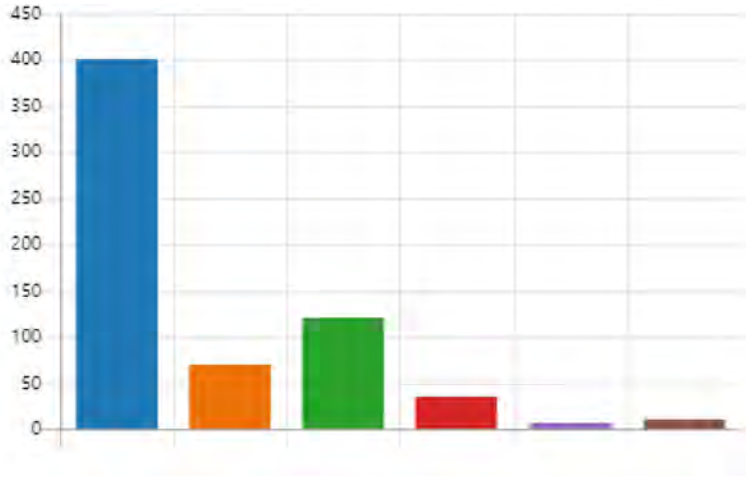
2. Age

Under 18	5
18 - 24	27
25 - 34	124
35 - 44	147
45 - 54	162
55 and over	165
Prefer not to say	10



3. Residency status

Caymanian	401
Permanent Resident	69
Work Permit Holder	120
Visitor	34
None of the above	6
Prefer not to say	10



4. How many dependents do you have?

None	290
1 - 2	251
3 - 4	81
More than 4	9
Prefer not to say	9



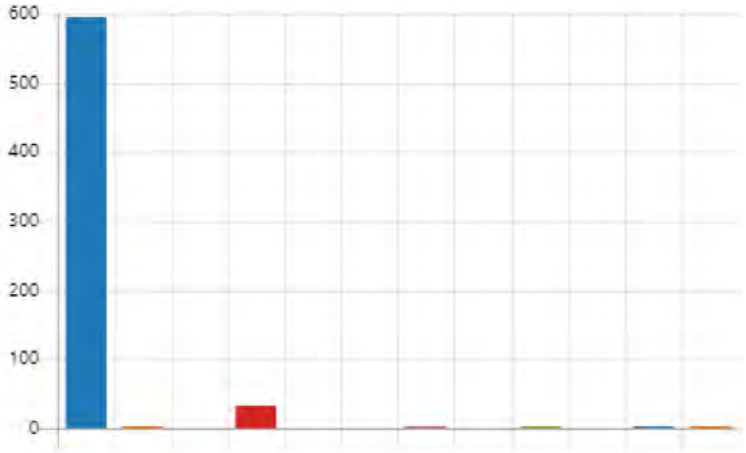
5. Approximate annual household income

Less than CI$25,000	20
Between CI$25,000 - CI$75,000	151
Between CI$75,000 - CI$125,0...	145
More than CI$125,000	241
Prefer not to say	83



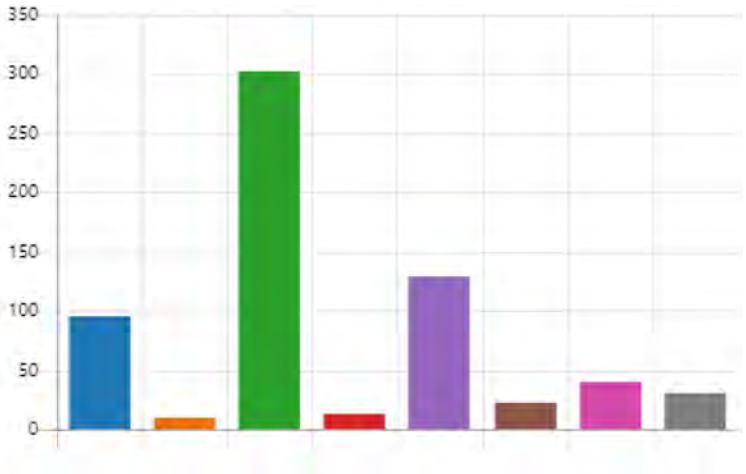
6. Where do you currently reside?

The Cayman Islands	595
Asia	2
Africa	0
North America	32
South America	0
Antarctica	0
Europe	2
Australia	0
Caribbean Islands	4
Pacific Islands	0
Prefer not to say	3
Other	2



7. If currently residing in the Cayman Islands, which district do you reside in?

Grand Cayman - Bodden Town	96
Grand Cayman - East End	10
Grand Cayman - George Town	302
Grand Cayman - North Side	12
Grand Cayman - West Bay	129
Little Cayman	22
Cayman Brac	39
N/A – I do not currently reside...	30



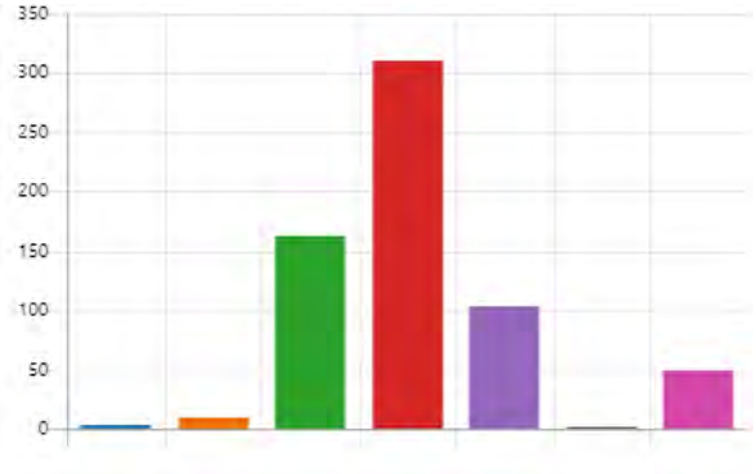
8. What is your primary purpose for travel?

Business	26
Leisure	381
Business and leisure equally	213
Other	20



9. How often do you travel by air?

Daily	3
Weekly	10
Monthly	163
Seasonal	310
Yearly	104
Never	1
Other	49



10. Do you live within half a mile of any of the Cayman Islands aerodromes/airports?

Yes	144
No	496



11. If yes, what is your biggest concern in relation to future developments of the aerodromes/airports?

129

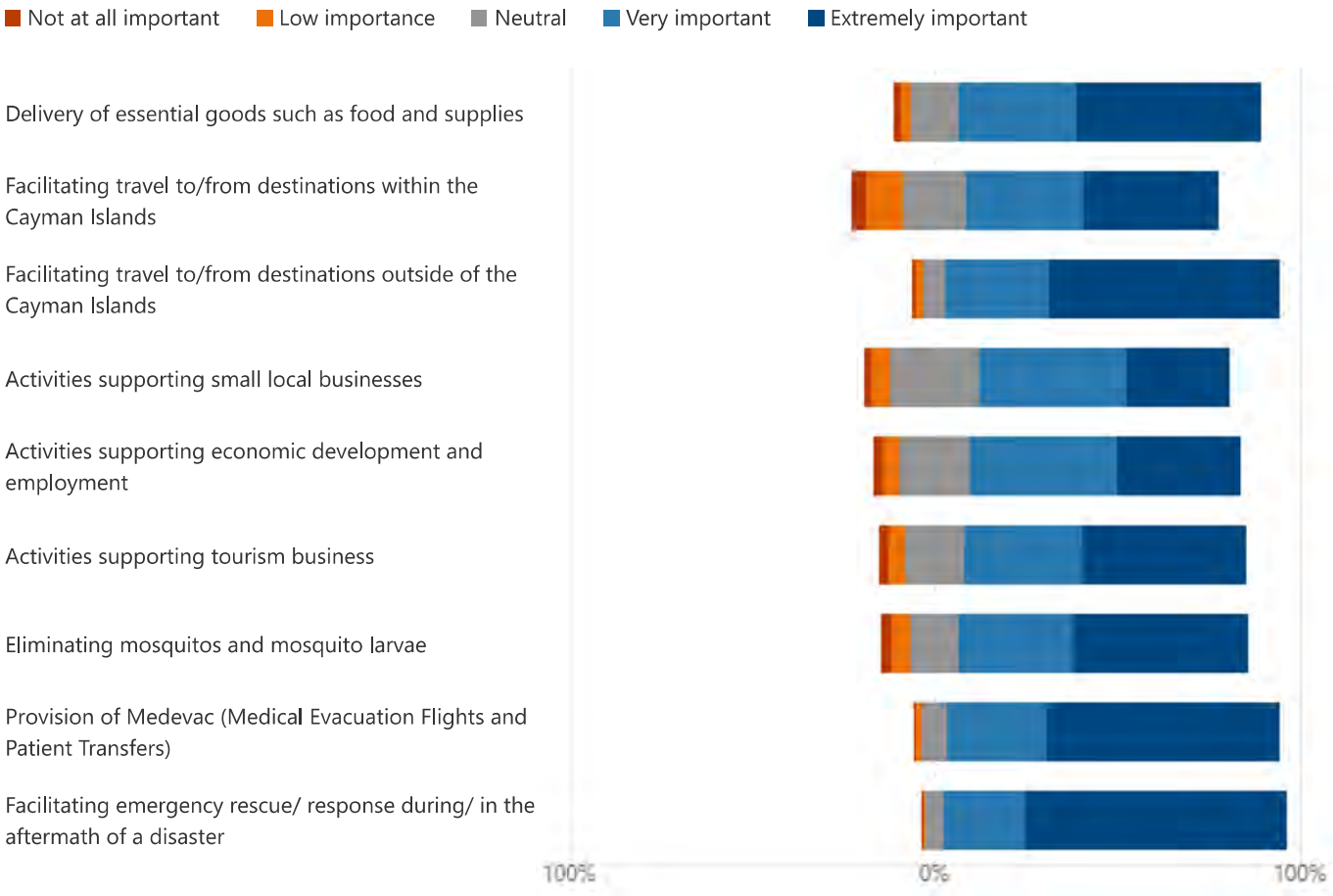
Responses

Latest Responses

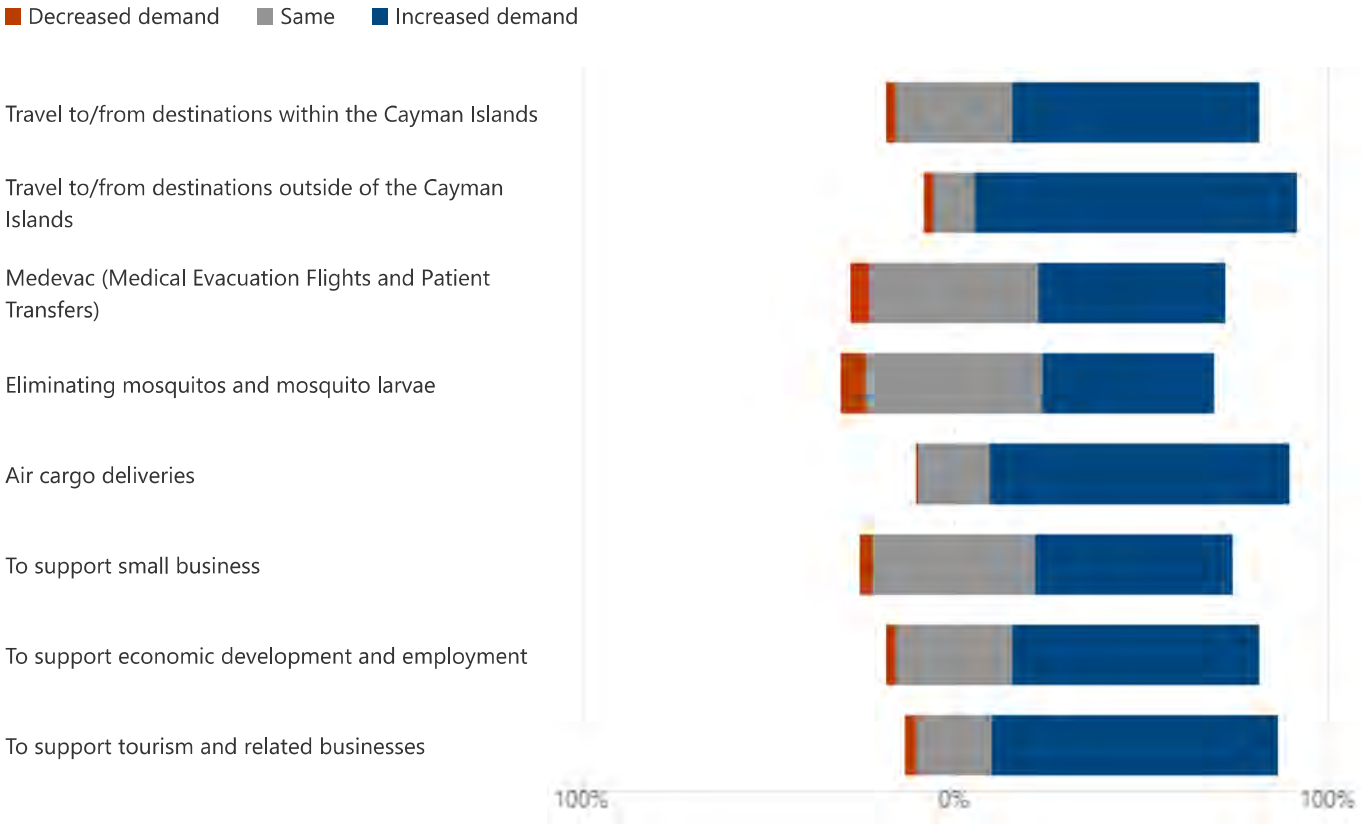
30 respondents (**25**%) answered **Airport** for this question.



12. How important are the following benefits of the Cayman Islands aviation system to you:



13. How do you see demands on the Cayman Islands' aviation system changing over the next 25 years?



14. How important is it to you that airports with scheduled passenger service (ORIA, CKIA, LCB) showcase the Cayman Islands, celebrate local Caymanian culture and are prominent gateways to the Cayman Islands?

640
Responses

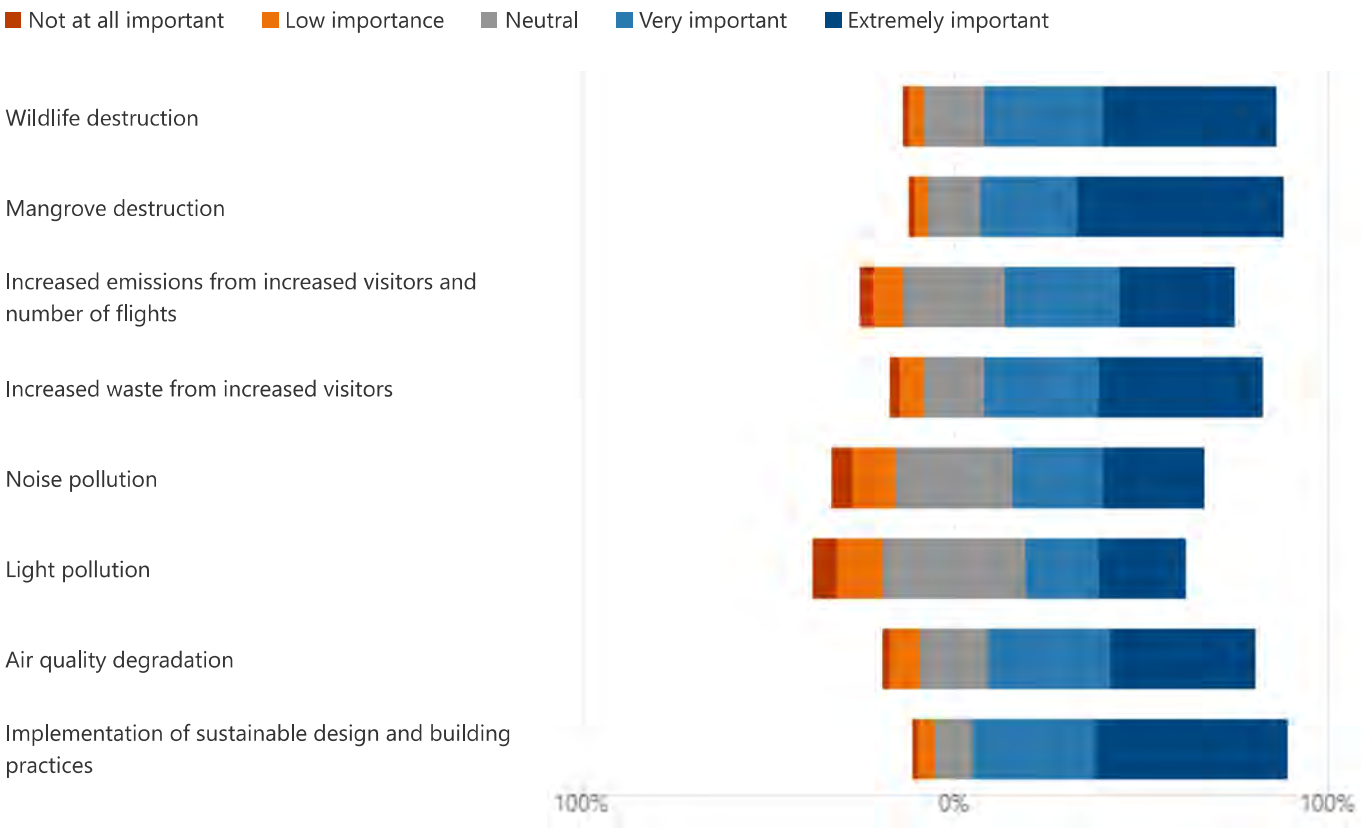
4.05
Average Number

15. How concerned are you about environmental issues related to the future of the Cayman Islands Airports?

640
Responses

4.08
Average Number

16. Which of the following environmental concerns are important to you?



17. Please let us know if you have any additional environmental/sustainability concerns you would like to raise

634
Responses

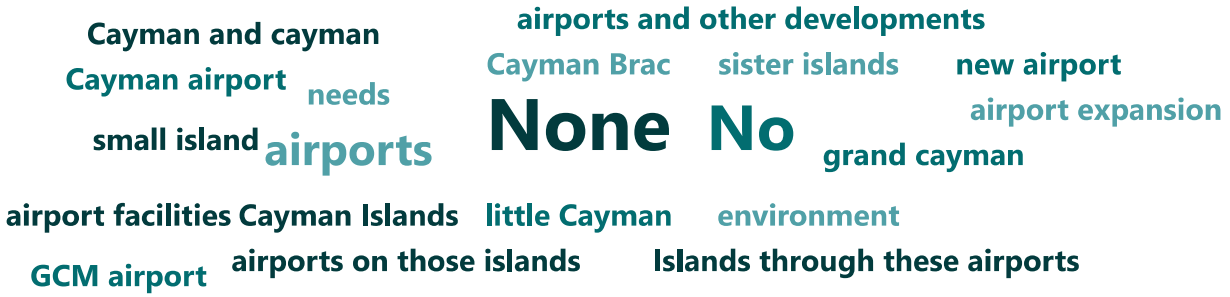
Latest Responses

"Reparations to younger generations for the destruction cause by the g...

"N/A"

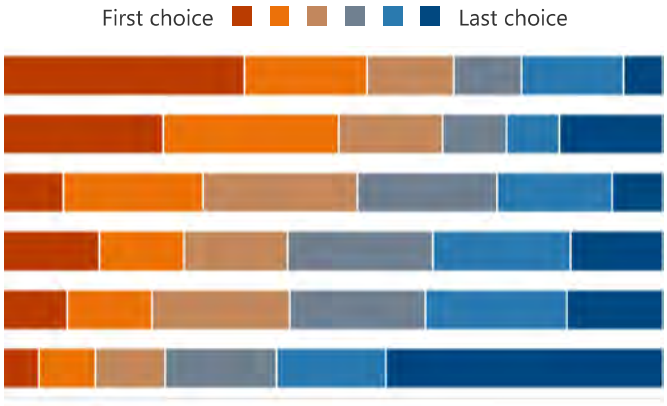
"N/A"

117 respondents (**19**%) answered **None** for this question.



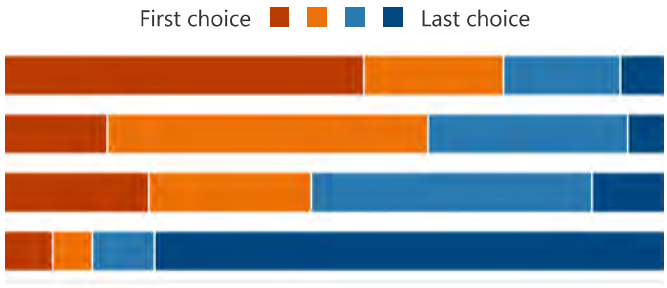
18. If the Cayman Islands Government (CIG) were to invest in reconfiguration of the existing aviation system, rank the following in order of importance to you:

Rank	Options
1	Explore the addition of new sc...
2	Provision of a marine ferry ser...
3	Invest in a heliport or seaplan...
4	Invest in a new airport or aero...
5	Acquire additional land for a n...
6	Transfer aerodrome ownershi...



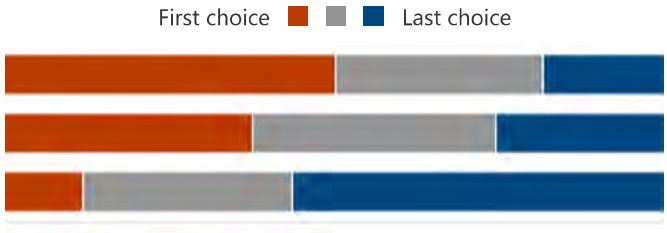
19. If CIG were to invest in business and general aviation, rank the following in order of importance to you:

Rank	Options
1	Business/general aviation that...
2	Business/general aviation that...
3	Business/general aviation that...
4	Business/general aviation for ...



20. If CIG were to invest in air carrier and passenger related aviation, rank the following in order of importance to you:

Rank	Options
1	Improvement of air terminal b...
2	Improvement of connectivity ...
3	Improvement of connectivity ...



21. To reduce the cost associated with the operation of 3 aerodromes/airports, would you support the Cayman Islands Government transferring responsibilities for select aerodrome sites to their primary user organizations?

Yes	337
No	303



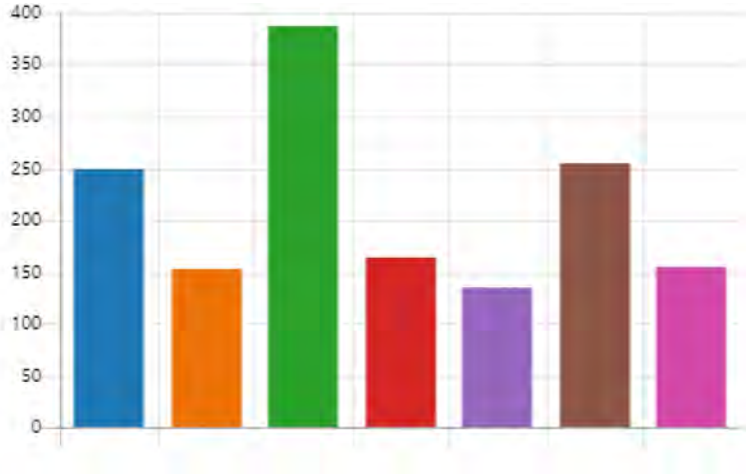
22. To supplement the CIG investment in the aerodrome/airport facilities, maintenance and operations, would you support an increase to certain aviation fees, and/or the addition of new fees to reflect operational costs more accurately?

Yes	319
No	321



23. Select all the aviation fees where you would support an increase and/or the addition of a new fee

Aircraft fees (i.e.: aircraft parki...	250
Passenger fees (i.e.: airport im...	153
Commercial charges (i.e.: term...	388
Parking fees (paid to provide v...	164
Aviation fuel surcharge (i.e.: p...	135
Commercial concessions & ret...	255
None of the above	154



24. Which of the options below most accurately describes your interest in the airports

Passenger	583
Aviation stakeholder (pilots, c...	57



25. Does your overall experience using the Cayman Islands' aviation system as a passenger meet your expectations?

Yes	392
No	191



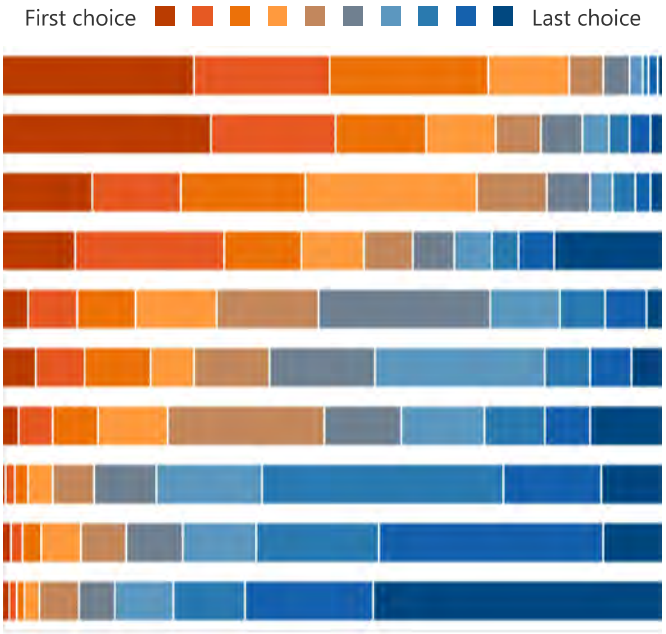
26. Please choose an aerodrome/airport from the drop-down menu below and answer the following questions based on your experiences as an aviation user at that site.

Owen Roberts International Ai...	504
Charles Kirkconnell Internatio...	39
Edward Bodden Airfield, Little ...	40



27. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied)

Rank	Options
1	Safety and security
2	Wayfinding signage (ground t...
3	General aesthetics and appear...
4	Terminal to aircraft connection...
5	Departure lounge areas (seati...
6	Check-in queuing and service ...
7	Ground transportation service...
8	Shopping opportunities (i.e. s...
9	Food and beverage services (i....
10	Entertainment (i.e. viewing are...



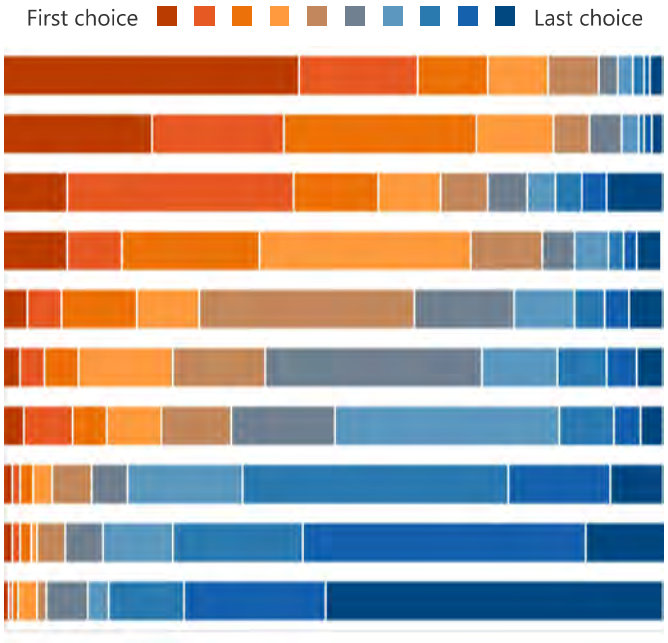
28. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site.

Owen Roberts International Ai...	95
Charles Kirkconnell Internatio...	103
Edward Bodden Airfield, Little ...	36
Not applicable	349



29. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied)

Rank	Options
1	Wayfinding signage (ground t...
2	Safety and security
3	Terminal to aircraft connection...
4	General aesthetics and appear...
5	Ground transportation service...
6	Departure lounge areas (seati...
7	Check-in queuing and service ...
8	Shopping opportunities (i.e. s...
9	Food and beverage services (i....
10	Entertainment (i.e. viewing are...



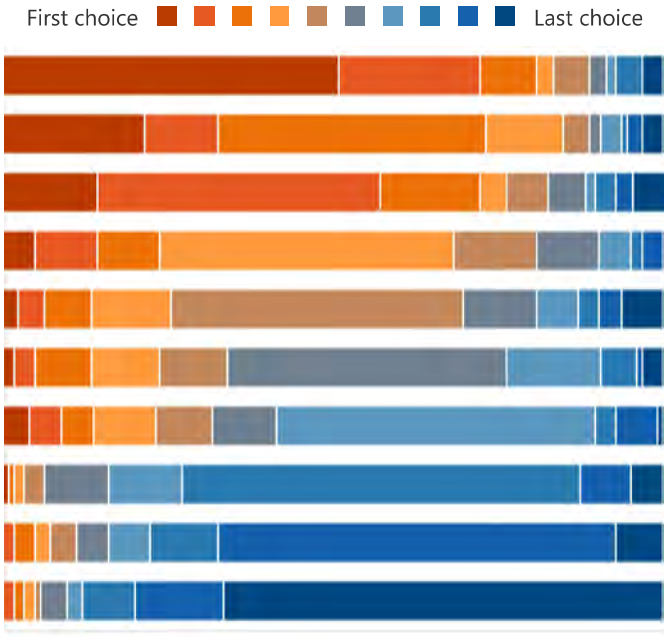
30. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site.

Owen Roberts International Ai...	47
Charles Kirkconnell Internatio...	27
Edward Bodden Airfield, Little ...	52
Not applicable	108



31. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied)

Rank	Options
1	Wayfinding signage (ground t...
2	Safety and security
3	Terminal to aircraft connection...
4	General aesthetics and appear...
5	Ground transportation service...
6	Departure lounge areas (seati...
7	Check-in queuing and service ...
8	Shopping opportunities (i.e. s...
9	Food and beverage services (i....
10	Entertainment (i.e. viewing are...



32. Do you have higher expectations for your overall experience at the Owen Roberts International Airport in Grand Cayman than elsewhere in the Cayman Islands?

Yes	487
No	96



33. Please choose an aerodrome/airport from the drop-down menu below and answer the following questions based on your experiences as an aviation user at that site.

Owen Roberts International Ai...	48
Charles Kirkconnell Internatio...	5
Edward Bodden Airfield, Little ...	4



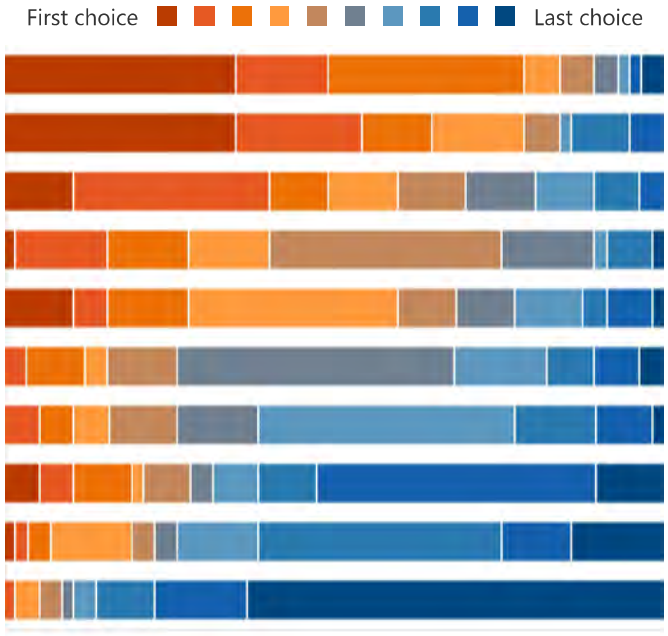
34. Does your overall experience using the aerodrome/airport you have selected meet your expectations?

Yes	30
No	27



35. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied)

Rank	Options
1	Safety and security
2	General maintenance
3	Wayfinding signage, ease of ci...
4	Lighting
5	Airfield pavement surfaces (in...
6	Navigational aids
7	Communication
8	Access and parking
9	Retail options/Food and Bever...
10	Land development and leasing



36. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site.

Owen Roberts International Ai...	12
Charles Kirkconnell Internatio...	9
Edward Bodden Airfield, Little ...	7
Not applicable	29



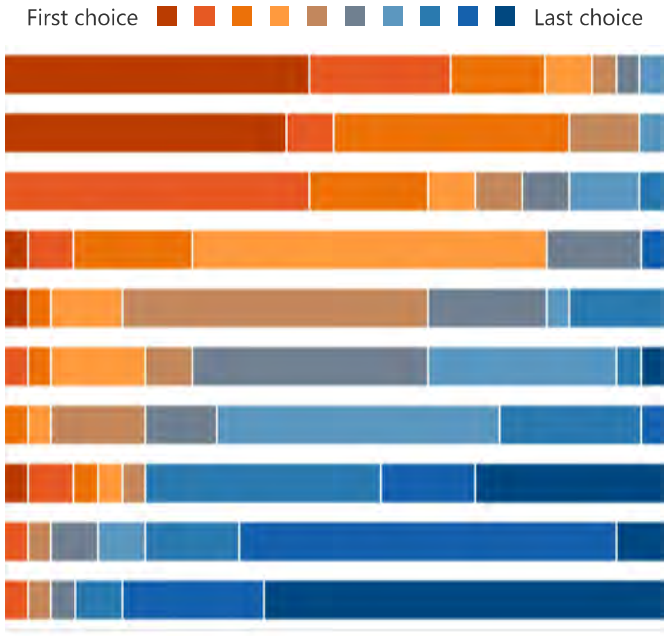
37. Does your overall experience using the aerodrome/airport you have selected meet your expectations?

Yes	17
No	11



38. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied)

Rank	Options
1	General maintenance
2	Safety and security
3	Wayfinding signage, ease of ci...
4	Airfield pavement surfaces (in...
5	Lighting
6	Navigational aids
7	Communication
8	Retail options/Food and Bever...
9	Access and parking
10	Land development and leasing



39. If applicable, please choose an additional aerodrome/airport from the drop-down menu below and answer the questions based on your experiences as an aviation user at that site.

Owen Roberts International Ai...	6
Charles Kirkconnell Internatio...	4
Edward Bodden Airfield, Little ...	8
Not applicable	10



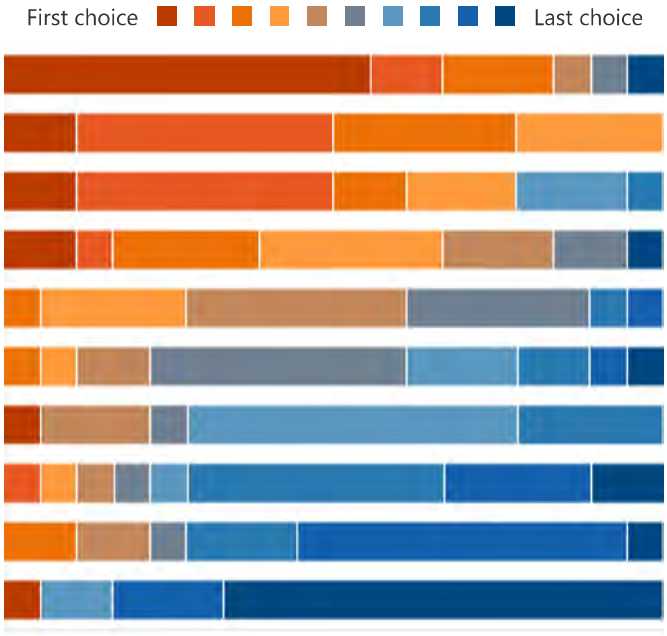
40. Does your overall experience using the aerodrome/airport you have selected meet your expectations?

Yes	9
No	9



41. For your selected aerodrome/airport, please rank the below in order of your satisfaction from highest (most satisfied) to lowest (least satisfied)

Rank	Options
1	General maintenance
2	Safety and security
3	Wayfinding signage, ease of ci...
4	Airfield pavement surfaces (in...
5	Lighting
6	Navigational aids
7	Communication
8	Retail options/Food and Bever...
9	Access and parking
10	Land development and leasing



42. Do you have higher expectations for your overall experience at the Owen Roberts International Airport in Grand Cayman than elsewhere in Cayman Islands?

Yes	49
No	8



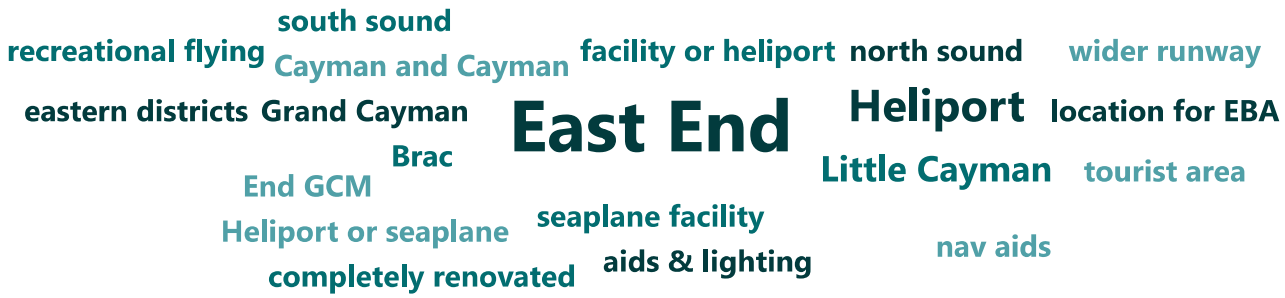
43. Are there locations in the Cayman Islands where you would like to see a new aerodrome, heliport or seaplane facility? Please specify.

57

Responses

Latest Responses

8 respondents (**15**%) answered **East End** for this question.



44. Do you have specific recommendations for improvements to the aviation system?

57

Responses

Latest Responses

7 respondents (**13**%) answered **runway** for this question.



45. Please let us know if you have any additional comments/concerns you would like to raise

636

Responses

Latest Responses

"*None*"

"*N/a*"

"*N/A*"

43 respondents (**7**%) answered **Little Cayman** for this question.



CIAA
Cayman Islands Airports Authority







WE WANT TO HEAR FROM YOU!

Be a part of the Cayman Islands' Airports future development!

The Cayman Islands Airports Authority (CIAA) is in the process of planning the long-term, sustainable development of Owen Roberts International Airport on Grand Cayman, Charles Kirkconnell International Airport on Cayman Brac and Edward Bodden Airfield on Little Cayman.

We will be hosting Community Outreach sessions on each on the three Islands to ensure that everyone's voice is heard. We would love to hear your ideas, concerns and suggestions on building a brighter future for Cayman's Airports.

The future of Cayman's Airports is on the horizon!

Please join us at one of the following sessions between 5:30 p.m. and 7:30 p.m.

- **Monday, 11 July at the Aston Rutty Centre, Cayman Brac**
- **Tuesday, 12 July at the Little Cayman Beach Resort, Little Cayman**
- **Wednesday, 13 July at the John Gray High School Hall, Grand Cayman**

All are welcome to attend! Refreshments will be provided.

The sessions will also be streamed on Facebook Live and posted on the CIAA Facebook page.

We also invite you to complete the Community Outreach Survey at **https://forms.office.com/r/fCWSTWD5DK** and have your say on the future of each Island's airport infrastructure. The survey will be open for 30 days.



CIAA
Cayman Islands Airports Authority

The future of Caymans' Airports is on the horizon!

Your voice has been heard on building a brighter future for Caymans' Airports!

The Cayman Islands Airports Authority (CIAA) is in the process of finalising the long-term, sustainable development of Owen Roberts International Airport on Grand Cayman, Charles Kirkconnell International Airport on Cayman Brac and Edward Bodden Airfield on Little Cayman with our Vision of delivering an excellent airport experience for our guests.

We invite the Public to join us once again at the next series of Community Outreach Sessions from **31 October – 2 November 2022** on each of the three islands where we will share with you the findings of the Community Outreach Survey, conducted in July 2022, and our innovative approaches to the future airport development for Grand Cayman, Cayman Brac and Little Cayman.

Please join the CIAA at one of the following sessions between **5:30 p.m. and 7:30 p.m.**:

- **Monday, 31 October** at the Little Cayman Beach Resort, Little Cayman
- **Tuesday, 1 November** at the Aston Rutty Centre, Cayman Brac
- **Wednesday, 2 November** at the John Gray High School Hall (old George Hicks site), Grand Cayman

All are welcome to attend! Refreshments will be provided.

Presentation coverage of the Community Outreach Sessions will be livestreamed on the CIAA's official Facebook page.

Be a part of the Cayman Islands' Airports future development!

Title: "What We Heard" Summary
Date: 22 August 2022

Community Outreach Sessions

Community outreach sessions were held on each of the three islands to give the public opportunities for their voices to be heard. The hosts were representatives from CIAA, Stantec, KPMG and Chalmers Gibbs.

The sessions were held between 5:30pm – 7:30pm as follows:

- Monday, 11 July at the Aston Rutty Centre, Cayman Brac (c.35 people attended)
- Tuesday, 12 July at the Little Cayman Beach Resort, Little Cayman (c.10 people attended)
- Wednesday 13, July at the John Gray High School Hall, Grand Cayman (c.28 people attended)

A brief outline of the project was presented and then the meeting was opened to attendees to express their ideas, concerns and suggestions and to ask any questions they may have. The sessions were streamed live on Facebook and the videos subsequently saved to the Cayman Islands Airports Authority's ("CIAA") Facebook page. Below is a summary of the key themes that were discussed during each session.

Cayman Brac – Key Themes

Communication

Community members wanted more public outreach sessions to be held and for information to be communicated to the public throughout the course of the project.

At first the attendees were under the impression the previous Airport Master Plan 2032 (July 2014) was being discussed and brought up specific issues with respect to the previous plan, which was later clarified. Furthermore, the public did not understand the purpose of master plans if they were going to be renewed every few years without action (although, it was pointed out that the points from the previous action plan had largely been put into practice at Owen Roberts International Airport ("ORIA")). There were questions around whether the outreach session would have any impact and if the old plan was going to be scrapped.

What does not appear to be clear to the public is the purpose of the development plan. The CIAA should consider communicating what is motivating the project and why certain aspects of the airports are being considered (e.g., although currently classified as an International Airport, the Charles Kirkconnell International Airport is not currently meeting the requirements for this classification and the exemption under which it is operating is not guaranteed to apply indefinitely).

Environmental

Many attendees voiced concerns about the impact of any proposed developments on the Westerly Ponds. Further, it was discussed that much of the tourism in Cayman Brac is nature tourism (including birding); therefore, this relies on birdlife that may be threatened by potential developments.

Two community members emphasized the importance of performing an Environmental Impact Assessment in advance of performing any work.

Demand/need for development

There was a general sentiment that the airport was working as is and did not require any changes, with multiple community members quoting the international status of the airport as a basis for standards being met. As mentioned above, it is not widely known that the current airport is, in fact, not meeting regulations (e.g. runway length). Some attendees questioned whether increased growth was predicted. It was also noted that there was no official development plan or zoning in Cayman Brac and that development planning should be considered.

Land ownership concerns

Community members had questions around the impact of any developments to landowners. This included whether there is a possibility that land may be confiscated for potential development, as well as what rights and responsibilities landowners have. For example, who would be responsible for maintaining land if the boundaries of the airport were extended (with reference to height restrictions for trees and other objects).

Little Cayman – Key Themes

Communication

There was a general feeling among the attendees that they would like to be included in the project, for example whether there would be an opportunity for a spokesperson from Little Cayman to be involved. The community members felt that Little Cayman was sometimes excluded from the decision-making process and that decisions were handed down to them. Attendees felt it was important to them to be included in the solution. Although it was recognized they hold little voting power in contrast to Cayman Brac and Grand Cayman.

Some attendees talked about previous plans that had been initiated and then abandoned, such as a new site for the airstrip, and that there had not been satisfactory communication about the plan or why it had changed.

The need for any developments/changes is not apparent to community members. There should be communication regarding the reasons for considering upgrades to/development of the airstrip, for example around the importance of compliance with standards or regulations.

Demand/need for development

Attendees expressed their satisfaction with the current airstrip. Generally, there was a feeling that the current arrangement meets the current demand. They acknowledged there were issues but didn't feel there was a need to develop it much further. The attendees had questions around the methodology used to predict future growth. It was noted that the language implied there would either be development, or the use of the airstrip would be discontinued. There was a concern around infrastructure being used to drive development.

Community members voiced concerns that Little Cayman could not support increased demand. For example, the dive sites are under pressure at the current capacity and would be overwhelmed if numbers increased.

Albeit, discussions after the main outreach session concluded, identified that some residents do recognize the need for change and that infrastructure improvements and other development is required on the island. However, there is a fine balance between the required upgrades and over-development.

Environmental

Attendees noted that tourism is largely driven by diving, and that Little Cayman has some of the best dive sites in the world. However, an increase in visitors would negatively impact that, with the reef's capacity for divers being finite.

It was expressed that whatever course of action is decided for Little Cayman, the eradication/lethal control of birds or destruction of their habitat would be objectionable. Furthermore, whatever the environmental impact of the plan, there should be offsets (e.g., other areas on island set aside and protected, rehabilitation of the current airstrip if it is no longer in use, etc.).

Other suggestions/considerations

Consider using Cayman Brac as a base/distribution center for travel to Little Cayman and have a ferry service between the two. This could also be expanded to allow private boats to be used as water taxis, sharing economic benefit with the locals.

Other options considered would need to be run in conjunction with the current airstrip in case of emergencies where fast reliable access to Grand Cayman is needed (disaster relief and evacuation before and after hurricanes, diving accidents) – i.e. do not completely demolish the airstrip if it is decided to proceed with alternatives.

The re-privatization of the airstrip was suggested and supported by several people, with the previous service that was offered by Island Air generally being well regarded.

One resident suggested that Little Cayman could be accessed primarily by helicopter from Brac (with the helicopter stationed in the Brac) with Little Cayman also being accessible from Grand Cayman via helicopter. It was suggested that this would increase the allure/exclusivity of the island (for high-net-worth tourists especially) while maintaining the island's charm. Additionally, the helicopter could be leased to the local resorts to transport private parties to/from Grand Cayman or Cayman Brac.

There is an option for any necessary work to be conducted during the annual 2 month shut down (when 3 out of the 4 resorts on island close).

The question was raised as to whether someone could contact the current airstrip landowners to consider buying the land. A question was also raised as to whether there is a plan for a domestic arrivals' terminal at ORIA.

Grand Cayman - Key Themes

Communication

There were questions around the old master plan – what has been achieved, what has yet to be carried out and what will be carried into the new plan. One community member expressed distrust of the process and whether the public outreach would have an impact. An increase in communication with the public throughout the course of the project would serve to alleviate some concerns.

Development

The attendees had questions around the impact to local businesses. These included whether population and tourism growth were being considered, especially in relation to businesses in the area of ORIA. Community members wanted to know whether the current footprint would accommodate current demand/future development and if not, which land would be targeted? Is

the CIAA considering moving the airport on Grand Cayman? An attendee expressed that expansion towards the North Side and mangroves should not be considered a priority.

A question was asked about the decision-making process – which methods, assumptions, thresholds and impacts would be considered and how would these be incorporated into the master plan. Further, how would environmental factors be weighed against other factors (e.g. value for money, operational, etc.).

Concerns were raised around a loss of 'sense of place' because of the recent upgrades to ORIA and whether an attempt would be made to restore the lost charm of the airport. Consideration for local culture and character was discussed in contrast to the current fast-food chains, for example.

Attendees were interested in what improvements would be considered – for example automation such as kiosks, pre-clearance for the United States or Canada, efficiency, use of underutilized space. Questions arose around mitigating the impact of increased traffic. Concerns were also raised in relation to how the infrastructure on the land side (e.g., parking, traffic congestion) would support increased air traffic.

Technical

Questions were asked about air navigation facilities and if improvements would be made to these. It was noted that there is a possibility of using radar facilities that are available but would need to be implemented. It was expressed that currently the closest alternative runway is more than 200 miles away should airplanes be unable to land at ORIA due to, for example, poor visibility or inclement weather. It was suggested that Cayman Brac should be considered as an alternative in these cases.

Discussions took place around the general aviation facility. An attendee noted airplanes are being turned away, there is insufficient aircraft parking, and a parallel taxiway is needed.

Community members wanted to know if consideration was being given to alternative fuels, and whether accommodating hydrogen and electric powered planes have been considered.

Little Cayman

Attendees asked whether consideration had been given to privatizing the Little Cayman airstrip and noted that they felt it worked well previously. A community member also noted that money was currently being lost on the Edward Bodden Airfield and that, while it was understood that residents of Little Cayman wanted it to remain as it currently is, they felt it should be upgraded to ensure emergency evacuation is possible at any time of day (e.g., lights, standards). People living there are at risk, and tourists are there too.

Environmental

Ecological and environmental concerns were discussed. It was noted that if the Brac ponds are lost there would not be any habitat left. Previous development caused destruction of habitat that has not been mitigated, rehabilitated, or compensated for.

There were also questions around what was being done to combat rising sea levels, and whether air quality control was being considered, especially for those in the current approaching flight path.

Community Outreach Survey - Themes

A survey was launched on 6 July 2022 in order to invite the public to have their say on the future of each Island's airport infrastructure. The survey remained open for 30 days (closed 7 August 2022).

For the full results of the survey refer to "Appendix 2 - summary of survey results". Refer below for a high-level overview of the open-ended questions and answers.

Do you live within half a mile of any of the Cayman Islands aerodromes/airports? If yes, what is your biggest concern in relation to future developments of the aerodromes/airports?

Grand Cayman

The environmental impacts are a significant area of concern, including climate change, pollution, destruction of the environment, including mangroves, natural habitats and animals. Noise pollution is also a strong theme. Other concerns related to traffic, private property and safety. Some respondents expressed an interest in improvements, for example, to the design of the airports, safety, increased runways (to facilitate larger planes and therefore more direct European flights) and other upgrades.

Cayman Brac

The majority of concerns were environmental, including the wetlands, birds, natural habitats and pollution. Respondents noted that they do not want to see any destruction of the environment caused by expansion, which some believe to be unnecessary. Noise pollution is also a common concern. Also mentioned were concerns around private property and traffic.

Little Cayman

A significant majority of respondents voiced the sentiment that they are against any expansion and feel it is unnecessary. Other areas of concern were the environment, noise pollution and the safety of the airstrip.

Please let us know if you have any additional environmental/sustainability concerns you would like to raise

When considering the environment, the most frequently mentioned area of concern is perceived unnecessary over-development. There are comments around the Islands losing their charm, a loss of Cayman Islands identity and most often whether the Islands can sustain an increase in tourism and development.

Other top environmental concerns were wildlife, the wetlands and birds. Respondents are very concerned about destruction of the wetlands, loss of natural habitats and the impact on birds, the mangroves, the Rock Iguanas and other wildlife. Many respondents noted that the flora and fauna are an important part of what attracts people (tourists and locals) to the Cayman Islands, the Sister Islands in particular, and that it would be counterproductive to destroy these for the purposes of growth and development.

Another key area of concern is sustainability and waste. This includes an emphasis on the importance of ingraining sustainability in the plan, for example sustainable building practices, as well as incorporating it into the airports processes – such as recycling facilities, goods and services and limiting plastics.

Other frequently mentioned areas include energy (specifically the use of solar power), the importance of balancing environmental concerns with growth and safety issues, and pollution.

Aviation stakeholder recommendations

Respondents who identified as aviation stakeholders as opposed to passengers were asked two additional questions:

Are there locations in the Cayman Islands where you would like to see a new aerodrome, heliport or seaplane facility? Please specify.

Responses were varied but included enthusiasm for seaplane facilities and heliports. Locations suggested were Bodden Town, East End, North Sound or South Sound in Grand Cayman as well as Little Cayman and Cayman Brac. There was also a recommendation for a longer and wider runway in Little Cayman with modern navigation aids and lighting.

Do you have specific recommendations for improvements to the aviation system?

Recommendations were made with regard to long term planning for demand, the importance of jetways (or some form of shelter from the elements during boarding and disembarkation), improvements to facilities including concession, parking and departure areas, and enhancements to general aviation offerings.

Do you have any additional comments/concerns you would like to raise?

Jetways and/or other methods of keeping passengers from getting wet/sunburnt were mentioned explicitly by many respondents. Other key areas of dissatisfaction overwhelmingly related to the entertainment, food and beverage (specifically the lack of bars), and shopping opportunities currently available – with some respondents noting that the current offering does not align with Cayman's push to be recognized as a "luxury' destination (while expecting tourists to pay a "luxury" price).

Many feel the previous airport upgrade made the airport worse, with the airport losing its charm, costing a significant amount, while still not providing covers/jetways or adequate entertainment/restaurant/bar/shopping options.

Respondents have noted that the overall feel of the airport in below expectations and they would like to see things such as: local cuisine options (as opposed to fast food outlets), local art displayed in the airport, local music playing for arrivals and departures, and "island" decorations throughout and the airport.

Appendix D Full Size Existing Airport Layout Plan, ORIA

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FACILITY # / FACILITY DESCRIPTION	
No.	DESCRIPTION
1	PROPOSED LANDSIDE COMMERCIAL
2	AIRPORT CHILDREN'S PARK
3	MOSQUITO RESERCH HANGAR / FACILITIES
4	AIRPORT POST OFFICE
5	CAYMAN ISLANDS AGRICULTURAL INSPECTION
6	CICBC OFFICES / CARGO WEARHOUSE
7	CAYMAN AIRWAYS HANGAR
8	GENERAL AVIATION TERMINAL
9	ISLAND AIR HANGAR
10	ATC TOWER / BEACON HOUSE
11	FIRE STATION
12	AIRPORT MAINTENANCE & OPERATIONS
13	SECURITY CHECKPOINT #1

FACILITY # / FACILITY DESCRIPTION	
No.	DESCRIPTION
14	COMMERCIAL TERMINAL APRON
15	AIR TERMINAL BUILDING
16	LANDSIDE, SURFACE PARKING
17	ACE / ANDY'S RENT A CAR
18	FIRE TRAINING CENTER
19	GUN CLUB
20	FIRE BOAT DOCK / LAUNCH

TRUE NORTH

MAGNETIC NORTH

2022

MAGNETIC VARIATION 5.53° WEST
ANNUAL RATE OF CHANGE:
0.12° WEST PER YEAR

DECLARED DISTANCES				
EXISTING RUNWAY				
RUNWAY	TORA	TODA	ASDA	LDA
08	7,463ft (2,275m)	8,362ft (2,549m)	7,463ft (2,275m)	6,594ft (2,010m)
26	7,001ft (2,134m)	7,493ft (2,284m)	7,001ft (2,134m)	6,594ft (2,010m)

LEGEND:

ITEM	EXISTING
AIRPORT PROPERTY LINE	
LAND ACQUISITION	N/A
ASPHALT PAVEMENT	
CONCRETE PAVEMENT	
BUILDING	

7493'
RWY 26 TODA [2283.9m]
7001'
RWY 26 TORA, ASDA [2133.9m]

CLEARWAY
899'x492'
(274mx150m)

TWY G

RESA
295'x295'
(90mx90m)

PROPERTY LINE

GAT APRON

TWY E

TWY F

TWY C

TWY D

RUNWAY 08-26

7867'x148' (2398mx45m) - ASPHALT

RUNWAY STRIP 8261'x492' (2518mx150m)

CLEARWAY
492' x 492'
(150m x 150m)

RESA
666' x 295'
(203m x 90m)

6596'
RWY 08-26 LDA [2010.4m]
7464'
RWY 08 TORA, ASDA [2275.0m]
8363'
RWY 08 TODA [2549.0m]

ORIGINAL SHEET - ANSI D

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www.stantec.com

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Legend

Notes

Revision	By	Appd.	YY.MM.DD
THIRD SUBMISSION	AM	PVM	23.09.21
SECOND SUBMISSION	AM	PVM	23.06.26
FIRST SUBMISSION	AM	PVM	23.01.13

File Name: 12760892663_grand_cayman_sp_Landside - Existing Conditions.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	LMC	PVM	AM	23.01.13

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

GRAND CAYMAN, OWEN ROBERTS INTERNATIONAL AIRPORT - GRAND CAYMAN, ORIA - EXISTING

Project No. 12760892663

Scale 1:5000 (0, 50, 150, 250m)

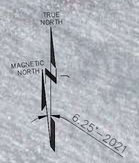
Drawing No. SP-0

Sheet 0 of 6

Appendix E Full Size Existing Airport Layout Plan, CKIA

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BUILDING INDEX	
No.	DESCRIPTION
1	AIRPORT MAINTENANCE
2	RESCUE FIRE FIGHTING SERVICES
3	PASSENGER TERMINAL
4	AVIATION FUEL TANK
5	WATER AUTHORITY / WATER TANKS
6	PONDS



MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

DECLARED DISTANCES					
EXISTING RUNWAY					
RUNWAY	TORA	TODA	ASDA	LDA	
09	6000ft (1,829m)	6,492ft (1,979m)	6000ft (1,829m)	6000ft (1,829m)	
27	6000ft (1,829m)	6,492ft (1,979m)	6000ft (1,829m)	6000ft (1,829m)	

LEGEND:

ITEM	EXISTING
AIRPORT PROPERTY LINE	
LAND ACQUISITION	N/A
ASPHALT PAVMENT	
CONCRETE PAVEMENT	
BUILDING	

CLEAR WAY
492'x492'
(150mx150m)

RESA
295'x295'
(90mx90m)

TWY A

RUNWAY 09-27
6000'x147' (1829mx45m) - ASPHALT
RUNWAY STRIP 6393'x147' (1949mx150m) - ASPHALT

09

27

TURTLE HABITAT

CLEAR WAY
492'x492'
(150mx150m)

RESA
295'x295'
(90mx90m)

6000'
RWY 09 TORA, ASDA, LDA [1829m]

6000'
RWY 27 TORA, ASDA, LDA [1829m]

6493'
RWY 09 TODA [1949m]

6493'
RWY 27 TODA [1949m]

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Legend

Notes

Revision	By	Appd.	YY.MM.DD
SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	23.01.20

File Name: 12760892663_cayman_brac_sp-_Existing Conditions.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Caymen Islands

Title
CAYMAN BRAC
INTERNATIONAL AIRPORT -
CAYMAN BRAC, CKIA - EXISTING

Project No.
12760892663

Scale
1:4000 (0, 40, 120, 200m)

Drawing No.
SP-0

Sheet
0 of 5

Appendix F Full Size Existing Airport Layout Plan, EBA

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ORIGINAL SHEET - ANSI D

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Legend

Notes

Revision	By	Appd.	YY.MM.DD
SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	23.01.13

File Name: 12760892663_little_cayman_sp_Existing Conditions.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.13

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORT DEVELOPMENT PROJECT

Cayman Islands

Title
LITTLE CAYMAN
EXISTING EDWARD BODDEN AERODROME (EBA)

Project No.	Scale	
12760892663	AS NOTED	
Drawing No.	Sheet	Revision
SP-0	1 of 12	

Appendix G Environmental Natural Capital Approach (ENCA)

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Please refer to Section 3.4 of ENCA Guidance before completing this assessment

Light shaded cells indicate free text boxes

Pink shaded cells have drop-down lists. When a selection is made, these will turn to white

Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale

	Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Copy and paste this row for multiple effects on more than one broad habitat	Select from drop-down list	
Copy and paste this row for multiple effects on more than one broad habitat	Select from drop-down list	

Step 2 - Consider biophysical effects

	How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Copy and paste this row for multiple effects on natural assets	Select from drop-down list		Select from drop-down list	Select from drop-down list	Select from drop-down list	
Copy and paste this row for multiple effects on natural assets	Select from drop-down list		Select from drop-down list	Select from drop-down list	Select from drop-down list	

Step 3 - Consider the welfare implications

	Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Copy and paste this row for multiple effects	Select from drop-down list		Select from drop-down list		Select from drop-down list]		Select from drop-down list
Copy and paste this row for multiple effects	Select from drop-down list		Select from drop-down list		Select from drop-down list]		Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?

References

Please refer to Section 3.4 of ENCA Guidance before completing this assessment

Light shaded cells indicate free text boxes

Pink shaded cells have drop-down lists. When a selection is made, these will turn to white

Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale

	Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Copy and paste this row for multiple effects on more than one broad habitat	Select from drop-down list	
Copy and paste this row for multiple effects on more than one broad habitat	Select from drop-down list	

Step 2 - Consider biophysical effects

	How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Copy and paste this row for multiple effects on natural assets	**Select from drop-down list**		Select from drop-down list	Select from drop-down list	Select from drop-down list	
Copy and paste this row for multiple effects on natural assets	**Select from drop-down list**		Select from drop-down list	Select from drop-down list	Select from drop-down list	

Step 3 - Consider the welfare implications

	Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Copy and paste this row for multiple effects	**Select from drop-down list**		Select from drop-down list		Select from drop-down list]		Select from drop-down list
Copy and paste this row for multiple effects	**Select from drop-down list**		Select from drop-down list		Select from drop-down list]		Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?

	Grand Cayman	Cayman Brac	Little Cayman
Most Impact	A1 Option 3	Option 5	Option 3
Medium Impact	A1 Option 4		
Least Impact	A2 Option 4	Option 3	Option 4

****Ranking is relative, not quantitative**

Please refer to Section 3.4 of ENCA Guidance before completing this assessment

Light shaded cells indicate free text boxes

Pink shaded cells have drop-down lists. When a selection is made, these will turn to white

Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale	
TRANSPORTATION	GRAND CAYMAN	**Replace existing GA terminal building and expand aircraft parking apron, expand or build new hangars adjacent to GA Terminal and on the existing playground**	** Timeline is the implementation timeline as provided in the short list appraisal

Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Coastal margins	The proposed design inlcudes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system.
Marine habitats	The proposed design inlcudes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system. Expansion also requires the removal of some mangrove areas.
Urban	The proposed design includes an airport expansion that would take away a public playground and expansions that would alter current land use within airport property
Semi-natural grassland	The proposed design includes a shift in land use from grasslands on airport property to taxiways and parking aprons.

Step 2 - Consider biophysical effects

How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Change in land use or land management	Shift from open space (playground) to airport terminals, shift from grassed airstrip areas to paved taxiways, shift from grassed and treed area to parking apron. Expansion into the sound will include fill in the form of concrete, steel, soil, and rock.	Localised discrete effects	Modest risk	Immediate	Assuming a medium to long term plan
Effects on species and wildlife habitats	Existing forested habitat and associated species will be removed/lost Expansion into the sound will result in lost aquatic habitat and associated species	Localised discrete effects	Modest risk	Immediate	Assuming vegetation on the island is homogenous, supporting similar terrestrial species, for more details a biological survey will need to be conducted Assuming impact on mangroves is low, and that mitigation efforts will be taken
Effects on atmosphere	Air quality affected by emissions from construction and airport operations	Widespread diffuse effects	Modest risk	Immediate	Assuming a relatively small volume of aircraft traffic, construction emissions end at the end of the construction phase (aircraft emissions separate from construction emissions)
Effects on soil	Increase in paved surfaces, reduced permeability and potentially an increase in erosion	Localised discrete effects	Modest risk	Immediate	
Effects on water bodies	North sound may be affected by contaminants carried into the water during runoff from extreme weather events Expansion into the sound could alter nearshore sediment transport, introduce fill, affect scour and erosion patterns, and if an offshore breakwater is used, will affect wave patterns and currents.	Widespread diffuse effects	Modest risk	Immediate	Airport would have a stormwater collection and treatment system and only during extreme events would the stormwater system be overwhelmed. Under normal circumstances the wetland would not be affected and the effects would be considered low risk
Other	Increased Noise levels from construction and operations	Widespread diffuse effects	Significant risk	Immediate	Ongoing noise from aircraft operations, both approach and landing of aircraft
Other	Increased Runoff Quantities from deforested and paved areas	Localised discrete effects	Modest risk	Immediate	Deforested area will be maintained and all runoff treated by a stormwater facility
Other	Carbon Sequestration decrease because of loss of vegetation	Localised discrete effects	Modest risk	Immediate	

Step 3 - Consider the welfare implications

Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Air quality	Air quality affected by emissions from construction and airport operations	Medium (tens / hundreds of thousands)	People with underlying health conditions related to air quality	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Carbon sequestration	Carbon Sequestration decrease because of loss of vegetation	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Flooding / flood regulation	Increased Runoff Quantities from deforested and paved areas	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Noise / Noise mitigation	Increased Noise levels from construction and operations	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Temperature regulation	Heat island affect from reduction in shade and increase in absorption and radiation of heat from infrastructure	Medium (tens / hundreds of thousands)	General population	Yes	N/A, not part of the Greenbook (Appendix A1) and information for existing location unavailable	Select from drop-down list
Tourism	Increased ease of access with new airport	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Water quality	Increased Runoff Quantities from deforested and paved areas, this would only be applicable during extreme weather events where the stormwater system was overwhelmed. The impact would be on the North Sound	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Water supply	Increased water demand with an increase in airport size	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Fish	Expansions into the sound may affect fish habitat due to fill placed in the water. If offshore breakwaters are placed there will be an affect on wave patterns and currents landward of the breakwaters, creating a calmer wave environment.	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Landscape	Expansions into the sound will convert the current natural beach shoreline into a hardened shoreline.	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Recreation	Expansions into the sound will convert the current natural beach shoreline into a hardened shoreline that is now inaccessible to the public. Additionally, if breakwaters are placed offshore they may impact recreational activities like swimming or boating. Airport expansion proposes the removal of a public playground	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?
Increased tourism and increased operations will put increased pressure on the freshwater supply **Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events** **Sea level rise and extreme weather events can affect proposed structures**	Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply A coastal study should be done to determine the effect of the change in shoreline Based on the risk tolerance of the CIAA we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modeling including SLR and extreme weather events is needed	An updated airport with additional air traffic could increase tourism, and make emergency access to the island easier

References

Greenbook

Please refer to Section 3.4 of ENCA Guidance before completing this assessment

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Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale		
TRANSPORTATION	GRAND CAYMAN	Expand aircraft parking at the North Sound site, replace the existing / new terminal building at existing site.	** Timeline is the implementation timeline as provided in the short list appraisal	

Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Coastal margins	The proposed design inlcudes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system. It also includes the construction of a marine dock, which would require piles and increase shaded area in the Sound.
Marine habitats	The proposed design inlcudes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system. Expansion also requires the removal of some mangrove areas. It also includes the construction of a marine dock, which would require piles and increase shaded area in the Sound.
Urban	The proposed design includes an airport expansion that would take away a public playground and expansions that would alter current land use within airport property
Semi-natural grassland	The proposed design includes a shift in land use from grasslands on airport property to taxiways and parking aprons.

Step 2 - Consider biophysical effects

How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Change in land use or land management	Shift from open space (playground) to airport terminals, shift from grassed airstrip areas to paved taxiways, shift from grassed and treed area to parking apron. Expansion into the sound will include fill in the form of concrete, steel, soil, wood, and rock.	Localised discrete effects	Modest risk	Immediate	Assuming a medium to long term plan
Effects on species and wildlife habitats	Existing forested habitat and associated species will be removed/lost Expansion into the sound will result in removed and lost aquatic habitat, and shaded habitat from the marine dock.	Localised discrete effects	Modest risk	Immediate	Assuming vegetation on the island is homogenous, supporting similar terrestrial species, for more details a biological survey will need to be conducted Assuming impact on mangroves is low, and that mitigation efforts will be taken
Effects on atmosphere	Air quality affected by emissions from construction and airport operations	Widespread diffuse effects	Modest risk	Immediate	Assuming a relatively small volume of aircraft traffic, construction emissions end at the end of the construction phase (aircraft emissions separate from construction emissions)
Effects on soil	Increase in paved surfaces, reduced permeability and potentially an increase in erosion	Localised discrete effects	Modest risk	Immediate	
Effects on water bodies	North sound may be affected by contaminants carried into the water during runoff from extreme weather events Expansion into the sound could alter nearshore sediment transport, introduce fill, affect scour and erosion patterns, and if an offshore breakwater is used, will affect wave patterns and currents. Construction of a marine dock could affect scour and erosion patterns, and would include piling and potentially fill in the Sound.	Widespread diffuse effects	Modest risk	Immediate	Airport would have a stormwater collection and treatment system and only during extreme events would the stormwater system be overwhelmed. Under normal circumstances the wetland would not be affected and the effects would be considered low risk.
Other	Increased Noise levels from construction and operations	Widespread diffuse effects	Significant risk	Immediate	Ongoing noise from aircraft operations, both approach and landing of aircraft
Other	Increased Runoff Quantities from deforested and paved areas	Localised discrete effects	Modest risk	Immediate	Deforested area will be maintained and all runoff treated by a stormwater facility
Other	Carbon Sequestration decrease because of loss of vegetation	Localised discrete effects	Modest risk	Immediate	

Step 3 - Consider the welfare implications

Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Air quality	Air quality affected by emissions from construction and airport operations	Medium (tens / hundreds of thousands)	People with underlying health conditions related to air quality	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Carbon sequestration	Carbon Sequestration decrease because of loss of vegetation	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Flooding / flood regulation	Increased Runoff Quantities from deforested and paved areas	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Noise / Noise mitigation	Increased Noise levels from construction and operations	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Temperature regulation	Heat island affect from reduction in shade and increase in absorption and radiation of heat from infrastructure	Medium (tens / hundreds of thousands)	General population	Yes	N/A, not part of the Greenbook (Appendix A1) and information for existing location unavailable	Select from drop-down list
Tourism	Increased ease of access with new airport	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Water quality	Increased Runoff Quantities from deforested and paved areas, this would only be applicable during extreme weather events where the stormwater system was overwhelmed. The impact would be on the North Sound	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Water supply	Increased water demand with an increase in airport size	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Fish	Expansions into the sound may affect fish habitat due to fill placed in the water. If offshore breakwaters are placed there will be an affect on wave patterns and currents landward of the breakwaters, creating a calmer wave environment. The marine dock would introduce a shaded area as well as piles and fill.	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Landscape	Expansions into the sound will convert the current natural beach shoreline into a hardened shoreline.	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Recreation	Expansions into the sound will convert the current natural beach shoreline into a hardened shoreline that is now inaccessible to the public. Additionally, if breakwaters are placed offshore they may impact recreational activities like swimming or boating. Airport expansion proposes the removal of a public playground	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?
Increased tourism and increased operations will put increased pressure on the freshwater supply Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events Sea level rise and extreme weather events can affect proposed structures	Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply A coastal study should be done to determine the effect of the change in shoreline Based on the risk tolerance of the CIAA we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modeling including SLR and extreme weather events is needed	An updated airport with additional air traffic could increase tourism, and make emergency access to the island easier

References

Greenbook

Please refer to Section 3.4 of ENCA Guidance before completing this assessment

Light shaded cells indicate free text boxes

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Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale		
TRANSPORTATION	GRAND CAYMAN	**Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers.**	** Timeline is the implementation timeline as provided in the short list appraisal	

Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Coastal margins	The proposed design inlcudes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system.
Marine habitats	The proposed design inlcudes an expansion of the runway into the North Sound, requiring fill and a protected shoreline with the potential of an offshore breakwater system. Expansion also requires the removal of some mangrove areas.
Urban	The proposed design includes an airport expansion that would take away a public playground and expansions that would alter current land use within airport property
Semi-natural grassland	The proposed design includes a shift in land use from grasslands on airport property to taxiways and parking aprons.

Step 2 - Consider biophysical effects

How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Change in land use or land management	Shift from open space (playground) to airport terminals, shift from grassed airstrip areas to paved taxiways, shift from grassed and treed area to parking apron. Expansion into the sound will include fill in the form of concrete, steel, soil, and rock.	Localised discrete effects	Modest risk	Over 5 years	Assuming a medium to long term plan
Effects on species and wildlife habitats	Existing forested habitat and associated species will be removed/lost Expansion into the sound will result in lost aquatic habitat and associated species	Localised discrete effects	Modest risk	Over 5 years	Assuming vegetation on the island is homogenous, supporting similar terrestrial species, for more details a biological survey will need to be conducted Assuming impact on mangroves is low, and that mitigation efforts will be taken
Effects on atmosphere	Air quality affected by emissions from construction and airport operations	Widespread diffuse effects	Modest risk	Over 5 years	Assuming a relatively small volume of aircraft traffic, construction emissions end at the end of the construction phase (aircraft emissions separate from construction emissions)
Effects on soil	Increase in paved surfaces, reduced permeability and potentially an increase in erosion	Localised discrete effects	Modest risk	Over 5 years	
Effects on water bodies	North sound may be affected by contaminants carried into the water during runoff from extreme weather events Expansion into the sound will alter nearshore sediment transport, introduce fill, affect scour and erosion patterns, and if an offshore breakwater is used, will affect wave patterns and currents.	Widespread diffuse effects	Modest risk	Over 5 years	Airport would have a stormwater collection and treatment system and only during extreme events would the stormwater system be overwhelmed. Under normal circumstances the wetland would not be affected and the effects would be considered low risk
Other	Increased Noise levels from construction and operations	Widespread diffuse effects	Significant risk	Over 5 years	Ongoing noise from aircraft operations, both approach and landing of aircraft
Other	Increased Runoff Quantities from deforested and paved areas	Localised discrete effects	Modest risk	Over 5 years	Deforested area will be maintained and all runoff treated by a stormwater facility
Other	Carbon Sequestration decrease because of loss of vegetation	Localised discrete effects	Modest risk	Over 5 years	

Step 3 - Consider the welfare implications

Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Air quality	Air quality affected by emissions from construction and airport operations	Medium (tens / hundreds of thousands)	People with underlying health conditions related to air quality	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Carbon sequestration	Carbon Sequestration decrease because of loss of vegetation	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Flooding / flood regulation	Increased Runoff Quantities from deforested and paved areas	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Noise / Noise mitigation	Increased Noise levels from construction and operations	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Temperature regulation	Heat island affect from reduction in shade and increase in absorption and radiation of heat from infrastructure	Medium (tens / hundreds of thousands)	General population	Yes	N/A, not part of the Greenbook (Appendix A1) and information for existing location unavailable	Select from drop-down list
Tourism	Increased ease of access with new airport	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Water quality	Increased Runoff Quantities from deforested and paved areas, this would only be applicable during extreme weather events where the stormwater system was overwhelmed. The impact would be on the North Sound	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Water supply	Increased water demand with an increase in airport size	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Fish	Expansions into the sound may affect fish habitat due to fill placed in the water. If offshore breakwaters are placed there will be an affect on wave patterns and currents landward of the breakwaters, creating a calmer wave environment.	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Landscape	Expansions into the sound will convert the current natural beach shoreline into a hardened shoreline.	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Recreation	Expansions into the sound will convert the current natural beach shoreline into a hardened shoreline that is now inaccessible to the public. Additionally, if breakwaters are placed offshore they may impact recreational activities like swimming or boating. Airport expansion proposes the removal of a public playground	Medium (tens / hundreds of thousands)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?
Increased tourism and increased operations will put increased pressure on the freshwater supply **Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events** **Sea level rise and extreme weather events can affect proposed structures**	Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply A coastal study should be done to determine the effect of the change in shoreline	An updated airport with additional air traffic could increase tourism, and make emergency access to the island easier

References

Greenbook

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Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale			
TRANSPORTATION	**CAYMAN BRAC**	**Minimal upgrades and expansion to current airside and landside infrastructure to cater for low growth in aircraft movements and passengers. Modify lands as needed to meet regulatory requirements and applicable standards**	** The analysis describes a minimal expansion but we do not know exactly what the upgrades/expansion are. We went off the drawings provided to us but the only difference between the two Cayman Brac options was the northern parking area	** Timeline is the implementation timeline as provided in the short list appraisal	

Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Urban	The proposed design includes minimal airport expansion that would alter current land use within airport property.
Semi-natural grassland	The proposed design includes a shift in land use from grasslands on airport property to taxiways and parking aprons. It also includes building on adjacent forested lots.
Freshwaters	Inland ponds adjacent to the airport are to have fill placed on the northern shorelines.

Step 2 - Consider biophysical effects

How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Change in land use or land management	Shift from open, grassed, and treed space to airport terminals/hangars/buildings, shift from grassed airstrip areas and adjacent treed areas to paved taxiways The expansion also includes the realignment of private lot boundaries and a public road.	Localised discrete effects	Modest risk	2-5 years	Assuming a medium to long term plan
Effects on species and wildlife habitats	Existing forested habitat and associated species will be removed/lost. Fill is proposed to be placed in two ponds adjacent to the airport, which would result in a loss of pond habitat and associated species.	Localised discrete effects	Modest risk	2-5 years	Assuming vegetation on the island is homogenous, supporting similar terrestrial species, for more details a biological survey will need to be conducted
Effects on atmosphere	Air quality affected by emissions from construction and airport operations	Widespread diffuse effects	Modest risk	2-5 years	Assuming a relatively small volume of aircraft traffic, construction emissions end at the end of the construction phase (aircraft emissions separate from construction emissions)
Effects on soil	Increase in paved surfaces, reduced permeability and potentially an increase in erosion	Localised discrete effects	Modest risk	2-5 years	
Effects on water bodies	Ocean may be affected by contaminants carried into the wetland during runoff from extreme weather events Fill placed into the two adjacent ponds could affect water quality and water circulation patterns within the ponds.	Widespread diffuse effects	Modest risk	2-5 years	Airport would have a stormwater collection and treatment system and only during extreme events would the stormwater system be overwhelmed. Under normal circumstances the wetland would not be affected and the effects would be considered low risk.
Other	Increased Noise levels from construction and operations	Widespread diffuse effects	Significant risk	2-5 years	Ongoing noise from aircraft operations, both approach and landing of aircraft
Other	Slight increase in runoff from deforested and paved areas	Localised discrete effects	Modest risk	2-5 years	Deforested area will be maintained and all runoff treated by a stormwater facility
Other	Carbon Sequestration decrease because of loss of vegetation	Localised discrete effects	Modest risk	2-5 years	

Step 3 - Consider the welfare implications

Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Air quality	Air quality affected by emissions from construction and airport operations	Low (<000s)	People with underlying health conditions related to air quality	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Carbon sequestration	Carbon Sequestration decrease because of loss of vegetation	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Flooding / flood regulation	Increased Runoff Quantities from deforested and paved areas	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Noise / Noise mitigation	Increased Noise levels from construction and operations	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Temperature regulation	Heat island affect from reduction in shade and increase in absorption and radiation of heat from infrastructure	Low (<000s)	General population	No	N/A, not part of the Greenbook (Appendix A1) and information for existing location unavailable	Select from drop-down list
Tourism	Increased ease of access with new airport	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Water quality	Increased Runoff Quantities from deforested and paved areas, this would only be applicable during extreme weather events where the stormwater system was overwhelmed. The impact would be on the ocean	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Water supply	Increased water demand with an increase in airport size	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Fish	Any fish in the adjacent ponds may be affected by the proposed fill.	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Recreation	Any recreational activities that take place in the two adjacent ponds may be affected by the fill placed.	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?
Increased tourism and increased operations will put increased pressure on the freshwater supply **Sea level rise and extreme weather events can affect proposed structures**	Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply Based on the risk tolerance of the CIAA we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modeling including SLR and extreme weather events is needed	An updated airport with additional air traffic could increase tourism, and make emergency access to the island easier

References

Greenbook

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Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale		
TRANSPORTATION	CAYMAN BRAC	**Upgrades and expansion to current airside and landside infrastructure to cater for the forecast growth in aircraft movements and passengers. Acquire lands / meet all applicable regulatory requirements and standards.**	** Timeline is the implementation timeline as provided in the short list appraisal	

Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Coastal margins	The proposed design inlcudes an expansion of the runway into the ocean (about 1,750 square meters), requiring fill and a protected shoreline with the potential of an offshore breakwater system.
Marine habitats	The proposed design inlcudes an expansion of the runway (about 370 square meters) into the ocean, requiring fill and a protected shoreline with the potential of an offshore breakwater system.
Urban	The proposed design includes an airport expansion that would alter current land use within airport property and would require the purchase and development of adjacent treed area
Semi-natural grassland	The proposed design includes a shift in land use from grasslands on airport property to taxiways and parking aprons. It also includes building on adjacent forested lots. The proposed taxiway is about 1829m by 26m.
Freshwaters	Inland ponds adjacent to the airport are to have fill placed on the northern shorelines. Fill for the western pond will encroach the water by about 9m. Fill for the eastern pond will encraoch the water by about 19m.

Step 2 - Consider biophysical effects

How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Change in land use or land management	Shift from open, grassed, and treed space to airport terminals/hangars/buildings, shift from grassed airstrip areas and adjacent treed areas to paved taxiways The expansion also includes the realignment of private lot boundaries and a public road. Expansion into the ocean will include fill in the form of concrete, steel, soil, and rock.	Localised discrete effects	Modest risk	2-5 years	Assuming a medium to long term plan
Effects on species and wildlife habitats	Existing forested habitat and associated species will be removed/lost. Fill is proposed to be placed in two ponds adjacent to the airport, which would result in a loss of pond habitat and associated species. Expansion into the ocean will result in lost aquatic habitat and associated species	Localised discrete effects	Significant risk	2-5 years	Assuming vegetation on the island is homogenous, supporting similar terrestrial species, for more details a biological survey will need to be conducted Assumption is that habitat will be impacted by decreased water quality in the pond due to fill, additional information needed
Effects on atmosphere	Air quality affected by emissions from construction and airport operations	Widespread diffuse effects	Modest risk	2-5 years	Construction emissions end at the end of the construction phase (aircraft emissions separate from construction emissions)
Effects on soil	Increase in paved surfaces, reduced permeability and potentially an increase in erosion	Localised discrete effects	Modest risk	2-5 years	
Effects on water bodies	Ocean may be affected by contaminants carried into the pond during runoff from extreme weather events Fill placed into the two adjacent ponds could affect water quality and water circulation patterns within the ponds. Expansion into the ocean can alter nearshore sediment transport, introduce fill, affect scour and erosion patterns, and if an offshore breakwater is used, will affect wave patterns and currents.	Widespread diffuse effects	Significant risk	2-5 years	Airport would have a stormwater collection and treatment system and only during extreme events would the stormwater system be overwhelmed. Under normal circumstances the ponds would not be affected and the effects would be considered low risk.
Other	Increased Noise levels from construction and operations	Widespread diffuse effects	Significant risk	2-5 years	Ongoing noise from aircraft operations, both approach and landing of aircraft
Other	Increased Runoff Quantities from deforested and paved areas	Localised discrete effects	Modest risk	2-5 years	Deforested area will be maintained and all runoff treated by a stormwater facility
Other	Carbon Sequestration decrease because of loss of vegetation due to taxiway, weather station, and control tower construction.	Localised discrete effects	Modest risk	2-5 years	

Step 3 - Consider the welfare implications

	Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
	Air quality	Air quality affected by emissions from construction and airport operations	Low (<000s)	People with underlying health conditions related to air quality	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
	Carbon sequestration	Carbon Sequestration decrease because of loss of vegetation	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
	Flooding / flood regulation	Increased Runoff Quantities from deforested and paved areas	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
	Noise / Noise mitigation	Increased Noise levels from construction and operations	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
	Temperature regulation	Heat island affect from reduction in shade and increase in absorption and radiation of heat from infrastructure	Low (<000s)	General population	No	N/A, not part of the Greenbook (Appendix A1) and information for existing location unavailable	Select from drop-down list
Copy and paste this row for multiple effects	**Tourism**	Increased ease of access with new airport	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Copy and paste this row for multiple effects	**Water quality**	Increased Runoff Quantities from deforested and paved areas, this would only be applicable during extreme weather events where the stormwater system was overwhelmed. The impact would be on the ocean	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Copy and paste this row for multiple effects	**Water supply**	Increased water demand with an increase in airport size	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Copy and paste this row for multiple effects	**Fish**	Expansions into the ocean may affect fish habitat due to fill placed in the water. If offshore breakwaters are placed there will be an affect on wave patterns and currents landward of the breakwaters, creating a calmer wave environment. Any fish in the adjacent ponds may be affected by the proposed fill.	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Copy and paste this row for multiple effects	**Landscape**	Expansions into the ocean will convert the current natural beach shoreline into a hardened shoreline.	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Copy and paste this row for multiple effects	**Recreation**	Expansions into the ocean will convert the current natural beach shoreline into a hardened shoreline that is now inaccessible to the public. Additionally, if breakwaters are placed offshore they may impact recreational activities like swimming or boating. Any recreational activities that take place in the two adjacent ponds may be affected by the fill placed.	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?
Increased tourism and increased operations will put increased pressure on the freshwater supply **Change in shoreline from natural to hard may affect wave impact, storm surge, and flood patterns during large storm events** **Sea level rise and extreme weather events can affect proposed structures**	Water storage methods like retention ponds could help create a sink for stormwater runoff, reduce inland flooding, and could alleviate strain on the freshwater supply A coastal study should be done to determine the effect of the change in shoreline Based on the risk tolerance of the CIAA we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modeling including SLR and extreme weather events is needed	An updated airport with additional air traffic could increase tourism, and make emergency access to the island easier

References

Greenbook

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Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale		
TRANSPORTATION	**LITTLE CAYMAN**	**Close Existing Airport and Build New Airport and new airside and landside infrastructure to cater for the most-likely forecast growth in aircraft movements and passengers. Build to meet all applicable regulatory requirements and standards.**	** Timeline is the implementation timeline as provided in the short list appraisal	

Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Woodlands	Cut down forests
Semi-natural grassland	Paved surface instead of grass
Coastal margins	Proposed access road runs through Booby Pond Nature Reserve

Step 2 - Consider biophysical effects

How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Change in land use or land management	(Need to check area - get CAD files from CAD team) Going from moderate to heavy vegetation to paved and graded grassland	Localised discrete effects	Modest risk	Over 5 years	Assuming a medium to long term plan
Effects on species and wildlife habitats	Existing forested habitat and associated species will be removed/lost 600m of proposed airport access road runs through Cerion Nanus land snail habitat 130m of proposed airport access road runs through the Booby Pond Nature Reserve	Localised discrete effects	Significant risk	Over 5 years	Assuming vegetation on the island is homogenous, supporting similar terrestrial species, for more details a biological survey will need to be conducted
Effects on atmosphere	Air quality affected by emissions from construction and airport operations	Widespread diffuse effects	Modest risk	Over 5 years	Assuming a relatively small volume of aircraft traffic, construction emissions end at the end of the construction phase (aircraft emissions separate from construction emissions)
Effects on soil	Increase in paved surfaces, reduced permeability and potentially an increase in erosion	Localised discrete effects	Modest risk	Over 5 years	
Effects on water bodies	Wetland areas, including the Booby Pond Nature Reserve, may be affected by contaminants carried into the wetland during runoff from extreme weather events	Widespread diffuse effects	Significant risk	Over 5 years	Airport would have a stormwater collection and treatment system and only during extreme events would the stormwater system be overwhelmed. Under normal circumstances the wetland would not be affected and the effects would be considered low risk
Other	Increased Noise levels from construction and operations	Widespread diffuse effects	Significant risk	Over 5 years	Ongoing noise from aircraft operations, both approach and landing of aircraft
Other	Increased Runoff Quantities from deforested and paved areas	Localised discrete effects	Modest risk	Over 5 years	Deforested area will be maintained and all runoff treated by a stormwater facility
Other	Carbon Sequestration decrease because of loss of vegetation	Localised discrete effects	Modest risk	Over 5 years	

Step 3 - Consider the welfare implications

Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Air quality	Air quality affected by emissions from construction and airport operations	Low (<000s)	People with underlying health conditions related to air quality	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Carbon sequestration	Carbon Sequestration decrease because of loss of vegetation	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Flooding / flood regulation	Increased Runoff Quantities from deforested and paved areas	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Noise / Noise mitigation	Increased Noise levels from construction and operations	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Temperature regulation	Heat island affect from reduction in shade and increase in absorption and radiation of heat from infrastructure	Low (<000s)	General population	Yes	N/A, not part of the Greenbook (Appendix A1) and information for existing location unavailable	Select from drop-down list
Tourism	Increased ease of access with new airport Proposed airport access road runs through Booby Pond Nature Reserve, which is a tourism attraction	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Water quality	Increased Runoff Quantities from deforested and paved areas, this would only be applicable during extreme weather events where the stormwater system was overwhelmed. The impact would be on the wetland habitat	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Water supply	Increased Runoff Quantities from deforested and paved areas	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?
Sea level rise and extreme weather events can affect proposed structures	Based on the risk tolerance of the CIAA we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modeling including SLR and extreme weather events is needed	An updated airport with additional air traffic could increase tourism, and make emergency access to the island easier

References

Greenbook

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Step 1 - Describe the environmental context

Economic sector	Short description of measure	Detailed description of measure, quantifying where possible and indicating likely spatial scale		
TRANSPORTATION	**LITTLE CAYMAN**	**Sell or Close Existing Airport, to be replaced by Ferry / Helicopter / Seaplane service**	** Timeline is the implementation timeline as provided in the short list appraisal	

Which broad habitat categories are likely to be affected?	Briefly explain. Please give any indicative estimates of areas of land affected
Marine habitats	Increased sea plane and ferry traffic, will also increase wake frequency Proposed dock expansion will shadow or fill existing marine habitat
Coastal margins	Increased sea plane and ferry traffic, will also increase wake frequency Proposed dock expansion will shadow or fill existing marine habitat

Step 2 - Consider biophysical effects

How might the intervention affect natural assets within or across these broad habitats?	Briefly explain	What is the spatial nature of these effects?	Does this effect represent a risk or opportunity?	What is the likely timeframe for effects?	Additional information on your answers
Change in land use or land management	Existing airport use to be discontinued Proposed dock expansion extends into nearshore waters	Localised discrete effects	Modest risk	Immediate	Existing airport closure plans unknown
Effects on species and wildlife habitats	Increased sea plane and ferry traffic may have an affect on aquatic life Proposed dock expansion extends into nearshore waters, shading existing habitat	Localised discrete effects	Modest risk	Immediate	For more details a biological survey will need to be conducted
Effects on atmosphere	Air quality affected by emissions from increased sea plane, helicopter, and ferry traffic and decreased/stopped use of airplanes	Widespread diffuse effects	Modest risk	Immediate	For more details a emissions survey will need to be conducted
Effects on soil	No change	Localised discrete effects	Modest risk	Immediate	N/A
Effects on water bodies	Increased use of sea planes and ferrys may affect pollutant and contaminant levels in the water, and increased sea plane/ferry traffic may affect aquatic life Proposed dock expansion extends into nearshore waters	Widespread diffuse effects	Modest risk	Immediate	For more details an aquatic life and contaminant survey will need to be conducted
Other	Increased Noise levels from increased operations (no additional infrastructure required)	Widespread diffuse effects	Significant risk	Immediate	Ongoing noise from travel operations, both approach and landing of helicopter and sea plane
Other	No change to runoff	Localised discrete effects	Modest risk	Immediate	N/A
Other	No change to carbon sequestration	Localised discrete effects	Modest risk	Immediate	N/A

Step 3 - Consider the welfare implications

Services / benefits / impacts	Briefly explain (and indicate if there are non-market impacts). Provide any quantified measure of the physical change	What scale of population is likely to be affected?	Identify any groups affected	Can the effect be monetised?	Provide any valuation estimates of potential impacts. If valuation is not feasible, explain why	How robust are the valuation estimates?
Air quality	Air quality affected by emissions increased sea plane, helicopter, and ferry traffic and decreased emissions from discontinued use of airport	Low (<000s)	People with underlying health conditions related to air quality	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Carbon sequestration	No change	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Flooding / flood regulation	No change	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Noise / Noise mitigation	Increased Noise levels from increased operations, decreased noise levels from discontinuation of airport	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Temperature regulation	No change	Low (<000s)	General population	Yes	N/A, not part of the Greenbook (Appendix A1) and information for existing location unavailable	Select from drop-down list
Tourism	Increased ease of access with increased sea plane, helicopter, and ferry traffic. Discontinued use of existing airport may impact travelers because alternative transportation could be more expensive or slower.	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope	Select from drop-down list
Water quality	Increased use of sea planes and ferrys may affect pollutant and contaminant levels in the water	Low (<000s)	General population	Yes	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list
Water supply	No change	Low (<000s)	General population	No	Further information would be needed to provide a valuation estimate. Not currently within scope. Refer to Greenbook (Appendix A1) for monetization information	Select from drop-down list

Step 4 - Consider uncertainties and optimising outcomes

What critical factors could have a major influence on how natural assets and services are affected by the measure?	What measures (new or existing) might be used to mitigate risks?	What measures (new or existing) might be used to realise opportunities?
In the event of an emergency/need for evacuation or provision of services, discontinuation of the current airport may affect vital services **Sea level rise and extreme weather events can affect proposed plans**	Emergency evacuation plan, provision of services plan, emergency plans in place Based on the risk tolerance of the CIAA we are assuming that the design parameters consider Sea Level Rise scenarios. Further climate change risk modeling including SLR and extreme weather events is needed	Discontinued use of existing airport cuts down on emissions and resources needed to run the facility

References

Greenbook

Appendix H Preferred Development Plans, ORIA

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FACILITY # / FACILITY DESCRIPTION	
No.	DESCRIPTION
1	PROPOSED LANDSIDE COMMERCIAL
2	AIRPORT CHILDREN'S PARK
3	MOSQUITO RESERCH HANGAR / FACILITIES
4	AIRPORT POST OFFICE
5	CAYMAN ISLANDS AGRICULTURAL INSPECTION
6	CICBC OFFICES / CARGO WEARHOUSE
7	CAYMAN AIRWAYS HANGAR
8	GENERAL AVIATION TERMINAL
9	ISLAND AIR HANGAR
10	ATC TOWER / BEACON HOUSE
11	FIRE STATION
12	AIRPORT MAINTENANCE & OPERATIONS
13	SECURITY CHECKPOINT #1
14	COMMERCIAL TERMINAL APRON
15	AIR TERMINAL BUILDING
16	LANDSIDE, SURFACE PARKING

FACILITY # / FACILITY DESCRIPTION	
No.	DESCRIPTION
17	ACE / ANDY'S RENT A CAR
18	CONSECA SECONDARY RADAR
19	GUN CLUB
20	FIRE BOAT DOCK / LAUNCH
21	WASTERWATER TREATMENT PLANT
22	100FT SET-BACK TO CURB / GREEN PLAZA
23	RELOCATED FIRE TRAINING CENTRE / FUTURE RESERVE -HANGARS
24	GSE EQUIPMENT MAINTENANCE & STORAGE
25	AIR TERMINAL BUILDING EXPANSION
26	FUEL TRUCK STAGING AREA
27	GENERAL AVIATION APRON EXPANSION (EAST)
28	NEW GENERAL AVIATION TERMINAL (EAST) & PARKING
29	RUNWAY 08-26 EXTENSION TO 8,000 FT (WITH FULL RESA)
30	NEW ATC TOWER & ATM BUILDING

TRUE NORTH

MAGNETIC NORTH

14°8'13"

MAGNETIC VARIATION 14°8'13" WEST
DATE: DECEMBER 2022
ANNUAL RATE OF CHANGE:
69' WEST PER YEAR

PHASING:

SHORT TERM OPTION	
EXISTING	

LEGEND:

ITEM	EXISTING	PROPOSED - SHORT TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
GREEN SPACE	N/A	

LAND ACQUISITION	
INDEX	AREA
A	1,424m²
B	1,900m²
C	7,755m²
D	9,100m²
E	6,900m²
F	11,200m²
G	16,460m²

RWY 26 TODA WITH EXTENSION 8492' [2588m]

RWY 26 TORA, ASDA, LDA WITH EXTENSION 8000' [2439m]

RWY 26 EXISTING LDA 6596' [2010m]

1115' [340m]
RWY EXTENSION

RED GATE ROAD

ARFF CRASH GATE

MANGROVE BUFFER

RUNWAY STRIP
(197' [60m] x 492' [150m])

ROBERTS DRIVE

DORCY DRIVE

CLEARWAY
(492' [150m] x 492' [150m])

CREWE ROAD

STAGE 1 - SOUTH ATC OPTION 2

STAGE 1 - SOUTH ATC OPTION 1

STAGE 1 - SOUTH
ATC OPTION 3

787' [240m]
RESA

RWY 08 EXISTING LDA 6596' [2010m]

RWY 08 TORA, ASDA, TODA WITH EXTENSION 8984' [2738m]

RWY 08/26 LDA WITH EXTENSION 8000' [2438m]

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FIRST SUBMISSION	AM	PVM	23.01.13

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	LMC	PVM	AM	23.01.13

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

GRAND CAYMAN, OWEN ROBERTS INTERNATIONAL AIRPORT - GRAND CAYMAN, ORIA - SHORT TERM

Project No.	Scale
12760892663	1:5000 (0, 50, 150, 250m)
Drawing No.	Sheet
SP-1	1 of 6

ORIGINAL SHEET - ANSI D

FACILITY # / FACILITY DESCRIPTION	
No.	DESCRIPTION
1	PROPOSED LANDSIDE COMMERCIAL
2	AIRPORT CHILDREN'S PARK
3	MOSQUITO RESERCH HANGAR / FACILITIES
4	AIRPORT POST OFFICE
5	CAYMAN ISLANDS AGRICULTURAL INSPECTION
6	CICBC OFFICES / CARGO WEARHOUSE
7	CAYMAN AIRWAYS HANGAR
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9	ISLAND AIR HANGAR
10	ATC TOWER / BEACON HOUSE
11	FIRE STATION
12	AIRPORT MAINTENANCE & OPERATIONS
13	SECURITY CHECKPOINT #1
14	COMMERCIAL TERMINAL APRON
15	AIR TERMINAL BUILDING

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No.	DESCRIPTION
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22	100FT SET-BACK TO CURB / GREEN PLAZA
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25	AIR TERMINAL BUILDING EXPANSION
26	FUEL TRUCK STAGING AREA
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28	NEW GENERAL AVIATION TERMINAL (EAST) & PARKING
29	RUNWAY 08-26 EXTENSION TO 8,000 FT (WITH FULL RESA)
30	NEW ATC TOWER & ATM BUILDING

FACILITY # / FACILITY DESCRIPTION	
No.	DESCRIPTION
31	OFFICE BUILDING (ABOVE ROOF OF GTC)
32	VERTIPORT
33	2nd LEVEL COVERED WALKWAY, GTC TO TERMINAL (x2)
34	FULL-LENGTH PARALLEL TAXIWAY
35	RUNWAY STRIP DRAINAGE IMPROVEMENTS

TRUE NORTH

MAGNETIC NORTH

5.53° - 2022

MAGNETIC VARIATION 5.53° WEST
ANNUAL RATE OF CHANGE:
0.12° WEST PER YEAR

PHASING:

- MEDIUM TERM OPTION
- EXISTING/SHORT TERM

LEGEND:

ITEM	EXISTING/SHORT TERM	PROPOSED - MEDIUM TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION		N/A
AIRFIELD ASPHALT		
AIRFIELD CONCRETE		
BUILDING		
PARKING		
GREEN SPACE		N/A

DAVID FOSTER DRIVE
RED GATE ROAD
ROBERTS DRIVE
DORCY DRIVE
CREWE ROAD
CREWE ROAD
ROAD TO BE REMOVED
ARFF CRASH GATE
STAGE 1 - SOUTH ATC OPTION 2
STAGE 1 - SOUTH ATC OPTION 1
STAGE 1 - SOUTH ATC OPTION 3
R2
R3
R3

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FIRST SUBMISSION	AM	PVM	23.01.13

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	LMC	PVM	AM	23.01.13

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

GRAND CAYMAN, OWEN ROBERTS INTERNATIONAL AIRPORT - GRAND CAYMAN, ORIA - MEDIUM TERM

Project No.	Scale
12760892663	1:5000 (0, 50, 150, 250m)

Drawing No.
SP-2

Sheet
2 of 6

FACILITY # / FACILITY DESCRIPTION	
No.	DESCRIPTION
1	PROPOSED LANDSIDE COMMERCIAL
2	AIRPORT CHILDREN'S PARK
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14	COMMERCIAL TERMINAL APRON
15	AIR TERMINAL BUILDING

FACILITY # / FACILITY DESCRIPTION	
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24	GSE EQUIPMENT MAINTENANCE & STORAGE
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27	GENERAL AVIATION APRON EXPANSION (EAST)
28	NEW GENERAL AVIATION TERMINAL (EAST) & PARKING
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FACILITY # / FACILITY DESCRIPTION	
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36	EXPANDED CARGO AIRCRAFT APRON
37	AIRCRAFT ENGINE RUN-UP ENCLOSURE
38	COMMERCIAL APRON EXPANSION (RELOCATE CHECKPOINT #1)
39	NEW HELIPORT AND HELIPORT OPERATIONS BUILDING
40	MARINE DOCK AND SEAWALL / BREAKWATER

TRUE NORTH

MAGNETIC NORTH

5.53° - 2022

MAGNETIC VARIATION 5.53° WEST
ANNUAL RATE OF CHANGE:
0.12° WEST PER YEAR

PHASING:

LONG TERM OPTION

EXISTING/SHORT/MEDIUM TERM

LEGEND:

ITEM	EXISTING/SHORT/MEDIUM TERM	PROPOSED - LONG TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION		N/A
AIRFIELD ASPHALT		
AIRFIELD CONCRETE		
BUILDING		
PARKING		N/A
GREEN SPACE		N/A

DAVID FOSTER DRIVE
RED GATE ROAD
ROBERTS DRIVE
DORCY DRIVE
CREWE ROAD
ARFF CRASH GATE
RUNWAY STRIP
STAGE 1 - SOUTH ATC OPTION 1
STAGE 1 - SOUTH ATC OPTION 2
STAGE 1 - SOUTH ATC OPTION 3
R1
R2
R3

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	LMC	PVM	AM	23.01.13

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Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

GRAND CAYMAN OWEN ROBERTS INTERNATIONAL AIRPORT - GRAND CAYMAN, ORIA- LONG TERM

Project No.
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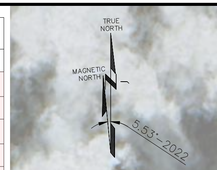
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SP-3

Sheet
3 of 6

BUILDING INDEX	
No.	DESCRIPTION
1	PROPOSED LANDSIDE COMMERCIAL
2	AIRPORT CHILDREN'S PARK
3	MOSQUITO RESERCH HANGAR / FACILITIES
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13	SECURITY CHECKPOINT #1
14	COMMERCIAL TERMINAL APRON
15	AIR TERMINAL BUILDING

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No.	DESCRIPTION
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No.	DESCRIPTION
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38	COMMERCIAL APRON EXPANSION (RELOCATE CHECKPOINT #1)
39	NEW HELIPORT AND HELIPORT OPERATIONS BUILDING
40	MARINE DOCK AND SEAWALL / BREAKWATER



MAGNETIC VARIATION 5.53° WEST
ANNUAL RATE OF CHANGE:
0.12° WEST PER YEAR

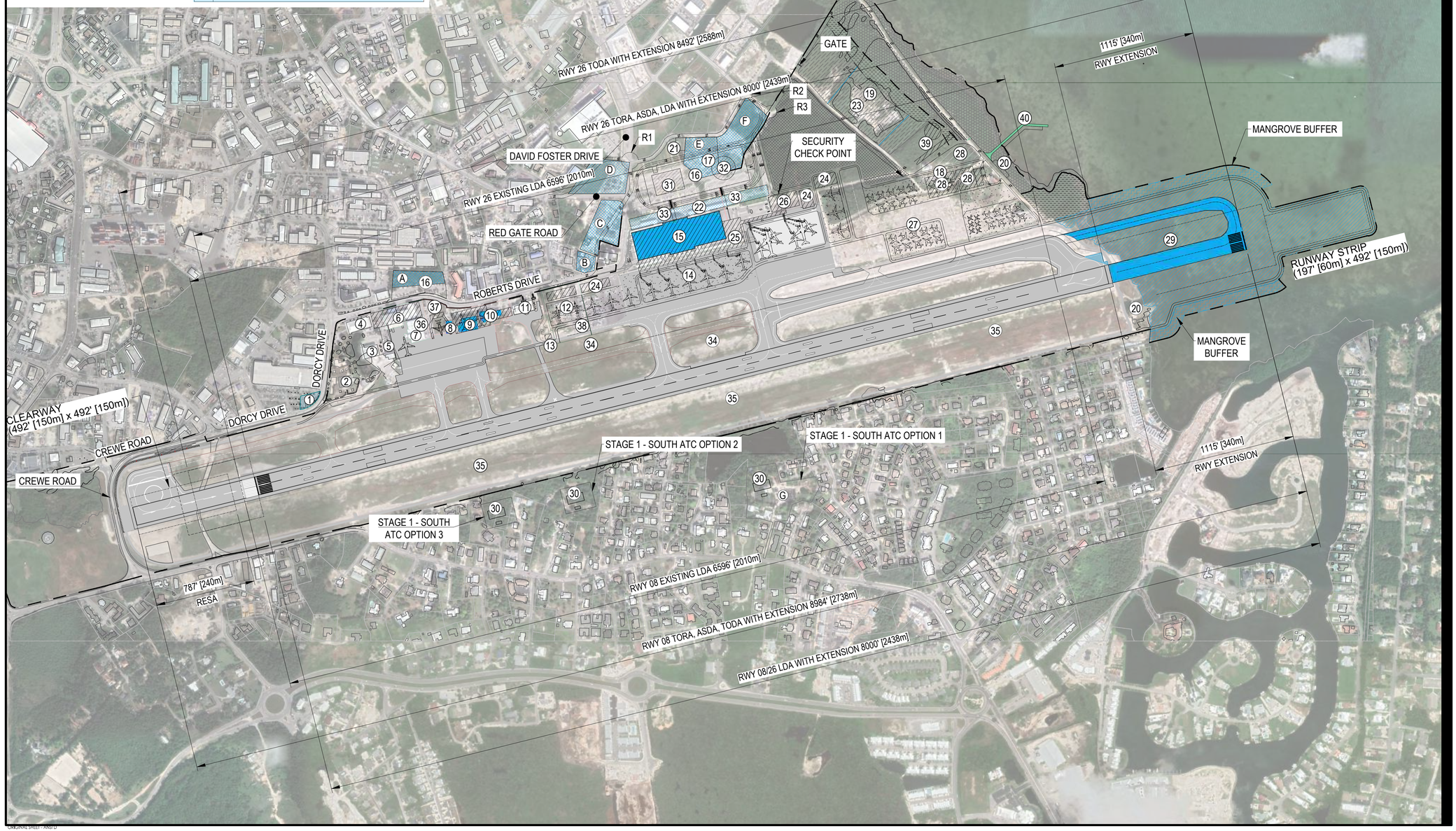
DECLARED DISTANCES					
EXISTING RUNWAY					
RUNWAY	TORA	TODA	ASDA	LDA	
08	7,463ft (2,275m)	8,362ft (2,549m)	7,463ft (2,275m)	6,594ft(2,010m)	
26	7,001ft (2,134m)	7,493ft (2,284m)	7,001ft (2,134m)	6,594ft(2,010m)	
PROPOSED RUNWAY					
08	8,984ft (2,738m)	8,984ft (2,738m)	8,984ft (2,738m)	8,000ft (2,438m)	
26	8,000ft (2,438m)	8,492ft (2,588m)	8,000ft (2,438m)	8,000ft (2,438m)	

PHASING:
- SHORT TERM OPTION
- MEDIUM TERM OPTION
- LONG TERM OPTION
- EXISTING

LEGEND:

ITEM	PATTERN
AIRPORT PROPERTY LINE	
LAND ACQUISITION	
ASPHALT PAVEMENT	
CONCRETE PAVEMENT	
BUILDING	
GREEN SPACE	

LAND ACQUISITION	
INDEX	AREA
A	4,124m²
B	1,900m²
C	7,755m²
D	9,100m²
E	6,900m²
F	11,200m²
G	16,460m²



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FIRST SUBMISSION	AM	PVM	23.01.13

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	LMC	PVM	AM	23.01.13

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Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

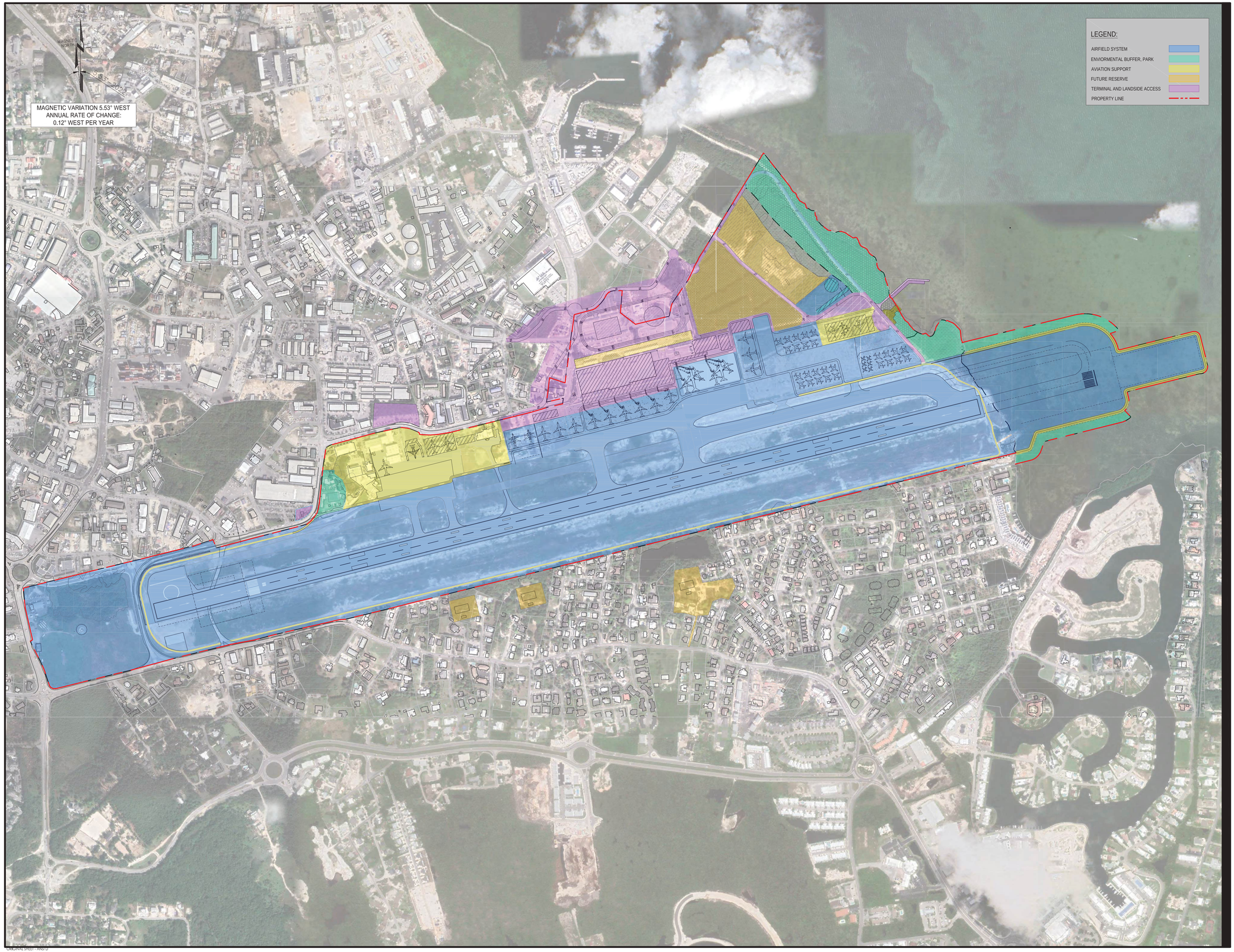
GRAND CAYMAN, OWEN ROBERTS INTERNATIONAL AIRPORT - GRAND CAYMAN, ORIA - ALL PHASES

Project No.
12760892663

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Drawing No.
SP-4

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FIRST SUBMISSION	AM	PVM	23.01.13

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	LMC	PVM	AM	23.01.13

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

GRAND CAYMAN, OWEN ROBERTS INTERNATIONAL AIRPORT - GRAND CAYMAN, ORIA - LAND USE PLAN

Project No.
12760892663

Scale
1:5000 0 50 150 250m

Drawing No.
SP-5

Sheet
5 of 6

BUILDING INDEX	
No.	DESCRIPTION
1	PROPOSED LANDSIDE COMMERCIAL
2	AIRPORT CHILDREN'S PARK
3	MOSQUITO RESERCH HANGAR / FACILITIES
4	AIRPORT POST OFFICE
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12	AIRPORT MAINTENANCE & OPERATIONS
13	SECURITY CHECKPOINT #1
14	COMMERCIAL TERMINAL APRON
15	AIR TERMINAL BUILDING

BUILDING INDEX	
No.	DESCRIPTION
16	LANDSIDE, SURFACE PARKING
17	ACE / ANDY'S RENT A CAR
18	CONSECA SECONDARY RADAR
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40	MARINE DOCK AND SEAWALL / BREAKWATER

TRUE NORTH

MAGNETIC NORTH

5.53° 2022

MAGNETIC VARIATION 5.53° WEST
ANNUAL RATE OF CHANGE:
0.12° WEST PER YEAR

PHASING:

- SHORT TERM OPTION
- MEDIUM TERM OPTION
- LONG TERM OPTION
- EXISTING

LEGEND:

ITEM	PATTERN
AIRPORT PROPERTY LINE	
LAND ACQUISITION	
ASPHALT PAVEMENT	
CONCRETE PAVEMENT	
BUILDING	
GREEN SPACE	

LAND ACQUISITION	
INDEX	AREA
A	4,124m²
B	1,900m²
C	7,755m²
D	9,100m²
E	6,900m²
F	11,200m²
G	16,460m²

DAVID FOSTER DRIVE
GATE
R1
R2
R3
RED GATE ROAD
SECURITY CHECK POINT
BREEZY WAY
ROBERTS DRIVE
ROBERTS DRIVE
DORCY DRIVE
STAGE 1 - SOUTH ATC OPTION 2
STAGE 1 - SOUTH ATC OPTION 3
STAGE 1 - SOUTH ATC OPTION 1

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Legend

Notes

Revision	By	Appd.	YY.MM.DD
THIRD SUMBISSION	AM	PVM	23.09.21
SECOND SUBMISSION	AM	PVM	23.06.26
FIRST SUBMISSION	AM	PVM	23.01.13

File Name: 12760892663_grand_cayman -RWY 340Ext 240Resa_Landside(1).dwg

Dwn.	Chkd.	Dsgn.
LMC	PVM	AM
23.01.13		

YY.MM.DD

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

GRAND CAYMAN, OWEN ROBERTS INTERNATIONAL AIRPORT - GRAND CAYMAN, ORIA - LANDSIDE FACILITIES PLAN

Project No. 12760892663

Scale 1:3000 (0, 30, 90, 150m)

Drawing No. SP-6

Sheet 6 of 6

ORIGINAL SHEET - ANSI D

Appendix I Preferred Development Plans, CKIA

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BUILDING INDEX

No.	DESCRIPTION
1	AIRPORT MAINTENANCE
2	RESCUE FIRE FIGHTING SERVICES
3	PASSENGER TERMINAL
4	AVIATION FUEL TANK
5	WATER AUTHORITY / WATER TANKS
6	WESTERLY PONDS
7	NEW ATC TOWER & ATM BUILDING
8	NEW RUNWAY THRESHOLD TURNING BAYS
9	RUNWAY 09 - 27 STRIP EXPANSION (INOT PONDS)
10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA

TRUE NORTH
MAGNETIC NORTH
6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

PHASING:

SHORT TERM OPTION
EXISTING BUILDING

LEGEND:

ITEM	EXISTING	PROPOSED - SHORT TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
VEGETATION REMOVAL	N/A	
RUNWAY STRIP EXPANSION	N/A	
REALIGNMENT OF PUBLIC ROAD	N/A	

LAND ACQUISITION	
INDEX	AREA (m²)
A	657m²
B	1,646m²
C	1,943m²
D	3,917m²

NEW ACCESS ROAD
NEW PARKING LOT 3300m²
CLEARWAY 492'x492' (150mx150m)
RESA GRADING AND DRAINAGE WORKS
RESA 295'x295' (90mx90m)
TWY A
RUNWAY 09-27
TURTLE HABITAT
CLEARWAY 492'x492' (150mx150m)
RESA SHIFTED EASTWARD 248' (75.6m)
RESA 295'x295' (90mx90m)
5751' RWY 09 LDA [1753m]
5751' RWY 27 TORA, ASDA, LDA [1753m]
6000' RWY 09 TORA, ASDA [1829m]
6493' RWY 09 TODA [1979m]
6243' RWY 27 TODA [1903m]

ORIGINAL SHEET - ANSI D

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Legend

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SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.28

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	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title
CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - SHORT TERM

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
SP2	2 of 5	

BUILDING INDEX

No.	DESCRIPTION
1	AIRPORT MAINTENANCE
2	RESCUE FIRE FIGHTING SERVICES
3	PASSENGER TERMINAL
4	AVIATION FUEL TANK
5	WATER AUTHORITY / WATER TANKS
6	WESTERLY PONDS
7	NEW ATC TOWER & ATM BUILDING
8	NEW RUNWAY THRESHOLD TURNING BAYS
9	RUNWAY 09 - 27 STRIP EXPANSION (INOT PONDS)
10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA
13	NWS MET FACILITY / WEATHER STATION
14	PRIVATE, THIRD PARTY (OFF-AIRPORT) FBO

TRUE NORTH

MAGNETIC NORTH

6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

PHASING:

- MEDIUM TERM OPTION
- EXISTING/SHORT TERM

LEGEND:

ITEM	EXISTING/SHORT TERM	PROPOSED - MEDIUM TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION		
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
VEGETATION REMOVAL		N/A
RUNWAY STRIP EXPANSION		N/A
REALIGNMENT OF PUBLIC ROAD		

NEW ACCESS ROAD

NEW PARKING LOT 3300m²

THIRD PARTY GA DEVELOPMENT

CLEARWAY
492'x492'
(150mx150m)

RESA
295'x295'
(90mx90m)

TWY A

RUNWAY 09-27

TURTLE HABITAT

CLEARWAY
492'x492'
(150mx150m)

RESA
295'x295'
(90mx90m)

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Notes

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SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.28

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	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - MEDIUM TERM

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision

BUILDING INDEX

No.	DESCRIPTION
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2	RESCUE FIRE FIGHTING SERVICES
3	PASSENGER TERMINAL
4	AVIATION FUEL TANK
5	WATER AUTHORITY / WATER TANKS (MOVED OFF AIRPORT)
6	WESTERLY PONDS
7	NEW ATC TOWER & ATM BUILDING
8	NEW RUNWAY THRESHOLD TURNING BAYS
9	RUNWAY 09 - 27 STRIP EXPANSION (INOT PONDS)
10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA
13	NWS MET FACILITY / WEATHER STATION
14	PRIVATE, THIRD PARTY (OFF-AIRPORT) FBO
15	MAINTENCANCE FACILITY EXPANSION
16	GENERAL AVIATION HANGAR
17	GENERAL AVIATION APRON
18	APRON EXPANSION
19	NEW TAXIWAY BRAVO

TRUE NORTH

MAGNETIC NORTH

6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

PHASING:

LONG TERM OPTION

EXISTING/SHORT/MEDIUM TERM

LEGEND:

ITEM	EXISTING/SHORT/MEDIUM TERM	PROPOSED - LONG TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION		N/A
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
VEGETATION REMOVAL		N/A
RUNWAY STRIP EXPANSION		N/A
REALIGNMENT OF PUBLIC ROAD		N/A

NEW ACCESS ROAD

NEW PARKING LOT 3300m²

CLEARWAY
492'x492'
(150mx150m)

RESA
295'x295'
(90mx90m)

TWY A

NEW TWY

RUNWAY 09-27

TURTLE HABITAT

CLEARWAY
492'x492'
(150mx150m)

RESA
295'x295'
(90mx90m)

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Notes

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SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.28

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	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title
CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - LONG TERM

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
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BUILDING INDEX

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10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA
13	NWS MET FACILITY / WEATHER STATION
14	PRIVATE, THIRD PARTY (OFF-AIRPORT) FBO
15	MAINTENCANCE FACILITY EXPANSION
16	GENERAL AVIATION HANGAR
17	GENERAL AVIATION APRON
18	APRON EXPANSION
19	NEW TAXIWAY BRAVO

TRUE NORTH
MAGNETIC NORTH
6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

DECLARED DISTANCES

EXISTING RUNWAY				
RUNWAY	TORA	TODA	ASDA	LDA
09	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	6,000ft (1,829m)
27	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	6,000ft (1,829m)
PROPOSED RUNWAY				
09	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	5,751ft (1,753m)
27	5,751ft (1,753m)	6,243ft (1,903m)	5,751ft (1,753m)	5,751ft (1,753m)

PHASING:
- SHORT TERM OPTION
- MEDIUM TERM OPTION
- LONG TERM OPTION
- EXISTING

LEGEND:

ITEM	EXISTING	PROPOSED
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
VEGETATION REMOVAL	N/A	
RUNWAY STRIP EXPANSION	N/A	
REALIGNMENT OF PUBLIC ROAD	N/A	

LAND ACQUISITION

INDEX	AREA (m²)
A	657m²
B	1,646m²
C	1,943m²
D	3,917m²

NEW ACCESS ROAD
NEW PARKING LOT 3300m²
CLEARWAY 492'x492' (150mx150m)
RESA GRADING AND DRAINAGE WORKS
TWY A
NEW TWY
RUNWAY 09-27
RESA 295'x295' (90mx90m)
TURTLE HABITAT
CLEARWAY 492'x492' (150mx150m)
RESA SHIFTED EASTWARD 248' (75.6m)
RESA 295'x295' (90mx90m)
5751' RWY 09 LDA [1753m]
5751' RWY 27 TORA, ASDA, LDA [1753m]
6000' RWY 09 TORA, ASDA [1829m]
6493' RWY 09 TODA [1979m]
6243' RWY 27 TODA [1903m]

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Notes

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SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.28

File Name: 12760892663_cayman_brac_sp-_Overall_OP1.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title
CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - ALL PHASES

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
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SECOND SUBMISSION	AM	PVM	23.09.22
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	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - LAND USE PLAN

Project No.	Scale
12760892663	1:4000

Drawing No.	Sheet	Revision
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5	WATER AUTHORITY / WATER TANKS
6	WESTERLY PONDS
7	NEW ATC TOWER & ATM BUILDING
8	NEW RUNWAY THRESHOLD TURNING BAYS
9	RUNWAY 09 - 27 STRIP EXPANSION (INOT PONDS)
10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA

TRUE NORTH

MAGNETIC NORTH

6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

PHASING:

SHORT TERM OPTION

EXISTING BUILDING

LEGEND:

ITEM	EXISTING	PROPOSED - SHORT TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
VEGETATION REMOVAL	N/A	
RUNWAY STRIP EXPANSION	N/A	
REALIGNMENT OF PUBLIC ROAD	N/A	

LAND ACQUISITION	
INDEX	AREA (m²)
A	657m²
B	1,646m²
C	1,943m²
D	3,917m²

NEW ACCESS ROAD

NEW PARKING LOT 1283m²

100ft TERMINAL
SET-BACK RESERVE

NEW PARKING LOT 1903m²

CLEARWAY
492'x492'
(150mx150m)

RESA GRADING AND
DRAINAGE WORKS

RESA
295'x295'
(90mx90m)

TWY A

RUNWAY 09-27

TURTLE HABITAT

CLEARWAY
492'x492'
(150mx150m)

RESA SHIFTED
EASTWARD 248' (75.6m)

RESA
295'x295'
(90mx90m)

5751'
RWY 09 LDA [1753m]

5751' RWY 27 TORA, ASDA, LDA [1753m]

6000' RWY 09 TORA, ASDA [1829m]

6493' RWY 09 TODA [1979m]

6243' RWY 27 TODA [1903m]

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	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - SHORT TERM (OPTION 2)

Project No.	Scale
12760892663	1:4000

Drawing No.	Sheet	Revision
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BUILDING INDEX

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5	WATER AUTHORITY / WATER TANKS
6	WESTERLY PONDS
7	NEW ATC TOWER & ATM BUILDING
8	NEW RUNWAY THRESHOLD TURNING BAYS
9	RUNWAY 09 - 27 STRIP EXPANSION (INOT PONDS)
10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA
13	NWS MET FACILITY / WEATHER STATION
14	PRIVATE, THIRD PARTY (OFF-AIRPORT) FBO

TRUE NORTH

MAGNETIC NORTH

6.25° 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

PHASING:

- MEDIUM TERM OPTION
- EXISTING/SHORT TERM

LEGEND:

ITEM	EXISTING/SHORT TERM	PROPOSED - MEDIUM TERM
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION		
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
VEGETATION REMOVAL		N/A
RUNWAY STRIP EXPANSION		N/A
REALIGNMENT OF PUBLIC ROAD		

NEW ACCESS ROAD
PARKING LOT 3300m²
100ft TERMINAL SET-BACK RESERVE
PARKING LOT 1903m²
THIRD PARTY GA DEVELOPMENT
CLEARWAY 492'x492' (150mx150m)
RESA 295'x295' (90mx90m)
TWY A
RUNWAY 09-27
TURTLE HABITAT
CLEARWAY 492'x492' (150mx150m)
RESA 295'x295' (90mx90m)

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	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title
CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - MEDIUM TERM

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
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ORIGINAL SHEET - ANSI D

BUILDING INDEX	
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1	AIRPORT MAINTENANCE
2	RESCUE FIRE FIGHTING SERVICES
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4	AVIATION FUEL TANK
5	WATER AUTHORITY / WATER TANKS (MOVED OFF AIRPORT)
6	WESTERLY PONDS
7	NEW ATC TOWER & ATM BUILDING
8	NEW RUNWAY THRESHOLD TURNING BAYS
9	RUNWAY 09 - 27 STRIP EXPANSION (INOT PONDS)
10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA
13	NWS MET FACILITY / WEATHER STATION
14	PRIVATE, THIRD PARTY (OFF-AIRPORT) FBO
15	MAINTENCANCE FACILITY EXPANSION
16	GENERAL AVIATION HANGAR
17	GENERAL AVIATION APRON
18	APRON EXPANSION
19	NEW TAXIWAY BRAVO



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SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.28

File Name: 12760892663_cayman_brac_sp_LongTerm_OP2.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - LONG TERM (OPTION 2)

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
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ORIGINAL SHEET - ANSI D

BUILDING INDEX	
No.	DESCRIPTION
1	AIRPORT MAINTENANCE
2	RESCUE FIRE FIGHTING SERVICES
3	PASSENGER TERMINAL
4	AVIATION FUEL TANK
5	WATER AUTHORITY / WATER TANKS
6	WESTERLY PONDS
7	NEW ATC TOWER & ATM BUILDING
8	NEW RUNWAY THRESHOLD TURNING BAYS
9	RUNWAY 09 - 27 STRIP EXPANSION (INOT PONDS)
10	RUNWAY 09-27 STRIP EXPANSION (VEGETATION REMOVAL)
11	REALIGNMENT OF PUBLIC ROAD
12	RESA
13	NWS MET FACILITY / WEATHER STATION
14	PRIVATE, THIRD PARTY (OFF-AIRPORT) FBO
15	MAINTENCANCE FACILITY EXPANSION
16	GENERAL AVIATION HANGAR
17	GENERAL AVIATION APRON
18	APRON EXPANSION
19	NEW TAXIWAY BRAVO



DECLARED DISTANCES				
EXISTING RUNWAY				
RUNWAY	TORA	TODA	ASDA	LDA
09	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	6,000ft (1,829m)
27	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	6,000ft (1,829m)
PROPOSED RUNWAY				
09	6,000ft (1,829m)	6,492ft (1,979m)	6,000ft (1,829m)	5,751ft (1,753m)
27	5,751ft (1,753m)	6,243ft (1,903m)	5,751ft (1,753m)	5,751ft (1,753m)

PHASING:

- SHORT TERM OPTION
- MEDIUM TERM OPTION
- LONG TERM OPTION
- EXISTING

LEGEND:

ITEM	EXISTING	PROPOSED
AIRPORT PROPERTY LINE		N/A
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT		
CONCRETE PAVEMENT		
BUILDING		
VEGETATION REMOVAL	N/A	
RUNWAY STRIP EXPANSION	N/A	
REALIGNMENT OF PUBLIC ROAD	N/A	

LAND ACQUISITION	
INDEX	AREA (m²)
A	657m²
B	1,646m²
C	1,943m²
D	3,917m²

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Revision	By	Appd.	YY.MM.DD
SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.28

File Name: 12760892663_cayman_brac_sp_Overall_OP2.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
SP-4	4 of 5	

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Revision	By	Appd.	YY.MM.DD
SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.28

File Name: 12760892663_cayman_brac_Land_Use-OP2.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.20

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

CAYMAN BRAC
INTERNATIONAL AIRPORT
CAYMAN BRAC, CKIA - LAND USE PLAN (OPTION2)

Project No.	Scale
12760892663	1:4000

Drawing No.	Sheet	Revision
SP-5	5 of 5	

ORIGINAL SHEET - ANSI D

Appendix J Discounted Options for Expansion of EBA & Preferred Development Plans, LYB2

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SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	23.02.01

File Name: Little Cayman - Existing 2C Non-Instrument.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.02.01

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORT DEVELOPMENT PROJECT

Cayman Islands

Title
LITTLE CAYMAN
EXISTING EBA - EXPANSION TO NON-INSTRUMENT CODE 2C RUNWAY

Project No.
12760892663

Scale
1:4000 (0, 40, 120, 200m)

Drawing No.
SP-1A

Sheet
2 of 12

Revision

ORIGINAL SHEET - ANSI D



DECLARED DISTANCES					
PROPOSED RUNWAY					
RUNWAY	TORA	TODA	ASDA	LDA
10	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)
28	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)

LEGEND:

ITEM
EXISTING RUNWAY
PROPOSED RUNWAY
RUNWAY STRIP
APPROACH SURFACE
TERMINAL
AIRCRAFT PARKING APRON

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FIRST SUBMISSION	AM	PVM	23.02.01

File Name: Little Cayman - Existing 2C Non-Precision.dwg

Dwn.	Chkd.	Dsgn.	YY.MM.DD
MCL	PVM	AM	23.02.01

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORT DEVELOPMENT PROJECT

Cayman Islands

Title

LITTLE CAYMAN
EXISTING EBA - EXPANSION TO NON-PRECISION INSTRUMENT CODE 2C RUNWAY

Project No. 12760892663

Scale 1:4000 (0, 40, 120, 200m)

Drawing No. SP-1B

Sheet 3 of 12

Revision

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FIRST SUBMISSION	AM	PVM	23.02.01

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	MCL	PVM	AM	23.02.01

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Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORT DEVELOPMENT PROJECT

Cayman Islands

Title

LITTLE CAYMAN
EXISTING EBA - EXPANSION TO NON-INSTRUMENT CODE 3C RUNWAY

Project No. 12760892663

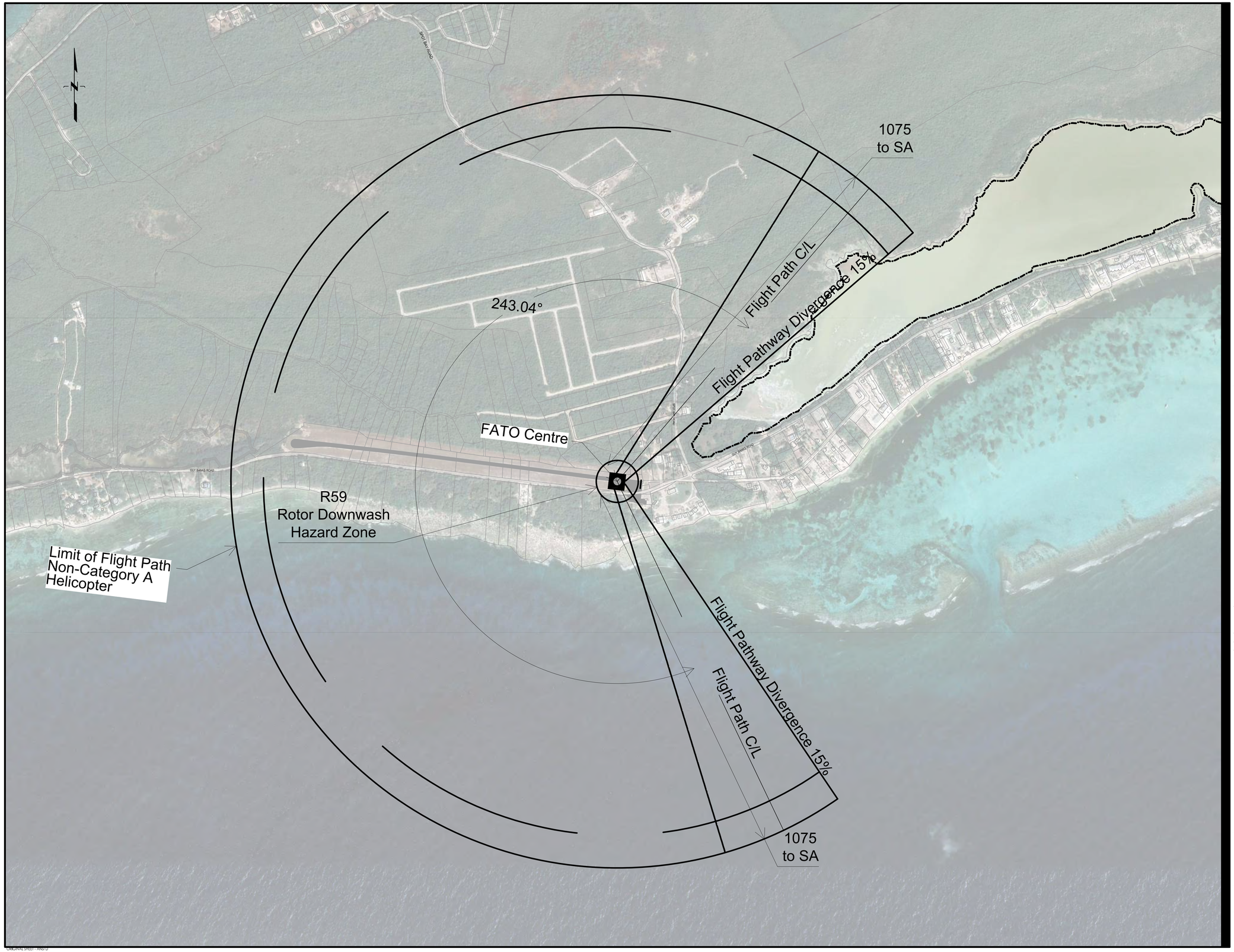
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Drawing No. SP-1C

Sheet 4 of 12

Revision

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FIRST SUBMISSION	AM	PVM	22.09.14

File Name: 12760892663_little_cayman_sp_PROPOSED_HELIPORT.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	AM	PVM	AM	22.09.14

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Client/Project

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AIRPORT DEVELOPMENT PROJECT

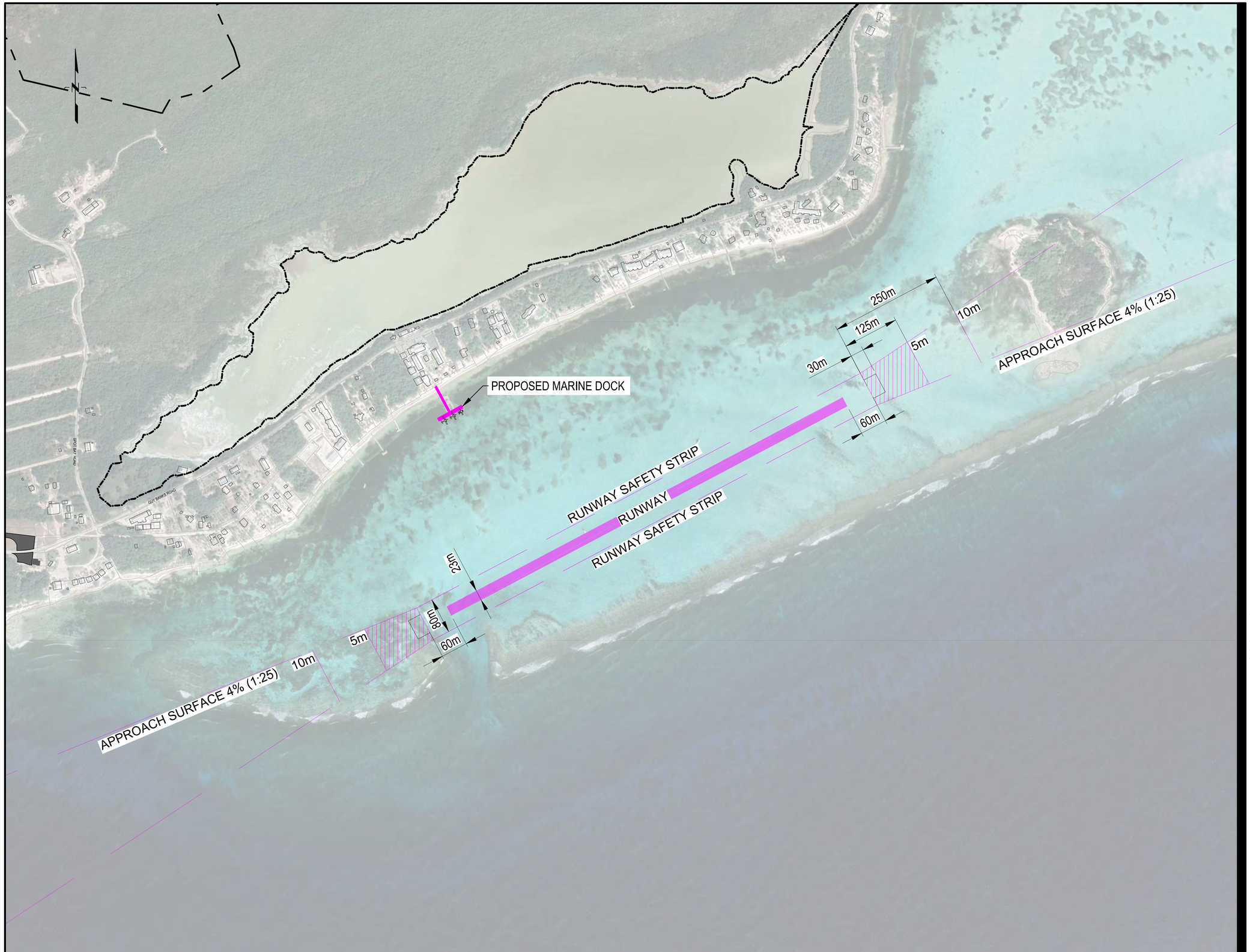
Cayman Islands

Title

LITTLE CAYMAN
EXISTING EBA - CLOSE EBA,
CONVERT RUNWAY TO HELIPORT

Project No.	Scale	
12760892663	1:5000	
Drawing No.	Sheet	Revision
SP-2	5 of 12	

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SECOND SUBMISSION	AM	PVM	23.09.22
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File Name: 12760892663_little_cayman_sp_Seaplane_base.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	AM	PVM	AM	22.09.14

Permit-Seal

Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORT DEVELOPMENT PROJECT

Cayman Islands

Title
LITTLE CAYMAN
EXISTING EBA - CLOSE EBA,
DEVELOP NEW AERODROME

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
SP-3	6 of 12	

TRUE NORTH

MAGNETIC NORTH

6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

DECLARED DISTANCES					
PROPOSED RUNWAY					
RUNWAY	TORA	TODA	ASDA	LDA
07	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)
25	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)

BUILDING INDEX	
No.	DESCRIPTION
1	ARFF/COMBINED SERVICES BUILDING
2	ATB
3	AVIATION FUEL

PHASING:

SHORT TERM OPTION

FUTURE OPTION

LEGEND:

ITEM	EXISTING	PROPOSED
AIRPORT PROPERTY LINE		
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT	N/A	
CONCRETE PAVEMENT	N/A	
BUILDING	N/A	
WETLAND		

BLOOD BAY

EXISTING LANDFILL TO BE RELOCATED

TRANSITIONAL SURFACE

3934' [1199m] TORA TODA ASDA LDA

AIRPORT SERVICE TRAIL

RESA

295' [90m]

196' [60m]

APPROACH SURFACE 4% (1:25)

RWY NON-INSTRUMENT REFERENCE CODE 2C

FUTURE TAXIWAY

AIRPORT SERVICE TRAIL

738' [225m]

98' [30m]

262' [80m]

RESA

AIRPORT SERVICE TRAIL

FUTURE TAXIWAY

TRANSITIONAL SURFACE

APPROACH SURFACE 4% (1:25)

AIRPORT ACCESS ROAD

PROPERTY LINE

WETLAND

CRITICALLY ENDANGERED SPECIES/SNAILS

SPOT BAY ROAD

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FIRST SUBMISSION	AM	PVM	22.09.14

File Name: 12760892663_little_cayman_sp_PROPOSED_AIRPORT - Code 2C Non-instrument.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.13

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Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

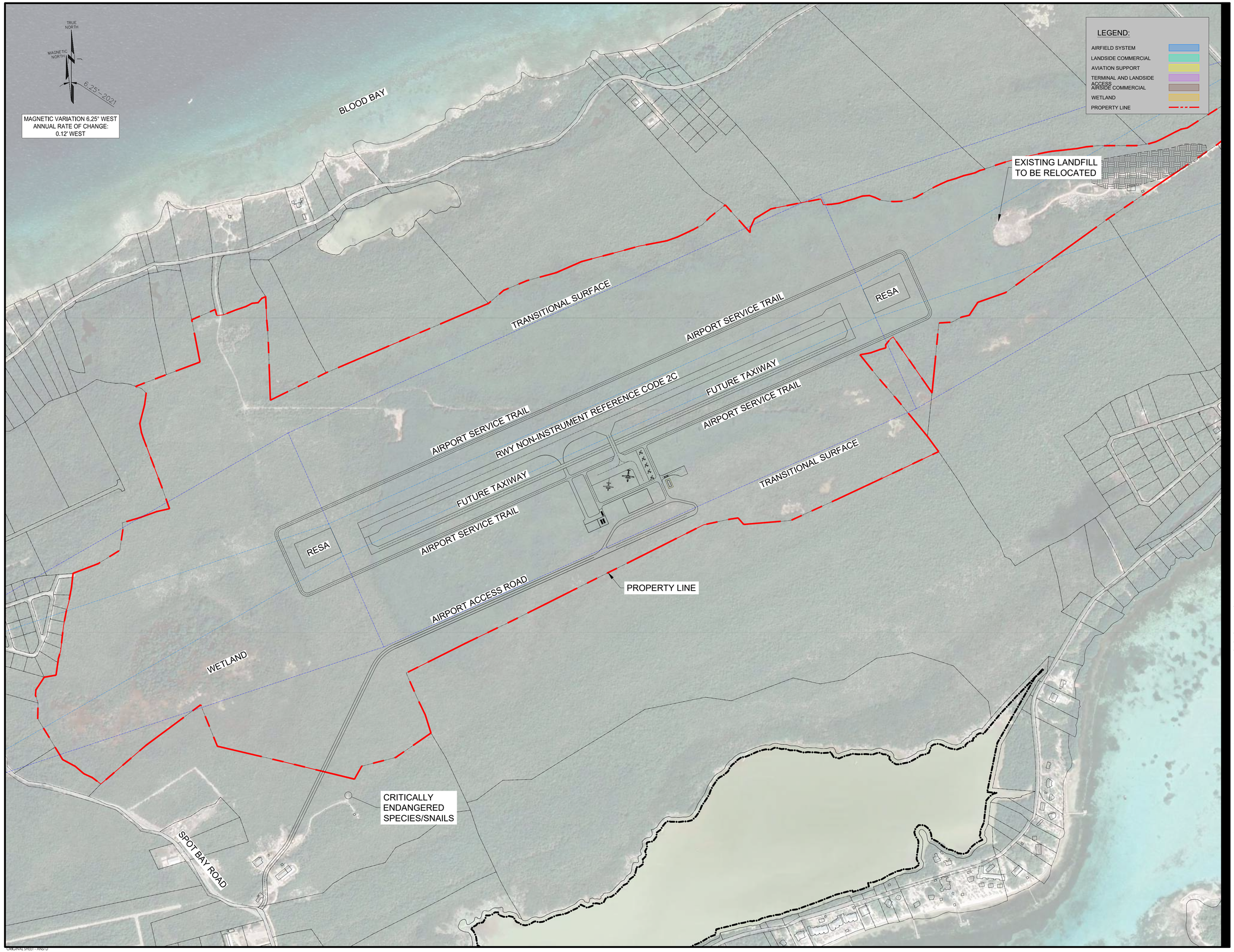
AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

NEW LCB2 - CLOSE EBA,
DEVELOP NEW AIRPORT, CODE 2C
NON-INSTRUMENT RUNWAY PLAN

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
SP-4A 1	7 of 12	



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FIRST SUBMISSION	AM	PVM	22.09.14

File Name: 12760892663_little_cayman_Land_Use - Code 2C Non-instrument.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.13

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

NEW LCB2 - CLOSE EBA,
DEVELOP NEW AIRPORT, CODE 2C
NON-INSTRUMENT RUNWAY - LAND USE PLAN

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
SP-4A 2	8 of 12	

TRUE NORTH

MAGNETIC NORTH

6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

DECLARED DISTANCES					
PROPOSED RUNWAY					
RUNWAY	TORA	TODA	ASDA	LDA	
07	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	
25	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	3,934ft (1,199m)	

BUILDING INDEX	
No.	DESCRIPTION
1	ARFF/COMBINED SERVICES BUILDING
2	ATB
3	AVIATION FUEL

PHASING:
- SHORT TERM OPTION
- FUTURE OPTION

LEGEND:

ITEM	EXISTING	PROPOSED
AIRPORT PROPERTY LINE		
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT	N/A	
CONCRETE PAVEMENT	N/A	
BUILDING	N/A	
WETLAND		

BLOOD BAY

EXISTING LANDFILL TO BE RELOCATED

TRANSITIONAL SURFACE

APPROACH SURFACE 3.33% (1:30)

AIRPORT SERVICE TRAIL

3934' [1199m] TORA TODA ASDA LDA

RWY NON-PRECISION REFERENCE CODE 2C

FUTURE TAXIWAY

AIRPORT SERVICE TRAIL

738' [225m]

98' [30m]

295' [90m]

459' [140m]

197' [60m]

RESA

738' [225m]

AIRPORT SERVICE TRAIL

FUTURE TAXIWAY

AIRPORT SERVICE TRAIL

PARKING

TRANSITIONAL SURFACE

APPROACH SURFACE 3.33% (1:30)

AIRPORT ACCESS ROAD

PROPERTY LINE

WETLAND

CRITICALLY ENDANGERED SPECIES/SNAILS

SPOT BAY ROAD

CODE C 984' [300m]

RESA

APPROACH SURFACE 3.33% (1:30)

256m 59'

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SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	22.09.14

File Name: 12760892663_little_cayman_sp_PROPOSED_AIRPORT- Code 2C Non-Precison.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.13

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Client/Project
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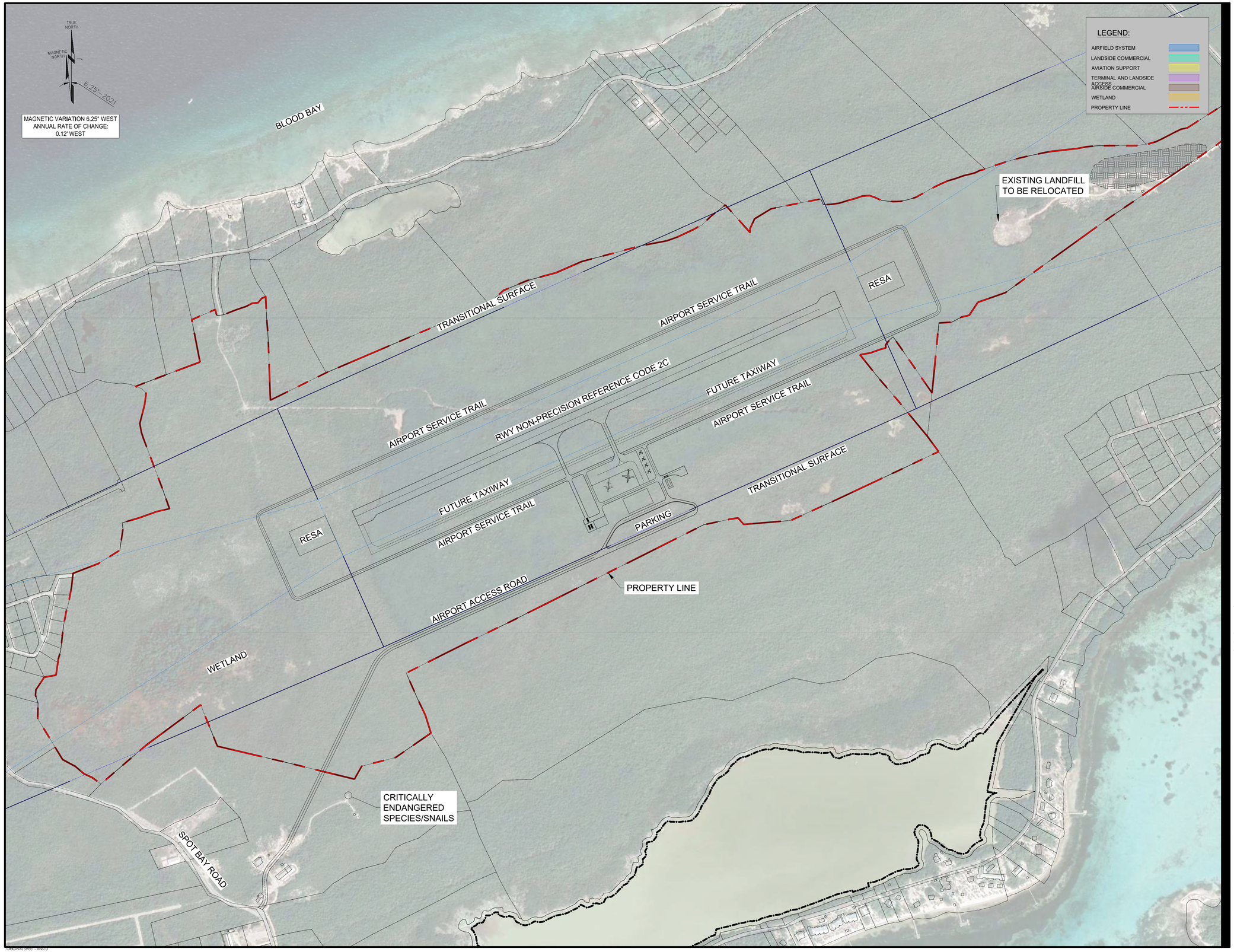
AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title
NEW LCB2 - CLOSE EBA,
DEVELOP NEW AIRPORT, CODE 2C
NON-PRECISION INSTRUMENT RUNWAY PLAN

Project No.	Scale	
12760892663	1:4000	
Drawing No.	Sheet	Revision
SP-4B 1	9 of 12	

ORIGINAL SHEET - ANSI D



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FIRST SUBMISSION	AM	PVM	22.09.14

File Name: 12760892663_little_cayman_Land_Use - Code 2C Non-Precision.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.13

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

NEW LCB2 - CLOSE EBA, DEVELOP NEW AIRPORT, CODE 2C NON-PRECISION INSTRUMENT RUNWAY - LAND USE PLAN

Project No.	Scale	
12760892663	1:4000	
Drawing No.	**Sheet**	**Revision**
SP-4B 2	10of 12	

TRUE NORTH

MAGNETIC NORTH

6.25° - 2021

MAGNETIC VARIATION 6.25° WEST
ANNUAL RATE OF CHANGE:
0.12' WEST

DECLARED DISTANCES					
PROPOSED RUNWAY					
RUNWAY	TORA	TODA	ASDA	LDA
07	5,000ft (1,524m)	5,000ft (1,524m)	5,000ft (1,524m)	5,000ft (1,524m)
25	5,000ft (1,524m)	5,000ft (1,524m)	5,000ft (1,524m)	5,000ft (1,524m)

BUILDING INDEX	
No.	DESCRIPTION
1	ARFF/COMBINED SERVICES BUILDING
2	ATB
3	AVIATION FUEL

PHASING:
- SHORT TERM OPTION
- FUTURE OPTION

LEGEND:

ITEM	EXISTING	PROPOSED
AIRPORT PROPERTY LINE		
LAND ACQUISITION	N/A	
ASPHALT PAVEMENT	N/A	
CONCRETE PAVEMENT	N/A	
BUILDING	N/A	
WETLAND		

BLOOD BAY
TRANSITIONAL SURFACE
492' [150m]
EXISTING LANDFILL TO BE RELOCATED
APPROACH SURFACE 3.33% (1:30)
RESA
AIRPORT SERVICE TRAIL
5000' [1524m] TORA TODA ASDA LDA
RWY NON-INSTRUMENT REFERENCE CODE 3C
FUTURE TAXIWAY
305' [93m]
85' [26m]
1033' [315m]
96' [29m]
295' [90m]
197' [60m]
PARKING
PROPERTY LINE
AIRPORT ACCESS ROAD
WETLAND
CRITICALLY ENDANGERED SPECIES/SNAILS
SPOT BAY ROAD

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File Name: 12760892663_little_cayman_sp_PROPOSED_AIRPORT - Code 3C.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
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Client/Project
CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

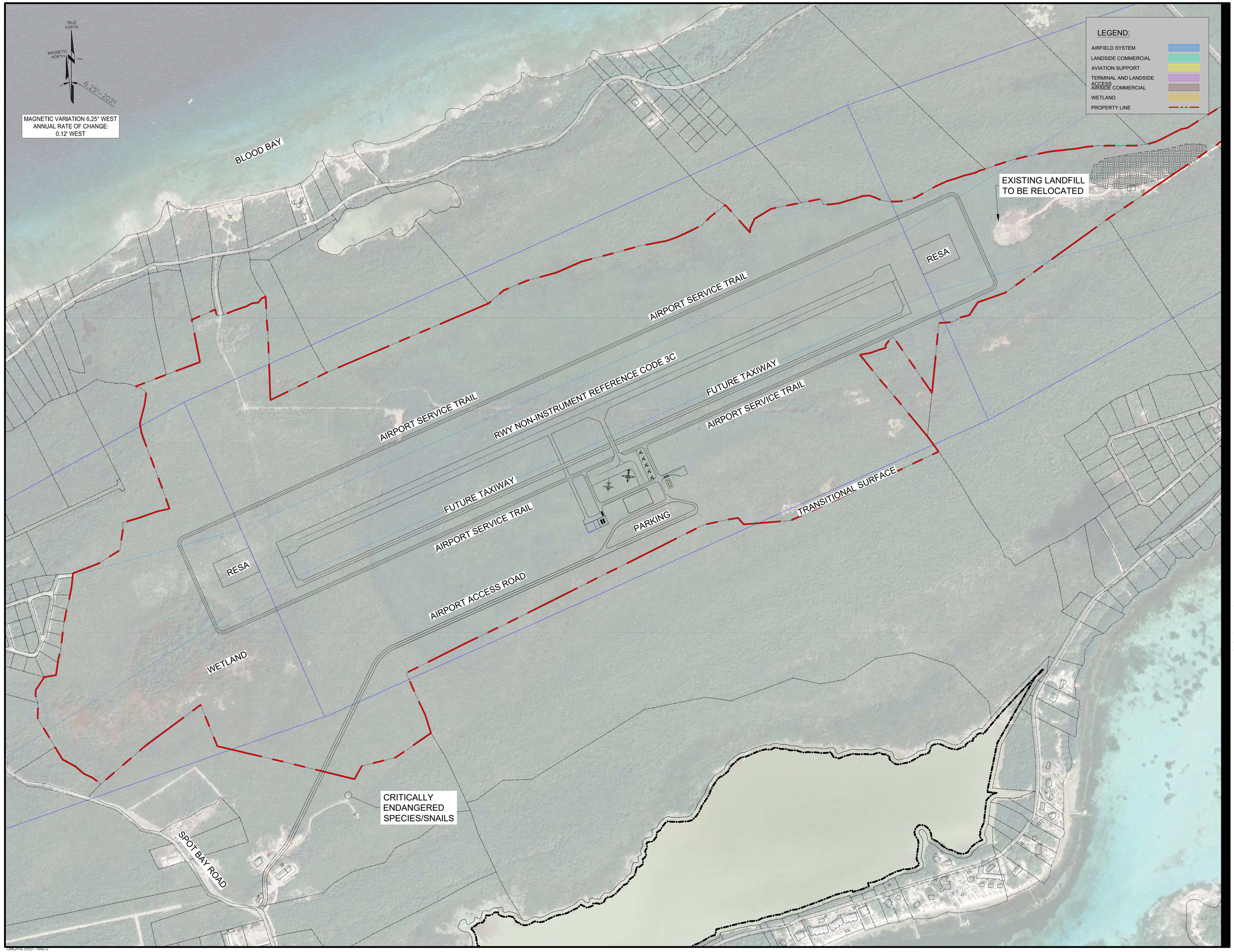
AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title
NEW LCB2 - CLOSE EBA,
DEVELOP NEW AIRPORT, CODE 3C
NON-INSTRUMENT RUNWAY PLAN

Project No.	Scale
12760892663	1:4000

Drawing No.	Sheet	Revision
SP-4C 1	11 of 12	



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Consultants

Legend

Notes

Revision	By	Appd.	YY.MM.DD
SECOND SUBMISSION	AM	PVM	23.09.22
FIRST SUBMISSION	AM	PVM	23.01.13

File Name: 12760892663_little_cayman_Land_Use - Code 3C.dwg	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MCL	PVM	AM	23.01.13

Permit-Seal

Client/Project

CAYMAN ISLANDS AIRPORTS AUTHORITY (CIAA)

AIRPORTS DEVELOPMENT PROJECT

Cayman Islands

Title

NEW LCB2 - CLOSE EBA,
DEVELOP NEW AIRPORT, CODE 3C
NON-INSTRUMENT RUNWAY - LAND USE PLAN

Project No.	Scale
12760892663	1:4000

Drawing No.	Sheet	Revision
SP-4C 2	12of 12	

Appendix K Project A-1, A-2, B & C Renderings

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3D RENDERING - PROPOSED TERMINAL EXPANSION, GRAND CAYMAN
CIAA - AIRPORTS DEVELOPMENT PROJECT
CAYMAN ISLANDS

2023.01.06



3D RENDERING - PROPOSED GENERAL AVIATION TERMINAL, GRAND CAYMAN
CIAA - AIRPORTS DEVELOPMENT PROJECT
CAYMAN ISLANDS
2023.01.06



3D RENDERING - PROPOSED TERMINAL EXPANSION, CAYMAN BRAC
CIAA - AIRPORTS DEVELOPMENT PROJECT
CAYMAN ISLANDS
2023.01.06



3D RENDERING - PROPOSED AIRPORT, LITTLE CAYMAN
CIAA - AIRPORTS DEVELOPMENT PROJECT
CAYMAN ISLANDS
2023.01.06



Design with community in mind