



Public Engagement Outline Business Case

October, 2013

Grand Cayman Cruise Berthing Facility

Basis of Preparation and Disclaimer

Basis of Preparation

This Public Engagement Outline Business Case ("Public OBC") for the Grand Cayman Cruise Berthing Facility project ("Project") has been prepared solely for the Cayman Islands Government ("CIG" or "Government"), as required under the contract for consultancy services dated 2 July, 2013, between PwC Corporate Finance & Recovery (Cayman) Limited ("PwC") and the CIG. PwC Corporate Finance & Recovery (Cayman) Limited is a member firm of PricewaterhouseCoopers International Limited, each member firm of which is a separate legal entity.

This Public OBC summarises the information and findings in the original OBC, presented to CIG on 8 October, 2013. As agreed with CIG, in order to protect CIG's position in a competitive procurement process, the Public OBC excludes material information and findings relating to costing, financial modelling and strategic advice. This information has therefore been withheld on the basis of commercial sensitivity.

All currency amounts in this document are expressed in US dollars unless otherwise noted.

Disclaimer

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In preparing this report PwC must stress that it has relied upon information provided by, amongst others, the CIG, the Port Authority of the Cayman Islands, the Department of Tourism, the Department of Environment, the National Roads Authority, Caribbean Marine Services, Mott MacDonald Ltd. and BCQS International. **PwC has not performed an audit examination on this information. Except where specifically stated, PwC has not sought to establish the reliability of the sources of information presented to them by reference to independent evidence. The financial analyses presented in this report are based on estimates and assumptions, and projections of uncertain future events. Accordingly, actual results will vary from the information provided in this report, even if some or all of the assumptions materialize such variances may be significant as a result of unknown variables.**

Glossary of Terms and Abbreviations

BCQS	BCQS International
Borrowing Limit	The Cayman Islands' public sector debt restrictions, as defined under the FFR and its transitional provisions
CTC	CIG's Central Tenders Committee
CMS	Caribbean Marine Services, the sole provider of cruise tendering services in Grand Cayman
DOE	CIG's Department of Environment
DOT	CIG's Department of Tourism
EIA	Environmental Impact Assessment
FCCA	The Florida-Caribbean Cruise Association
FCO	The UK Government's Foreign and Commonwealth Office
FFR	The Framework for Fiscal Responsibility agreed between CIG and FCO on 23 November, 2011 and subsequently incorporated in the PMFL
Government / CIG	The Cayman Islands Government
GVA	Gross Value Added, a monetary measure of economic impact
IFRS	International Financial Reporting Standards
IPSAS	International Public Sector Accounting Standards
IPSAS 13	IPSAS 13 - Leases
IPSAS 32	IPSAS 32 – Service Concession Arrangements - Grantor
MoT	Cayman Islands Ministry of District Administration, Tourism and Transport
Mott MacDonald	Mott MacDonald Ltd.
NRA	CIG's National Roads Authority
NCL	Norwegian Cruise Lines
NPV	Net Present Value
OBC	Outline Business Case
PACI	The Port Authority of the Cayman Islands
PPP	Public private partnership

Preferred Option	Simultaneously building two piers in the Port of George Town, immediately north of the existing Royal Watler Terminal, on land owned by the PACI
PMFL	The Cayman Islands’ Public Management and Finance Law (Revised)
Project	Building a cruise ship berthing facility in the Port of George Town in Grand Cayman
PwC	PwC Corporate Finance & Recovery (Cayman) Limited, a member firm of PricewaterhouseCoopers International Limited, each member firm of which is a separate legal entity
RCCL	Royal Caribbean Cruise Lines
SOC	The Strategic Outline Case for the Project issued by CIG on 30 April, 2013
SPS	Strategic Policy Statement, CIG’s three year strategic statement required under the FFR
Terminal	Grand Cayman’s cruise passenger terminal, bus park and other “common” areas
VfM	Value for Money

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1. Executive summary

1.1 Introduction

The Cayman Islands Government (“CIG”) is seeking to support long term sustainable growth in the cruise tourism industry in Grand Cayman, an important element of the country’s overall tourism economy. To this end, it has commenced a process to investigate the business case for, and subsequently procure, a cruise berthing facility in the Port of George Town (“the Project”). Currently, cruise ships visiting Grand Cayman are obliged to use the tendering services of the sole tender operator.

While the tendering service in the Cayman Islands is rated very highly by industry participants, tendering itself is viewed as a high-risk, negative passenger experience by cruise lines and passengers alike.

As the cruise industry matured and delivered steady passenger volume growth, competitor jurisdictions in the Caribbean region developed dedicated cruise berthing facilities in an attempt to capture a greater share of cruise tourism. This trend has increased in recent years, in response to the needs of larger vessels (such as Oasis and Quantum Class) which, due to their size, are even less suited to tender disembarkation. Accordingly, Grand Cayman is now one of few remaining major cruise destinations without berthing facilities.

Despite this, Grand Cayman retains an enviable position in cruise tourism regionally, as the 4th highest volume destination, and this success is principally a result of the Cayman Islands’ favourable location on the Western Caribbean cruise itineraries and relatively low crime rates. This has enabled the Cayman Islands to levy combined tender fees and head taxes well in excess of the regional average. However, in recent years, the lack of adequate alongside berthing facilities appears to have become a constraining factor, resulting in some removals of Grand Cayman from existing cruise itineraries. Accordingly, CIG feels it must act to protect Grand Cayman’s long term future in cruise tourism.

In April 2013, CIG produced a Strategic Outline Case (“SOC”) to outline the rationale and possible strategic options for cruise berthing, and engaged PwC on 28 June 2013 to prepare this Outline Business Case (“OBC”). The purpose of this OBC, following the requirements of the Framework for Fiscal Responsibility (“FFR”), is to:

- Identify option(s) which are affordable and optimize value for money (“VfM”);
- Identify the proposed procurement route including initial time schedule for the project delivery; and
- Identify the funding, accounting treatment and management resources for the successful delivery of the Project.

If it is determined to proceed with procurement of cruise berthing, towards the end of the procurement process a Final Business Case will be conducted, the purpose of which is to revisit the core elements of the business case and, based on the detailed deal negotiated, conclude on the financial viability, value for money, and wider economic and environmental impacts.

The overall cruise berthing project is managed by a dedicated CIG project team, overseen by a Steering Group drawn from relevant expertise across the public sector, including the Ministry of District Administration, Tourism and Transport (“MoT”), the Department of Environment (“DOE”), the Port Authority of the Cayman Islands (“PACI”), the Ministry of Finance, the Public Works Department and the Ministry of Planning, Agriculture, Housing and Infrastructure.

This OBC has been prepared by PwC Corporate Finance & Recovery (Cayman) Limited (“PwC”), with technical support on environmental issues, design layout and costing estimates provided by Mott MacDonald Ltd (“Mott MacDonald”) and BCQS International (“BCQS”).

1.2 Options analysis

The SOC set out eight options for the Project (refer **Section 3.3, Figure 1** below for the schedule of options), including variations of the status quo, one pier, two piers and relocation of cargo operations.

Before analysing these options, CIG and PwC undertook consultations with a broad range of stakeholders including relevant Government departments and authorities, local merchants, tour operators and tourism related businesses and the key users, the cruise lines calling on Grand Cayman.

The eight options were then analysed according to a number of criteria, which can be summarised as:

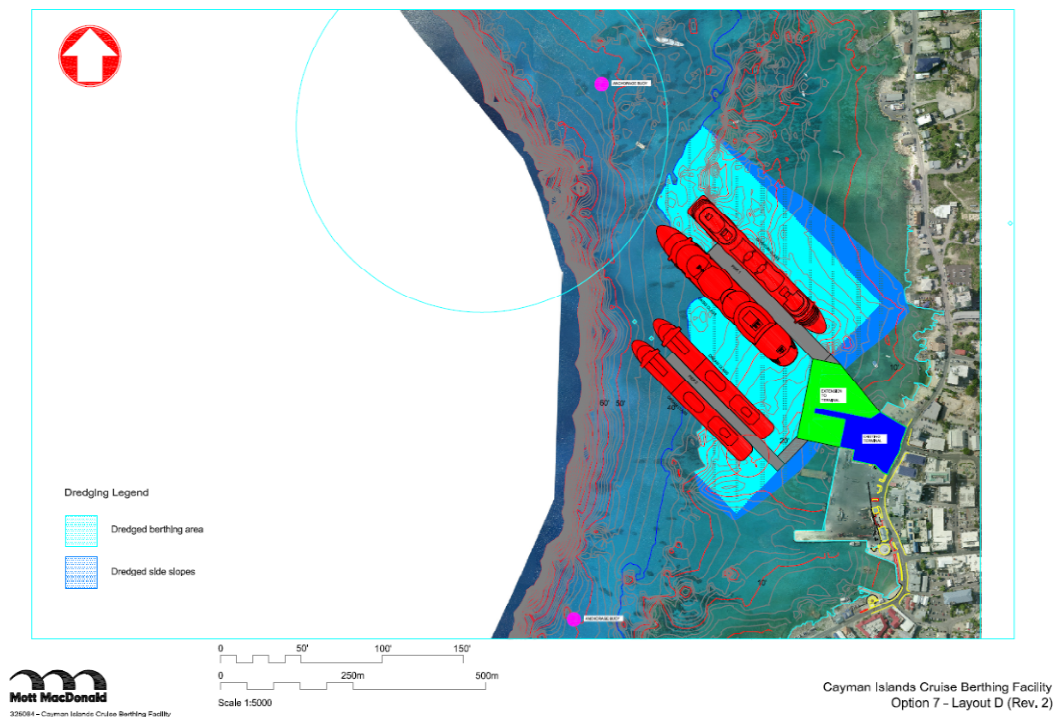
- Cruise tourism objectives;
- Affordability / financial risk;
- Construction phase factors;
- Operation phase factors; and
- Other factors.

Following this analysis, three options were shortlisted for further consideration, namely:

- Option 2: Improved status quo (as a fall-back option);
- Option 4: Phased two piers (that is, build one pier now, and a second when there is sufficient demand); and,
- Option 7: Two piers and future cargo relocation.

Mott Macdonald developed five possible pier layouts for Options 4 and 7. These were assessed, based on technical, environmental and cost considerations, and the following layout was selected:

Layout D:



A risk analysis was then conducted on each of the shortlisted options. Based on this risk analysis, the Phased two pier option was set aside on the basis that building only one pier immediately presents a significant risk of undermining the cruise tourism industry given that:

- Under a one pier scenario circa 70% of tendering service business would be lost, most likely making tendering commercially unviable and therefore possibly resulting in the loss of any ship visits that cannot either be accommodated by the pier or self-tender; and
- Based on cruise line feedback, any lines that are unable to secure adequate berthing under a one pier scenario would be likely to pull out of the destination over time, to avoid the competitive disadvantage of being unable to offer its passengers an experience equal to that of its competitors.

The selected option is therefore to immediately build two piers and, if needed, relocate cargo in the future (the “Preferred Option”).

The Preferred Option was also appraised in terms of its economic impact. This impact assessment was carried out by comparing the expected economic benefits generated under the Preferred Option, against a ‘counter-factual’ scenario, under which no cruise berthing facility is built. For these purposes, two scenarios were used to consider the possible range of economic impacts:

- **Base Case:** cruise passenger volumes assumed to grow at 1% p.a. with cruise berthing, until reaching a cap of 2.3 m p.a. Without cruise berthing, passenger volumes assumed to decline at 1% p.a. until reaching a floor of 1 m p.a.; and
- **Upside Base Case:** instead of a 1% grow and decline rate, this scenario uses a 3% assumed growth and decline rate respectively.

The net economic impact of the Base Case scenario is estimated at \$245 m and 999 full time employees, as set out below:

Net impact of cruise berthing facility

	(b) With cruise berthing facility	(a) Without cruise berthing facility	Net impact (a) - (b)
GVA (Net present value, \$m)			
Direct	18	85	-67
Indirect & induced	14	2	11
Wider	2,148	1,905	242
Tax revenue	347	288	59
Total	2,526	2,281	245
Employment			
Construction (man years)	491	-	491
Operations (FTEs)	2,140-2,785	1,786-2,140	999 (in 2036)

Source: PwC analysis – see disclaimer at page 1.

Under the Upside Base Case, the estimated net economic impact of the Project is increased to \$1,196 m.

1.3 Procurement models

Potential procurement models for the Project were developed based on:

- CIG’s desire to minimise its investment burden in the Project;
- The need to properly allocated risks to those best able to manage them, in particular cruise volume risk and design and construction risk; and

- The need to attract credible proponents, and in particular cruise lines, to the Project.

Three potential procurement models were developed, all of which are types of public private partnership (“PPP”):

- **Greater risk transfer PPP:** under this model, a cruise line or consortium of cruise lines, would sign a long term agreement (say 20 years) with CIG to design, build and control the two piers. The proponent would pay for all works and would keep all berthage fees. CIG would take back the piers at the end of the agreement. Throughout the operating period PACI would provide the operating services, but the proponent would control the commercial elements, such as scheduling of berths.
- **CIG-financed PPP:** under this model, CIG would sign long term leases, either for each pier separately, or both together, with cruise lines. The cruise lines would guarantee a minimum annual passenger volume. CIG would have the piers built, under a fixed price design-build-finance contract and would pay the full amount on completion. To pay for this contract, a significant amount of debt would need to be issued by CIG, which it would pay-off with a combination of berthing fee and head tax revenues.
- **Cruise line-financed PPP:** this model is similar to the CIG-financed PPP, except that the cruise lines would make an upfront payment for the piers over the contract life, rather than paying berthage fees over time. These upfront payments would be used by CIG to partially cover the cost of pier construction. The proportion of construction cost not covered by the lease payments would need to be financed by CIG and paid off over time using head tax revenues.

Based on an analysis of the three procurement options, the Greater Risk Transfer PPP was identified as the preferred procurement model principally because it transfers the bulk of demand and construction risk to the proponent, and also given a perceived preference among potential proponents.

1.4 Affordability and funding requirements

As a result of the significant capital cost involved, the Project is not financially self-sustainable based solely on the berthing fees it could generate, after taking account of likely passenger volumes, operating costs and required returns on capital. However, a contribution by CIG of a portion of the head tax it collected could bridge the gap between the Project’s funding needs and its self generated berthing fees.

Under the Project under the Greater risk transfer PPP model this CIG contribution would be in the form of sharing a proportion of CIG’s head tax with the PPP.

These amounts of net head tax revenue should be compared to the projected head tax revenue should no cruise berthing be built.

Based on the Base Case scenario over the 20 year PPP term, CIG’s net head tax revenue, in nominal dollars, would be slightly higher with the Project, than without the project, even after reflecting the portion of head tax contributed to the PPP. Based on these assumptions, the Project can be judged affordable under the Greater risk transfer PPP model.

Under the Greater risk transfer PPP model, the Project does not require any upfront funding from CIG.

The accounting treatment of the Project for CIG will depend upon the detail of the eventual agreement to be signed with proponents. Under the Greater risk transfer PPP model, it is likely that the piers and associated debt would be recognised in the balance sheet of the PPP. The accounting treatment of CIG’s ongoing obligation to contribute to the PPP will depend on the eventual contractual terms negotiated, and in particular whether it represents a fixed utility type payment or a sharing arrangement for incremental revenue from the Project.

1.5 Proposed procurement process

The procurement process for the Project must be open, competitive and transparent.

The first step will be a separate request for qualifications (“RFQ”), which will seek responses from cruise lines or financial investors associated with cruise lines, who can demonstrate their ability to bring high volumes of cruise passengers to Grand Cayman.

The next steps will depend on the number of proponents qualified under the RFQ:

- If two or three qualified proponents

This next stage is a process, during which CIG presents a transaction outline to each proponent and discusses it with them. These discussions take place individually in order to encourage proponents to exchange openly with CIG. The purpose is to develop a transaction that is suitable for both CIG and the two/three qualified proponents. When this is achieved, the proponents are invited to each submit a proposal by a certain date. CIG evaluates these proposals and selects the best one according to its pre-established criteria.

Because discussions are held individually with each proponent, the resulting potential transaction, though broadly the same in all cases, could have some minor variations in order to better meet the proponents’ needs. To ensure discussion are conducted in a manner which is fair to all proponents and that they are all treated equitably, CIG could name an independent fairness auditor who would participate in all discussions and report on the fairness of the process.

The selected proposal would have to provide VfM before being approved by CIG.

- If only one proponent

If only one proponent is qualified under the RFQ, the proponent and CIG would immediately start negotiating the terms of a transaction, using CIG’s transaction outline as a starting point. Should CIG and the proponent reach an agreement, further steps would need to be completed before the agreement could be approved by CIG in order to compensate for the lack of competition:

- It would be reviewed to ensure it provides VfM to CIG; and possibly in addition
- It could possibly be made public along with an invitation to interested parties to submit a competing bid based on the same transaction terms but providing better value to CIG.

Should one or more improved competing bids be submitted by acceptable new parties, both the original single proponent and the new proponent(s) would be invited to submit a revised, final proposal.

Regardless of the number of proponents, a key factor in evaluation of any resulting proposals will be the proponents’ ability to deliver the required cruise volumes to make the Project a success.

Proponents will also be allowed to submit an alternative proposal along with their compliant proposal. Alternative proposals could be based on a different procurement model, such as the cruise line-financed PPP model, or a different pier designs. CIG should be willing to consider such alternative proposals so as to benefit from cruise line innovation but would be under no obligation to accept an alternative proposal. In all cases, VfM would have to be demonstrated before a proposal could be approved.

The procurement timeline for the Project will be governed by a number of factors including the time required for CIG approvals, public consultation and for the environmental impact assessment process. As such, the proposed timeline below is potentially subject to variation:

Proposed timeline

OBC approval	
Presentation to cabinet	Early October, 2013
Public consultation on OBC	November, 2013

CIG, FCO and CTC approval	December, 2013
Environmental reviews	
Public consultation on EIA Scoping Report	November, 2013
RFP for environmental consultant	December, 2013 – February, 2014
Environmental Impact Assessment	February – September, 2014
Final EIA on preferred bid	December, 2014 – January, 2015
RFQ and preparation of proposals	
RFQ	January – February, 2014
Competitive dialogue/negotiations	April - August, 2014
Submission of proposals*	September, 2014
Completion	
Selection of preferred proponent	October, 2014
Final business case	November, 2014 – January, 2015
Financial close	February – March, 2015

**Note: Proposals must take into account results of the EIA, which is expected to complete by September, 2014*

2. Introduction

2.1 Background on the regional and Cayman Islands cruise industry

On 5 March, 2013 the Cayman Islands Government (“CIG”) issued a policy directive for the development of a cruise berthing facility in George Town (the “Project”). This policy is intended to support CIG’s broad outcome goal of “Setting the Stage” for success in the tourism industry. In April 2013, a Strategic Outline Case (“SOC”) (refer **Appendix A**) was produced by CIG outlining the possible rationale and strategic options for cruise berthing, and PwC was engaged on 28 June 2013 to prepare this Outline Business Case (“OBC”) for cruise berthing.

Cruise tourism has been an important feature of the Cayman Islands economy for over three decades, and with the advent of mass cruise tourism, it now represents a significant element of the Cayman Islands’ tourism sector, providing high-volumes of visitors throughout the busy season. In contrast to other forms of tourism, cruise is relatively resilient to economic cycles, as cruise operators generally ensure their ships sail full through discounting. Importantly, through the retail, tour operator and restaurant industries, the benefits of cruise tourism are widely dispersed into the local economy, providing a source of flexible employment and entrepreneurial opportunities.

In light of the absence of a natural protected harbour or large scale docking facilities in Grand Cayman, cruise tourism in the Cayman Islands has historically been reliant on tendering of passengers ashore, and specifically the services of the sole tender provider, Caribbean Marine Services (“CMS”).

While the tendering service in the Cayman Islands is rated very highly by industry participants, tendering itself is viewed as a high-risk, negative passenger experience by cruise lines and passengers alike.

As the cruise industry matured and delivered steady passenger volume growth, competitor jurisdictions in the Caribbean region developed dedicated cruise berthing facilities in an attempt to capture a greater share of cruise tourism. This trend has increased in recent years, in response to the needs of larger vessels (such as Oasis and Quantum Class) which, due to their size, are even less suited to tender disembarkation. Accordingly, Grand Cayman is now one of few remaining major cruise destinations without berthing facilities.

Despite not having developed cruise berthing, the Cayman Islands has continued to enjoy a strong position in the Caribbean cruise market, generally attracting between 1.4m – 1.8m cruise visitors, representing the 4th highest volume destination regionally¹. This success in cruise tourism is principally a result of the Cayman Islands’ favourable location on the Western Caribbean cruise itineraries and relatively low crime rates. This has enabled the Cayman Islands to levy combined tender fees and head taxes well in excess of the regional average.

However, in recent years, the lack of adequate alongside berthing facilities appears to have become a constraining factor, resulting in some removals of Grand Cayman from existing cruise itineraries and the newer ‘mega-ship’ classes unwilling to moor and tender at George Town.

In conjunction with this there has been an increasing trend of cruise lines developing bespoke ‘self-owned’ destinations in the Caribbean. These are often strategically located to address the growing cost issues around fuel consumption, particularly in light of the Emissions Control Area regulations now affecting the region. The result is an increasingly competitive environment for cruise tourism destinations in the Caribbean region.

Conversely, cruise volumes in Grand Cayman are actually scheduled to increase in the immediate future (based on 2014 – 2017 Port Authority schedule) to over 1.8m visitors per year, as compared to the current circa 1.4m. However, this increase is a result of a short term transfer of cruise vessels away from the Mediterranean and North African routes, and this trend is expected to reverse in 3-4 years’ time, as economic recession and political instability issues in that region recede.

¹ Economic Contribution of Cruise Tourism to the Destination Economies, prepared by BREA, September 2012

Accordingly, a core driver in the consideration of a business case for cruise berthing is the wish to provide a platform for a sustainable, less volatile, long term cruise industry.

PwC is aware that a private group is currently studying a separate berthing project that would be located in the northern end of George Town. While such a berthing facility could have an impact on the demand for a CIG sponsored berthing facility, the status of this other project is unknown and it has not been further considered in this OBC.

2.2 Main drivers in considering cruise berthing

As discussed later in this OBC, cruise berthing in Grand Cayman will involve substantial capital cost and corresponding commercial risk, as well as presenting marine and landside environmental challenges which would need to be addressed and mitigated. As such, the rationale for, and expected benefits of, cruise berthing need to be significant and reasonably assured, in order to satisfy the requirements of a robust business case.

The financial, risk and economic analyses in this OBC examine the expected benefits and impacts of cruise berthing in detail. However, the main drivers for cruise berthing can be summarised as follows:

Cruise line and passenger requirements:

- Improved safety/reduced risk during disembarkation relative to tendering, particularly for the elderly and the young;
- Reduced disembarkation delays, both in terms of tender logistics/capacity and actual tendering time; and
- Overall improved passenger experience and increased opportunity for activities ashore.

CIG and wider Cayman Islands requirements:

- Enhance the attraction of the Cayman Islands for cruise tourists;
- Increase the amount of time (and therefore expenditure) spent onshore by cruise passengers, principally through eradication of tendering delays;
- Increase disembarkation levels from cruise ships, in particular crew disembarkation which is comparatively low;
- Attract larger class ships (such as the Oasis) to stop at Grand Cayman;
- Secure long term cruise tourism for the Cayman Islands by aligning the commercial interests of the cruise lines with those of the Cayman Islands; and
- Through each of the above, provide greater certainty and new opportunities for long term investment by Caymanian entrepreneurs in cruise tourism related retail and services.

In the absence of cruise berthing, tendering delays, passenger discomfort and risk are expected to continue to be a concern for cruise lines and passengers. Later in this report, the possible reactions of cruise lines to a continued lack of berthing are examined in some detail. However, in broad terms there could be expected to be a continuation of the recent trend of cruise lines removing the Cayman Islands from itineraries as newer, larger, ships are deployed on their priority Caribbean routes and older, smaller, vessels are redeployed to other regions. This trend may not be consistent, for example a rebound in visitors is expected 2014-2017 due to geopolitical issues, but over the long term, and in increments as ships are removed, the Cayman Islands may be expected to lose market share without cruise berthing and without the equally important financial incentives for cruise lines from a partnering arrangement.

It is noted that, in addition to the perceived benefits of berthing for users, there is also an existing need to address George Town congestion issues in the proximity of the port and for a general revitalisation of the area in terms of sidewalks, amenities and shop frontages. While this requirement is not part of the OBC, and exists irrespective of cruise

berthing, it is noted that cruise berthing would likely exacerbate the congestion issues and therefore a solution for downtown George Town is a pre-requisite for the cruise berthing project.

2.3 Purpose of the OBC

In line with general good governance and procurement practice, and in-keeping with the requirements of the Cayman Islands' Framework for Fiscal Responsibility ("FFR"), CIG requires that:

"..all projects, whether funded from recurrent surpluses, conventional borrowing, or all alternative financing transactions, are suitably appraised before the procurement stage to ensure value for money and that a robust cost benefit analysis has been carried out"

This requirement applies to all projects with a whole life value in excess of CI\$10m. Specific guidance for the cruise berthing OBC is provided under CIG's Request for Proposals dated 3 May 2013, requiring that the OBC shall:

- Identify option(s) which are affordable and optimize value for money ("VfM");
- Identify the proposed procurement route including initial time schedule for the project delivery; and
- Identify the funding, accounting treatment and management resources for the successful delivery of the Project.

The SOC also provides a summary of the Cabinet Policy Guidance (refer Appendix A, page 18), which outlined the broad policy direction to be followed by the Project.

The options analysis under this OBC considers each of the eight strategic options set out in the SOC and based on the evaluation criteria identifies a preferred option.

In addition to the financial and economic assessment, the options analysis under the OBC includes a strategic environmental review to identify environmental risks associated with the infrastructure project and consider potential areas of mitigation and next steps in planning for a full Environmental Impact Assessment ("EIA").

It is important to note that the strategic options under the SOC include both a "status quo" and an "improved status quo" option. Accordingly there is no presumption in favour of cruise berthing; the core purpose of the OBC is to establish whether there is a robust business case for cruise berthing, in light of the associated costs and risks, prior to identifying the optimal procurement route.

Towards the end of the procurement process, a Final Business Case will be conducted, the purpose of which is to revisit the core elements of the business case and, based on the detailed deal negotiated, conclude on the financial viability, value for money, and wider economic and environmental impacts. It is only after that later, Final Business Case stage, that CIG would be in a position to consider the Final Investment Decision.

2.4 Mobilisation of CIG and consultant project team

The overall cruise berthing project is managed by a dedicated CIG project team, overseen by a Steering Group drawn from relevant expertise across the public sector, including the Ministry of District Administration, Tourism and Transport ("MoT"), the Department of Environment ("DOE"), the Port Authority of the Cayman Islands ("PACI"), the Ministry of Finance, the Public Works Department and the Ministry of Planning, Agriculture, Housing and Infrastructure.

The consultant team is led by PwC Corporate Finance & Recovery (Cayman) Limited ("PwC"), with technical support on environmental issues, design layout and costing estimates provided by Mott MacDonald Ltd ("Mott MacDonald"), an international engineering and environmental consultancy. Additional local expertise on costing is provided by BCQS International ("BCQS"), a firm of Quantity Surveyors with a strong local and regional presence.

3. Options Analysis

3.1 Review of options set out in the SOC

The SOC sets out eight options for the Project, namely:

- Option 1: Status quo
- Option 2: Improved status quo
- Option 3: One pier
- Option 4: Phased two piers
- Option 5: Phased two piers and future cargo relocation
- Option 6: Two piers
- Option 7: Two piers and future cargo relocation
- Option 8 (which became 8A): Two piers + immediate cargo relocation

An additional option was developed by PwC during our analysis of these options:

- Option 8B: Phased three and immediate cargo relocation

As can be noted above, the options include Status Quo and Improved Status Quo options since CIG has not decided in advance of this OBC that building berthing solutions is the appropriate measure to be taken.

With respect to Options 4 and 5, both of these options include a phased introduction of two piers. For the purposes of this options analysis the first pier construction is assumed to take place immediately, and construction of the second pier after a delay of at least five years, and only if the berthing volume demand justifies construction of the second pier. A similar approach is taken with respect to Option 8B, the phased three pier option, under which the first two piers are assumed to be constructed immediately and the third after a delay of at least five years.

With respect to cargo relocation, in Options 5 and 7, it is assumed that there would be no immediate cargo relocation but that the infrastructure would be designed in order to account for a possible future move of cargo. Only in Options 8 and 8B is there an assumed immediate move of cargo.

3.2 Stakeholder consultations

A series of meetings with Project stakeholders were held in July 2013, at the start of the options analysis process. Stakeholders include:

- Project Steering Committee;
- PACI;
- Other key stakeholders within the public sector, including the Department of Tourism (“DOT”), DOE and the National Roads Authority (“NRA”);
- Key private sector stakeholders in the Cayman Islands, organized with the co-operation of the Chamber of Commerce including, the principal downtown merchants, tour and transport providers, Cayman’s sole tender operator and owners/operators of tourism attractions; and

- The Florida-Caribbean Cruise Association (“FCCA”) and the major cruise lines currently calling on the Cayman Islands.

Four cruise lines comprise over 90% of cruise passengers visiting the Cayman Islands. These are:

- Carnival Corporation, which includes Carnival, Holland American, Princess, Aida and Costa;
- Royal Caribbean Cruise Lines (“RCCL”), which includes Royal Caribbean and Celebrity;
- Norwegian Cruise Lines (“NCL”); and
- Disney .

Key issues raised by stakeholders include:

- CIG: the requirement to deliver berthing in line with the Cabinet Policy Guidelines (refer **Appendix A**, page 18);
- George Town merchants: the need to develop the Project to attract more cruise visitors to Cayman and to ensure more time is spent onshore during their stay; also, no new retail facilities must be built as part of the Project given this would displace revenue from George Town retail;
- Cruise lines: berthing improves passenger experience and safety and therefore increases Cayman’s attractiveness but it must not cause a significant increase in fees charged to the cruise lines since Cayman is already a comparatively “high cost” destination in the region;
- DOE: design of any berthing facility must carefully take into consideration potential environmental impacts, in particular any enhanced wave action on the shore, the effects of dredging and the impact of high volumes of visitor disembarkation into George Town over concentrated periods, particularly in terms of carrying capacity for natural attractions;
- PACI: cargo operations are already constrained so new berthing facilities must not remove any space currently used for cargo;
- CMS: the tendering business might not be financially viable with either one or two piers because of the reduction of the number of passengers to be tendered; also, the current uncertainty surrounding the Project discourages CMS from investing in new vessels since it cannot assess future needs; and
- Department of Tourism: berthing would be a welcome addition to Cayman’s tourism-related facilities, but it must not cause any damage to Seven Mile Beach, Cayman’s prime tourism attraction. In addition, the Project must take into account the overall capacity limits on tourism in Grand Cayman and the delicate equilibrium between cruise and over-night tourism.

Issues raised by stakeholders were taken into consideration, as judged appropriate, during the evaluation and shortlisting of options.

3.3 Shortlisting of SOC options

Evaluation criteria

For the purposes of shortlisting the eight Project options into three remaining options for detailed analysis, the Project options were evaluated against five broad sets of criteria.

Cruise Tourism Objectives

This group of criteria considers the extent to which the options meet the core objectives of the Project; that is, to address the cruise lines’ wish for cruise berthing to mitigate delays and risk, as well as the Cayman Islands’ objective of

protecting current cruise market share, attracting new cruise volumes and maximizing visitors time/money spent on-island.

Expected berthing utilization and the proportion of ships unable to berth is a key indicator of how well these cruise tourism objectives are met by each option. In some options, on certain days, not all cruise ships would have a berthing spot available, thus requiring tendering. To evaluate the utilization factor of each option, both the percentage of passenger being tendered and number of ships being tendered were calculated on a day-by-day basis using historical 2011 figures and booked visits for 2014 (as provided by the PACI).

In addition to quantitative ratios, tourist experience also needs to be assessed from the qualitative point of view. Two considerations were selected in this regard: decreased passenger experience of embarking/disembarking in a close vicinity of a construction site during the construction, and potential improvement resulting from the spatial separation of passenger and cargo operations. Because the landside development is limited to the immediate vicinity of the passenger piers, it results in essentially the same improvements for all options (except status quo), thus, does not allow to differentiate among the options.

Currently the use of tendering in the Cayman Islands facilitates the use of a second anchorage option at Spotts Landing during inclement weather. On average, this enables cruise visits for up to two ships for circa 10 to 20 days per year, which otherwise would not have taken place, although the actual level of disembarkation on such days is relatively low.

Given that tendering is provided by only one private operator, CMS, under some of the options it is likely that such tendering would no longer be commercially viable and there would therefore be some loss of this ability to use Spotts Landing during inclement weather. However, it is noted that self-tendering cruise ships would be able to continue anchoring at Spotts Landing on such days.

Affordability/Financial Risk

With the exception of Status Quo, all other options require some level of design-build expenditures. Because of a high-level scope of the initial option assessment, these expenditures are illustrated in wide ranges intended to establish the relative order of magnitude between the options as opposed to an accurate estimate of the design-build budget for each option. The detailed budget is developed only for the shortlisted options at a later stage.

The cost ranges are relatively high, even in a regional context, and this underlines some of the technical difficulties relating to implementing cruise berthing in the Cayman Islands, most importantly the lack of a protected natural harbour.

The Cabinet Policy Guidelines (refer **Appendix A**, page 18) include two criteria with a direct impact on Project affordability, namely:

1. “The project will not be funded with any conventional funding/borrowing”; and
2. “There will be no commercial development by any third party developer.” Specifically, no landside retail or other commercial concessions will be included as part of the Project.

Accordingly, affordability will largely be governed by the market pricing of cruise levies. This approach puts considerable pressure on financial risk of the Project and the affordability of the more capital intensive options.

At an early stage in the Project appraisal it became apparent that, based on the potential range of berthing revenues, the more capital intensive Project options are unlikely to be commercially viable without either commercial development or inclusion of incremental head tax revenues generated from cruise berthing. Based on consultation with the Steering Group, policy makers and the FCO, the prohibition on third party commercial development is considered crucial to delivering economic benefits and hence the use of incremental head taxes should be considered further.

Based on consultation with PACI and Mott Macdonald’s indicative design layout, the existing cargo operations can continue on the same overall port footprint in a two pier scenario. Irrespective of whether cruise berthing is developed, a

significant sustained increase in cargo volumes in the future would likely necessitate moving the location of cargo due to George Town congestion and safety issues and the corresponding need for night shifts. Importantly, this potential future need for moving cargo is principally determined by future cargo volumes, rather than the proposed cruise berthing facilities. Based on the PACI financial statements and the comparable capital cost of major infrastructure projects in the Cayman Islands, it is highly unlikely that an immediate relocation of cargo could be funded from revenues generated by the Project.

Determining the timing, location and potential cost as well as the financial feasibility of relocating the cargo operations is not part of the OBC scope and would require an in-depth review and potential restructuring of the cargo operations and forecasts of future cargo volumes. Given the importance of the cargo operations for the economic and social wellbeing of Caymanians and the foreseeable lack of space at the current George Town site for cohabitating cruise and cargo operations over the long term, we believe it would be prudent for Government to undertake long-term planning of the relocation of the cargo operations.

Construction Phase Factors

Construction duration is yet another factor directly related to the scope of the works and number of berths.

Any of the options involving construction works on cruise piers would be a major undertaking with an impact on cargo operations, except in regards to the option requiring immediate cargo port relocation. Continuous access to the cargo port throughout the construction period would need to be defined in the contractual documentation as one of the Project constraints.

Some options identified in the SOC call for the option of immediate relocation of cargo. No potential cargo relocation site has been identified at this stage, nor have any operating or financial reviews been conducted. As such, the relocation of cargo is likely to require a prolonged financial, operational and environmental evaluation process. Accordingly, cargo relocation could reasonably be expected to add at least two years to the Project timeline. Based on feedback from local stakeholders and cruise lines, such a delay would not be tenable.

Environmental aspects are only summarily analysed at the shortlisting stage, as a more detailed environmental analysis is conducted for the shortlisted options only and a full EIA will ultimately be carried out on the preferred option as part of the procurement process. In general, since there is a limit to the ability to mitigate environmental impacts, the impact on the natural environment is assumed to increase with the scope of construction works.

Passenger volumes may be less affected by the construction works because of the existing alternative to use North or South terminals for tendering during the construction period. However, this is likely to cause further disruption to already inadequate arrangements for bus and tour transport, which would need to be addressed as a priority for the cruise lines.

Overall, options having fewer negative impacts and/or for a shorter construction phase are ranked higher in this criteria category.

Operation Phase Factors

Recurring dredging, which is difficult to forecast with certainty, is one of the key monetary considerations during operations. Similarly to the construction phase, larger initial disturbance of the natural environment will lead to a more significant negative environmental impact during the operations as a result of continuous operations in a wider Project area.

Conflict with the cargo operations is one of the key considerations because the PACI does not currently have a viable alternative elsewhere on the island. For the options where the cargo operations share the Project site with the passenger piers, in general, more expansive passenger pier options increase the conflict with cargo operations because of the limited space. In addition, not moving the cargo operations to a new site puts an effective cap on the cargo volumes because of the site constraints exacerbated by passenger piers.

Other Factors

A positive side-effect of relocating the cargo port was considered in the relevant options, as a result of downtown relief from overnight cargo operations.

Finally, a strategic parameter defined as “long-term solution” is evaluated for each option, i.e., to what extent an option allows for a flexible yet robust response to the long-term challenges such as ability to meet increased passenger or cargo traffic, or requirement for future works as compared to all works being included in the initial Project scope.

Evaluation and selection of shortlisted options

The evaluation of the options is summarised in **Figure 1** below.

Figure 1: Summary of options evaluation

Option no.	Description	Summary of the assessment	Conclusion
1	Status quo	This option is unacceptable as it does not resolve any of the issues which Cayman’s cruise tourism industry is currently facing.	Rejected
2	Improved status quo	Although this option does not provide Cayman with the berthing capacity which is widely desired, it is a low cost solution which does provide some level of improvement should all berthing solutions be judged unaffordable or otherwise undesirable.	Retained
3	One pier	A one pier solution would necessarily be designed so as to allow the eventual construction of a second pier. Accordingly, there is no practical difference in the short term between the “One Pier” option (Option 3) and the “Phased Two Piers” option (Option 4).	Rejected
4	Phased two piers	This approach provides at least a partial solution to Cayman’s berthing needs in the short term while allowing construction of a second pier in five years or later when justified by demand. This option is defined as designing and constructing one pier immediately in such a way as to ensure that a possible second pier could in the future be constructed without necessitating the need to move cargo operations. This does not preclude the eventual move of cargo following construction of a second pier.	Retained
5	Phased two piers and future cargo relocation	This option assumes that the construction of the second pier would be expected to necessitate the move of cargo, with the overall two pier design making full use of available space, including existing cargo space. Accordingly, there is a high risk that development of the second pier in the future would be unaffordable.	Rejected
6	Two piers	Given the current constraints placed on cargo operations because of cruise operations and considering the probability of growing cargo volumes in coming years, it would not be prudent to build two piers without foreseeing the possible need to relocate the cargo operations in the future.	Rejected
7	Two piers and future cargo relocation	This option allows for a significant berthing capacity at the conclusion of the Project, while allowing for a future long-term solution for the cargo operations.	Retained
8A	Two piers and immediate cargo relocation	This option is associated with the high financial risk to the CIG because of additional expenditure required for the cargo relocation, for which no funds have been allocated at this point.	Rejected
8B	Phased three piers and immediate cargo relocation	In addition to the highest financial riskiness because of the large scope of works, this option results in the most significant environmental impact and a potential delay to the Project because there is no sufficiently advanced cargo relocation plan at this stage.	Rejected

In summary, the following three options were selected for further analysis:

-
- Option 2: Improved status quo (as a fallback option);
 - Option 4: Phased two piers; and
 - Option 7: Two piers and future cargo relocation.

3.4 Analysis and selection of layouts for shortlisted options

Five layouts were developed by Mott MacDonald for the two pier option (option 7). In the phased one-pier option (option 4), the same layouts would apply, but only one pier would be initially constructed. These layouts are based on different technical options to address parameters such as:

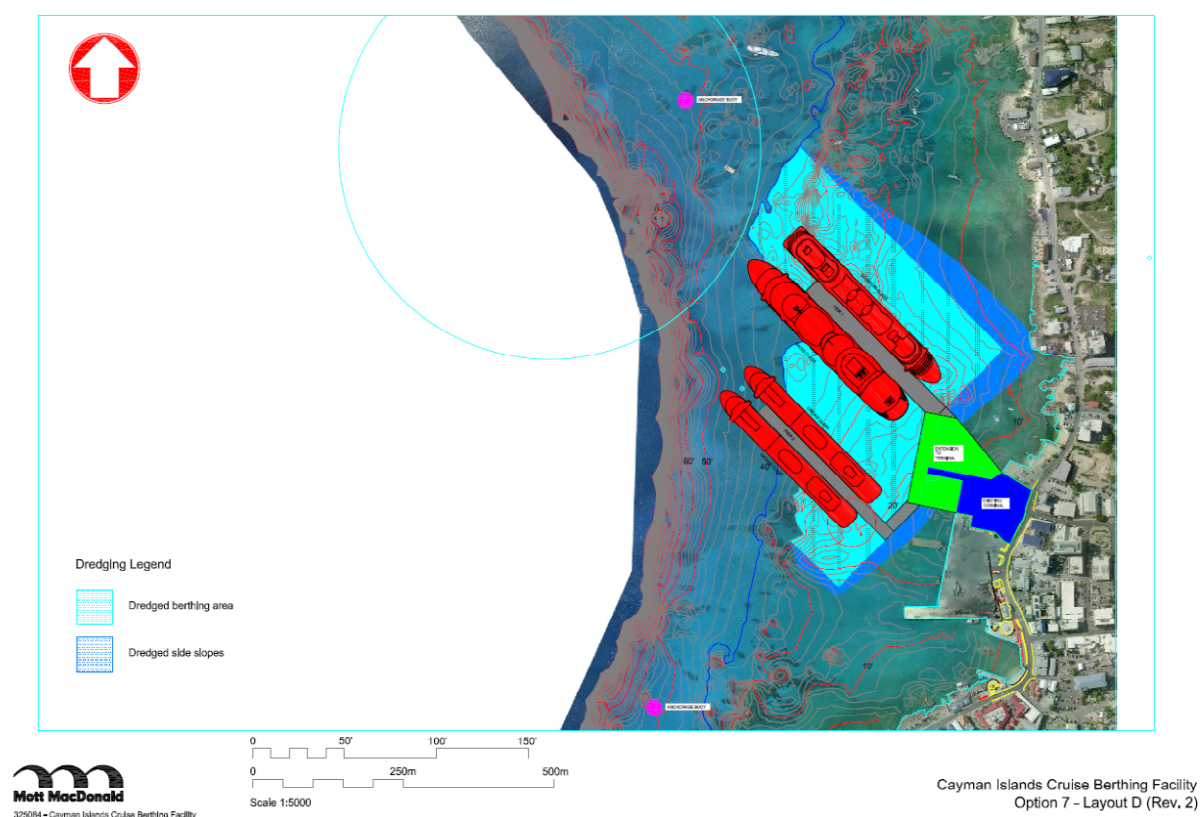
- Existing leading navigation line;
- Prevailing wind direction;
- Vessel turning basin;
- Dredging required to form the berth pocket;
- Additional reclamation required to provide sufficient area for increased passenger traffic;
- Environmental impacts, such as wave amplification and impact on unspoiled coral reef;
- Impact on tourism, commercial and cargo operation; and
- Visual impact.

Based on this assessment process, layout D was selected.

It is important to note that the Mott Macdonald lay out selection is made solely for the purposes of preparing an indicative costing for financial analysis purposes and informing the strategic environmental assessment. As such, if the Project progresses to a procurement proponents are free to propose, and CIG is free to consider, any alternative lay outs, albeit environmental impacts may need to be reconsidered for any material variations.

The selected layout is illustrated in **Figure 2**.

Figure 2 : Layout D



This layout has the following characteristics:

- It has the most favourable environmental impact of all layouts considered;
- It offers relatively simple navigation to all berths;
- It presents the smallest visual impact of all layouts considered as the berths are marginally further from the shore;
- The effect on cargo operations is minimal;
- No reclamation is required along the shoreline, which should minimize the impact on existing tourism and commercial activities; and
- It requires the second least amount of dredging of layouts considered. Dredging is a major cost factor in construction.

For the one pier option, layout D corresponds to the removal of smaller southern pier, thus further improving the visual impact from downtown George Town.

Cost estimates for this layout were prepared by Mott MacDonald in alignment with a Class 5 cost estimate as recommended by the AACE Cost Estimate Classification System². As a result of commercial sensitivities in a competitive procurement process, this cost estimate is not presented in the Public OBC.

² AACE International, guidance provided by the international grouping of cost estimation professionals

3.5 Environmental evaluation of potential layouts

A preliminary review of environmental impacts of each of the five layouts was conducted by Mott MacDonald. Each potential environmental impact was allocated a priority ranking, relating to the level of likely impact from this Project, from 1 to 5, category 5 being the highest priority category. **Figure 3** below shows an amended version of Mott MacDonald's original priority classification, incorporating changes proposed by the DoE.

Figure 3: Summary of options evaluation – Mott Macdonald and DoE

Category 1	
Noise	Air quality
Category 2	
Historical/archaeological impact	Residential area
Land take brownfield	North and south wharves
Onshore businesses	
Category 3	
Water quality	Diving/marine tourism
Cargo operation onshore	Loss of anchorage buoys
Land take greenfield	
Category 4	
Hazard vulnerability	Coral / Marine ecological
Category 5	
Visual impact	Wave energy
Sediment and current	Traffic

Although layout D has the best comparative scoring in terms of its environmental impact, some negative impacts persist. These impacts could be further mitigated by CIG through a range of mitigation options, as presented in the Mott MacDonald Concept Study. In relation to the high-impact risks, the mitigation options for layout D include the following:

- Apply controls over the construction area;
- Use the most appropriate dredging and construction techniques to minimize the sediment disturbance;
- Maintain control over the planning of the construction activities, for example, by identifying the periods of the year when the sediments could be less damaged or dispersed and by undertaking the sediment assessment prior to the dredging to design the construction constraints; and
- Monitor the Seven Mile beach profile, replenish and stabilize sand, where required.

Finally, although the one-pier and two-pier options have the same environmental footprint, it may be preferable, from the environmental and social perspectives, to conduct a single construction phase for both piers.

3.6 Risk assessment of shortlisted options

Risk analysis is an important step in the evaluation of Project costs and in the selection of the preferred procurement model. The risk analysis exercise aims to identify and quantify Project risks and allocate them between CIG and its various private counterparties. All risks were analysed under three different scenarios:

- Improved status quo and potential impact for Cayman Islands of not building new berthing facilities;
- One pier option; and
- Two piers option.

Identification and quantification of the public risks aims to inform CIG of the potential total cost of the Project, including potential reserve requirements to address circumstances should certain risks materialize. Once public risks are identified and quantified, a risk mitigation strategy should be developed by CIG. As further explained in this section, some CIG risks require outright mitigation, rather than creation of risk reserves (for example, the negative reaction of some cruise lines unable to use the pier in the case of a single pier option). Therefore, mitigation and provisioning for future risks should be viewed by a prudent owner as two components of the same risk management exercise.

As for the private sector risks, these are likely to be included in the private cost of funds. Private cost of funds will vary depending on the level of risk transfer, requiring more or less of costly equity (e.g., carrying an annual cost of 10% to 15%) as opposed to the debt (e.g., 5% to 8%, depending on the riskiness of the cash flows supporting the debt repayment, borrower's risk profile and debt maturity).

It is important to note that Project risks differ from contingencies, the latter having been identified separately for the Project. Contingencies reflect foreseeable variations in unit quantities and unitary prices, arising from the inherent imprecision of technical estimates, and are based on the advancement of the design. Contingencies were estimated at 20% of Project costs by Mott MacDonald, consistent with the current Class 5 cost estimate.

Project risks, on the other hand, reflect the impact of events which, should they occur, are not absorbed by the contingencies. In the case of the Project, risks were therefore quantified based on estimated costs and keeping in mind the 20% contingency. They can thus be added to the overall Project cost (that is, after contingency) without double-counting.

Improved Status Quo Option

Under Improved Status Quo, no berthing facility is built, only improvements are made to the existing tendering facilities. The main retained risk is the progressive reduction of the number of ships calling on the Cayman Islands because of a lack of berthing facilities. This volume demand risk should be considered in the context of a number of underlying volume risk factors, including:

1. Cruise line and passenger dissatisfaction with the tendering process and associated delays;
2. Increasing size of vessels and corresponding reduced suitability for tendering;
3. Increasing number of alternative regional destinations for cruise lines, including those 'self-owned' by the lines themselves. In addition, potential long-term risk (or possible opportunity) from opening up of Cuba to US cruise tourism; and
4. Perhaps most importantly, the lack of any financial incentive for cruise lines to prioritize Cayman stops, which is exacerbated by the relatively high combined passenger levies in the Cayman Islands.

It is impossible to predict the timing of such a reduction in cruise passenger volume or its severity. It is possible that such a decline would likely be progressive, for example over time cruise lines would only call on Cayman with their

smaller and older ships, keeping their larger and newer ships for destinations with berthing facilities. There is already an indication of this trend with the larger Oasis class ships not calling on Cayman.

For the purpose of the economic and financial analyses, given the inherent uncertainties, two separate scenarios are considered. Firstly, under the “Base Case” scenario, it has been assumed that under an Improved Status Quo option, cruise passenger volumes would decrease by 1% annually starting from the figure of 1.8 m passengers made available by PACI. Under the “Upside Base Case” scenario for cruise berthing, this rate of decline is assumed to be 3%, this increase in assumed decline without cruise berthing provides greater financial rationale for cruise berthing. It is assumed in both scenarios that this number will stabilize at a floor of one million visitors per year, a level it would take more than 30 years to reach under the Base Case scenario and in 2034 under the Upside Base Case scenario.

Another risk under the Improved Status Quo option is the dependence on CMS to provide tendering services. Without CMS, most cruise ships could not call on Cayman since they cannot self-tender. Should CMS be unable or unwilling to provide tendering services, Cayman’s cruise business could almost entirely stop overnight. Although there is no reason to believe CMS would cease offering its services, which the cruise lines consider to be of very high quality, this risk must be considered.

Phased Two Pier Option

The option of building only one pier in the short-term carries the following risks.

- Possible reaction of cruise lines which cannot use the pier

Because of the large number of calls by cruise ships on Cayman, a one pier solution providing only two berths would preclude a significant proportion (29%) of ships from berthing at Grand Cayman. PACI’s 2014 cruise ship calendar shows 641 ships calling on Cayman, which is less than a single pier’s theoretical capacity of 730 ships (two ships a day for 365 days). However, cruise ship callings are not evenly spread out during the week or during the year. Whereas almost no ships call during weekends more than half call on Wednesdays and Thursdays. For 2014, the PACI’s calendar shows only 43 ships calling on weekends compared to 327 ships calling on Wednesdays and Thursdays. This can be explained by Cayman’s location in the middle of many cruise trips which usually start on weekends.

Inevitably, this would mean some cruise ships or cruise lines could not berth, or berth often, if only a single pier were built.

During recent discussions with cruise lines, a number indicated that they would likely stop calling on Cayman if one pier were built but they could not use it. Although they would be no worse off than they are now from an operational perspective assuming they could continue tendering, there would be a perceived competitive impact; that is, they would not want their customers to feel they are receiving a lower standard of service than competing cruise lines which could use the pier.

Building only one pier consequently creates a significant risk for Cayman receiving fewer cruise visitors than it does today without any berthing facility.

- Impact on the tendering business

CMS analysed the impact on its tendering business should a single pier be built, based on PACI’s 2014 cruise ship calendar. Based on this simulation, it believes it would experience a drop of more than 80% in the number of passengers being transported by its tenders (from 1.46 million passengers to 0.27 million passengers), taking into account ships that would berth and those that would self-tender. CMS’ estimate is generally in line with PwC’s projection that a single pier would be able to serve 73% of the projected 2014 volume, leaving only 93 days in that year when not all ships would be able to berth.

There is therefore a significant risk that, with only one pier, CMS' tendering business could no longer be financially viable and could stop operating. This would effectively reduce the overall number of ships that could call on Cayman since not all ships could use the single pier and not all ships are able to use the pier could self-tender.

- Design risk and construction risks

There are a number of design and construction risks which could lead to higher costs to build the pier. These will be further analysed during the next stage of the Project should this OBC be approved. The most important of these risks relate to:

- The need for a wider than foreseen entrance and manoeuvring area;
- The need for environmental correction measures;
- The need for greater than expected dredging;
- The inability to dredge using a Cutter Suction Dredger, drilling and blasting instead being required
- The presence of compressible silty or clayey materials within the reclamation area, which could require more costly ground improvement techniques to achieve satisfactory consolidation and bearing capacity;
- The need for fill import should the dredged material not be suitable for reclamation purposes, as it is currently assumed in the cost estimate;
- The need to include a scour protection system should the seabed consist of softer materials than anticipated and which may be susceptible to scour from vessel wash and bow thrusters.

- Environmental risks that cannot be mitigated

Environmental risks will be examined during the EIA and those identified will be mitigated to the extent possible. However, it is possible that any pier-building activity involves an increased environmental risk, as opposed to not undertaking any construction activity.

- Operation risk – damage to the berths due to the inclement weather

In case of a severe weather event, a cruise ship pier is more likely to suffer catastrophic damage than a smaller tendering pier as currently exists in Cayman. Should such damage to a cruise ship pier occur, the cruise and tourism industry could be severely affected while repairs are under way. This is what happened to the Mexican cruise business in the aftermath of Hurricane Dean in August 2007, with ships being unable to berth in certain locations for almost a year. The ability to mitigate this business risk through insurance is likely to be minimal.

Should there no longer be a tendering business operating, Cayman's cruise business would likely be significantly curtailed while repairs were made to its cruise berthing facilities following severe storm damage.

Two Piers and Possible Future Cargo Relocation Option

The option of building two piers carries the following risks which are broadly the same risks as the option of building one pier. Design and construction risks are similar for two piers as for one except that the scale of possible impact with two piers is necessarily greater in most instances.

- Capacity of two piers

The biggest difference lies in the fact that with two piers, most cruise lines will be able to use a berth on most days of the year since there are relatively few days when more than four ships call on Cayman. An analysis of PACI's 2014 cruise calendar shows that there are only 26 days in the year when not all ships could berth, representing a total of 37 ships. Even if there were no tendering services available, certain of these ships could likely self-tender, so the loss of passengers would likely be small, the financial analyses conducted as part of the OBC take account of this possible loss of surplus ship volumes.

- Demand risk

There is also a greater demand risk under the two-pier option. This option incurs significant construction costs which would need to be recovered during the useful economic life of the piers. The cruise industry can be volatile, subject to changes in general economic conditions, behavioural preferences of cruise tourists, environmental as well as political risks. In addition, several destinations in the Caribbean are competing for the same visitors. Accordingly, future demand can either increase or decrease. On the positive side, the two-pier option provides significant unused capacity, thus allowing for future growth. On the downside, the Project could become uneconomical and a significant financial burden for CIG should cruise tourist levels, and related revenue, be significantly below forecast. This risk must be taken into account when developing a procurement model for the Project. Ideally, demand risk should be allocated as much as possible to the cruise lines since they are most able to influence demand as they control the schedule of ships calling on Cayman.

- George Town Revitalization

Finally, the two pier option creates a risk of traffic congestion and pedestrian safety issues due to the greater concentration, and possibly volume, of passenger arrivals. With tendering, passenger arrivals are necessarily spread out over a longer period as passengers must be brought ashore in relatively small vessels. Berthing allows many more passengers to disembark rapidly and thus enter the downtown business district. More tour buses will also need to leave within a shorter period of time. While this is good for business, and represents a core objective of cruise berthing, pedestrian and vehicle safety must be maintained and traffic congestion minimised to the extent possible.

CIG is aware of this issue and has created a steering group to develop solutions. A preliminary review of the situation by the National Roads Authority assesses the cost of building bypass roads to move vehicle traffic away from downtown George Town and enable pedestrianisation of a portion of the waterfront at CI\$15 – 20m. Such improvement could not only enhance safety and the fluidity of traffic, it would also be expected to enable a revitalization of downtown and support economic growth. According to the NRA, the next important step would be to undertake traffic modelling studies to examine the traffic movements and the impact of partial/complete pedestrianisation.

Although this issue takes on greater importance should two piers be built, based on consultation with Cayman Islands private and public sector stakeholders it is apparent that the congestion and safety issues currently exist without any berthing facility and have been discussed for a number of years. As such, a solution to these issues is required under any of the three shortlisted scenarios. Another parameter not directly related to the passenger berthing facility is the operation of the cargo port, and/or planning for its eventual relocation.

Accordingly, costs for traffic and pedestrian related measures are not included in the Project's cost since they could be incurred even if the Project is not built.

Conclusion of risk assessment of shortlisted options

All of the shortlisted options have risks. The main risk of Improved Status Quo option is that Cayman's cruise tourism business will decline over time as cruise lines either stop calling on Cayman or only call with older, smaller ships. Both the Phased Two Pier option and the Two Piers and Future Cargo Relocation option carry risks of higher than expected costs and greater than expected environmental impacts.

The Phased Two Pier option, which is in fact the option of building only one pier in the short-term, carries the particular risk of in fact undermining Cayman's cruise tourism business. Under this option not all ships could use the pier and there would not likely be a tendering service available. As a result, some cruise lines could cease calling on Cayman, either because they do not wish to provide their customers with a lower quality of service than their competitors for whom berthing is available or because they cannot self-tender. Accordingly, Cayman could find itself investing a large

amount in a new cruise berthing facility and yet receive fewer cruise tourists than under the Improved Status Quo option.

Because of this, the Phased Two Pier option is set aside and not analysed further in this OBC.

3.7 Selection of a preferred option

For the purposes of this OBC, the preferred option which will be used as the basis for developing the procurement strategy and estimating the Project's financial impact (the "Preferred Option") is:

- The construction of two piers in the Port of George Town, with the possibility of relocating cargo operations at some time in the future; and
- The two piers will be located immediately north of the Royal Watler Terminal, as set out in Mott MacDonald's layout D.

For the purposes of the economic and financial analysis and value for money assessments, the Preferred Option is assessed against outcomes expected from the improved status quo option.

3.8 Economic appraisal of Two Pier and Future Cargo Relocation option

The economic appraisal of the preferred option provides an assessment of the economic impacts to CIG and its citizens that are expected to result from the development of the cruise berthing facility. This summary of the findings is supported by the detailed report, which is provided in **Appendix B**.

The impacts that are expected to flow from the development of the cruise berthing facility are on:

- **Port operations:** development of the cruise berthing facility will affect the operation of the port and, more broadly, on shipping operations, for example tendering; and
- **Tourism:** development of the cruise berthing facility will impact on the Cayman tourism economy.

Economic impact analysis is an established methodology for assessing and valuing the economic impacts of investments. The technique is widely used by national governments, non-governmental organisations, multinational companies and other stakeholders across a range of emerging and developed countries³. PwC's approach has considered the impact of the cruise berthing facility on two indicators of economic activity: economic output, as measured by Gross Value Added ("GVA"), and the total number of jobs. This provides an estimate of the 'gross' impact associated with the cruise berthing facility.

The impact on GVA and jobs is divided into four types:

1. **Direct impact** corresponds to the contribution made to the Cayman economy as a direct result of the construction and operation of the cruise berthing facility or, in the counterfactual scenario (i.e. assuming no cruise berthing facilities are built), the operation of other shipping services such as tendering.
2. **Indirect impact** is created primarily by the purchase of goods and services from firms that are directly involved in construction and operation of the cruise berthing facility or, in the counterfactual scenario, the operation of other shipping services. This supports profits and wages across the supply chain.
3. **Induced impact** is the additional impact on the economy resulting from increased expenditure by the workforce employed directly by the cruise berthing facility (or, in the counterfactual scenario, the operation of other shipping services) and indirectly by its supply chain, as income earned by these employees is spent on various goods and services, leading to further economic activity and employment in the Cayman Islands.

³ See, for example, HM Treasury (2011) 'The Green book – Appraisal and Evaluation in Central Government'

4. **Wider impact** captures economic activity resulting from the cruise berthing facility that is not captured through the direct impact and indirect impact. Wider impacts include expenditure in the Cayman economy by tourists visiting the Cayman Islands.

The approach above reflects the large network of interdependencies between industries in an economy, and allows the full effects flowing from the cruise berthing facility to be captured.

The assessment of the net economic impact of the cruise berthing facility is derived by comparing the expected impact with the facility with those expected to arise in the absence of the cruise berthing facility (i.e. in the counterfactual scenario). The key determinant of the net economic impact of the cruise berthing facility is likely to be its wider impact on visitor spending in Cayman. Accordingly, this Section of the report examines the link between cruise berthing facility and visitor spending. In particular, PwC considers the expected behaviour of:

- Cruise lines with and without the cruise berthing facility; and
- Cruise passengers with and without the cruise berthing facility.

The key features of the two scenarios are summarized in Figure 4.

Figure 4: Summary of scenarios

With the cruise berthing facility	Without the cruise berthing facility
Two piers / four berths developed	No berths developed
No tendering	Tendering
Some self-tendering	Self-tendering

Source: PwC

For the purposes of considering the future impacts of the cruise berthing facility, the twenty year period from the end of construction to 2036 has been selected as an approximation of the useful economic life of the key assets. Accordingly, the potential future economic impacts have been estimated over the period to 2036. Finally, standard practice in economic impact analysis is to convert the expected economic impacts that accrue over the lifetime of the investment into present values. To achieve this, a discount rate is used to convert the future flow of GVA to present values. The CIG proposes a real social discount rate of 3½%. The discount rate is a key assumption in the analysis.

This Section has assessed the expected economic impacts of the cruise berthing facility on the Cayman Islands economy using two indicators: economic output, as measured by GVA, and employment.

The analysis is based on information provided by PACI, and publically available sources, notably CIG statistics, and gathered through consultation with a broad range of industry stakeholders.

The 'net' impact of the cruise berthing facility has been estimated by comparing the economic activity that is expected to arise with the cruise berthing facility with the activity that is expected in a counterfactual scenario where the cruise berthing facility is not developed. These net estimated impacts are set out in Figure 5 below:

Figure 5: Net impact of cruise berthing facility only

	(b) With cruise berthing facility	(a) Without cruise berthing facility	Net impact (a) - (b)
GVA (Net present value, \$m)			
Direct	18	85	-67
Indirect & induced	14	2	11
Wider	2,148	1,905	242
Tax revenue	347	288	59

Total	2,526	2,281	245
Employment			
Construction (man years)	491	-	491
Operations (FTEs)	2,140-2,785	1,786-2,140	999 (in 2036)

Source: PwC analysis – see disclaimer at page 1.

The benefits of the cruise berthing facility are estimated to be an increase in GVA of \$245 m when expressed in net present value terms over the lifetime of the investment (20 years post construction). Expressed in terms of employment effects, 491 man years of construction are estimated to arise and 999 FTEs during the operational phase.

Given the numerous variables in any economic analysis, a sensitivity analysis has been developed to test the sensitivity of results to variations in the key assumptions. This is set out in detail in **Appendix B**. Further, as part of the wider Environmental Impact Assessment process, it is possible that additional social costs and benefits are identified (for example as a result of traffic studies), which will need to be factored into the Final Business Case.

Key conclusions to note from the economic analysis are:

- Unsurprisingly, projected passenger volumes are the key determinant of the economic impacts. In the Base Case, growth is assumed to be 1% per annum with berthing, and the rate of decline without berthing is also assumed as 1%. If growth of 3% is assumed, which is more in line with regional industry growth, together with a decline of 3% without berthing, then estimated GVA economic impacts over the period increase by a multiple of almost four times, to \$1,196 m versus \$245 m under the Base Case;
- The second most important driver of economic benefits is the expected increase in time spent ashore, largely due to eradicating the tendering delays, and hence the increased economic impacts from tours and other spend categories; and
- Increased levels of disembarkation, for both passengers and crew, are significant contributors to the overall economic impacts estimated.

Finally, it is also important to note that due to the inherent uncertainties over very long term economic analysis, the duration of this economic analysis does not cover the full circa fifty year useful economic life of the infrastructure. Accordingly, significant positive economic benefits can be expected to continue accruing for up to thirty years after this twenty year assessment period.

4. Procurement Strategy

4.1 Potential procurement models

To successfully carry out the Project, CIG must develop an appropriate procurement model. The procurement model is the transaction structure which defines the allocation of responsibilities and risks between CIG and private sector counterparties for delivery of the Preferred Option, including the manner by which these counterparties will secure a return on their investment. Although a procurement model can be inspired by precedent transactions it must be tailored to the specific requirements of the Project.

The following considerations were taken into account when developing potential procurement models for the Project:

- CIG's desire to minimize its investment in the Project, in particular any cash payments required in earlier years;
- The appropriate allocation of risks between CIG and counterparties; and
- An approach that should be commercially acceptable for cruise lines and other private counterparties.

Minimize CIG's investment in the Project

In view of its constrained financial situation, CIG must keep its debt under tight control and consequently avoid, to the extent possible, incurring debt related to capital expenditures such as the Project.

Since the onset of the global financial crisis, the public finances of the Cayman Islands have been severely constrained as a result of both ongoing capital projects and the size of the public sector cost base.

Total public sector debt is estimated to exceed CI\$700m at the end of fiscal year 2012/2013 and, while a small annual surplus was recorded for 2012/13, the Cayman Islands still faces a prolonged period of fiscal retrenchment. At the end of the 2012/13 fiscal year, CIG's net debt represented 86.3%⁴ of core government revenue, in excess of the 80% target set out in the Public Management and Finance Law (Revised) ("PMFL").

While ratings agencies have recently confirmed the Cayman Islands' rating at Aa3, indicating that CIG retains some borrowing capacity, this rating is predicated on prudent fiscal management. In particular, CIG's fiscal management is strictly governed by the provisions of the PMFL and the guidance and principles set out in the FFR.

At present, CIG remains in breach of some of the six principles of responsible financial management set out in the PMFL, and as a result there is an ongoing limitation on the permissible quantum of CIG borrowings ("the Borrowing Limit"). This limit was proposed by the UK's FCO and accepted by the CIG. At present, the CIG has exhausted the permissible borrowings under the existing Borrowing Limit.

Accordingly, under the provisions of the FFR the CIG is obliged to seek the FCO's written approval for a proposed capital project of the size of cruise berthing and also for any associated borrowings.

Ordinarily, such proposals would form part of the three-year Strategic Policy Statement ("SPS"). However, in exceptional circumstances, such a request for approval may be made 'in-year' during a period covered by an existing SPS.

In setting out the business case for any conventional CIG borrowing, or hypothecation of revenues streams, to support cruise berthing, it is crucial that the expected net 'cost' and risk to the CIG is assessed in detail.

⁴ CIG, Supplementary annual plan and estimates 2012/13

Properly allocate risks

Risks should be allocated to the party best able to manage them. In the case of the Project there are two significant risks which CIG is not best suited to assume, namely demand risk and design & construction risk.

Demand risk relates to the future use of the new berthing facilities, that is the number of cruise passengers who will visit Grand Cayman. Since project related revenue, such as the cruise passenger head tax and berthage fees, are tied directly to the number of cruise passengers, demand risk is of key importance.

The number of cruise passengers visiting Cayman is influenced by a number of factors, including the state of the US economy and Cayman's attractiveness for tourists. Nevertheless, the most important factor by far is the scheduling of cruise ships calling on Cayman. The size of ships and the frequency of their calling are determined by cruise passenger visits and are, by necessity, under the control of the cruise lines. Cruise lines are accordingly best placed to assume demand risk, or at least a significant portion of demand risk.

Design and construction risk relates to the potential for higher than expected costs to build the berthing facilities. Such higher costs can result from many causes such as insufficient geotechnical and bathymetric studies, poor design or badly-managed construction. An experienced design-builder, who has the expertise to carry out a pier project, who can make sure its design won't cause undue construction difficulties and who can properly manage sub-contractors and ensure each work lot properly fits in with the others, can better manage design-construction risk than CIG. CIG has never built piers as foreseen by the Preferred Option and does not have sufficient in-house expertise to undertake such a project.

Develop a commercially attractive project

The Project must attract private sector participants who are willing to take on the risks and assume the responsibilities that CIG prefers not to take on. To that end, CIG must tailor a procurement approach that will be attractive to cruise lines and other private sector participants such as design-construction companies.

CIG and PwC carried out market soundings in July and August 2013 amongst the major cruise lines which call on Cayman. Their views can be summarized as follows:

- A cruise berthing facility will make Cayman a more attractive destination because of improved passenger experience and greater safety;
- Cayman is a high-cost destination, in particular because of the head tax, and cruise lines cannot support significantly higher costs for a pier than they currently incur for tendering; and
- Cruise lines support a CIG or PACI built pier or, alternatively, a cruise line built facility. They do not support a pier built, financed and operated by a third party, such as a financial investor, who would treat the pier as a profit centre.

Based on these commercial considerations as well as the goal of minimizing CIG's investment and achieving the sought-after allocation of risk, three potential procurement models, namely:

- Greater Risk Transfer public private partnership ("PPP");
- CIG-financed PPP; and
- Cruise line-financed PPP.

Under all of the three procurement models described below, CIG would have two piers built, as foreseen by the Preferred Option.

4.2 Description of three procurement models considered

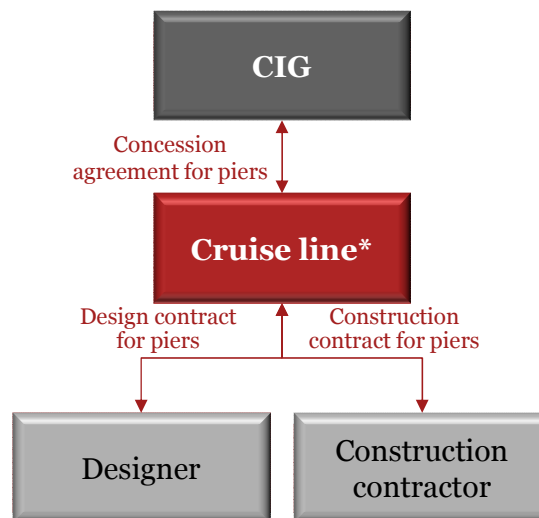
Greater Risk Transfer PPP

Under the Greater Risk Transfer PPP model, a consortium of cruise lines and/or 3rd party investors partnered with cruise lines would:

- Obtain the right from CIG to operate two cruise piers in the Port of George Town for a period of 20 years or more;
- Have exclusive rights to the use of the piers during the PPP period;
- Design and build the piers according to specifications to be agreed with CIG and the PACI;
- Pay for all design, construction, maintenance and operating costs for the piers;
- Operate and maintain the pier themselves or hire the PACI to operate and maintain them;
- Use the pier for berthing their own cruise ships and, at their discretion, ships from other cruise lines in return for berthage fees;
- Keep all berthage fees paid by cruise lines for use of the piers;
- Hand back the piers to CIG at the end of the PPP period in a condition to be specified in the Greater Risk Transfer PPP agreement.

The Greater Risk Transfer PPP model is illustrated in **Figure .**

Figure 6: Greater Risk Transfer PPP model



* Cruise line, consortium of cruise lines or financial investor associated with cruise lines

The major contract under the Greater Risk Transfer PPP model is the PPP agreement between CIG and the proponent. It will set out the rights and obligations of each party. Under the PPP agreement CIG/PACI will:

- Provide all land required for construction of the piers;
- Own the piers which the proponent will control for the duration of the lease under a lease that stipulates the pier design parameters;

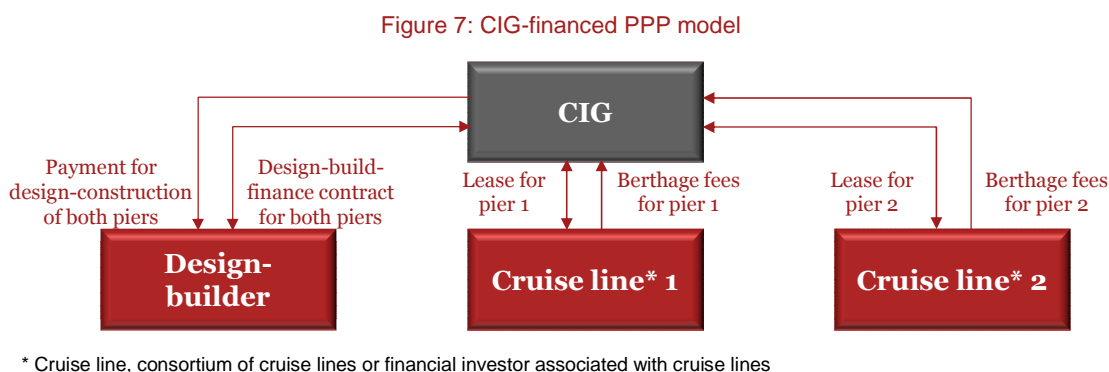
- Make an agreed upon periodic payment to the proponent for the duration of the PPP, the amount of which can be either fixed or based on the number of passengers using the piers.

CIG-financed PPP

Under the CIG-financed PPP model:

- CIG would sign a take-or-pay type lease with a cruise line or consortium of cruise lines for a pier;
- The lease would need to be sufficiently long (at least 10 years but preferably 20 or more) to reduce CIG's risk;
- CIG and the PACI would agree on the pier design with the pier leaseholder;
- CIG would sign a fixed price design-build-finance contract with a design-builder for the two piers;
- CIG would pay the design-builder for the piers at substantial completion (with a small holdback amount until final completion);
- The PACI would operate and maintain the piers;
- CIG/PACI would keep all berthage fees paid by cruise lines for use of the piers.

The CIG-financed PPP model is illustrated in **Figure 7**.



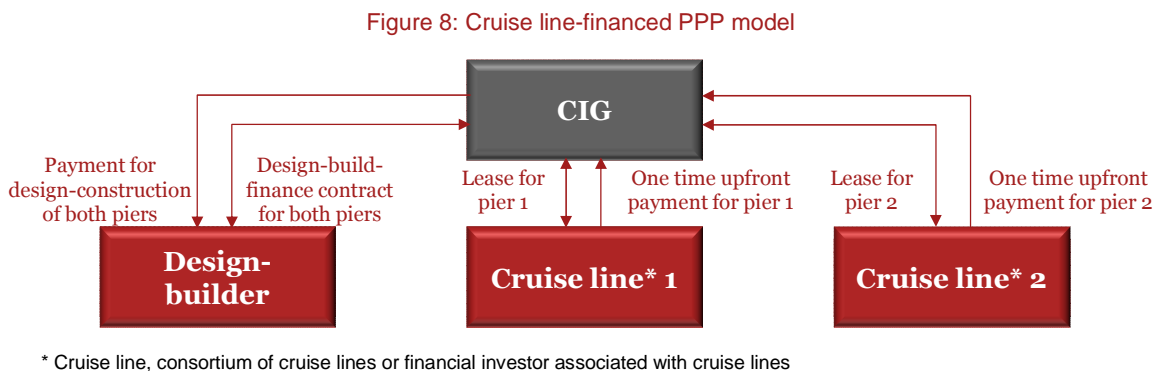
Cruise line-financed PPP

Under the cruise line-financed PPP model:

- CIG would sign a long-term lease (for a duration of 10 years or more, with the opportunity for renewal options to be included) with a cruise line or consortium of cruise lines for the exclusive use of a pier;
- CIG and PACI would agree on the pier design of each pier with the pier leaseholder;
- CIG would sign a fixed price design-build-finance contract with a design-builder for the two piers according to which:
 - The design-builder will agree to complete the design for the piers based on CIG/PACI's design specifications and build the piers;
 - CIG/PACI will conduct the EIA and set out the Project's key environmental constraints whereas the design-builder will be responsible to obtain any necessary construction permits;
 - The design-builder will commit to building the piers for a fixed price and according to a date-certain schedule;

- The design-builder assumes essentially all design and construction risk, including risks related to geotechnical and bathymetric conditions, the availability and cost of labour and materials, weather conditions and other factors; CIG/PACI will however provide relief for force majeure and similar events such as extremely severe storms or public protests which affect the work site;
 - CIG/PACI will pay the design-builder the contractually agreed upon price when the piers reach substantial completion (that is, when they are ready to be put into operations), with a small holdback (say 10% of the price) withheld until final completion is reached; and
 - The design-builder is responsible for financing all of its design and construction work until it receives payment from CIG/PACI.
- CIG/PACI will provide all land required for construction of the piers;
 - CIG/PACI would own the piers;
 - The cruise line or consortium leasing the pier would:
 - At substantial completion of the piers (ready for operations), pay CIG a lump sum payment representing all or a significant portion of the cost of the design-build-finance contract for the pier; CIG would use this amount to partially pay the design-builder;
 - Hire the PACI to operate and maintain it;
 - Use the pier for berthing their own cruise ships or, at their discretion, ships from other cruise lines;
 - Keep all berthage fees paid by cruise lines for use of the pier; and
 - Hand back the pier to CIG at the end of the lease period in a condition to be specified in the PPP agreement;
 - At the end of the lease, CIG/PACI will take over the piers and will be free to lease the piers to cruise lines or operate them as judged appropriate.

The cruise line-financed PPP model is illustrated in **Figure 8**.



The cruise line-financed PPP model is based on two distinct sets of agreements:

- One or more leases for each pier between CIG/PACI and a cruise line, consortium of cruise lines or a financial investor associated with cruise lines; and
- A design-build-finance agreement between CIG/PACI and a design-builder for the construction of the piers.

4.3 Qualitative assessment of procurement models

The suitability of the three procurement models can be assessed on a qualitative basis.

Greater Risk Transfer PPP model

The Greater Risk Transfer PPP model minimise CIG's investment in the Project and represents the best allocation of risks for CIG since the cruise lines would be responsible for all financing of the piers as well as their construction. In order to make the PPP viable, CIG would need to, as a minimum, contribute a portion of future head tax revenues. The cruise lines would therefore be greatly motivated to maximise the use of the piers to better profit from their investment. They would also be responsible for any greater than expected construction or maintenance costs.

The Preferred Option calls for two piers to be built. Based on current and likely future cruise volumes, commitments would be required from each of the two major cruise lines to make the two-pier PPP financially viable. In light of the cruise lines' wish to avoid involvement of a third party financial investor, this approach may therefore require some level of collaboration or partnership between cruise lines, in addition to partnership with the CIG. Such a partnership would also be required for optimal management of the construction of the two piers since it would be difficult to simultaneously build two piers under separate PPPs and construction contracts.

CIG-financed PPP

Under the CIG-financed PPP model, CIG would be responsible to build the two piers which it would do under a design-build finance contract with a design-builder. It would only pay the design-builder at the end of construction when it would then lease the piers separately to two cruise lines or consortium of cruise lines.

CIG would have to pay the design-builder the full cost of the two piers at the end of construction and recoup this amount through berthage and other fees charged to cruise lines. This represents a significant disbursement by CIG. Such a large investment by CIG:

- Could be very difficult to justify and implement under the FFR;
- Does not shift the demand risk to those best able to control it, i.e. the cruise lines; and
- Also exposes CIG to the credit risk of the main users, the cruise lines.

Because of these reasons the CIG-financed PPP does not appear to be a viable procurement model.

Cruise line-financed PPP

Under the cruise line-financed PPP model, CIG keeps responsibility for building the piers in the same way as under the CIG-financed PPP model. It would however require the cruise lines leasing the piers to make a substantial upfront payment, money it could use to pay, partially or fully, for construction of the piers. This approach combines many of the advantages of the Greater Risk Transfer PPP model and the CIG-financed PPP model while reducing some of the disadvantages:

- Financial commitments could be secured from cruise lines without the need for a complex partnering arrangement;
- The cruise lines would make large upfront payments, which reduces CIG's required financing;
- By making such large payments the cruise lines effectively take on a significant portion of demand risk since they must bring passenger volume to the piers to justify their investment.

A major disadvantage of this procurement model is that the amount the cruise lines are willing to pay for the piers cannot be estimated. Further, based on initial responses from the cruise lines, it is possible that they would not participate in a transaction that deals with each pier separately. Finally, by taking on the commitment for construction

costs under the design-build contract, CIG also exposes itself to credit risk over recovery of the upfront lease payments on substantial completion of the piers.

Conclusion of the qualitative assessment of procurement models

Based on the qualitative assessment described above, the Greater Risk Transfer PPP is the procurement model best suited to the needs of CIG and the characteristics of the Project and the Preferred Option.

5. *Proposed procurement process*

5.1 *Procurement objectives*

The procurement process for cruise berthing facility must be open, competitive and transparent, as required specifically under the FFR and generally under international best practice.

A key objective of the Project is to secure long-term cruise tourism for the Cayman Islands by aligning the commercial interests of the cruise lines with those of the Cayman Islands. Accordingly, given that the Cayman Islands' cruise industry is wholly reliant on a small number of cruise lines, the procurement process must ensure that a solution that meets the needs of these key users is identified. At the OBC stage the Greater Risk Transfer PPP approach has been identified as the preferred procurement model; however, areas such as detailed transaction structure and revenue and risk sharing still need to be considered in detail prior to an open procurement.

As such, the procurement process must be designed to enable CIG to negotiate directly with the key users on transaction parameters, while also ensuring transparency through a competitive process.

5.2 *Procurement steps*

Request for qualifications ("RFQ")

The initial stage of the procurement process will be an RFQ targeted at the infrastructure users. The RFQ will request responses from any of the following:

- Cruise lines which currently bring high volumes of visitors to the Cayman Islands;
- Cruise lines with the demonstrated capacity, and stated intention, to bring high volumes of visitors to the Cayman Islands; and
- Financial investors with a partnering agreement with such cruise lines.

The purpose of this RFQ process is to enable a dialogue between CIG and those private sector entities which control the cruise volumes and have the wherewithal to make the Project commercially viable. At most, three parties will be selected as qualified proponents.

Preparation of proposals

Because of the small number of cruise lines either already calling on Cayman or not calling on Cayman but able to bring a significant volume of passengers, few qualified proponents are expected to result from the RFQ process. It is also possible that certain cruise lines could form a consortium, which would reduce the number of qualified proponents even more. Consequently, the steps following the RFQ depend on whether two or three proponents are qualified under the RFQ or if only one is qualified.

- If two or three qualified proponents

This next stage is a process, during which CIG presents a transaction outline to each proponent and discusses it with them. These discussions take place individually in order to encourage proponents to exchange openly with CIG. The purpose is to develop a transaction that is suitable for both CIG and the two/three qualified proponents. When this is achieved, the proponents are invited to each submit a proposal by a certain date. CIG evaluates these proposals and selects the best one according to its pre-established criteria.

Because discussions are held individually with each proponent, the resulting potential transaction, though broadly the same in all cases, could have some minor variations in order to better meet the proponents' needs. To ensure discussion are conducted in a manner which is fair to all proponents and that they are all treated equitably, CIG could name an independent fairness auditor who would participate in all discussions and report on the fairness of the process.

The selected proposal would have to provide VfM before being approved by CIG.

- If only one proponent

If only one proponent is qualified under the RFQ, the proponent and CIG would immediately start negotiating the terms of a transaction, using CIG's transaction outline as a starting point. Should CIG and the proponent reach an agreement, two steps would need to be completed before the agreement could be approved by CIG in order to compensate for the lack of competition:

- It would be reviewed to ensure it provides VfM to CIG; and possibly in addition
- It could possibly be made public along with an invitation to interested parties to submit a competing bid based on the same transaction terms but providing better value to CIG.

Should one or more improved competing bids be submitted by acceptable new parties, both the original single proponent and the new proponent(s) would be invited to submit a revised, final proposal.

Regardless of the number of proponents, a key factor in evaluation of any resulting proposals will be the proponents' ability to deliver the required cruise volumes to make the Project a success.

Proponents will also be allowed to submit an alternative proposal along with their compliant proposal. Alternative proposals could be based on a different procurement model, such as the cruise line-financed PPP model, or a different pier designs. CIG should be willing to consider such alternative proposals so as to benefit from cruise line innovation but would be under no obligation to accept an alternative proposal. In all cases, VfM would have to be demonstrated before a proposal could be approved.

5.3 Proposed timeline

The procurement timeline will be governed by a number of factors, including the time required for CIG and FCO approvals, public consultation processes and the EIA, the result of which will be essential in determining the final Project design and cost. As such, the proposed timeline outlined below is potentially subject to variation in line with any variations in these critical path tasks.

Figure 9: Proposed timeline

OBC approval	
Presentation to cabinet	Early October, 2013
Public consultation on OBC	November, 2013
CIG, FCO and CTC approval	December, 2013
Environmental reviews	
Public consultation on EIA Scoping Report	November, 2013
RFP for environmental consultant	December, 2013 – February, 2014
Environmental Impact Assessment	February – September, 2014
Final EIA on preferred bid	December, 2014 – January, 2015

RFQ and preparation of proposals	
RFQ	January – February, 2014
Competitive dialogue/negotiations	April - August, 2014
Submission of proposals*	September, 2014
Completion	
Selection of preferred proponent	October, 2014
Final business case	November, 2014 – January, 2015
Financial close	February – March, 2015

**Note: Proposals must take into account results of the EIA, which is expected to complete by September, 2014*

5.4 CIG requirements to proceed

EIA

As noted above, the EIA forms an integral part of the procurement process. In order to streamline the approach, CIG shall be conducting an EIA on the outline layout identified by Mott Macdonald in this OBC. The key risks and mitigations identified under this EIA will be used to inform the design requirements for the qualified proponents, which could significantly impact the costs of construction.

At present, Mott Macdonald are conducting a scoping report for the EIA, which will be presented to the Cayman Islands public for consultation in late November, 2013. Following this, an environmental consultant will be engaged by CIG, under a request for proposals process, to carry out the full EIA, which is expected to take approximately eight months.

Technical studies

A number of technical studies will be required, both in order to conduct the EIA and also for the purposes of the design elements of the proposals. These include:

- Geotechnical;
- Bathymetric; and
- Others as identified by Mott MacDonald.

Preparation of procurement documentation

Detailed documentation for proponents at the RFQ and proposal stages shall be prepared by CIG in conjunction with its advisors. In particular at the proposals stage, it will be important to provide sufficient information to enable comparable proposals and inform the design.

Key documentation will include:

- Design and operating specifications for the berthing facility;
- Draft PPP agreement; and
- Evaluation criteria.

Preparation of legal agreements

The CIG's legal advisors, Applebys and Pinsent Masons, shall prepare the legal documentation for the transaction, based on the commercial terms and conditions negotiated during the procurement and selection of preferred proponent.

Government approvals, including the FCO and CTC

As set out under the PMFL and the FFR, the Project will require various approvals during the procurement process. Specifically, the OBC and the preferred procurement approach will require the approval of CIG cabinet and in addition that of the Central Tenders Committee (“CTC”) and the FCO.

Subsequent approval of the Final Business Case will be required from CIG cabinet, the CTC and FCO toward the end of the procurement process. Final approval will then be required from Cabinet, and the Cayman Islands Governor, on financial close.

Procurement costs

CIG’s procurement costs will principally involve financial, engineering and legal advisory services and in addition the cost of the EIA process, which will include a number of detailed engineering surveys.

Overall procurement costs are estimated to be in the range of US\$2.5m – US\$3m. However, a significant portion of these, the EIA costs, should only be incurred following the RFQ process at which point CIG should have a greater sense of certainty over whether the Project will be supported by the key cruise line stakeholders.

5.5 Fallback plan

Should the procurement process not result in a viable proposal offering CIG VfM, CIG could consider alternative approaches for the Project, including:

- Procuring under a different procurement model, such as the cruise line-financed PPP; or
- Undertaking the Project under the improved status quo option as an immediate solution to Cayman’s needs and continuing discussions with cruise lines in order to find a permanent solution to the need for cruise berthing.

Appendix A – Project Strategic Outline Case

Appendix B – Evaluation and shortlisting of Project options

Appendix C – Mott MacDonald Concept Study

Appendix D – Economic appraisal of Two Pier and Future Cargo Relocation option

1. *Economic appraisal of shortlisted options*

1.1 *Introduction*

This Section of the report provides an assessment of the economic impacts to CIG and its citizens that are expected to result from the development of the cruise berthing facility.

The impacts that are expected to flow from the development of the cruise berthing facility are on:

- **Port operations:** development of the cruise berthing facility will affect the operation of the port and, more broadly, on shipping operations, for example tendering; and
- **Tourism:** development of the cruise berthing facility will impact on the Cayman tourism economy.

This assessment is an integral part of the VfM assessment.

The rest of this Section is structured as follows:

- A description of the economic impact assessment framework that has been used;
- An analysis of the gross economic impacts that are expected to arise from the cruise berthing facility;
- A summary of the gross economic impacts that are expected to arise without the cruise berthing facility;
- A summary of the assessment of the net impacts of the cruise berthing facility;
- An assessment of the sensitivity of the results to key assumptions; and
- A summary of the key conclusions.

1.2 *Economic impact assessment framework*

Economic impact analysis is an established methodology for assessing and valuing the economic impacts of investments. The technique is widely used by national governments, non-governmental organisations, multinational companies and other stakeholders across a range of emerging and developed countries⁵. This part of the Section explains the methodology as it has been applied to appraise the cruise berthing facility's impact on the Cayman Islands economy.

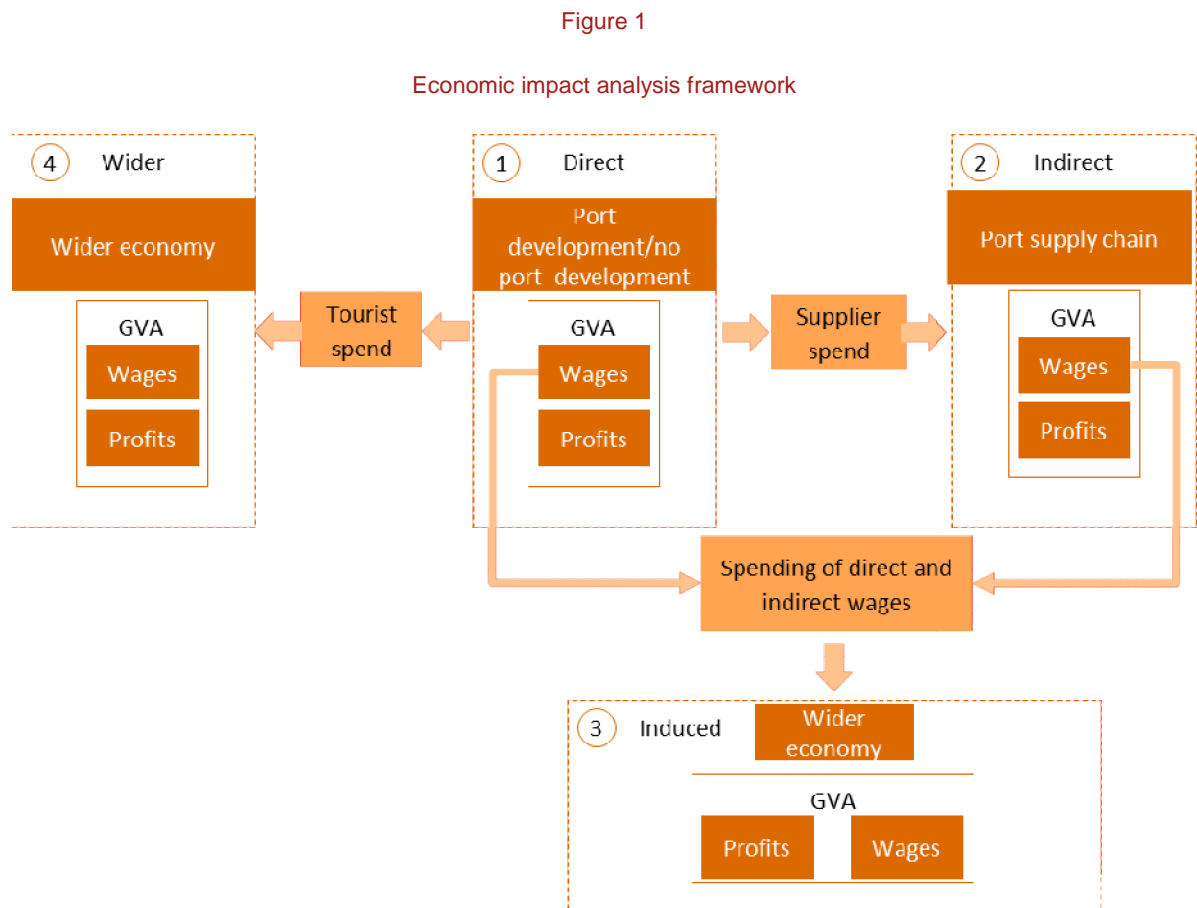
PwC's approach has considered the impact of the cruise berthing facility on two indicators of economic activity: economic output, as measured by Gross Value Added ("GVA"), and the total number of jobs. This provides an estimate of the 'gross' impact associated with the cruise berthing facility.

The impact on GVA and jobs is divided into four types:

5. **Direct impact** corresponds to the contribution made to the Cayman economy as a direct result of the construction and operation of the cruise berthing facility or, in the counterfactual scenario, the operation of other shipping services such as tendering.
6. **Indirect impact** is created primarily by the purchase of goods and services from firms that are directly involved in construction and operation of the cruise berthing facility or, in the counterfactual scenario, the operation of other shipping services. This supports profits and wages across the supply chain.
7. **Induced impact** is the additional impact on the economy resulting from increased expenditure by the workforce employed directly by the cruise berthing facility (or, in the counterfactual scenario, the operation of other shipping services) and indirectly by its supply chain, as income earned by these employees is spent on various goods and services, leading to further economic activity and employment in the Cayman Islands.
8. **Wider impact** captures economic activity resulting from the cruise berthing facility that is not captured through the direct impact and indirect impact. Wider impacts include expenditure in the Cayman economy by tourists visiting the Cayman Islands.

⁵ See, for example, HM Treasury (2011) 'The Green book – Appraisal and Evaluation in Central Government'

This division reflects the large network of interdependencies between industries in an economy, and allows the full effects flowing from the cruise berthing facility to be captured. Figure 1 provides an overview of these impacts.



Importantly, this analysis assesses the impact on the Cayman Islands only and does not include the impact on other countries.

The assessment of the net economic impact of the cruise berthing facility is derived by comparing the expected impact with the facility with those expected to arise in the absence of the cruise berthing facility (i.e. in the counterfactual scenario). The key determinant of the net economic impact of the cruise berthing facility is likely to be its wider impact on visitor spending in Cayman. Accordingly, this Section of the report examines the link between cruise berthing facility and visitor spending. In particular, PwC considers the expected behaviour of:

- Cruise lines with and without the cruise berthing facility; and
- Cruise passengers with and without the cruise berthing facility.

The key features of the two scenarios are summarized in Figure .

Figure 3

Summary of scenarios

With the cruise berthing facility	Without the cruise berthing facility
Two piers / four berths developed	No berths developed

No tendering	Tendering
Some self-tendering	Self-tendering

Source: PwC

For the purposes of considering the future impacts of the cruise berthing facility, the twenty year period from the end of construction to 2036 has been selected as an approximation of the useful economic life of the key assets. Accordingly, the potential future economic impacts have been estimated over the period to 2036.

Finally, standard practice in economic impact analysis is to convert the expected economic impacts that accrue over the lifetime of the investment into present values. To achieve this, a discount rate is used to convert the future flow of GVA to present values. The CIG proposes a real social discount rate of 3½%. The discount rate is a key assumption in the analysis.

1.3 Economic impacts of the cruise berthing facility

The next part of this Section presents PwC's assessment of the economic impacts on the Cayman Islands with the cruise berthing facility and its expected outcomes. It describes each of the five stages set out in Figure 4.

Figure 4

Overview of the stages in the economic impact assessment



Direct economic impact of the cruise berthing facility



PwC has estimated the direct economic impact of the cruise berthing facility, measured in terms of GVA, by estimating the net present value of its key component parts (operating profits⁶ and payroll) over a 20 year period following a two year design and construction period (2015-2016). In this way, the costs and benefits of the development are “matched”.

Construction of the cruise berthing facility

Spending on designing and building the facility will generate economic benefits for Cayman to the extent that local labour and materials are used. This generates value added for the Cayman economy. Figure 4 illustrates the approach to estimation of the construction impact.

⁶ Operating profit refers to the accounting concept of earnings before interest and tax (EBIT).

Figure 4

Approach to estimating direct economic impact of constructing the cruise berthing facility

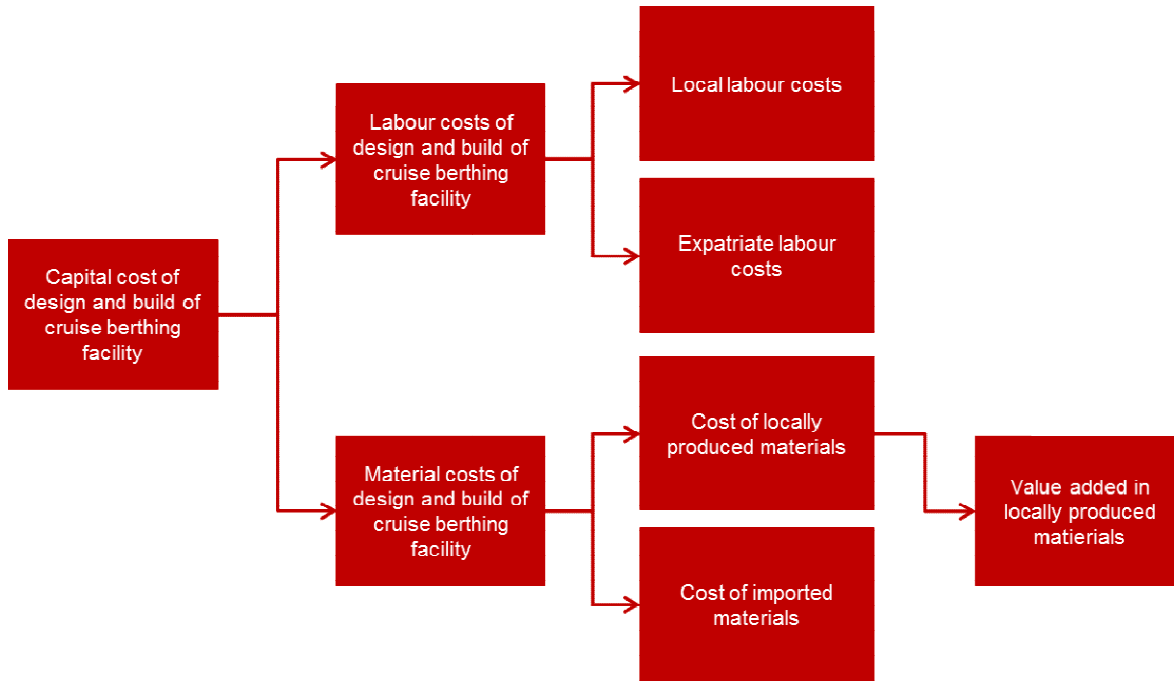


Figure 5 summarises the key assumptions which have been used to underpin the assessment of the impact of the construction phase of the cruise berthing facility.

Figure 5

Key assumptions underpinning the construction of the cruise berthing facility

Assumption		Source
Elapse period of construction	2015-2016	Financial model
% of construction materials and services imported (express as % of costs)	90%	Assumption

Source: PwC analysis – see disclaimer at page 1.

Note: Given commercial sensitivities, assumptions on construction cost are not shown.

Operation of the cruise berthing facility

Figure 6 illustrates the approach to estimating the direct economic impact of the cruise berthing facility. Key elements of the approach are determination of:

- The expected revenue of the facility (which is assumed to depend on the number of cruise passengers handled and the price paid to the berth owners and operators);
- The expected costs of operating the facility;
- The extent to which the labour and materials used are locally sourced in the Cayman Islands; and
- How far the earnings of staff employed and the profits gained remain in the Cayman Islands.

Context

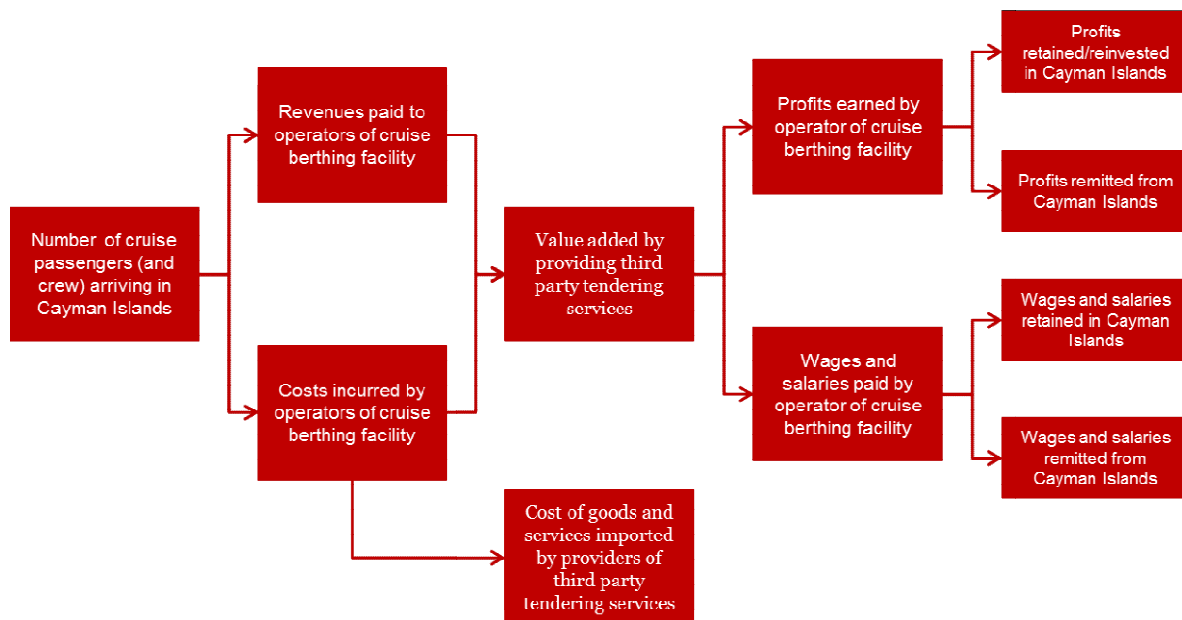
The development of a cruise berthing facility in Cayman has been a strategic objective of the CIG for over ten years.

At present, cruise ships visiting Cayman are obliged to moor in George Town harbour and tender passengers to shore, incurring significant expense and time delays.

The Cayman Islands' main competitors in regional cruise tourism have either already put in place alongside berthing arrangements or are in the process of doing so. To date, the Cayman Islands' favoured location for Western Caribbean cruises has largely protected its cruise market share, despite the lack of berthing. But there is evidence this may be changing. Grand Cayman has recently been removed from itineraries as a result of this issue. Moreover, due to lack of berthing facilities George Town is less suited to accommodate the new classes of 'mega-ship' such as the Oasis class which are increasingly being used by the cruise lines.

Figure 6

Approach to estimating direct economic impact of operating the cruise berthing facility



Number of ships expected to visit Cayman Islands

In order to assess the possible impact of the cruise berthing facility it is necessary to consider how the cruise lines would react to the availability of the berthing facility.

The cruise lines' schedules for the next three years (to 2016) are effectively established and project an increase in the number of ships visiting Cayman.

PwC's consultations suggest that the advent of a berthing facility would bring some subsequent change in the pattern of cruise ships visiting Cayman if a two pier berth is constructed. PwC's analysis, which is based on the expected pattern of shipping movements in 2014, assumes that:

- One Oasis class ship will visit the Cayman Islands each week and will replace a smaller RCCL vessel;

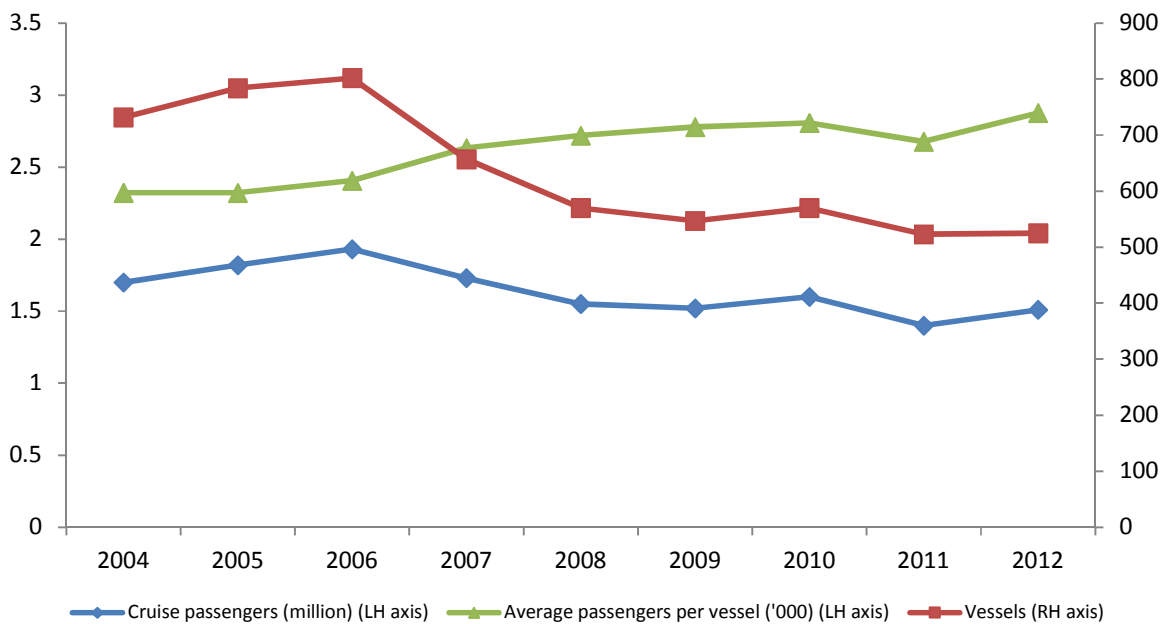
- Where more ships are expected in Cayman than there are available berths (i.e. four berths), half of the 'surplus' ships will still visit Cayman and will self-tender but the other half will not visit Cayman at all preferring other destinations;
- Under a procurement model that provide cruise lines with a financial incentive to stop at the Cayman Islands, there would be sustainable, but moderate, growth over the long term; and
- The 'average' level of bad weather days continues, during which ships will self-tender at Spotts Landing (but only 50% of the usual number at Spotts Landing, given there will not be a third party tender provider).

Number of passengers expected to visit Cayman Islands

Closely linked to the expected number of cruise ship arrivals is the expected number of passengers. The peak visitors of 1.9m in 2007, as shown in Figure 7 below, is an anomaly resulting from the shutdown of a competitor port (due to hurricane damage) and the resulting diversion of volumes to the Cayman Islands. More recently, reductions in ships and visitor numbers have been mainly attributed to loss of large ship visitors due to the lack of berthing facilities. It should be noted, however, that passenger volumes are expected to increase in 2014 as cruise lines redeploy ships from European and other Mediterranean routes which are currently less popular due to economic conditions in these markets. However, in the absence of berthing this trend is expected to reverse after this period.

Figure 7

Cruise visitors to Cayman Islands (2005-2012)



Source: Cayman Islands Department of Tourism

Although the cruise berthing facility may have some impact on cruise passengers' decisions to go on cruises which include Cayman in their itinerary, PwC considers that the actual impact of the cruise berthing facility on cruise passengers' itinerary decisions is likely to be de minimis.

As a base case, PwC has modelled annual passenger number growth of 1% per annum to reflect the impact of the new berthing facility. This rate is below regional cruise industry growth of 2.5% for 2013, as estimated by the FCCA⁷; this lower rate of assumed growth is intended to reflect Grand Cayman's position as a mature cruise destination, as contrasted to new destinations in the region from which higher levels of growth may be expected. This base case implies nearly 2 million cruise visitors in 2017, the first year of the berth's operation, compared with around 1.8 million, which are expected in 2014. While the actual impact may be more 'step-change' in nature, rather than a steady annual increase, the overall impact should broadly equate in economic terms.

Passenger growth is capped at 2.3 million reflecting both assumed limits on demands and the size of Grand Cayman, its road network, shopping and restaurant facilities and perhaps most importantly the capacity of natural attractions. Although the CIG is considering pedestrianization of the seafront, this would only partially mitigate the capacity constraint. In PwC's consultations, the Department of Tourism indicated that it considers a limit on cruise passengers visiting Cayman of 2.1 million over the next five to seven years to be necessary in order to maintain the delicate equilibrium between cruise and overnight tourism.

As an alternative, PwC has also modelled a case which assumes annual passenger number growth of 3% per annum to reflect the combined impact of the new berthing facility and more favourable market conditions.

Estimating operating profits

Operating profits, defined as revenues minus costs, over the lifetime of the cruise berthing facility have been estimated by subtracting expected costs from the expected revenue. Cost assumptions come from PwC's financial model and were based mainly on cruise line consultation and review of industry statistics.

Estimating payroll

The payroll estimate is based on an assumption made by PwC which express payroll costs as a proportion of total operating costs during the operating period.

Estimating GVA

GVA has been calculated in each period as the sum of operating profits and payroll.

Migrant employees involved in the operation of the cruise berthing facility may repatriate some of their income to their home country and some of the operating profits may flow outside the Cayman Islands if the developers are non-Caymanian. This would create a "leakage" from the Cayman Islands' economy and means that some of the economic impacts associated with the cruise berthing facility are likely to flow outside the country. In practice these impacts will be small relative to the others considered as part of the analysis and are excluded from detailed analysis.

Figure 8

Key assumptions underpinning expected direct economic impacts of cruise berthing facility

Assumption	Source	
Period over which cruise berthing facility benefits assessed	20 years	Financial model
Expected rate of change of passengers visiting Cayman Islands (% per annum, 2014-2036)	1% - base case	Financial model
Expected operating costs	Variable	Financial model

⁷ FCCA Cruise Industry Overview 2013

Assumption		Source
Breakdown of operating costs	Payroll costs are 60% of variable operating costs	Financial model

Source: PwC analysis – see disclaimer at page 1.

Note: Given commercial sensitivities, assumptions on revenue per passenger are not shown.

Establishing the most appropriate multipliers



‘Multipliers’ are used to estimate the indirect and induced impacts expected to result from the construction and operation of the cruise berthing facility. Multipliers are a way of estimating how direct economic impacts cascade through an economy. They refer to the ratio of the indirect and induced GVA impacts on the economy to the initial direct GVA impact (as measured above). They can also be expressed in terms of employment multipliers, determined by the ratios of jobs created in the wider economy relative to the direct employment impact of the cruise berthing facility.

Multipliers vary across sectors and across countries as they reflect the unique structure and inter-dependencies in the economy being analysed. Multipliers are usually estimated using Input-Output (IO) tables or Social Accounting Matrices (SAMs). PwC has not been able to calculate multipliers for the Cayman Islands as the data required are not available. Instead, following a review of the available international literature, the most appropriate multipliers have been identified. PwC has taken multipliers from a study by Tian et al. of the economic impact of tourism in Hawaii. This has the benefit of being relatively recent, and Hawaii has some similar economic features to the Cayman Islands (e.g. it is also an island economy with comparable per capita income levels and a significant tourism sector). Multipliers for Jamaica or the Dominican Republic would be less relevant as their economies are larger and more diverse than the Cayman Islands, whereas more comparable Caribbean economies, such as Bermuda, do not produce these estimates. The match is necessarily imperfect and so the precise multipliers should be treated with some caution.

Figure 9 summarizes the multipliers that have been used in this analysis.

Figure 9

Multipliers used to estimate the indirect and induced impacts

Type of multiplier	Multiplier	Impact
Construction multiplier	0.86	Additional benefits to the economy from the construction of the cruise berthing facility
GVA multiplier	1.4	Additional benefits to the economy that accrue in the form of GVA to employers and employees from operation of the cruise berthing facility
Intermediate consumption multiplier (local)	1.4	Additional benefits to the economy from spending on locally produced intermediate inputs
Intermediate consumption multiplier (imports)	-0.197	Lost benefits to the economy from spending on foreign produced intermediate inputs

Source: Tian et al. (2011) *The direct and indirect Contributions of Tourism to Regional GDP: Hawaii*, the Economic Research Organisation at the University of Hawaii.

Construction multiplier

The construction spending on the cruise berthing facility complex will have a positive impact on the economy if the developer buys locally produced goods and services. A construction multiplier measures the positive impact on Cayman's GVA from \$1 of construction spending due to these inter-linkages.

For this analysis, it is assumed that construction is spread over a two-year period (2015-2016).

GVA multiplier

The income arising from operation of the cruise berthing facility in the form of operating profits or payroll distributions also has a positive impact on the economy. Income that is accrued by the operating firm(s) can be used to invest in further developments or can be distributed to its investors. Investors use this income to buy other goods or services, or they may choose to repatriate a proportion of the profit to their home country. Employees use their wages to consume other goods and services or to invest. The GVA multiplier measures the economic benefits in GVA positive of each \$1 of direct GVA.

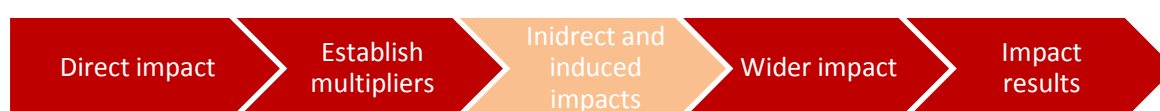
Intermediate consumption multiplier for local materials

Expenditure on local materials required for the cruise berthing facility's operation also has a positive impact on the economy. This expenditure is calculated by estimating the share of operating costs that relate to local materials. Economic benefits are realised as income received by upstream firms in the supply chain is spent on other goods and services, invested or distributed to employees. The intermediate consumption multiplier measures the economic benefit in the operating phase of the cruise berthing facility.

Intermediate consumption multiplier for imported materials

In contrast, the Cayman Islands economy will lose income when money is spent abroad on imported materials as income is redirected from the Cayman economy to trade partners. The expenditure that leaks out of the Cayman Islands has been estimated based on the share of operating costs that relate to imported materials. The intermediate consumption multiplier for imported materials measures the economic cost in every period in the operating phase of the cruise berthing facility.

Indirect and induced economic impacts of the cruise berthing facility



The next stage of PwC's approach combines the direct GVA impact estimate with the multipliers identified to estimate the indirect and induced impacts. The indirect impact on the Cayman Islands economy is that which results from the purchase of goods and services by firms directly involved in the cruise berthing facility supply chain. The induced impact is the additional impact on the economy resulting from increased expenditure in the Cayman Islands by the workforce employed directly by the cruise berthing facility and indirectly by people employed in its supply chain. This is equal to the sum of the discounted present values of the GVA impact from the construction multiplier, GVA multiplier and intermediate consumption multiplier.

Wider economic impacts of the cruise berthing facility



The cruise berthing facility is expected to lead to wider economic impacts beyond those captured above. Specifically, it is expected to impact on spending by cruise passengers visiting Cayman who use the cruise berthing facility to come ashore. This is considered below.

Number of passengers and crew expected to come ashore in Cayman Islands

One potentially significant impact of the cruise berthing facility is its expected effect on ease of embarkation and disembarkation, hence, on the probability that cruise passengers (and crew) will come ashore in the Cayman Islands. Figure 10 shows the proportion of passengers and crew coming ashore in Cayman in 2012 compared with other cruise destinations in the region. The passenger disembarkation rate of 90% in the Cayman Islands is 2% ahead of the regional average. PwC understands that this relatively high rate of passenger disembarkation in Cayman can largely be attributed to the good amenities in the vicinity of the disembarkation point, the attractive range of activities offered and the low crime rate. PwC's analysis, therefore, allows for a small increase in the proportion of visiting passengers that disembark to 92% (for those passengers able to make use of the berthing facility). It also tests the sensitivity of the results to this assumption.

Figure 10

Proportion of cruise passengers and crew disembarking by country, 2012

Country	Cruise passengers (%)	Crew (%)
Antigua & Barbuda	88	36
Aruba	90	35
Bahamas	90	42
Barbados	75	39
Belize	83	25
British Virgin Islands	89	37
Cayman Islands	90	37
Colombia	89	32
Costa Rica	87	36
Curacao	92	38
Dominica	88	34
Dominican Republic	85	25
Grenada	88	34
Honduras	85	25
Nicaragua	90	32
Puerto Rico	91	39
St Kitts and Nevis	89	32
St Maarten	90	50
St Vincent and the Grenadines	90	30
Turks and Caicos	90	40
US Virgin Islands	90	46

Source: Business Research and Economic Advisors, September 2012

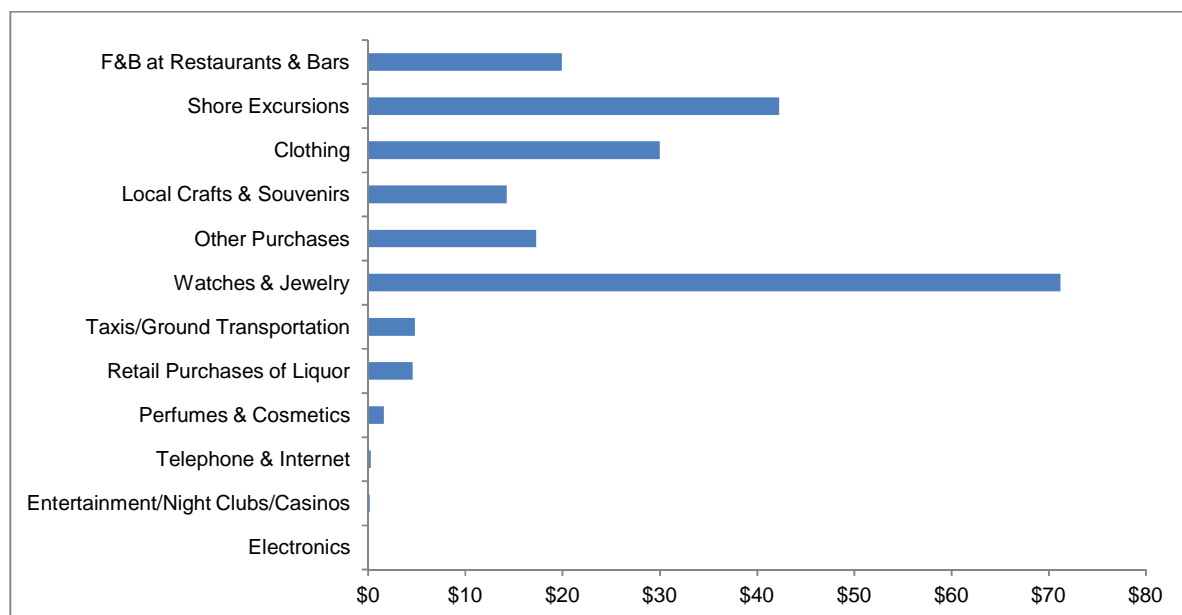
Figure 10 also shows the rate of disembarkation of crew members. At 37%, it is lower than some comparable destinations where berthing is possible (for example, St Maarten and US Virgin Islands). On the basis that the Cayman Islands, as a low crime and comparatively highly developed destination, offers similar amenities to crew as St Maartin and the US Virgin Islands, PwC's analysis allows for a small increase in the proportion of crew that disembark to 44%. It also tests the sensitivity of the results to this assumption.

Expected spending by cruise passengers and crew coming ashore in Cayman Islands

Finally, in order to understand the incremental economic impact of the cruise berthing facility, it is necessary to consider the likely spending behaviour of cruise passengers and crew. Visitors using the cruise berthing facility will generate economic benefits as their spending provides income for suppliers who then generate additional GVA by spending on other goods and services, investing or distributing to employees (which is eventually spent or invested).

Figure 11 analyses cruise visitor spend in the Cayman Islands in 2012. Tours (shore excursions) represent the second highest spending category after jewellery. Passengers who take a tour are estimated to spend, on average, 55% more per head than those who choose not to do so. Accordingly, if the cruise berthing facility enables and encourages more passengers to take a tour, this will increase overall spending in the Cayman Islands.

Figure 11 Breakdown of spending by cruise passengers (\$ per passenger)



Source: Business Research and Economic Advisors, September 2012

Based on BREA data, cruise visitors to the Cayman Islands currently spend an average of 4.3 hours visiting Grand Cayman⁸. PwC understands, however, that cruise visitors to the Cayman Islands currently 'lose' around one to two hours while they disembark and embark. This is due to a combination of the time taken to tender (of roughly ½ hour) and limits on tendering capacity, particularly for larger ships which necessitates priority disembarkation ticketing. Development of the cruise berthing facility will mean that these delays will be largely avoided. PwC assumes that, on average, passengers can expect to be able to spend one hour more ashore with berthing.

⁸ Economic Contribution of Cruise Tourism to the Destination Economies, Business Research and Economic Advisors, September 2012, Volume I Page 64.

The avoidance of a one hour delay would represent a significant proportionate increase in the actual time available to spend in the destination. It can be expected to have a 'step-change' impact on:

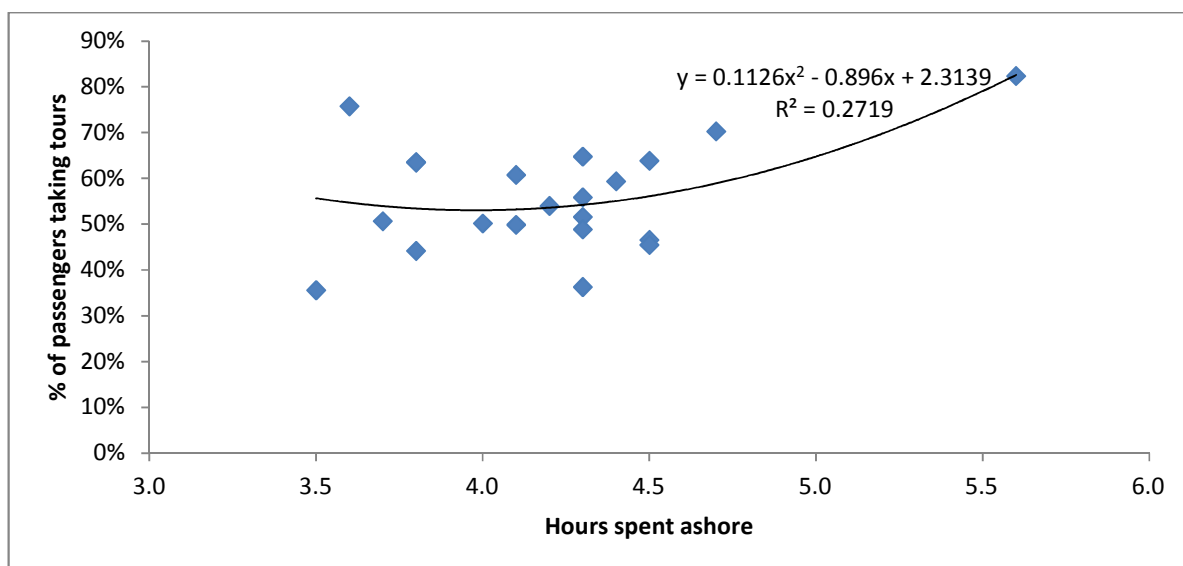
- The proportion of cruise passengers that choose to disembark at Cayman; and
- The proportion of disembarking passengers taking tours (shore excursions) which often take up to 3 hours of a visitor's time.

This view is supported by Figure 12 which shows the proportion of cruise visitors taking up tours against the time spent ashore for various regional cruise destinations. The 'line of best fit' indicates a positive correlation between the time spent ashore and the rate of take-up of tours. It suggests that the expected rate of take up of tours in Cayman should be 54% (if passengers have 4.3 hours in port) and this would rise to 73% if an extra hour is available.

Based on the BREA statistics, levels of shore excursion take up at 70% and higher are only achieved in major mainland destinations, which generally have overnight stays, such as Belize and Costa Rica. As such, this suggests it would be unlikely for the Cayman Islands to achieve such a high level of tour take-up, without overnight stays and a major new attraction.

Figure 12

Percentage of cruise passengers taking tours by time spent ashore (Caribbean, 2012)



Source: Business Research and Economic Advisors, September 2012

Furthermore, at 55.9%, the current rate of take-up of tours in the Cayman Islands is slightly higher than predicted and broadly in line with the rest of the region as a whole. Moreover, the Cayman Islands' rate of tour take-up appears high when compared to similar small islands in the region, with limited inland sights and natural attractions. Accordingly, for the purposes of determining the impact of the cruise berthing facility, PwC assumes a 15% increase in the current level of cruise passengers taking up tours as a result of quicker disembarkation and embarkation. This would imply an overall level of tour participation in the Cayman Islands of 65%.

One other element of spending which may be impacted by berthing is spend on food and beverages (F&B) in Cayman. On the one hand, passengers are more likely to re-board and have lunch on their cruise ships at no additional cost. The issue, however, is that most families already re-board because of the cost of eating out in Cayman. This would suggest that berthing will have little impact on their behaviour. In contrast, berthing may mean that passengers are more likely

to disembark after lunch (or a shower) and spend more ashore. Overall, PwC's analysis assumes that these effects offset each other.

Overall, the effect of the berthing facility is likely to be to increase passenger spending in Cayman. Local merchants and the cruise lines both view the berthing facility as being likely to turn Cayman into a 'two tour' destination as reduced delays enable visitors to take two tours, rather than one, or alternatively one tour and time spent shopping ashore.

In addition, the Cayman Government will receive revenue from a head tax on all cruise passenger arrivals. This is assumed to be levied at \$11.25 per person at expected 2017 prices (\$10.29 at 2013 prices assuming inflation at 2% per annum).

Figure 13

Key assumptions underpinning estimated wider economic impacts of cruise berthing facility

Assumption		Source
Average time spent ashore by cruise passengers (with berthing)	5.3 hours	Derived from analysis of BREA data
% of cruise passengers going ashore (with berthing)	92%	See discussion above
% of crew going ashore (with berthing)	44%	See discussion above
% of cruise passengers self-tendered (with berthing)	Variable (less than 5%)	See discussion above
% of cruise passengers going ashore taking tours (with berthing)	65%	See discussion above
Head tax paid by cruise passengers	\$11.25 per person (at 2017 prices)	Financial model
	Spend (\$ per capita)	Real change in spend (% per annum)
Passenger – tour	111	0
Passenger – no tour	72	0
Crew	58	0

Source: PwC

Tourism multipliers

To estimate the value added by the cruise berthing facility, PwC has used a tourism multiplier from the international literature. When examining tourism multipliers they often display very substantial international variations depending on the structure of the economy in which the tourism activity takes place or the spending patterns of the beneficiaries of these expenditures. The size of the economy can also explain differences between the Caribbean countries listed in Figure 14. The larger and arguably more diversified economies such as Jamaica and the Dominican Republic show considerably higher multipliers when compared to small countries and economies such as the British Virgin Islands and the Cayman Islands, which indicates the linkages to other sectors are more developed in larger economies.

Figure 14

Tourism multipliers – selected countries

Country	Size of multiplier	Country	Size of multiplier
Cayman Islands	0.65	Antigua	0.88
Bermuda	1.03 - 1.09	Jamaica	1.23 - 1.27
Dominican Rep.	1.2	Bahamas	0.78-0.79

Source: Meyer (2006) *Caribbean tourism, local sourcing and enterprise development: review of the literature*, Centre for Cultural Change, Sheffield Hallam University

Employment supported by the cruise berthing facility

The economic impact of the cruise berthing facility can be expressed in terms of the employment that would be supported by it.

PwC has separated the direct employment impact between the construction and operating periods of the cruise berthing facility. Since the employment created during the construction phase will be for a defined period, the construction employment is estimated in terms of “man years”. The operating employment is estimated in terms of Full-Time Equivalents (FTEs), where one FTE refers to one person working full time for the economic lifetime of the investment.

A standard method for estimating the employment supported by the indirect, induced and wider impacts of the cruise berthing facility is to use employment multipliers. This method works in a similar way to the multipliers applied to estimate GVA, described above. The data are not available for the Cayman Islands to calculate the relevant multipliers, however, so PwC has instead used an estimate of GVA per employee from the Cayman Islands’ national accounts and applied different sector weights to derive the most appropriate estimate of GVA per employee, see Figure 15. These estimates are combined with the relevant output from the GVA impact estimate to provide an estimate of the number of employees required to support the given level of GVA.

Figure 15

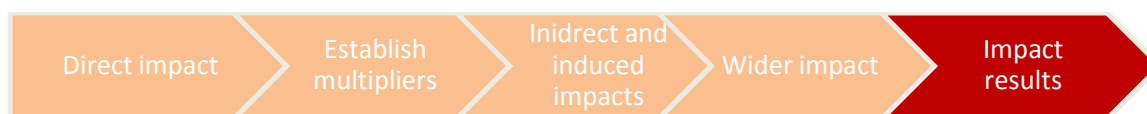
GVA per employee (2009)

	GVA per employee	Description
Used for construction impact	\$85,737	Average GVA per employee less FISIM
Used for GVA impact	\$79,045	Average GVA per employee weighted by CPI consumption basket
Used for intermediate consumption (local) impact	\$74,098	Average GVA per employee weighted by Hawaii input-output tables expenditures
Used for intermediate consumption (imported) impact	\$74,619	Average GVA per employee weighted by Hawaii input-output tables expenditures
Used for tourism expenditure impact	\$55,007	Average GVA per employee weighted by tourism expenditures from Jamaica 2012 Oxford Economics report

Source: Economic and Statistics Office, Cayman Islands

Note: Financial services indirectly measured (FISIM) has been removed from the estimate of economy wide GVA to account for the distorting effect of financial flows through the Cayman Islands’ economy.

Impact results of the cruise berthing facility

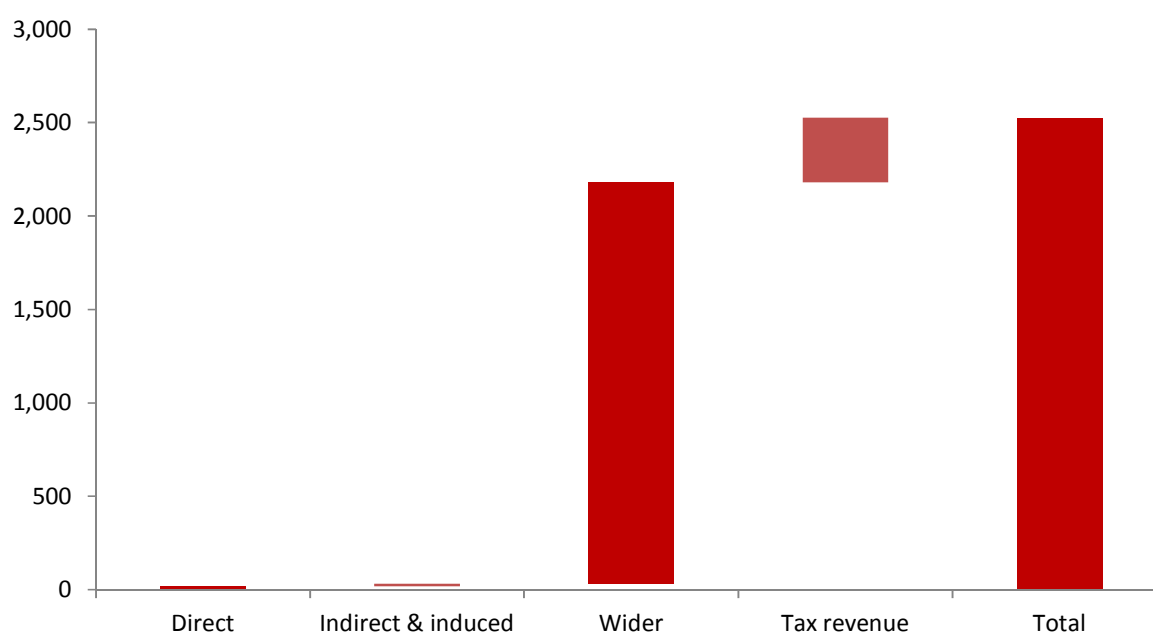


This part of the Section brings together the outputs from the assessment of the economic impact of the cruise berthing facility. It separates out the expected direct, indirect, induced and wider impacts and presents the total impact over the lifetime of the project in terms of net present value (i.e. after applying the discount rate).

The total (gross) impact of the cruise berthing facility over the lifetime of the project is equivalent to \$2,526m (see Figure 16). This in turn is estimated to support employment of around 500 man years through the construction period and up to 2,785 FTEs during the operating period (see Figure 17). By far the major component of this impact is through the wider effect arising from spending by visitors to the Cayman Islands. The direct, indirect and induced economic impacts are expected to be relatively small.

Figure 16

Expected economic impacts of cruise berthing facility - (Net present value of GVA/tax revenue, \$m)



Source: PwC analysis – see disclaimer at page 1.

Figure 17

Expected economic impacts of cruise berthing facility - employment

	Base case	
	Construction (Man years)	Operations (FTEs)
Direct impacts	491	150-167
Indirect and induced impacts		2-3
Wider impacts		2,142-2,588

Source: PwC analysis – see disclaimer at page 1.

Note figures may not sum due to rounding

1.4 Economic impacts without the cruise berthing facility

Up to this point, the economic impact analysis has considered the potential impact of the cruise berthing facility.

In order to understand the incremental effect of the cruise berthing facility, it is important to consider the economic consequences if the cruise berthing facility is not developed. Only by comparing this assessment with the expected impacts with the cruise berthing facility is it possible to estimate the additional economic value provided by the cruise berthing facility.

The approach adopted to estimating the impact without the cruise berthing facility is consistent with that used to estimate the economic impacts of the cruise berthing facility:

- The focus is on estimating the impact on GVA and jobs created.
- The analysis uses the same multipliers to estimate the indirect, induced and wider impacts.

Direct economic impact without the cruise berthing facility



If the cruise berthing facility is not developed, the cruise lines are assumed to continue to rely on a combination of self-tendering and third party tendering.

If this were to happen, PwC expects the number of cruise ships visiting the Cayman Islands to continue to decline⁹ as more competing destinations in the Caribbean offer berthing, which cruise lines prefer because of the adverse impact of tendering on the passenger experience and the associated risk. This can be expected to encourage cruise lines to switch their larger ships away from Cayman and replace them with smaller ships.

Furthermore, the industry-wide shift toward larger ‘mega-ships’ carrying 5,000 passengers or more, which cannot be adequately accommodated by Cayman’s existing mooring and tendering arrangements, is also expected to adversely affect future cruise passenger numbers.

Taken together, this will mean a step change reduction in passenger volumes. In practice, the passenger volume reductions are not expected to follow a steady trend, but are instead characterized by step changes as decisions are made to remove the Cayman Islands from certain ships’ itineraries. This was the case in 2012 when the loss of two major routes led to an 8% reduction in Cayman Islands cruise visitor numbers.

As the timing of these step changes is very difficult to anticipate, the base case assumes a consistent 1% annual reduction in passenger numbers. It also assumes that there is a floor on the falling volumes which is set at 1 million passengers per annum.

Figure 18 illustrates the approach to estimating the direct economic impacts of tendering.

Estimating operating profits

Operating profits from tendering, defined as expected revenues minus costs, over the period from 2014 to 2036 (the appraisal period) are estimated based on cost assumptions from PwC’s financial model. Over this period, operating profits are positive as recurrent revenues are higher than ongoing costs.

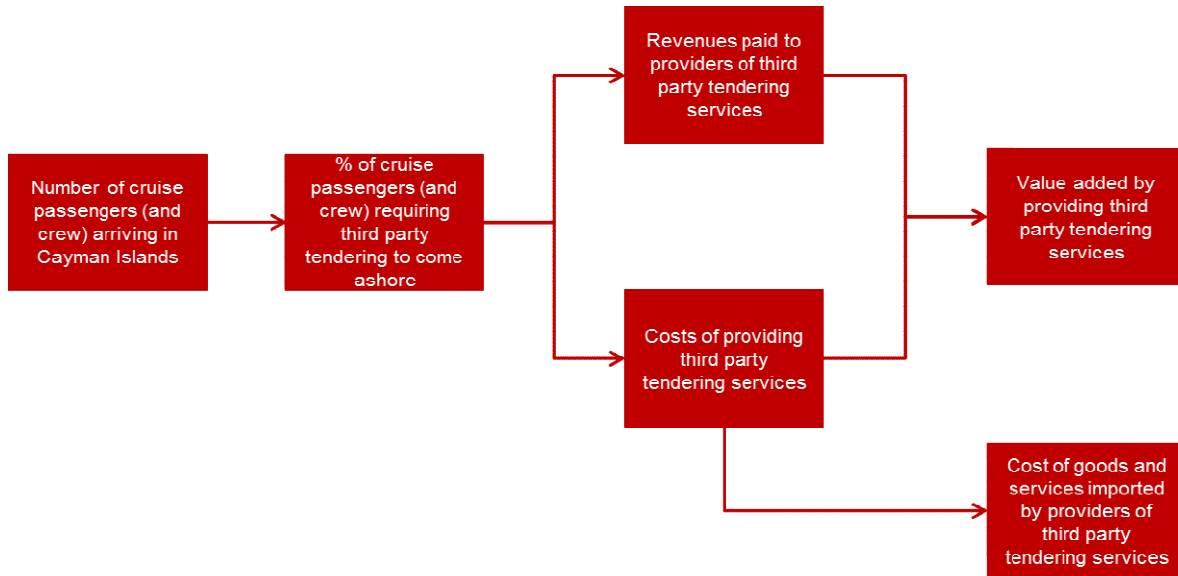
Estimating payroll

The estimated payroll costs is based on an assumption made by PwC which expresses payroll costs as a proportion of total operating costs during the operating period.

⁹ Despite worldwide and regional growth in the cruise industry, the overall level of cruise visitor to the Cayman Islands fell by 8.3% between 2008 and 2012 and is expected to fall again for 2013.

Figure 18

Approach to estimating direct economic impact without cruise berthing facility



Estimating GVA

GVA has been calculated in each period as the sum of expected operating profits and payroll.

Figure 19

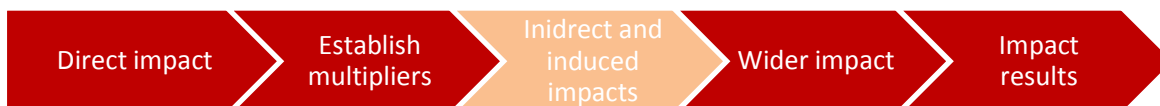
Key assumptions underpinning expected direct economic impacts without cruise berthing facility

Assumption		Source
Expected rate of change of cruise passengers visiting Cayman Islands (% per annum, 2014-2036)	-1% - base case	Financial model
Proportion of cruise passengers self-tendering	19%	Based on analysis of historic schedules

Source: PwC analysis – see disclaimer at page 1.

Note: Given commercial sensitivities, revenue per passenger assumptions are not shown.

Indirect and induced economic impacts without the cruise berthing facility



The next stage of PwC's approach combines the direct GVA impact estimate with the multipliers identified to estimate the indirect and induced impacts. The approach used is similar to that used with the cruise berthing facility.

Wider economic impacts without the cruise berthing facility



Number of passengers and crew expected to come ashore in Cayman Islands

The main driver of the future wider economic impacts will be the level of cruise passengers coming ashore in Cayman in the absence of the cruise berthing facility.

Expected spending by passengers and crew coming ashore in Cayman Islands

In the absence of the development of a cruise berthing facility, average spending by passengers and crew is expected to remain unchanged at 2012 levels. The key assumptions are summarised in Figure 10.

In addition, the Cayman Government will continue to receive revenue from a head tax on all cruise passenger arrivals. This is assumed to be levied at \$11.25 per person at expected 2017 prices.

Figure 20

Key assumptions underpinning expected wider economic impacts without cruise berthing facility

Assumption		Source
% of cruise passengers going ashore (without berthing)	90%	BREA
Average time spent ashore by cruise passengers (without berthing)	4.3 hours	BREA
% of crew going ashore (without berthing)	37%	BREA
% of passengers self-tendered (without berthing)	19%	PwC analysis – see disclaimer at page 1.
% of cruise passengers going ashore taking tours (with berthing)	54%	PwC analysis based on BREA data
Head tax paid by cruise passengers	\$11.25 per person (at 2017 prices)	Financial model
	Spend (\$ per capita)	Real change in spend (% per annum)
Passenger – tour	111	0
Passenger – no tour	72	0
Crew	58	0

Source: PwC

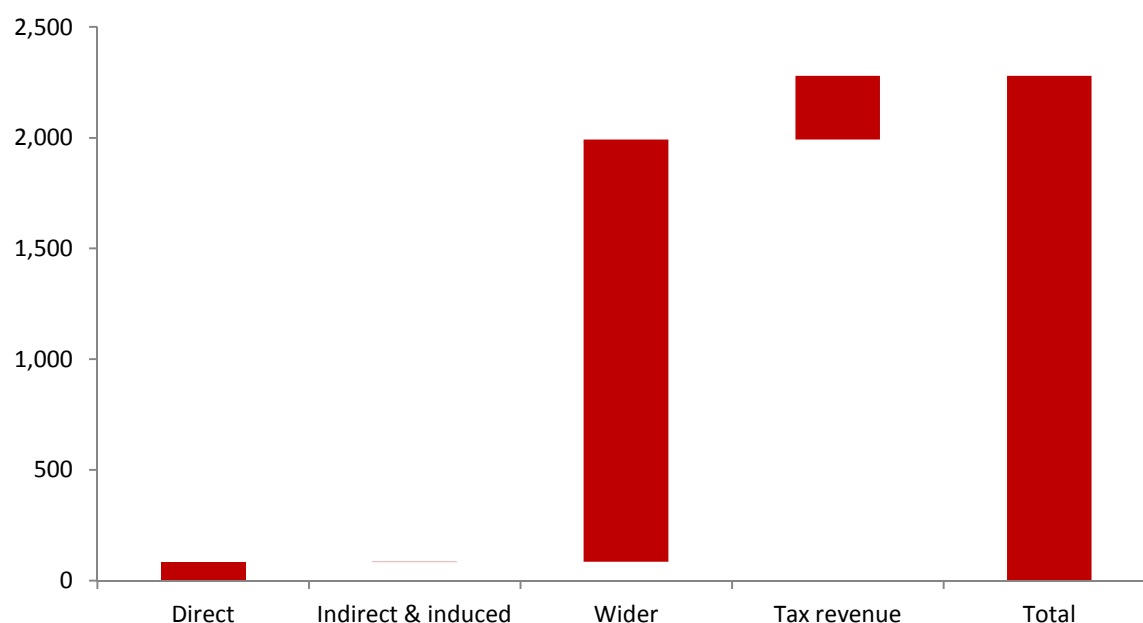
Impact results without the cruise berthing facility



This part of the Section brings together the results of the economic impact analysis without the cruise berthing facility. As with the cruise berthing facility, it separates out the direct, indirect, induced and wider impacts that are expected. It also presents the total impact over the lifetime of the project in terms of net present value (i.e. after applying the discount rate).

The total (gross) impact without the cruise berthing facility over the lifetime of the project in the base case is equivalent to \$2,281m (see Figure 21). This is estimated to support employment of 1,786 FTEs during the operating period (see Figure 22)). The major component of this impact is through the wider effect arising from spending by visitors to the Cayman Island. The direct, indirect and induced economic impacts are expected to be small.

Figure 21 Expected economic impacts without cruise berthing facility - (GVA/tax revenue net present value, \$m)



Source: PwC analysis – see disclaimer at page 1.

Figure 22

Economic impacts without cruise berthing facility - employment

	Base case	
	Construction (Man years)	Operations (FTEs)
Direct impacts	n/a	60-72

	Base case	
	Construction (Man years)	Operations (FTEs)
Indirect and induced impacts		2
Wider impacts		1,724-2,087

Source: PwC analysis – see disclaimer at page 1.

Note figures may not sum due to rounding

1.5 Net impact of the cruise berthing facility

The final step in the analysis is to establish the net (incremental) impact of the cruise berthing facility by comparing the GVA and job impacts estimated with the cruise berthing facility and the corresponding counterfactual without the cruise berthing facility.

The results are presented in Figure 23 which compares the two scenarios. The incremental benefits of the cruise berthing facility in the base case are estimated to be an increase in GVA of \$245m when expressed in net present value terms over the lifetime of the investment (20 years post construction). Expressed in terms of employment effects, nearly 500 man years of construction are estimated to arise and up to 999 additional FTEs during the operational phase.

Figure 23

Net impact of cruise berthing facility berthing facility only

	(b) With cruise berthing facility	(a) Without cruise berthing facility	Net impact (a) - (b)
GVA (Net present value, \$m)			
Direct	18	85	-67
Indirect & induced	14	2	11
Wider	2,148	1,905	242
Tax revenue	347	288	59
Total	2,526	2,281	245
Employment			
Construction (man years)	491	-	491
Operations (FTEs)	2,140-2,785	1,786-2,140	999 (in 2036)

Source: PwC analysis – see disclaimer at page 1.

1.6 Sensitivity analysis

The penultimate part of the Section analyses the sensitivity of the results to the key assumptions that underpin them.

Figure 24 summarizes the four key sensitivities that have been tested. It shows the assumptions that have been used in the base case, the sensitivities that have been tested and the reasons why the sensitivities were felt to be appropriate.

Figure 24

Summary of key sensitivities

Sensitivity	Base case assumption	Sensitivity tested	Reason for sensitivity analysis
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Sensitivity	Base case assumption	Sensitivity tested	Reason for sensitivity analysis
Level of cruise passenger number growth	1%, with cruise berthing facility/- 1% without cruise berthing facility	3%, with cruise berthing facility/- 3% without cruise berthing facility	The baseline assumption with the cruise berthing facility is cruise passenger numbers to the Cayman Islands will grow at 1% per annum and without the facility will fall at 1% per annum. The sensitivity considers the impact if these annual growth levels were 3% and -3% respectively.
Disembarkation rates – cruise passengers	92% with cruise berthing facility/90% without cruise berthing facility	90% with and without cruise berthing facility	The base case assumption is that the rate of disembarkation of cruise passengers at the Cayman Islands would increase by 2% following the development of the cruise berthing facility, principally reflecting the reduced disembarkation and embarkation times. The sensitivity considers the impact if there is no increase in disembarkation.
Disembarkation rates – crew	44% with cruise berthing facility/37% without cruise berthing facility	37% with and without cruise berthing facility	The base case assumption is that the rate of disembarkation of crew at the Cayman Islands would increase by 7% following the development of the cruise berthing facility. The sensitivity considers the impact if there is no increase in disembarkation.
Cruise passengers taking tours	65% with cruise berthing facility/54% without cruise berthing facility	54% with and without cruise berthing facility	The base case assumption is that 65% of cruise passengers will take tours with the development of the cruise berthing facility compared with 54% if the facility is not developed. This increases average spending per head. The sensitivity considers the impact if there is no increase in the take up of tours.

Source: PwC analysis – see disclaimer at page 1.

Figure 25 summarizes the results of the sensitivity analysis. The first column describes the sensitivity considered. The second and third columns show the results ‘with the cruise berthing facility’ and ‘without the cruise berthing facility’.

Each subsequent row shows the change in the expected NPV as a result of the sensitivity. The key points to note are that:

- Variation in passenger growth rates will have the most significant impact: if passenger volumes grow at 3% per annum with a cruise berthing facility whereas they fall at 3% without the facility, the benefits increase compared to \$1,196m.
- The results are less sensitive to the proportion of cruise passengers who disembarkation from cruise ships arriving in Cayman. Without any change in the disembarkation rate, the benefits are \$34m lower at \$211m.
- Similarly, if the proportion of crew members coming ashore remains unchanged, the expected benefits are \$26 million lower.
- Finally, if the longer time passengers can spend ashore does not affect the take up of tours (and per capita visitor spending as a whole), the benefits are reduced to \$176m, a fall of \$69m.

Figure 25

Impact of key sensitivities on expected GVA (\$m, NPV)

Sensitivity	With cruise berthing facility	Without cruise berthing facility	Net impact
Base case	2,526	2,281	245
Level of cruise passenger number growth	2,825	1,630	1,196
Disembarkation rates – cruise passengers	2,492	2,281	211
Disembarkation rates – crew	2,500	2,281	219
Cruise passengers taking tours	2,457	2,281	176

Source: PwC analysis – see disclaimer at page 1.

1.7 Conclusions

This Section has assessed the expected economic impacts of the cruise berthing facility on the Cayman Islands economy.

The scale of the expected impacts has used two indicators: economic output, as measured by GVA, and employment.

The analysis is based on information provided by PACI, and publically available sources, notably CIG statistics, and gathered through consultation with a broad range of industry stakeholders.

The ‘net’ impact of the cruise berthing facility has been estimated by comparing the economic activity that is expected to arise with the cruise berthing facility with the activity that is expected in a counterfactual scenario where the cruise berthing facility is not developed.

The benefits of the cruise berthing facility are estimated to be an increase in GVA of \$245 m when expressed in net present value terms over the lifetime of the investment (20 years post construction). Expressed in terms of employment effects, 491 man years of construction are estimated to arise and 999 FTEs during the operational phase.

Key conclusions to note from the economic analysis are:

- Unsurprisingly, projected passenger volumes are the key determinant of the economic impacts. In the Base Case, growth with berthing is assumed to be 1% per annum with berthing, and the rate of decline without berthing is similarly assumed at 1%. If growth of 3% is assumed, which is more in line with regional industry growth, together with a decline of 3% without berthing, then estimated GVA economic impacts over the period increase by a multiple of almost four times, to \$1,196 m versus \$245 m under the Base Case;
- The second most important driver of economic benefits is the expected increase in time spent ashore, largely due to reduced delays, and hence the increased economic impacts from tours and other spend categories; and
- Finally, increased levels of disembarkation, for both passengers and crew, are significant contributors to the overall economic impacts estimated.

