



# MOVING BERMUDA FORWARD

The Ministry of Public Works, Government of Bermuda, intends to **replace two of their main access bridges**. The new bridges will be structural landmarks to be used by locals and visitors for years to come.

The Ministry is looking to partner with international experts to work on these interesting projects.

## Introduction to Bermuda

Bermuda is the oldest self-governing British Overseas Territory where the **native language is English**. Bermuda is in the North Atlantic Ocean, less than two hours from New York, NY by air. The total area of the island is 21 square miles, similar size to Manhattan.

Bermuda's mainland is made up of several islands joined together by eight main bridges. The beauty of the pink sand beaches, sub-tropical climate and the heartwarming people makes Bermuda one of the most desirable holiday destinations.

Bermuda's economy is primarily driven by tourism and international business. In 2017, the gross domestic product (GDP) was \$5.6 billion. The GDP per capita is one of the highest in the world, \$85,500. In April, 2018 Standard and Poor's (S&P's) revised its outlook on Bermuda to positive - A+ and Moody's Investment Service's credit rating is A2 - stable.



Figure 1. Approximation of direct flight times to and from Bermuda. (Not to Scale)



### TIME ZONE

Bermuda's time zone is Atlantic Standard Time (AST) UTC-4 .



### CURRENCY

The local currency is the Bermudian dollar (BMD). It is pegged to the United States dollar at a one-to-one ratio.

**BMD = USD**



### CLIMATE

Bermuda's climate is sub-tropical. The weather is mild in the winter, spring and autumn. Summer is hot with high humidity.



## Longbird Bridge Replacement

Longbird Bridge Replacement provides a heavy traffic link between two key islands:

- St. David's Island which accommodates the L. F. Wade [International Airport](#), and
- The main Island, where Hamilton City, the [capital](#) is also located.



Figure 2. Steel tied arch for Longbird Bridge Replacement

The new bridge will be a single span, [steel tied arch](#) spanning 53m above an ocean channel. The deck will be supported by a steel box girder connected at its edges to the arch's bottom chord. The arch's top and bottom chords are connected by welded steel plate hangers.

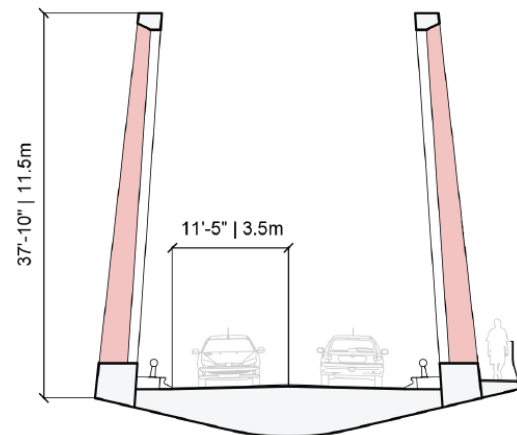


Figure 3. Cross-section of Longbird Bridge Replacement

The deck will be comprised of a main steel box girder and a composite concrete deck with plated transverse steel diaphragms. The bridge terminates at the cast in-situ reinforced concrete abutments. The two-lane carriageway and a pedestrian walkway is 13m wide.

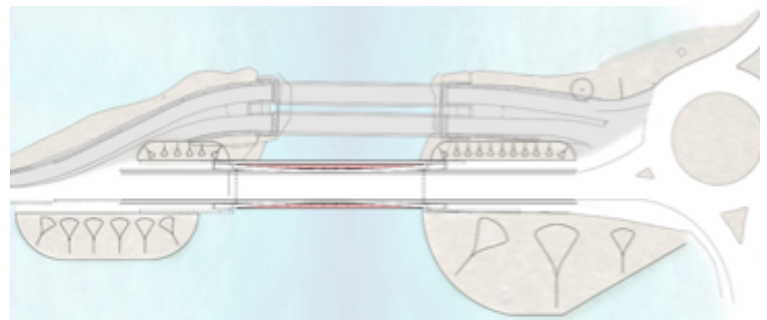


Figure 4. Location of Longbird Bridge Replacement



## Swing Bridge Replacement

Swing Bridge Replacement will provide an iconic link with a moving middle span connecting:

- St. David’s Island, and
- The historical St. George’s Island, where the first settlement was established in Bermuda.

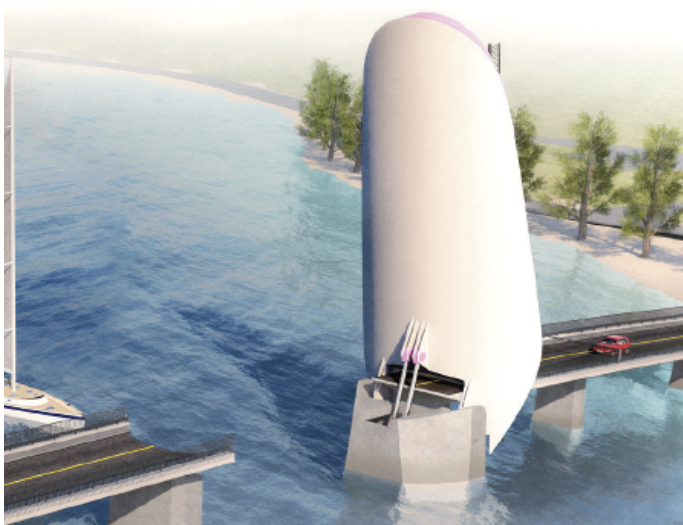


Figure 5. Bascule-type Lifting Span

The new bridge will be a **seven-span viaduct** that comprises a single two-lane carriageway with pedestrian walkways on each side and has an **overall length of 155m**. The 28m mid-span, is proposed to be a state of the art **vertical bascule-type lifting bridge** that

consists of a main steel box girder with an orthotropic steel deck with trough stiffeners spanning between transverse diaphragms and is 16 m wide at its maximum width.

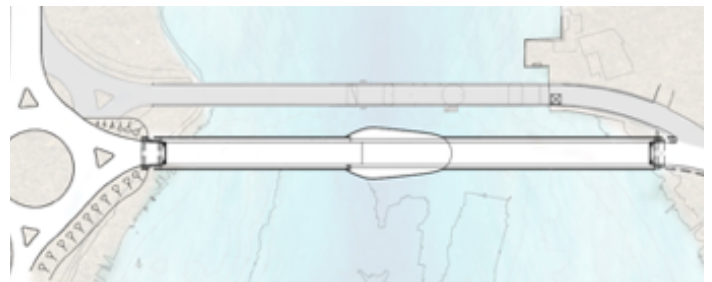


Figure 6. Location of Swing Bridge Replacement

The approach spans will comprise of a 10m wide main steel box girder with a composite concrete deck supporting the carriageway. The piers and abutments will be cast-in-situ reinforced concrete.

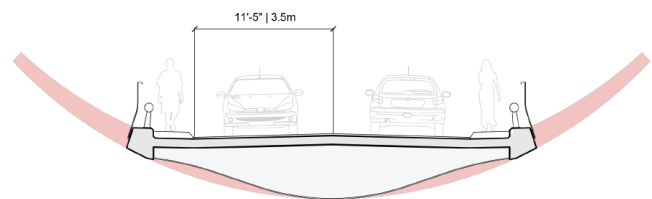


Figure 7. Cross-section of Swing Bridge Replacement

## Challenges in Bermuda's Construction Industry

Contractors and business partners working on construction projects on **remote islands** like ours, may understand the limitations and adapt their procedures to achieve project success.

In the past, it has been proven that overseas construction companies **work together with well-respected local contractors**. As the client, the Bermuda Government will support all business partners with any challenges that arise.



Figure 8. Local contractor working on the \$15m Kings Wharf Rehabilitation project in March 2019

Bermuda is subjected to hurricanes and the marine environment is highly corrosive. These are definitely key drivers to the design of our structures. Note that effective construction work can be done all year round with reasonably **limited weather interruptions or risk**.

Due to limited resources, **most construction materials are imported** from foreign countries. The local labor is relatively expensive and specialisation in bridge construction and complex infrastructure is limited. Hence, the Ministry believes that **high level prefabrication** will enable this project to achieve an

economical solution and help reduce construction risk. As this project will require a considerable amount of pre-fabricated elements along with extensive heavy lifting/assembling, the contribution of heavy infrastructure industry experts is essential.

## Bridge Building Team

The bridges' design team is being led by international experts Ramboll UK along with Eadon Consulting and Knight Architects.




After the successful completion of an *Options Study* and a *Feasibility Study*, the design team has now entered into the *Detailed Design* phase. This Design Phase will result in a tender drawing set scheduled to be made public in the third quarter of 2019.

The Ministry of Public Works is looking forward to bringing new members to the construction team to finance, fabricate and build these bridges.

## Contact Details

For more information about the Government of Bermuda and to see other capital construction projects we are undertaking, visit [www.gov.bm](http://www.gov.bm).