



Ceiba - Roosevelt Roads
- Location Alternatives
Analysis

Report
August 2015

Steer Davies Gleave

Our ref: 22826201
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1 Introduction

Steer Davies Gleave have been engaged by the Puerto Rico Public-Private Partnerships Authority (acting as an agent of the Maritime Transportation Authority for Puerto Rico and the Municipal Islands 'MTA' and the Puerto Rico Integrated Transport Authority 'PRITA') as technical advisors in maritime transportation to assist with the analysis for the potential establishment of a public-private partnership for the maintenance and operation of passenger and cargo carrying services in Puerto Rico, with particular emphasis on the services provided between Fajardo on the mainland and the islands of Vieques and Culebra.

There are two distinct elements being considered within the proposed scope of work, the development and evaluation of the potential options for a public-private partnership and support through to financial close, and the evaluation of opportunities to relocate the service to Ceiba (Roosevelt Roads development). This report is focused on the analysis of relocating some or all of the terminal operations from Fajardo to Ceiba.

Report

This alternatives analysis report documents the high level qualitative evaluation undertaken of the potential option for relocation of the Fajardo ferry services to Ceiba within the Roosevelt Roads Development. The qualitative evaluation takes account of the works being undertaken to analyse the opportunities for a public private partnership and also considers the existing facilities as a basis for the evaluation.

Ceiba - Roosevelt Roads

Background

In 2003, the U.S. Congress made the decision to close the facilities of the Naval Station Roosevelt Roads with closure occurring in 2004. During the same year the Department of Economic Development and Commerce (DEDC) as the Local Redevelopment Authority (LRA), where made responsible for developing and implementing the Reuse Plan for the Naval Station Roosevelt Roads.

The master plan for the site aims to guide the transformation of land uses from military to civilian, with the vision of becoming an attractive destination of for sustainable mixed use and tourism focused development. Goals of the master plan include promoting tourism, economic expansion, job creation and integration of the initiatives of local communities, while maximizing the use of

existing infrastructure. The site covers an area of approximately 8,720 acres of high economic, ecological, historical and cultural value.

Potential Development Opportunities

There are 3,049 acres of developable lands that provide the opportunity for the following developments:

- Hotels and Lodging
- Retail, Restaurants, Entertainment and Gaming
- International Cruise Terminal Complex
- Regional and Island Ferry Terminal
- Marina
- Community Fishing Pier & Beach Amenities
- Golf Courses
- Neighbourhood Amenities, Offices and Shopping
- Hillside and Port-view Apartments
- Office and Commercial
- Conference and Learning Centre

On December 22, 2014 the LRA Board of Directors selected Clark Realty Capital as Master Developer for the redevelopment of 3,000 acres at Roosevelt Roads after a comprehensive review of the three proposals received on November 21, 2014 from entities participating in the Request for Proposal (RFP) process for Master Developer.

Project Focus

The P3 Authority and MTA have identified an opportunity to relocate some or all the ferry services currently operating from Fajardo to Vieques and Culebra within the Ceiba - Roosevelt Roads development. The move could provide the opportunity to develop purpose built facilities while making use of some of existing port infrastructure within the Roosevelt Roads site. Two locations within Ceiba - Roosevelt Roads development could be used to provide new ferry facilities. Both sites need to be considered and evaluated to identify a preferred Ceiba option to then undertake further analysis of this option alongside the current facilities in Fajardo.

The evaluation of the Ceiba opportunity needs to consider the potential changes to the operating arrangements for the ferries, the current facilities and the benefits/impacts on the services customers. The current ferry service customers include local residents, tourists and commercial transporters.

The following project objective reflects the ultimate goals in undertaking the analysis of opportunities to establishment a public-private partnership for the maintenance and operation of passenger and cargo ferry services in Puerto Rico.

Problem Statement

The overarching problem statement that guides the wider project, the analysis for the potential establishment of a public-private partnership for the maintenance and operation of passenger and cargo carrying services in Puerto Rico, is:

‘The ferry services between Fajardo on the mainland and the municipal islands of Vieques and Culebra currently suffer from equipment (ferry) reliability issues which impact on the quality of service, system capacity and cost of provision.’

Purpose and Needs

The purpose and need statement reflects the ultimate goals in undertaking the analysis of opportunities to establish a public-private partnership for the maintenance and operation of passenger and cargo carrying ferry services in Puerto Rico.

Purpose

‘The purpose of the Puerto Rico Mainland to Vieques and Culebra ferry services is to provide a reliable, quality service, which delivers consistent passenger and freight service, cost-effectively to meet demand. The service will serve to support travel demand and the economics of the Islands of Vieques and Culebra, and Puerto Rico.’

Needs

- Improved ferry availability
- Improved reliability of service
- Improved quality of service
- The need to support the residents and visitors and economic develop of the Islands of Vieques and Culebra
- The need to improve cost effectiveness

The consideration of the relocate of some or all the ferry services currently operating from Fajardo to Vieques and Culebra within the Ceiba - Roosevelt Roads development therefore should, in part consider now either option being evaluated could assist in meeting the wider projects Purpose and Needs.

Evaluation Study Area

This study area encompasses the options for new ferry facilities within the Ceiba – Roosevelt Roads development. It also provides a comparative analysis of the options against the current facilities at Fajardo, to help inform the later stages of project evaluation.

2 Evaluation Process and Criteria

Evaluation Process

The evaluation process has been designed to help inform the identification of the most appropriate long term location for the main island terminal serving Vieques and/or Culebra Ferries.

This high-level review and evaluation of the potential alternatives is not intended to be a Federal environmental level evaluation. However, the information presented here may serve as a input to further evaluation as the project progresses. The criteria developed for this initial level analysis reflects the broad nature of the evaluation, attempting to identify major differentiators related to the following:

- Mobility
- Environmental
- Economic development
- Land use
- Cost

Evaluation Criteria

These categories are referred to as accounts. Under each account, there are a series of measures that attempt to identify the differences between each option, where they exist.

The project team developed criteria for the evaluation of the options. The criteria were developed organically based on the general characteristics of the study area and the type of issues it is likely to present. The project problem statement, purpose, and needs were also all considered when developing the evaluation criteria.

Both negative impacts and positive benefits were taken into account throughout the evaluation. The process involved comparing and contrasting the options and alternatives against one another. In many cases, the comparisons were very close based on the criteria, and options or alternatives were only incrementally different. Table 2.1 below identifies the criteria (by account) and provides details on how each criterion were applied or calculated.

Table 2.1: Account Criteria

Mobility Criteria	Items considered
Meets the purpose and need statement.	Basic comparison to the broad goals for the project.
Ferry Facilities – Assessment of ease/efficiency of operations	<ul style="list-style-type: none"> • Ferry manoeuvrability • Ferry arrangement • Number of available berths • Boarding requirements (side of the boat or using the ramps) (time to load/unload)
Ferry Operation - Assessment of ease/efficiency of operations and maintenance.	<ul style="list-style-type: none"> • Fuelling • Water • Sewage • Servicing / Repair
Infrastructure	<ul style="list-style-type: none"> • Private vehicle parking area capacity • Cargo / freight holding capacity • Facilities, ease of re-use of current facilities
Operations: Passengers	Arrangement of facilities and ease of operation <ul style="list-style-type: none"> • Ticket purchase / reception • Passenger waiting • Pedestrian access • Accessibility entering and exiting the pier • Private Vehicle pickup/drop-off • Transit/shuttle access
Operations: Cargo Freight	Arrangement of facilities and ease of operation <ul style="list-style-type: none"> • Ticket purchase • Vehicle holding • Manoeuvring area for cargo trucks • Large vehicle access
Journey Time	Improved journey time (consider manoeuvring and loading) Opportunities for increased service (capacity)
Technical Challenges	Qualitatively examines the potential engineering challenges
Quality	Quality of final facility
Environmental	
Potential impacts/benefits to the natural environment.	Examines potential impacts or access to potential natural areas, protected areas
Minimizes noise impacts to adjacent stakeholders.	Qualitatively examines potential sensitive stakeholders that are adjacent to the options and alternatives Mitigation measures required
Weather (Operational Impacts)	Could the option be impacted by weather
Economic Development	
Contribution to economic development	Reliability Service enhancement Capacity
Land Use	
Assessment of consistency with development plans.	Qualitatively examines the compatibility of the proposed facility with surrounding development proposals.

High level assessment of built environment benefits/impacts.

Property impact
Does the proposal make best use of land?
Could the land be used for a higher value purpose (economically, societal)?

Cost	
Capital costs	Comparative capital cost estimates based on the improvements required.
Liabilities	Responsibilities for infrastructure
Operating Costs	Comparative operating cost differentials between options
Revenue Generation	Additional sources of revenue
Permitting	Potential level of permitting needed
Expansion capability	Qualitatively compares the ease of future expansion (if desired).

Context

The section below provides general background and context for each of the accounts. This information represents the research and field observations collected by the team and provide a base understanding of the existing conditions for the study area. The analysis of the options was informed by the context information. The evaluation is based upon the information received and reviewed that relate to the existing ferry operation, the site visit, stakeholder meetings, and the initial high level arrangements developed for each of the options being considered. The conceptual layouts shown are intended to demonstrate how the required program elements can be accommodated at each site. Significant further design effort is required to develop recommendations for either site.

Context – Mobility

- 2.1 The criteria within the mobility account are focused on those elements that will affect the operability of the option and the quality of the service provided to passengers and freight users.
- 2.2 The operability of the options considers those factors that could affect the operations and maintenance of the ferries. This will include the potential arrangement of the facilities and how supportive and cost effect these could be, along with more basic factors such as the daily support of the service such as fuelling, cleaning, minor repairs, etc.
- 2.3 Quality of service will be reflected by how the arrangement and quality of the facilities support the passenger and freight user experience. Factors will include ticketing, waiting areas, walk distances, parking, freight vehicle line up, vehicle loading, passenger facilities, passenger loading, transit and shuttle connectors, etc.

Context – Environmental

- 2.4 Under the environment account, consideration is given to both the environment impacts of the potential facilities and the potential mitigation measures required to make use of the identified areas of lands and building within Ceiba – Roosevelt Roads development. It also considers the effect of weather on each location considered

Context - Economic Development

- 2.5 Under the economic development account, the focus is upon how each option could contribute to the economy of the main Island, Vieques and/or Culebra through factors such as reliability, service enhancements or capacity. The account also will need to consider the impact to the economy in Fajardo and associated business if the services were to move and in turn possible positive development in Ceiba.

Context - Land use

- 2.6 Within the land use account each option is evaluated against its compatibility with the proposed surrounding land use, and any potential impacts to adjacent land / development. The account also provides a comparative assessment of each option in regard to it maximising or reducing the land value. This will consider the currently high level and rather limited information related to the master plan for the site.

Context – Cost

- 2.7 To support this high level evaluation of options, we have undertaken an early stage qualitative assessment of the potential costs focusing on the comparative differences in cost. Which option would cost the least through to which option would cost the most. Significant further work on the design and layout of the facility would be required to develop an indicative capital cost estimate.

This approach has also been used to consider the difference in operating costs, and any additional revenues that could be generated from ancillary service.

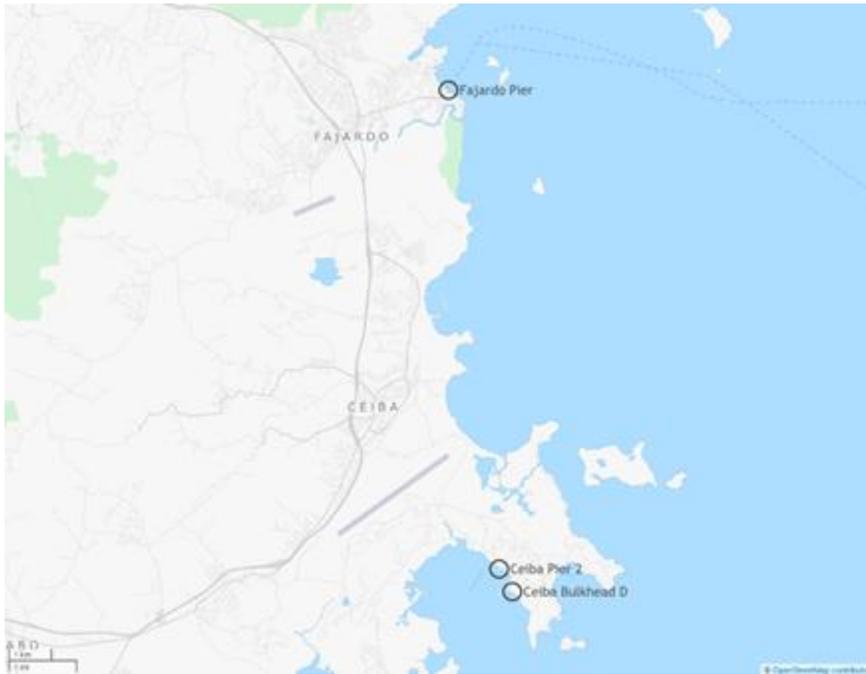
The account also considers the different levels of permitting required for each option (and its related costs), and considers the opportunities for future expansion.

3 Option Development

Fajardo

- 3.1 The ferries currently operated out of marine facilities at Fajardo. These are considered to provide a comparative evaluation alongside the potential new facilities at Ceiba- Roosevelt Roads, the location of all the facilities are shown in Figure 3.1.
- 3.2 The ferries currently make use of three piers at Fajardo. The main pier provides three berths with passenger access, one of which also provides cargo/freight access. The pier to the northwest provides a second cargo/freight loading facility. The pier to the southeast provides two additional ferry berths, one of which includes a cargo/freight ramp. The northwest and southwest piers provide limited accessibility for passengers.
- 3.3 In addition to the piers, adjacent facilities include a ticketing office and passenger queuing system, freight holding and manoeuvring, maintenance and office buildings and employee parking.
- 3.4 Passengers who currently use the ferries as walk-on passengers must park their vehicles in adjacent private parking lots.

Figure 3.1: Location of Existing Fajardo and Potential Ceiba Facilities



Ceiba – Roosevelt Roads

3.5 Two potential options have been identified within the Ceiba- Roosevelt Roads development. These are all located within the former naval port / pier facilities. These are shown in Figure 3.3:

- Ceiba Pier 2
- Ceiba Bulkhead D

Figure 3.2: Roosevelt Roads – Options



Ceiba Pier 2

3.6 Ferry facilities at Pier 2 could provide two ferry berths. The area encompassed and the potential layout of the facilities is shown in Figure 3.3.

Figure 3.3: Pier 2 – Potential Facilities Layout



3.7 The facilities could consist of:

- Northwest ferry berth, refurbishment of the pier to remove ancillary equipment, removal of the tug boat pier on the northwest side of the pier to be replaced with a freight loading ramp.
- Southeast ferry berth, refurbishment of the pier to remove ancillary equipment, construction of a bulkhead, placement of fill and construction of a freight loading ramp.
- Provision of passenger boarding and covered queuing facilities on pier, to provide passenger and freight ferry operation from both sides of the pier.
- Upland support facilities could be provided to the northwest and northeast of the pier, requiring the site to be cleared other than the Harbour Police building.
- The facilities would include the refurbishment of the Harbour Police building and could include:
 - New ticket counters and administration building, including new passenger waiting facilities.
 - Maintenance facility and workshops.
 - Cargo/freight - vehicle holding area for up to 60 vehicles to provide secure queuing facility to support ferry loading.

- Day parking for up to 600 private vehicles.
- New road for vehicle access, loading/unloading, and egress.
- New walkways for pedestrian access, boarding and alighting.
- Vessel fuelling facilities

3.8 If additional long-term parking would be required to support the facility, the location, ownership operation and connectivity of the facility would need to be further considered.

Ceiba Bulkhead D

- 3.9 Ferry facilities could be provided along bulkhead D southeast of pier 3. Two ferry berths could be provided alongside a new pedestrian pier to provide passenger access. The area encompassed and the potential layout of the facilities is shown in Figure 3.4.

Figure 3.4: Bulkhead D – Area of Potential Facilities



- 3.10 The facilities could consist of:

- New pier with covered passenger waiting area, mooring hardware (cleats & bollards), and utilities (power, water, and sewage) to support a ferry berth on each side. , The arrangement will provide for passenger and freight ferry operation from both sides of the pier.
- Partial demolition of bulkhead D and construction of freight loading ramps at desired height on each side of the new pier.
- Upland facilities could be provided to the northeast of the pier, requiring the site to be cleared and graded. The adjacent warehouse building could be remodelled to provide ticketing, office and security spaces. The new facilities would include:
 - New ticket counters, waiting area, office space in the remodelled administration building.
 - Repurposed warehouse buildings to provide maintenance facility and workshops.
 - Passenger drop-off and pickup areas.
 - Cargo/freight / vehicle secure queuing facility for up to 60 vehicles to support ferry loading.
 - Day parking for up to 1000 vehicles.
 - New roads for vehicle access, loading and unloading, and egress.
 - New walkways for pedestrian access, boarding and alighting.
 - Vessel fuelling facilities

- 3.11 The interaction and segregation of the ferry facilities adjacent to the proposed cruise liner pier and associated operation and support facilities may need to be considered further.

4 Option Evaluation

Evaluation

4.1 The options identified along with the existing facilities at Fajardo have been qualitatively and comparatively evaluated against the evaluation criteria identified and detailed in Section 2. The results are detailed in Table 4.1 below.

The following key are used to highlight the comparative difference in performance of the options.

Key

 Significant Issue

 Issue

 Neutral

 Benefit

 Significant Benefit

Table 4.1: Option Evaluation

Mobility Criteria	Items considered	Fajardo	Ceiba Pier 2	Ceiba Bulkhead D
Meets the purpose and need statement.	Basic comparison to the broad goals for the project.	 (arrangement of facilities could be better)	 (new dedicated facility, limited day parking)	 (new dedicated facility, larger facility for day parking)
Ferry Facilities – Assessment of ease/efficiency of operations	<ul style="list-style-type: none"> Ferry manoeuvrability Ferry arrangement Max and minimum ferries at one time Boarding requirements (side of the boat or using the ramps) (time to load/unload) 	 The ferry facilities themselves are comprehensive, with berths for up to 4 operational and 2 further ferries	 Dedicated facilities providing a reduced number of ferry berths due to cost. Location in the middle of the harbour could create conflicts with recreational and cruise ship traffic	 Dedicated facilities providing a reduced number of ferry berths due to cost. Clear, direct access to open water routes to Vieques and Culebra. Potential issues with interaction from Cruise Liner movements in the future.
Ferry Operation - Assessment of ease/efficiency of operations and maintenance.	<ul style="list-style-type: none"> Fuelling Water Sewage Servicing / Repair 	 The services are somewhat fragmented around site	 The services would purpose built as part of the facility	 The services would purpose built as part of the facility
Infrastructure	Day parking area (capacity, Auto and Goods) Facilities, ease of re-use of any current facilities	 Fragmented around site, and private day parking around Fajardo	 Purpose built but potentially a limit on day parking	 Purpose built, greater provision of day parking

Operations Traffic/ Passengers	Arrangement of facilities and ease of operation <ul style="list-style-type: none"> • Ticket purchase / reception • Passenger waiting • Walk routes • Ease to manoeuvre cargo trucks • Accessibility entering and exiting the pier 	Dispersed locations, resulting in passenger/ vehicle conflicts, limited passenger waiting areas, limited pick-up drop-off	Purpose built passenger facilities to be provided, but could be limited due to cost	Purpose built passenger facilities to be provided, but could be limited due to cost
Journey Time	Improved journey time (consider manoeuvring and loading) Opportunities for increased service (capacity)	Vieques Culebra	Vieques Reduced journey time Culebra Increased journey time	Vieques Reduced journey time Culebra Increased journey time
Journey Time (Access)			 Increased journey time to access location	 Increased journey time to access location
Technical Challenges	Qualitatively examines the potential engineering challenges	N/A (Note that a condition assessment of existing facilities is not included in this analysis.)	 Revision to end of Pier and land remediation	 Revision to bulkhead, new pier and land remediation
Quality	Quality of final facility			
Environmental				
Potential impacts/benefits to the natural environment.	Examines potential impacts or access to potential natural areas, protected areas	N/A	 Pier modifications and site remediation	 Pier construction and site remediation
Minimizes noise impacts to adjacent stakeholders.	Qualitatively examines potential sensitive noise receptors that are adjacent to the options and alternatives. Mitigation measures required	 Current hours of operation impact existing land uses (housing)	 Close proximity to future residential / housing development	 Neutral impact as potentially at extremities of development site

Weather (Operational Impacts)	Could the option be impacted by weather		 The location is in the lee of Pier 3 and Bulk D	 The location more exposed to wind and waves coming out of the south
Economic Development				
Contribution to economic development	Reliability /service enhancement contribute to economy Impacts to economy Capacity	 Neutral	 Potential for improved operability and reliability contributing to reduced costs	 Potential for improved operability and reliability contributing to reduced costs
			 Impact to Fajardo economy	 Impact to Fajardo economy
			 Benefit to Ceiba	 Benefit to Ceiba
			 (overall result)	 (overall result)
Land Use				
Assessment of consistency with development plans.	Qualitatively examines the compatibility of the proposed facility with surrounding development proposals.	N/A (<i>Not assessed at Fajardo</i>)	 Could impact future adjacent development	 Less impactful as on extremities of future development
High level assessment of built environment benefits/impacts.	Property impact Does the proposal make best use of land? Could the land be used for a higher value purpose (economically, societal)?		 Potentially not making highest and best use of lands	 Potentially good use of location, and contributing to complete development
Cost				

Capital costs	Comparative capital cost estimates based on the improvements required.	 Neutral	 High	 Highest
Liabilities		 high (age of existing facilities)	 Medium – Responsibility for existing pier	 Neutral - New facilities including pier
Operating Costs	Comparative operating cost differentials between options	 Neutral	 Neutral	 Neutral
Revenue Generation	Additional sources of revenue	 potential for parking revenue if existing private lots purchased for ferry operator	 potential for parking revenue	 largest potential for parking revenue
Permitting	Potential level of permitting needed	N/A	 Permitting required	 Permitting required
Expansion capability	Qualitatively compares the ease of future expansion (if desired).		 Potential for additional ferry berths – high cost Limited ability to expand support infrastructure	 Potential for additional ferry berths – high cost Ability to expand support infrastructure

Evaluation Results

4.2 An overview against each of the evaluation accounts of the comparative, qualitative evaluation of the Ceiba options is detailed below.

Mobility

4.3 The development of a purpose built facility at Ceiba, could improve the operability and passenger facilities. The new location would also provide the opportunity to operate day parking with the associated revenue benefits. The Bulkhead D location performs best under mobility due to more limited interaction with future cruise liner services and the ability to provide additional day parking.

4.4 The location could result in longer journey times to access the location, which for the Vieques service could be compensated for in a reduced sailing time. The sailing time and overall travel time to Culebra would be increased.

4.5 An overview of the evaluation of the options against the mobility criteria is shown below.

	Fajardo (Current)	Ceiba Pier 2	Ceiba Bulkhead D
Mobility			

Environmental

4.6 The construction of either facility at Ceiba would require permitting for the modification / provision of the piers and ramps required. The two locations would also require site remediation. The operation of the facility at Bulkhead D would be on the extremities of the proposed development, potentially reducing the impact of the location (noise, traffic, etc.) on adjacent land use.

4.7 An overview of the evaluation of the options against the environmental criteria is shown below.

	Fajardo (Current)	Ceiba Pier 2	Ceiba Bulkhead D
Environmental			

Economic development

4.8 The effects on economic development are likely to be neutral for either of the Ceiba options considered. The improved facilities could help improve service reliability and system capacity, although the move to Ceiba would negatively impact the economy within Fajardo.

4.9 An overview of the evaluation of the options against the economic development criteria is shown below.

	Fajardo (Current)	Ceiba Pier 2	Ceiba Bulkhead D
Economic Development			

Land use

4.10 The Ceiba, Roosevelt Roads development envisages the creation of a mixed use development centred on tourism. The Pier 2 option would be located within the development, potentially impacting on the adjacent land use and value of the lands. The Bulkhead D location is on the edge of the proposed development and could have a reduced impact.

4.11 An overview of the evaluation of the options against the mobility criteria is shown below.

	Fajardo (Current)	Ceiba Pier 2	Ceiba Bulkhead D
Land Use	N/A		

Cost

4.12 Both of the Ceiba options will require significant investment to provide suitable pier and supporting facilities. Bulkhead D would cost more as a new pier would be required. The options could both provide operational improvements and support improved service reliability. The additional parking facilities at Bulkhead D could provide an opportunity to increase operating revenues.

4.13 An overview of the evaluation of the options against the cost criteria is shown below.

	Fajardo (Current)	Ceiba Pier 2	Ceiba Bulkhead D
Costs (Capital)			
Costs (Operating)			

5 Summary and Next Steps

Summary

- 5.1 The two options at Ceiba, Roosevelt Roads could provide viable, new high quality ferry facilities. They could provide more economic operational facilities that could support improved operability and service reliability. The development of the facilities would require significant capital investment.
- 5.2 The Ceiba location would extend journey times to access the location for travellers coming from San Juan and areas between San Juan and Fajardo. The sailing time between Ceiba and Vieques would be reduced, with the total travel time essentially the same. The sailing time between Ceiba and Culebra would be longer.
- 5.3 The evaluation of the two options identifies that the Bulkhead D, at the extremities of the proposed development is the preferred location at Ceiba.

Next Steps

- 5.4 The agreement of stakeholders on the potential preferred option at Ceiba, informed by this analysis.
- 5.5 In agreeing to a single option at Ceiba, consideration should be given to the potential timescales of any move, as the location is undeveloped and may not be supportive of the ferry service currently.
- 5.6 Consideration should also be given to a comparison of the existing Fajardo facilities versus a move to Ceiba. This analysis should consider the Fajardo facilities both as they are today, and/or with minor improvements and capital investment, and any potential future Public Private Partnership approach being considered for future operation. The comparative analysis provided for Fajardo alongside the Ceiba options within this report may aid this comparison and subsequent works undertaken.

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