

# Technical Cooperation (TC) Document

## Trinidad and Tobago

### I. Basic Information

▪ Country/Region:	Trinidad and Tobago/CCB – Caribbean Group
▪ TC Name:	Technical and Environmental Studies for Road Program in Trinidad and Tobago
▪ TC Number:	TT-T1065
▪ Team Leader/Members:	René Alejandro Cortes Forero (INE/TSP), Team Leader; Christopher Persaud (TSP/CSU), Alternate Team Leader; Amado Crotte (TSP/CME); Eduardo Café and Juliana de Moraes (INE/TSP); Neeca Brathwaite (CCB/CTT) and Margie-Lys Jaime Ramirez (LEG/SGO)
▪ Taxonomy:	Client Support
▪ If Operational Support TC, give number and name of Operation Supported by the TC:	N
▪ Date of TC Abstract authorization:	July 29 <sup>th</sup> , 2016
▪ Beneficiary (countries or entities which are the recipient of the technical assistance):	Republic of Trinidad and Tobago, through the Ministry of Works and Transport
▪ Executing Agency and contact name	Inter-American Development Bank (IDB) through the Transport Division (INE/TSP)
▪ Donors providing funding:	Infrastructure Fund (InfraFund - IPF)
▪ IDB Funding Requested:	US\$500,000
▪ Local counterpart funding, if any:	US\$100,000
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	January, 2017
▪ Types of consultants (firm or individual consultants):	Firm and Individual Consultants
▪ Prepared by Unit:	INE/TSP
▪ Unit of Disbursement Responsibility:	INE/TSP
▪ TC included in Country Strategy (y/n):	N
▪ TC included in CPD (y/n):	N
▪ Development Challenges and Cross-cutting themes of the Update to the Institutional Strategy and Corporate Results Framework 2016-2019:	Productivity and Innovation

### II. Objectives and Justification of the TC

- 2.1 The objective of this Technical Cooperation (TC) is to support the Government of Trinidad and Tobago (GORTT) by conducting studies on the transportation network expansion from the north of Trinidad to a port facility in Toco with a ferry service to Tobago. This TC includes road transport alternatives and promotes the involvement of the private sector in the provision and/or management of transport infrastructure. In order to identify and develop appropriate solutions for the Toco Road, a variety of studies will be conducted, such as: technical, institutional, economic, financial, legal, social and environmental.

- 2.2 The major road system in Trinidad and Tobago (T&T) is extensive and relatively well developed, while many other roads are narrow and have difficult alignments. The road network consists of one north-south highway and three main east-west corridors. These roads become congested during peak hours due to overcapacity. In Trinidad the road network comprises of 9,638 km of paved roads and 300 km of unpaved roads. Out of the 9,638 km of paved roads, about 2,024 km are classified as main roads, 5,590 km as secondary and 2,024 km are classified as tertiary roads along with 1,059 bridges. In Tobago there are 700 km of main roads and a total of 1,600 km of secondary and agricultural access roads.<sup>1</sup> In 2009 the Road Condition Survey conducted by the Ministry of Works and Transport (MoWT) classified 30% of the roads as fair and 32% as poor or critical condition.<sup>2</sup>
- 2.3 The connection between the two islands is either by marine vessels or aircraft. There are three vessels operating between Port-of-Spain and Scarborough in Tobago, which travels around 160km. Two of them are fast ferries with about two and half hours of travel time with a capacity of approximately 900 passengers and 200 cars each. The third is a conventional Ro-Ro vessel with a five-hour travel time and a capacity of 40 feet container trailers. There is no reliable ferry service between north of Trinidad and the southern part of Tobago.<sup>3</sup>
- 2.4 Limitations of quality and availability of fast services between the two islands result in high transportation costs and long travel times. These limitations also represent an obstacle for the development of agriculture, tourism and industry in the country. Furthermore, the motorization rate has dramatically increased over the past years, reaching 353 vehicles per thousand people,<sup>4</sup> higher than Argentina, Brazil, and Jamaica. Such increase imposes a great challenge in terms of traffic congestion if the quality of roads is not improved.
- 2.5 Acknowledging this challenge, the GORTT has invested in the road sector with the objective of improving the quality of roads. In 2015, the Transport Program, financed by GORTT, invested US\$300 million in major works for the reconstruction and repair of bridges and landslips and public transportation.<sup>5</sup> The main objective of this program is to provide better connections for agricultural areas, tourism destinations, consumption centers, and health services. The Inter-American Development Bank (IDB) has supported the road sub-sector in T&T in the 1990's, approving a total of US\$178.5 million in four road projects (TT0043, TT0040, TT0030, TT0001), with the last one being concluded in 2009.
- 2.6 One of the projects envisioned by the government is the funding of a new plan to link Trinidad to Tobago via a new ferry-port at Toco, in the north of Trinidad. The expected results for this new project are to reduce travel time and vehicle operational costs, between Trinidad and Tobago.<sup>6</sup> An improved road between Valencia and

---

<sup>1</sup> Ministry of Works & Transport, Trinidad & Tobago: [www.mowt.gov.tt](http://www.mowt.gov.tt)

<sup>2</sup> Trinidad and Tobago Country Strategy 2011-2015.

<sup>3</sup> Rapid Assessment of the Urban Sustainability and Mobility Situation in Trinidad and Tobago, Final Report, 2016.

<sup>4</sup> Rapid Assessment of the Urban Sustainability and Mobility Situation in Trinidad and Tobago, Final Report, 2016.

<sup>5</sup> [Budget Statement 2015](#), Minister of Finance and the Economy, Government of the Republic of Trinidad and Tobago.

<sup>6</sup> The distance between Port of Spain (Trinidad) and Scarborough (Tobago) is around 160km. A new ferry-port at Toco could reduce the distance between two cities to about 100km, by using the multimodal transportation – the new Toco Road and the ferry. This plan will allow the population from other cities in Trinidad to choose the fastest way to get to Tobago.

Toco is also needed as part of this plan. A new ferry-port at Toco with regular services to Tobago could generate higher levels of traffic and the current road could not support it due to difficult alignments and narrowed sections. Thus, the GORTT needs to develop main studies to provide solutions for a reliable road connection between Port-of-Spain and Toco.

- 2.7 This TC is aligned with the regional Update to the Institutional Strategy 2010-2020 (AB-3008). It will contribute to the investment in infrastructure services, increasing economic growth, through improving transportation efficiency (vehicle operational cost reductions and time savings). This TC is also aligned with the Sustainable Infrastructure for Competitiveness and Inclusive Growth Strategy (GN-2710-5), as it will promote access to better infrastructure services, and with the Transport Framework (GN-2740-3), since it will contribute to the improvement of the quality of road infrastructure, by bringing a suitable solution in terms of engineering and environment for the rehabilitation of Toco Road. Finally, this TC is aligned with the objectives of the Infrastructure Fund (InfraFund), as the resources will be used for the identification of infrastructure project in Trinidad & Tobago.
- 2.8 The expected result for this TC is the prioritization of Toco Road Project in the Ministry of Works and Transport Budget of Trinidad & Tobago for 2020.

### III. Description of activities/components and budget

- 3.1 This TC will finance the following activities:
- 3.2 **Component 1: Technical and Environmental Studies (US\$500,000).** This component will carry out the engineering, environmental, social and economic studies for the Toco Road in Trinidad. As the IDB is executing this TC and has to work with the GORTT for the quality of the deliverables, the IDB team will organize two missions to Trinidad & Tobago (¶4.2). The main activities will include:
- 3.3 **Traffic Study and Economic Feasibility and Traffic Studies.** This subcomponent will finance: (i) the traffic study: the collection of traffic information from the current road and will create traffic scenarios corresponding to the traffic estimation and projections; and (ii) economic feasibility study: the collection of operating and cost data for each vehicle type to be used in the economic analysis. The cost inputs for the works will include investment, social and environmental mitigation, and road maintenance cost. The analysis will examine the economic feasibility of the road in different scenarios. The evaluation will be conducted in terms of economic costs, which will be derived from the financial prices considered. Road user costs with and without project should be estimated with the use of Highway Development and Maintenance Management System (HDM-4).
- 3.4 **Environmental Impact Statement Assessment (EISA) and Environmental and Social Management Plan (ESMP).** This subcomponent will finance the stakeholder consultation process, field activities and preparation of the EISA and ESMP for the Toco Road project. In order to listen to the expectations and concerns of the population regarding the Toco Road construction, consultation process will inform and engage the general public from the opening phase of the study to its conclusion. The preparation activities for the EISA and ESMP will include the identification and mitigation of direct and indirect impacts associated with the execution of the works and when the road comes into use. Local regulations and provisions of the Bank's Safeguard Policies will be taken into account.

- 3.5 Engineering Preliminary Design Studies.** This third subcomponent will produce engineering preliminary designs for the road, bridges and culverts, drainage and road safety elements required for the best alignment and the optimum length of the road. The activities will include: (i) inspections and assessments, nondestructive and destructive testing of the existing road, bridges and culverts; (ii) identification of material sources; (iii) traffic counts and analysis; (iv) preliminary designs of the pavement and concrete structures; and (v) estimate cost of the works. The adaptation of the road infrastructure to climate change will be taken into account throughout these studies. Furthermore, this subcomponent will finance a road safety audit in order to incorporate recommendations on the final design studies.

**Indicative Result Matrix**

<b>PRODUCTS</b>						
<b>Component 1</b>	<b>Technical and Environmental Studies</b>					
	<b>Base line</b>	<b>Year</b>	<b>Unit</b>	<b>Goal 2019</b>	<b>Cost US\$</b>	<b>Verification Mean</b>
Preliminary Design Studies and Road Safety analysis concluded	0	2017	Study	1	300,000	Preliminary Design Studies Report with an e-mail that validates the studies sent by IDB and counterpart
Traffic Studies and Economic Feasibility Studies concluded	0	2017	Study	1	105,000	Traffic Studies and Economic Feasibility Report with an e-mail that validates the studies sent by IDB and counterpart
EISA and ESMP concluded	0	2017	Study	2	175,000	EISA and ESMP Reports with an e-mail that validates the studies sent by IDB and counterpart
<b>RESULTS</b>						
<b>Result 1: Prioritization of Toco Road Project in the T&amp;T Ministry of Works and Transport Budget</b>	<b>Base line</b>	<b>Year</b>	<b>Unit</b>	<b>Goal 2020</b>	<b>Verification Mean</b>	
Toco Road Project prioritized in the T&T Ministry of Works and Transport Budget	0	2018	Project	1	2020 Government Budget	

- 3.6** The budget of this TC is US\$650,000, whereas US\$500,000 will be financed by InfraFund and US\$150,000 by the counterpart by contribution in kind.

### Indicative Budget

Activity/Component	IDB/Fund Funding US\$	Counterpart Funding US\$	Total Funding US\$
<b>Component 1: Technical and Environmental Studies</b>			
1.1. Traffic and Economic Feasibility Studies	90,000	15,000	105,000
1.2. Road Safety Audit and Engineering Studies	240,000	60,000	300,000
1.3. Environmental Impact Statement Assessment and Environmental and Social Engagement Plan	150,000	25,000	175,000
<b>Operations Coordination (two missions for the supervision of studies and coordination with counterpart)</b>	20,000	-	20,000
<b>Total</b>	<b>500,000</b>	<b>100,000</b>	<b>600,000</b>

## IV. Executing agency and execution structure

- 4.1 The beneficiary of this technical cooperation is the Republic of Trinidad and Tobago, through the MoWT. The GORTT has requested the IDB to execute the TC on its behalf citing its current limited internal capacity and the IDB's experience in this matter. The IDB will be in charge of procurement process, administrative and monitoring activities. The MoWT will be actively involved in the technical review and acceptance of all terms of reference for the studies and will define a focal point to review the products of the consultancies.
- 4.2 Two missions are expected to be organized by the IDB staff for required technical supervisions for a better implementation of the products listed above. During these missions, the IDB staff will participate on a preliminary field exploration of Toco Road, carry out kick-off meeting with the MoWT and jointly review the studies.<sup>7</sup> The missions are necessary to reach the TC objectives, since they will allow close coordination and open discussions between IDB, technical consultants and the GORTT. These resources may not supplement the budget of TSP for routine or customary activities.
- 4.3 The TC will be executed in 24 months. The IDB will hire consulting services (individual and firms) in accordance with the "Policies for the Selection and Contracting of Consultants financed by the Inter-American Development Bank (GN-2350-9)," March 2011.

## V. Major issues

- 5.1 Since the TC relies on engineering and institutional studies, there are no risks directly associated with its implementation.

## VI. Exceptions to Bank Policy

- 6.1 No exceptions to Bank policy were identified.

<sup>7</sup> According to the paragraph 2.32 of GN-2470-2 (Proposal for a new Bank policy on technical cooperation), the resources may also support technical cooperation executed by Bank staff members, by financing the cost of delivery this TC, such as supervision missions to the targeted country, that it is essential for the better execution of this TC.

## **VII. Environmental and Social Strategy**

- 7.1 This TC has no environmental or social implications since the product of it are studies. The expected benefits and possible negative impacts related with the implementation of road projects along with the aim to design mitigation measures will be taken into account. Given the nature of this TC, this operation is classified as “C” ([Environmental Filters: The Safeguard Screening Form \(SSF\) and the Safeguard Policy Filter Report](#)).

### **Required Annexes:**

Annex I. Letter of Request (N/A)

Annex II. [Terms of Reference](#)

Annex III. [Procurement Plan](#)

**TERMS OF REFERENCE  
ENGINEERING STUDIES (TT-T1065)**

**I. BACKGROUND**

- 1.1 The Republic of Trinidad and Tobago (T&T) is a two island country in the Caribbean Sea located in the northern edge of the South American mainland, just 11 kilometres (km) from Venezuela, and 130km south of Grenada. Trinidad, the southern and larger island, has 4,828 square meters of land, whilst the northern island, Tobago, which is comprised of 300 square meters. Its population is just over 1.2 million inhabitants.
- 1.2 The major road system in T&T is extensive and relatively well developed, while many roads are narrow and have difficult alignments. The road network consists mainly of one north-south highway and three main east-west corridors. These roads become congested in peak hours due to overcapacity. In Trinidad the road network comprises of 9,638km of paved roads and 300km of unpaved roads, of which 2,024km are classified as main roads, 5,590km as secondary and 2,024km as tertiary roads along with 1,059 bridges. In Tobago there are 700km of main roads and a total of 1,600km of secondary and agricultural access roads. In 2009 the Road Condition Survey conducted by the Ministry of Works and Transport (MoWT) classified 30% of the roads as fair and 32% as poor or critical conditions.
- 1.3 The connection between the two islands is either by marine vessels or aircraft. There are three vessels operating between Port-of-Spain and Scarborough in Tobago. Two of them are fast ferries with about two and half hours of travel time and capacity of approximately 900 passengers and 200 cars each. The third is a conventional Ro-Ro vessel with a five-hour travel time and a capacity of 40 feet container trailers. There is no reliable ferry service between the north of Trinidad and the southern part of Tobago.
- 1.4 In terms of quality and availability of fast services between the two islands, these limitations reflect in high transportation costs and long travel times, representing an obstacle for the development of the agricultural, tourist and industrial areas of the country. Furthermore, the motorization rate has dramatically increased over the past years, reaching 353 vehicles per thousand people, higher than Argentina, Brazil, and Jamaica. Such increase imposes a great challenge in terms of traffic congestion if the quality of roads is not improved.
- 1.5 Acknowledging this challenge, the Government of Trinidad & Tobago (GORTT) has invested in the National Highway Program with the objective of improving the quality of its roads to provide better connections for agricultural areas, tourism destinations, consumption centres, and health services. The Inter-American Development Bank (IDB) has supported the road sub-sector in T&T during the past 25 years, approving a total of US\$178.5 million for four road projects (TT043, TT0040, TT0030, TT0001) with the last one being concluded in 2009.

- 1.6 Through the Non-Reimbursable Technical Cooperation TT-T1065, the IDB will support the GORTT in the development of solutions for the road transport challenges in the country. The Technical Cooperation includes the development of Engineering Studies for the Toco Main Road in Trinidad.

## II. CURRENT SITUATION

- 2.1 The Toco Main Road (Toco Road) is a 47km road that connects Toco, a village on the north of Trinidad, and the closest point to Tobago, with Sangre Grande, a town that lies on the Eastern Main Road that crosses the island east to west, as show in Figure 1.

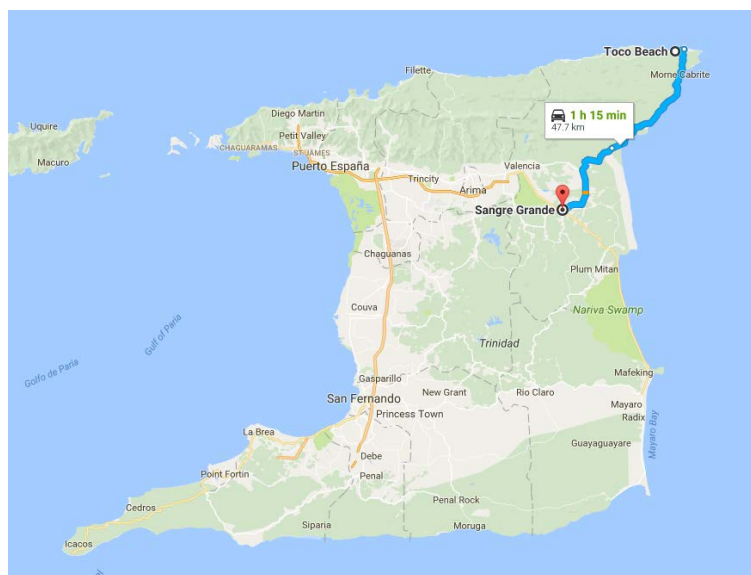


Figure 1. Toco Main Road

- 2.2 The road upgrade would improve transportation between Toco and Sangre Grande promoting integration, trade and cultural exchange, and boosting economic development.

## III. OBJECTIVES

### General Objectives

- 3.1 The general objective of this consultancy is to develop the engineering designs for the road, bridges and culverts, drainage and the road safety elements required for the best alignment and the optimum length of the road.

### Specific Objectives

- 3.2 The specific objectives include: (i) inspections and assessments, non-destructive and destructive testing of the existing road, bridges and culverts; (ii) identification of material sources; (iii) traffic counts and analysis; (iv) preliminary designs of the pavement and concrete structures; and (v) estimate the cost of the works.
- 3.3 The adaptation of the road infrastructure to climate change will be taken into account throughout the study. Furthermore, this study will incorporate the



recommendations given from the road safety audit conducted in parallel to this consultancy.

- 3.4 The consultant will collect and analyze all information from previous studies relevant to the current project, such as: technical, economic, environmental and social studies, including public consultations. This shall be carried out in sufficient detail for each project option to allow for: selection of design standards; identification of design and/or 'constructability' constraints; conceptual designs; and estimated costs (including expected costs) of mitigating environmental and social issues such as property acquisitions, and the like. On the basis of this examination, the consultant is expected to refine the project options in order to develop the project alternatives acceptable to the Bank and the GORTT.
- 3.5 The design alternatives must also examine a phased implementation of the project based on the projected growth in transportation demand.
- 3.6 The consultant will also collect and assess data on the existing trails/road and their conditions, traffic volumes and forecasts, and conduct topographical surveys, geometric surveys, geotechnical surveys, hydrological evaluations, and road safety evaluations.
- 3.7 Investigate at a minimum, possible vertical and horizontal alignments, possible realignment, widths, technical standards, bridges, drainage, critical sections, right of way and land expropriation, and utility requirement and relocation.
- 3.8 Evaluation – Estimate the projected work quantities and cost of each alternative. Prepare a Bill of Quantities, conceptual drawings for each alternative. Determine the locations of required construction materials. Establish an appropriate feature for safety, and the administrative and maintenance requirements.

#### **IV. ACTIVITIES**

- 4.1 In order to achieve the objectives of the engineering designs, specific activities to be completed include, but are not limited to, the following:

##### Studies and Documents Review

- 4.2 The consultant shall review all previous studies done on the Toco Road corridor.

##### Identification and Condition Assessment of Roads and Trails

- 4.3 Identify all existing road and trails nearby the Toco Road. Conduct and prepare a condition survey report based on identified roads/trails, safety and stream crossing, as described below:
- 4.4 Roads/trails condition survey - The road condition survey shall focus on the physical condition of the road/trail alignments, type of surface, type of subgrade, drainage, road performance and the existing natural terrain in terms of geological, soil, materials and topographic characteristics. The consultant shall define criteria for the categorization of road alignment as good, fair or poor.

- 4.5 Safety survey - The road safety survey shall identify the areas of the road unsafe to transit like sharp bends, blind spots, narrow widths, steep gradients, bridge approaches and inadequate sight distances.
- 4.6 Stream crossing condition survey - The stream crossing condition survey shall focus on the physical condition of the structures, their functionality, safety and deficiencies. Detailed surveys shall be undertaken on the condition, type and size of key structural elements. High water levels shall be determined for each structure. If the structure is engineering sound, the consultant is required to estimate its load carrying capacity and its residual life.

#### Geotechnical/Materials Survey

- 4.7 Sink test pits along the road/trail to determine the material stratification from surface to subgrade levels, and the water table depths. The locations of the test pits shall be based on the consultant's analysis of the road condition survey and the consultant shall ensure that the frequency of the test pit locations shall provide sufficient information in assessing the existing material stratification regime along the road.
- 4.8 Conduct a Dynamic Cone Penetrometer (DCP) test or equivalent internationally accepted test procedure to determine strength profiles of the existing road. The locations of the DCP test shall be based on the results of the test pits survey and the consultant shall ensure that the frequency of the DCP test locations shall provide sufficient confidence levels of the material strength regime along the road.
- 4.9 Conduct a Falling Weight Deflectometer (FWD) test or equivalent internationally accepted deflection test procedure for unpaved roads, in order to determine the resilient moduli of the subgrade and road structure layers. The frequency of testing shall be designed so that the variability of the subgrade modulus along the road corridor can be assessed to a level which would facilitate preliminary engineering designs.
- 4.10 Identify and map possible sources of naturally occurring road building materials along the area that may be relevant to this project. Give recommendations on the preferred type of road building material and blends of materials based on local deposits. Prepare a geotechnical/materials report detailing the findings.

#### Traffic Forecasts and Axle Load Survey

- 4.11 Using the results of a Market Study, create traffic scenarios corresponding to the traffic estimation and projections.
- 4.12 Conduct axle load surveys at least three locations on the road. The consultant will use the results of the survey to calculate wear factors to be used in determining the design traffic as part of their pavement design.

#### Topographical Surveys

- 4.13 Conduct topographical surveys of road/trails in sufficient detail to permit preliminary engineering designs and a safety audit. All elevations shall be referenced to the Georgetown Datum.

- 4.14 Prepare plan/profile and cross section drawings.

Hydrological and Drainage Evaluations

- 4.15 Collect and analyse rainfall data for the catchment areas. Develop drainage criteria and check adequacy of drainage structures and requirements for replacements.
- 4.16 Determine flood levels on the various sections of the road which are in low lying areas and have historically been subjected to flooding. Propose mitigating measures taking into consideration the natural ecosystem and the need for movement of water across the alignment.
- 4.17 Investigate erosion of sections of road/trail and propose mitigating measures or realignment. Prepare a Drainage Report based on the findings.

Safety Audit

- 4.18 Identify, through observations and topographic surveys, safety deficiencies in the existing road/trails alignment and geometry.
- 4.19 Propose alternative alignments and/or geometry of the road at the areas where road safety deficiencies exist.
- 4.20 Investigate the alignment of adjacent and alternative forestry and mining roads/trails. Identify and quantify any land acquisitions and resettlement requirements that may be necessary to permit realignment.
- 4.21 Prepare preliminary engineering designs of the modified road alignment and/or geometry. Prepare alignment plans, longitudinal and cross-sectional drawings showing improvement proposals. Prepare cost estimates for these preliminary engineering designs. Prepare a Road Safety Audit Report detailing the findings.

Alternative Designs and Costs

- 4.22 Expand the range of design alternatives and evaluate new alternatives alignments. The proposed design alternatives must include road design alternatives and bridge/drainage structures design alternatives as well as a rail alternative. The alternatives should be for a complete project catering for traffic, a phased construction based on traffic growth scenarios, and staged or sectional construction based on locally generated traffic alone.
- 4.23 Prepare cost schedules and engineer's estimates in Bill of Quantity format.
- 4.24 Incorporate recommendations from the safety audit and prepare preliminary plan/profile and cross-section drawings.
- 4.25 Evaluate the maintenance regimes and annual maintenance costs for alternatives.
- 4.26 Give recommendations on the most appropriate road improvement project.
- 4.27 Prepare a report on Alternative Designs.

### Preliminary Design of Alternatives for Bridges

- 4.28 The preliminary engineering studies for the bridge alternatives shall result a reasonable cost estimate, including, where necessary, approach roads. The consultant is expected to consider alternative locations for bridges. Furthermore, the consultant will determine, specify and carry out any field investigations (i.e. hydraulic survey) necessary to develop technical viable options and reasonable cost estimates. This should include, but not necessarily be limited to the following:
- Project planning cost estimates for any necessary approach road requirements, and possible land acquisition
  - Location and alignment of bridge approaches for each crossing location and alignment for each site
  - Vertical and horizontal clearances for bridges under main span for each site
  - Design layouts of bridge and road approaches for each site
  - Buildings and operational facilities for operation, administration, police or security personnel

### Workshops and Training

- 4.29 The consultant would facilitate three workshops and training sessions for the MoWT during the course of the study. The workshops will present the results of the studies allowing interaction between the team of consultants, the MoWT and the Bank informing the client parties and offering feed back to the consultant. The training sessions would be in technical subject areas that are relevant to the study being undertaken. The topics for the training would be decided upon at the inception of the study through after consultations between the team of consultants, the MoWT and the Bank.

## **V. OUTPUTS / DELIVERABLES**

- 5.1 Inception Report. This should set out clearly and concisely the approach to be adopted by the consultant to meet the objectives of the study. It shall contain the finalized schedule and workplan for the implementation of the consultancy, which will update the schedule proposed in the consultant's technical proposal for bidding.
- 5.2 Progress Reports. These will indicate the progress and summary of conclusions at the following phases: (i) fieldwork; (ii) road alignments; (iii) traffic scenarios; and (iv) concept of design alternatives. They will form the basis for consultations with the MoWT and the IDB through progress meetings.
- 5.3 Draft Final Report. This will contain the findings of the study, the supporting evidence and a full description of the methods used to meet the study objectives.
- 5.4 Final Report. This will incorporate the consultant's responses to clients' comments on the Draft Final Report.

- 5.5 All reports shall be presented in one printed copy (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats). The consultant shall supply six additional printed copies of the Final Report (including all appendices, drawings, tables and graphs) and in electronic form (editable and non-editable formats).

## **VI. CONSULTANCY SPECIFICATIONS**

### Type of Consultancy

- 6.1 The consultancy will require the services of an international consulting firm with extensive experience in road transportation engineering, and in conducting feasibility studies. It is essential that the consulting firm demonstrate experience working on such studies in developing countries, particularly in the Latin American and Caribbean region.

### Financing

- 6.2 The cost of the consultancy will include the consultant's remuneration as well as the costs of all incidentals associated with the conduct of the consultancy. The incidentals include, but are not limited to: surveys, field tests, trips, travel allowances, international calls, local transportation, secretarial expenses, copying and office supplies. The cost of the consultancy will include the consultant's remuneration as well as the costs of all incidentals associated with the conduct of the consultancy. The incidentals include, but are not limited to: surveys, field tests, trips, travel allowances, international calls, local transportation, secretarial expenses, copying and office supplies.

### Duration

- 6.3 The duration of the study shall be of 48 weeks.

### Location

- 6.4 The study shall be carried out in Trinidad & Tobago.

### Reporting Schedule

- 6.5 Inception Report shall be submitted to the IDB four weeks after the commencement date of the contract.
- 6.6 Progress reports shall be submitted to the IDB in accordance with the Consultants Schedule in Inception Report but not further than two (2) months.
- 6.7 Draft Final Report shall be submitted to the IDB at the end of 36 weeks after the commencement date of the contract.
- 6.8 Final Report shall be submitted to the IDB at the end of 48 weeks after the commencement date of contract (including eight weeks for receipt of comments and four weeks to make any necessary changes following comments).

### Payments

- 6.9 The payments will be done according to the following schedule:
- 10% upon signing of the contract

- 10% upon submission of acceptance Inception Report
- 10% upon submission of the each of the four Progress Reports
- 20% upon submission of the Draft Final Report
- 15% upon approval of the Final Report
- 5% on completion of Workshop and Training

#### Expertise Required

6.10 The key experts required for the team of consultants, and their minimum qualifications and experience are:

- Key Expert No. 1: Highway Engineer
  - Education: MSc. in Civil Engineering
  - Experience: 15 years of experience in road design and road construction with 10 years of experience in developing countries. If proposed as Team Leader, experience must include being 'Team Leader' in at least two projects of a similar nature in developing countries.
- Key Expert No. 2: Structural Engineer/Bridge Engineer
  - Education: MSc. in Civil Engineering.
  - Experience: 10 years experience in bridge design and bridge construction with five years of experience in developing countries.
- Key Expert No. 3: Hydraulic Engineer
  - Education: MSc. in Civil Engineering
  - Experience: 10 years experience in drainage, erosion control and hydrological evaluations with five years' experience in developing countries.
- Key Expert No. 4: Geotechnical Engineer
  - Education: MSc. in Civil Engineering
  - Experience: 10 years experience in geotechnical and road material evaluations with five years' experience in developing countries.

6.11 The language of all reports will be English and all experts shall have a good command of English. The consultant must specify the qualifications and experience of each key expert in order to be assigned. For each key expert proposed, curriculum vitae of about four pages should be provided detailing the relevant experience and qualifications. Members of the consultancy team must have working experience in developing countries.

6.12 The consultant is free to define the individual duration of assignments and recommend changes to the composition of the team. All team members must be present in Trinidad & Tobago when conducting their assignments.

## **VII. COORDINATION**

6.13 The IDB is the executing agency for the consultancy on behalf of the GORTT. The consultant shall report to the IDB project Team Leader who will be the

administrator of the contract. The IDB Project Team and the MoWT will have a role entailing the reviewing and evaluation of the outputs and approving the study.

- 6.14 The MoWT will facilitate the issuing of any permits required for the Consultant to carry out their duties and make available all relevant reports, documents, maps and data.

## PROCUREMENT PLAN

<b>Country</b>	Trinidad & Tobago
<b>Beneficiary</b>	Ministry of Works and Transport of Trinidad & Tobago
<b>Executing Agency</b>	INE/TSP
<b>Objective</b>	The objective of this TC is to support the Government of Trinidad and Tobago in the development of solutions for the road transport challenges in the country. This Technical Cooperation includes road transport alternatives and promotes the involvement of the private sector in the provision and/or management of transport infrastructure. In order to identify and develop appropriate solutions for the Toco Road, a variety of studies will be conducted, such as: technical, institutional, economic, financial, legal, social and environmental.
<b>Estimated Approval Date:</b>	January 1 <sup>th</sup> , 2017
<b>Estimated Final Disbursement Date:</b>	January 1 <sup>th</sup> , 2019.

No.	Description	Estimated contract cost (US\$)	Procurement Method (1)	Source of financing (%)		Review of procurement	Status	Comments
				IDB	Local			
1	Economic Feasibility and Traffic Studies	90,000	IICQ	100,0%	0,0%	Ex-ante	Pending	To be hired by IDB and validated by the Ministry of Works and Transportation
2	Social and Environmental Studies: Characterization of the indirect area for social and environmental issues, development of Environmental Impact Statement Assessment and Environmental and Social Engagement Plan; Expropriation and Resettlement Plan; Consultation Process.	150,000	QCBS	100,0%	0,0%	Ex-ante	Pending	To be hired by IDB and validated by the Ministry of Works and Transportation
3	Engineering Studies: (i) inspections and assessments, nondestructive and destructive testing of the existing road, bridges and culverts; (ii) identification of material sources; (iii) traffic counts and analysis; (iv) preliminary designs of the pavement and concrete structures; (v) estimating the cost of the works; and (vi) Road Safety Audit.	240,000	QCBS	100,0%	0,0%	Ex-ante	Pending	To be hired by IDB and validated by the Ministry of Works and Transportation
<b>TOTAL</b>		480,000	<b>Prepared by: René Cortés</b>					

\* (1) Consulting firms: CQS: Selection Based on the Consultants' Qualifications; QCBS: Quality and cost-based selection; LCS: Least Cost Selection; FBS: Selection under a Fixed Budget; SSS: Single Source Selection; QBS: Quality Based selection. Individual consultants: IICQ: International Individual Consultant Selection Based on Qualifications; SSS: Single Source Selection.