

CARIBBEAN DEVELOPMENT BANK

TWO HUNDRED AND SEVENTY-FIFTH MEETING OF THE BOARD OF DIRECTORS

TO BE HELD IN BARBADOS

MARCH 16, 2017

PAPER BD 17/17

SECOND ROAD INFRASTRUCTURE REHABILITATION PROJECT

ANTIGUA AND BARBUDA

(President's Recommendation No. 937)

The attached Report appraises a project proposal from the Government of Antigua and Barbuda (GOAB) for assistance in financing the rehabilitation and upgrading of 27.76 km of existing road corridors (inclusive of associated drainage works and structures) and technical assistance to enhance GOAB's capacity to strategically improve planning, efficiency, social inclusion, climate resilience, and management of the road infrastructure in Antigua and Barbuda. The project will be implemented by the Ministry of Works and Housing. The project is estimated to cost approximately USD65,627,000, with counterpart contribution from GOAB of the equivalent of USD19,768,000.

2. On the basis of the Appraisal Report, I recommend a loan to GOAB from the Ordinary Capital Resources of the Caribbean Development Bank (CDB) of an amount not exceeding the equivalent of forty-five million, eight hundred and fifty-nine thousand United States dollars (USD45,859,000) (the Loan), on the terms and conditions set out and referred to in Chapter 7 of the attached Report.

3. Funds are available within CDB's existing resources and/or borrowing programme for the relevant disbursement period.

CARIBBEAN DEVELOPMENT BANK

APPRAISAL REPORT

ON

SECOND ROAD INFRASTRUCTURE REHABILITATION PROJECT

ANTIGUA AND BARBUDA

This Document is being made publicly available in accordance with the Bank's Information Disclosure Policy. The Bank does not accept responsibility for the accuracy or completeness of the Document.

Considered at the Two Hundred and Seventy-Fifth Meeting of the Board of Directors on March 16, 2017

(BD 17/17)
AR 12/2AN

*Director,
Projects Department*

Mr. Daniel M. Best

*Division Chief,
Economic Infrastructure Division*

Mr. L. O'Reilly Lewis

MARCH 2017

This Report was prepared by an Appraisal Team comprising:

Sharon Griffith, Operations Officer (Civil Engineer)/Coordinator; Alexander Augustine, Operations Officer (Analyst); Valerie Isaac, Operations Officer (Environment); Annicia Gayle-Geddes, Operations Officer (Social Analyst); Donna Kaidou-Jeffrey, Country Economist; Dave Waithe, Legal Counsel; and Tracie Richards, Coordinating Secretary

Any designation or demarcation of, or reference to, a particular territory or geographic area in this Document is not intended to imply any opinion or judgment on the part of the Bank as to the legal or other status of any territory or area or as to the delimitation of frontiers or boundaries.

CURRENCY EQUIVALENT

Dollars (\$) throughout refer to Eastern Caribbean Dollars (XCD) unless otherwise stated.

USD1.00 = XCD2.70

XCD1.00 = USD0.37

ABBREVIATIONS

AADT	-	Average Annual Daily Traffic
AO	-	Accounting Officer
AP	-	Affected communities/persons
AR	-	Anchorage Road
BMCs	-	Borrowing Member Countries
BOD	-	Board of Directors
CC	-	Climate Change
CDB	-	Caribbean Development Bank
CGA	-	Country Gender Assessment
CIP	-	Citizen by Investment Programme
CPG	-	Community Participation Group
CLO	-	Community Liaison Officer
CRVA	-	Climate Risk and Vulnerability Assessment
CVA	-	Climate Vulnerability Assessment
DCD	-	Design and Control Department
EIR	-	Environmental Inspection Report
EMO	-	Environmental Monitoring Officer
ERR	-	Economic Rate of Return
ESIA	-	Environmental and Social Impact Assessment
ESMP	-	Environmental and Social Management Plan
ESRP	-	Environmental and Social Review Procedures
GDP	-	Gross Domestic Product
GM	-	Gender Mainstreamed
GOAB	-	Government of Antigua and Barbuda
GRM	-	Grievance Redress Mechanism
HDI	-	Human Development Index
HDM	-	Highway Development Model
IMF	-	International Monetary Fund
ISP	-	Implementation Support Plan
JE	-	Junior Engineer
km	-	kilometres
mn	-	million
MOF	-	Ministry of Finance
MWH	-	Ministry of Works and Housing
NGO	-	Non-governmental organisation
NPV	-	Net Present Value
OCR	-	Ordinary Capital Resources
OIE	-	Office of Independent Evaluation
OPR	-	Old Parham Road
p.a.	-	per annum
PBL	-	Policy-Based Loan

PC	-	Project Coordinator
PCR	-	Project Completion Report
PE	-	Project Engineer
PIMU	-	Project Implementation Management Unit
PLW	-	Project Launch Workshop
PPE	-	Project Performance Evaluation
PRO	-	Public Relations Officer
PWD	-	Persons with disabilities
QS	-	Quantity Surveyor
RA	-	Roads Act
RD	-	Road Department
RIRP	-	Road Infrastructure Rehabilitation Project
RIR STUDY	-	Road Infrastructure Rehabilitation Study
RSDM	-	Road Sector Development Masterplan
SLRP	-	Street Light Retrofitting Project
SWH	-	Sydney Walling Highway
TA	-	Technical Assistance
TOR	-	Terms of Reference
UK	-	United Kingdom
UKCIF	-	United Kingdom Caribbean Infrastructure Partnership Fund
USD	-	United States Dollar
VOC	-	Vehicle Operating Costs
VRN	-	Valley Road North
XCD	-	Eastern Caribbean Dollar

MEASURES AND EQUIVALENTS

1 hectre (ha)	=	2.47 acres
1 kilometer (km)	=	0.621 mile (mi)
1 square kilometer (km ²)	=	0.386 square mile (mi ²)
1 metre	=	3.281 (ft)
2 millimetres (mm)	=	0.039 inch (in)
1 square meter (m ²)	=	10.756 square feet (ft ²)

TABLE OF CONTENTS

COUNTRY DATA: ANTIGUA AND BARBUDA LOAN AND PROJECT SUMMARY

1. STRATEGIC CONTEXT AND RATIONALE
2. PROJECT DESCRIPTION
3. FINANCING STRUCTURE AND COSTS
4. PROJECT VIABILITY
5. RISK ASSESSMENT AND MITIGATION
6. BORROWER, IMPLEMENTING AGENCY, PROJECT MANAGEMENT AND IMPLEMENTATION
7. TERMS AND CONDITIONS

APPENDICES

- 1.1 MACROECONOMIC CONTEXT
- 1.2 MACROSOCIAL CONTEXT AND PROFILE OF THE PROJECT AREAS
- 1.3 ORGANISATIONAL CHART
- 1.4 ROAD ROUGHNESS VALUES FOR PAVED ROADS FOR VARIOUS SERVICEABILITY LEVELS
- 1.5 DRAFT TERMS OF REFERENCE – CONSULTANCY SERVICES ROAD SECTOR DEVELOPMENT MASTER PLAN
- 1.6 PROJECT MANAGEMENT ARRANGEMENTS
- 2.1 DETAILS OF THE PROJECT
- 3.1 PROJECT COST, PHASING AND FINANCING PLAN
- 4.1 ECONOMIC RATE OF RETURN CALCULATION
- 4.2 NOTES AND ASSUMPTIONS TO THE ECONOMIC ANALYSIS
- 4.3 DRAFT TERMS OF REFERENCE CAPACITY BUILDING IN SOCIAL AND GENDER SENSITISATION
- 4.4 GENDER MARKER ANALYSIS
- 4.5 GENDER ACTION PLAN
- 4.6 DRAFT TERMS OF REFERENCE - GENDER-RESPONSIVE ROAD SAFETY AWARENESS COMMUNITY STRATEGY
- 4.7 DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN
- 6.1 DRAFT TERMS OF REFERENCE - PROJECT COORDINATOR
- 6.2 DRAFT TERMS OF REFERENCE - PROJECT ENGINEER
- 6.3 DRAFT TERMS OF REFERENCE - QUANTITY SURVEYOR
- 6.4 FUNCTIONS AND RESPONSIBILITIES OF THE COMMUNITY LIAISON OFFICER
- 6.5 DRAFT TERMS OF REFERENCE - ENVIRONMENTAL MONITORING OFFICER
- 6.6 DRAFT TERMS OF REFERENCE - ACCOUNTING OFFICER- PROJECT IMPLEMENTATION AND MANAGEMENT UNIT
- 6.7 DRAFT TERMS OF REFERENCE – PROCUREMENT OFFICER - PROJECT IMPLEMENTATION AND MANAGEMENT UNIT
- 6.8 BUDGET – PROJECT IMPLEMENTATION AND MANAGEMENT UNIT
- 6.9 DRAFT TERMS OF REFERENCE - CONSTRUCTION SUPERVISION
- 6.10 PROJECT IMPLEMENTATION SUPPORT PLAN
- 6.11 PROJECT IMPLEMENTATION SCHEDULE
- 6.12 ESTIMATED QUARTERLY LOAN DISBURSEMENT SCHEDULE
- 6.13 PROCUREMENT PLAN
- 6.14 REPORTING REQUIREMENTS

FIGURES

1.1 PROJECT LOCATION MAP

COUNTRY DATA: ANTIGUA AND BARBUDA

	2011	2012	2013	2014	2015	2016 p
PER CAPITA GDP (current market prices: US\$)	12,817.8	13,525.6	13,342.1	13,500.0	14,989.5	15,801.6
GROSS DOMESTIC PRODUCT (GDP)						
GDP at Current Market Prices (\$mn)	3,050.8	3,283.3	3,228.9	3,440.7	3,660.2	3,912.7
Demand Components:						
Consumptions Expenditure	2,725.7	2,995.3	2,945.1	3,005.3	2,961.9	3,072.4
Gross Domestic Investment	637.1	716.6	756.9	844.6	882.5	1,023.0
Exports of Goods and Non-Factor Services	1,451.9	1,466.8	1,473.0	1,595.4	1,625.9	1,671.5
Imports of Goods and Non-Factor Services	1,731.7	1,895.4	1,946.1	2,004.6	1,810.1	1,854.1
Gross Domestic Savings Ratio (%)	0.1	0.1	0.1	0.1	0.2	0.2
Sectoral distribution of current GDP (%)						
Agriculture	1.1	1.0	1.0	1.0	1.0	0.9
Mining and Quarrying	0.8	0.8	1.1	1.1	0.9	0.9
Manufacturing	2.6	2.4	3.1	3.1	2.9	2.8
Electricity and Water	5.0	4.0	3.9	4.0	4.8	4.8
Construction	8.5	9.3	9.7	10.1	10.0	10.8
Transport, Storage and Communications	12.2	11.9	11.3	10.6	11.0	10.7
Hotels and Restaurants	13.2	12.9	12.9	12.5	12.1	12.2
Wholesale and Retail Trade	14.1	14.8	14.4	14.6	14.2	14.7
Financial Intermediation	11.1	10.3	7.9	7.5	7.2	7.0
Government Services	9.0	8.9	8.9	9.7	9.5	9.3
Other Services	17.7	26.6	28.0	27.7	28.2	27.5
Less: Imputed Service Charges	3.5	3.0	2.3	1.8	1.7	1.7
GDP at Current Factor Cost (\$mn)	2,645.4	2,805.7	2,805.2	2,992.9	3,174.4	3,390.5
GDP at Constant 2006 Prices (\$mn)	2,338.1	2,417.9	2,453.2	2,569.4	2,667.4	2,781.8
Annual rate of growth in GDP (%)	-1.8	3.4	1.5	4.7	3.8	4.3
MONEY AND PRICES (\$mn)						
Consumer prices (end of period % change)	3.5	3.4	1.1	1.3	0.9	0.5
Money supply (M1; annual % change)	-2.6	-8.1	7.8	5.9	9.8	8.0
Total domestic credit (net)	2,861.8	2,711.7	2,684.3	2,610.9	2,251.1	2,301.8
Private sector credit (net)	2,442.3	2,376.2	2,269.5	2,151.6	1,908.8	1,927.0
Public sector (net)	419.5	335.5	414.8	459.3	341.6	374.9

COUNTRY DATA: ANTIGUA AND BARBUDA

	2011	2012	2013	2014	2015	2016 p
CENTRAL GOVERNMENT FINANCES (\$mn)						
Current Revenues	596.3	646.7	597.6	664.4	783.0	803.9
Current Grants	0.0	0.0	0.0	0.0	0.0	0.0
Current Expenditures	714.7	671.5	700.7	839.2	742.0	777.4
Current Account Surplus/(Deficit)	-118.4	-24.8	-103.1	-174.8	41.0	26.5
Capital Revenue and Grants	25.8	2.2	1.3	15.2	87.0	181.0
Capital Expenditure and Net Lending	67.6	20.9	43.1	55.1	51.4	113.4
Overall Surplus/(Deficit)	-160.1	-43.5	-144.8	-214.7	77.2	94.2
Underlying Overall Surplus/(Deficit)*	-160.1	-43.5	-144.8	-275.0	7.2	-158.7
BALANCE OF PAYMENTS (USD mn)						
Merchandise Exports (f.o.b)	151.6	159.4	171.4	186.2	161.1	164.3
Merchandise Imports (c.i.f)	1,162.2	1,329.3	1,358.3	1,396.9	1,200.1	1,224.1
Trade balance	-1,010.6	-1,169.9	-1,186.8	-1,210.7	-1,039.0	-1,059.8
Net Balance on service account	730.8	741.4	713.8	801.5	854.8	877.2
Income (net)	-106.6	-137.9	-83.5	-97.5	-84.4	-99.3
Transfers (net)	69.3	81.9	70.7	76.8	77.3	79.2
Current Account Balance	-317.0	-484.5	-485.9	-430.0	-191.3	-202.7
TOTAL PUBLIC DEBT (\$mn)						
Total Public Debt	2,842.1	2,840.6	3,223.9	3,380.2	3,620.0	3,499.0
Domestic debt outstanding	1,582.5	1,639.0	1,666.9	1,869.1	1,519.6	1,700.5
Long term	...	...	...	...	...	...
Short term	...	...	...	...	...	...
External debt outstanding	1,259.6	1,201.6	1,557.0	1511.1	1552.2	1,798.5
Debt service	176.6	226.0	232.2	228.8	415.9	483.7
Amortisation	...	...	...	...	...	...
Interest Payments	...	...	...	...	...	...
External debt service as % exports of goods and services	4.5	4.2	5.0	8.6	8.0	8.6
Total debt service as % of current revenue	29.5	34.8	38.8	34.4	53.1	60.2
AVERAGE EXCHANGE RATE						
Dollar(s) per US dollar	2.7	2.7	2.7	2.7	2.7	2.7

Sources: ECCB and Ministry of Finance.

Notes: *Less Citizenship by Investment Fund and Forfeiture Funds

COUNTRY DATA: ANTIGUA AND BARBUDA

	2011	2012	2013	2014	2015	2016 p
POPULATION						
Mid-year Population (000's) ¹	85.57	86.79	88.07	89.39	90.44	91.71
Population Growth Rate (%)	1.4	1.44	1.48	1.5	1.2	1.4
Crude Birth Rate	14.78	14.67	14.57	14.48	...	...
Crude Death Rate	5.63	5.61	5.63	5.72	...	...
Infant Mortality Rate	20.72	17.15	14.28	11.98	...	...
INDICATORS OF HUMAN DEVELOPMENT						
Life Expectancy at Birth (years)						
Male	73.49	73.98	74.3	74.47	...	...
Female	80.24	80.92	81.3	81.43	...	...
Dependency Ratio						
Male	47.94	47.19	46.46	45.78	...	...
Female	44.52	44.01	43.52	43.07	...	...
Human Development Index (value)	0.772	0.773	0.774	0.783	...	...
Tourism						
Total Stay-Over Visitors ('000)	241.33	246.93	243.23	249.32	250.45	265.187
Cruise Ship Visitors	606.5	572.15	533.99	522.34	644.31	608.503

LOAN AND PROJECT SUMMARY

Financial Terms and Conditions			
Beneficiary:	Government of Antigua and Barbuda (GOAB)	Amortisation Period:	Ordinary Capital Resources (OCR): 14 years (excluding grace period)
Implementing Agency:	Ministry of Works and Housing (MWH)	Grace Period:	OCR: 3 years
		Disbursement Period:	September 2017 to September 2020
Source	Amount (USD)		
OCR - Loan	45,859,000	Interest Rate	3.3% per annum (p.a) variable
Counterpart (\$53,374,000)	19,768,000	Commitment Fee:	1% p.a. payable on the undisbursed balance, commencing from the 60 th day after the date of the Loan Agreement
Total	65,627,000		
Risk Management Summary			
Country Rating: Outlook:	This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank’s Information Disclosure Policy.		
Lending to Country as at December 31, 2016:			
Item	USD mn		
Undisbursed:	32.6		
Outstanding Loans:	88.3		
Exposure (Outstanding +50% of Undisbursed Balance)	This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank’s Information Disclosure Policy.		
Office of Risk Management Commentary:			
This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank’s Information Disclosure Policy.			

Project Summary					
Project Objective/Description: <p>The expected outcome of the project is a road network in Antigua with: (a) improved efficiency, safety, and climate resilience; and (b) a socially inclusive management and planning framework.</p> <p>The Project consists of the following:</p> <ul style="list-style-type: none"> (a) Preparation of final designs, rehabilitation and upgrade of 1.44 km of Anchorage Road (AR), 14 km of Sir Sydney Walling Highway (SWH), 2.9 km of Old Parham Road (OPR) and 9.45 km of Valley Road (north) (VRN) and associated drainage infrastructure. (b) Land: Acquisition of approximately 10,000 square meters (m²) of privately owned lands adjacent to AR, SWH, OPR, VRN, to facilitate the widening of the corridors to improve capacity and enhance road safety. No resettlement or relocation is anticipated. (c) Project Management: Establishment of a Project Implementation and Management Unit. (d) Engineering Services: Consultancy services for the completion of a Climate Vulnerability Assessment (CVA), supervision and certification of the road rehabilitation works. (e) Technical Assistance (TA): Consultancy Services for: (i) the preparation of a Road Sector Development Masterplan; (ii) the provision of social and gender capacity building training for MWH and other Government Agencies, road contractors' and construction workers; and (iii) for the development and implementation of a Gender-Responsive Road Safety Awareness Communication Strategy. 					
The Caribbean Development Bank (CDB) Contributions to Country Outcomes – Key Outcomes					
No.		2017	2018	2019	2020
1.	Transport: Primary, secondary and other roads built or upgraded (km)	-	18.52	6.18	3.09
2.	Transport: Beneficiaries of road projects (number)	-	6,053	16,142	20,177
	- of whom female		3,162	8,432	10,541
Exceptions to CDB Policies: None					

Gender Marker	Analysis	Design	Implementation	Monitoring and Evaluation	Score	Code
	0.75	0.5	1.0	1.0	3.25	GM ¹

¹ Gender mainstreamed (GM): the project has the potential to contribute significantly to gender equality.

1. STRATEGIC CONTEXT AND RATIONALE

LOAN REQUEST

1.01 By letter dated December 22, 2016, GOAB applied to CDB for a loan to assist in financing a project for the rehabilitation and upgrade of four road corridors (see Figure 1.1). The capital project proposed was initiated based on the recommendations of a TA Feasibility Study, “Road Infrastructure Rehabilitation – Antigua and Barbuda” (RIR Study) funded by CDB in July 2016, (Paper BD 61/16).

MACRO-ECONOMIC CONTEXT

1.02 Antigua and Barbuda is a high income, small-open economy. It is heavily dependent on the tourism sector, which has contributed on average, 14.4 % in value added annually to the economy over the past 17 years. According to the World Travel and Tourism Council (2016), Travel and Tourism contributed 57.1 % of GDP in 2015, and 15.6 % of total employment. Financial services and government also contribute significantly to economic activity. The small size and lack of diversification of the economy, as well as its openness and vulnerability to external shocks are key hindrances to growth and macroeconomic stability.

1.03 As part of the efforts of the GOAB to restore financial sector stability and to improve the macro-economic fundamentals, a policy-based loan (PBL) of USD50 mn was granted in December 2015. The first tranche of USD30 mn of the PBL was disbursed in December 2015 to the GOAB of which USD14 mn was transferred to the Eastern Caribbean Amalgamated Bank to meet obligations of GOAB under the bank resolution. The second tranche of USD20 mn is outstanding pending the completion of a menu of reforms and targets which were agreed to by the GOAB, the IMF and CDB.

1.04 The resolution of ABI Bank has reduced imminent risks to the financial system, however, the non- implementation of the Cabinet approved package of fiscal measures, agreed in November 2015, poses risks to fiscal sustainability and macroeconomic stability. The high dependency on Citizenship by Investment receipts, financially stressed state owned enterprises and an accumulation of arrears on external debt (mainly Paris Club debt) are areas which warrant closer monitoring. Notwithstanding, the GOAB has recognised the importance of meeting its current obligations and reducing the stock of debt and arrears. A firm commitment to remaining current obligations on all multilateral creditors including the IMF, CDB and the WB has been made and continues to be prioritised. Meanwhile, GOAB is currently in the process of re-negotiating some of its Paris Club debt, which in part has contributed to the increase in arrears.

1.05 Growth remains buoyant, with an average growth rate of 4.3% over the past three years, 2014 to 2016. The outlook for Antigua and Barbuda is cautiously optimistic. Successful fiscal consolidation and a reform agenda to improve overall doing business and productivity and competitiveness should contribute to favourable medium-term prospects. Following the abolition of Personal Income Tax, efforts have been made to reform some taxes with the introduction of an Unincorporated Business Tax, Offshore Financial Institutions Tax and a Gambling Tax. Infrastructural development with key projects in the road network, ports, water, and energy are also expected to contribute to overall macroeconomic stability. This however, is underpinned by fiscal responsibility and debt management. The detailed Macroeconomic Context is given in Appendix 1.1.

SOCIAL CONTEXT

1.06 Antigua and Barbuda has a population of 88,411, of which 42,565 are male and 45,846 female (2011 Census). A total of 86,560 persons reside on Antigua and 1,851 on Barbuda. The population grew by about 4% p. a. between 1991 and 2011. Antigua and Barbuda ranks as a country of high human development, with a Human Development Index (HDI)² value of 0.783 in 2014. The HDI for 2014 indicates a steady increase from 0.774 in 2013, and 0.760 in 2012. Notwithstanding, issues of poverty inequality, vulnerability and the ability of the poor to sustainably improve their well-being remain. The latest available data (2006) shows that 18% of the population is poor, 3.7% indigent and 10% vulnerable to poverty in the event of a major economic shock or natural hazard³. The global economic recession of 2008 exacerbated this vulnerability, evidenced by the increased number of applications from poor households for government's social assistance, which is a reliable proxy for deprivation. The level of inequality in the country is also of concern. Indeed, the richest 20% of the population account for 56% of total consumption of goods and services, compared with less than 5% for the poorest 20%.

1.07 The hardships experienced disproportionately affect vulnerable groups such as youth, women and persons with disabilities (PWDs). Comparative data shows the youth unemployment rate being 2.4 times that of the total population in 2015 (33.9% versus 13.7%).⁴ Further, 12.9% of males, and 14.5% of females were unemployed. Women also contend with labour market segregation, and are more likely to be found in lower paying and less secure occupations. Accordingly, higher proportions of men are represented in the sectors that contribute in the highest percentage to GDP (construction, transportation and communication)⁵. Further PWDs, estimated to represent 5.1% of the population, face inaccessible public infrastructure, which limit their socio-economic participation, especially in education and employment. The detailed Macrosocial Context and Profile of the Project Areas is located in Appendix 1.2.

THE ROAD SECTOR

The Road Network

1.08 The road network in Antigua and Barbuda comprises approximately 1,253 km of road, of which 436 km are unpaved and 817 km are paved. MWH is responsible for the planning, construction and maintenance of public roads. The current vehicle fleet numbers 30,213. The standard of construction and serviceability of the road network varies widely across Antigua, with serviceability being largely a function of weather conditions and frequency of maintenance. Of the 817 km of paved roads, approximately 60 km make up the primary roads of the network. Within the past 10 to 20 years no substantial road rehabilitation has been undertaken by MWH. Given the limited road upgrades and rehabilitation works there is an infrastructure deficit, whereby the road sub-sector cannot meet the demands of national development nor the potential impacts of climate variability.

Organisation and Structure

1.09 All major road, drainage and infrastructure construction works are the responsibility of the Roads Department (RD) and the Design and Control Department (DCD) of MWH. DCD has responsibility for

² The HDI is an average measure of basic human development of a country. It takes into account the indicators of life expectancy at birth; expected years of schooling; mean years of schooling; and Gross National Income per capita.

³ They are vulnerable in the event of a major economic shock or natural hazard. Antigua and Barbuda is scheduled to benefit from the CDB's Enhanced Country Poverty Assessment Programme,

⁴ The 2015 Labour Force Survey

⁵ The construction sector contributed 21.9% to GDP. However, total employment (000s) was 3.419 for males and 0.138 for females (Country Gender Assessment 2014, p.18).

the design of roads. These two departments have responsibility for the entire road project life cycle, inclusive of project designs, estimates and construction supervision of the road sector. An Organisational Chart of MWH is provided in Appendix 1.3. The present organisational structure does not effectively support the management of major capital projects and locally-funded initiatives. Systems in place to manage resources in the most effective and efficient way are not present. There is also under-resourcing (in terms of staffing, equipment, and finances), which results in inadequate capacity to undertake MWH's mandate of constructing and maintaining road and public building infrastructure. To better manage sector projects, there is a requirement for the staff to be trained in project management, and contract administration and procurement.

Road Maintenance

1.10 As a result of physical development in Antigua over the past two decades, the existing drainage systems of the road corridors have inadequate capacity. In addition, there has been inadequate routine maintenance of road drains over the years. Many of the drains are poorly defined earthen drains, and outlets and culverts are filled with dirt, heavy silt and vegetation. These inadequacies in the drainage infrastructure contribute to the present poor road conditions and frequent flooding events. There is evidence of surface cracking, multiple potholes, partial erosion of the surface dressing and intermittent patching. Shoulder and road edge failure and ponding due to inadequate maintenance and drainage infrastructure are also prevalent. Many of the major road corridors have been classified as having a pavement roughness as high as 6 mm/m, which is synonymous with frequent moderate and uneven depressions or patches that adversely affect the ride quality of a vehicle. Appendix 1.4 summarises the various levels of road roughness values.

1.11 Annual maintenance expenditure on the road network in Antigua and Barbuda averaged in excess of \$5 mn per annum over the past five years. Despite this significant expenditure, there is currently no structured maintenance programme or methodology in use by MWH. Notwithstanding, MWH, through its Strategic Plan 2015 – 2017, has placed a priority on addressing this issue. This project supports the realignment of the planning and implementation objectives as set out in the Strategic Plan.⁶

1.12 GOAB has identified road infrastructure rehabilitation as a high priority for the next 24 to 36 months. It has begun to strengthen the capacity of MWH with the procurement of equipment and has started to implement Phase I of the road rehabilitation programme, designed through the RIR Study. The road infrastructure rehabilitation programme was initiated through the findings of the RIR Study and has since commenced with Phase I of the capital works on two of the nine corridors assessed under the Study.

Issues and Constraints

1.13 There are several key issues and constraints affecting the transport sector in Antigua and Barbuda. These include:

- (a) Institutional capacity constraints relating to the management and maintenance of the road network: There are inadequate supporting standards, guidelines and systems to manage and implement road maintenance and rehabilitation and construction activities effectively.

⁶ Goal 2.1: "To achieve and maintain the highest possible standard of construction and maintenance of public infrastructure consistent with available resources", Goal 2.2 'To work with relevant agencies to improve the planning coordination and implementation of multi-agencies infrastructural development', Goal 2.3 'To work with appropriate agencies to minimise negative environmental impacts of infrastructure projects' and Goal 2.4 'To develop a comprehensive plan for the road infrastructure.

- (b) Increasing Maintenance burden on MWH: Due to the aging road and inadequate drainage infrastructure MWH's maintenance budget has increased.
- (c) Inadequate Mobility and Accessibility: As a result of increased development and vehicular traffic there has been a reduction in the Level of Service (LOS) being delivered by the road network⁷.
- (d) Negative Impacts of Climate Change (CC) on the Road Network: Antigua and Barbuda is already experiencing some of the effects of climate variability and change as demonstrated through infrastructure damage from severe weather systems, as well as more gradual changes in temperature and rainfall patterns.
- (e) Mainstreaming Gender Equality and PWDs: The limited participation of women, and PWDs bolsters poverty by undermining human capital development and income generation. The availability of technical capacity for socially inclusive planning, gender-responsive design and universal design standards to meet the needs of PWDs, are crucial to ensure successful implementation of public infrastructure projects.
- (f) Inadequate Data: The absence of data for project planning, design, cost estimation, measuring operational performance and measuring appropriate sector indicators, etc., continue to affect the sector, which must utilise available technology to address this issue.

COUNTRY SECTOR STRATEGY

1.14 One of GOAB's main infrastructural developmental objectives over the medium term, is to improve access to services through the expansion of road infrastructure to complement developments in airports, sea ports and utilities. Improving connectivity is critical to enhancing competitiveness in Antigua and Barbuda. Priority areas identified in the GOAB Medium Term Strategy and CDB's Country Strategy (2015 to 2018) are all geared towards improving the road infrastructure and logistics, particularly around the capital, St. John's. Cross-cutting issues are the importance of road infrastructure to inclusive growth and a cohesive society, which fosters national and civilian security, as well as sustaining and improving the health and natural environment of the people. Other priority areas identified by GOAB are centred on improving road safety and building resilience to natural disasters and the impacts of CC. The road rehabilitation projects complement a number of other initiatives being undertaken by GOAB commencing in 2017, related to the development of the port, street light retrofitting, solar and wind energy and water projects, which collectively contribute towards building a low carbon, climate resilient economy. Other issues are centred on youth, gender and human resource capacity development, to maintain a high level of human development and reduce poverty and vulnerability. While Antigua and Barbuda does not have a National Gender Policy, GOAB recognises the significance of investments in infrastructure with a view to reducing poverty and promoting gender equality and justice through the findings and recommendations of the Country Gender Assessment in 2014; the National Youth Policy; the Convention on the Elimination of all Forms of Discrimination Against Women; the Convention on the Prevention, Punishment, and Eradication of Violence against Women; and the Convention on the Rights of PWDs.

⁷ LOS is a quality measure describing conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to manoeuvre, traffic interruptions, comfort and convenience

CDB'S STRATEGIC OBJECTIVES AND POVERTY GOALS

1.15 The proposed Project is consistent with:

- (a) CDB's Strategic Objective of promoting inclusive social development and broad-based economic growth within its Borrowing Member Countries (BMCs);
- (b) CDB's Corporate Priority to strengthen and modernise public infrastructure;
- (c) CDB's Gender Equality Policy and Operational Strategy to strengthen governance processes to address gender inequalities and disparities; and
- (d) CDB's TA Policy and Operational Strategy of commitment to strengthening the synergies between TA operations and the Bank's investment lending.

PROJECT RATIONALE

1.16 The development and management of a reliable, appropriate, sustainable and affordable road sector in Antigua and Barbuda is essential for economic development and the delivery of services to all parts of the twin island state, particularly in rural communities, which will be unable to develop without access to an efficient road network.

1.17 The RIR Study identified six critical corridors which would stimulate and support economic development and environmental sustainability. The rehabilitation of two of the six corridors⁸ is presently being funded under the United Kingdom Caribbean Infrastructure Partnership Fund (UKCIF). It is proposed that the remaining four corridors be rehabilitated under this project, AR, SWH, VRN and OPR, which directly service 37% of the population of Antigua on a daily basis, and also serve as critical connecting corridors between the capital, St. John's, agricultural zones in the south, the prime tourism areas, heavily populated communities and the newly reconstructed V.C. Bird International Airport. The four corridors exhibit drainage deficiencies, which are reflected in notable levels of flooding during high levels of precipitation. The overall condition and serviceability of the four corridors, if not addressed, will worsen and impede residential, agricultural, tourism, commercial and industrial development and other economic activity in Antigua and Barbuda. Project investments in rehabilitating and upgrading these four corridors is an essential component of the overall infrastructural requirements needed for the economic and social development of the road network of Antigua and Barbuda. The funding being provided under the UKCIF and this project will offer overall concessionary financing, which will significantly reduce the GOAB's estimated road infrastructure project capital outlay.

1.18 The project and the benefits, which are expected to accrue to overall economic activity and sustainable development, form part of the overall strategy of CDB for GOAB. GOAB's road maintenance and capital works expenditure has increased over the past decade. However, limited fiscal space and rising debts have impacted the level of maintenance and expansion of road networks that GOAB can undertake. To this end, the rehabilitation of four road corridors is an initiative which can potentially have a positive effect on the most disadvantaged in society.

1.19 The proposed Road Sector Development Masterplan (RSDM) will support MWH Strategic Business Plan 2015 – 2017 and further set the strategies, policies and immediate priorities for development of Antigua and Barbuda's road sector for the next five to ten years. The RSDM will include an institutional assessment and an organisational structure review of MWH. The Plan will assist GOAB's

⁸ UKCIF Road Infrastructure Rehabilitation Corridors – Friars Hill and Sir George Walter Highway

development of its economy, provide for the social needs of communities and support environmental sustainability. The Terms of Reference (TOR) for the RSDM Consultancy is set out Appendix 1.5.

1.20 There are limited opportunities for women within the construction industry in Antigua and Barbuda. This Project can contribute significantly to the achievement of outcomes envisaged in CDB's Gender Equality and Operational Policy Action Plan⁹. MWH has indicated that it wishes to encourage contractors to diversify their labour force, and to increase focus on social inclusion, where possible. The participation of a considerable number of young, unemployed women and men in the construction activities, represent an opportunity to support them in obtaining adaptive life skills and direct them towards more sustainable livelihood opportunities.

1.21 To further address the immediate deficiencies of MWH in the execution and management of capital works projects being funded by CDB, the establishment of a Project Implementation and Management Unit (PIMU) within MWH is being recommended, as well as the development of systems to improve efficiencies and project management expertise across MWH. The project management arrangements are set out in the organisational structure of the proposed PIMU at Appendix 1.6. Thus to enhance and rationalise the project implementation and management structure of CDB-funded projects within Antigua and Barbuda, it is proposed that the present Project Coordinator (PC) and Project Engineers (PE), of the UKCIF project and other current CDB-funded projects be brought into the PIMU, where CDB will finance some of the equipment needed for the operation of the PIMU and the consultancy.

2. PROJECT DESCRIPTION

PROJECT OUTCOME

2.01 The expected outcome of the project is a road network in Antigua with: (a) improved efficiency, safety and climate resilient; and (b) a socially-inclusive management and planning framework. A Design and Monitoring Framework summarising the characteristics of the Project is presented in Table 2.1.

PROJECT DESCRIPTION

2.02 The proposed project comprises the following components (further details of which are presented in Appendix 2.1):

- (a) Road Infrastructure: preparation of final designs, road rehabilitation and upgrade of 1.44 km of AR, 14 km of SWH, 2.9 km of OPR and 9.45 km of VRN and associated drainage infrastructure.
- (b) Land Acquisition: approximately 10,000 m² of privately-owned lands to be acquired adjacent to AR, SWH, OPR and VRN, to facilitate widening of the corridors to improve capacity, drainage and enhance road safety.
- (c) Project Management: establishment of a PIMU.
- (d) Engineering Services: consultancy services for completion of a CVA, supervision and certification of the road rehabilitation works.

⁹ Outcome 3.1 "BMC capacity to institutionalise gender equality enhanced".

- (e) Technical Assistance: Consultancy services for: (i) preparation of a Road Sector Development Masterplan; (ii) the provision of social and gender capacity building training for the MWH and other Government agencies, road contractors and construction workers; and (iii) the development and implementation of a community driven and Gender-responsive Road Safety Awareness Communication Strategy.

TABLE 2.1: DESIGN AND MONITORING FRAMEWORK

Narrative Summary	Performance Indicators	Means of Verification	Assumptions
<p><u>IMPACT</u></p> <p>Contribute to socially-inclusive economic road infrastructure development and increased resilience in the transport road sector of Antigua and Barbuda.</p>			
<p><u>OUTCOMES</u></p> <p>A road network in Antigua with: (a) improved efficiency, safety and climate resilient; and (b) a socially-inclusive management and planning framework.</p>	<ol style="list-style-type: none"> 1. Savings in annual average vehicle operating costs (VOC): Baseline: \$0.0 mn (2016). Target: \$19.15 mn (2021). 2. Pavement Roughness (IRI) improved. Baseline 6 mm/m (2017). Target 2mm/m (2020) 3. Road scour and flooding eliminated (for a 1:20-year event): Baseline: No (December 2016). Target: Yes (December 31, 2020). 4. MWH's annual disbursement rate on externally-funded major infrastructure projects increased: Baseline: 1% (December 2016) Target: 30% (December 31, 2020). 5. 35% of MWH's road infrastructure projects incorporate Gender Equality Guidelines for Implementing Infrastructure Projects and universal design standards for persons with disabilities. Baseline: 0 (October 2016) Target: 35% (December 31, 2020). 	<ol style="list-style-type: none"> 1. Re-runs of Highway Design Management 4 (HDM-4). 2. MWH project implementation reports. 3. MWH Condition Assessment Surveys 4. Surveys of social inclusion policies in MWH projects. 5. Post disaster (heavy rainfall events) assessments. 	<ol style="list-style-type: none"> 1. Project infrastructure adequately maintained and efficiently operated. 2. Traffic surveys are carried out at periodic intervals and systematic records of survey results are maintained. 3. GOAB/MWH committed to implementing transport sector strategies and policies.

TABLE 2.1: DESIGN AND MONITORING FRAMEWORK (Cont'd)

Narrative Summary	Performance Indicators			Means of Verification	Assumptions
OUTPUTS: 1. Road infrastructure of AR, VRN, SWH and OPR rehabilitated and upgraded consistent with universal design standards for PWDs	1a. Kilometres of road rehabilitated/upgraded along AR: Baseline: 0 km. Target: 1.44 km (December 2018). 1b. Kilometres of road rehabilitated/upgraded along VRN: Baseline: 0 km Target: 9.45 km (July 2019). 1c. Kilometres of road rehabilitated/upgraded along SWH: Baseline: 0 km Target: 14 km (September 30, 2020). 1d. Kilometres of road rehabilitated/upgraded along OPR: Baseline: 0 km Target: 2.9km (February 28, 2019).			1. Consultant’s Supervision Reports. 2. Consultant’s Reports. 3. Engineering Consultant’s PCR.	GOAB counterpart contribution available.
2. Technical Assistance: (a) Road Sector Development Masterplan (RSDM) (b) Social and gender capacity-building training delivered to MWH and other Government agencies, contractors and construction workers. (c) Development of a Gender-responsive Road Safety Awareness Communication Strategy.	2a. RSDM Final Report Produced. Baseline: No. Target: March, 2019 2b. Four technical staff trained in project management and contract administration. Baseline: No. Target: 4 (December 31, 2020) 2c. Number of Quarterly Progress Reports Produced. Baseline: No. Target: Eight quarterly progress reports produced (December 2020). 2d. Number of Social and Gender Sensitisation Training Participants: Baseline: 0 (October 2016). Target: MWH and other agencies - 40; contractors - 10; and construction workers - 40 (December 31, 2018) 2e. Development and implementation of a Gender-responsive Road Safety Awareness Communication Strategy. Baseline: 0 (January 2017). Target: 1 (December 31, 2020).			1. Consultant’s Report. 2. Consultants’ Reports, and Annual Reports and Strategic Plans for MWH.	GOAB/MWH implements the recommended Gender Equality Guidelines for Implementing Infrastructure Projects.
ACTIVITIES/INPUTS	CDB ('000)				
	Loan (OCR)	GOAB	Total		
1. Land Acquisition	90,435	41,569	132,004		
2. Road Rehabilitation and Upgrade Works					
3. Technical Assistance:					
4. Engineering Services					
5. Project Management	7,448	3,701	11,149		
Sub-Total	97,883	45,270	143,153		
6. Contingencies	25,936	8,105	34,041		
7. IDC* and Commitment Fees					
Total Project Cost	123,819	53,375	177,194		

*IDC – Interest During Construction

TABLE 2.2: RESULTS MONITORING FRAMEWORK

Project Outcome Indicators	Baseline 2017	Year 1	Year 2	Year 3	Year 4	Report and Frequency	Responsibility for Data Collection
1. Vehicle Operating Cost (VOC) (\$ mm/km)	-	-	\$9.06 mn	\$9.30 mn	\$19.15mn	Annually from 2020	MWH
2. Pavement roughness (IRI)	6mm/m	-	4mm/m	2mm/m	2mm/m	Annually from 2020	MWH
3. Reduction of flooding (%)	-	0	-	50	80	Annually from 2020	MWH
Project Output Indicators:							
Component 1: Infrastructure Works:							
1. Final designs, road rehabilitation and upgrade of 14 km of SWH	0	-	40	80	100	Progress Reports	PC
2. Final designs, road rehabilitation and upgrade of 1.44 km of AR	0	-	80	100		Progress Reports	PC
3. Final designs, road rehabilitation and upgrade of 9.45 km of VRN	0	-	50	100		Progress Reports	PC
4. Final designs, road rehabilitation and upgrade of 2.9 km of OPR	0	-	60	100		Progress Reports	PC
Component 2: PIMU							
1. Establishment of Project Implementation Management Unit	0	100				Progress Reports	PC
Project Intermediate Outcomes:							
Targets achieved for:							
1. Development and implementation of a Gender-Responsive Road Safety Awareness Communication Strategy.	0		1			Consultant's Report, Annual Reports and Strategic Plans for MWH	MWH
2. 40 MWH and other government partners complete social and gender capacity-building training by December 31, 2018	0	40				Consultant's Report	MWH
3. 10 contractors complete social and gender capacity-building training by December 31, 2018	0	10				Consultant's Report	MWH
4. 40 construction workers (at least 10% women) complete social and gender capacity-building training by December 31, 2018	0	20 (minimum 10% women)	20 (minimum 10% women)			Consultant's Report	MWH

LESSONS LEARNED

2.03 The project design has been informed by lessons drawn from the experience of CDB and other development partners in the implementation of road infrastructure rehabilitation projects. These are summarised in Table 2.3.

TABLE 2.3: LESSONS INCORPORATED INTO PROJECT DESIGN

Lesson No.	Description	Project Response
1.	Form of Contract: the form of contract can be an effective way to allocate implementation risks.	Due to the complexities of the implementation of the contracts, the “design-build” approach has been applied in this project to mitigate contractor claims.
2.	Integration of Social Inclusion and Gender Equality: Approaches that boost the social inclusion and gender equality impact of road infrastructure investments improve effectiveness.	Mainstreaming Gender Equality and PWDs: has been integrated into the project design and provisions made for in the construction documents.
3.	Project management efficiency: Separate project-specific project management units become inefficient when one implementing agency is involved in implementing multiple projects.	Combined Project Management Unit: For effective and efficient transfer of knowledge and capacity building of MWH the various CDB-funded projects will be managed under one unit, with key support staff such as Project Engineers and Technicians coming from within GOAB.
4.	Utilities: Timely relocation of utilities.	Utility Coordination: the movement of utilities needs to be coordinated well in advance of infrastructure works to ensure implementation delays are avoided. MWH. The MWH has obtained firm cost estimates from all the impacted utilities and will shortly commence with the relocation of the utilities.

3. FINANCING STRUCTURE AND COSTS

3.01 The total project cost is estimated at \$177.2 mn which will be financed with resources from CDB and GOAB. The proposed project will be executed under a design/build contract arrangement. Preliminary engineering designs and cost estimates for the road works were prepared by independent consultants and are consistent with what obtains for similar works in Antigua and Barbuda. CDB staff are satisfied that adequate contingencies have been provided to address unforeseen circumstances, including any incremental changes in design that may emanate from the CVA. A summary of the project cost is presented in Table 3.1. Further details are given in the Project Cost, Phasing and Financing Plan, which is presented at Appendix 3.1.

3.02 The proposed Project will be financed by:

- (a) a loan to GOAB from CDB's OCR resources of an amount not exceeding the equivalent of forty-five million, eight hundred and fifty-nine thousand dollars United States dollars (USD45,859,000) representing 70% of the project cost; and
- (b) counterpart funding of \$53,374,000, representing 30% of project costs, to finance land acquisition, utility relocation, and to partly finance road rehabilitation and upgrade works, capacity building, engineering services and project management and associated contingencies. Approximately 60% of this amount represents in-kind contribution in the form of identifiable taxes and assignment of existing staff to the proposed Project Management Unit. GOAB has provided assurances that adequate provisions by way of budgetary allocations have been made for funding the remainder of its counterpart contribution, which is not expected to present an undue fiscal burden as this amount is not required until year three of project implementation.

TABLE 3.1: SUMMARY OF PROJECT COST AND FINANCING
(\$'000)

Item		CDB-OCR	GOAB	TOTAL
1	Land Acquisition	90,435	41,569	132,004
2	Road Rehabilitation and Upgrade Works			
3	Technical Assistance			
4	Engineering Services	7,448	3,701	11,149
5	Project Management			
	Base Cost	97,883	45,270	143,153
6	Physical Contingencies ^{1/}	25,936	8,105	34,040
7	Price Contingencies ^{2/}			
8	Interest During Construction (IDC)			
9	Commitment Fees			
	Total Project Cost	123,819	53,375	177,193
	US Dollar Equivalent	45,859	19,768	65,627
	Percentage Allocation	70%	30%	100%

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

3.03 The loan will be repayable over 17 years inclusive of a grace period of three (3) years at a variable interest rate, currently, 3.3% p.a. In addition, a commitment charge of 1% is payable on the undisbursed balance of the loan commencing on the 60th day after the date of signing of the Loan Agreement.

4. PROJECT VIABILITY

TECHNICAL ANALYSIS

4.01 The Feasibility Study informed the completion of the preliminary engineering designs, cost estimates, specifications and the Design-Build Bid Documents. The preliminary designs and recommended improvements have been based on: present and projected capacity and demand requirements, with a design life of 20 years; utilisation of the existing horizontal and vertical alignment, except in special circumstances; keeping, as far as possible, any improvement works within the road right-of-way; minimising land acquisition; improving vehicle and pedestrian safety; and incorporating structurally sound existing drainage elements (that meet design capacity) into new alignment works.

4.02 Geotechnical investigation results confirmed that there are significant levels of failure of the asphalt layer. The results of the Traffic Survey and the Roadway Investigations and Testing Programme were utilised to arrive at the required pavement design for the four corridors. The preliminary design guidelines recommended by the Feasibility Study Consultant for the proposed road upgrade works have been informed by international standards acceptable to CDB.

4.03 An HDM-4 analysis was conducted on two possible upgrade alternatives to determine the Least Cost methodology to achieve a useful design life of 20 years, as compared to a Base Alternative of solely undertaking periodic maintenance over the same period. The Improvement Options comprised: Option 1: “Do minimum”, which assumed that current maintenance practices and spending would continue; Option 2: overlaying the existing carriageway with a layer of asphalt and cleaning of existing drains; and Option 3: adding an aggregate base-course then overlaying with asphalt and reconstructing the drainage. The Least Cost alternative was determined to be Improvement Option 3 for the four corridors. The Feasibility Study Consultants concluded that the benefits of selecting Option 3 include: (a) significantly slower rate of deterioration; (b) higher structural number¹⁰ for the pavement; (c) fewer maintenance interventions; and (d) significantly lower road user costs over the road’s design life.

4.04 Decisions on retaining, rehabilitating, improving or replacing existing drainage elements were made after consideration of both structural adequacy and hydraulic capacity. The structural adequacy of the infrastructure was informed through a combination of field observations and measurements, construction assumptions, and engineering experience. Proposed drainage improvement works for the corridor consist of roadside drains (rehabilitated and new-build) and culvert crossings of varying sizes, which will improve the climate resilience of the project.

4.05 Construction and operation of the proposed roads can be potentially impacted by flooding and rock-fall hazards. The mitigation of identified potential natural hazard impacts, will be addressed through design and construction management considerations and routine monitoring. A preliminary CVA using climate impact scenarios aligned to estimated climate projections for Antigua and Barbuda was completed under the Feasibility Study. However, it will be a requirement of the supervisory consultant to complete a full CVA which will further inform the design specifications of the design-build bid documents.

¹⁰ a structural number SN that is used as a measure of the ability of the pavement to withstand anticipated axle loads

4.06 A Road safety audit of the final designs will be completed by the Design-Build Contractor and reviewed by the Supervisory Consultant. Preliminary designs and specifications included the reduction of the road safety risks to all road users, vehicular as well as pedestrian. There will be: new sidewalks; edge of road drop-off improvements through upstands and guardrails; edge of drain vertical drops demarcated by kerb upstands; wider carriageways; improved horizontal visibility for road users; improved pedestrian crossing markings in all areas, including school zones; road lining and warning signage; implementation of universal design criteria/standards to guarantee access for PWDs; and junction improvements.

4.07 The project therefore incorporates universal design to accommodate PWDs; provides social and gender capacity building of ministries, contractors and construction workers; and strengthens gender-responsive road safety awareness. Such inclusive approaches will contribute to the implementation of the *National Medium-Term Development Strategy 2016 – 2020*, National Youth Policy, Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), Convention on the Prevention, Punishment, and Eradication of Violence against Women (Belém do Pará), and the Convention on the Rights of Persons with Disabilities (CRPD). The rehabilitated transportation network will improve access to social services as well as economic activities including employment spinoffs, necessary to support poverty reduction and the Sustainable Development Goals.

ECONOMIC ANALYSIS

Economic Impact

4.08 The economic analysis of the Project focuses on the main quantifiable benefits associated with the road improvements, consisting of savings in maintenance and VOC and reduced travel time costs incurred by road users due to the provision of a better road facility. The benefits from improvement in the climate resilience of the project roads have largely been considered as a co-benefit of the design option selected. Potential road safety improvements benefits have been excluded from the analyses due to a paucity of data related to traffic crashes by road type, location and road condition. This omission is unlikely to have a material impact on the findings of the economic analyses given the generally low level of road traffic accident fatalities and serious injuries on the island.

4.09 The analysis was carried out using HDM-4. The outputs of the Feasibility Study provided the required input data, and the road project has been evaluated based on the current traffic and cost assessment. Overall, the project will contribute to improved road transport connectivity in Antigua and Barbuda through reconstructing and rehabilitating approximately 27.76 km of major urban and peri-urban roads to all weather standards, through provision of proper drainage and the increased capacity of culverts. All-weather roads will provide all-year access to social and commercial services and significantly reduce VOCs. Other benefits will include: reduced congestion; better riding quality, and safer roads; improved access for PWDs, resulting in reduced travel time. Without the project, the road capacity will be reached in the next five years and speeds will be drastically reduced. Road deterioration will also accelerate as a consequence of higher traffic volumes in the future.

4.10 The project roads form part of the major road network in Antigua and are critical to the long-term economic viability of the island. These roads directly and indirectly serve 79% of households nationally or approximately 76% of the total population of Antigua and Barbuda. VRN runs from the southern edge of the town of St. John's urban area through key tourism infrastructure, and is the primary arterial route between St. John's and the Southwest of Antigua. The 2.87 km section of OPR under the Project, is an urban road from the edge of St. John's town centre to the Sir George Walter Highway, which connects to the international airport. This road is particularly susceptible to flooding and damage from poor drainage provision. AR is also an urban corridor providing access to several large hotels and prime residential areas. The road does not have substantial gradients and is also prone to damage from flooding. SWH is an arterial route connecting the outskirts of St. John's with the east of Antigua. These roads will undergo full

rehabilitation, including repair of the road sub-base, replacement of pavement with higher quality works and provision of adequate drainage. The resultant capacity augmentation of the selected roads will cater for anticipated increase in traffic volumes for the next 20 years.

4.11 The analysis assumed three broad options for road treatment as discussed at paragraph 4.03. For all project roads, Option 3, the full rehabilitation option, yields superior results even if it entailed significantly higher upfront costs.

4.12 The results of the economic analysis for the four roads combined are shown in Appendix 4.1 and are based on the assumptions at Appendix 4.2. The analysis yielded an Economic Rate of Return (ERR) of 22.3%, nearly twice CDB's cut off rate of 12 %, and a net present value (NPV) of \$94.9 mn. These results indicate that the proposed improvements to the selected project roads is economically viable. Further, such returns are not atypical for urban roads, which are expected to have traffic volumes that are significantly above the average for the overall road network. Current traffic volumes of the four roads together account for 55% of the Average Annual Daily Traffic (AADT) on the primary road network on the island. In addition, GOAB is expected save between 60% and 70% of its current expenditure on annual road maintenance on the project roads. Thus, it is reasonable to expect that funds will be available to meet incremental recurrent costs associated with the project, thereby ensuring its long-term financial sustainability.

4.13 The results of sensitivity tests, focusing on key variables most likely to impact the achievement of project benefits, are summarised in Table 4.1 below. In all scenarios, the ERR exceeds the 12% cut-off rate. Even in the scenario where the project benefits are tested against a combination of increased project costs and a reduction in VOC and travel time costs savings, the ERR remains satisfactory at 15.2%. Further, the switching values suggest that the investment cost would have to exceed estimates by more than 85% or VOC and time savings decline by at least 55% for the proposed project to become unviable. In the extreme case, assuming that no time benefits are realised, the project yielded an ERR of 13.3%. Given the critical role played by these roads, such a scenario is most unlikely. The results indicate that even in the most conservative scenarios the project remains economically viable.

TABLE 4.1: SENSITIVITY ANALYSIS

Sensitivity Variables	NPV (\$ mn)	ERR (%)	Switching Value
Base Case	94.9	22.3	-
1. Investment Cost increase by 20%	73.7	18.9	>85%
2. VOC and Travel Time Savings reduced by 20%	52.8	18.1	55%
3. A combination of (1) and (2)	31.6	15.2	-
4. No Time Savings Benefits	10.4	13.3	-

ENVIRONMENTAL AND SOCIAL ANALYSIS, RISKS AND SAFEGUARDS

4.14 The project has been assigned Category B, in accordance with CDB's Environmental and Social Review Procedures (ESRP). This implies that the project is not expected to have any significant or irreversible environmental impacts, and those anticipated are likely to be site-specific, mostly temporary and largely confined to the construction stage. These impacts are easily mitigated using "best practice" methods and adequate implementation of environmental mitigation measures. An environmental and social impact assessment (ESIA) including a Draft Environmental and Social Management Plan (ESMP) was prepared by engineering consultants.

4.15 The proposed civil works will consist mainly of road rehabilitation within existing areas of right-of-way, however, GOAB may have to acquire small areas of private lands for road expansion. It

will be a condition precedent to first disbursement with respect to the construction component of each design-build contract that GOAB acquires the land required for the project or, alternately, make arrangements that are satisfactory to CDB for entry into possession of such lands for the purposes of the infrastructure works contract and that GOAB has received all requisite statutory, planning, building and environmental permits, licenses and/or other approvals in respect of the infrastructure works contract.

4.16 The Draft ESMP includes recommendations for mitigation measures to address construction and operational-related impacts, such as: noise and dust; sedimentation of the water courses adjacent to the roadway and reduced surface water quality; soil erosion; spoil and waste disposal; health and safety concerns; and traffic diversions.

4.17 The appropriate provisions of the Draft ESMP will be included in the technical specifications of the bid documents and itemised for contractor pricing of the requirements of the performance specifications in the bidding documents for the Works Contract. The tender documents will require that the Contractor provide a site-specific ESMP, including a grievance redress mechanism for implementation of the Works. During construction, the Environmental Monitoring Officer (EMO) will be required to monitor and report on the contractors' operations for conformance with the mitigation measures stipulated in the contract documents.

SOCIAL AND GENDER IMPACT

4.18 The residents of the project areas, the business community and road users are among the direct beneficiaries (see Appendix 1.2 for the Social Profile of Project Areas). The project will have positive social and gender impacts. The infrastructural enhancements will reduce the negative impacts on lives, property, livelihoods, and other losses attributed to poor road conditions. It will also improve access to social services as well as facilitate economic activities including short-term employment opportunities. Possible reduction in travel time and related time use, especially important for women as primary caregivers, are expected.

4.19 The project design will mitigate potential negative impacts identified during the participatory ESIA in the following key areas:

- (a) **Gender Equality:** An increased number of male workers in small communities can occasion several social and gender impacts. The project thus affords an entry point to address gender equality through gender sensitisation training of MWH and other partner ministries, contractors and construction workers to strengthen social relations among both sexes, and participation of women in key growth sectors of the economy using Gender Equality Guidelines for Implementing Infrastructure Projects and Training Materials developed under the UKCIF Project (see Appendix 4.3 for the TOR). The project is gender mainstreamed, scoring 3.25 on the Bank's Gender Marker (Appendix 4.4). It has the potential to contribute significantly to gender equality. A Gender Action Plan has been developed to monitor gender-specific project components (Appendix 4.5).
- (b) **Gender-responsive Road Safety Awareness:** Improved road surfaces encourage increased road use, and speeding with risks for accidents resulting in death, disability and injury, especially among male youth. Road safety awareness of the general public will be addressed through the development and implementation of a Gender-responsive Road Safety Awareness Communication Strategy (see Appendix 4.6 for the TOR). The Strategy will use community-driven strategies to target road users and at risk sub-groups such as youth, males, females, children, elderly and PWDs.

- (c) **Mainstreaming Disability:** Infrastructural inaccessibility, including roads and public transportation, limit participation of PWDs in all aspects of national development. The presence of 22 education facilities¹¹ underscore the relevance of implementing universal design criteria as part of the project design to accommodate physical access for PWDs.
- (d) The Draft ESMP in Appendix 4.7 identifies additional potential impacts during project implementation such as livelihood displacement of road side vendors, disruption of utilities, and traffic and safety management. The establishment of community participation groups (CPG) consisting of representatives of residents and businesses along the rehabilitated roads, as well as MWH, is important for stakeholder participation and ownership. The objectives of CPG are to: (i) keep communities informed on matters related to implementation; and (ii) facilitate reporting to MWH, on matters of concern to communities. An appointed community liaison officer (CLO) will coordinate CPG, as well as develop, implement and monitor a Stakeholder Participation Plan.

4.20 The contractor is required to establish a grievance redress mechanism (GRM) to receive and facilitate resolution of the affected communities/persons (AP) concerns and complaints about environmental and social performance that may arise during project implementation. GRM will be developed to respond to the scale and level of potential risks and adverse impacts identified in the project design and will use a transparent process that is gender-responsive and easily accessible to AP at no cost and without retribution. Redress by AP can also be sought through CDB's Projects Complaints Mechanism, which provides an additional, accessible way for individuals and communities to complain directly to CDB if they believe that a CDB-financed project had, or is likely to have, adverse environment and social effects on them or their community.

¹¹ Appendix 1.2 – Table 4

5. RISK ASSESSMENT AND MITIGATION

5.01 The main risks to the Project and proposed mitigation measures are presented in Table 5.1 below.

TABLE 5.1: RISK AND MITIGATION

Risks Type	Description	Mitigation Measure
Financial	Provision of adequate counterpart funding	Counterpart funding has been allocated as in-kind and identifiable tax contributions. Under the project implementation schedule the road infrastructure counterpart contribution component has been scheduled in year three to allow GOAB the requisite time to put such funding in place.
Implementation	Utility Implementation Delays and Cost Increases which could lead to overall increased costs of construction.	A Utility Coordination Committee has been established and is presently chaired by the Project Coordinator. PC will be supported by other technical staff of the PIMU who oversee the relocation and upgrade of utility services throughout project implementation.
	Inadequate Traffic Management could lead to increased congestion and reduced level of service to commuters.	An efficient traffic management plan to be implemented by the Contractor, supported by a communications strategy and a dynamic public relations campaign through the MWH, PRO.
	Land Acquisition	It is anticipated that minimal land acquisition will be required, namely for the setting back of boundary walls or fences. No resettlement or relocation is anticipated for the project. Laws of Antigua and Barbuda make provisions for the acquisition of privately-owned lands for a public purpose. ¹² GOAB will, within the coming weeks commence the Land Acquisition process.
Operation	Inadequate maintenance of the Project Infrastructure resulting in the reduced lifespan of the project.	GOAB will be required to provide CDB, on an annual basis, the Road Maintenance Programme Condition Assessment Report.

¹² Laws of Antigua and Barbuda. Land Acquisition CAP. 233. November 29, 1958

6. BORROWER, IMPLEMENTING AGENCY, PROJECT MANAGEMENT AND IMPLEMENTATION

GENERAL

6.01 The Borrower is GOAB and the Implementing Agency is MWH.

THE BORROWER

6.02 GOAB may, pursuant to Section 3(1) of the Loans (Caribbean Development Bank) Act (CAP. 252) 1992 Revised Edition of the Laws of Antigua and Barbuda, as amended [the Loans (CDB) Act], in such manner and on such terms and subject to such conditions as may be agreed with CDB, borrow, or guarantee the borrowing of, such sums from CDB as are required for the purpose of financing or promoting economic and social development in Antigua and Barbuda. An agreement between GOAB and CDB in respect of any amounts so borrowed must be made in the name of GOAB and may be signed on behalf of GOAB by the Minister responsible for Finance (the Minister) or by a person authorised thereto in writing by the Minister. A copy of the Agreement must be laid before the House of Representatives as soon as possible after it is concluded. All amounts required for the payment of any sums borrowed or guaranteed by GOAB under the authority of the Loans (CDB) Act, and the payment of all interest and other charges in respect of such sums, are charged upon and payable out of the Consolidated Fund.

IMPLEMENTING AGENCY

6.03 The Project will be implemented by MWH, through the proposed PIMU. A preliminary assessment of MWH conducted by CDB staff concluded that the organisational structure and technical capacity of MWH could not effectively support the efficient implementation of their present projects and those being funded and to be funded by CDB. The proposed PIMU is expected to streamline the project implementation and management functions within MWH, leading to improved efficiencies in project implementation. Further, within the proposed Road Sector Development Masterplan, there will be a requirement for the completion of an institutional assessment of the MWH as part of the overall Institutional Strengthening of the road sub-sector. The proposed assessment will assist MWH in reviewing its current organisational structure with a view towards improving its planning, technical design, project management, operations, maintenance capacity and thus long term sustainability. The intention being, that the output of this study will inform future restructuring of MWH.

PROJECT MANAGEMENT AND IMPLEMENTATION

Project Management

6.04 MWH, with the support of engineering consultants, will be responsible for planning and managing the Project. This project is the third of three major CDB-funded projects (the Road Infrastructure Rehabilitation Project – UKCIF (RIRP-UKCIF) being the first and the Street Light Retrofitting Project (SLRP) being the second) which MWH and Antigua Public Utility Authority (APUA) will be implementing concurrently (between 2017 and 2020). It will be a condition to disbursement of the Loan in respect of the infrastructure works that MWH establish and maintain a PIMU to manage the CDB-financed portfolio of projects. GOAB has agreed that the PC engaged under the RIRP-UKCIF will be engaged as the PC of the Unit. It will be a condition precedent to first disbursement of the loan that the PC be engaged. The method of procurement for the PC will be Single Source Selection (SSS), as allowed for under CDB procurement guidelines referenced in 6.10 below, which allows for a natural continuation and integration of the PC's functions and management of CDB's portfolio of projects.

6.05 The resources for the functioning of the PIMU will be provided under this Project, through the engagement of two PE, a Procurement Officer (PO), a Quantity Surveyor (QS), and a Community Liaison Officer (CLO). It will be a condition precedent to disbursement of the Loan in respect of the infrastructure works that the PEs, PO, QS and CLO have been engaged. PC shall report to the Director of MWH or his designate, and be primarily responsible for managing the implementation of the various components of CDB-financed projects. PEs will report to the PC. It will also be a condition precedent to the disbursement of the Loan in respect of the infrastructure works that GOAB appoint two Junior Engineers (JE) to the staff of the PIMU, and assign an Environmental Monitoring Officer (EMO), an Accountant/Accounting Officer (AO), an Administrative Assistant (AA), two Technicians and the Public Relations Officer (PRO) under the RIRP-UKCIF to the PIMU to support the implementation of the projects. The JEs will support the PEs during the preparation, implementation and supervision of the project activities of the PIMU and will report to the PEs or an officer designated by the PEs, and will be assigned exclusively to the CDB portfolio of projects being executed under the PIMU. The PRO will report to the PEs or an officer designated by the PEs and will be responsible for leading and managing visibility related activities-public relation, media and mass communications of CDB portfolio of projects being executed under the PIMU. The PRO will ensure that the projects of the PIMU and their impacts are properly documented and disseminated thereby improving the visibility and profile of the Projects being implemented under the PIMU. The responsibilities of PC are set out at Appendix 6.1. TORs for PEs, QS, CLO, EMO, AO and PO, are set out at Appendices 6.2 to 6.7, respectively, and the proposed budget for the PIMU is set out in Appendix 6.8. The proposed project management arrangements will benefit MWH, as it will encourage knowledge transfer between the project implementation professionals and MWH operational professionals.

6.06 It will be a condition precedent to disbursement with respect to the infrastructure works that GOAB, in accordance with the procurement procedures applicable to the Loan, select and engage engineering consultants, to undertake the engineering services, as specified in Appendix 6.9, during the implementation of the Project. In particular, the engineering consultants would be required to complete the CVA and supervise and certify the works to be completed by the Design-Build Contractor.

Implementation Schedule

6.07 The Project is projected to be implemented over a period of 40 months commencing from CDB's Board of Directors approval. Implementation of construction works is estimated to take 32 months, commencing by the final quarter of 2017. The Project Implementation Support Plan and the Project Implementation Schedule are set out in Appendix 6.10 and Appendix 6.11, respectively.

PARTICIPATION OF STAKEHOLDERS AND BENEFICIARIES

6.08 All of the major stakeholders and beneficiaries were involved during the Feasibility Study, and the appraisal process that informed the design of the project. Among the key issues identified during this consultation process, was the importance of effective coordination of the various utilities and timely dissemination of information to impacted community members. Consequently, Utilities Coordination Meetings have commenced prior to the construction phase and will continue during project implementation, apart from regular site meetings, to bring greater focus to utility-related issues under the Project. Land acquisition was another key issue identified and required GOAB commitment to the acquisition of the requisite lands prior to completing the Appraisal Report. Also, MWH will conduct several stakeholder meetings with impacted communities, establish formal CPGs¹³ and appoint a CLO as part of the PIMU to ensure efficient information transfer and that the communities' project related concerns are addressed. An EMO will be assigned from the Environment Division to the PIMU and in keeping with their TOR will participate in site meetings to ensure that the project implementation process and activities occur in accordance with national legislation and regulations.

¹³ Section 4.19 (Social and Gender Impact) describes the CPGs' functions and the CLO's role (See Appendix 6.4 for the CLO's TOR).

DISBURSEMENT

6.09 Disbursement of the CDB Loan will be made in accordance with CDB's Guidelines for the Withdrawal of Loan Proceeds. It is expected that the first disbursement of the Loan will be made by September 30, 2017. The Loan is expected to be fully disbursed by September 30, 2020. An Estimated Quarterly Loan Disbursement Schedule is presented at Appendix 6.12.

PROCUREMENT

6.10 Procurement of engineering and consultancy services shall be in accordance with CDB's Guidelines for the Selection and Engagement of Consultants by Recipients of CDB Financing (October 2011). The PC shall be contracted using the SSS method to reflect the natural continuation of their existing functions from the TA that informed this project, as allowed for under paragraph 3.9 (a) of CDB's aforementioned procurement guidelines. Contracts for capital works to be financed by the CDB Loan will be procured in accordance with CDB's Guidelines for Procurement (January 2006). The Procurement Plan is provided at Appendix 6.13.

MONITORING AND REPORTING

6.11 It will be a condition of the Loan that GOAB shall furnish, or cause to be furnished to CDB, the reports listed in Appendix 6.14 of this Report, in such form or forms as CDB may require, not later than the times specified therein for so doing.

PERFORMANCE EVALUATION RATING

6.12 The composite performance rating based on CDB's Project Performance Evaluation (PPE) has been estimated at 6.0. This is a 'highly satisfactory' rating, which suggests that there is a good probability that the Project will achieve its objectives. The details of PPE are presented in Table 6.1.

MAINTENANCE

6.13 It will be a condition of the Loan that GOAB adequately maintain the road, infrastructure and equipment financed under the project. Commencing in 2020, not later than December 31 in each year, for seven years, GOAB will provide CDB with MWH Road Division's Road Maintenance Programme Condition Assessment Report, setting out the cost of maintenance for the project infrastructure. GOAB shall provide the resources required for the maintenance of the project infrastructure in accordance with the funding indicated in the Road Maintenance Management System Report.

SUSTAINABILITY AND RISKS

6.14 Sustainability of the Project will depend on the following:

- (a) GOAB's provision of adequate resources to undertake planned maintenance of the project infrastructure; and
- (b) the commitment of GOAB to implement recommended measures of the Road Sector Development Masterplan to ensure sustainability and efficiency.

TABLE 6.1: PROJECT PERFORMANCE EVALUATION

Criteria	Score	Justification
Strategic Relevance	7.0	The project contributes significantly to the achievement of GOAB's development objectives by supporting its high priority policy objectives of improving the road sub-sector and more specifically the mobility, accessibility, road safety and natural hazard resilience of the road sub-sector.
Poverty Relevance	5.0	The project is expected to make a satisfactory contribution to poverty reduction through improved mobility and accessibility, road safety CC and resilience improvements.
Efficacy	6.0	The project is highly likely to achieve its objectives to reduce traffic congestion; maintain evacuation route security; and improve road safety and CC resilience. Further, the RSDM will provide "a blueprint" for the country's long-term development of the road sub-sector, which is in line with the economic growth strategy. There is high-level support within MWH to incorporate gender-responsiveness into their projects and processes.
Cost Efficiency	7.0	The estimated NPV for the Road Infrastructure Rehabilitation component of the project is \$94.9 mn and ERR is 22.3%. Such high returns are associated with the high traffic volumes. Likewise the RSDM is expected to provide a long-term framework for road sub-sector infrastructure development linked to the country's development strategy. It will, therefore: <ul style="list-style-type: none"> (a) be a safeguarding tool against ad-hoc investments in often irrelevant projects; (b) enable GOAB to plan investments in infrastructure for years ahead; and (c) enhance the awareness of CC impact on the infrastructure and cost implications related to incorporation of mitigation and adaptation measures.
Institutional Development Impact	5.0	The project is expected to make a significant contribution towards improving MWH's capability to implement gender-responsive projects. Participation in the completion of the RSDM through support and management of Consultants is expected to contribute to long-term institutional capacity enhancement in the relevant departments of the Ministries and MWH.
Sustainability	6.0	The proposed works will incorporate CC considerations into their design. There is strong stakeholder support for the project. Completion of the RSDM will provide a reference and focus in decision making, regarding justified investment priorities in the road sub-sector of Antigua and Barbuda.
Composite Score	6.0	Highly Satisfactory

7. TERMS AND CONDITIONS

7.01 It is recommended that CDB lend to GOAB an amount not exceeding the equivalent of forty-five million, eight hundred and fifty-nine thousand United States dollars (USD45,859,000) (the Loan) from CDB's OCR to assist GOAB in financing the rehabilitation and upgrading of 27.76 km of existing road corridors, inclusive of associated drainage works and structures (the Road Rehabilitation and Upgrade Works) and technical assistance to enhance GOAB's capacity to strategically improve planning, efficiency, social inclusion, climate resilience, and management of the road infrastructure in Antigua and Barbuda (the Project) on CDB's standard terms and conditions and on the following terms and conditions:

- (1) **Repayment:** Repayment of the Loan shall be made in fifty-six (56) equal or approximately equal and consecutive quarterly instalments commencing three (3) years after the date of the Loan Agreement.
- (2) **Interest:** Interest shall be payable quarterly at the rate of three decimal three percent (3.3%) p.a. (variable) on the amount of the Loan withdrawn and outstanding from time to time.
- (3) **Commitment Charge:** A commitment charge at the rate of one percent (1%) p.a. shall be payable on the amount of the Loan unwithdrawn from time to time. Such charge shall accrue from the sixtieth (60th) day after the date of the Loan Agreement and shall be payable quarterly.
- (4) **Disbursement:**
 - (a) The first disbursement of the Loan shall be made by September 30, 2017 and the Loan shall be fully disbursed by September 30, 2020, or such later dates as CDB may specify in writing.
 - (b) Except as CDB may otherwise agree:
 - (i) the Loan shall be used to finance the components of the Project allocated for financing by CDB as shown in the Project Cost, Phasing and Financing Plan for the Project at Appendix 3.1 (Financing Plan) up to the respective limits specified therein; and
 - (ii) total disbursements of the Loan shall not exceed in the aggregate seventy percent (70%) of the cost of the Project.
 - (c) The Loan shall not be used to meet any part of the cost of the Project which consists of identifiable taxes and duties.
- (5) **Procurement:**
 - (a) Procurement shall be in accordance with the procedures set out and/or referred to in the Loan Agreement between CDB and GOAB, or such other procedures as CDB may from time to time specify in writing.
 - (b) The Procurement Plan approved by CDB is set out at Appendix 6.13. Any revisions to the Procurement Plan shall require CDB's prior approval in writing.

(6) **Condition Precedent to First Disbursement of Loan:**

The PC referred to in sub-paragraph 9(b)(v)(aa) shall have been engaged.

(7) **Conditions Precedent to Disbursement in respect of the Road Rehabilitation and Upgrade Works:**

- (a) PIMU referred to in sub-paragraph 9(b)(iv) shall have been established.
- (b) PEs, PO, QS and CLO referred to in sub-paragraphs 9(b)(v)(bb), (cc), (dd) and (ee) respectively shall have been engaged.
- (c) JEs referred to in sub-paragraph 9(b)(vi) shall have been appointed.
- (d) EMO, AA, AO, Technicians and PRO referred to in sub-paragraph 9(b)(vii) shall have been assigned.
- (e) Construction supervision engineers referred to in sub-paragraph 9(b)(viii)(aa) shall have been engaged.

(8) **Conditions Precedent to Disbursement in respect of the Construction Component of each Road Rehabilitation and Upgrade Works Contract:**

CDB shall not be obliged to disburse any amount in respect of the construction component of any Infrastructure Works contract until:

- (a) CDB shall be satisfied that GOAB has received all requisite statutory, planning, building and environmental permits, licenses and/or other approvals in respect of the Road Rehabilitation and Upgrade Works contract; and
- (b) lands required for the Road Rehabilitation and Upgrade Works are vested in GOAB free from all encumbrances and without covenants, stipulations or conditions which may adversely affect the Project, or alternatively that GOAB has made arrangements satisfactory to CDB to enter into possession of or acquire the relevant rights over such lands for the purposes of the Project.

(9) **Other Conditions:**

- (a) Except as CDB may otherwise agree, the Project shall be implemented by MWH through PIMU.
- (b) GOAB shall:
 - (i) contribute to the Project an amount of not less than fifty-three million, three hundred and seventy-four thousand dollars (\$53,374,000) which shall be expended on a timely basis on the components of the Project allocated for financing by GOAB as shown in the Financing Plan, unless CDB shall otherwise specify in writing;
 - (ii) carry out the Project at all times with due diligence and efficiency, with management personnel whose qualifications and experience are acceptable to CDB, and in accordance with sound technical,

environmental, administrative, financial and managerial standards and practices;

- (iii) institute and maintain organisational, administrative, accounting and auditing arrangements for the Project, acceptable to CDB;
- (iv) establish and, for the duration of the Project, maintain a PIMU which shall: be responsible for the planning and management of Project activities, with the composition and functions set out in paragraph 6.05 of this Report;
- (v) in accordance with the procurement procedures applicable to the Loan, select and engage:
 - (aa) the Project Coordinator engaged under the RIRP-UKCIF as PC of the PIMU, with the duties and responsibilities set out in the TOR at Appendix 6.1. PC shall report to the Director of MWH or his designate, and be primarily responsible for managing the implementation of the various components of CDB-financed projects;
 - (bb) two (2) PEs to provide the services set out in the TOR at Appendix 6.2. PEs shall report to the PC;
 - (cc) a PO to provide the services set out in the TOR at Appendix 6.7;
 - (dd) a QS to provide the services set out in the TOR at Appendix 6.3; and
 - (ee) a CLO to provide the services set out in the TOR at Appendix 6.4;
- (vi) appoint two (2) JEs, with qualifications and experience acceptable to CDB, to support the PEs during the preparation, implementation and supervision of the project activities of the PIMU. The JEs shall report to the PEs or an officer designated by the PEs, and will be assigned exclusively to the CDB portfolio of projects being executed under the PIMU. The qualifications and experience of any person subsequently appointed to the position of JE shall be acceptable to CDB;
- (vii) assign to, and for the duration of the Project maintain in, the service of the PIMU:
 - (aa) an EMO with qualifications and experience acceptable to CDB with the duties and responsibilities set out in Appendix 6.5.;
 - (bb) an AA with qualifications and experience acceptable to CDB to provide administrative assistance to the PIMU;
 - (cc) an AO with qualifications and experience acceptable to CDB with the duties and responsibilities set out in Appendix 6.6;

- (dd) two (2) Technicians with qualifications and experience acceptable to CDB to provide technical assistance to the PIMU; and
- (ee) the Public Relations Officer under the RIRP-UKCIF to be the PRO for the PIMU. The PRO shall report to the PEs or an officer designated by the PEs and shall be responsible for leading and managing visibility-related activities public relations, media and mass communications of CDB portfolio of projects being executed under the PIMU. The PRO shall ensure that the projects of the PIMU and their impacts are properly documented and disseminated thereby improving the visibility and profile of the projects being implemented under the PIMU.

The qualifications and experience of any person subsequently appointed to the position of EMO, AO, AA, PRO or Technician shall be acceptable to CDB; and

- (viii) in accordance with the procurement procedures applicable to the Loan, select and engage:
 - (aa) construction supervision engineers to provide the services set out in the TOR at Appendix 6.9;
 - (bb) contractors to carry out the Rehabilitation and Upgrade Works under the Project; and
 - (cc) consultants to prepare a Road Sector Development Masterplan in accordance with the TOR at Appendix 1.5;
 - (dd) consultants to provide social and gender capacity-building training for the MWH and other agencies of GOAB, road contractors' and construction workers' in accordance with the TOR at Appendix 4.3; and
 - (ee) consultants for the development and implementation of a community-driven and gender-responsive Road Safety Awareness Communication Strategy in accordance with the TOR at Appendix 4.6;
- (ix) within a time frame acceptable to CDB implement such of the recommendations arising out of the Road Sector Development Masterplan and the Road Safety Awareness Communication Strategy as may be acceptable to CDB;
- (x) keep the roads, works and other infrastructure financed under the Project, or cause the same to be kept, in good repair and condition and shall provide the financial and other resources required to adequately maintain the infrastructure financed from the Loan;
- (xi) commencing in 2020, no later than December 31 in each year, for seven years, provide CDB with MWH Road Division's Road Maintenance

Programme Condition Assessment Report, setting out the cost of maintenance for the Project infrastructure and shall provide the resources required for the maintenance of the Project infrastructure in accordance with the funding indicated in the Road Maintenance Management System Report; and

- (xii) except as CDB may otherwise agree, furnish or cause to be furnished to CDB, the reports listed in Appendix 6.14 in the forms specified or in such form or forms as CDB may require, not later than the times/periods specified therein for so doing.

MACROECONOMIC CONTEXT

1.01 The economy of Antigua and Barbuda has grown on average, by 4.4% over the past three years, 2014 to 2016. Growth in 2016 is estimated at 4.4 %, an improvement from 4.1 % in 2015 and 4.6% in 2014. This is buoyed by strong performance in construction, wholesale and retail and tourism sectors in 2016. Notwithstanding, activity in public administration and defence, and manufacturing is expected to be weakened.

1.02 Stay-over tourist arrivals in 2016 increased by 5.9%. The strongest performance was recorded from the US market (14.8%) while arrivals from Canada fell by 8.9% and Europe fell marginally by 0.3%. The improvement from the US market is due in part to the additional airlift from JetBlue Airways. This is supported by increased air access following the completion of the airport expansion particularly from the US, Europe and the Caribbean. Cruise arrivals fell by 5.6% in 2016 notwithstanding the re-commissioning of the Heritage Quay pier and the dredging of the harbour which was completed in time to facilitate a number of inaugural calls including that of Carnival Vista from the Royal Caribbean Cruise Line and the Anthem of the Seas. Visitor expenditure is estimated to have grown by 7.7% for the period January to June of 2016. Construction activity grew by 12% in 2016, due to increased public and private sector activity. Some key private sector projects including Tamarind Heights, Pearn's, and Hodges Bay contributed in turn to this outturn. Public sector construction also estimated with activities in the housing sector and the cruise ship pier project contributed to an increase in importation of construction materials of 7.5% between January and September 2016 with a 14.8% increase in cement imports.

1.03 Inflation recorded as of September 2016 fell to -0.7% compared to 0.9% over the same period in 2015. This is attributed mainly, to declines in the energy sub index as the price of gasoline declined by 7.4 % from \$13.50 to \$12.50 over the period. The fuel and light index also declined by 14.5%. Overall inflation is expected to remain below 1.0 % in 2016.

1.04 An underlying primary surplus of 1.9% of GDP is estimated for 2016, compared to 1.1% in 2015. This improvement however, includes a one-off revenue windfall from forfeiture funds of USD67 mn (4.5% of GDP). The primary balance, excluding CIP receipts and one-off items (the forfeiture funds), is a deficit of 2.7% of GDP. This reflects the effects of an abolished Personal Income Tax in June 2016. This loss in revenue was expected to be met with the introduction of two new taxes; the Unincorporated Business Tax and the Tax on International Financial Services Sector however, due to the delayed implementation of these measures, the revenue intake for 2016 is significantly lower than budgeted.

1.05 Significantly higher capital expenditure, transfers to state-owned enterprises and spending on goods and services are also estimated for 2016. As of December 2016, CIP Unit surplus transfers to the budget amounted to \$25.1m. Public debt is projected to decline to 93.6% of GDP¹ at end-2016.

1.06 Broad monetary liabilities grew by 2.6% during the first nine months of 2016 with a 9.5% increase in broad money (M1) and a 0.6 % decline in quasi money (M2). Domestic credit grew by 2.0%, albeit slow, reflecting general weaknesses in the financial sector and tighter credit controls as well as the impact of AML/CFT on the banking sector. Private sector credit which accounts for 84.0% of total commercial lending grew by 0.9% to \$1,926.8 m. Net credit to central government to central government grew by 7.6% to 360.9 m. The slowdown in lending to the private sector was reflected in the general drop in credit to most productive economic categories, except tourism and agriculture which grew by 50.4 and 14.4%, respectively. Personal lending grew marginally by 0.9%. Net foreign assets fell by 7.1%

¹ This includes arrears and SOE debt as computed by the IMF under the Article IV mission. Government estimates project Debt to GDP of 76.6 percent.

reflecting a 14.3% increase in Central Bank assets and a 43.5% decline in Commercial Banks assets. The loans and advances to total deposits ratio rose to 70.6 per cent at the end of September 2016 from 68.6 per cent at the end of December 2015, below the ECCB's benchmark of 75.0 - 85.0%. During the first nine months of 2016, Antigua and Barbuda's share of the imputed reserves at the Central Bank rose by 14.3 per cent to \$1,096.9 mn.

1.07 The balance on the current account is expected to remain relatively unchanged, reflecting lower prices of oil imports and increased import demand due to increased activity both in construction and tourism.

1.08 Growth is projected to moderate to 3.2% in 2017, albeit with some downside risks, which continue to affect general economic activity. The outlook is contingent on global growth projections, particularly in the key tourism markets, and strong construction activity related to infrastructural projects in the port, pier and housing and road projects. The downside risks to the commencement of some key tourism and infrastructural projects are related to capacity constraints. Notwithstanding, financing for the pier and part of the road projects have been identified. Tourism will be contingent on developments related to airlift and intense marketing of the destination.

1.09 Macroeconomic stability remain key priorities for GOAB. The outlook for Antigua and Barbuda is cautiously optimistic as the GOAB embarks on critical infrastructure development. In the short to medium term, an increase in construction activity is envisioned with a positive impact on other related sub-sectors including wholesale and retail and transportation. Some of the key projects in the pipeline are expected to significantly improve the overall attractiveness and competitiveness of Antigua and Barbuda specifically in the area of roads and ports. GOAB remains committed to securing fiscal and debt sustainability and meeting the public sector debt target of 60% by 2030 in accordance with the Eastern Caribbean Currency Union target. Key reforms in the areas of Public Financial Management with assistance from the Commonwealth Secretariat and the IMF Fiscal Affairs department and the enactment of an updated Tax Administration Procedures Act are expected to commence shortly.

1.10 The fundamentals for long-term sustainable economic growth are also related to enhancing competitiveness and productivity. Key reforms to the doing business environment are required in order to unlock the potential growth of Antigua and Barbuda. The business environment should be prioritised for a more transparent and flexible business climate by improving public sector efficiency and transparency cutting bureaucratic uncertainty, and enhancing key IT infrastructure. These should be tied to trade facilitation measures to help reduce the overall cost of doing business while addressing critical deficiencies in the provision of reliable and competitively priced electricity, water and communications. Other key areas are related to labour market deficiencies and the current skills gap as well as labour market rigidities. These will, if pursued along with the planned infrastructural development projects, contribute to enhancing the overall attractiveness and competitiveness of the destination.

1.11 Downside risks are, slower than anticipated global growth, continued geopolitical tensions, natural disasters and climate related events and lower than anticipated CIP receipts.

MACROSOCIAL CONTEXT AND PROFILE OF THE PROJECT AREAS**MACROSOCIAL CONTEXT****Population and Demography**

1. The country of Antigua and Barbuda consists of the islands of Antigua, Barbuda, and uninhabited Redonda. It has a total area of approximately 440km² with Antigua measuring 280 km², Barbuda 160 km², and Redonda 1.6 km². The country's population (2011 Census) is 88,411, of which 42,565 are males and 45,846 females¹. A total of 86,560 reside on Antigua and 1,851 on Barbuda, with population density of about 300 persons per km² on Antigua and about 12 persons per km² on Barbuda. The 2011 Population and Housing Census indicates significant population increase in the last 2 intercensal periods. On average, the population grew by about 4% per annum between the 1991 and 2011. The increased population is due to reduced death rates and high immigration. The population, while still relatively young is also aging. Improvements in health and sanitation services and overall quality of life have contributed to increased life expectancy at birth and as a consequence, an increased proportion of older persons in the population.

Poverty and Human Development

2. Antigua and Barbuda registered a Human Development Index (HDI)² value of 0.783 in 2014, and was ranked in the high human development category. This positioned the country at 58 out of 188 countries and is above the HDI averages for countries in the high human development group, and countries in Latin America and the Caribbean (0.744 and 0.748 respectively). The HDI for 2014 also indicates steady increase from 0.774 in 2013, and 0.760 in 2012. Despite improvements in quality of life over the years, issues of poverty, social vulnerability and the ability of the poor to sustainably improve their wellbeing remain.

3. The latest available data (2006) shows that 18.0% of the population is poor, 3.7% indigent and 10% vulnerable to poverty in the event of a major economic shock or natural hazard³. This situation has become more acute since the onset of the global economic recession of 2008. The crisis exacerbated this vulnerability evidenced by an increase in number of applications from poor households (predominantly female-headed) for government social assistance, which is a reliable proxy for deprivation. The level of inequality in the country, as measured by the Gini Coefficient⁴ of 0.48 is also of concern. Indeed, the richest 20% of the population account for 56% of total consumption of goods and services, compared with less than 5% for the poorest 20%. The hardships experienced disproportionately affect vulnerable groups such as women and PWDs.

4. PWDs are estimated to represent 5.1% of the population which is slightly higher among females based on the 2001 Census (4.4% and 5.7% respectively). Several types of disabilities were reported during the Census: Sight, Hearing, Speech, Gripping, Mobility/Moving, Body Movements, Learning, Behavioural and Other. PWDs experience multiple barriers due to inaccessible public infrastructure including roads and public transportation. Lack of accessible roads with ramps and adequate sidewalk width for wheelchair and white cane users for example, limit the participation of PWDs in all aspects of national development. This includes their ability to access schools, places of employment and other

¹ The country has a projected growth rate of 115,000 by 2050.

² The HDI is an average measure of basic human development of a country. It takes into account the indicators of life expectancy at birth; expected years of schooling; mean years of schooling; and Gross National Income per capita.

³ This is based on a consumption level of 25% above the poverty line as calculated in the Country Poverty Assessment.

⁴ The Gini Coefficient measures income distribution on a scale of 0 to 1, with 1 indicating absolute inequality. Gini coefficients in other BMCs range from 0.23 in The British Virgin Islands to 0.57 in The Bahamas.

essential services. GOAB signaled commitment to mainstreaming disability through the ratification of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) in 2016. Adopting universal design of public infrastructure is consistent with the UNCRPD, which will also redound to the benefit of an aging population.

5. Comparative data shows the youth unemployment rate being 2.4 times that of the total population in 2015 (33.9% versus 13.7%).⁵ Further, 12.9% of males, and 14.5% of females were unemployed. Women also contend with labour market segregation, and are more likely to be found in lower paying and less secure occupations. The “technical and physical labour intensive jobs” are viewed as men’s work and facilitate hegemonic traditional gender division of labour in the home (Country Gender Assessment 2014, p.20). Accordingly, higher proportions of men are represented in the sectors that contribute to the highest percentage to GDP (Construction, Transportation and Communication)⁶. The GOAB’s ratification of the United Nations Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), the Inter-American Convention on the Prevention, Punishment, and Eradication of Violence against Women (Belém do Pará) and prioritisation⁷ of gender mainstreaming in mainstay economic sectors through the *National Medium-Term Development Strategy 2016 – 2020* (MTDS) provides a critical platform for action⁸.

6. The *Country Strategy Paper 2015-2018* identifies improving physical infrastructure, including roads as 1 of 7 outcomes for the period. The rehabilitation of Anchorage Road, Sir Sydney Walling Highway, Valley Road North and Old Parham Road will improve the transportation network, access to social services as well as economic activities including employment spinoffs (See Appendix 4.3 for the Social Profile of Project Areas). The project incorporates universal design criteria to accommodate PWDs; provides social gender capacity-building of ministries, contractors and construction workers; and strengthens gender-responsive road safety awareness. Such inclusive approaches will contribute to the implementation of the MTDS, Youth Policy, CEDAW, Belém do Pará, and UNCRPD, necessary to support sustainable poverty reduction and the Sustainable Development Goals.

PROFILE OF THE PROJECT AREAS

General Profile

7. Antigua and Barbuda’s roads fulfil private socio-economic as well as public functions. The National Solid Waste Authority for example uses the road network to serve 81,279 persons. Approximately 84.3% of the labour force⁹ works away from home. Commuters were transported by 35,885 vehicles in 2015. The roads to be rehabilitated are located in 4 parishes as follows:

- (i) Anchorage Road (AR), St. John;
- (ii) Sir Sydney Walling Highway (SWH), St. Peter and St Phillip;
- (iii) Valley Road North (VRN), St. John and St. Mary; and
- (iv) Old Parham Road (OPR), St. John.

8. The rehabilitation works will directly serve three-quarters (79%) of households, that is, 23,927 of 30,213 households nationally. The 4 parishes account for a cumulative population of 67,099 persons (or 76%) of the total population of 88,411 in Antigua and Barbuda (Table 1).

⁵ The 2015 Labour Force Survey

⁶ The construction sector contributed 21.9% to GDP. However, total employment (000s) was 3.419 for males and 0.138 for females (CGA 2014, p.18).

⁷ The GOAB does not have a National Gender Policy. The Government’s priorities are recorded in the CGA.

⁸ *MTDS 2016 – 2020* provides strategies and actions to be undertaken to move the country towards its long-term development goals.

⁹ The services sector accounts for 75.6 %, the industrial sector 14.6%, and the agricultural sector 2.6% of the labour force. Tourism as a service sector directly employs 22.6% of the workforce and indirectly employs 84.5% of the workforce (2010).

9. The prevalence of poverty in the parishes range from 13.57% in St. Mary to 25.85% in St. Phillip. The prevalence of poverty exceed the national rate of 18.36% in St. Phillip and St. John's City (25.85% and 22.29% respectively). Further, only 1 of the 4 parishes had an unemployment rate (8.8%) below the national rate (10%).¹⁰ The other parishes ranged from 14.5% in St Peter to 16.4% in St. Mary. The rehabilitation works are therefore expected to stimulate economic activities particularly through short-term employment at the community level. Some livelihood displacement however may result for vendors who mainly sell perishable food items. The Draft ESMP measures are expected limit the impact which will be born primarily by women. Table 2 shows a sample of 34 vendors, most of whom are female (65%). Other social and gender risks identified will also be managed by similar processes.

10. Overall, the improved transportation network will strengthen access to services in private and public sectors. Importantly, the rehabilitation works will reduce flooding of roads through provision of proper drainage and increased capacity of culverts. The infrastructural enhancements will reduce the negative impacts on lives, property, livelihoods, and other the losses attributed to poor road conditions. The Project can potentially leverage support for street lighting in at-risk areas identified in the *Final Feasibility Report*¹¹ as a preventative measure to enhance citizen security, via the Street Lighting Retrofitting Project. Heavily trafficked areas of schools, supermarkets, clinics and residential communities were especially highlighted for attention.

Anchorage Road (AR)

11. AR provides access to the capital city, St. Johns from the VC Bird International Airport. It also provides access to several hotels such as Sandals and Halycon Cove,¹² at least 4 restaurants, and a casino. The two major communities in this area are York and McKinnon which account for a population of 2,606 (Table 3). McKinnon is an important watershed area, characterised by higher income residents. York is vulnerable to flooding, and residents are mostly low income earners.

12. Four primary schools and 1 secondary school service the AR area with a population of 1612 students (Table 4). The area also has several churches,¹³ 3 medical facilities,¹⁴ a sports complex, a community center with computer services, and several businesses. They include First Choice Supermarket, AS Bryden and Sons (distributor), Kentucky Fried Chicken, Percival's Gas Station, MoneyGram, Extreme Fitness Gym, a casino, farming as well as roadside vending.

Sir Sydney Walling Highway (SWH)

13. SWH is considered a "tourism route" cutting across rural and urban areas. It connects eastern Antigua's historical sites such as the Sir Vivian Richards Stadium, Betty's Hope, Devil's Bridge, and Green Gold Gardens and Stingray City attractions. There are 13 communities along the SWH project area which account for a population 8,573 (Table 3). There are 9 educational institutions with 1853 students (Table 4).

14. The VC Bird International Airport, Antigua Public Utilities Authority and several commercial operations are located along SWH. Businesses include ACE Enterprises, Sprugoos Service Station, Police Sports Complex, Gigi Plaza, SIGNCOM, Chinese Windows Co., a cooking gas facility, Tyre Sales

¹⁰ The national unemployment rate is 10%, with 11% for males and 9.4% for females based on the 2011 Census

¹¹ Areas recommended for street lighting improvement include: i) VRN: Golden Grove, Jennings and Pares; ii) SWH: Potters, Herbert and Willikies; iii) AR: Grays Farm, Green Bay and Ottos; and iv) FHR: Clare Hall, Potters; Grays Farm, Green Bay, Ottos, Brown Avenue, Martins Village and Nut Grove. The Spanish Town, OPR, Tindale Road, Point and Grays Farm were also identified as at-risk areas for transactional sex.

¹² Others include Siboney, Buccaneer Beach Club, Antigua Village and Trade Winds.

¹³ They include Methodist, Moravian, Wesleyan, Zion Church of God, Salvation Army, Catholic, and Pentecostal.

¹⁴ They include Fort Road Clinic, Wynter's facility, and Adelin Clinic (private hospital).

Outlet, Charles Service Station, and an entertainment park. There is also farming as well as informal businesses such as roadside vending and community shops.

Valley Road north (VRN)

15. VRN importantly connects the south of Antigua. There are 11 communities in the VRN project area including Golden Grove, Jennings, Bolans, and Boggy Peak. The communities consist of 5,290 persons and 6 educational facilities with a student population of approximately 3500 (Tables 3 and 4).

16. Sports facilities, restaurants, bars, hotels and informal vending stalls are found in the VRN project area. Many vendors sell their produce and craft along the route with restaurants and supermarkets in the Jolly Beach, Darkwood Beach and Crabbe Hill. The Naval Dockyard and Related Archaeological Sites connected by VRN, became a prestigious United Nations Educational, Scientific and Cultural Organisation World Heritage Site in 2016.

Old Parham Road (OPR)

17. OPR is a major urban roadway which connects Friars Hill Road to Sir George Walter Highway (both approved for rehabilitation under the UKCIF Project). Eight (8) communities such as Upper Gambles, Cassada Gardens, and Skerrits Pasture are found in the OPR project area with a population 3708 (Table 3). The Catholic Secondary and Antigua Grammar Schools are within the OPR project area (Table 4).

18. The Clare Hall Clinic as well as several commercial entities are located in the OPR area. A Nissan dealership, MoneyGram, Western Union, Subway, Kentucky, other local restaurants, and roadside vendors are examples of service providers.

TABLE 1: SELECT CHARACTERISTICS OF PARISHES

Location	Population			Number of Households	Unemployment Rate (%)	Poverty (%)
	Male	Female	Total			
St John's City	10233	11410	21643	7879	14.7	22.29
St John's Rural	14073	15413	29486	10568	10.8	18.41
St Peter	2,533	2,784	5317	1,829	14.50	15.03
St Philip	1,557	1,765	3322	1,139	8.80	25.85
St Mary	3,529	3,802	7331	2,512	16.40	13.57
Total	31925	35174	67099	23927		18.36

Source: Population and Housing Census 2011 (ESIA Section, Final Feasibility Report); Living Conditions in Antigua and Barbuda: Poverty in a Services Economy in Transition (2007).

TABLE 2: SAMPLE OF VENDORS IDENTIFIED BY ROAD AND SEX

Roads/Highways	Vendors	Sex
Anchorage	Shop keeper in Yorks	Male
	Roast corn vendor-seasonal	Female
	2 Banana vendors	Female
	Icepop bicycle vendor	Male
Friars Hill Main	Vincy Prevost-road vendor outside Woods Mall	Female
	Elton Williams, wife and mother-Pastor selling eggs on weekend	1 male, 2 females
	Banana vendor on road side left of Woods mall	Male
	Fish and conch vendor	Female
	5 Plant vendors on Saturdays	3 males, 2 females
Valley Road North	Ms Royette Adams-road vendor in Jennings	Female
	Mrs Westorn-SchoolVendor at Golden Grove	Female
	Ineta-peanuts elderly	Female
	Junita-fruit and vegetables	Female
	Elmena Joseph – fruit and vegetables	Female
	Jacklyn	Female
Sir Sydney Walling	2 vendors in the Factory /Gunthropes Area	Female
	Bigboy-Jacobs at the Sunnyside School Corner	Male
	3 Food vendors at Parham Corner on weekends	2 males, 1 female
Old Parham	Vendor-across from Hadeed Motors selling fruits and vegetables	Male
	Peanut Man	Male
	Vendor at corner of play ground	Female
	Vendors at Antigua Grammar & TN Kirnon schools	6 females

Source: Final Feasibility Report

TABLE 3: POPULATION OF BY ROAD, COMMUNITIES AND SEX

Roads/Highway	Names of Communities	Cumulative Population		
		Male	Female	Total
Anchorage Road	• York, McKinnon	1280	1326	2606
Sydney Walling Highway	• Paynters, Pigotts & Fitches Creek, Vernon, Parham, Seatons, Glanvilles, Willikies, Tomlinson's, Sugar Factory, Pares, Vernon, Diamond, and Collins (Long Lane)	3,992	4,581	8573
Valley Road North	• Golden Grove Area, Creekside (1), Ebenezer (Halls), Jennings, Bolans, Bramms Hamlet, Creekside (2), Ebenezer (Green Hill), Jennings (Cedar Hall & Jennings South), Bolans (Clinic, Central West, Hill, Tottenham), and Boggy Peak	2,616	2,674	5290
Old Parham Road	• Upper Gambles, Clare Hall, Cassada Gardens, Holberton Area, Sutherlands North, St. Johnsons Village, Cassada Gardens #5, and Skerrits Pasture East and North	1,748	1,960	3708
Total	-	9636	10541	20177

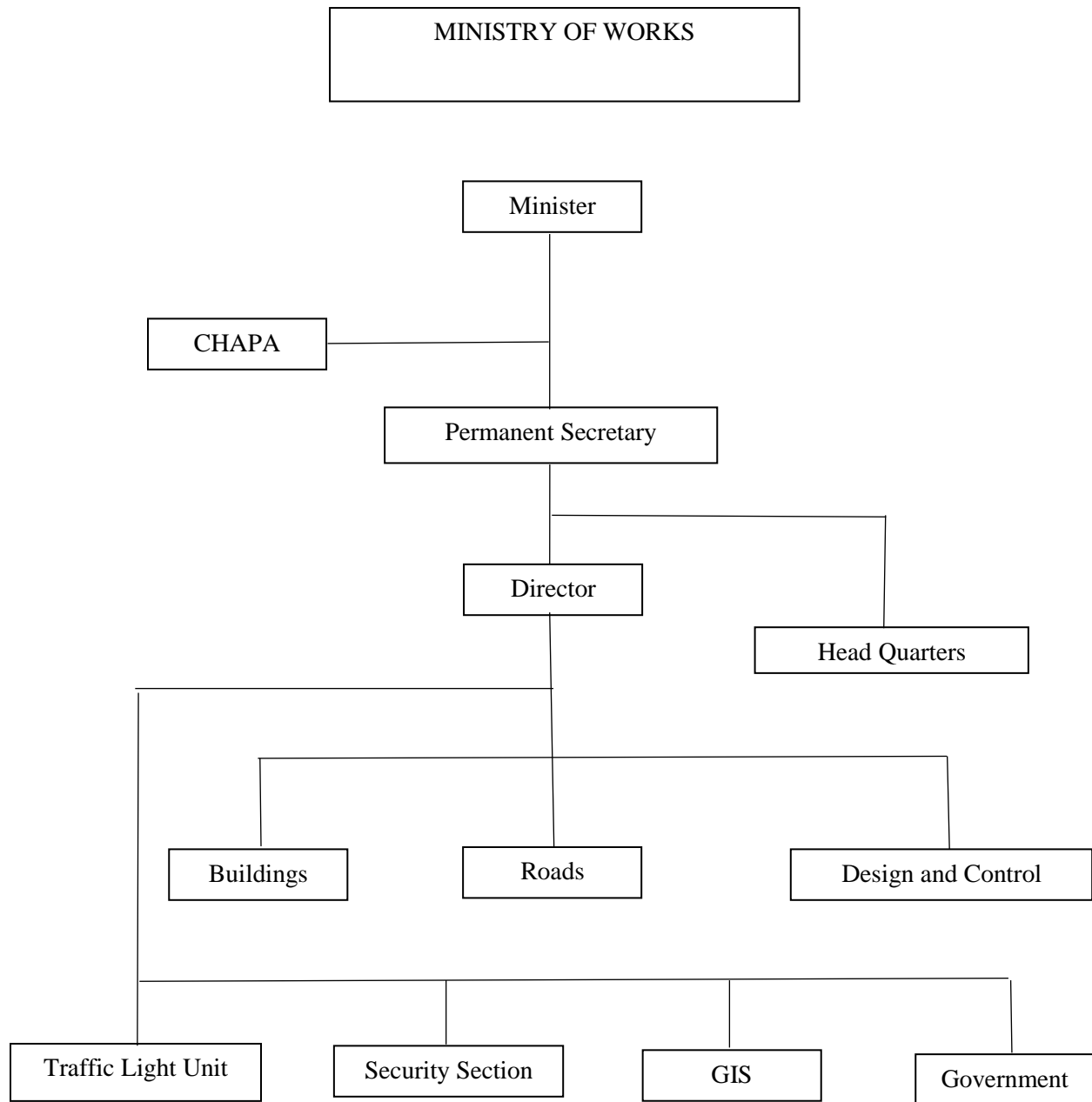
Source: Population and Housing Census 2011 (Final Feasibility Report)

TABLE 4: POPULATION OF EDUCATIONAL INSTITUTIONS BY SEX

Roads/Highway	Population by Sex			
	Name of School	Male	Female	Total
Anchorage Road	Better Chance-private primary	29	15	44
	Zion primary-church primary	5	5	10
	Villa Primary-public primary	197	158	355
	Princess Margaret School-public secondary	458	540	998
	Wesleyan Holiness Jr Academy-church primary	100	105	205
Sydney Walling Highway	Name of School	Male	Female	Total
	AB Institute for Continuing Education	NA	NA	450
	Parham - public primary	61	31	92
	Pares - public primary	47	50	97
	TOR Memorial - private primary	41	42	83
	Pares - public secondary	222	199	421
	Willikies-public primary	43	29	72
	Glanvilles - public secondary	82	67	149
	Sunnyside Tutorial - private primary	228	247	475
	Faith and Hope	4	10	14
Valley Road North	Name of School	Male	Female	Total
	Golden Grove Primary School	180	148	328
	Jennings primary school	117	96	213
	Jennings Secondary	342	316	658
	Nyahbinghi Theocracy	9	4	13
	Antigua State College	NA	NA	1288
	Teacher Education & School of Nursing	NA	Na	900-1000
Old Parham Road	Name of School	Male	Female	Total
	Catholic Secondary	NA	NA	NA
	Antigua Grammar School)	NA	NA	NA

Sources: Draft Final Feasibility Report and Final Feasibility Report.

ORGANISATIONAL CHART



**ROAD ROUGHNESS VALUES FOR PAVED ROADS
FOR VARIOUS SERVICEABILITY LEVELS**

Description of Serviceability	m/km IRI	mm/km BI¹
Ride comfortable over 120 km/h. Undulation barely perceptible at 80 km/h in range 1.3 to 1.8. No depressions, potholes or corrugation are noticeable: depressions less than 2 mm/3 m. Typical high quality asphalt 1.4 to 2.3. High quality surface treatment 2.0 to 3.0.	1.5-2.5	1,000-2,000
Ride comfortable up to 100-200 km/h. At 80 km/h moderately perceptible movements or large undulations may be felt. Defective surface: occasional depressions, patches or potholes (e.g. 5-15 mm/3 m or 10-20 mm/5m with frequency 1-2 per 50 m) or many shallow potholes (e.g. on surface treatment showing extension ravelling). Surface without defects: moderate corrugation or large adulations.	4.0-5.5	3,000-4,000
Ride comfortable up to 79-90 km/h, strongly perceptible movements and swaying. Usually associated with defects: frequent, moderate and uneven depressions or patches (e.g. 15-10 mm/3 m or 20-40 mm/5 mm with frequency 5-3 per 50 m) or occasionally potholes (e.g. 1-3 per 50 m). Surface without defects: strong undulations or corrugations.	7.0-8.0	5,500-6,500
Ride comfortable up to 50-60 km/h, frequent, sharp movements or swaying. Associated with sever defects: frequent, deep and uneven depressions and patches (e.g. 20-40 mm/3 m or 40-80 mm/5 m with frequency 5-3 per 50 m) or frequent potholes (e.g. 4-6 per 50 m).	9.0-10.0	7,000-8,000
Necessary to reduce velocity below 50 km/h. Many deep depressions, potholes and severe disintegration (e.g. 40-80 mm deep with frequency 8-16 per 50 m).	11.0-12.0	9,000-10,000

¹ Bump Integrator Index.

DRAFT TERMS OF REFERENCE
CONSULTANCY SERVICES - ROAD SECTOR DEVELOPMENT MASTERPLAN

1. BACKGROUND

1.01 One of Government of Antigua and Barbuda's (GOAB) main infrastructural developmental objectives over the medium term, to improve access to services through the expansion of road infrastructure to complement developments in airports, sea ports and utilities. Improving connectivity is critical to enhancing competitiveness in Antigua and Barbuda. Priority areas identified in the Medium Term Strategy and the Country Strategy are all geared towards improving the road infrastructure and logistics particularly around the capital St. John's. Further the Ministry of Works and Housing (MWH) through its Strategic Plan 2015 - 2017 has also placed a priority on addressing these issues. The findings and recommendation of the Plan should seek to support MWH Strategic Business Plan 2015 – 2017 and further set the strategies, policies and immediate priorities for development of Antigua and Barbuda's road sector for the medium to long term. It is expected that the Plan will assist GOAB's development of its economy, provide for the social needs of communities and support environmental sustainability.

The Road Network

1.02 The road network in Antigua and Barbuda is well established and consists of approximately 1,253 km of road, of which 436 km are unpaved and 817 km are paved. The Ministry of Works and Housing (MWH) is responsible for the planning, construction and maintenance of public roads. The current vehicle fleet numbers 30,213. The standard of construction and serviceability of the road network varies widely across Antigua, with serviceability being largely a function of weather conditions and frequency of maintenance. Of the 817 km of paved road approximately 60 km make up the primary roads of the network. Within the past 10 to 20 years no substantial road rehabilitation has been undertaken by MWH. Given the limited road upgrades and rehabilitation works there is an infrastructure deficit, whereby the road sub-sector cannot meet the demands of national development nor the potential impacts of climate variability.

Organisation and Structure

1.03 All major road, drainage and infrastructure construction works are the responsibility of the Road Department (RD) and the Design and Control Department (DCD) of MWH. DCD has responsibility for the design of roads. These two departments have responsibility for the entire road project life cycle, inclusive of project designs, estimates and construction supervision of the road sector. The present organisational structure cannot effectively support the management of major capital projects and locally-funded initiatives; the systems in place to manage resources in the most effective and efficient way are not present; there is under-resourcing (in terms of staffing, equipment, and finances) which results in inadequate capacity to undertake the Ministry's mandate of constructing and maintaining road and public building infrastructure. To better manage projects there is a requirement for the staff to be trained in project management and contract administration.

Road Maintenance

1.04 As a result of extensive physical development in Antigua over the past two decades, the existing drainage systems of the road corridors have inadequate capacity. In addition, there has been inadequate routine maintenance of road drains over the years. Many of the drains are poorly defined earthen drains

and outlets and culverts are filled with dirt, heavy silt and vegetation. These inadequacies in the drainage infrastructure contribute to the poor road conditions and frequent flooding events. There is evidence of surface cracking, multiple potholes, partial erosion of the surface dressing and intermittent patching. Shoulder and road edge failure and ponding due to inadequate maintenance and drainage infrastructure are also prevalent. Many of the major road corridors have been classified as having a pavement roughness as high as 6 mm/m which is synonymous with frequent moderate and uneven depressions or patches that adversely affect the ride quality of a vehicle.

1.05 Over the period 2011 to 2015 the annual maintenance budget increased from \$1.8 mn to \$4 mn. However, the actual average annual maintenance expenditure has been \$6 mn over the past three years.¹ Despite the annual expenditure associated with road maintenance within Antigua and Barbuda, there is currently no structured maintenance programme or methodology being implemented by MWH.

1.06 GOAB has received funding from the Caribbean Development Bank (CDB) for the rehabilitation of 8.7 km of road under the United Kingdom Caribbean Infrastructure Partnership Fund (UKCIF) and are seeking funding for an additional 27.76 km of road. Thus the Plan should also support the sustainability of these interventions. The Consultant shall report directly to the Project Coordinator, of the Project Implementation Management Unit (PIMU) or his/her designate.

2. OBJECTIVE

2.01 The objective of the consultancy is to enhance MWH's capacity to strategically improve planning, efficiency, social inclusion, climate resilience, and management of the road infrastructure in Antigua and Barbuda.

3. SCOPE OF WORKS

3.01 The services are to be conducted in accordance with generally accepted international standards and professional practices acceptable to GOAB. The scope of work will cover all activities necessary to accomplish the objectives of the consultancy, whether or not a specific activity is cited in these Terms of Reference (TOR). A participatory and consultative approach is to be adopted in the conduct of the services, which will contribute to their completion in as timely a manner as possible. A results-based approach is to be adopted in the conduct of the assignment, with outcome indicators identified in respect of the proposed capital works and technical assistance interventions, baseline data collected, and targets established.

3.02 A multi-discipline consulting firm, with expertise in civil engineering, hydrology, road engineering, surveying, geographic information systems, disaster risk management, climate change and environmental science as well as social and gender development will be contracted to perform the services to undertake the development of the Masterplan.

¹ Ministry of Works and Housing Maintenance Report Summary, 2014 - 2016

3.03 The scope of services of the consultant will include, but not be limited to, the following:

Phase 1: Situation Analysis, Needs Assessment and Preliminary Project Identification and Ranking

The Current Road Sector

- (a) Collect, review and analyse information regarding government policies, strategies, plans, legislation, regulations, etc., relevant to road infrastructure development of Antigua and Barbuda; corporate and business plans; development partners' country strategies and plans; available data, historical knowledge (of system and road network responses to previous extreme events) of the operations and maintenance teams; asset register(s) and information on existing road infrastructure conditions; and existing and planned list of projects and programmes for the road sector.
- (b) Review the Antigua and Barbuda Road Infrastructure Rehabilitation Project, Final Feasibility Report, 2016 and other relevant reports.

National Road Sector Database Development

- (c) Examine current methodologies for the collection, storage and analysis of road sector data, including traffic counts and flows, road condition surveys, parking and road accidents. Identify key strengths and weaknesses.
Conduct an initial assessment of the road network and the associated drainage, through the following:
 - (i) Traffic and Road Condition Surveys:
 - (aa) carry out traffic surveys on all roads in the country to determine traffic volume and characteristic counts; and origin and destination data;
 - (bb) carry out a road inventory and condition survey including all bridges and culverts; and
 - (cc) undertake a parking survey to arrive at factual data regarding available parking spaces, parking demand, occupancy and turnover ratio of the St. John's Study Area.
 - (ii) Road Network Capacity Analyses: Complete necessary network capacity analyses of primary identified arteries and nodes, developmental zones (St. Johns) and produce network analyses report of present situation. This should include signalised junction analyses.
 - (iii) Road Accident Data: Review historical road accident data (minimum of 10 years) and produce requisite statistical analyses report.
- (d) Make recommendations inclusive of cost estimates for the development of a national database system for the effective collection, storage and analyses of road sector data inclusive of mapping, analytical software and requisite hardware options.

Traffic Growth and Demand

- (e) Examine critical factors in estimating future growth in traffic demand, including existing government policies, the distribution of traffic future planned developments and:
 - (i) Traffic Forecast:
 - (aa) Develop traffic forecasts of motorised movements for defined targeted areas to the year 2037, taking into consideration amongst other factors daily traffic, average annual traffic growth and congestion parameters. Identify traffic that is generated, and distributed from primary development zones such as St. Johns, the V. C. Bird International Airport and the St. John's Port.
 - (bb) Determine a seasonal factor, (if necessary), for Antigua to obtain the Average Annual Daily Traffic (AADT) suitable for use in medium term planning.
 - (cc) Complete necessary future demand network capacity analyses (network modeling) of primary identified arteries, developmental zones (St. Johns) and produce network analyses report. This should include signalised junction analyses.
 - (dd) Make recommendations inclusive of preliminary cost estimates for improvements to projected road network capacity requirements.

Road Sector Planning Process

- (f) Examine existing road sector planning processes through the following:
 - (i) Identification of issues and constraints
 - (ii) Development of objectives for improvements to existing planning processes
 - (iii) Development of methodology options to improve the planning processes
 - (iv) Prepare a prioritised list of project investments based on technical, institutional, economic, and social criteria including, *inter alia*, indicative capital costs and life cycle costs; climate change resilience;. Consult and seek agreement from the MWH.

Climate Risk and Vulnerability Assessment (CRVA)

- (g) Climate Risk and Vulnerability Assessment (CRVA): The objective of CRVA, is to identify and evaluate the effects of climate change on the road infrastructure being reviewed for this Masterplan and to identify resilience measures that should be included in the proposed investment plans. Therefore CRVA is expected to include recommendations of adaptive actions including management, maintenance, monitoring and emergency planning adjustments to deal with climate change risks. The consultant should undertake a quantitative analysis that follows the Intergovernmental Panel on

Climate Change guidelines (exposure, sensitivity, adaptive capacity) and should include the following:

- (i) *Sensitivity Analysis* – The consultant will assess prospective sites for sensitivity to the effects of projected climate change impacts for the reference variables described above and for different climate scenarios, and rank each accordingly. For roads, the expected detail for each critical site, where impacts are likely to occur, will depend on site specific considerations. For each site, where appropriate, biophysical models such as hydrodynamic models can be used to analyse the physical interactions. It will also be important to specify any uncertainties involved, given the wide cost variation this may imply in the application of adaptation measures.
- (ii) *Adaptive Capacity*: The consultant will make an assessment of the adaptive capacity of MWH responsible for managing the road sector. He/She will evaluate their ability of MWH to undertake risk and impact assessments, to plan and implement adaptation actions and to undertake adaptive management.
- (iii) *Adaptation Assessment*: The consultant will identify and prioritise the most appropriate resilience measures that could be incorporated into the Masterplan in order to address the vulnerabilities identified above. The consultant should consider a range of adaptation options including grey and green infrastructure as well as softer measures. An economic analysis should also be conducted of each technically feasible option, showing the costs and benefits, or a cost-effectiveness analysis if the adaptation options are expected to deliver the same benefits.

Institutional Strengthening

- (h) Review the existing guidelines for road sector development and planning, including guidelines for the preparation of investment pipeline projects for road repairs and rehabilitation, and road maintenance; and recommend areas that need policy and institutional adjustment and improvement.
- (i) Review the existing guidelines for road maintenance and management, other relevant studies and the maintenance operation manual for MWH, and recommend a package of practical strategies and detailed operational procedures for long term road maintenance.
- (j) Review the existing technical design standards and guidelines, in comparison with internationally recognised principles and practices to confirm the applicability of such methodologies and design standards to future projected identified under the Masterplan.
- (k) Review the existing financial accounting methodology and practice, the financial accounting management of MWH, guidelines for internal financial inspection and audit, and recommend areas for improvements, such as development of financial accounting manual for CDB-financed projects for the preparation of project accounts and audits.
- (l) Review the current institutional development plans of MWH and its human resource development programme, and recommend enhancement for institutional development supported by a midterm human resource development programme.
- (m) Review institutional arrangements covering ownership, management and operation of road infrastructure, equipment plants and an assessment of user charges and cost recovery

associated with road infrastructure and facilities; and recommend appropriate institutional arrangements.

- (n) Review existing government policies, institutional and regulatory framework including budgets and subsidies provided, commenting on their appropriateness, efficiency and transparency; and prepare recommendations for any potential improvements identified.
- (o) Based on the findings and recommendations of the aforementioned review and studies, the consultant will provide assistance in the following areas:
 - (i) Subject to cost, based on the above, recommend the scope and provisional content of training for the staff of relevant Ministries and the MWH which would enhance their project planning and management skills during the implementation of the road projects.
 - (ii) Guide MWH in the selection of simple computerised model and software for project feasibility studies including traffic forecasting, project design and technical specifications.
 - (iii) Support MWH in the development of an analytical system supported by necessary software to determine economic and financial viability of the Government's decisions on investments in road rehabilitation and maintenance.
 - (iv) Subject to cost, apply a multi-criteria decision-making to the prioritisation of the investment options to develop a list that will support the economic and sustainable growth strategies and objectives of GOAB. Decision making criteria shall include:
 - (aa) financial and economic – efficiency;
 - (bb) policy – link to government policies;
 - (cc) social – basic services, level of service, living standards;
 - (dd) environmental – protecting/enhancing environmental assets/reducing natural hazard vulnerability and improving climate resilience; and
 - (ee) readiness – degree of preparation required for completion

Phase 2: Master Planning

- (a) Review government's budget in relation to allocations to road infrastructure investments and operation and maintenance costs as well as the level of cost recovery of utilities responsible for road infrastructure service delivery in the various sub-sectors.
- (b) Identification of existing government plans, budget policy statements, legislation and regulations; development partners' future country strategies and partnership agreements; crosscutting issues; and risks and mitigating measures that may have an impact on the Masterplan. Seek cooperation from the MWH at all times.

- (c) Assessment of the existing and potential degree of private sector involvement in owning, financing, managing or operating selected programmes and project interventions.
- (d) Preparation of a road sector investment masterplan (RSIMP) in four five-year phases, the options to be implemented with their respective costs, in order of priority in each five-year period, together with a programme and practical guidelines for implementation that can be reviewed by the GOAB
- (e) Preparation of guidelines for institutional strengthening and business process improvement for all aspects of project cycle.
- (f) Recommendation for a funding strategy for the Masterplan to be aligned with the national budgeting process.
- (g) Preparation of supporting implementation strategies for the first five years.
- (h) Preparation of a simple monitoring and evaluation (M&E) framework with indicators during the life of the Masterplan.
- (i) Recommendation for the process of updating the Masterplan.
- (j) Assessment of the improvement in understanding of road sector planning and management by the key professionals from relevant ministries and departments assigned to actively assist the consultants in all activities leading to Masterplan development.
- (k) Conduct a minimum of two main workshops (Antigua and Barbuda) to discuss the recommendations of the Masterplan.

4. QUALIFICATIONS AND EXPERIENCE

4.01 All of the members of the consulting team must have excellent communication and interpersonal skills and must be fluent in English. The key experts required for the consultant's team and their minimum qualifications and experience are as follows:

(a) **Key Expert No. 1: Team Leader/Transport Policy Expert:**

- (i) The Specialist will lead and conduct all stakeholder consultations (facilitate initial discussions and workshops) and will ensure the development of a consensus on projects to be included in the Masterplan. He/she will ensure that the inclusion of projects on the long list is based on technical, institutional and social criteria, indicative costs (including capital and maintenance costs, user charges, etc.), environmental compliance, disaster risk reduction, climate resilience, and economic and financial viability and ensure the inclusion of the appraisal methodology used for the appraisal and prioritisation of road sector interventions.

The Specialist will also contribute to the analysis of the current and likely future state of the road networks; and taking overall responsibility for production of the existing conditions report.

In addition, the Specialist will lead in the review of existing government policies, institutional and regulatory framework for the infrastructure sub-sectors. The

development of an appropriate M&E framework for the Masterplan will be the responsibility of the Team Leader, including preparation of a matrix of major outputs from the Masterplan and indicators against which achievements can be measured and monitored; and an evaluation framework against which performance of the involved institutions can be measured. He/she will also facilitate final workshop presenting the Masterplan.

- (ii) Education: An advanced degree in transport infrastructure planning, policy analysis and formulation, or similar.
- (iii) Experience: The candidate must have at least 10 years' experience, including experience as a successful team leader on similar projects.

(b) Key Expert No. 3: Highway Engineer with cost estimating experience:

- (i) The Specialist will lead the assessment of existing social and economic infrastructure. He/she will conduct interviews with relevant organisations to determine the existing sub-sector situation and existing and planned proposals and investment programmes. In addition, he/she will assist the Team Leader in the preparation of outline sector investment plans and in the preparation of summary project sheets of proposed investments, as well as appraisal methodology report (part of the Final Report). The specialist will assist in the preparation of cost estimates for capital and recurrent costs related to projects proposed for the long list.

In addition, the Specialist will be responsible for the collection, compilation and analysis of all information relating to traffic demand and supply networks; production of the draft and final Masterplan, having addressed all comments received from all relevant Ministries of GOAB.

- (ii) Education: An advanced degree in civil engineering, or equivalent.
- (iii) Experience: The candidate must be a registered/licensed professional engineer with at least ten years' experience in projects across the various sub-sectors.

(c) Key Expert No. 4: Environment Specialist:

- (i) The Specialist will be responsible for ensuring that the master planning activities incorporate principles of environmental protection. He/she will be responsible for screening each proposed project on the long list against these criteria.
- (ii) Education: An advanced degree in environmental science or a related discipline.
- (iii) Experience: At least seven years' work experience in the area of development projects will be required.

(d) Key Expert No. 5: Climate Risk Management Specialist:

- (i) The Specialist will conduct a detailed climate vulnerability and adaptation assessment as an input to the proposed Masterplan. He/she will be responsible, *inter-alia*, for: identifying the climate change parameters to be assessed; collection of relevant local historical climate data and climate change projections;

identify the probabilities of specific climate change occurrences; conduct field investigations with local stakeholders to identify existing vulnerabilities (such as areas prone to flooding); and, in consultation with other team members, contribute to the identification of adaptation options, including their costs and benefits and prioritisation.

- (ii) Education: An advanced degree in environmental science.
- (iii) Experience: At least seven years' work experience in the area of climate change impacts adaptation and mitigation.

(e) **Key Expert No. 6: Transport Economist/Financial Analyst:**

- (i) The Specialist will have primary responsibility for preparing the prioritisation methodology and the funding strategy for the Masterplan. He/she will prepare demand forecasts (by mode of transport) and appraise and prioritise road sector interventions.
- (ii) Education: An advanced degree in economics or related discipline.
- (iii) Experience: The Specialist should have at least seven years' experience in resource allocation, and economic and financial analysis of infrastructure programmes. The Specialist should also have considerable experience in government financial and budget preparation processes, as well as project costing and financial viability assessment and experience relevant to the Caribbean region.

5. OUTPUTS/DELIVERABLES

5.01 The consultant(s) will present five copies of each report, four copies to the Client and one copy to CDB. The reports shall also be submitted in 'PDF' format as complete documents, as well as in Microsoft Word and Excel and/or other formats used in their creation. A copy of all data used in the preparation of the reports shall also be submitted to CDB. These reports are as follows:

- (a) Inception Report: The Inception Report will be presented within four weeks after the signing of the contract, and it will include:
 - (i) initial findings, including details of existing road infrastructure and the needs assessment;
 - (ii) consultants' detailed work plan and methodology, including the schedule and scope of all activities to be undertaken; and
 - (iii) proposed outlines for further reports.
- (b) Road Sector Infrastructure Report: The Report will be submitted after 12 weeks after receiving the MWH comments on the Inception Report and not before the initial set of stakeholders' workshops have taken place. It is expected to include the analysis of all road infrastructure, a list of proposed projects, as well as details of the proposed multi-criteria decision-making methodology for shortlisting projects.
- (c) Draft RSIMP: The Draft Masterplan will be submitted 15 weeks after receiving the MWH comments on the Road Sector Infrastructure Report, and will include a prioritised list of infrastructure interventions for Antigua and Barbuda.

- (d) Final TIMP: The Final Master Plan will be submitted four weeks after receiving the PWD comments on draft TIMP and not before the final stakeholders' workshop has taken place. It is expected to incorporate the results of comments received upon submission of the draft Master Plan.

6. DURATION OF CONSULTANCY

- 6.01 The consultancy is expected to be conducted over a period of approximately nine months.

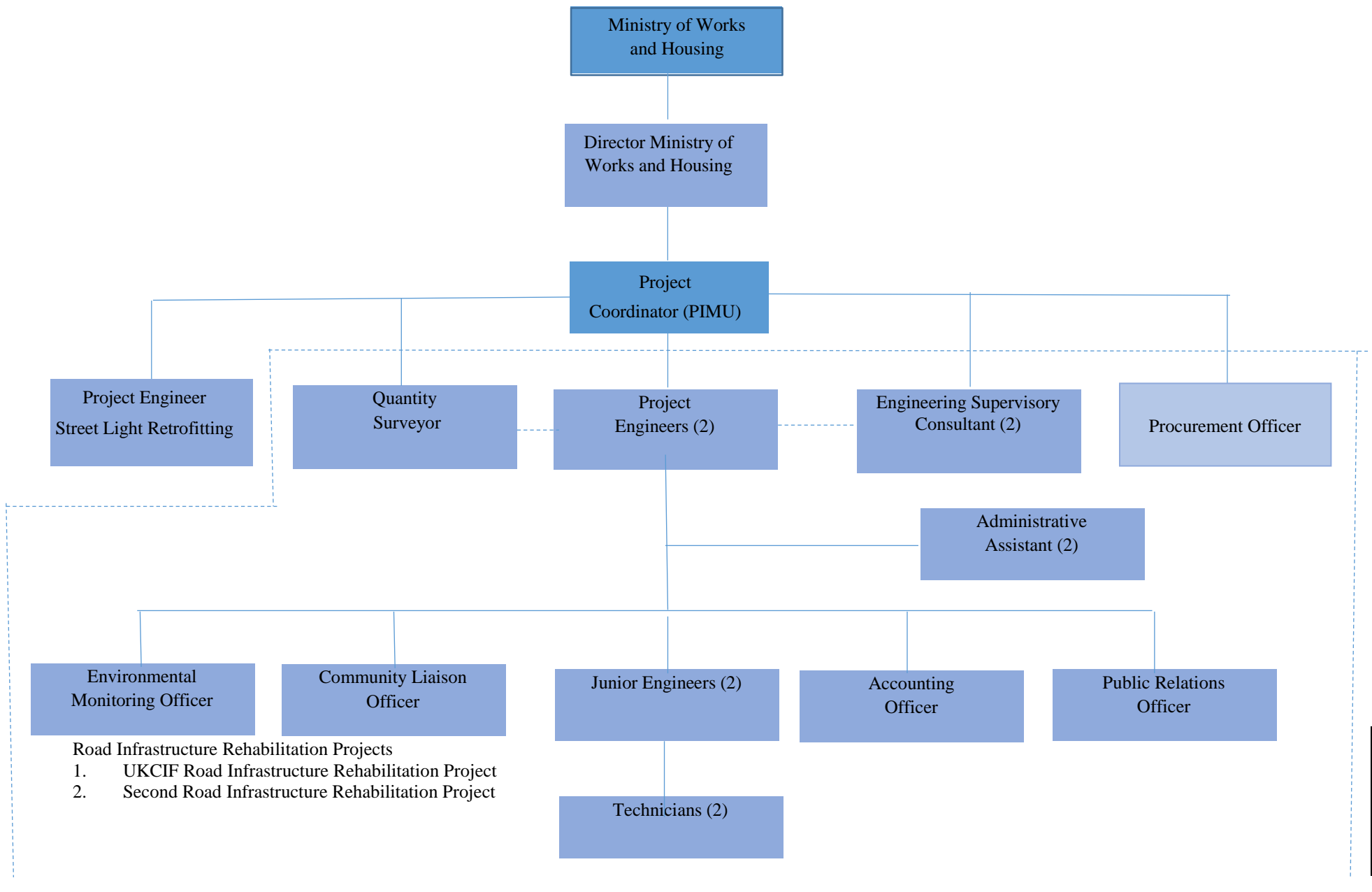
7. COORDINATION AND FACILITIES

The project is being implemented through Project Implementation and Management Unit (PIMU) of MWH. The consultant(s) shall report to the Project Coordinator within PIMU. MWH will assist the consultant in establishing contacts and arrangements for meetings on both island, as well as facilitate the issuance of any permits required for the consultant to carry out the assignment and make available all relevant, existing reports, documents, maps and data. MWH will provide office space for the consultant(s) while based in Antigua and Barbuda as well as arrange meeting rooms and conference rooms for presentations and stakeholder meetings. MWH shall designate counterpart personnel whom the consultant(s) shall mentor in all aspects of the assignment. As the consultant will need to travel between the islands not only for meetings but also to carry out the study, they will be expected to rent boats and vehicles as well as pay for inter-island tickets.

BUDGET
(USD '000)

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

PROJECT MANAGEMENT ARRANGEMENTS



DETAILS OF THE PROJECT

INFRASTRUCTURE WORKS

1. This component includes the completion of final designs and the upgrade of 1.44 km of AR, 14 km SWH, 2.9 km of OPR and 9.45 km of VRN and associated drainage infrastructure. The estimated cost of this component is USD46.711 mn.

ENGINEERING CONSULTANCY

2. This component consists of three elements: (a) complete Climate Vulnerability Assessment (b) finalising of bid documents; (c) review of design-build contractor final designs; (d) Construction Supervision Services, including the evaluation of tenders and preparation of tender report, contract administration, construction supervision, preparation of progress reports, certification of payments and inspection services during the defects liability period; and (e) preparation of a PCR. The estimated cost of this component is USD1.177 mn.

PROJECT MANAGEMENT

3. This component encompasses the establishment of a Project Implementation and Management Unit which would be solely responsible for the implementation and management of all present and proposed CDB funded projects in Antigua and Barbuda. The estimated cost of this component is USD2.756 mn of which USD1.168 mn is included in GOAB's counterpart contribution.

TECHNICAL ASSISTANCE

(a) Road Sector Development Masterplan

4. This component consists of: the engagement of consultancy services to complete a Road Sector Development Masterplan, which will include for an institutional assessment of MWH, estimated at USD0.987 mn inclusive of USD0.256 mn GOAB's counterpart contribution.

(b) Social and Gender Sensitisation

5. This component consists of consultancy services for gender capacity building and training for MWH, contractors, and construction workers, estimated at USD0.042 mn.

(c) Gender-Responsive Road Safety Awareness Communication Programme

6. This component consists of consultancy services to facilitate the execution of a gender-responsive road safety awareness communication programme, estimated at USD0.326 mn.

LAND ACQUISITION

7. This component consists of the acquisition of 10,000 square meters of privately owned land adjacent to road right-way to facilitate widening of the corridor and improving pedestrian safety with the construction of sidewalks. This is estimated at USD1 mn and is included in GOAB's counterpart contribution.

PROJECT COST, PHASING AND FINANCING PLAN
(\$'000)

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

ECONOMIC RATE OF RETURN CALCULATION
('000)

Year	Capital Cost	Savings			Net Benefits
		Maintenance	Time	VOC	Net Benefits
2017	(21,099)				(21,099)
2018	(40,670)	-	-	-	(40,670)
2019	(52,935)	-	5,542	9,059	(38,334)
2020	(27,304)	(595)	5,390	9,269	(13,240)
2021	-	(882)	11,382	19,146	29,646
2022	-	(882)	12,019	19,774	30,911
2023	-	(882)	12,693	20,422	32,233
2024	-	(882)	15,162	22,475	36,755
2025	-	(882)	16,011	23,213	38,342
2026	-	(882)	16,974	24,022	40,114
2027	-	(882)	17,994	24,858	41,970
2028	(29,883)	(882)	19,400	28,000	16,635
2029	-	(882)	20,564	29,277	48,959
2030	-	(882)	21,799	30,300	51,217
2031	-	(882)	21,832	31,057	52,007
2032	-	(882)	23,450	32,386	54,954
2033	-	(882)	24,388	33,195	56,701
2034	-	(882)	25,364	34,024	58,506
2035	-	(882)	25,404	34,966	59,488
2036	-	(882)	23,289	32,701	55,109
2037	31,453	(882)	22,732	33,024	86,327
ERR Calculation					22.30%
NPV					94,667

NOTES AND ASSUMPTIONS TO THE ECONOMIC ANALYSIS**HIGHWAY DEVELOPMENT MODEL 4**

1. The proposed project included the rehabilitation and or reconstruction and resurfacing of four arteries which are critical to the long-term viability of Antigua and Barbuda. HDM-4 was used to calculate the benefits of the Project. The analytical framework for the model is based on the concept of pavement life cycle analysis and is used to predict the effects of road deterioration, road-works, socioeconomic, and environmental effects on road-user costs over the life of a road pavement.
2. Once constructed, road pavements deteriorate as a result of several factors, such as traffic loading, environmental weathering, and the effect of inadequate drainage systems. The impacts of road conditions, as well as the road design standards, are measured in terms of road-user costs, and other social and environmental effects.
3. The two roadways to be rehabilitated differ in terms of pavement condition, road width and traffic and are as follows:

TABLE 1: ROAD ANALYSIS

Section	Name	Length (km)
A	Old Parham Road	2.87
B	Anchorage Road	1.43
C	Sir George Walling Highway	14.01
D	Valley Road (North)	9.45
	Total Length	27.76

BASE YEAR TRAFFIC**Traffic Surveys**

4. Base Year traffic was developed from a traffic survey³¹ undertaken by a regional firm in July 2016 which was supplemented by a traffic desktop study and additional traffic counts at 6 locations for 7 consecutive 24-hour periods, undertaken by the Feasibility Study consultants in August and September 2016. In cases where only 12-hour counts were available, these were converted to 24-hour Annual Daily Traffic by applying a factor of 1.25, based on experience on similar type projects. The resulting Average Annual Daily Traffic (AADT) for the road sections is provided in Table 2.

TABLE 2: AADT IN 2016

Sections	AADT 2016
A	23,615
B	14,208
C	10,723
D	8,783

³¹ Traffic Data Collection and Conditions Survey Report, July 2016, Caribbean Transportation Consultancy Services (CARITRANS) Ltd.

Traffic Forecasts

5. Traffic forecasts were determined utilising a model developed by the UK's Traffic Research Laboratory for forecasting traffic growth in developing countries. The method relates vehicle ownership and growth to the growth of incomes and population. On the basis of forecasts of average GDP growth rate of 2.5% between 2017 and 2037, vehicle ownership rate of 0.39 vehicles per person, and population growth of 1.24%, the model yielded an average annual traffic growth of 3.06% for cars, light goods vehicles, and trucks and 2.6% for buses, over analysis period.

6. The vehicle characteristics utilised in the model are summarised in Table 3.

TABLE 3: SUMMARY OF VEHICLE FLEET CHARACTERISTICS

Vehicle	Small Car	Medium Car	Large Car	Small Truck	Medium Truck	Large Truck	Small Bus	Large Bus	Articulated Truck
Gross Vehicle Weight (t)	1.2	1.6	2.2	6.9	10.0	18.6	10	12.1	27.7
Vehicle Axles	2	2	2	2	4	5	2	3	6
Equivalent Standard Axles/Vehicle	-	-	0.01	0.06	2.18	3.15	0.08	3.15	4.63
Passenger Car Equivalency	-	-	1.1	1.2	1.3	1.8	1.2	1.8	2
No. of Tyres	2	2	2	6	8	10	2	6	12
Utilisation:									
Annual Utilisation (km)	23,000	23,000	32,000	45,000	55,000	85,000	55,000	75,000	85,000
Hours Driven/Year	550	550	900	1300	1700	2000	1500	1900	2000
Average Service Life (Yrs)	10	10	10	10	11	11	10	10	12

7. The economic prices of the representative vehicles and tyres were calculated based on CIF values adjusted for dealers mark-up. These are shown in Table 4. As required by HDM, these costs are for an equivalent new vehicle.

**TABLE 4: VEHICLE AND TYRE COSTS
(\$ '000)**

Vehicle	Small Car	Medium Car	Large Car	Small Truck	Medium Truck	Large Truck	Small Bus	Medium Bus	Articulated Truck
Vehicle Cost	20,045	43,445	75,656	136,396	175,595	329,289	74,158	288,390	453,184
Tyre Cost	83.70	167.40	302.40	534.60	1,112.40	1,441.80	248.40	982.80	1,441.80

Petrol and Lubricants

8. The economic cost was estimated at \$2.76 and \$2.70 per litre for gasoline and diesel, respectively. The cost for lubricants was determined at \$7.02 per litre.

Maintenance Labour

9. Maintenance cost per hour is estimated at \$44.66 for cars and light goods vehicles and \$89.29 for heavy goods vehicles and large buses.

Time Savings

10. The model includes congestion effects for which the value of time (VOT) is a critical input. The valuation of travel time savings is based on the World Bank paper: 'The Value of Time in Economic Evaluation of Transport Projects' (Professor K. G William). The approach used is waged-based. For work related trips the analysis estimates the value of time per hour by dividing annual GDP per capita by the estimated number of working hours per annum. For non-work related trips the VOT is assumed to have a value equal to half that of work related trips. The parameters used in the calculation of travel time values is provided in Table 5:

TABLE 5: ESTIMATION OF TRAVEL TIME VALUES

GDP per capita (2016 prices)	36,631
Average wage (\$/hour)	\$44.48
Annual working hours	2,000
Employment overhead (%)	15%
Shadow wage rate factor (SWR)	0.859
Working VOT (\$/hour)	18.32
Non-working VOT (\$/hour)	9.58
Proportion of work related trips	30%

PROJECT LIFE

11. For the purpose of analysis, the economic life of the roads was assumed to be 20 years from completion of construction.

CONSTANT PRICES

12. ERR calculations are based on 2017 constant prices.

13. Traded items were converted to their border price, while non-traded items were expressed in their border price equivalents after adjusting for the distortion between international and domestic prices caused by import duties, tariffs, subsidies and other market distortions, by applying a Standard Conversion Factor of 0.91.

14. The residual value of the investment at the end of the analysis period is the assumed book value of the Project assets which is based on the estimated useful lives of the drainage and road works of 40 years.

15. Conversion factors used for the different cost components are provided in Tables 6 to 8.

TABLE 6: CONVERSION FACTORS FOR COST ADJUSTMENT

Item	Shadow Rate	Standard Conversion Factor	Base Factor
Skilled Labour	1.00	0.91	0.91
Unskilled Labour	0.85	0.91	0.77
Local Materials	0.80	0.91	0.73
Imported Materials & Equipment	1.00	0.91	0.91

TABLE 7: DERIVATION OF SPECIFIC CONVERSION FACTORS (SpCF) FOR WORKS

Item	Skilled Labour	Unskilled Labour	Local Materials	Imported Materials & Equipment	SpCF
Base Factor	0.91	0.77	0.73	0.91	
Land Acquisition	-	-	-	-	0.91
Road Rehabilitation and Upgrade Works	0.25	0.15	0.15	0.45	0.86
Capacity Building	0.75	-	0.10	0.15	0.89
Engineering Services	0.90	-	0.05	0.05	0.90
Project Management	0.90	-	0.05	0.05	0.91

16. The overall conversion factor for the project was estimated as 0.87 as shown in Table 8.

TABLE 8: OVERALL CONVERSION FACTOR FOR PROJECT

Base Cost + Physical Contingences	Financial Cost	SpCF	Economic Cost
Land Acquisition	2,970	0.91	2,703
Road Rehabilitation and Upgrade Works	145,040	0.86	125,057
Capacity Building	6,500	0.89	3,121
Engineering Services	3,663	0.90	3,300
Project Management	8,242	0.91	7,500
Total Base Cost & Physical Contingencies	163,416		141,682
Overall Conversion Factor			0.87

DRAFT TERMS OF REFERENCE
CAPACITY BUILDING IN SOCIAL AND GENDER SENSITISATION

1. BACKGROUND

1.01 The population Antigua and Barbuda is 88,411, of which 42,565 are males and 45,846 females (2011 Census). The country registered a Human Development Index (HDI) value of 0.783 in 2014, and was ranked in the high human development category. The HDI¹ for 2014 shows steady increase from 0.774 in 2013, and 0.760 in 2012. Despite improvements in quality of life over the years, issues of social vulnerability and the ability of the poor to sustainably improve their life chances and wellbeing remain. Hardships experienced disproportionately affects women in particular, among other vulnerable groups.

1.02 According to the 2014 Country Gender Assessment (CGA), many policies and programmatic interventions are developed without reference to gender equality. Consequently, women “continue to be adversely affected by systemic, institutional and socio-cultural, political and economic inequalities” (CGA 2014, p. 1). Although the 2011 Census shows that unemployment is slightly higher for males by 1.6%² compared to previous years, labour market segregation continues to affect women. They are more likely to be found in lower paying and less secure jobs that generally reinforce stereotypical gender roles. The “technical and physical labour intensive jobs” viewed as men’s work, facilitates hegemonic traditional gender division of labour (CGA 2014, p.20). Accordingly, higher proportions of men are represented in the sectors that contribute to the highest percentage to GDP (construction, transportation and communication). The construction sector contributes some 21.9% to GDP. However, total employment was 3,419 males compared with 138 females (CGA 2014, p.18). Infrastructure projects thus increase the employment of men in the construction sector whereas women typically provide food as street vendors.

1.03 Infrastructure projects have positive effects of women and men. Road infrastructure and bridges reduce the time burden of women and men in accessing markets, hospitals, schools and other services. They also facilitate access to tourism sites and the related economic opportunities. Infrastructure projects can also do harm since they can increase occupational segregation, gender-based violence (GBV), sexual harassment on or near construction sites³, alcohol and drug use, transactional and commercial sex⁴, sexually transmitted diseases like HIV/AIDS, and social conflicts⁵. Women with disabilities who represent 5.7% of the population, are made vulnerable due to public infrastructure barriers⁶. Lack of accessible roads with ramps and adequate sidewalk width for wheelchair and white cane users for example, limit the participation of persons with disabilities (PWDs) in all aspects of national

¹ The HDI is an average measure of basic human development of a country. It takes into account the indicators of life expectancy at birth; expected years of schooling; mean years of schooling; and Gross National Income per capita. The calculated HDI positioned the country at 58 out of 188 countries. The HDI is above the averages for countries in the high human development group, and countries in Latin America and the Caribbean (0.744 and 0.748 respectively).

² The national unemployment rate is 10%, with 11% for males and 9.4%. Comparative data available for 2011 shows youth unemployment rate being over 3 times that of the adult population (CDB. 2015. *Youth are the Future: The Imperative of Youth Employment for Sustainable Development in the Caribbean*).

³ This may include but is not limited to sexual violence while using public utilities (latrines, bathing areas, etc.), and sexual violence on public transportation to and from work
https://www.usaid.gov/sites/default/files/documents/1865/FINAL_GBV_EI_Toolkit_Aug2015.pdf

⁴ Increased transactional and commercial sex may occur at construction sites among the workers who spend money, vulnerable women who offer services and their respective spouses and partners who might be affected later
(<http://www.adb.org/sites/default/files/publication/29660/gender-hiv-infrastructure-operations.pdf>).

⁵ <https://www.leximancer.com/wiki/images/9/96/MenandconflictARCOM.doc>

⁶ PWDs are estimated to represent 5.1% of the population which is slightly higher among females based on the 2001 Census (4.4% and 5.7%). Several types of disabilities were reported during the Census: Sight, Hearing, Speech, Gripping, Mobility/Moving, Body Movements, Learning, Behavioural and Other. The GOAB signalled commitment to mainstreaming disability through the ratification of the United Nations Convention on the Rights of Persons with Disabilities in 2016.

development, including access to construction work, other places of employment, schools, and other essential services.

1.04 The GOAB's prioritisation⁷ of gender mainstreaming in mainstay economic sectors through the *National Medium-Term Development Strategy 2016 – 2020* (MTDS) provides a critical platform for action⁸. GOAB has also ratified the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW), and the Convention on the Prevention, Punishment, and Eradication of Violence against Women (Belém do Pará). The *National Strategic Action Plan to End Gender-based Violence (2013-2018)*, National Youth Policy and the United Nations Convention on the Rights of Persons with Disabilities (CRPD) also demonstrate the country's commitments⁹. The implementation of gender-responsive infrastructure projects is consistent with the GOAB's policy commitments. Gender-responsive infrastructure projects incorporate safeguards against GBV including the prevention and redress of sexual harassment, appropriate sanitation facilities and awareness trainings. Such projects also encourage employers to hire females in the labour force and empower women to increase access to economic opportunities. The GOAB's rehabilitation project thus affords an entry point to address gender equality through capacity building in gender sensitisation for the MWH and other relevant ministry partners, contractors and workers.

2 OBJECTIVES

2.01 The consultancy seeks to:

- (a) support MWH to maximise its social and gender analysis capacity to deliver gender-responsive policies, programmes and projects that will minimise the negative social and gender effects of infrastructure construction projects;
- (b) enhance the capacity of MWH and other relevant ministry partners, and contractors to implement equal employment and gender-responsive safeguard policies at the workplace; and
- (c) provide social and gender sensitisation training for the road rehabilitation project workers.

3. SCOPE OF SERVICES

3.01 The consultant will work closely with the MWH, Ministry of Social Transformation and Human Resource Development (MOST), Directorate of Gender Affairs (DOGA), Ministry of Youth (MOY), other relevant Government ministries/agencies, contractors, and construction workers. Specifically, the consultant will:

3.02 Perform all investigative work, analyses and technical strategies to realise the objectives of the consultancy. The methodology must include:

- (a) Review of secondary data including MWH's *Gender Equality Guidelines for Implementing Infrastructure Projects, Training Packages*,¹⁰ Country Gender Assessment,

⁷ The GOAB does not have a National Gender Policy. The priorities are recorded in the CGA.

⁸ *MTDS 2016 – 2020* provides strategies and actions to be undertaken to move the country towards its long-term development goals.

⁹ There were 565 reported cases for females versus 50 for males concerning Rape and SV, Child Rape or SV, Physical Abuse, Psychological and Verbal, Financial Abuse, and Human Trafficking (CGA 2014, p.17).

¹⁰ The *Gender Equality Guidelines for Implementing Infrastructure Projects and Training Packages* were developed under the *Antigua and Barbuda Road Infrastructure Rehabilitation and Institutional Capacity Building Project* (UKCIF).

Poverty Assessments, *National Medium-Term Development Strategy 2016 – 2020*, *National Strategic Action Plan to End Gender-based Violence (2013-2018)*, *Multiple Indicator Cluster Survey*, CEDAW, Belém do Pará, National Youth Policy, CRPD, other analytical reports/sector plans, studies, policy and legal documents, and data sources such as census reports, and surveys.

- (b) Collection of primary data through participatory consultations with state and non-state stakeholders to inform robust programme design for capacity building in gender and gain buy-in for implementation. Elite interviews, focus groups, site visits, and other appropriate participatory methodologies must be employed. Focus groups may be convened separately for males, females, and specific vulnerable groups such as PWDs.

3.03 Use Training Packages developed under the *Antigua and Barbuda Road Infrastructure Rehabilitation and Institutional Capacity Building Project* (UKCIF) to guide preparation and delivery of training for 3 groups of beneficiaries including the MWH, contractors, and construction workers. The training packages must be participatory and tailored to the profile of the respective trainees¹¹.

Group 1 - MWH: Deliver social and gender-sensitisation training for MWH and other key Government partner agencies/departments to strengthen institutional capacity for gender-responsive policy-making and programming. Special attention must to ensure that participants can function as resource persons to conduct subsequent training among colleagues. The training shall address the following, *inter alia*:

- (i) approved *Gender Equality Guidelines for Implementing Infrastructure Projects*¹²;
- (ii) basic gender equality and social inclusion concerns in human resource and corporate social responsibility policies and practices;
- (iii) sexual harassment, GBV and conflict management, alcohol and drug abuse, commercial sex work, STDs especially HIV/AIDs, equal opportunity programmes and inclusion of PWDs, the poor, youth, women, men and other at risk groups¹³; and
- (iv) grievance mechanisms on work sites, and national programmes and support services available from government, private sector and NGOs

Group 2 - Contractors: Deliver social and gender-sensitisation training with contractors in support of basic gender equality and social inclusion concerns in human resource and corporate social responsibility policies and practices; and adoption of measures to reduce barriers for vulnerable persons. The training shall address the following, *inter alia*:

- (i) GBV and conflict management, alcohol and drug abuse, commercial sex work; STDs especially HIV/AIDs, equal opportunity programmes and inclusion of person with disabilities among other at risk social groups¹⁴;

¹¹ Profile may consider factors such as education level and/or literacy, pre-training exposure to gender and native language (applicable in the case of immigrant workers). The consultant's investigative work is expected to provide information necessary to inform training design.

¹² This would include, *inter alia*, development of gender and social inclusion standards to be inserted in the works specifications (e.g. appointment of a Health and Safety Officer on the works sites, who will be responsible for ensuring safety and health of workers, for overseeing the conditions and responsiveness of the facilities to the different needs of men and women workers, persons with disabilities, and enforcing the contractor's policies on sexual harassment).

¹³ The training will provide contextual information on the legal framework to include *inter alia* The Social Security Act, Sexual Offences Act (1995), The Trafficking in Persons (Prevention) Act 2010, and the Labour Code.

- (ii) grievance mechanisms on work sites, and national programmes and support services available from government, private sector and NGOs;
- (iii) recommend ways of implementing the *Gender Equality Guidelines for implementing Infrastructure Projects* in the policies and practices of companies (e.g. code of conduct, equal opportunity programmes, prevention of sexual harassment, GBV, HIV/AIDS and STIs etc.); and
- (iv) Ensure that contractors meet the standard in keeping with the FIDIC clause 6.7 on health and safety including HIV/AIDS-awareness training and gender-based violence

Group 3 - Workers: Deliver social and gender-sensitisation training with construction workers for the rehabilitation project to address basic gender equality and social inclusion issues on work sites and surrounding communities. The training shall address the following, *inter alia*:

- (i) sexual harassment, GBV and conflict management, alcohol and drug abuse, commercial sex work; STDs especially HIV/AIDs, equal opportunity programmes and inclusion of person with disabilities among other at risk social groups¹⁵; and
- (ii) grievance mechanisms on work sites, and national programmes and support services available from government, private sector and NGOs.

3.05 Conduct post-training assessment of the three groups, that is, the MWH and other Government entities, contractors and workers, respectively. Prepare Post-training Report with participants' profile and areas of satisfaction and dissatisfaction regarding the training provided.

4. REPORTING REQUIREMENTS

4.01 The Technical Proposal of the selected Consultant shall outline a work plan and approach to the assignment, the scope and methodology, the tasks and responsibilities and a time schedule for the completion of the assignment. The following reports, one hard copy each, along with an electronic copy either by email, on CD ROM or flash drive, shall be submitted to the Caribbean Development Bank (CDB), and the MWH at the times indicated below. The reports must incorporate feedback provided by the MWH, Directorate of Gender Affairs and CDB.

- (a) Inception Report within two weeks of commencement of the assignment including the findings from the investigative work and work plan with timelines.
- (b) Interim Report, four weeks after commencement of the assignment including the Draft Training Packages for MWH, contractors and workers.
- (c) Draft Final Report, within eight weeks of commencement of the assignment including the Post-training Assessment Report (for all three training sessions)¹⁶.

¹⁴ The training will provide contextual information on the legal framework to include *inter alia* The Social Security Act, Sexual Offences Act (1995), The Trafficking in Persons (Prevention) Act 2010, and the Labour Code.

¹⁵ The training will provide contextual information on the legal framework to include *inter alia* The Social Security Act, Sexual Offences Act (1995), The Trafficking in Persons (Prevention) Act 2010, and the Labour Code.

¹⁶ The report should have 3 sections for the MWH, contractors and workers respectively.

- (d) Final Report, within twelve weeks of commencement of the assignment including the Final Training Packages for MWH, contractors and workers; and Final Post-training Assessment Report (for all three training sessions).¹⁷

4.02 All Reports shall contain sex, disability and age disaggregated data and critical gender analysis of the information presented.

5. IMPLEMENTATION ARRANGEMENTS

5.01 The GOAB represented by the MWH will appoint a Project Coordinator (PC). The PC will facilitate the work of the consultant and make available Project-related reports and data relevant to completion of the exercise and will act as initial liaison between the consultant and stakeholders. The consultant will report to the PC. The consultant will work closely with the MWH, Directorate of Gender Affairs, MOST, and the MOY.

6. QUALIFICATIONS AND EXPERIENCE

6.01 The Consultant shall possess a minimum of a post-graduate qualifications in Gender and Development or relevant Social Development field with a minimum of ten years practical experience in gender training or instruction. Previous experience integrating gender issues in infrastructure and transport projects in collaboration with Ministries of Works and contractors is strongly preferred. Knowledge of vulnerable groups of youth, elderly, children, persons with disabilities, and gender issues affecting men and women respectively is critical for this assignment.

7. DURATION

7.01 It is expected that the assignment will require a maximum of 25 person-days over a period of three months.

¹⁷ The report should have 3 sections for the MWH, contractors and workers respectively.

BUDGET
(USD)

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

GENDER MARKER ANALYSIS

Project Cycle Stage	Criteria	Score
Analysis: Introduction/ Background/ Preparation	Consultations with women/girls/men/boys and relevant gender-related or sector-related public or private organisations have taken place.	0.5
	Social analysis identifies gender issues and priorities.	0.25
	Macroeconomic analysis identifies gender issues and priorities.	0
Design: Project Proposal/ Definition/ Objective/ Description	To address the needs of women/girls and men/boys concrete interventions to reduce existing gender disparities have been designed. Effect on project outcome is direct.	0.5
	Project objective / outcome includes gender equality.	0
Implementation: Execution	Implementation arrangements (gender mainstreaming capacity building or gender expertise in implementing agency) to enhance the gender capacity of the implementing agency. Effect on project outcome is indirect.	0.5
	Terms of reference of project coordinating unit / project management unit include responsibilities of gender mainstreaming, especially at the levels of the project coordinator/director and the M&E officer.	0.5
Monitoring and Evaluation: Results-Monitoring-Framework (RMF)	Sex-disaggregated data included in the baselines, indicators and targets of the RMF.	
	<i>Or</i> Collection of sex-disaggregated data required for M&E (stated and budgeted in Project)	0.5
	At least one gender-specific indicator at the outcome and/or output level in the RMF.	0.5
Maximum Score:		3.25
Scoring Guide: Gender Mainstreamed (GM): if 3 points of 3.5 points.		
Gender Mainstreamed (GM): the project has the potential to contribute significantly to gender equality.		

GENDER ACTION PLAN

Project Outputs	Activity Planned	Responsibility	Time
Overall Strategies	<p>1. Consultation meetings are held during project preparation, and appraisal, which facilitate the participation of men, women, youth, elderly and persons with disabilities.</p> <p>2. Stakeholders are integrated into implementation and M&E of project through establishment of community participation groups (CPGs) consisting of representatives of residents and businesses along the rehabilitated roads, as well as MWH.¹</p>	<p>Consultants, Contractors, CDB, MWH</p> <p>Consultants, CDB, MWH</p>	Ongoing
Output 1: Accessible Infrastructure	Design and construction of infrastructure with provision of universal design access requirements for person with disabilities.	MWH, consultants, contractors.	2017-2020
Output 2: Enhancing equitable employment opportunities and working conditions	<p>1. Skilled and unskilled work related to the project to be encouraged for women and men from beneficiary communities.</p> <p>2. Equal pay for men and women for work of equal type.</p> <p>3. Safe conditions during construction for both male and female workers.</p> <p>4. Separate toilet facilities for males and females.</p> <p>5. Implement measures to mitigate the potential livelihood displacement of road side vendors, primarily women (See Profile of Project Areas in Appendix 1.2 and Draft ESMP in Appendix 4.8).</p>	Contractors, Consultants, MWH	2018-2020
Output 3: Capacity-building in Gender Equality and Social Inclusion of Vulnerable Groups	<p>Implementation of capacity-building project components through the:</p> <p>1. development of <i>Gender Equality Guidelines for Implementing Infrastructure Projects</i> to support the sector-wide participation of men, women, youth, PWDs and other vulnerable groups in policies, programmes and projects (see Appendix 4.4 for the TOR);</p> <p>2. development of a <i>Gender-responsive Training Materials</i> to strengthen gender and social equality (Appendix 4.4);</p> <p>3. provision of training using the <i>Gender Equality Guidelines for Implementing Infrastructure Projects</i> and <i>Training Materials</i> developed for the MWH and other partner ministries, contractors and construction workers (Appendix 4.4); and</p> <p>4. development and implementation of a <i>Gender-responsive Road Safety Awareness Communication Strategy</i> that is community-driven to target road users and at risk sub-groups such as youth, males, females, children, elderly and PWDs (see Appendix 4.7 for the TOR).</p>	Consultants, MWH, DoGA, Community Development Division, MST; and other government and non-government partners	<p>2018</p> <p>2018</p> <p>2018</p> <p>2019-2020</p>
Output 4: Inclusive M&E	Social and gender impacts measured across all relevant project components, with data disaggregation by sex (male/female), disability status, and age group (under 30 years and 30 years and over).	Contractors, Consultants, MWH, CDB	Ongoing

¹ The CPG objectives are to: (i) keep communities informed on matters related to implementation; and (ii) facilitate reporting to MWH, on matters of concern to communities. A community liaison officer will coordinate the CPG, as well as develop, implement and monitor a Stakeholder Participation Plan. See Draft ESMP in Appendix 4.8.

DRAFT TERMS OF REFERENCE
GENDER-RESPONSIVE ROAD SAFETY AWARENESS COMMUNICATION STRATEGY

1. BACKGROUND

1.01 The Government of Antigua and Barbuda (GOAB) recognises the importance of road safety for human resource and economic development. The GOAB's commitment is set out in its *Medium-Term Development Strategy 2016-2020*. Goal 11 of the *Strategy* seeks to "make cities and human settlements inclusive, safe, resilient and sustainable." Target 11.2 seeks to: "By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons." The GOAB also endorsed the *United Nations Decade of Action for Road Safety 2011-2020*. Enhancing the behaviour of road users is one of five pillars of the Action Plan.¹ Road safety awareness is critical component for behavior change and modification. To this end, the GOAB has supported through annual Zero Road Fatality campaigns in partnership with Non-governmental Organisations (NGOs), among other initiatives.

1.02 Available data shows that 4,044 road accidents and 31 fatalities were sustained from 2008 to 2011 (Table 1). Although fatalities averaged 8 persons per annum for 2008-2011, the year 2015 had 13 road fatalities.² Serious injuries accounted for 16.3% of 642 injuries for the period 2008 and 2011 (Table 2). Males are at greater risk for injury representing 400 (or 62.3%) of cases compared with 242 for females. Enhancing gender-responsive road safety awareness interventions which address gender, age (children, youth, elderly and working age), disability, among other risk factors is a catalytic and preventative strategy to avert human capital losses and empower road users. Road traffic injuries cost low and middle income countries between 1%– 2% of Gross National Product (Global Status Report on Road Safety 2015).

1.03 This consultancy supports road safety awareness interventions in light of the rehabilitation of 6 roads corridors. The Friars Hill Road and the Sir George Walter Highway will be rehabilitated via the United Kingdom Caribbean Infrastructure Partnership Fund's *Road Infrastructure Rehabilitation, Antigua and Barbuda* Project. Anchorage Road, Sir Sydney Walling Highway, Valley Road North Road and Old Parham Road will be rehabilitated via the Caribbean Development Bank's *Road Infrastructure Rehabilitation and Capacity Building, Antigua and Barbuda* Project.

¹ The Action Plan consists of 5 pillars of activities: building road safety management capacity; improving the safety of road infrastructure and broader transport networks; further developing the safety of vehicles; enhancing the behaviour of road users; and improving post-crash response (http://www.who.int/roadsafety/decade_of_action/plan/en/).

² Source: Road safety group targets zero deaths for 2016, January 29, 2016 (<http://antiguaobserver.com/road-safety-group-targets-zero-deaths-for-2016/>). Comparatively, the *Global Status Report on Road Safety 2015* reports 6.7 fatalities per 100,000 population (based on 2013 data). The proportion of road traffic crash victims with permanent disability was unavailable in the report. However, the effectiveness of overall enforcement (respondent consensus) was rated 5 out of 10. There are no national laws regarding helmet use, seat-belt use and mobile phone use while driving.

**TABLE 1: NUMBER OF ROAD ACCIDENTS AND FATALITIES BY
(FAULT OF DRIVER) 2008-2011**

Year	Accidents	Fatalities
2008	959	10
2009	1031	6
2010	1052	5
2011	1002	10
Total	4044	31

Source: Statistics Division 2017

TABLE 2: NUMBER OF ROAD ACCIDENTS WITH INJURIES 2008-2011

Year	Males	Females	Total	Serious	Slight	Total
2008	83	44	127	22	105	127
2009	117	76	193	32	161	193
2010	97	62	159	27	132	159
2011	103	60	163	24	139	163
Total	400	242	642	105	537	642

Source: Statistics Division 2017

2. OBJECTIVES

2.01 The aims of this consultancy include the development and implementation of Gender-responsive Road Safety Awareness Communication Strategy for the 6 road corridors. Specifically, the consultancy will:

- (a) produce materials and raise road safety awareness of the public via multiple media channels;
- (b) emphasise road safety awareness of men, women, age cohorts (children, youth, elderly and working age), persons with disabilities (PWDs), among other at-risk groups; and
- (c) assess the success of the implemented strategy.

3. SCOPE OF SERVICE

3.01 The Consultants will perform all investigative work, and analyses to realise the abovementioned objectives. The consultants will undertake desk and field work, and consultation with relevant persons within, as well as persons outside the sector. Specifically, the Consultants will:

- (a) review secondary data including *Gender Equality Guidelines for Implementing Infrastructure Projects*, reports, studies, gender analytical reports, poverty assessments, relevant strategic sector plans, policy and legal documents, international/regional/national literature, and data sources such as censuses, and surveys;
- (b) collect primary data through participatory consultations with state and non-state stakeholders to inform robust design and gain buy-in for implementation. Elite interviews, focus groups, site visits, transect walks, and other appropriate participatory methodologies must be employed. Focus groups may be convened separately for men,

women, age cohorts (children, youth, elderly and working age), PWDs, among other at-risk groups. Examples of stakeholders include:

- (i) public agencies such as Ministry of Works and Housing (MWH), Ministry of Education, Ministry of Youth, Ministry of Health, Ministry of Social Transformation and Human Resource Development, Directorate of Gender Affairs, Development Control Authority, Antigua and Barbuda Transport Board, Principals etc.;
 - (ii) private sector partners such as the Antigua and Barbuda Hotel and Tourist Association; and
 - (iii) non-governmental organisations (NGOs) such as the Road Safety Group, Antigua and Barbuda Association of Persons with Disabilities, parent teachers' association, student representatives/youth leaders; and other vulnerable groups.
- (c) analyse and present sex, disability and age cohort disaggregated data throughout the consultancy.

3.02 The Consultants shall prepare a Situation Analysis of road safety awareness in Antigua and Barbuda. The analysis must identify, *inter alia*;

- (a) existing and planned road safety awareness interventions, including the gaps, lessons learned, good and bad practices;
- (b) at risk groups and the appropriate communication strategies, media and language to reach out to the wider public including the identified at risk groups; and
- (c) key stakeholders and partners (public, private and NGO sectors) working in the sector, and arrangements for maximising partnerships.

3.03 The Consultants shall design a context-specific and Gender-responsive Road Safety Awareness Communication Strategy. The strategy must include, *inter alia*,

- (a) road safety awareness information for multiple channels, including, print, radio, TV, websites, and social media;
- (b) design concepts and outreach packages, including banners, leaflets, templates and other knowledge products, in line with the GOAB and CDB's branding and editorial guidelines. These should be delivered in the format specified by MWH for print, as well as for electronic dissemination. All templates/materials/files must be provided in "editable" formats;
- (c) feedback mechanisms to measure the effectiveness of the strategy. This should provide avenues for stakeholders to raise concerns around implementation and have them addressed within 2 months of the campaign; and
- (d) the institutional framework, as well as human and financial resource requirements necessary for implementation of the Strategy must be clearly defined.

3.04 The Consultants shall convene Stakeholders' Consultation Workshop(s)/Meeting(s) to review the *Draft* Gender-responsive Road Safety Awareness Communication Strategy with key stakeholders in the

public, private and NGO sectors. The consultant shall prepare a Stakeholders' Workshop Evaluation Report to document participants' profile and feedback gleaned from the workshop(s). The consultant shall incorporate feedback into the *Revised* Gender-responsive Road Safety Awareness Communication Strategy.

3.05 The Consultants shall implement the approved Gender-responsive Road Safety Awareness Communication Strategy.

3.06 The Consultants shall assess and measure the implementation of the Gender-responsive Road Safety Awareness Communication Strategy. The Consultants shall prepare an Implementation Report for the Strategy which outlines the achievements/success of the implementation, lessons learnt, gaps identified and recommendations.

4. REPORTING

4.01 The following deliverables shall be submitted at the times indicated below:

- (a) Situation Analysis, within two months of commencement of the assignment.
- (b) *Draft* Gender-responsive Road Safety Awareness Communication Strategy, within six months of commencement of the assignment.
- (c) Stakeholders' Workshop Evaluation Report and *Revised* Gender-responsive Road Safety Awareness Communication Strategy, within eight months of commencement of the assignment.
- (d) Implementation Report for the Strategy, within 12 months of commencement of the assignment.

4.02 CDB and MWH will provide feedback for each of the deliverables described above within ten working days of receiving the submissions. All submissions shall contain sex, disability and age cohort disaggregated data and critical gender analysis.

5. IMPLEMENTATION ARRANGEMENTS

5.01 GOAB will appoint a Project Coordinator (PC). The PC will facilitate the work of the Consultants and make available all relevant project-related reports and data relevant to completion of the exercise, and will act as liaison between the consultants, CDB and GOAB officials and stakeholders.

6. QUALIFICATIONS AND EXPERIENCE

6.01 The firm/organisation must have experience in social marketing in the traditional and new media industry, including experience in communications for promoting gender equality and social inclusion of vulnerable groups. Knowledge of vulnerable groups of youth, elderly, children, persons with disabilities, and gender issues affecting men and women respectively is critical for this assignment.

6.02 The firm/organisation shall have a combination of experience and/or formal training in communications, public relations, digital and social media strategy, graphic design and video production.

7. DURATION

7.01 It is expected that the assignment will require a maximum of 80 days over 12 months.

BUDGET
(USD)

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

Project Activity	Potential Negative Impact	Proposed Mitigation Measures	Institutional Responsibility	Cost Estimates
Pre-preparation				
Land Acquisition	Disagreement in relation to land assessed value, award and compensation	GOAB's utilisation of land acquisition procedures including in keeping with the Land Acquisition Act of 1958	MWH (with Private Land Owners)	2.7mn
Site Clearance	Disruption to utilities services	Pre-construction discussions with APUA to discuss proposed road rehabilitation; Identify location of utility infrastructure; Upgrade utility infrastructure prior or in concert with the road rehabilitation to reduce negative impact on communities. Communities informed of disruptions	MWH Contractor	Nil
Site Clearance	Ecosystem degradation	Re-vegetate areas where necessary; Mandate Forestry Division to supervise works undertaken in protected areas; minimise impact on fauna and flora; identify and install signs in areas known to be frequent crossing for wildlife erected to warn drivers; prohibit hunting of birds or other wildlife by employees; Observe policies, rules and regulations of all recognised natural habitats, wetlands and protected areas in consultation with the Forestry Division prior to construction.	MSTCD FD Ministry of Tourism	Nil
Site Clearance	Reduced aesthetic quality	Replanting and re-vegetation to enhance the landscape.	MST Forestry Division MoT	
Levelling and grading site and access	Sediment run-off and potential for landslides	Minimisation of excavated areas and or re-vegetation of ground cover; Where slopes are cut, keep angle of slopes within limits of soil type, balance cut and fill to limit steepness of slopes; Use retaining structures; Use silt fences, baffles, filters, or sedimentation basins to prevent sedimentation.	Contractor	Nil
Construction Phase				
Civil works	Traffic disruption; accidents; injury, deaths	Undertake road rehabilitation on alternate sides of the road where possible; Implement traffic management plan to include proper signage, use of alternative routes, Increase deployment of traffic police; identifying alternative routes; erect proper signage; undertake effective public awareness	MWH	8000
Civil works	Blockage of access to homes, buildings, shops and roadways; Dust pollution	Apply water to suppress dust where needed; Meet with home owners and improving access in keeping with the objectives of the road rehabilitation.	MWH MST Local Authorities	20,000
Civil works	Disruption of tourist activities and access to services by other road users	Provide timely and accurate information to service providers and visitors on traffic management plan; Erect adequate direction and safety signs; Prioritise roads that are most critical to the tourism industry.	MWH Antigua and Barbuda Hotel Association. MoT	

DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN Cont'd

Project Activity	Potential Negative Impact	Proposed Mitigation Measures	Institutional Responsibility	Cost estimates
Civil works	Disruption of economic activities of vendors	Provide specially demarcated areas for short-term use for stalls, facilitate engagement concerning suitable permanent locations for vendors' stalls along rehabilitated roads; and consider possible provision of a stipend for those who may lose their livelihood during that period	MWH MST Vendors Contractor Local Authorities	
Civil works	Access to project information & potential impacts	Establish formal Community Participation Groups (CPGs) consisting of representatives of residents and businesses along the rehabilitated roads, as well as the MWH ¹ to manage information flow between project implementers and communities; and b) appoint a community liaison officer to coordinate the CPG, and implement a Stakeholder Participation Plan.	MWH Contractor	
Civil works	Social and gender-based Risks on Work Sites in male dominated sector ²	Provide social and gender sensitisation training of the MWH and other partner ministries, contractors and construction workers to manage the risks identified	MWH MST MOY Directorate of Gender Affairs Contractor Construction Workers	
Civil works	Inaccessible road infrastructure for persons with disabilities (PWDs)	Ensure the design and rehabilitation of roads incorporate universal design criteria to accommodate physical access for PWDs.	MWH MST Development Control Authority Board Contractor Antigua and Barbuda Association of Persons with Disabilities Transport Board	
Civil works	Lack of access to employment opportunities at the community level for women, youth, disabled persons and other poor	Develop a register of persons with the relevant skills to encourage the employment of poor and vulnerable groups identified and small businesses identified at the community level	MWH Ministry of Social Transformation Contractor Antigua and Barbuda Association of Persons with Disabilities NGO/CBOs	

¹ The Project Management Team will ensure that CPGs are inclusive, adequately representing the various groups of persons residing in project communities reflective of distribution by sex (males/females), youth, and disability PWDs. Prior to commencement of construction, the engineering consultants will brief MWH and CPG on the works.

² Risks identified include but are not limited to commercial sex, alcohol and drug use, sexually transmitted diseases like HIV/AIDS, and managing gender relations/conflict resolution.

DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN Cont'd

Project Activity	Potential Negative Impact	Proposed Mitigation Measures	Institutional Responsibility	Cost estimates
Civil works	Unsafe working conditions and injury	Train employees in health and safety; Prepare occupational safety reference manual; provided workers with personal protective equipment for dust and noise and for protection of the eyes, the hands and the feet; Supervise use of chemicals using a senior employee with certification in the use of chemicals; Observe labour laws and working conditions for all employees	MHW Contractor	Part of Contractor cost
Civil works	Unsafe working conditions; accident or injury to public	Employees wear protective gear; Regulate the speed of vehicles to. 30 -35 mph; Restriction of operating times to avoid early morning, late evenings and weekends; Regulating the hours of operation especially in areas in close proximity to schools, health centres or hospitals; Regular maintenance of vehicles, equipment and tools.	MWH Contractor	Part of Contractor cost
Civil Works	Air pollution; Noise	Reduce the impact of quarry operation on the adjacent communities and the environment.	MWH	Part of Contractor cost
Civil Works	Air pollution	Use water to reduce dust; Ensure that vehicles carrying construction material are covered; Limit speed around construction area	Contractor MHE MWH	US\$40/month
Civil Works	Negative health impact	Ensure proper use and storage of oils and other chemicals; Remove and properly store all unused soil or particulate matter; construct grit traps as part of the drainage system to reduce clogging; Ensure construction of drains and culverts are undertaken to the highest specification to reduce flooding; ensure maintenance of existing drains and culverts.	MWH	Part of operations cost
Civil Works	Solid waste discharges	Provide adequate system for the collection, transportation and disposal of garbage and other solid waste generated at the sites; implement measures to prevent sediment and silt to contain and prevent silt from getting into drains or surface water by the use of barriers.	Contractor	Nil
Excavation	Spread of invasive Species	Restrict transportation of soil from affected area to other areas so as to curtail the spread of the Giant African Snail. Wash the wheels of all vehicles involved in soil excavation to remove soils material to curb the transfer of this snail to other areas.	Contractor MWH	Nil

DRAFT ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN Cont'd

Operational Phase				
Project Activity	Potential Negative Impact	Proposed Mitigation Measures	Institutional Responsibility	Cost estimates
Road Users	Increased traffic movement; health and safety risks to public; noise pollution; reduced air quality	Air emissions monitoring; noise monitoring; spill preventing and response plan	MWH	Part of operations cost
Road Users	Increased speeding on rehabilitated roadways	Implement a <i>Gender-responsive Road Safety Awareness Strategy</i> using community-driven strategies to target road users and at risk sub-groups such as young males and females, children, elderly and disabled persons.	MWH Antigua and Barbuda Road Safety Group	
Road Users	Citizen security risks	Coordinate the provision of street lighting and location of disability accessible bus stops guided by community level crime and victimisation data available	MWH APUA	

DRAFT TERMS OF REFERENCE
PROJECT COORDINATOR

1. BACKGROUND

1.01 The Government of Antigua and Barbuda (GOA) wishes to establish a Project Implementation and Management Unit (PIMU) within the Ministry of Works and Housing (MWH). The PIMU will be responsible for the management and implementation of the CDB-financed portfolio of projects in Antigua and Barbuda.

2. OBJECTIVE

2.01 The objective of the consultancy is the effective and timely achievement of the project outputs and outcome(s) through efficient coordination of project implementation.

3. SCOPE OF WORKS

3.01 The Project Coordinator will report to the Director, MWH, or an officer designated, and will be assigned exclusively to the CDB portfolio of projects being executed under the Project Implementation and Management Unit, as outlined at paragraph 1.01 and will mainly be responsible for the implementation of the works. His/her duties will include, but will not be limited to:

- (a) acting as MWH's representative with all major stakeholders including government and non-governmental agencies, sub-contractors and suppliers;
- (b) provide management and oversight of the Utility Relocation Programme;
- (c) providing contract administration services to MWH in relation to the project, in keeping with the *Gender Equality Guidelines for Implementing Infrastructure Projects* to include for, but not be limited to:
 - (i) project monitoring, specifically: (aa) finalising the Results Monitoring Framework, including collecting baseline data; (bb) developing a detailed results monitoring plan which clearly outlines the methods, sources, responsibilities and timelines for data collection; and (cc) collecting, analysing and reporting the results data as required by the Results Monitoring Framework; The data collected must be disaggregated by sex (males and females) and disability status (persons with disabilities and without disabilities);
 - (ii) managing the selection and engagement of technical assistance consultants and supervising these consultancies;
 - (iii) evaluation of bids and recommendation of the awards for the engineering consultants and construction contracts in consultation with the Technical Advisory Committee;
 - (iv) overseeing the engineering consultancies, to include for supervisory and certification of the works engineering consultant and construction contracts;
 - (v) overseeing capacity-building consultancies for the: (aa) provision of social and gender capacity building training for the MWH and other Government agencies,

road contractors' and construction workers'; and (bb) development and implementation of a *Gender-responsive Road Safety Awareness Communication Strategy*;

- (vi) managing the selection and engagement of design-build contractor and supervising these works; and
 - (vii) cost control.
- (d) In consultation with Procurement Officer, develop and implement a project management and contract administration mentorship programme for Junior Engineers in MWH aimed at closing significant skill gaps. The programme will be implemented on a rotational basis and address areas such as procurement, time and cost control, contract documentation, and other issues related to management and administration of the implementation of construction contracts.
- (e) Supervising and monitoring all construction sites for compliance with safety standards as well as governance requirements and requirements of regulatory agencies.
- (f) Ensuring requirements of the CDB are met to include for but not limited to:
- (i) expedition of the submission to CDB of claims for disbursement/reimbursement;
 - (ii) liaison with CDB on all technical and administrative aspects of the project;
 - (iii) preparation and submission to CDB of a Quarterly Report on the Investment Cost of the project in the form specified by CDB, within two weeks after the end of each calendar quarter, commencing with the quarter following the commencement of the assignment;
 - (iv) keeping separate accounts for project-related expenditures and disbursement activities;
 - (v) submission to CDB, within two weeks after the end of each month, of the monthly reports prepared by the Engineering Consultants;
 - (vi) submission to CDB of the annual report describing progress on targets outlined in the results monitoring framework and the level of road maintenance at the end of the preceding year;
 - (vii) submission to CDB of the Contract Completion Report within three months after the date of issue by the Engineering Consultants of a certificate of practical completion of each contract;
 - (viii) preparation and submission to CDB of a Project Completion Report, within three months after practical completion of the works. This report will focus on the project's performance on desired results as outlined in the results monitoring framework and lessons learned; and

- (ix) execute responsibilities for mainstreaming of gender equality and universal design environmental access requirements for persons with disabilities.

4. DURATION

- 4.01 The consultancy is expected to be conducted over a period of approximately 40 months.

5. QUALIFICATIONS

- 5.01 Prospective candidates must be civil engineers with a minimum of the following qualifications:

- (a) a Masters Degree or equivalent in Civil Engineering, Construction Management or Project Management with a minimum of 10 years' experience in the management and implementation of civil engineering projects; or
- (b) a Bachelors Degree or equivalent in Civil Engineering, Construction Management or Project Management with a minimum of 15 years' experience in the management and implementation of civil engineering projects.

DRAFT TERMS OF REFERENCE
PROJECT ENGINEER

1. PROJECT ENGINEER

1. The Project Engineer (PE) will report to the Project Coordinator, Project Implementation Management Unit (PIMU) and will mainly be responsible for assisting with the implementation of the infrastructure works. His/her duties will include, but will not be limited to:

- (a) assisting PIMU with the supervision of the engineering consultants, including review of the monthly and project completion reports prepared by the Engineering Consultants;
- (b) advising PIMU on technical aspects and costs variations of construction;
- (c) assisting PIMU with the management and administration of the construction contracts;
- (d) assisting PIMU with the supervision of the implementation of the Environment and Social Management Plan to ensure that the needs of vulnerable groups of men, women, persons with disabilities, youth and elderly, in keeping with the approved *Gender Equality Guidelines for Implementing Infrastructure Projects*;
- (e) assisting PIMU with overseeing capacity-building consultancies for the (1) provision of social and gender capacity building training for the MWH and other Government agencies, road contractors' and construction workers' and (2) development and implementation of a *Gender-responsive Road Safety Awareness Communication Strategy*; and
- (f) any other duties assigned by PIMU.

2. Prospective candidates must be civil engineers with a minimum of the following qualifications:

- (a) a Masters Degree or equivalent in a civil engineering discipline, Project Management, Construction Management or related subject together with a minimum of five years' experience in engineering design and supervision, including project implementation; or
- (b) a Bachelors Degree in civil engineering and a minimum of eight years of suitable experience in engineering design and supervision, including project implementation.
- (c) a Bachelors Degree in civil engineering and a minimum of eight years of suitable experience in engineering design and supervision, including project implementation.
- (d) a Masters Degree or equivalent in a civil engineering discipline, Project Management, Construction Management or related subject together with a minimum of five years' experience in engineering design and supervision, including project implementation; or
- (e) a Bachelors Degree in civil engineering and a minimum of eight years of suitable experience in engineering design and supervision, including project implementation.

DRAFT TERMS OF REFERENCE
QUANTITY SURVEYOR

1. BACKGROUND

1.01 The scope of works shall entail the following professional services as the Quantity Surveyor (QS) in assisting, Project Implementation Management Unit (PIMU) of the Ministry of Works and Housing (MWH) in the administration of the Contractual arrangement between the Government of Antigua and Barbuda (GOAB) and the Design-Build Contractor of the Road Infrastructure Rehabilitation Project being funded by the Caribbean Development Bank (CDB). The expected outcome of the project is the rehabilitation of road infrastructure through climate resilient designs and construction methods and enhanced institutional capacity.

2. OBJECTIVE

2.01 The objective of the consultancy is the effective and timely achievement of the project outputs and outcome(s) through efficient delivery of services.

3. SCOPE OF WORKS

3.01 The Quantity Surveyor will report to the Project Coordinator, PIMU or an officer designated, and will be assigned exclusively to the project. His/her duties will include, but will not be limited to:

- (a) Assist with preparation and review of Design-Build Bid Documents prior to issuance.
- (b) Assist with the evaluation of the Bid submissions through price analysis.
- (c) Conduct periodic inspection of the works as in keeping with the Contractor's project schedule, namely that of the completion of mile stone tasks, and as the QS shall consider necessary to verify that the works are being executed in accordance to the Conditions of the Agreement, and that the quality of materials and workmanship are in accordance with standard specifications and good engineering practices.
- (d) Assessment of claims for direct loss and expense as verified by the Engineering Supervision Consultant and negotiate any settlement with the contractor on the behalf of the GOAB in consultation with the Consulting Engineer.
- (e) Verification of measurement of works as completed by the contractor as executed where provisional or approximate bills of quantities are provided.
- (f) To visit the site, measure and evaluate all of the Contractor's claims.
- (g) Assist with the process of Project Cost Control with the completion of measurements and evaluation of authorised variations.
- (h) Re-measurement of provisional sections of works which were not sufficiently determined and measured on the completion of the first formal inspection.

- (i) To monitor the Contractor's and any of his sub-contractor's work performance in consultation with the GOAB Engineering Supervision Consultant and assist in the completion of cash flow forecasts.
- (j) To note any delays which would affect the agreed completion date and make the necessary recommendations which would mitigate any request for extensions of time.
- (k) Assist with the preparation and issuance of a certificate on Practical Completion of Works together with a **'Defects List'** and follow-up the completion of defects by the Contractor prior the issuance of the final account.
- (l) The re-measurement of the works on completion of the project to facilitate the agreement of the final account with the Contractor and issue the Penultimate Certificate in consultation with the Engineering Supervision Consultant.

3.02 Prospective candidates must be a Quantity Surveyor with a minimum of the following qualifications:

- (a) a Masters Degree or equivalent in a Quantity Surveyor discipline, Project Management, Construction Management or related subject together with a minimum of five years' experience in engineering design and supervision, including project implementation; or
- (b) a Bachelors Degree in Quantity Surveying and a minimum of eight years of suitable experience in construction, engineering design and supervision, including project implementation.

**FUNCTIONS AND RESPONSIBILITIES
OF THE COMMUNITY LIAISON OFFICER**

1. The Road Rehabilitation and Institutional Capacity Building Project will impact a wide range of stakeholders. To enhance project benefits, mitigate community dissatisfaction and avoid implementation delays it is recommended that stakeholder identification and involvement should be a dynamic ongoing process prior to, during and after project implementation. A Community Liaison Officer (CLO) will be appointed to ensure that a best-practice approach is employed to provide stakeholders with a number of opportunities to participate in the decision making regarding issues that affect them as the project progresses. The CLO will be a member of the Project Implementation and Management Unit and will report to Project Coordinator (PC). The overall responsibility of CLO is to formulate and implement the project's Stakeholder Participation Plan inclusive of clearly defined Communication Strategies. The specific responsibilities of CLO will include:

- (a) identifying project stakeholders;
- (b) identifying project issues that will impact different groups of stakeholders;
- (c) developing and maintaining constructive stakeholders relationships to include, *inter alia*, youth, men/women, boys/girls, and persons with disabilities;
- (d) determining appropriate engagement levels, techniques and duration to provide timely input into project development;
- (e) providing communities affected and the general population with regular information regarding progress of project implementation and implication of works proposed;
- (f) coordinating the establishment and effective functioning of formal Community Participation Groups (CPGs)¹ consisting of representatives of residents and businesses along the rehabilitated roads, as well as MWH representatives.
- (g) promoting awareness of gender, youth and disability-responsive safety issues related to construction and road use by arranging road safety workshops/talks;
- (h) identifying any new issues that may arise prior to and during implementation;
- (i) monitoring implementation of the Gender Action Plan, as well as the social and gender mitigation measures during construction guided byin the Environmental and Social Management Plan to ensure that the needs of vulnerable groups of men, women, persons with disabilities, youth and elderly, in keeping with the approved *Gender Equality Guidelines for Implementing Infrastructure Projects*;
- (j) monitoring stakeholder attitudes to the developmentproject;
- (k) encouraging the participation of youth, women and persons with disabilities in non-traditional roles during project implementation;

¹ The objectives of the CPG is to: (a) keep community members informed on matters related to implementation including unexpected disruptions and inconveniences that could emerge; and (b) facilitate reporting to MWH, on matters of concern to residents and the business community.

- (l) monitoring direct and indirect employment under the Project (disaggregated by males, females and nationality);
- (m) monitoring gender, disability and cultural responsiveness of the communication plan;
- (n) monitoring and evaluating community participation; and
- (o) collaborating with other members of the Project Coordinating Team to effectively execute the Stakeholder Participation Plan inclusive of Communication Strategies.; and
- (p) coordinate the establishment and effective functioning of formal CPGs² consisting of representatives of residents and businesses along the rehabilitated roads, as well as MWH representatives.

DELIVERABLES AND REPORTING REQUIREMENTS

2. The Consultant(s) will be expected to provide one hard copy and one electronic copy of the following for each phase of project implementation:

- (a) a draft interim report detailing:
 - (i) identified potential stakeholders of target area by category;
 - (ii) an assessment of households to be affected by land acquisition; and
 - (iii) the composition of at least one CPG for each road, with representatives of residents and businesses along the rehabilitated roads, as well as the MWH representatives. The profile of the members such as name, sex (males/females); age cohort (youth, elderly etc), disability status (disabled vs non-disabled), residential location, and business/community group represented. The frequency of meetings and procedures for conducting meetings, documenting discussions held and decisions taken must be outlined.
- (b) the sub-project Stakeholder Participation Plan inclusive of clearly defined Communication Strategies two weeks prior to implementation at any given phase of the Project;
- (c) monthly progress reports documenting:
 - (i) community forums held by type;
 - (ii) social mitigation measures implemented and level of stakeholder satisfaction;
 - (iii) direct and indirect employment created by the Project (disaggregated by males, females and nationality);

² The objectives of the CPG is to: (a) keep community members informed on matters related to implementation including unexpected disruptions and inconveniences that could emerge; and (b) facilitate reporting to MWH, on matters of concern to residents and the business community.

- (iv) monitoring and evaluating the social and gender sensitivity and cultural appropriateness of the communication plan. To achieve this the CLO will measure and provide analysis by sex, age, nationality, occupation, interest group and other socio-cultural characteristics identified in the target area:
 - (aa) percent target group engaged;
 - (bb) number of participants per forum;
 - (cc) demographics of emerging leader/decision makers; and
 - (dd) level of public-private dialogue in the affected communities.
- (v) monitoring and evaluating community participation.

QUALIFICATIONS AND EXPERIENCE

3. CLO should have:

- (a) Bachelor's degree in the social sciences or mass communication;
- (b) a minimum of ten years practical experience in stakeholder assessments and participatory assessment and communication techniques;
- (c) a strong background in community research; and
- (d) sensitivity to gender, youth, disability and labour issues would be a distinct assets.

DRAFT TERMS OF REFERENCE
ENVIRONMENTAL MONITORING OFFICER

1. The Environmental Monitoring Officer (EMO), who will be assigned to the project by the Environmental Department, will report to Project Coordinator of the Project Implementation Unit (PIMU) and is responsible for ensuring that environmental requirements are adhered to during the construction phase of the Caribbean Development Bank-financed projects implemented by the Ministry of Works and Housing (MWH) through the PIMU. His/her duties will include, but will not be limited to:

- (a) reviewing mitigation measures in the contractor's environmental protection plan (EPP) for suitability and appropriateness and likelihood of meeting performance requirements as stated in the bid documents/contract specifications and project design details including specific items such as responsibilities for environmental monitoring, safety, environmental, social and gender reporting, public information, consultations and grievance mechanisms;
- (b) monitor the implementation of the Environment and Social Management Plan to ensure that the needs of vulnerable groups of men, women, persons with disabilities, youth and elderly, in keeping with the approved *Gender Equality Guidelines for Implementing Infrastructure Projects*;
- (c) liaising with the engineering and supervision consultants engaged by MWH to ensure effective and timely implementation of environmental management measures;
- (d) undertake regular site supervision visits to projects under implementation to check compliance with EPP implementation at each project site by conducting environmental inspections and preparing Environmental Inspection Reports (EIR) for each such visit. EIR should validate the monthly reports received from the engineering and supervision consultants;
- (e) obtain feedback about EPPs and their implementation process from various concerned stakeholders to resolve issues faced during implementation and strengthen compliance in future activities;
- (f) review Compliance Reports on EPPs submitted by the consulting and supervision engineers engaged under the assigned projects; and
- (g) monitor environmental-related activities to be carried out by consulting and supervision engineers as necessary.

2. Prospective candidates should have a minimum of the following qualifications:

- (a) a Masters Degree in Environment Engineering/Environmental Sciences/Environmental Studies or related field with a minimum of eight years' experience. Environmental Impact Assessment/Environmental Management Plan/Environmental Management Framework implementation/monitoring including construction projects.

DRAFT TERMS OF REFERENCE
ACCOUNTING OFFICER - PROJECT IMPLEMENTATION
AND MANAGEMENT UNIT

1. BACKGROUND

1.01 The Government of Antigua and Barbuda (GOAB) wishes to establish a Project Implementation and Management Unit (PIMU) within the Ministry of Works and Housing (MWH). PIMU will be responsible for implementing major economic and social infrastructure projects assigned to MWH.

2. JOB DESCRIPTION

General Accountabilities

2.01 The Accounting Officer (AO) reports to Ministry of Finance (MOF) and is primarily responsible for keeping accounting records and preparing financial statements and payroll on expenditures for PIMU and disbursement claims for financing agencies. AO is responsible for assisting MOF in tracking budgetary expenditure for PIMU and preparing the relevant reports. AO also assists MOF in the preparation of the administrative budget of PIMU.

Specific Accountabilities

2.02 This position must:

- (a) assist MOF in the preparation of PIMU administrative budget;
- (b) maintain a General Ledger and Schedules (or such other recording and accounting systems required by GOAB and in accordance with generally accepted accounting practices) of all expenditures relating to projects under implementation;
- (c) coordinate with Project Coordinator and MOF in the establishment of a system of reporting on local counterpart requirements and disbursements;
- (d) prepare requests for disbursements from the financing agencies;
- (e) prepare monthly financial statements and supporting schedules;
- (f) prepare financial statements as required for management and/or as specified by lending/donor agency agreements with GOAB;
- (g) prepare financial information for special reports for internal and external use;
- (h) review and track details of all claims from consultants and contractors;
- (i) prepare the payroll (inclusive of benefits, deductions, etc.) for PIMU staff;
- (j) prepare accounts receivable billings for staff and others, reconcile suppliers' statements and accruals of quarterly and yearly administrative expenses; and
- (k) any other administrative duties assigned by MOF.

Qualifications and Experience

2.03 AO is expected to have a Bachelor's degree in accounting or related field or mid-level accounting professional qualification (e.g. Level 2 ACCA, Level 3 CGA). A minimum of three years' experience in accounting is required, in addition to proficiency in computer skills, including use of spreadsheets, database management and word processing. Good written and oral communications skills are required. Prior project-related experience would be an asset.

DRAFT TERMS OF REFERENCE
PROCUREMENT OFFICER – PROJECT IMPLEMENTATION
AND MANAGEMENT UNIT

1. BACKGROUND

1.01 The Government of Antigua and Barbuda (GOAB) wishes to establish a Project Implementation and Management Unit (PIMU) within the Ministry of Works and Housing (MWH). The PIMU will be responsible for the management and implementation of the Caribbean Development Bank (CDB) - financed portfolio of projects in Antigua and Barbuda.

2. JOB DESCRIPTION

General Accountabilities

2.01 The Procurement Officer (PO) reports to the Project Coordinator (PC), PIMU and is responsible for providing technical advice on procurement activities to internal and external clients during all phases of the procurement cycle as specified in the Procurement Plans. He/she will contribute to the development of institutional capacity with respect to procurement policies and procedures to ensure projects realise a high standard of procurement throughout the implementation process.

Specific Accountabilities

2.02 The responsibilities of the PO are to:

- (a) act as a secretary to the Evaluation Committees, ensuring that evaluation of bids/proposals received is done on the basis of criteria stipulated in the bidding documentation and performed in accordance with the procurement procedures set forth in the respective Grant and Loan Agreements of assigned CDB projects;
- (b) ensure procurement of goods and services is conducted, including advertising, in accordance with the respective Grant and Loan Agreements;
- (c) formulate appropriate evaluation criteria, in the preparation of draft bidding documents, and transmission of those documents to CDB and MWH in a timely fashion for review and no objection;
- (d) monitor receipt of bids and proposals and ensure their safekeeping until bid opening;
- (e) carry out public bid openings and prepare minutes of these openings;
- (f) providing assistance to PIMU staff in drafting terms of reference, defining technical specifications, negotiating contracts, etc., as needed;
- (g) ensure preparation of comprehensive evaluation reports according to the standards of the CDB and timely transmission of evaluation reports to CDB for review and no objections;
- (h) notify winning bidders in a timely fashion, and draw up contracts for approval and signature by those individuals authorised to sign on behalf of MWH, ensuring transmission to CDB of draft contracts requiring prior review and no objection;

- (i) establish and maintain on the premises of the PIMU efficient procurement and contracting tracking system (noting important approval dates, awards, contract amounts, etc.), as well as a proper filing system to ensure quick retrieval of procurement information by MWH staff, visiting supervision missions, annual auditor, etc.;
- (j) for consulting contracts subject to prior review, send copies of draft negotiated contracts for CDB's review and no objection;
- (k) update the procurement plan as needed;
- (l) send procurement notices and contract awards for publication by CDB and national newspaper;
- (m) maintain regular communication with the PC and Accounting Officer to ensure that procurement tracking information is well coordinated with other project planning, project budgeting and other project financial reporting information;
- (n) in consultation with PC, develop and implement a project management and contract administration mentorship programme for Junior Engineers in MWH aimed at closing significant skill gaps. The programme will be implemented on a rotational basis and address areas such as procurement, time and cost control, contract documentation, and other issues related to management and administration of the implementation of construction contracts; and
- (o) perform any other appropriate tasks determined by PC.

3. QUALIFICATIONS AND EXPERIENCE

3.01 The successful candidate should have:

- (a) a first degree and post-graduate degree in a relevant discipline (e.g. Engineering, Law, Procurement, Finance or Business) with a minimum of eight years' experience in procurement, contract management, contract administration or logistics, of which at least two years must be directly related to a rules-based procurement management function typically associated with a multilateral institution;
- (b) training directly related to procurement or a recognised qualification in procurement;
- (c) knowledge of the current concepts, principles and practices which govern international procurement of goods and works and the contracting of consultant services;
- (d) knowledge of public procurement legislation, systems, organisation and practices, reinforced by prior experience of working on public procurement policy; and
- (e) proven ability to carry out assessments of procurement capacity of implementing agencies, design procurement arrangements for new operations and monitor actions during project implementation.

4. DURATION

4.01 The consultancy is expected to be conducted intermittently over a period of approximately 24 months.

BUDGET

PROJECT IMPLEMENTATION AND MANAGEMENT UNIT

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

DRAFT TERMS OF REFERENCE
CONSTRUCTION SUPERVISION

1. BACKGROUND

1.01 The captioned project's overall objective is to contribute to increased resilience in the road sector and the socio-economic development of Antigua. This expected outcomes of the Project are: (a) increased efficiency and resilience of road transportation along the Anchorage Road (AR), Sir Sydney Walling Highway (SWH), Valley Road (north) (VRN) and Old Parham Road (OPR); (b) enhanced institutional capacity of Ministry of Works and Housing (MWH); and (c) enhanced capacity of MWH to address gender equality in the future construction projects. The Consultant shall report directly to the Project Coordinator, of the Project Implementation Management Unit (PIMU) or his/her designate.

2. OBJECTIVES

2.01 The objectives of the assignment are as follows:

- (a) ensure that high-quality construction is achieved and that all work is carried out in full compliance with the contract documents and technical specifications; and
- (b) provide support to MWH in the execution of its project management functions, including its monitoring and evaluation functions.

3. SCOPE OF WORKS

3.01 The Consultant(s) will undertake the following tasks:

- (a) Climate Vulnerability Assessment: Review the Feasibility Study – Road Infrastructure Improvement Project and complete a Climate Vulnerability Assessment in keeping with the Terms of Reference Annexed.
- (b) Bid Document Preparation, Evaluation and Contract Negotiation: Prepare design-build bid documents in consultation with the Project Implementation and Management Unit of the Ministry of Works and Housing, For the procurement of specialised design-build services of the Project, provide technical support in the evaluation of the Design-Build Bid Documents and negotiation of conditions of contract with the Contractor to adjust contract terms to suit the GOAB administrative and legal requirements. Issue the Order to Commence to Contractor.
- (c) Contract Supervision: Technical support providing supervision of the Design-Build Contractor activities on behalf of MWH. In general, this includes carrying-out all the duties of the Engineer as specified in the Design-Build Contract, within the limitations specified therein, which corresponds to the following non-exhaustive activities:

Quality Control Supervision

- (i) Review and approve the detailed designs, shop drawings and technical information prepared in respect of the Project and submitted by the Contractor to ensure adequacy of all aspects of the design conform with the requirements of the contract agreement.

- (ii) Approve Contractor's key personnel including any substitutions during implementation.
- (iii) Approve materials and source of materials.
- (iv) Inspect the Works periodically during the construction period.
- (v) Supervise compliance with design standards.
- (vi) Liaise with Quantity Surveyor of the PIMU: ensure the works are executed as per the contract specifications, detailed design drawings and the bill of quantities.
- (vii) Ensure that inspection, approval and testing when necessary of all materials and workmanship is conducted.
- (viii) Supervise Tests on Completion.
- (ix) Order special tests of materials or completed works and/or removal and substitution of improper materials and/or work, as required.
- (x) Ensure follow up of all modifications and control of the changes.
- (xi) Coordinate required activities during the Defects Liability Period.

Schedule Control

- (i) Approve the contractor's work programme.
- (ii) Work proactively with the contractor in order to plan activities on a short, medium and long term.
- (iii) Define key milestones.
- (iv) Control and appraise the progress of the Works and report any significant delays.
- (v) Order suspension of the Works, if necessary, and authorise, with the employer's approval, extensions of the period for completion of the Works.
- (vi) Ensure contingency plan in case of delays.

Budget Control

- (i) Check documentation to support milestone payment requests.
- (ii) Check all quantity measurements and calculations required for payment purposes and ensure that all measurements and calculations are carried out in a manner and at the frequencies specified in the Contract Documents.
- (iii) Issue recommendations for payment of Contractors according to progress of works, based on Contract conditions.
- (iv) Follow up of payments (Information of payments actually processed shall be provided by GOAB).

Health, Safety and Environment Control

- (i) Monitor adherence to the Health and Safety Plan.
- (ii) Supervise the Contractor in all matters concerning public safety and care of the works and, if required, request the Contractor to provide any necessary lights, guards, fencing, and watchmen.
- (iii) Monitor adherence to the Environmental Management Plan.

Risk Management

- (i) Production and monitoring of a risk management plan.
- (ii) Constant assessment of the impacts of risks on the project.
- (iii) Definition of mitigation measures for each risk.

Contract Administration

- (i) Ensure contractual obligations are respected.
 - (ii) Explain and/or adjust ambiguities and/or discrepancies in the Contract Documents.
 - (iii) Issue variation orders, evaluate variations, fix rates for unpriced work, all after obtaining prior approval of the employer, and/or to make recommendations to the employer regarding alternatives.
 - (iv) Ensure amendments are in place and formalised when applicable.
 - (v) Management of claims, non-conformances, request for information, etc.
 - (vi) Issue of Taking Over Certificates.
 - (vii) Issue Certificates of Final Completion after the rectification by the Contractor of possible defects and end of Defects Liability Period, and recommendation for payment of retention money.
- (d) Stakeholder Management: Ensure the best interest of all the relevant stakeholders is taken into account when decisions are made, ensure their active participation in the decision making process and ensure close coordination and the appropriate flow of information. Ensures coordination of the stakeholders within the Organisational Structure of the Project.
- (e) Community Awareness/Social Management Plan: Coordination of community awareness activities in collaboration with Community Liaison Officer (CLO) and the Project Coordinator, to inform the community about project activities and benefits, as well as to conduct other sensitisation activities to be defined with GOAB. This will include the following non-exhaustive activities:
- (i) Participate in community meetings throughout project implementation to ascertain and inform, among other things, the communities' views on the Project, as well as the implementation progress and impacts.
 - (ii) Production and Monitoring of a Social Management Plan inclusive of critical aspects for mainstreaming of gender equality and universal design environmental access requirements/standards for persons with disabilities.

4. DURATION OF THE CONSULTANCY

4.01 The consultancy is expected to be conducted over a period of approximately 24 months. The Consultant will ensure additional support if necessary during the Defect Liability Period after the Taking Over Certificate has been issued. This support will be finalised by the issue of the Final Payment Certificate.

5. REPORTING REQUIREMENTS

5.01 The Consultant(s) will present the Reports in “pdf” format, as complete documents, as well as in Microsoft Word and Excel and/or other formats used in their creation. A copy of all data used in the preparation of the Reports shall also be submitted to CDB. These reports are as follows:

- (a) Inception Report: The Inception Report will be presented within 28 days after the signing of the Contract, and it will include: Consultant's detailed work schedule and methodology, including proposed resources.
- (b) Monthly Reports: The Consultant(s) will, no later than the specified date of each month, prepare a Progress Report summarising the work accomplished for the preceding month. The Reports will outline any problems encountered (administrative, technical, or financial) and give recommendations on how these problems may be overcome. The Reports will detail progress of ongoing works, include analysis and summaries of all test results, and shall record the status of payment of all contractor's monthly certificates, of all claims for cost or time extensions, and of actions required of MWH, other GOAB agencies, utility companies or other stakeholders to permit unconstrained works implementation. Information of payments actually processed should be provided by GOAB. The Reports shall all include for the monitoring of the requisite indicators of the Results Monitoring Frame Work.
- (c) Contract Completion Report: The Consultant(s) will prepare a comprehensive Contract Completion Report. This Report, which will be issued within 3 months after the issue of taking over certificate of the Design-Build contractor works, will include As-Built drawings and shall summarise the method of construction, the construction supervision performed, actual implementation progress and costs compared to planned progress and costs, quality assurance and quality control results, Operational Guidelines, Standards and Procedures for the Materials Laboratory, technical issues addressed.

6. CONSULTING TEAM STRUCTURE

6.01 The proposed modality of work is based on the assignment by a project team of professionals which will undertake the tasks listed above in order to achieve a successful completion of this infrastructure project while assuring the compliance with international procedures and regulations. The team will be constituted of the following key experts:

- (a) **Key Expert No.1: Supervision Team Leader/ Engineer (5 person-months):**
 - (i) Education: MSc. in Highway/Road Engineering or other satisfactory professional qualifications.
 - (ii) Experience: At least fifteen (15) years' of professional experience with a proven record of at least 10 years of managerial experience in projects of a similar nature and magnitude (preferably with financing by international financing institutions). Experiencing working in the region will be an advantage.
- (b) **Key Expert No.2: Resident Engineer (20 person-months):**
 - (i) Education: BSc. in Highway/Road Engineering.
 - (ii) Experience: At least fifteen (15) years' regional/international professional experience including at least 10 years of relevant experience including contract management.

(c) **Key Expert No.3: Quality Assurance Engineer (15 person-months):**

- (i) Education: BSc. in Highway/Road Engineering
- (ii) Experience: At least ten (10) years' of international professional experience including at least 5 years of relevant experience. He/she should have experience with the construction and testing of flexible pavements and bituminous surface dressings and their constituent materials in tropical countries. He/she should have experience in the establishment of a materials laboratory, training of staff to a specified accredited international standard. Experience working in the region would be an advantage.

6.02 A Design Review team will be required and an Administrative Assistant. In addition to this key personnel, expertise in Environmental and Social Management will be reinforced to cover the specific needs of the grant administrator on these fields.

7. **MANPOWER, SCHEDULING AND COSTS**

7.01 In estimating man-month requirements and costs of the services, the Consultant(s) should ensure that the proposal takes full account of all of the above requirements and the following items:

- (a) consultant(s) fees;
- (b) consultant(s) out-of-pocket expenses;
- (c) support staff services;
- (d) equipment hire; and
- (e) report production, documentation, and communication costs.

8. **COMMENTS BY THE CONSULTANTS**

8.01 The Consultant are required to make any comments on, and suggestions for, improvements to these TOR. The financial implications, if any, of these recommendations should be indicated in the Financial Proposal.

9. **COORDINATION AND FACILITIES**

9.01 MWH is the Executing Agency for the Consultancy. The Consultant(s) shall report to the Project Coordinator located within MWH. MWH will facilitate the issuance of any permits required for the Consultant(s) to carry out their duties and make available all relevant reports, documents, maps, and data. The Consultant(s) team members are expected to bring their own computers. MWH shall designate counterpart personnel whom the Consultant(s) shall mentor in all aspects of the assignment.

BUDGET
(USD'000)

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

CLIMATE VULNERABILITY ASSESSMENT

1. OBJECTIVES

1.01 The objective of this work is to undertake a Climate Vulnerability Assessment (CVA) for the proposed infrastructural road works. The CVA will identify and evaluate the effects of climate variability and projected climate change on the areas and communities where the roads are situated, assess the vulnerability of proposed works and identify options to increase resilience. The CVA should provide both qualitative and quantitative evidence that can be used for the financial and economic assessment of the various options under consideration for upgrading the roads.

2. SCOPE OF SERVICES

2.01 The consultant should undertake a quantitative analysis that is consistent with the Inter-Governmental Panel on Climate Change (IPCC) guidelines and includes, *inter-alia*, the sub-tasks listed below, drawing on data sources such as the Caribbean Community Climate Change Centre (5Cs), the World Bank's Climate Change Knowledge Portal and the CARIBSAVE Risk Atlas. A participatory and consultative approach is encouraged in the conduct of the services.

2.02 The objective of the CVA is to identify and evaluate the effects of climate change on the road and to identify options to increase its resilience through specific adaptation measures. The scope of services of the Consultant will include, but not be limited to the following tasks:

2.03 **Characterisation of the relevant road infrastructure, including, *inter-alia*:**

- (a) Information on road type, length, alignment, profile and width of road sections,
- (b) Photos and GPS data,
- (c) Data on traffic,
- (d) Information on road section surface type/pavement (asphalt/concrete/gravel),
- (e) Data on surface condition and serviceability (deterioration, surface condition, roughness, travel speed),
- (f) Data on road section history (construction, rehabilitation and heavy maintenance dates), information on road maintenance and repair strategies
- (g) Information on bridge condition,
- (h) Information on culverts condition

2.04 **Identify the relevant climate variables:** At a minimum the key climate variables would be temperature and precipitation changes, more precisely, maximum 24 hour daily precipitation (as the basis for assessing the risk of floods from surface runoff); incidence of hurricanes and tropical storms and sea level rise. Both historical data and future scenarios will be required. The consultant will be expected to provide advice on the appropriate recurrence intervals for meteorological events impacting the proposed siting and design of the infrastructure. It is recommended that the consultant begin with a consultation with stakeholders to obtain their historical knowledge of past events and responses.

2.05 The consultant would identify the hydraulic, hydrologic and topographic variables affecting road conditions together with characterisation of relevant climate variables and establishment of climate baseline. Mid-century climate change scenarios should be used to assess road and culvert design/capacity requirements. It is recommended that the consultants contact the 5Cs to obtain downscaled climate data from Regional Circulation Models.

2.06 **Estimate Future Impacts and vulnerabilities:** Once the climate change scenarios have been established the relationship between the changes in the climate parameters (such as average temperature and precipitation) and the impacts on the road must be quantified. For example the projected increases in the frequency and/or intensity of extreme precipitation leading to more frequent flooding events on the various sections of the road; extreme precipitation leading to increased river flows and implications for river training works along relevant sections of the road; and the impacts of more extreme precipitation on bridges. The most vulnerable sections “hotspots” should be identified. For the selection of these critical sites it will be important to focus on the local experience, e.g., the incidence of flooding.

2.07 **Adaptive Capacity Assessment:** The consultant will make an assessment of the adaptive capacity of the communities along the road. The assessment should consider how the communities would be affected by climate change in their interaction with the road and consider non-climate stressors such as poor land management practices in the surrounding watershed areas that may be contributing to land slide and erosion risk. The assessment should also include consideration of the environmental factors that may be contributing to vulnerability of the communities.

2.08 **Adaptation Assessment:** The consultant will identify and prioritise the most appropriate specific adaptation options or resilience measures to incorporate into the road design parameters to address the potential climate impacts. The consultants should consider a range of resilience options (eg. slope stabilisation measures, road realignment, higher standard of bridge design, increased maintenance, increased drainage, alternative routes in the event of flooding, river training, etc.). An economic analysis shall also be conducted of each technically feasible option, showing the costs and benefits, or a cost-effectiveness analysis if the adaptation options are expected to deliver the same benefits.

3. OUTPUTS/DELIVERABLES

3.01 The consultant will be expected to produce draft and final report that should include:

- (a) The climate hazard and adaptive capacity assessments (methodology, results, and main conclusions);
- (b) Relevant hazard and vulnerability maps;
- (c) The proposed adaptation options including cost-benefit analysis;

4. QUALIFICATIONS AND EXPERIENCE

4.01 The following key expertise will be required:

- (a) **Roads Engineer:** The Specialist will lead the characterisation and technical assessment of the roads. He/she will conduct interviews with relevant organisations and stakeholders and undertake site visits to determine the existing road conditions and existing and planned proposals. The specialist will assist in the preparation of cost estimates for capital and recurrent costs related to the proposed project. The candidate must be a registered/licensed professional engineer with at least ten years’ experience in highway engineering.
- (b) **Key Expert 2: Climate Change Specialist:** The Specialist will take the lead in conducting a detailed climate vulnerability and adaptation assessment. He/she will be responsible, *inter-alia*, for: identifying the climate change parameters to be assessed; collection of relevant local historical climate data and climate change projections; identify the probabilities of specific climate change occurrences; conduct field investigations with local stakeholders to identify existing vulnerabilities (such as areas

prone to flooding); and, in consultation with other team members, contribute to the identification of adaptation options, including their costs and benefits and prioritisation. The consultant is expected to have a background in multidisciplinary environmental or natural resource management, and have a good understanding of the social and economic aspect of vulnerability. At least five years' work experience in the area of climate change impacts adaptation and mitigation is required. Extensive knowledge of the Climate Change Adaptation context in the Caribbean region would be a plus. Familiarity with the Eastern Caribbean institutional framework and ongoing programmes would also be a plus.

- (c) **Key Expert 3: Economist:** The Economist should have at least 10 years' experience and a graduate degree of MA or equivalent. Experience should include economic analysis of development projects and sector strategies based on economic analyses. Experience with incorporating climate change concerns into economic analysis as well as multi criteria analysis will also be required.

PROJECT IMPLEMENTATION SUPPORT PLAN

1. CDB has been the principal partner for GOAB in the financing of road infrastructure projects, particularly on the main road network. This experience, strengthened by the satisfactory progress being made on implementing the ongoing Road Infrastructure Rehabilitation TA Project, provides a sound background for providing implementation support to GOAB. This support will also extend to the Capital Works component, as this will contribute to achieving anticipated outcomes on gender equality, also a strategic priority for CDB. The implementation support will be provided as part of CDB's project supervision functions and will include, among other things:

- (a) reviewing implementation progress and achievement of project outcomes;
- (b) addressing implementation issues;
- (c) monitoring systems to ensure their continued adequacy through monitoring reports; audit reports and field visits; and
- (d) monitoring changes in risks and compliance with legal agreements, as needed.

2. The Implementation Support Plan (ISP) will be reviewed at least once a year to ensure that it continues to meet the implementation support needs of the Project. In addition to reviewing implementation progress, the ISP aims at providing technical support to the BMC in the achievement of the results.

3. The strategy for implementation support has been developed based on the design of the Project, its risk profile, and an assessment of the Borrower and Executing Agency. The strategy remains a flexible tool that may be amended during project implementation in response to the changing needs of the Project and the Borrower/Implementing Agency.

Strategy and Approach for Implementation Support

4. Supervision of the Project will be undertaken by a team comprising the lead supervisor (Civil Engineer), supported by legal counsel and specialists in the areas of environment/disaster risk management; procurement; financial analysis; and social analysis. Formal supervision and field visits will be undertaken semi-annually. The first formal supervision activity will be the Project Launch Workshop (PLW). The objective of PLW is to review the implementation arrangements, train the project management in the use of CDB's fiduciary management and procurement systems, and discuss project supervision issues. PLW is scheduled for the final quarter of 2017, and arrangements will be finalised in consultation with GOAB. The training provided during PLW on the Bank's financial management and procurement procedures and guidelines will be augmented during the semi-annual supervision visits, and support will be provided on a timely basis to respond to the client's needs.

5. The Supervision Coordinator will coordinate CDB's team to ensure that project implementation is consistent with the requirements as specified in the Procurement Plan, Terms and Conditions, and other legal documents. The Supervision Team will prepare annual Project Supervision Reports identifying the status of project implementation and any issue requiring the resolution of management. On the completion of the Project, or after 90% of the funds have been disbursed, Staff will conduct an Exit Workshop to assess project results, discuss implementation issues, and identify lessons. A draft PCR will be prepared and discussed with the client during the Exit Workshop. The final PCR will be validated by the Office of Independent Evaluation (OIE). Staff will prepare a management response to the OIE's

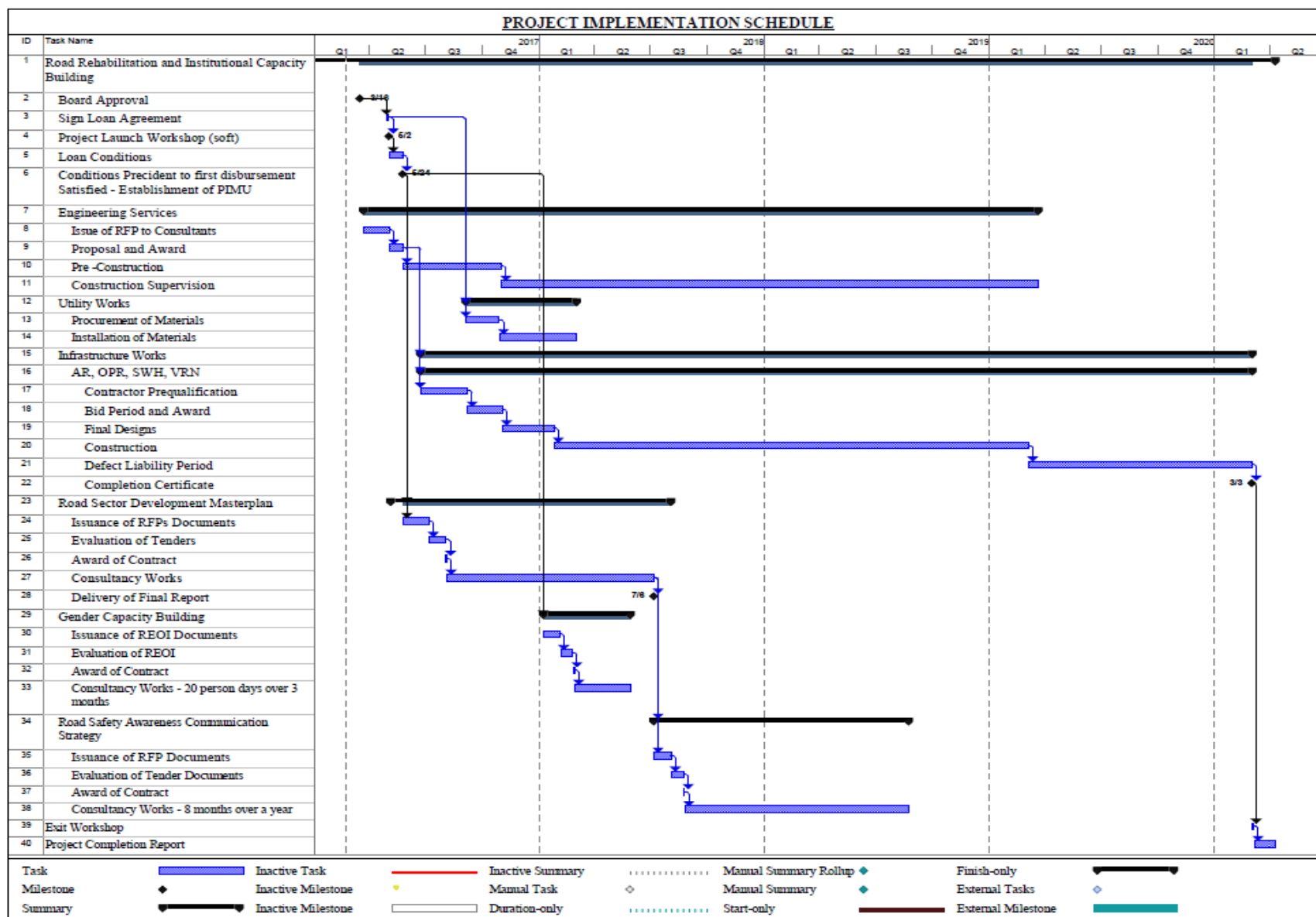
Validation Report. The Validation Report and Management's response will be presented to the Audit and Post-Evaluation Committee.

TABLE 1: STAFF SKILLS REQUIRED

Period	Focus	Skills and Resources Estimate	
October 2017 – February 2018	<u>Specific</u> (1) Project Launch Workshop. (2) Support in satisfying Conditions Precedent. (3) Provide procurement support for review and evaluation of bidding documents, and also with respect to resolving procurement bottlenecks, and similar issues.	Lead Project Supervisor	5 weeks
		Legal Counsel	1 week
		Financial Analyst	0.5 weeks
		Environmental Specialist	1 week
		Social Specialist (incl. Gender)	2 weeks
		Procurement Specialist	1 week
		Administrative Assistant	1 week
		Divisional Secretary	0.5 weeks
	<u>General</u> (1) Monitor project management arrangements (2) Monitor Project Budgeting and Allocations. (3) Monitor Project Results Framework. (4) Provide technical support to PC and Implementing Agency. (5) Monitor Design-Build activities, including review of reports (6) Preparation of annual Project Supervision Report. (7) Review and certification of requests for disbursement. (8) Review of Monthly and Quarterly Reports from Implementing Agency		

Period	Focus	Skills and Resources Estimate
February – December 2018	<p><u>Specific</u></p> <p>(1) Provide support for procurement of Material Laboratory Equipment;</p> <p>(2) Review of evaluation reports, and draft contracts for works and consultants.</p> <p><u>General</u></p> <p>(1) Monitor Project Budgeting and allocations.</p> <p>(2) Monitor Project Physical Works progress and quality, including field trips.</p> <p>(3) Monitor Project Results Framework</p> <p>(4) Provide technical support to PC and Executing Agency.</p> <p>(5) Preparation of annual Project Supervision Report.</p> <p>(6) Review and certification of requests for disbursement.</p> <p>(7) Review of Monthly and Quarterly Reports.</p>	<p>Lead Project Supervisor 8 weeks</p> <p>Financial Analyst 0.5 weeks</p> <p>Environmental Specialist 0.5 weeks</p> <p>Social Specialist 3 weeks (incl. Gender)</p> <p>Administrative Assistant 2 weeks</p> <p>Divisional Secretary 1 week</p>
January – December 2019	<p><u>General</u></p> <p>(1) Monitor Project Budgeting and allocations.</p> <p>(2) Monitor Project Physical Works progress and quality, including field trips.</p> <p>(3) Monitor Project Results Framework</p> <p>(4) Provide technical support to PC and Executing Agency.</p> <p>(5) Preparation of annual Project Supervision Report.</p> <p>(6) Review and certification of requests for disbursement.</p> <p>(7) Review of Monthly and Quarterly Reports.</p>	<p>Lead Project Supervisor 10 weeks</p> <p>Financial Analyst 0.5 weeks</p> <p>Environmental Specialist 2 weeks</p> <p>Social Specialist 3 weeks (incl. Gender)</p> <p>Administrative Assistant 1 week</p> <p>Divisional Secretary 0.5 weeks</p>

Period	Focus	Skills and Resources Estimate
January — September 2020	<u>Specific</u> (1) Review PC and consultants final reports. (2) Conduct Exit Workshop and complete PCR.	Lead Project Supervisor 3 weeks Legal Counsel 1 week Financial Analyst 2 weeks
	<u>General</u> (1) Monitor reporting on infrastructure during Defects Liability Period. (2) Review and certification of requests for disbursement. (3) Review of TA reports.	Environmental Specialist 1 week Social Specialist 1.5 weeks (incl. Gender) Administrative Assistant 1 week Divisional Secretary 0.5 weeks



ESTIMATED QUARTERLY LOAN DISBURSEMENT SCHEDULE
(\$'000)

Year	Quarter No.	CDB/OCR	Finance Charges		TOTAL	Cumulative
			IDC	Committment Fee		
2017	1	-			-	-
	2	-	-	289	289	289
	3	10,829	92	262	11,183	11,472
	4	5,559	141	248	5,948	17,420
	Sub-total	16,388	232	800	17,420	17,420
2018	1	6,162	195	233	6,589	24,009
	2	6,228	249	217	6,695	30,704
	3	6,228	305	202	6,735	37,439
	4	11,558	404	173	12,135	49,574
	Sub-total	30,176	1,153	825	32,154	49,574
2019	1	11,621	505	144	12,270	61,845
	2	11,622	606	115	12,343	74,188
	3	11,555	707	86	12,348	86,536
	4	11,441	808	57	12,306	98,842
	Sub-total	46,239	2,627	402	49,268	98,842
2020	1	16,831	1,012	15	17,859	116,701
	2	6,018	1,021	-	7,039	123,740
	3	78	-	-	78	123,818
	Sub-total	22,928	2,033	15	24,976	123,818
Total		115,732	6,045	2,042	98,842	123,818

PROCUREMENT PLAN

I. General

1. Project Information:

Country: Antigua and Barbuda

Borrower: GOAB

Project Name: Second Road Infrastructure Rehabilitation

Project Executing Agency: MWH

2. Bank's Approval Date of the Procurement Plan: March 2017

3. Period Covered By This Procurement Plan: June 2017 – September 2020

II. Goods and Works and Non-Consulting Services

1. Prior Review Threshold: Procurement decision subject to prior review by the Bank as stated in Appendix 2 to the Guidelines for Procurement:

	Procurement Method	Prior Review Threshold (USD) <input type="text"/>	Comments
1.	ICB (works)		Tender Documents for works will be subject to prior review.
2.	ICB (goods)		
3.	Non-Bank Funded	No review	Procurement procedures of GOAB apply.

2. Prequalification. Yes Design-Build Contract

3. Reference to Project Operational/Procurement Manual: CDB's Guidelines for Procurement (2006)

4. Any Other Special Procurement Arrangements: N/A

Procurement Packages with Methods and Time Schedule:

1	2	3	4	5	6	7	8
Ref No.	Contract (Description)	Estimated Cost (USD) <input type="text"/>	Procurement Method	Prequalification (Yes/No)	Bank Review (Prior/Post)	Expected Bid-Opening Date	Comments
1.	Final Designs and Rehabilitation and Upgrade of AR		ICB	Yes	Prior	November 2017	
2.	Final Designs and Rehabilitation and Upgrade of OPR and AR		ICB	Yes	Prior	November 2017	
3.	Final Designs and Rehabilitation and Upgrade of SWH		ICB	Yes	Prior	November 2017	
4.	Final Designs and Rehabilitation and Upgrade of VRN		ICB	Yes	Prior	November 2017	

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

III. Consulting Services

1. **Prior Review Threshold:** Procurement decision subject to prior review by the Bank as stated in Appendix 1 to the Guidelines for the Selection and Engagement of Consultants

	Selection Method	Prior Review Threshold	Comments
1.	Firms/Individuals Single Source Selection	ALL	
2.	Individual Consultant Selection		

2. **Short list comprising entirely of national consultants:** N/A
3. **Reference to (if any) Project Operational/Procurement Manual:** CDB's Guidelines for Selection and Engagement of Consultants (October 2011)
4. **Any Other Special Procurement Arrangements:** Single Source Selection to be utilised for components of the project where tasks represent a natural continuation of previous works carried out under the Technical Assistance Feasibility Study.
5. Procurement Packages with Selection Methods and Time Schedule

Procurement Packages with Methods and Time Schedule:

1	2	3	4	5	6	7
Ref No.	Assignment (Description)	Estimated Cost (USD)	Selection Method	Review by Bank (Prior/Post)	Expected Proposal Submission Date	Comments
1.	Construction Supervision		QCBS	Prior	June 2017	
2.	Project Engineer (1)		ICS	Prior	June 2017	
3.	Project Engineer (2)		ICS	Prior	June 2017	
4.	Quantity Surveyor		ICS	Prior	June 2017	
5.	Social and Gender Sensitisation		ICS	Post	October 2017	
6.	Gender-Responsive Road Safety Awareness Communication Strategy		QCBS	Prior	October 2017	
7.	Communication Liaison Officer		ICS	Prior	June 2017	
8.	Project Coordinator		ICS-SSS	Prior	April 2017	
9.	Road Sector Development Masterplan		QCBS	Prior	July 2017	
10.	Procurement Officer		ICS	Prior	May 2017	

IV. Implementing Agency Capacity Building Activities with Time Schedule

1. Project Launch Workshop: Schedule to be coordinated with GOAB
2. The provision of online procurement e-learning by the CDB.

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

V. **Summary of Proposed Procurement Arrangement**

Project Component	CDB (USD '000) <input type="text"/>									NBF (USD'000) <input type="text"/>		Total Cost (USD'000) <input type="text"/>
	Primary	Secondary			Other							
	ICB	LIB	RCB	NCB	Shopping	SSS	FA	QCB S	ICS	Country	Institution	
Land Acquisition												
Final Designs and Road Works												
Technical Assistance												
Engineering Services												
Project Management												
Sub total												
Physical Contingency												
Price Contingency												
IDC and Commitment Fees												
Total Project Costs												

DC	Direct Contracting	NCB	National Competitive Bidding
FA	Force Account	QBS	Quality Based Selection
ICB	International Competitive Bidding	QCBS	Quality and Cost-Based Selection
LIB	Limited International Bidding	RCB	Regional Competitive Bidding
NBF	Non-Bank Financed	UOF	Use of Funds

This information is withheld in accordance with one or more of the exceptions to disclosure under the Bank's Information Disclosure Policy.

REPORTING REQUIREMENTS

Reports	Frequency	Deadline for Submission
<u>Implementation</u>		
1. Progress Report on project implementation prepared by PC.	Monthly	Within one month after the end of each calendar month until project implementation is completed, commencing one month after the Project Launch.
2. Evaluation Reports on shortlists and proposals for the consultancies prepared by PC.	-	Within two weeks of the submission deadlines.
3. Evaluation Reports on prequalification and tenders for works prepared by PC.	-	Within two weeks of the submission deadlines.
4. Reports on the Investment Costs of the Project prepared by PM. (Sample guidelines presented in the Annex).	Quarterly	Two weeks after the end of each quarter until project implementation is completed, commencing with the quarter.
5. Monthly progress reports on Civil Works contracts by the Construction Supervision Consultants.	Monthly	Within three weeks after the end of each calendar month until project implementation is completed.
6. Consultants' Reports.	-	Within one month of acceptance of the reports.
7. Completion Report for each Civil Works Contract prepared by the Construction Supervision Consultants (including as-built drawings).	-	Within three months of the date of issue of a certificates of practical completion for each Road Works Contract.
8. Project Completion Report prepared by PC on the implementation and on the early operation stage of the Project, including its climate action aspects, in content and in form specified in the Annex.	-	Within three months of completion of the Project.
<u>Operation</u>		
9. Maintenance Plan for the road infrastructure, including reports of condition assessments of road infrastructure.	Annually	By December 31, commencing in 2020.

QUARTERLY REPORT ON INVESTMENT COST OF PROJECT
(USD'000)

Elements of Project	Expenditure for this Quarter	Cumulative Expenditure to date	Projected Expenditure for the Quarter			Estimated Expenditure to Complete Project	Latest Estimate of Expenditure	Project Estimate as per Appraisal Report	Variance Favourable/ (Adverse)	Comments/ Reasons for Adverse Variance and Financing Proposal to Meet Cost Overrun
			Ending	Ending	Ending					
(1)	(2)	(3)	(4) ₁	(4) ₂	(4) ₃	(5)	(6)	(7)	(8)	(9)
1. Land										
2. Road Rehabilitation and Upgrade										
3. Engineering Services- Supervision										
4. Project Management										
5. Technical Assistance										
Base Cost										
7. Contingencies										
Total Project Cost										
CDB:										
GOAB										

**GUIDELINES FOR COMPLETION OF
REPORT ON PROGRESS OF INVESTMENT COST**

1. Elements of Project - The elements of the Project as outlined in the Appraisal Report must be recorded in this column. If it becomes necessary to further sub-divide the main elements of the project, then the sub-elements should be grouped to facilitate the determination of the expenditure related to the main elements identified in the Appraisal Report.
2. Expenditure for this Quarter - The expenditure incurred in the quarter to which the report relates in respect of each element of the project must be recorded in this column.
3. Cumulative Expenditure to Date - The expenditure incurred in respect of each element of the project from the commencement of the project to the end of the quarter to which the report relates must be recorded in this column.
4. Projected Expenditure for Quarter - An estimate of the expenditure to be incurred in each of the next three quarters must be recorded in the columns 4₁, 4₂, and 4₃.
5. Estimate of Expenditure to complete Project - This column should be completed only in respect of those elements of the project, construction/installation of which stretches beyond three quarters from the end of the quarter to which the report relates. Where a project extends over more than one year - four quarters - an estimate of the expenditure to be incurred in the period subsequent to the year must be recorded in this column.
6. Latest Estimate of Expenditure - The amounts to be recorded in this column should be derived by adding columns 3, 4₁₂₃, and 5. The amounts recorded in this column should be the best estimate of expenditure to be incurred in respect of each element of the project. These amounts may be less or greater than the appraised expenditure.
7. Project Estimates as per Appraisal Report - The estimate of expenditure to be incurred in respect of each element of the project, as outlined in the Appraisal Report, must be recorded in this column.
8. Variance - The difference between columns 6 and 7 must be recorded in this column. Where the amount in column 6 is less than that in column 7, a favourable variance results. An adverse variance results where the amount in column 6 is greater than that in column 7.
9. Comments - An explanation should be given for each variance which is more than 10% of the project estimates as per Appraisal Report.

FORM OF PROJECT COMPLETION REPORT

Dispatch of Information: Designation of the Person Responsible

The information below has to be sent to CDB under the responsibility of:

Company	
Contact person	
Title	
Function/Department	
Address	
Phone	
Fax	
Email	

The above-mentioned contact person(s) is (are) the responsible contact(s) for the time being. GOAB shall inform CDB immediately in case of any change.

Information on the end of works and first 12 (twelve) months of operation

GOAB shall deliver to CDB a completion report with the following information on project completion and initial operation after a year of the commissioning of the Project:

- (a) a brief description of the technical characteristics of the Project as completed, explaining the reasons for any significant change;
- (b) the date of completion of each of the main Project's components, explaining the reasons for any possible delay;
- (c) the final cost of the Project, explaining the reasons for any possible cost increases vs. initial budgeted cost;
- (d) the number of new jobs created by the Project: both jobs during implementation and permanent new jobs created;
- (e) a description of any major issue with impact on the environment;
- (f) description of the Climate Action and/or CC resilience (adaptation) aspects of the Project and their implementation and level of success in operation to date.
- (g) update on the Project's demand or usage and comments;
- (h) any significant issue that has occurred and any significant risk that may affect the Project's operation; and
- (i) any legal action concerning the Project that may be ongoing.

FIGURE 1.1

