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DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

NICARAGUA

ROAD INTEGRATION PROGRAM II

(NI-L1097)

LOAN PROPOSAL

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2. Monitoring and evaluation plan
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4. Procurement plan

OPTIONAL

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ABBREVIATIONS

ECLAC	Economic Commission for Latin America and the Caribbean
EIRR	Economic internal rate of return
EIS	Environmental impact study
ENPV	Economic net present value
ESMF	Environmental and Social Management Framework
ESMR	Environmental and Social Management Report
FOMAV	Fondo de Mantenimiento Vial [Road Maintenance Fund]
FSO	Fund for Special Operations
HDM4	Highway Development and Management version 4
IICQ	International Individual Consultant selection based on Qualifications
INIDE	Instituto Nacional de Información de Desarrollo [National Development Information Institute]
IRI	International roughness index
IRP	Involuntary resettlement plan
MTI	Ministry of Transportation and Infrastructure
OEL	Optional electronic link
PCU	Project coordination unit
PNDH	Plan Nacional de Desarrollo Humano [National Human Development Plan]
QCBS	Quality- and cost-based selection
RACCN	North Caribbean Coast Autonomous Region
RED	Roads Economic Decision
REL	Required electronic link
RVNM	Red Vial Nacional Mantenible [maintainable national road network]
SEPA	Sistema de Ejecución del Plan de Adquisiciones [procurement plan execution system]

PROJECT SUMMARY

NICARAGUA
ROAD INTEGRATION PROGRAM II
(NI-L1097)

Financial Terms and Conditions						
Borrower: Republic of Nicaragua					**Ordinary Capital (OC)**	**Fund for Special Operations (FSO)**
Executing agency: Ministry of Transportation and Infrastructure (MTI)				**Amortization period:**	30 years	40 years
				Disbursement period:	5 years	5 years
				Grace period:	6 years	40 years
Source	**%**	**Amount (US$)**	**%**	**Inspection and supervision fee:**	[b]	N/A
IDB (OC)	60	52,200,000	58	**Interest rate:**	Single Currency Facility - Fixed[a]	0.25%
IDB (FSO)	40	34,800,000	39			
IDB subtotal	100	87,000,000	97	**Credit fee:**	[b]	N/A
Local		2,839,000	3	**Approval Currency:**	U.S. dollars from the Single Currency Facility	
Total		89,839,000	100			

Project at a Glance

Project objective/description:

The objective is to contribute to economic development and poverty reduction in Nicaragua, with a focus on the Caribbean coast, by improving the condition of the transportation infrastructure in rural areas of the country with a high incidence of poverty, facilitating the integration of production areas and consumption areas and access to public and social services for the population of those regions. The specific objective of the program is to improve the traffic flow quality and accessibility of the targeted road segments by reducing average vehicle operating costs and shortening travel times, promoting sustainable movement of goods and passengers by improving the road infrastructure and adopting specific environmental and social management measures (paragraph 1.25).

Special contractual condition precedent to the first disbursement of the financing: Entry into force of the program's Operating Regulations, in accordance with the terms previously agreed upon with the Bank (paragraph 3.4).

Special contractual conditions for execution: (i) Prior to the bidding process for the first construction works under the program, evidence that a technical advisor has been contracted to support the executing agency in the project's technical structuring, bidding document preparation, execution, and contract administration processes in accordance with the terms previously agreed upon with the Bank; (ii) prior to the award of the works contracts, evidence that a works supervision firm has been contracted to the Bank's satisfaction; (iii) during program execution, the executing agency undertakes to comply, to the Bank's satisfaction, with the conditions set forth in the Environmental and Social Management Report (ESMR) and in the program's environmental and social management framework (ESMF); and (iv) within 24 months from the effective date of the loan contract, the executing agency undertakes to commission the studies and designs for additional road segments beyond the program's representative sample (paragraph 3.3).

Exceptions to Bank policies: None

Strategic Alignment						
Challenges:[c]	SI	☑	PI	☑	EI	☑
Crosscutting themes:[d]	GD	☐	CC	☑	IC	☐

[a] The borrower will pay interest on the outstanding balance of the Ordinary Capital portion of the loan at a Libor-based rate. Whenever the outstanding balance reaches the greater of 25% of the net amount approved or US$3 million, the base rate will be set on that balance.

[b] The credit fee and the inspection and supervision fee will be established periodically by the Board of Executive Directors as part of its review of the Bank's lending charges, in accordance with relevant policies.

[c] SI (Social Inclusion and Equality); PI (Productivity and Innovation); and EI (Economic Integration).).

[d] GD (Gender Equality and Diversity); CC (Climate Change and Environmental Sustainability); and IC (Institutional Capacity and Rule of Law).

I. PROJECT DESCRIPTION AND RESULTS MONITORING

A. Background, problem addressed, and rationale

1.1 **Macroeconomic scenario.** According to the Central Bank of Nicaragua, indicators for 2015 show that the country maintained a stable macroeconomic policy and sustained growth, based on consolidation of the fiscal position and moderate inflation. Gross domestic product (GDP) grew at a rate of 4.9%, compared to 4.7% in 2014, an annual average of 4.6% from 2010 to 2013, and an average of 3.7% over the last 20 years. Economic growth in 2015 was driven by domestic demand from gross capital formation and consumption, the largest contributors being the services and trade (2.7%), construction (1.3%), and agriculture and forestry (0.6%) sectors. Exports accounted for 19.1% of the 2015 GDP, the main export products being beef (20.4%) and coffee (17.6%).

1.2 **Poverty**. Nicaragua continues to be one of the countries with the highest levels of poverty[1] in Latin America. Although poverty declined over the 2009-2013 period and there is sustained investment in programs and projects aimed at reducing poverty,[2] general poverty in 2015 affects 61.5% of the population in rural areas, while extreme poverty[3] affects more than 17% of the population in these communities. According to the National Development Information Institute (INIDE), more than 80% of the poor in Nicaragua reside in rural areas, many of them in remote communities where access to basic services such as education and health is limited.

1.3 **Road network situation.** Nicaragua has a road network[4] of 24,137.5 km.[5] This network includes the basic road system, which the Ministry of Transportation and Infrastructure (MTI) defined as being 8,133.97 km long in 2014. Of this basic system, 3,329.16 km are paved (71.7% of which are in good or very good condition) and 4,804.81 km are not paved (with 9.7% in good or very good condition).[6] Nicaragua has a paved roads rate of 54 km per 100,000 inhabitants, well below the rates for Costa Rica, Panama, and Mexico of 227 km, 171 km, and 118 km, respectively, per 100,000 inhabitants.[7]

1.4 **Institutional structure of the road sector.** The MTI is responsible for organizing and directing transportation sector policy and for planning, preparing, executing, and administering road improvement, construction, and rehabilitation projects, as well as some road maintenance. The Road Maintenance Fund (FOMAV) is an autonomous

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1 See Social Panorama of Latin America 2015, ECLAC and Map of poverty in Nicaragua.

2 Nicaragua's expenditure on programs of this type grew from US$690 million in 2011 to close to US$1.380 billion in 2015, remaining at approximately 10% of GDP. Source: Ministry of Finance/2015 Annual Report, Central Bank of Nicaragua.

3 According to INIDE, extreme poverty is defined as households with two or more unmet basic needs (overcrowding, inadequate housing, insufficient services, low education, and economic dependency). Standard of Living Survey – EMNV 2014.

4 See OEL#5.

5 Nicaragua has the lowest rate compared with Central America (181.37 km/1,000 km^2, compared to 284 km/1,000 km^2 for the region as a whole). The proportion of paved roads is 14.4%, lower than the paved network density in other areas of the world with high poverty, such as sub-Saharan Africa (16%). Source: Public Capital, Growth and Welfare, Pierre-Richard Agénor, Princeton University Press, 2013.

6 Nevertheless, the condition of the non-basic system is much worse: it includes a total of 16,003.52 km, 15,657.58 km of which are unpaved and subject to isolated maintenance interventions.

7 Source: Statistical data from the 2014 International Road Federation.

agency of the national government that collects a levy on fuel to preserve the maintainable road network (RVNM) nationwide.[8] Coordination between these two entities is designed to ensure the sustainability of the country's road assets.[9]

1.5 **Rural transportation and poverty.** The poor condition of unpaved roads in Nicaragua's rural areas (paragraph 1.7) creates an accessibility problem in those areas, leaving them in relative isolation from the rest of the country.[10] This is significant in rural areas with productive potential where the lack of connection to international trunk routes and ports hampers the ability of sectors such as agriculture and livestock to grow and be included in both national and regional supply chains.[11] The lack of road integration in rural areas also limits access to basic social services such as health[12] and education.[13]

1.6 **Investment planning.**[14] Despite an increase in MTI investment and preinvestment,[15] an analysis of the investment financing gap in the sector (OEL#5) projects an average annual financing gap of US$135 million between investment under an optimal strategy and historical/trending investment with own resources over the next 10 years. Furthermore, according to this analysis, at least 5% of the annual investment gap will be needed to finance the associated preinvestment studies.

1.7 **The problem and its consequences.** The main problem targeted by this operation is limited access[16] to road transportation in Nicaragua's poor rural areas, which is associated with the specific problems of transportation cost increases, limits on travel speeds, and unnecessary increases in travel times. As a result, the development of productive, commercial, and service activities and the population's

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8 According to article 5 of the Law Amending Law 355, the RVNM is the set of public roads in good or fair condition that can be maintained with the financial resources available to FOMAV under the annual agreements between FOMAV and the MTI. The RVNM only includes roads and streets which can remain in very good, good, or fair condition solely through maintenance. Roads that require rehabilitation, reconstruction, or upgrade in order to be in good or fair condition are excluded from the RVNM.

9 For more details on institutional considerations and context, see OEL#5, and for more details on the assessment of MTI capacities, see Análisis de Capacidad Institucional Fiduciaria (2015).

10 The MTI's National Transportation Plan (2013-2033) lists access to regional development as part of its development strategy because more than 70% of the collector roads connecting to municipal capitals are not paved.

11 Productive potential in the area of influence of the Pantaswa-Wiwili road to be rehabilitated under loan NI-L1092 was estimated at US$2.37 million for agricultural products and US$6.43 million for livestock products.

12 Fifty-two percent of the population in the area of influence of the El Comején-Waslala road (paragraph 1.29) walks to the health center and the walk averages 47 minutes. See OEL#1.

13 Ninety-two percent of the student population in the area of influence of the El Comején-Waslala road walks to school and the walk averages 21 minutes. See OEL#1.

14 Morris (Cost and time overruns in public sector projects, 1990) and Chantal et al. (Cost Overruns in Large-Scale Transportation Infrastructure Projects: Explanations and Their Theoretical Embeddedness, 2010) identify the absence or poor quality of preinvestment studies as one of the main factors leading to cost overruns and delays in the execution of infrastructure works.

15 Between 2012 and 2015, the MTI performed close to 25 preinvestment studies for approximately 1,000 km of road rehabilitation projects, allocating roughly US$3.7 million. Source: SNIP/SISCAE.

16 Limited access is understood as the interruption or lack of adequate conditions for moving people and goods for economic purposes and for purposes of access to public and social services.

access to economic activities and basic social services such as education and public health are affected (paragraph 1.5).

1.8 **Causes of the problem.** The problem is mainly the result of limited local financial resources for preinvestment and investment in transportation infrastructure, in the basic road system,[17] and in multimodal transportation. This in turn leads to deterioration of the operating road infrastructure, which is exacerbated by weather effects due to climate change.[18] These deficiencies lead to deterioration of the infrastructure's serviceability conditions, as measured by the international roughness index (IRI).[19] The result is high vehicle operating costs and increased travel times.

1.9 **Empirical evidence on the benefits associated with rural road improvement.** An analysis of the impact of infrastructure services and living conditions on the rural areas of Nicaragua concludes that, when households have year-round serviceable roads, their incomes are close to four times higher if they have access to two assets (e.g., transportation and electricity) than if they have access to only one asset (e.g., electricity).[20] Another analysis performed in Nicaragua points to an increase in the use of health and education facilities as a result of road improvements in some rural areas.[21] Still other impact studies conducted in Nicaragua[22] indicate that improving rural roads has positive effects on the welfare of the beneficiary population in the form of reduced transportation times, development of transportation services, and improved health and education indicators.

1.10 Another evaluation, in Bangladesh, showed that the improvement of rural roads reduces transportation costs by 25% and increases production amounts by between 8% and 22%.[23] In addition, Casaburi et al., 2013, concluded that improved roads in

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17 Closing the country's basic road system infrastructure gaps would require an estimated annual investment of US$180 million over 20 years. A review of the investments made in this system in 2013, 2014, and 2015 shows that Nicaragua financed close to 30% of the system's needs with its own resources and between 45% and 60% with external resources, leaving an annual gap on the order of 10% to 25%. The preinvestment studies will promote strengthening of multimodal transportation, helping to further the country's economic integration. See OEL#5.

18 In the El Comején-Waslala segment (paragraph 1.29), the rainy season lasts an average of 240 days per year (OEL#1), causing significant deterioration in the wearing surface, which disrupts traffic and reduces travel speeds by 62% during the rainy season as compared to the dry season (paragraph 1.23).

19 Road condition is measured based on wearing surface and is classified according to the nature of surface irregularities affecting user safety, comfort, and costs. The IRI is used to measure these irregularities. The lower the IRI value, the better the condition of the road. An IRI value of 22 m/km denotes very poor road conditions. This means that one can drive comfortably at 20-30 km/h. Source: National Transportation Plan of Nicaragua (2001) Volume VII, page 59. For the El Comején-Waslala road, the IRI measured prior to the road's rehabilitation using the Roads Economic Decision Model (RED) yields a value of 18 m/km, i.e., "very poor" (OEL#1).

20 *Análisis del impacto de los servicios de infraestructura y las condiciones de vida en las zonas rurales*]. Canales and Cervantes. (2008). Cooperation project between the Economic Commission for Latin America and the Caribbean (ECLAC), the IDB, and the International Food Policy Research Institute (IFPRI).

21 Nicaragua Poverty Assessment. Challenges and Opportunities for Poverty Reduction. Vol. I. Main report. Poverty Reduction and Economic Management Unit. World Bank (2000). Latin America and Caribbean Region.

22 Source: General Study of the Impact of Rural Roads in Nicaragua, OECD, COWI Consulting, June, 2008.

23 Estimates of production changes vary from one context to the next. Another evaluation in sub-Saharan Africa shows that a 1% reduction in travel times in population centers with about 100,000 inhabitants increases low-input production by 2.9%.

Sierra Leone lead to an 18% reduction in cassava prices in local markets but to a 7% increase in farmers' net incomes due to the decline in transportation costs (59%). Lastly, there is evidence for Peru that the improvement of rural roads increased school attendance among adolescent boys (ages 12 to 18) and among young girls (ages 6 to 11) by about 7% (Valdivia, 2008).

1.11 **Reducing transportation infrastructure vulnerability to climate change impacts.** Nicaragua is a country vulnerable to natural phenomena that have affected its infrastructure.[24] For this reason, the Bank has been supporting the MTI to develop capacities for adapting to climate change.[25] This program will pursue pioneering activities that involve, beginning in the works design phase, consideration of criteria to reduce the vulnerability of the road infrastructure and make it more resilient to climate change.[26]

1.12 **The North Caribbean Coast Autonomous Region (RACCN).** The RACCN, with Bilwi as its departmental capital, covers a surface area of 33,105.98 km² and has an estimated population of 453,541 inhabitants.[27] It has the highest incidence of poverty in the country.[28] Although the RACCN represents more than 25% of Nicaragua's total surface area, its paved roads account for only 152.7 km (4.2%) of the country's 3,675.1 km of paved roads and its total road network is 2.8% of the national network.[29] The region's main productive activities include coffee, cocoa, lumber, and cattle farming.

1.13 **The department of Matagalpa.** Located in the northeastern part of the country, this department covers a surface area of 6,806.86 km² and has an estimated population of 548,666 inhabitants.[30] Matagalpa has the country's second largest coffee-growing area, accounting for 28% of the nationwide total,[31] concentrated in the southern part of the department. The municipio of Rancho Grande, located within the direct area of influence of the representative sample project (paragraph 1.29), also has high extreme poverty rates.[32] The RAACN is integrated into the national road network from the northwest of Matagalpa, but year-round serviceable roads are still incipient in that area.

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24 A study conducted by ECLAC established that, between 1992 and 1998, total damage amounted to more than US$1.8 million in infrastructure and capital. Source: *Información para la Gestión de Riesgo de Desastres. Estudio de caso de cinco países*. Nicaragua. Table 1-2, page 10.

25 Loans 2427/BL-NI, 2840/BL-NI, and 2979/BL-NI included components for reducing vulnerability to climate change that have contributed to the development of institutional capacities for identifying vulnerable points, designing adaptive measures, and building improvements in the existing infrastructure. See OEL#10.

26 The study conducted under loan NI-L1092 (footnote 43) will be continued.

27 See OEL#1.

28 Source: OEL#6.

29 Source: Nicaragua Road Network 2014, MTI.

30 Source: 2014 Statistical Yearbook, INIDE. Projections for 2013.

31 Source: *El café en Nicaragua*. Ministry of Agriculture and Forestry (MAGFOR), 2013.

32 Source: See OEL#7 (INIDE).

Figure 1. Sample project location map

1.14 **Rationale.** The impact studies conducted in Nicaragua (paragraph 1.9) indicate that improving rural roads has positive effects on the welfare of the beneficiary population in the form of reduced transportation times, development of transportation services, and improved health and education indicators. At the same time, the poor condition of unpaved roads in Nicaragua's rural areas creates accessibility problems in those areas, leaving their productive potential in relative isolation from the rest of the country. This affects key sectors of the economy, such as agriculture and livestock, ultimately becoming a direct constraint on economic growth and productivity. Lastly, the lack of road integration in rural areas also limits access to basic social services such as health and education. Given this scenario, the Government of Nicaragua has clearly set out a public policy of reducing poverty and inequality under the National Human Development Plan (PNDH), as well as specific policies of social infrastructure, with an emphasis on rural roads, and of comprehensive development of the Caribbean coast.

1.15 **The Bank's knowledge of the sector and lessons learned.** Based on the MTI's recent track record of executing Bank-financed operations (footnote 9), MTI capacities can be evaluated as satisfactory and the following lessons learned can be incorporated into the present program: (i) support from a technical advisor helps to improve institutional capacities in terms of technically structuring projects and controlling the timeframe, cost, scope, and quality of works during execution (paragraph 2.6); (ii) cumulative socioenvironmental experience has made it possible

to successfully carry out involuntary resettlement plans;[33] (iii) the implementation of training for MTI staff has helped strengthen institutional management[34] (paragraph 1.31); and (iv) ongoing road safety workshops can reduce high accident and loss rates (paragraph 1.27).

1.16 **Road Integration Program II.** In 2016, the Republic of Nicaragua asked the Bank to prepare this operation to address the above-described problem (paragraph 1.7). This program maintains the approach of giving priority to road improvement interventions in rural areas identified in the government's PNDH as having the highest incidence of poverty (paragraph 1.28), focuses on the Caribbean coast region in selecting road segments, and includes institutional strengthening activities to help provide the MTI with capacities and instruments for increasing the interventions' effectiveness. In addition, this program will continue to use the gender approach initiated under loan NI-L1092 and include training for women in heavy equipment operation as part of the activities to be financed.

1.17 **Proposed intervention.** This program calls for improving rural roads and focuses on the Caribbean coast, which has a high concentration of poverty and great productive potential and where the main constraint on growth is the poor quality of road connections to other areas of consumption or to more consolidated road corridors. The improved roads will generate new growth opportunities and access to essential social services for the population in the area of influence. Improving the roads will also lead to reduced vehicle operating costs and shorter travel times. This will be achieved through works such as adjustments to the vertical and horizontal alignment of existing roads, construction of major and minor drainage works, building and rehabilitation of bridges, paving, and measures to reduce the vulnerability of the completed works and adapt them to climate change, as well as environmental and social mitigation measures consistent with the location of the program road segments (REL#3).

1.18 **Strategic alignment.** This program is consistent with the Bank's country strategy with Nicaragua (2012-2017) (document GN-2683), which in the transportation sector has the objective of supporting efforts to build, improve, rehabilitate, and keep in good repair the rural roads and highways that ensure that productive sectors are permanently linked to domestic and export markets. This program is included in the 2016 Operational Program Report (document GN-2849).

1.19 The program is consistent with the Update to the Institutional Strategy (UIS) 2010-2020 (document AB-3008) and is strategically aligned with the development objectives of: (i) social inclusion and equality, in absolute terms, by making road infrastructure improvements that foster better access to essential public and social

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[33] The executing agency has had success in managing involuntary resettlement. In 2013, it issued a manual of procedures for acquiring rights of way in projects executed by the MTI. This manual will be used in the program. In addition, under interagency agreements with municipalities, the MTI successfully implemented the procedures described in the manual in projects that include the Acopaya-San Carlos-Costa Rican Border Highway Integration Program under the Puebla-Panama Plan (NI-L1006). There will be lessons learned on the issue of gender in the sector once the results of the program-financed training become available.

[34] See Project Completion Report (PCR). Loan operation NI-L1006.

services for a mostly poor population,[35] thereby creating greater opportunities for income and equity; (ii) productivity and innovation, in terms of providing adequate, reliable, and accessible infrastructure and public services through a road infrastructure that will enhance accessibility and facilitate connectivity by shortening travel times and reducing vehicle operating costs, expanding access to markets, services, and technology and helping to increase agricultural and livestock productivity, which is the economic mainstay of the sample's area of influence; and (iii) economic integration, from a multinational standpoint, by providing road infrastructure improvements in the department of Matagalpa and the RACCN, integrating the export-oriented production in the program's area of influence with the country's main road corridors and directly or indirectly promoting fuller participation in regional or global markets, and by generating preinvestment projects that promote investment in ports, multimodal transportation, and investment planning in major export corridors and feeder roads. The program is also aligned with the crosscutting area of climate change and environmental sustainability, incorporating climate change adaptation criteria in the engineering designs for the program's road segments, thus ensuring year-round road serviceability and enhancing the resilience of any built or upgraded infrastructure.

1.20 In addition, the program will contribute to the 2016-2019 Corporate Results Framework (document GN-2727-6) through the output indicator "number of kilometers built or rehabilitated."

1.21 **Additionality.** Women are underrepresented in traditionally male-dominated sectors[36] such as construction (3%) and transportation (11%), which provide higher wages and greater benefits.[37] Thus, there is a need to introduce measures aimed at reversing this situation. Nicaragua enacted a law that includes specific actions to protect women's rights. Despite being the sixth best ranked country in the world in terms of female political participation, Nicaragua continues to have gender gaps in various sectors. In view of this, the program calls for training women in the operation of heavy equipment to help narrow the gender gap in the construction workforce. This complements gender inclusion activities already implemented in the country's transportation sector, as described in OEL#2.

1.22 **Regional integration and rural transportation.** The program is aimed at improving the road system in areas that have high levels of poverty and high, export-oriented productive potential, specifically on the Caribbean coast (paragraphs 1.12 and 1.13), in order to facilitate the physical integration of the program's areas of influence with the rest of the country and the region by ensuring permanent road links and enhancing the movement of people and goods to and from the national and regional productive markets. This improvement will foster greater inclusion of rural productive

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35 The country's territories with the highest incidence of extreme poverty include the RACCN (70.9%), the South Caribbean Coast Autonomous Region (63.1%), and the department of Matagalpa (46.3%). The area of influence of the program's sample is located in these territories.

36 A traditionally female-dominated or male-dominated sector is a sector in which the opposite gender is underrepresented and generally accounts for less than 25% of total employees. For example, construction, transportation, mining, and energy, among others, tend to be traditionally male-dominated sectors. See Hegewisch, Ariane and Hartmann, Heidi (2014). Occupational Segregation and the Gender Wage Gap: A Job Half Done. Institute for Women's Policy Research.

37 IDB (2015). *El porqué de la relación entre género y transporte*.

economies in the domestic and regional markets. In particular, the representative sample project (paragraph 1.29) makes it possible to integrate areas in the RACCN's municipio of Waslala with high productive potential (corn, bean, cocoa, coffee, and livestock) both southward with the department of Matagalpa and the national and regional network in the country's south and northward with the Siuna–Bilwi road corridor (Puerto Cabezas on the Atlantic coast of the RACCN), currently under expansion.[38] Improving this link and developing other links can expand growth opportunities for multimodal transportation in the region.[39]

1.23 **Effects of climate change.** The program's area of influence exhibits climate change effects, as indicated in the technical designs,[40] which establish that: (i) rainfall patterns in the sample road segment match the historical records (ii) there are nationwide effects on agriculture due to changes in rainfall patterns; and (iii) drought effects are created in the area due to irregular anticyclone behavior and the El Niño phenomenon. The designs of the program's representative sample include engineering criteria that reduce the works' vulnerability to climate change, as described in OEL#10.

1.24 In addition, the program is consistent with the Strategy on Sustainable Infrastructure for Competitiveness and Inclusive Growth (document GN-2710-5), particularly the strategic principles of: (i) financing and technical assistance to ensure that infrastructure supports economic growth, provides access, and fosters regional and global integration; and (ii) planning, building, and maintenance of infrastructure to support the delivery of quality services that promote sustainable and inclusive growth, consistent with the Transportation Sector Framework (document GN-2740-3), which sets out lines of action that include the rehabilitation of road systems, ensuring full utilization of existing assets.

B. Objectives, components, and cost

1.25 **Objective.** The objective is to contribute to economic development and poverty reduction in Nicaragua, with a focus on the Caribbean coast, by improving the condition of the transportation infrastructure in rural areas of the country with a high incidence of poverty, facilitating the integration of production areas and consumption areas and access to public and social services for the population of those regions. The specific objective of the program is to improve the traffic flow quality[41] and accessibility[42] of the targeted road segments by reducing average vehicle operation costs and shortening travel times, promoting a sustainable movement of goods and

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38 See OEL#9.

39 This operation will finance preinvestment studies for the development of port infrastructure integrated into a multimodal logistics corridor, specifically a feasibility analysis for an international port in Bluefields and its links. See map.

40 See OEL#3.

41 Improvement in traffic flow quality is directly related to the level of service of the road and road safety. The level of service, which describes the road's operating condition, hinges on travel speeds and times, maneuverability, flow interruptions, comfort, and convenience in terms of the costs of using or not using the road. Source: Highway Capacity Manual (HCM) and AASHTO Geometric Design of Highways and Streets ("Green Book").

42 Accessibility refers to the relative ease with which an individual or group of individuals is able to reach a particular destination or service and the various uses of land consistently, safely, and affordably through the existing means of transportation.

passengers by improving the road infrastructure and adopting specific environmental and social management measures.

1.26 **Description of beneficiaries.** The population that will directly benefit from the improvement works on the El Comején – Waslala road segment totals 16,417 inhabitants (8,212 men and 8,205 women) from the communities located in the vicinity of the road. In addition, the project will benefit another 15,050 people (8,613 men and 6,437 women) who live within this road segment's indirect area of influence (OEL#1).

1.27 **Component 1. Improvement of rural roads on the Caribbean coast (US$74,177,000).** This component will finance road improvement works in the representative sample project (paragraph 1.29) and additional eligible road segments (paragraph 1.30) in activities such as: adjustments to the existing vertical and horizontal alignment, major and minor drainage, construction and rehabilitation of bridges, measures to reduce vulnerability and adapt to climate change,[43] paving, road safety devices, and environmental mitigation measures (REL#3). The component will also finance technical and environmental works supervision by independent consulting firms (paragraph 3.3).[44] Each project will include specific devices to improve road safety when roads are ready for use, such as road signs and pavement markings, bicycle lanes, pedestrian sidewalks, metal protective barriers, and others.[45] In addition, contractors will be hired to conduct road safety education workshops during the construction phase, in accordance with plans approved by the MTI. Furthermore, this component will continue the program to train women in the operation of heavy equipment initiated under the Road Integration Program (NI-L1092). It will also finance environmental and social mitigation works and implementation of involuntary resettlement plans.

1.28 **Eligibility criteria.** The projects to be financed by this operation must have the Bank's no objection and satisfy each of the following criteria: (i) be located in rural areas with a high concentration of poverty, with a focus on the Caribbean coast; (ii) facilitate integration with markets and link municipios to each other or to large population centers; (iii) involve roads forming part of the road system under MTI's responsibility; (iv) preserve the existing alignment with the possibility of some geometric adjustments that contribute to road functionality and safety; (v) be interventions that comply with the IDB's Environment and Safeguards Compliance Policy and with the indications set forth in the Environmental and Social Management Report (ESMR) (attached to the program's Operating Regulations); (vi) implement the pavement solution that is most efficient in technical and economic terms; and (vii) prior to the solicitation of bids on the works, demonstrate an economic internal rate of return (EIRR) of more than 12%.

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[43] Includes special technical specifications for the design of boxes, box culverts, bridges, sewers, pavement structure, dykes, and other structures to contain surface flows, enhancing the resilience of the road segments financed by the program. OEL#10.

[44] MTI records from 2010 to date (September 2016) show a total of 186 contracts for works supervision processes, taking all financing sources into account. Of these contracts, 156 were for the supervision of works similar to the program's works and were performed by independent consulting firms. Essentially all supervision services financed with IDB resources are contracted with independent consulting firms. Source: http://ws.snip.gob.ni/BPS/ListarProyectos.aspx.

[45] National accident statistics.

1.29 **Representative sample.**[46] In compliance with the eligibility criteria for the operation, the MTI submitted as a representative sample the improvement of the existing El Comején-Waslala rural road (paragraph 1.37), which is 30.9 km long and connects the community of El Comején in the department of Matagalpa with the municipio of Waslala (68,213 inhabitants)[47] in the RACCN. This improvement facilitates a livestock and agricultural production link between the municipio of Waslala (RACCN) (paragraph 1.12) and the municipio of Rancho Grande (Matagalpa) (paragraph 1.13).[48] At present, these two municipios are linked by a crushed-surface road that deteriorates significantly in the rainy season. Furthermore, this segment connects the country's north to the Caribbean coast through a corridor now in the process of consolidation. The intervention, which will have a total construction and supervision cost of US$29,189,000 (OEL#1), accounts for 32.5% of the program's resources (paragraph 1.35).

1.30 Additional road segments were identified on a preliminary basis, following the same identification process used for the representative sample (paragraph 1.29). These segments will receive financing under the program, provided they comply with the program's objective (paragraph 1.25) and eligibility criteria as well as with the Bank's environment and safeguards policies (paragraph 1.28). They are: La Esperanza-Wapi-El Tortuguero (31 km)[49] and El Rama-Kukra Hill-Laguna de Perlas (El Rama-San Ramón).[50] The final scope of the projects will be determined in the program execution stage based on the results of the specific technical, economic, and environmental studies to be performed for each project during the execution of the loan and to be submitted to the Bank for consideration and due diligence.

1.31 **Component 2. Institutional strengthening of the MTI (US$1,403,000).** This component will finance institutional management training programs, refurbishment of offices, procurement of computer and transportation equipment and other goods needed to support institutional management, and improvement of the physical operating conditions at the MTI to ensure sustainability of the ministry's executing capacity.[51]

1.32 **Component 3. Preinvestment studies (US$10,000,000).** This component will finance preinvestment studies for strategic projects aimed at integrating a multimodal transportation network through the country's national and international corridors, including financing management projects and those with a greater impact

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46 See OEL#8.

47 Source: Waslala in figures, INIDE.

48 Identification of the sample was based on a review of segments in the Caribbean coast's road inventory in conditions associated with the eligibility criteria (paragraph 1.28), identification of the project's characteristics, the economic, productive, and social features of the project's area of influence, traffic behavior, and physical inventory of the works in the segment (gradient, drainage works, bridges, and geometry). See OEL#3.

49 See La Esperanza-Wapí-El Tortuguero map.

50 See El Rama-Kukra Hill-Laguna de Perlas map.

51 Investment in improving Nicaragua's road infrastructure and enhancing the country's road assets should also include support to strengthen and develop the MTI's institutional capacities with a view to ensuring the future sustainability of the results, not because significant gaps have been identified but as a way of continuing the Bank's support of the executing agency's and borrower's service capacity.

on reducing the investment gap (paragraph 1.6).[52] The component will first finance preinvestment studies for transportation infrastructure on the Caribbean coast to support the creation of knowledge to develop the Bluefields international port and its links as part of a national and international multimodal logistics corridor, yielding feasibility results that can enable the mobilization of investment resources to implement it.[53]

1.33 **Administration and management (US$1,059,000).** This heading includes financing for financial audits, environmental[54] and social management, monitoring and evaluation, and advisory services and technical assistance.

1.34 In addition, financing includes resources for financial expenses,[55] estimated at US$3,200,000.

1.35 **Costs.** The program has a total cost of US$89.84 million, to be financed as follows: (i) US$52.20 million from the Bank's Ordinary Capital (OC);[56] (ii) US$34.80 million from the Fund for Special Operations (FSO);[57] and (iii) US$2.84 million in local contribution. A breakdown of costs by investment category is presented in Table 1 below.

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[52] According to the analysis of the problem's causes, closing the country's gap so as to attain an optimum level of investment in the basic road system's infrastructure would require approximately US$180 million over 20 years, and 10% to 25% of this amount is not being covered on an annual basis (OEL#5). According to the Republic of Nicaragua's 2016 General Budget Law, establishing the availability of resources for preinvestment studies is a priority in order to be prepared to execute the projects and new programs being developed. Under this budget law, priority sectors include preinvestment studies for construction and rehabilitation of roads, streets, and bridges.

[53] Preinvestment studies will consist of analyses of the technical, social, environmental, economic, financial, and institutional feasibility of a deepwater port in Bluefields and its links on the Caribbean coast of Nicaragua. In the specific context of this loan operation, the plan for an international port in Bluefields is associated with the potential development of a multimodal logistics corridor that can significantly boost economic activity in the Caribbean coastal region, the development of which is a priority under the strategic objectives of Nicaragua's national development plan (PNDH).

[54] The resources to finance the environmental and social management activities associated with the representative sample project are shown in Table 1. For the additional segments, the scope and allocation of program resources will be determined during execution, once the relevant preinvestment studies are completed.

[55] Financial expenses refer to loan interest payments.

[56] 60% of the financing.

[57] 40% of the financing.

Table 1. Program financing (US$)

Components	IDB	Government of Nicaragua	TOTAL
1. Improvement of rural roads on the Caribbean coast	**72,870,000**	**1,307,000**	**74,177,000**
2. Institutional strengthening of the MTI	**1,330,000**	**73,000**	**1,403,000**
2.1 Training	200,000	-	200,000
2.2 Office refurbishment	767,000	18,000	785,000
2.3 Office equipment	163,000	24,000	187,000
2.4 Transportation equipment	190,000	29,000	219,000
2.5 Software	10,000	2,000	12,000
3. Preinvestment studies	**8,620,000**	**1,380,000**	**10,000,000**
3.1 Preinvestment studies on multimodal transportation	4,190,000	670,000	4,860,000
3.2 Complementary preinvestment studies	4,430,000	710,000	5,140,000
4. Administration and management	**980,000**	**79,000**	**1,059,000**
4.1 Environmental and social management	585,000	56,000	641,000
4.2 Monitoring and evaluation	55,000	-	55,000
4.3 Program audit	150,000	23,000	173,000
4.4 Advisory services and technical assistance	190,000	-	190,000
5. Financial expenses	**3,200,000**	**-**	**3,200,000**
Program total	**87,000,000**	**2,839,000**	**89,839,000**

C. Key results indicators

1.36 The main expected outcomes for the targeted rural segments are reduced travel times and costs in freight and passenger transportation as well as reduced operating costs for vehicles using these roads and increased movement of goods and people. The impacts on the region's integration with national and productive markets in the areas of influence of the program's road segments are associated with increases in the production of basic grains and livestock. These outcomes and impacts are described in the Results Matrix. The baseline is the reference for evaluation of the program, while the output and outcome indicators will be corroborated in the field using valid verification methods. The observed outcomes will be compared with the values given in the Results Matrix. The program will include indicators for environmental and social considerations included in the Environmental and Social Management Report (ESMR).

1.37 **Technical and economic feasibility of the representative sample project.** The project team conducted due diligence on the plan for the sample project submitted by the MTI in order to verify its technical, economic, social, and environmental feasibility. In terms of engineering, an analysis of the design options was performed and the most effective and efficient intervention option was selected. In addition, an ex ante economic analysis was done (OEL#1) to calculate the project's cost-benefit ratio and economic internal rate of return (EIRR), using the Highway Development and Management version 4 (HDM-4) and Roads Economic Decision (RED) models to compare the economic flows identified in the situation without the project (counterfactual) and with the project.

1.38 **Results of the cost-benefit analysis of the representative sample project.** The analysis of the sample project, using a discount rate of 12%, yielded an EIRR of 17.9% under base scenario conditions and assumptions. The project's robustness

in more unfavorable scenarios was assessed through a sensitivity analysis that posited an increase of 15% in investment costs and a simultaneous reduction of 25% in the traffic growth rate. The analysis showed that the economic net present value (ENPV) was above zero and the EIRR was 14.4%. A frontier analysis was also done, demonstrating that, with an increase of 145% in investment costs and a reduction of 75% in the traffic growth rate, the project would yield an ENPV greater than zero. Table 2 summarizes the results obtained.

Table 2. Results of the cost-benefit analysis and sensitivity analysis

Project	Length (km)	Investment cost (US$000)	ENPV (US$000)	EIRR (%)	
				Base	Sensitivity analysis
					IC: +15% & TGR: -25%
Segment: El Comején-Waslala	30.9	29,189	11,200	17.9	14.4

IC: Investment cost; TGR: Traffic growth rate.

II. Financing Structure and Main Risks

A. Financing instruments

2.1 This operation is an investment loan structured as a multiple works program[58] that includes works similar to, but independent from, one another, for a total amount of US$89,839,000. The program has a representative sample (paragraph 1.29) that complies with the eligibility criteria (paragraph 1.28). The preinvestment studies for additional road segments under the program will be commissioned within a specific timeframe (required as a special condition of program execution), and their findings will make it possible to evaluate the eligibility of those additional segments. The disbursement period is five years starting on the effective date of the respective contract, as indicated in the following table.

Table 3. Projected disbursement schedule (US$000)

Source	2017	2018	2019	2020	2021	Total
IDB	5,779	23,004	20,644	21,797	15,776	87,000
Local contribution	0	910	1,268	462	199	2,839
Total	**5,779**	**23,914**	**21,912**	**22,259**	**15,975**	**89,839**

B. Environmental and social risks

2.2 The execution of rural road improvement and rehabilitation works under the program does not envisage a change in geometric alignment, except in specific cases where road alignment needs to be improved for reasons of road safety. Given the simple nature and small size of the improvement works, it may be generally stated that their direct environmental and social impacts are mainly positive, since the program will

[58] In accordance with the Multiple Works Programs Processing Procedures (PR-202) of the Bank's manuals for processing sovereign-guaranteed operations.

significantly enhance the connectivity and quality of life of the beneficiary communities. The program's sample project will generate negative impacts that are low-magnitude, short-lived, reversible, and limited to the jobsite, and its environmental management measures are well known to the executing agency and the construction and supervision firms[59] and have been previously financed by the Bank.

2.3 Nevertheless, pursuant to the Environment and Safeguards Compliance Policy (OP-703) the program was classified as a category "A" operation since the road segment in the program's representative sample is near environmentally protected areas and passes through their buffer zone, potentially creating indirect impacts on those areas.[60] Since the Bank's Disaster Risk Management Policy (OP-704) is activated, the following mitigation measures are envisaged: (i) use of the information available in the Sistema Nacional de Prevención de Desastres [National Disaster Prevention System] (SINAPRED) and the Instituto Nicaragüense de Estudios Territoriales [Nicaraguan Territorial Studies Institute] (INETER) by including this information in the design of the program's projects; and (ii) evaluation and monitoring of the disaster contingency plan presented by the contractors.

2.4 The representative sample project requires the purchase of land parcels to relocate 11 dwellings located within the right of way.[61] Accordingly, in compliance with the Bank's operational policy OP-703 and Involuntary Resettlement Policy (OP-710), the MTI prepared and published an environmental impact study (EIS) and an involuntary resettlement plan (IRP) and conducted the first round of the required consultations. With regard to the question of a presence of indigenous communities, the EIS shows no evidence of indigenous community settlements in the area.[62]

C. Fiduciary risks

2.5 In the area of procurement, the risk level assigned to the MTI procurement office with regard to the preparation of this program is low. In the area of financial management, the program's risk is similarly low, with a satisfactory level of development.

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59 In the bidding documents for the works and as indicated in footnote 43, the executing agency will include specific measures to mitigate the identified impacts.

60 Indirect impacts: Improved connectivity upon completion of the road works can indirectly lead to greater penetration into environmentally protected areas. This will occur with or without the project since the road in question has been in existence for decades in a socioeconomically consolidated area. In compliance with operational policy OP-710, the EIS examined the indirect impacts in detail. The ESMR and the ESMF include mitigation measures for the representative sample and the complementary road segments. These measures are associated with the management plans for the protected areas and will be financed with the program's environmental and social management resources. The preinvestment studies for additional segments will comply with the Bank's environment and safeguards policies (paragraph 1.30).

61 "Right of way" is understood to refer to total required road width, as follows: for international and interoceanic roads, 40 meters, or 20 meters on each side of the centerline; for interdepartmental and country roads, 20 meters, or 10 meters on each side of the centerline. See Decree 46 Law on Right of Way.

62 The Bank and the executing agency published an EIS, including an IRP, for the program's representative sample on 1 July 2016 in compliance with operational policy OP-710.

D. Other program risks

2.6 **Institutional risks of execution.** The MTI has a positive track record in executing Bank operations, so this program's execution risk is considered low. To maintain that situation, the execution arrangements used for IDB loans will be retained.[63] This operation will include a technical advisor to support the MTI in the preparation of bidding documents, execution, and contract administration to ensure the proper balance of time, costs, scope, schedule, and quality of the works and systematization of lessons learned.

2.7 **Technical risks.** The works do not involve a high degree of technical difficulty, the works supervision and construction firm market is large and qualified for the type of works to be financed, and the MTI has experience in the execution of similar projects.

2.8 **Risks of cost overruns.** There are recent cost overrun analyses (2015 and 2016, see OEL#11) based on the performance of more than 24 projects executed by the MTI over the last eight years. These analyses conclude that the average percentage of cost overruns was 7.2%[64] and that any hypothetical future overruns would be of that order of magnitude.

2.9 **Sustainability.[65]** The Government of Nicaragua undertakes to ensure that the roads financed by this loan operation are maintained by FOMAV in accordance with generally accepted technical standards. To this end, the Government of Nicaragua will: (i) prepare an annual maintenance plan; and (ii) in the four years following the completion of the first of the program's works and within the first half of each such calendar year, deliver to the Bank a report on the status of these works and the annual maintenance plan for that year.

III. Implementation and Management Plan

A. Summary of implementation arrangements

3.1 **Borrower and executing agency.** The borrower will be the Republic of Nicaragua and the executing agency will be the MTI, which will make use of its organizational structure of senior management and technical, administrative, procurement, financial, environmental, and support units for program execution.[66]

3.2 The MTI has a project coordination unit (PCU) for this and other Bank-financed operations, made up of permanent MTI staff and responsible for four levels of

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63 In view of the execution status of the loan operations currently in execution by the MTI, it is envisaged that the current workload will be maintained over the coming years. If this workload increases, there should be no execution risks given the nature of the PCU's organizational structure and its levels of coordination with MTI senior management, suppliers, the IDB, and the borrower. Annex III.

64 The estimate of the borrower's local contribution does not operate as a limit on the borrower's obligation to timely provide any additional resources needed to ensure full and uninterrupted execution of the program.

65 These national road segments will be included in the maintainable national road network (RVNM) (Article 5 of the Law Amending Law 355 (Law 572)) upon completion of the works envisaged for each segment. Accordingly, the MTI and FOMAV will sign the required annual agreements to incorporate the program-financed national road segments into the RVNM (Article 7 of the Law Amending Law 355 (Law 572)) (footnote 8).

66 See MTI organizational chart.

coordination: (i) internally within the MTI for technical, contractual, social, environmental, and financial matters and ongoing reporting to senior management; (ii) with contractors and consultants engaged by the program, to verify completion of the outputs and activities included in the project execution plan and annual work plan; (iii) with the Bank for monitoring, management, and communications; and (iv) with the borrower for monitoring, budget, and strategic coordination.

3.3 The following special contractual conditions for execution have been set: (i) Prior to the bidding process for the first construction works under the program, evidence that a technical advisor has been contracted to support the executing agency in the project's technical structuring, bidding document preparation, execution, and contract administration processes in accordance with the terms previously agreed upon with the Bank (paragraph 2.6); (ii) prior to the award of the works contracts, evidence that a works supervision firm has been contracted to the Bank's satisfaction (footnote 44); (iii) during program execution, the executing agency undertakes to comply, to the Bank's satisfaction, with the conditions set forth in the program's ESMR and Environmental and Social Management Framework (ESMF) (paragraph 3.4); and (iv) within 24 months from the effective date of the loan contract, the executing agency undertakes to commission the studies and designs for additional road segments beyond the program's representative sample (paragraph 1.30). In order to be eligible for financing, any project will need to obtain the Bank's no objection and comply with the technical, social, environmental, and economic return criteria to be established in the loan contract (paragraph 1.28). The deadline for the physical start of the works will be three years from the effective date of the loan contract.

3.4 **Program Operating Regulations.** The MTI will provide the Bank with evidence of the entry into force of the program's Operating Regulations in accordance with the terms previously agreed upon with the Bank, including the following components: (i) program description; (ii) execution arrangements; (iii) institutional framework, organization, and responsibilities; (iv) agreements and requirements for procurement execution; (v) financial management; (vi) monitoring and control; and (vii) the program's social and environmental considerations, which include the conditions set forth in the program's ESMR and ESMF, which will be attached to the program's Operating Regulations. **Entry into force of the program's Operating Regulations, in accordance with the terms previously agreed upon with the Bank, will be a special contractual condition precedent to the first disbursement.**

3.5 **Procurement.** The procurement of goods, works, and services envisaged in this operation will be carried out by the MTI's procurement office in accordance with the "Policies for the procurement of works and goods financed by the IDB" (document GN-2349-9) and the "Policies for the selection and contracting of consultants financed by the IDB" (document GN-2350-9). Annex III presents the general management framework for procurement. Procurement will be supervised by the Bank in accordance with the procurement plan.

3.6 **Financial management.** The program's financial and accounting management will be performed by the MTI's financial/accounting unit. The MTI has significant financial management experience and has satisfactorily handled Bank-financed operations, as confirmed by the results of annual audit reports and the Bank's semiannual

fiduciary inspection visits. In addition, the MTI has an effective internal control system, which it uses in the execution of its operations and projects.

3.7 **External audit.** Within 120 days after the close of the respective fiscal year, the borrower will annually deliver the program's financial statements to the Bank duly audited by an independent audit firm acceptable to the Bank. The cost of these audits will be financed with the loan proceeds.

B. Summary of results monitoring arrangements

3.8 **Monitoring.** During execution, the MTI will deliver consolidated status reports to the Bank every six months, specifying the progress made, including the agreed indicators in the Results Matrix.

3.9 **Evaluation.** The borrower will perform a midterm evaluation when 50% of the loan proceeds have been disbursed. It will also perform a final evaluation when 90% of the proceeds have been disbursed.

Development Effectiveness Matrix			
Summary			
I. Strategic Alignment			
1. IDB Strategic Development Objectives	**Aligned**		
Development Challenges & Cross-cutting Themes	**-Social Inclusion and Equality -Productivity and Innovation -Economic Integration -Climate Change and Environmental Sustainability**		
Regional Context Indicators			
Country Development Results Indicators	**-Roads built or upgraded (km)***		
2. Country Strategy Development Objectives	**Aligned**		
Country Strategy Results Matrix	**GN-2683**	**Build, improve, and rehabilitate highways and rural roads and keep them in a good state of repair, so as to ensure productive sectors have access at all times to both domestic and export markets, with particular emphasis on the Meso-American region.**	
Country Program Results Matrix	**GN-2849**	**The intervention is included in the 2016 Operational Program.**	
Relevance of this project to country development challenges (If not aligned to country strategy or country program)			
II. Development Outcomes - Evaluability	**Evaluable**	**Weight**	**Maximum Score**
	8.9		**10**
3. Evidence-based Assessment & Solution	**10.0**	**33.33%**	**10**
3.1 Program Diagnosis	**3.0**		
3.2 Proposed Interventions or Solutions	**4.0**		
3.3 Results Matrix Quality	**3.0**		
4. Ex ante Economic Analysis	**10.0**	**33.33%**	**10**
4.1 The program has an ERR/NPV, a Cost-Effectiveness Analysis or a General Economic Analysis	**4.0**		
4.2 Identified and Quantified Benefits	**1.5**		
4.3 Identified and Quantified Costs	**1.5**		
4.4 Reasonable Assumptions	**1.5**		
4.5 Sensitivity Analysis	**1.5**		
5. Monitoring and Evaluation	**6.6**	**33.33%**	**10**
5.1 Monitoring Mechanisms	**2.5**		
5.2 Evaluation Plan	**4.1**		
III. Risks & Mitigation Monitoring Matrix			
Overall risks rate = magnitude of risks*likelihood	**Low**		
Identified risks have been rated for magnitude and likelihood	**Yes**		
Mitigation measures have been identified for major risks	**Yes**		
Mitigation measures have indicators for tracking their implementation	**Yes**		
Environmental & social risk classification	**A**		
IV. IDB´s Role - Additionality			
The project relies on the use of country systems			
Fiduciary (VPC/FMP Criteria)	**Yes**	**Financial Management: Budget, Treasury, Accounting and Reporting, External control.**	
Non-Fiduciary			
The IDB's involvement promotes additional improvements of the intended beneficiaries and/or public sector entity in the following dimensions:			
Gender Equality	**Yes**	**The operation aims to contribute to reducing the knowledge gap about gender differences in the construction labor market, specifically in the operation of heavy machinery.**	
Labor			
Environment			
Additional (to project preparation) technical assistance was provided to the public sector entity prior to approval to increase the likelihood of success of the project			
The ex-post impact evaluation of the project will produce evidence to close knowledge gaps in the sector that were identified in the project document and/or in the evaluation plan			

Note: (*) Indicates contribution to the corresponding CRF's Country Development Results Indicator.

The road network in Nicaragua has the lowest coverage rate in Central America (181,37km / 1,000 km2) and a rural access index of 29%. These limitations have a negative impact on the availability and transitability of transport service and mobility of people/goods in rural areas, especially where a higher level of poverty is presented. From the existing evidence, the diagnosis has correctly identified and quantified the main determinants and causal factors of both the general and specific problems.

The expected results translate into improved service level of road sections, improved efficiency in the use of transport infrastructure and the promotion of sustainable transport. The NI-L1097 operation also contributes - under the multisectoral framework of pre-investment policies - to increase the quality of number of pre-investment studies for financing. Three components have been conformed: (i) improvement of rural roads; (Ii) institutional strengthening and (iii) pre-investment studies.

The economic evaluation presents a cost - benefit economic analysis, reasoned on savings based on generalized costs of transport. All economic indicators are positive. The sensitivity analysis has identified as variables of uncertainty: investment costs and changes in traffic flow.

Monitoring is based on project management tools commonly used by the Bank's operations. The ex-post evaluation of the results suggests a before and after assessment, and an ex-post type cost-benefit evaluation which will validate economic benefits.

The assessed risk of the operation is classified as low. All risks present mitigation measures. Primary risks with low probability factors prevail. All risks identified as high impact have low probability of occurrence.

RESULTS MATRIX

Program objective:	To contribute to economic development and poverty reduction in Nicaragua, with a focus on the Caribbean coast, by improving the condition of the transportation infrastructure in rural areas of the country with a high incidence of poverty, facilitating the integration of production areas and consumption areas and access to public and social services for the population of those regions. The specific objective of the program is to improve the traffic flow quality and accessibility of the targeted road segments by reducing average vehicle operating costs and shortening travel times, promoting sustainable movement of goods and passengers by improving the road infrastructure and adopting specific environmental and social management measures.

EXPECTED IMPACT

Indicators	Unit of measure	Baseline		Target		Means of verification	Comments
		Value	Year	Value	Year		
Increase agricultural and livestock production on Nicaragua's Caribbean coast, fostering the region's economic development and helping to reduce poverty[1]							
Number of tons of agricultural production in the area of influence of the road segments targeted by the sample project[2]	Tons	1,983	2016	2,101	2021	Values to be determined in 2021 through direct field research conducted by consultants to be contracted using program funds	These indicators seek to reflect the impact of improved transportation on economic productivity in the area of influence of the road segments targeted by the program, on positioning this production in the regional and global markets, and on creating greater opportunities for income and equity for the population in the area of influence
Number of kilograms of beef produced per year in the area of influence of the road segments targeted by the sample project	Kilograms	31,973	2016	84,525	2021		
Number of liters of cow's milk produced per year in the area of influence of the road segments targeted by the sample project	Liters	533,363	2016	770,458	2021		

[1] The impact indicators have been defined for the El Comején – Waslala sample project, and the corresponding baseline and target values have been determined in accordance with the methodological development contained in the ex ante economic analysis. The impact indicators and corresponding baseline and target values for any additional road segments will be determined during program execution.

[2] In the case of the El Comején – Waslala sample project, it is comprised of corn, bean, cocoa, and coffee production.

EXPECTED OUTCOMES[3]

Expected outcomes	Unit of measure	Baseline		Intermediate		Target		Means of verification	Comments
		Value	Year	Value	Year	Value	Year		
Outcome 1: Improved level of service[4] in the targeted road segments									
Average vehicle operating costs in the road segments targeted by the program[5]	US$ /vehicle-km	0.62	2016			0.28	2021	Vehicle operating costs study based on Roads Economic Decision (RED) and HDM4-VOC models	Responsibility: Ministry of Transportation and Infrastructure (MTI)
• El Comején – Waslala segment									
Outcome 2: Increased efficiency in the use of transportation infrastructure									
Average travel time on road segments targeted by the program[6]	Minutes	96	2016			37	2021	Traffic speed study	Responsibility: MTI
• El Comején – Waslala segment									
Outcome 3: Promotion of sustainable freight and passenger transportation in the future operation of the targeted segments									
Annual average daily traffic (AADT) on road segments targeted by the program [7]	Vehicles	731	2016			1,198	2021	Traffic study	Responsibility: MTI
• El Comején – Waslala segment									

[3] The outcome indicators correspond to the El Comején - Waslala sample project based on the evaluation performed using the RED Model, which is developed in the ex ante economic analysis. The baseline and target values for the road segments to be added will be determined during program execution.

[4] The level of service that describes the road's operating condition hinges on traffic efficiency measures related to travel speed and travel time, maneuverability, flow interruptions, comfort, and advisability in terms of cost.

[5] Computed average of the values for the following types of vehicle: motorcycles, automobiles, pick-up trucks, microbuses, minibuses, C2, C3, and articulated trucks.

[6] The level of service that describes the road's operating condition hinges on traffic efficiency measures related to travel speed and travel time, maneuverability, flow interruptions, comfort, and advisability in terms of cost.

[7] Will consist of normal and induced (detoured and generated) traffic, including the following types of vehicle: motorcycles, automobiles, pick-up trucks, microbuses, minibuses, C2, C3, and articulated trucks.

Expected outcomes	Unit of measure	Baseline		Intermediate		Target		Means of verification	Comments
		Value	Year	Value	Year	Value	Year		
Outcome 4: Help to develop the necessary preinvestment studies for projects in the process of securing financing									
• Bluefields port investment plan[8] structured for securing financing[9]	Study	0	2016	-	-	1	2021	Feasibility study structured for securing financing	Responsibility: MTI
• Other preinvestment studies approved	Study	0	2016	-	-	1	2020	Preinvestment study approved	Responsibility: MTI

OUTPUTS

Outputs	Estimated cost (US$)	Unit of measure	Baseline	Year 2017	Year 2018	Year 2019	Year 2020	Year 2021	Final target	Means of verification
			2016							
Component 1: Improvement of rural roads on the Caribbean coast										
Number of kilometers built or rehabilitated[10]	**74,177,000**	**Kilometers**	**0**	**0**	**5**	**10**	**15.9**	**40**	**70.9**	Supervision reports. Works acceptance certificates. Responsibility: Project coordination unit (PCU) MTI-IDB
Number of kilometers built on the El Comején – Waslala segment	29,189,000	Kilometers			5	10	15.9		30.9	
Number of kilometers built or rehabilitated on road segments not included in the sample	44,908,000	Kilometers						40	40	
Number of women trained in the operation of heavy equipment	80,000	Number of women				12			12	

[8] The plan(s) refer(s) to approved technical, economic, social, and environmental feasibility preinvestment studies that go through a process of consultation with the relevant actors under local legislation in order to be approved.

[9] Plan structured for securing financing is understood to refer to the final study, which includes the final preinvestment analyses and the agreements and consensus of the project's main actors, all of which is required in order to secure financing to execute the project.

[10] The kilometers built or rehabilitated using program resources (see paragraph 1.17 of the POD) correspond to rural roads with export potential.

Outputs	Estimated cost (US$)	Unit of measure	Baseline 2016	Year 2017	Year 2018	Year 2019	Year 2020	Year 2021	Final target	Means of verification
Component 2: Institutional strengthening of the MTI										
Number of people trained in institutional development	200,000	Number of people trained					50		50	Final consulting report Consulting service contract completed Responsibility: PCU MTI-IDB
Number of IT equipment units purchased	155,000	Number of units purchased			35				35	Goods acceptance certificate Responsibility: PCU MTI-IDB
Number of transportation units purchased	219,000	Number of units purchased			6				6	Goods acceptance certificate Responsibility: PCU MTI-IDB
Number of office furniture items purchased	15,300	Number of furniture items purchased			70				70	Goods acceptance certificate Responsibility: PCU MTI-IDB
Number of air conditioning units purchased	16,700	Number of units purchased			8				8	Goods acceptance certificate Responsibility: PCU MTI-IDB
Number of HDM-4 software licenses purchased	12,000	Number of licenses purchased			2				2	Goods acceptance certificate Responsibility: PCU MTI-IDB
Number of physical office spaces refurbished[11]	785,000	Unit			1				1	Facilities acceptance certificate Responsibility: PCU MTI-IDB

[11] Refers to architectural remodeling of an existing office block to help improve the physical operating conditions at the MTI and ensure sustainability of the ministry's execution capacity.

Outputs	Estimated cost (US$)	Unit of measure	Baseline	Year 2017	Year 2018	Year 2019	Year 2020	Year 2021	Final target	Means of verification
			2016							
Component 3: Preinvestment studies										
Number of technical, economic, social, and environmental feasibility preinvestment studies[12] approved and delivered to the MTI	10,000,000	Number of studies	0				2			Final report presented to the MTI Responsibility: PCU MTI-IDB

[12] These studies refer to the technical, economic, social, and environmental feasibility studies of the Bluefields port and other studies to be determined during execution in compliance with the objective of Component 3.

FIDUCIARY AGREEMENTS AND REQUIREMENTS

Country:	Nicaragua
Project number:	NI-L1097
Project name:	Road Integration Program II
Executing agency:	Ministry of Transportation and Infrastructure (MTI)
Fiduciary team:	Santiago Castillo Victoria, Senior Fiduciary Specialist in Procurement (FMP/CNI); and Osmin Mondragón, Fiduciary Specialist in Financial Management (FMP/CNI)

I. EXECUTIVE SUMMARY

1.1 The executing agency will be the Ministry of Transportation and Infrastructure (MTI), the lead agency in Nicaragua's transportation sector.

1.2 Fiduciary management in Nicaragua in the procurement area is improving, so efforts to support a number of activities should be ongoing in order to make them compatible with international best practices and consistent with Bank policies. The MTI has experience implementing Bank-financed operations and is currently executing operations 2840/BL-NI, 2979/BL-NI, 3353/BL-NI, and 3577/BL-NI.

1.3 The executing agency has gained considerable experience in the area of financial management and has demonstrated satisfactory management in the above-mentioned Bank-financed operations. This is confirmed by the findings of audit reports and the Bank's fiduciary inspection visits verifying that the MTI uses an effective internal control system in project execution. Financial training will continue to be provided as established in the Bank's Financial Management Guidelines (document OP-273-6), in order to maintain the current level of performance under the ex post review of disbursements method.

1.4 The operation's total budget is in the amount of US$89,839,000 (US$87,000,000 in IDB resources and US$2,839,000 as the local counterpart). No provision is made for including other sources of financing.

II. FIDUCIARY CONTEXT OF THE EXECUTING AGENCY

2.1 The MTI is governed by the provisions of Law 290 on the organization, jurisdiction, and procedures of the executive branch. Law 550 governs the public sector's financial administration and budget system, through the use of the budget, treasury, accounting, and public credit subsystems. Under article 26 of Law 550, executing agencies (including the MTI) are required to ensure strict compliance with all aspects of financial management as provided by this law.

2.2 The MTI has an effective operational structure with sufficient staff and means for project execution, as confirmed by the updated institutional capacity assessment (ICAS) report[1] prepared in July 2015 for the Road Integration Program (NI-L1092).

2.3 The MTI's procurement division is organizationally and functionally divided into four offices: (i) works and consulting services (firms and individual consultants); (ii) contracting of goods and services; (iii) planning, monitoring, and control of contracts; and (iv) procurement. It has procedural flow charts, with clearly established manuals, guidelines, and procedures, facilitating the monitoring of contracts and procurement plans through the Procurement Plan Execution System (SEPA), the National Public Investment System (SNIP), and monitoring matrixes in Excel. According to the most recent ex post review, complexity level I procedures were implemented in accordance with the Bank's procedures.

2.4 As regards financial management, the executing agency uses the country system validated by the Bank (integrated financial-administrative management system (SIGFA)) consisting of the budget, treasury, accounting, and financial reporting subsystems, supported by an accounting system for projects (SIGFAPRO). The Government of Nicaragua is updating the public financial management system (comprehencisve financial administration system—SIGAF), which will have the following characteristics: (i) proprietary MHCP applications for the recording and accounting of public funds as the lead agency of the financial administration system; (ii) the functionalities necessary for the administration of public sector institutions, according to their specific characteristics and administrative autonomy; (iii) budgeting with a results-based management approach; (iv) administrative management of institutions by full transactional cycles; and (v) international accounting standards and automatic generation of public finance statistics. Upon completion of this phase, the project will be able to migrate to use of this new system. The performance of the executing agency's financial-administrative management staff is satisfactory and the staff has experience acquired in the execution of various operations.

III. Fiduciary Risk Evaluation and Mitigation Measures

3.1 In terms of procurement, the level of risk assigned to the MTI procurement division in the context of preparing this operation is low. To maintain that level of performance, the following are recommended: (i) make sure that the staff's knowledge regarding procurement management tools is kept up to date; (ii) address the recommendations arising from the ex post reviews subject to that modality; and (iii) update the procurement division's manuals of procedures, organization, and operation, describing procurement's role in the contract administration process. The Bank will provide ongoing advisory support and assistance to executing agency staff responsible for the SEPA.

3.2 In terms of financial management, the risk of the operation is low, with a satisfactory level of development (paragraph 1.3), as shown by the control conditions implemented in the execution of funds from various operations. To ensure that this risk remains low, it is suggested that the staff involved in financial management receive a refresher training session conducted by the Bank's team on the applicable

[1] See the institutional capacity assessment system (ICAS) report.

policies and procedures pursuant to the Bank's Financial Management Guidelines (document OP-273-6).

IV. Considerations for the Special Provisions of the Contract

4.1 Included below are the agreements and requirements that should be considered in the special provisions:

(i) In order to avoid exchange rate losses, the exchange rate in effect on the date the disbursement currency is converted to the local currency of the borrower's country (monetization date) will be used; and

(ii) The project's audited financial statements will be delivered within 120 days after the close of each fiscal year during the original disbursement period or extensions thereto and within 120 days following the date of the final disbursement.

V. Agreements and Requirements for Procurement Execution

5.1 The fiduciary agreements and requirements for procurement establish the provisions applicable to the execution of all program procurement.

A. Procurement execution

5.2 **Procurement of works, goods, and nonconsulting services.** Contracts for works, goods, and nonconsulting services generated under the program and subject to international competitive bidding (ICB) will be executed using the Bank's standard bidding documents (SBDs). Bidding processes subject to national competitive bidding (NCB) will be executed using national bidding documents agreed upon with the Bank. The project team leader is responsible for reviewing the technical specifications for procurement during preparation of the selection processes.

5.3 Procurement of information technology systems: not applicable.

5.4 Turnkey procurement (supply and install): not applicable.

5.5 Procurement with community participation: not applicable.

B. Selection and contracting of consultants

5.6 Contracts for consulting services generated under the program will be executed using the standard request for proposals (RFP) issued by or agreed upon with the Bank. The project team leader is responsible for reviewing the terms of reference for the contracting of consulting services.

5.7 Selection of individual consultants: in some cases, the contracting of specialized individual consultants may be announced through local or international advertisements for the purpose of forming a shortlist of qualified individuals.

5.8 Training: not applicable.

C. Use of the country procurement system

5.9 The country procurement subsystem approved by the Bank, the State Administrative Contracts Information System (SISCAE), will be used to publish notices of requests, expressions of interest, and/or bid solicitations and awards in all procurement and

contracting processes. Any subsequently approved system or subsystem will be applicable to the operation. The program's procurement plan and its updates will indicate which processes will be executed using the approved country systems.

5.10 Strengthening measures: not applicable.

5.11 Recurrent expenses: not applicable.

5.12 Commercial practices: not applicable.

5.13 Advance procurement/retroactive financing: not applicable.

5.14 National preference: not applicable.

5.15 Other: not applicable.

Table 1. Use of the country procurement system

Threshold amounts for ICB and international shortlist (US$ thousands)			
Method	**ICB works**	**ICB Goods and nonconsulting services**	**International shortlist for consulting services**
Threshold amount	> 1,500	> 150	> 200

D. Main procurement processes

Table 2. Main procurement processes

Activity	Selection method	Estimated date of call for proposals/invitation	Estimated amount US$
Works			
Improvement of the El Comején – Waslala road section (30.90 km)	ICB	Aug-17	27,604,000
Rural road improvement (project to be confirmed) (40.0 km)	ICB	Jan-18	42,013,000
Office refurbishment	NCB	Apr-18	707,000
Goods			
Procurement of computer equipment (20 desktops, 10 laptops, and 5 multifunction copiers)	ICB	Mar-18	155,000
Procurement of transportation equipment (four pick-up trucks and 2 sedans)	ICB	Mar-18	219,000
Procurement of office furniture (40 desk chairs and 30 waiting-room chairs)	Shopping	Apr-18	15,300
Procurement of office equipment (8 24,000-BTU air conditioners)	Shopping	Apr-18	16,700
Procurement of office equipment (8 24,000-BTU air conditioners)	Shopping	Feb-18	12,000
Consulting services			
Firms			
Works supervision for improvement of the El Comején – Waslala road section (30.90 km)	QCBS	Jun-17	1,585,000
Works supervision for rural road improvement (project to be confirmed) (40.0 km)	QCBS	Oct-17	2,895,000

Activity	Selection method	Estimated date of call for proposals/invitation	Estimated amount US$
Strengthening for institutional development (at the postgraduate level)	CQS	Jun-18	180,000
Works supervision for office refurbishment	QCBS	Dec-17	78,000
Consulting services for multimodal transportation infrastructure preinvestment and feasibility studies and designs	QCBS	Jan-18	4,860,000
Complementary preinvestment consulting services (studies to be determined)	QCBS	Mar-18	5,140,000
Consulting services to support the preparation and implementation of the Kuskawás Reserve management plan	QCBS	Mar-18	406,000
Consulting services for independent financial audit of Road Integration Program II; multiyear	QCBS	Jul-17	173,000
Individual			
Technical assistance to the MTI	IICQ	Mar-17	190,000
Road Integration Program II midterm evaluation	IICQ	Jun-19	25,000
Road Integration Program II final evaluation	IICQ	Jul-20	30,000

* To view the procurement plan, click here.

E. Procurement supervision

5.16 The procurement supervision method will be as indicated in the procurement plan and determined for each selection process. Ex post reviews will be conducted every six months in accordance with the program supervision plan. Ex post review reports will include at least one physical inspection visit, chosen from among the procurement processes subject to ex post review. No less than 10% of the contracts reviewed will be inspected physically.

Table 3. Procurement supervision

Threshold for ex post review		
Works	**Goods and nonconsulting services**	**Consulting services (firms)**
US$1,500,000	US$150,000	N/A

Note: The thresholds for ex post review are based on the executing agency's fiduciary capacity for execution and may be modified by the Bank to the extent that such capacity changes.

F. Special provisions

5.17 The measure for reducing the likelihood of corruption is institutional implementation of an ethics and conduct code for the staff, covering the procurement division, primarily on the issue of conflict of interest.

5.18 Other special procedures: not applicable.

G. Records and files

5.19 The procurement and financial area will be responsible for keeping project files and records. The agreed formats or procedures routinely used by the MTI in Bank-financed operations will be used when preparing and filing program reports.

VI. FINANCIAL MANAGEMENT AGREEMENTS AND REQUIREMENTS

A. Programming and budget

6.1 The country system governed by the Financial Administration and Budget System Law and the provisions of the National Public Investment System (SNIP) will be used, following the national general budget approval cycle directed by the MHCP. The MTI will process an annual budget allocation clearly identifying the program, in order to have sufficient budget appropriations to cover each year's execution commitments. The MTI will monitor the execution of its plans, programs, and projects through the annual work plans of each division and specific section each week under the supervision of the head office, using the project cycle management information system (SIG-CP).

6.2 The IDB will make disbursements to the borrower through the Central Bank of Nicaragua into the unified treasury account under the control of an accounting subaccount (book-entry account in U.S. dollars) tied to a book-entry account in córdobas. The advance of funds modality will be used for periods of up to six months, depending on the program's liquidity requirements. To process a new advance of funds, justification will have been provided for at least 80% of the previous advance. The documentation supporting disbursement processing will be submitted to the Bank by electronic means. The MTI will have a financial plan, which will be aligned with the program execution plan, the annual work plan, and the procurement plan.

6.3 Cash flows will provide for the payment of interest during the execution period with funds from the loan proceeds, pursuant to the amount established in the program budget (Table 1 in the loan proposal). Since this is a blended operation, interest cannot be capitalized automatically; rather, the process approved by the Bank will be followed.

B. Accounting and financial reports

6.4 The financial statements of the program will be issued in accordance with international accounting standards accepted by the Bank in its Financial Management Guidelines (document OP-273-6) and will be audited annually by an independent firm acceptable to the Bank. The program's financial accounting records will be kept using the SIGFAPRO system.

C. Internal control / internal audit

6.5 The executing agency has a reliable internal control system, with manuals and procedures established under the authority of the office of external resources and the finance and administration office of the MTI. The executing agency also has an internal audit unit, which is expected to include review of program execution in its annual planning, insofar as it is able to do so.

D. External control and reports

6.6 The Office of the Comptroller General of the Republic does not currently have the capacity to audit Bank-financed projects due to a lack of human and technical resources. For that reason, the executing agency will be required to engage the services of an independent audit firm acceptable to the Bank, in accordance with Bank policies.

6.7 The external audit reports on the program and the review of disbursement processes and requests will be submitted within 120 days after the end of each fiscal year during the original disbursement period or any extensions thereto and will take into consideration the International Standards on Auditing (ISA). The annual financial statements will be prepared in accordance with the guidelines for financial reports of Bank-financed projects.

E. Financial supervision plan

6.8 Unaudited financial reports will be used for financial monitoring of the program. However, it is the executing agency's responsibility to ensure the monitoring and control of operations in a centralized or decentralized manner. During project execution the Bank will implement the following actions: (i) before the first disbursement of the loan a launch workshop will be held to train team members in charge of program execution in the use and application of legal instruments for fiduciary management; (ii) accounting/financial visits will take place to confirm the progress of program execution and compliance in the application of internal control measures, with emphasis on gathering information on financial execution processes, quality, and timeliness of accounting records and the relevance of supporting documents; and (iii) disbursement requests will be reviewed ex post with verification by Bank staff and the external auditor, who will also confirm the implementation of current and future recommendations (if any) made for the program.