



Road Improvement Program

(2276/OC-JA / JA-L1027)

Project Completion Report (PCR)

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Electronic Links

1. [Development Effectiveness Matrix \(DEM\)](#)
2. [Final version of the Progress Monitoring Report \(PMR\)](#)
3. [PCR Checklist](#)

Optional Electronic Links

1. [Minutes of the project's Exit Workshop and/or written feedback from the Government](#)

Acronyms and Abbreviations

AFS	Audited Financial Statements
EC	European Commission
EDF	European Development Fund
GoJ	Government of Jamaica
GDP	Gross Domestic Product
IDB	Inter-American Development Bank
LAC	Latin America and the Caribbean
MOH	Ministry of Health
MNS	Ministry of National Security
MTWH	Ministry of Transport Works and Housing
NCHIP	Northern Coastal Highway Improvement Program
NSWMA	National Solid Waste Management Authority
NEAP	National Emergency Assistance Program
NIP	National Indicative Program
NRP	National Roads Policy
NRSIP	National Road Service Improvement Program
NTP	National Transport Policy
NWA	National Works Agency
PEU	Project Executing Unit
RMF	Road Maintenance Fund
RMMS	Routine Maintenance Management System
RMMP	Road Maintenance Master Plan
RSU	Road Safety Unit
RTI	Road traffic Injuries
TIRP	Transportation Infrastructure Rehabilitation Programme
WB	World Bank

BASIC INFORMATION (US\$ AMOUNT)

Project number (s): JA-L1027
 Title: Road Improvement Program
 Lending Instrument: Investment Loan
 Country: Jamaica
 Borrower: Government of Jamaica
 Loan (s): 2276/OC-JA
 Sector/Subsector: Transport

Date of Board Approval: December 14, 2009
 Date of Loan Contract Effectiveness: December 15, 2009
 Date of Eligibility for First Disbursement: June 15, 2010

Loan Amount (s)

Original Amount: 10,000,000.00
 Current Amount: 10,000,000.00
 Pari Passu: 0.00%
 Total Project Cost: 10,000,000.00

Months in execution

From Approval: 71
 From Contract Effectiveness: 65

Disbursements Periods

Original Date of Final Disbursement: December 15, 2014
 Current Date of Final Disbursement: June 30, 2015
 Cumulative Extension (Months): 6
 Special Extensions (Months): 0

Disbursements

Total Amount of Disbursements to Date: 9,782,206.90

Redirectioning. Has this Project? :

Received funds from another Project [No]
 Sent funds to another Project [No]

Ex Post Economic Analysis Methodology: N/A

Ex Post Evaluation Methodology: N/A

Development Effectiveness Classification: Satisfactory

STATEMENT OF THE DEVELOPMENT OBJECTIVES OF THE PROJECT/PROGRAM:

The main objective of the program was to enhance mobility and safety, improve accessibility, lower transport costs and reduce accident rates, through the improvement and maintenance of roads. Specific objectives were to contribute to the design and implementation of the performance-based routine maintenance contracts, the improvement of road safety conditions on critical sections and segments, and the improvement of the Ministry of Transport Works and Housing (MTWH) capacity to analyze accident information and provide timely recommendations.

I. EXECUTIVE SUMMARY

- 1.1 The Road Improvement Program was approved and became effective in December of 2009. At this time, the Jamaica road network had developed into a state of disrepair due to a lack of adequate maintenance exacerbated by torrential rains, hurricanes and attendant floods that have resulted in severe cumulative damage and in a reduction of safety to road users. Also, the number of vehicle crashes between 2006 and 2008 increased by 13%, as evidence of the worsening of road safety conditions.
- 1.2 Jamaica enjoys a widespread though aging road network, which according to the World Bank (WB) has the highest normalized road network of all countries. Important national highways and roads account for 5,006 km (29%) of the roads and falls under the jurisdiction of the National Works Agency (NWA). These include arterial roads 1,561 km, secondary and tertiary roads 3,445 km, and 800 bridges. Except for about 360 km classified as agricultural and forestry roads, the parishes administer the remaining 10,334 km; of which 80% are paved.
- 1.3 The Government of Jamaica (GoJ) had been pursuing a long-term policy to rationalize the existing road network so that maintenance could be prioritized based on economic and social criteria, including consideration of the relative costs and benefits of primary, secondary and tertiary road networks. The Bank's programs have been collectively contributing albeit slowly since 2002, to incrementally improve the condition of the road network and build self-sustaining, institutional and systemic reforms within the NWA for road maintenance management. The National Road Service Improvement Program (NRSIP) has introduced an informatics Routine Maintenance Management System (RMMS) which provides data, information, analysis and justification for optimum road maintenance expenditure.
- 1.4 The main objective of the program was to enhance mobility and safety, improve accessibility, lower transport costs and reduce accident rates, through the improvement and maintenance of roads. Specific objectives were to contribute to the design and implementation of the performance-based routine maintenance contracts, the improvement of road safety conditions on critical sections and segments, and the improvement of the Ministry of Transport Works and Housing (MTWH) capacity to analyze accident information and provide timely recommendations. The objectives were to be achieved through four components: (i) design and implementation of the performance-based routine maintenance, including the works on selected segments; (ii) road safety improvement, including the civil works on selected segments and/or critical spots; (iii) institutional strengthening of the Road Safety Units (RSU); and (iv) project implementation support.
- 1.5 **Routine Maintenance.** Routine Maintenance was completed on the Northern Coastal Highway for twenty (20) planned six-week cycles under the program. Over the last eight (8) cycles, the required service levels were achieved with an average of a 96% completion rate based on the 283 km to be maintained. The 283 km of road was maintained from 2012 to 2014 using a mixed labor force from the National Solid Waste Management Authority (NSWMA) and contracted community members. In addition, the Tourism Enhancement Fund was also funding maintenance activities along approximately 25 km of Northern Coastal Highway.
- 1.6 **Road safety.** Road safety improvements in the following areas covered 371 km of road; (i) markings on 200 km of road; (ii) placed/refurbished 200 pedestrian crossings and three new pedestrian traffic lights; (iii) 2,000 warning and direction signs and six

new/replacements traffic lights were erected; and (iv) a critical spot elimination program provided 3 km of guard rails, 1.5 km of traffic median/shared paths and 9,500 km of cable barriers. In addition, 16 traffic lights were linked, and a remote traffic control center was created in the NWA.

- 1.7 **Institutional Strengthening.** The training provided under this component targeted all stakeholder government entities involved in road safety activities; including the MTWH, Ministry of National Security (MNS) and Ministry of Health (MOH). The project also provided for road safety media campaigns and equipment purchase. The training programs included crash investigation and reconstruction, road safety audit management, safer roads by design and work zone safety. In addition, the country's traffic accident database was brought up to date and a road safety assessment was carried out on 500 km of roads. A total of 191 persons were trained under this component.
- 1.8 During the five years (2005 - 2009) prior to this program, annual average road fatalities was 347 while in the proceeding five years (2010 - 2014) during which the program was being implemented, the average annual road fatalities dropped to 305. This represents a 12% decline in road fatalities during the execution period of the program which saw the implementation of the road safety works described in paragraph 1.6 and the public education material in paragraph 3.3.24. It is also worth noting that in 2012, the road fatalities went down to 260 which was the lowest in more than twenty years.
- 1.9 The country's traffic accident database was brought up to date thus enabling the authorities to use evidence to tailor interventions to solve known traffic accident problems and blackspots. In addition, the knowledge now exists to improve data collection using electronic field collection to gather and store information directly from the scene of incidents.
- 1.10 The NWA does not have the mission, vocation or the appropriate human and capital resources to organize and manage performance-based road maintenance by local community residents or organizations. In the absence of this capacity, it would be useful for that NWA to have formal partnerships with agencies therefore capable and experienced with mobilizing community-based labor. In the case of this operation, the NSWMA was responsible for the organization and management of performance-based road maintenance through mobilizing community-based labour.

II. INTRODUCTION

- 2.1 Jamaica's dense road network supports the primary mode of transport and mobility facilitating access to social and economic life for the island's 2.7 million inhabitants. Road transportation is the most important transportation mode evident from the fact that it accounted for 75% of the total national consumption of petroleum in 2004. The road network however, has developed into a state of disrepair due to a lack of adequate maintenance exacerbated by torrential rains, hurricanes and attendant floods that have resulted in severe cumulative damage and in a reduction of road safety. The number of vehicle crashes between 2006 and 2008 increased by 13%, as evidence of the worsening of road safety conditions.
- 2.2 **The transport sector.** Jamaica enjoys a widespread though aging road network, which according to the WB has the highest normalized road network of all countries. A high road index is indicative of a country where the network of roads is both dense and extensive. For a country with a total area of 11,000 sq. km the total length of the road system including national and parish roads is approximately 15,700 km.
- 2.3 National highways and roads (the national road network) account for 29% of the roads (i.e. 5,006 km), which falls under the jurisdiction of the NWA and includes arterial roads 1,561 km, secondary and tertiary roads 3,445 km, and 800 bridges. Except for about 360 km classified as agricultural and forestry roads, the parishes administer the remaining 10,334 km; of which 80% are paved.
- 2.4 Additionally, since 2004 with the assistance of the European Commission (EC), under the 9th European Development Fund's (EDF) and National Indicative Program (NIP) three key studies have been developed which provides a comprehensive strategic framework for the development of the sector, and for the redevelopment of the road network. The studies are: (i) the National Transport Policy (NTP), an essential precondition for the EDF support, which provides a diagnostic of the sector analyzing air, sea, rail and road transportation, and an elaboration of policy for the transport sector (the NTP was completed in 2004 and approved by Cabinet in 2005); (ii) the National Road Policy (NRP), a complementary study to the NTP, focuses specifically on the amplification of policy for road transportation and was finalized in the second semester of 2005 and approved by the MTWH; and (iii) the Road Maintenance Master Plan (RMMP) which justifies and identifies options and scenarios, based on funding availability and serves to guide road maintenance investment priorities required to 2012. This document presents the data, information, analysis and justification for road interventions on the network.
- 2.5 With complementary support from the Inter-American Development Bank (IDB) (National Road Services Improvement Program LO 1363/OC-JA), amendments to the Road Traffic Act have been finalized and laid before the Parliament. Additionally, an implementation of the commercial vehicle safety and weight limit enforcement program is currently under preparation. These legislative acts, together with the transportation policy documents define a framework which identified roads (in the period 2006-2016) in need of urgent maintenance, and which significantly complemented and contributed to the long-term protection of the investments.
- 2.6 **Institutional framework.** Transport infrastructure work activities on roads are administered by three main entities: the Road Maintenance Fund (RMF), the NWA, and the National Road Operating and Constructing Company Limited: (i) Road Maintenance Fund (RMF), established in 2002, is an agency of the MTWH responsible to provide financial support for the maintenance and general upkeep of the country's

main roads, and manages funds received from one third of the motor vehicle licensing fees collected by the Island Revenue Department. During the 2009/2010 budget, it was announced that 20, 35, and 50 percent respectively of a new fuel tax was intended to be allocated annually to the RMF during fiscal years 2009-2011; (ii) NWA, which has responsibility for construction, maintenance and management of the main road network and flood control systems for Jamaica and is implementing arm of the MTWH. The entity shares responsibility for the total road network with other entities such as the Parish Councils, which have responsibility for the parochial roads network; and (iii) National Road Operating and Constructing Company Limited, whose main role is to oversee the implementation of highway expansion via public-private partnerships (Highway 2000) and to monitor the Concession Agreement with the current developers (Trans-Jamaican Highway Limited). The Toll Authority operates in tandem as an advisory body responsible for regulating the operation and maintenance of toll roads in Jamaica and monitoring the compliance of concessionaires.

- 2.7 **Country's Sector Strategy.** The improvement of reliability and road safety of the network is consistent with the government's strategy of market liberalization by the adoption of an export-led growth. Attempts are therefore being made to create an environment conducive to attracting and increasing investment, to foster private sector growth and increased levels of output. In order to achieve high growth sustainability through investment promotion, efforts are aimed at promoting greater private sector yields and efficiency by upgrading and maintaining the social and physical infrastructure in particular the island's road network as well as improving road safety.
- 2.8 Over the long term, the GoJ is pursuing a policy to rationalize the existing road network so that maintenance could be prioritized based on economic and social criteria, considering the relative costs and benefits of primary, secondary and tertiary road networks. The GoJ is also considering establishing a roads authority to: (i) rationalize responsibility for construction and maintenance for main and parochial roads as well as major drains and gullies; (ii) maintain and increase the safety of the road network; and (iii) secure a sustainable means of funding for road maintenance expenditures.
- 2.9 **Justification of Bank's Participation.** The Bank's active programs have been collectively contributing albeit slowly since 2002, to incrementally improve the condition of the road network and build self-sustaining and important institutional and systemic reforms within the NWA road maintenance management in Jamaica. The NRSIP has introduced an informatics RMMS which provides data, information, analysis and justification for optimum road maintenance expenditure.

III. CORE CRITERIA. PROJECT PERFORMANCE

3.1 Relevance

- 3.1.1 The Northern Coastal Highway selected for the routine maintenance works is an important primary road corridor of 300 km from Port Antonio in the East to Negril in the West located on the northern coast of the island. It traverses seven parishes namely: Portland, St. Mary, St. Ann, Trelawny, St. James, Hanover and Westmoreland. The highway was reconstructed and in several sections realigned and widened. The IDB operation 972/OC-JA funded a 97km section of the highway from Montego Bay, St. James to Ocho Rios in St. Ann. The general pavement condition of the corridor is good; however, with limited routine maintenance, the risk of the road condition deteriorating is high. Maintenance of the highway was provided as part of 1363/OC-JA, thus this operation aligns well with the Bank's interest in sustainability of investments.
- 3.1.2 Civil works and proper road maintenance can contribute to safe roadways. Performance-based routine maintenance contracts facilitate maintenance works and service standards of the roads without the requiring the intensive supervision required under traditional measured works contracts; this is achieved by setting service criteria on which the maintenance works are certified, and payments made. In addition, the reduction of injuries and fatalities depend on having the necessary data to adopt an evidence based approach toward road safety interventions. Data collection, training and investigation are critical in safeguarding public welfare.

a. Alignment with country development needs

- 3.1.3 The objective of the GoJ, in the road safety area, is to promote and foster an orderly and disciplined traffic culture, conducive to the development of a safe traffic environment, through the conceptualization and design of a sustained program of public information, education in schools, legislation and accident information and research. The GoJ established a strategic focus for the period 2009 – 2012 with respect to the reduction of traffic collisions and the promotion of a disciplined traffic culture through intensified data analysis, research and public education.

b. Vertical logic

- 3.1.4 Due to a decade of annual decline in the road maintenance budget allocations, by the turn of the millennium, Jamaica's dense road network had a survey completed in 1999. In an attempt to break off the road failure cycle, the GoJ coordinated with the EC and the Bank developed a national transportation framework which guide redevelopment of the sector while concomitantly embarking on vital medium-term road investments on road rehabilitation, periodic and routine maintenance and trunk road expansion through public-private partnerships.
- 3.1.5 The condition survey conducted in 2005 (NWA Corporate Plan 2007-2010) to update the one done in 1999, was based on a partial survey of 50% of the main road network. The survey data showed that in 2005, 12% of the network was classified as good, down from 28% of the network in 1999, representing a 57% decrease in the quantity of roadway defined as "good" between 1999 and 2005. The condition of the main road network has deteriorated significantly between 1999 and 2005. These features of the Jamaican road system clearly have repercussions and translate into high logistical cost, a compromised national standard of living, and a less safe and reliable road network.

- 3.1.6 The road network as described above was in regular to very poor conditions, resulting in long journey times, high transport costs, difficulties in accessing schools, basic services (such as health, public administration, etc.) and economic alternatives (such as markets, jobs, etc.), limiting the mobility and accessibility of the population in important areas of the country. This situation threatens the long term developmental objectives of the government, which is based on a safe and reliable road network to facilitate investments and increase private sector productivity to accelerate economic growth. The GoJ was moving from works being executed directly by NWA towards the implementation of performance-based routine maintenance contracts, that will include the involvement of the private sector by means of contracting out continuous routine maintenance activities.
- 3.1.7 Given the increase in levies on gas earmarked for road maintenance, the program placed emphasis on ensuring existing funds are used in the most cost-effective manner. The program focuses on developing a system of routine road maintenance with the following main characteristics: (i) decentralized execution, through the regional offices of the MTWH; (ii) island-wide coverage; (iii) activities to be contracted using a performance-based approach; and (iv) implementation of the works will involve the participation of the local communities.
- 3.1.8 Latin America and the Caribbean (LAC) region have the highest Road Traffic Injuries (RTI) fatality rate in the world (17.3 deaths per 100,000 inhabitants). This fatality rate is expected to climb 48% by 2020; the region is still predicted to have the highest rate in 2020. On average, crash costs about 1.5% to 2.0% of developing nations' annual Gross Domestic Product (GDP); in LAC crashes cost reached US\$19 billion in 2000. In 2005, direct and indirect cost of road crashes to the economy of Jamaica was US\$100 million (US\$60 million in the Health Sector, and US\$40 million to the Insurance Association). Between 2001 and 2008, 98,056 crashes and 2,920 road deaths were reported, representing a fatality rate of 12.74 deaths/100,000 inhabitants. Jamaica ranks among countries classified as medium risk (10.0 - 20.0 deaths/100,000 inhabitants) for road fatalities.
- 3.1.9 All traffic crashes data are collected and consolidated by the Jamaica Constabulary Force, including: fatal crashes, serious crashes, minor crashes, and damage only crashes. These reports are analyzed by the MTWH who maintain the national database. Data are collected among the three elements that are active participants in the traffic environment: human, vehicle, and environment. Spatial and statistical analyses are carried out and assist in the identification of critical spots and corridors. Based on the recommendations of these studies and analyses, the GoJ is implementing the following programs: Below 300 Deaths; Drive for Life; Make it Click; Drink and Drive; Walk Good; Child Safety; Road Models; Road Scholars; and Road Signs and Markings all aimed at a targeted approach to the reduction of road crashes and incidents.

3.2 Effectiveness

a. Statement of project development objectives

- 3.2.1 The main objective of the program was to enhance mobility and safety, improve accessibility, lower transport costs and reduce accident rates, through the improvement and maintenance of roads. Specific objectives were to contribute to the design and implementation of the performance-based routine maintenance contracts, the improvement of road safety conditions on critical sections and segments, and the improvement of the MTWH capacity to analyze accident

information and provide timely recommendations. Results include: (i) improvement of road reliability, driving conditions and reduction of generalized transport and logistical costs; (ii) reduction of accident rates, traffic related fatalities and injuries; and (iii) institutional strengthening of the MTWH especially in the road crash data analyses and policy development.

- 3.2.2 The program financed the design and early implementation of performance-based maintenance contracts, along prioritized corridors of the main road network that will test this new approach and allow for improving the processes and monitoring, the improvement of road safety conditions on critical sections and segments, and the institutional strengthening of the RSU. These activities were meant to support competitiveness and economic development through restoring mobility, safety and reliability to the national road network. This operation builds upon the efforts undertaken by prior loans supporting the institutionalization of improved, modernized and sustainable road maintenance. The long-term financing of routine maintenance is fully sustainable with the use of the RMF; once the resources of the financing have been used, the continuation of the activities will be fully financed by the RMF.
- 3.2.3 The four components of the project were: (i) design and implementation of the performance-based routine maintenance, including the works on selected segments; (ii) road safety improvement, including the civil works on selected segments and/or critical spots; (iii) institutional strengthening of the RSU; and (iv) project implementation support.
- 3.2.4 **Component 1: Performance-Based Road Maintenance (US\$5.0 million).** This component financed the execution of routine maintenance works on roads (corridors and/or networks) through the implementation of performance-based maintenance contracts. Performance-based routine maintenance contracts facilitate maintenance works and service standards of the roads without the requiring the intensive supervision required under traditional measured works contracts; this is achieved by setting service criteria on which the maintenance works are certified and payments made, and draws on the experience of the contractor to obtain efficiencies. These contracts included a hybrid of performance-based requirements and unit price works for roadside and road surface activities respectively. These works included pavement and shoulder patching, removal of debris, maintenance of drainage structures, repair and replacement of traffic signs and guardrails. A PRODEV technical cooperation financed the technical and institutional activities needed for an efficient implementation of the routine maintenance activities financed by RMF, including the revision of the existing performance-based contracts, and the required monitoring and evaluation structures within the RMF and MTWH.
- 3.2.5 These works were to be implemented along test corridors, that included, among others, Segment 2 of the Northern Coastal Highway, recently improved with Bank's funding (LO 972/OC-JA), and other corridors on the secondary and tertiary networks. These additional corridors were selected based on the following criteria: (i) be part of the national main road network; (ii) have a budget allocation provided for the corresponding year; (iii) be environmentally feasible thereby complying with the country's environmental legislation and Bank policies; (iv) have standard designs prepared for simple works and must have incorporated mitigation measures to prevent correct or compensate direct environmental impacts; (v) have clearance of the right of way before signing the contract for civil works; and (vi) provide evidence that there is no need to resettle any citizen.

- 3.2.6 **Component 2: Road Safety Improvement (US\$4.0 million).** This component financed the implementation of civil works to improve the road safety conditions. The scope of works included: (i) road marking program on A1 and A2, including centerline and edge line, raised markers; (ii) improvement of pedestrian crossing; (iii) deployment of mandatory, warning and directional signs; and (iv) a critical spot elimination program, including rumble strips, minor civil works, etc.
- 3.2.7 **Component 3: Institutional Strengthening of the RSU (US\$0.5 million).** This component supported the MTWH and RSU by providing financing to populate and maintain an automated traffic crash database, prepare diagnostic reports and action plans for the short and medium term; carry out a road safety assessment program on 500 km along the main road network across the island; acquisition of related equipment, such as a driver testing and education simulator, and a test lane for cars fitted with the appropriate vehicle inspection equipment; and training courses in crash energy analysis, biomechanics, commercial motor vehicle reconstruction and human factors, among others.
- 3.2.8 **Component 4: Project Implementation Support (US\$0.5 million).** This component directly supported the hiring of an engineering and supervisory consultant firm on a competitive basis to review the technical designs by the NWA, ensuring that they follow best practices in terms of road safety, develop and update road design manuals that include road safety standards, and monitor and oversee the implementation of the construction of the proposed civil works. This component also provided resources for the hiring of financial and environmental auditors and a monitoring and evaluation consultant to respectively conduct the audits and to track and monitor the results of the operation.

b. Results Achieved

- 3.2.9 Program Objectives: The overall assessment of the Road Improvement Program is based on informed judgments on how well each component, individually and together, contributed to the achievement of the Program's stated objectives given the costs expended. The general objective of this Road Improvement Program was to enhance mobility and safety, improve accessibility, lower transport costs and reduce accident rates, through the improvement and maintenance of roads.
- 3.2.10 Specific program objectives were to:
- (i) Design and implement performance-based routine maintenance contracts;
 - (ii) Improve road safety conditions on critical sections and segments; and
 - (iii) Improve the MTWH capacity to analyze accident information and provide timely recommendations.

Table 1. Changes to the Results' Matrix¹

Section of the Results Matrix where change took place	Name of the change	Type of change	Baseline Target	Original Target	Formally revised target (if applicable)	Reasons for change	Date of change	Date of change agreed with Executing Agency

Table 2. Results Achieved Matrix

Impact/Indicator	Unit of Measure	Baseline value	Baseline year	Targets and Actual achievement		% Achieved	Means of verification
Impact #1 Enhance mobility and safety, improve accessibility and lower transportation cost							
Vehicle Operating Cost (transport cost)	Base	100.00	2009	P	80	100	Semi-Annual Progress Report
				P(a)	80.00		
				A	80.00		
Number of road accidents per year (safety)	Accidents	320.00	2009	P	288.00	40	Semi-Annual Progress Report
				P(a)	288.00		
				A	307.00		
Percentage of gross national volume of gasoline consumed for land transport (accessibility)	Percentage	75.00	2009	P	85.00	0	Semi-Annual Progress Report
				P(a)	85.00		
				A	75.00		

¹ Changes in impacts or outcomes section include: (i) changes made to the impact or outcome statement; (ii) adding an additional impact or outcome statement that relates to the project objective; (iii) changes to the data associated to an indicator such as unit of measure, baseline value, baseline year, end of project target, means of verification; (iv) adding or substituting a new indicator (which requires the information of all the indicators associated data); and (v) eliminating an indicator. Changes in outputs section include: (i) changes made to the output in the unit of measure, means of verification or end of project target; (ii) adding or substituting a new output; and (iii) eliminating an output.

Outcome/Indicator	Unit of Measure	Baseline value	Baseline year	Targets and Actual achievement		% Achieved	Means of verification
1. Road Safety Conditions on Project Corridors Improved							
Percentage reduction in the rate of fatal road crashes/incidents on the project corridors	Percentage	0	2009	P	20	60	Determined by NWA, based on the semiannual progress report and records of the police.
				P(a)	20		
				A	12		
2. Community Based Road Maintenance Works Established							
Kilometers of road maintained	Kilometers	0	2009	P	500	170	Project Executing Unit (PEU) semester progress reports
				P(a)	500		
				A	849		
Percentage of reduction in the numbers of days that the roads are closed	Percentage	0	2009	P	20	87.5	PEU semester progress reports
				P(a)	20		
				A	17.5		
Vehicle operating cost and travel time	Base	100	2009	P	80	100	PEU semester progress reports
				P(a)	80		
				A	80		
Number of contracts signed with community based organizations	People Employed	40	2009	P	40	175	Number of contract approved by the Bank.
				P(a)	40		
				A	70		
3. Road Safety Unit Institutionally Modernized and Strengthened							
Road Safety Assessment Program completed on 500 km of main road	Kilometers	0	2009	P	500	100	PEU semester progress reports
				P(a)	500		
				A	500		
Percentage of accident data base populated	Percentage	0	2009	P	100	100	PEU semester progress reports
				P(a)	100		
				A	100		

Output	Unit of Measure	Baseline value	Baseline year	Targets and Actual achievement		% Achieved	Means of verification
Kilometer of routine roads maintained with community based organizations	Kilometers	0	2009	P	500	180	PEU semester progress reports
				P(a)	899		
				A	899		
Length of road network retrofitted with safety improvements	Kilometers	0	2009	P	500	50.8	PEU semester progress reports
				P(a)	254		
				A	254		
Capacity building activities in the MTWH and RSU	Activities	0	2009	P	10	100	PEU semester progress reports
				P(a)	10		
				A	10		

Where: P = Start-Up Plan; P (a) = Revised Annual Target; A = Actual.

c. Analysis of the Results Attribution

PERFORMANCE-BASED ROAD MAINTENANCE

- 3.2.11 The highway network running along the northern coast of Jamaica was selected as the test/pilot corridor for the implementation of the performance-based routine maintenance contracts as per project design. The corridor is 283 km long running from Port Antonio in the East to Negril in the West traversing seven parishes namely, Portland, St. Mary, St. Ann, Trelawny, St. James, Hanover and Westmoreland. The general pavement condition of the corridor was good owing to it being rehabilitated over a period of time with the last section being completed in 2008.
- 3.2.12 It was intended that the routine maintenance be carried out by utilizing the services of microenterprises formed from communities located alongside the road corridor to be maintained. Considering that the skill set for maintaining the pavement structure of the road network was not present at the community level and high cost of pavement works; the pavement maintenance was removed from the performance base contracts. In order to commence the pilot, the corridor needed to be reinstated into a maintainable condition; as such, the NSWMA was engaged to undertake the clean-up of the road shoulders, verges, medians and drains which included bushing, grass cutting, desilting of drains and carting away and disposing of unwanted materials. The NSWMA was also contracted to complete the routine maintenance activity on the north coast corridor after efforts by the NWA to form and contract microenterprises proved to be unsuccessful owing to Government of Jamaica Procurement Guidelines not having the relevant provisions to procure these microenterprises. As part of the maintenance activity and with the support of an IDB technical cooperation Support the Design of Decentralized Road Maintenance (ATN/OC-12543-JA), the NSWMA conducted training of approximately 100 community laborers in the operation and maintenance of landscaping equipment, basic landscaping and plant care, safe use of hazardous materials, and occupational health and safety. Of the persons trained 70 were contracted to work on the routine maintenance of the roads.
- 3.2.13 The NSWMA has completed twenty (20) planned six-week cycles of routine maintenance under the program, where the cycle duration was determined based on appropriate payment intervals for the workers. Over the last eight (8) cycles the NSWMA was able to achieve the required service levels with an average of a 96% completion rate based on the number of 283 km to be maintained. In 2011, as implementation started up, only 50km of the road was maintained however, the 283 km of road was maintained annually from 2012 to 2014 by the NSWMA using a mixed labor force of core staff and contracted community members. Given that routine maintenance is an annual activity, the Output and Outcome indicators were also annual targets and the program completed routine maintenance on a cumulative total of 899 km during the execution period. In addition, the Tourism Enhancement Fund was also funding maintenance activities along approximately 25 km of Northern Coastal Highway.
- 3.2.14 Therefore it can be concluded that the specific project objective to design and implement performance-based routine maintenance contracts was achieved. With regards to the outcomes linked to road maintenance, (i) the frequency of road closures was reduced owing to the maintained verges and drainage which allowed for storm water to run off rapidly, however, given the random nature of the intensity of storms the targeted outcome was not fully achieved; (ii) the length of roads maintained was increased over the planned amount due to exchange rate gains and lower unit costs which allowed for a greater number of individuals to be hired to execute the road maintenance; and (iii) the travel times and vehicle operating cost were reported to have decreased but there was no supporting evidence presented in the PEU reports.

ROAD SAFETY IMPROVEMENT

- 3.2.15 The project funds were used to provide road safety improvements in the following areas; (i) road markings; (ii) improvement of pedestrian crossing; (iii) warning and direction signs; and (iv) a critical spot elimination program. The activities completed under the program are as detailed below.
- (i) Roads Markings - Under the program 500 km of 100 mm road marking lines were placed at the center and along the edges of roads, which amounts to approximately 200 km of physical roadway.
 - (ii) Improvement of pedestrian crossing - Two hundred (200) pedestrian crossings were either placed or refurbished. In addition, three new pedestrian traffic signals were installed along Norman Manley Boulevard in Negril and one along Old Hope Road in the vicinity of the Standpipe community in Kingston.
 - (iii) Warning and direction signs – Two thousand (2000) traffic signs were procured and installed island wide. Three new traffic signals were installed at the intersections of Mona Road/ Wellington Drive, Old Hope Road/ Golding Avenue and Spanish Town Road/ Industrial Terrace; while three traffic lights were upgraded at Lady Musgrave Road/ Fairway Avenue, Lady Musgrave Road/ Seaview Avenue and Milford Road/ Dacosta Drive in Ocho Rios.
 - (iv) Critical spot elimination – Several actions were undertaken including the installation of 3 km of W-Beam guard rails, the creation of 1.5 km of traffic median/shared use path installations, installation of 9,500 m of cable barriers and the improvement of junctions.
- 3.2.16 As an additional activity, funds from the operation were used to link sixteen traffic lights and create a remote traffic control center in the NWA. This activity included the installation of fiber optic cables to connect the traffic lights, the installation of cameras, video monitors, computer equipment and software to make the control center operational.
- 3.2.17 The works implemented under this component contributed to the specific project objective of improve road safety conditions on critical sections and segments. The targeted quantity of roads to be retrofitted was not achieved due to the delays in the delivery of material for road marking and breakdown experienced by the RSU road marking machine. In addition, the results achieved at the outcome and impact level as it pertains to road crashes and fatalities were lower than planned and could have been due to other important areas of road safety, namely, enforcement and education (human behavior) which were not specifically targeted under the operation given that these areas are not under the purview of the Executing Agency.

INSTITUTIONAL STRENGTHENING

- 3.2.16 The training provided under this component targeted all stakeholder government entities that are involved in road safety activities; these included the MTWH, MNS and MOH. Funds were also used for road safety media campaigns and to purchase equipment. The activities completed under this component are detailed below.
- 3.2.17 Training was provided through a consultancy for forty-nine (49) persons in Crash Investigation and Reconstruction covering the following areas:
- (i) Rollover Accident and Multiple Crash Investigation;
 - (ii) Crash Energy/Damage Analysis and Lamp Examination;
 - (iii) Human Factors and Tire Examination;

- (iv) Pedestrian/Bicycle Accident Reconstruction;
- (v) Heavy Vehicle Accident Reconstruction; and
- (vi) Biomechanics: Occupant Kinematics and Forensics.

3.2.18 To facilitate the training program, the following equipment was also acquired:

- (i) Six Crush Deformation Jigs and distributed to the Jamaica Constabulary Force (4 No.), Road Safety Unit (1 No.) and Island Traffic Authority (1 No.); and
- (ii) One Laser Scanner Technology.

3.2.19 Training in Advance Crash Investigation and Reconstruction was administered through a consultancy to fifty (50) persons covering the following areas:

- (i) Rotational Mechanics and Critical Speed Collision Analysis;
- (ii) Crash Scene Forensic Investigation and Analysis;
- (iii) Low Speed and Airborne Collision Analysis;
- (iv) Advanced Pedestrian/Bicycle Accident Reconstruction;
- (v) Crash Zone;
- (vi) Forensic Mapping Using Lasers;
- (vii) Bus and Train Accident Reconstruction; and
- (viii) Motorcycle Collision Analysis and Photogrammetry.

3.2.20 Training was provided through a consultancy to 35 persons Road Safety Audit Management covering the following areas:

- (i) Road Safety Policy and Statistics;
- (ii) Road Safety Engineering, Collision Prevention and Reduction;
- (iii) Road Safety Audits; and
- (iv) Road Safety Impact Assessment.

3.2.21 Professional exposure and training was provided to staff from the MTWH as follows:

- (i) "Mobility Opportunities", Nathan Ebanks Foundation 2012 Special Needs Conference: 15 persons attended;
- (ii) "Safer Roads by Design", International Road Federation seminar: five persons attended;
- (iii) "Project Management", The Mona School of Business: 20 persons attended; and
- (iv) "Work zone safety, road marking and signage, and traffic signal technician courses", International Municipal Signal Association: 17 persons attended.

3.2.22 Under this component, the country's traffic accident database was brought up to date through the entry of backlogged information into the database software. The updating of the database is important since it provides a premise for evidence based interventions in road safety actions. In an effort to find a solution to the delayed data entry, the project partially supported a pilot for mobile data capture aimed to improve crash data collection by Jamaica Traffic Police through the development of a modern mobile data capture system. This system when implemented would enable the electronic capture of crash report information from the scene of incidents.

- 3.2.23 A road safety assessment was carried out on 500 km of roads on the island's road network. This assessment was used in the identification of safety works to be implemented on these roads to reduce the likelihood of road accidents and injuries. The road markings was the major element that was not completed from those interventions that were identified.
- 3.2.24 Road Safety public education information material was created and disseminated to the public as part of the program. This complemented the efforts of the works and training and to aid in the achievement in the reduction of traffic accidents and deaths.
- 3.2.15 The training, assessments and tools provided under this component has improved the MTWH capacity to analyze accident information and provide timely recommendations for future policy and infrastructure in keeping with the project objective of reducing road accident rates.

d. Unanticipated outcomes

- 3.2.25 There were no unanticipated outcomes.

3.3 Efficiency

- 3.3.1 **Performance Based Road maintenance.** As part of the design of the performance based routine maintenance contracts, a risk identification exercise and multiple discussions were had with key stakeholders to validate the design. It became apparent that the model of creating micro-enterprises was not possible under the existing GoJ Procurement Guidelines, and thus would not be replicable if executed under the IDB Procurement Policies. This mandated a revised approach in order to keep the objective of having community-based workforce involved in the executing maintenance activities. At the end of the program, the results achieved in terms of kilometers of roads maintained with program funds exceeded the planned value by 70%, while the cost was 99% of the original budget; this was partly due to gains from exchange rate as the Jamaican dollar devalued against the US dollar which is the denomination of the IDB funding. This component was highly efficient in its execution.
- 3.3.2 **Road Safety.** The road safety component achieved 75% of its target for 500 km of road improved while utilizing 97% of the allocated funds. The results in this case demonstrates that the component was not executed with a high level of efficiency.
- 3.3.3 **Institutional Strengthening.** This component completed the 10 activities originally planned, with seven training events, the update of the traffic accident database, assessment of 500 km of roads and the production of public information material on road safety. In addition, the training courses were more extensive than planned, these courses trained 191 persons contributing to the component while utilizing an additional 36% of funds. Given the extensive training activities along with achieving the planned target of 10 activities, this component could be considered as being effectively executed.

Table 3 Costs of the Project²

Outputs Financial Progress

							Component Revised Cost
1 Performance Based Road Maintenance							\$4,118,502.52
Outputs		2010	2011	2012	2013	2014	Cost
1.1 Kilometer of Roads Maintained using CBOs	P	\$5,502.00	\$500,000.00	\$2,000,000.00	\$2,000,000.00	\$500,000.00	\$5,005,502.00
	P(a)	\$0.00	\$500,000.00	\$2,000,000.00	\$2,000,000.00	\$500,000.00	\$4,118,502.52
	A	\$5,502.00	\$709,877.15	\$1,600,866.22	\$711,214.61	\$543,263.89	\$4,966,348.91
							Component Revised Cost
2 Road Safety Improvements							\$3,470,252.49
Outputs		2010	2011	2012	2013	2014	Cost
2.1 Length of Primary Road network retrofitted with safety improvements.	P	\$0.00	\$200,000.00	\$1,200,000.00	\$2,000,000.00	\$600,000.00	\$4,000,000.00
	P(a)	\$0.00	\$200,000.00	\$1,200,000.00	\$2,000,000.00	\$600,000.00	\$3,470,252.49
	A	\$0.00	\$239,482.71	\$989,994.88	\$239,183.37	\$1,346,871.47	\$3,855,969.56
							Component Revised Cost
3 Institutional Strengthening of the Road Safety Unit							\$502,717.81
Outputs		2010	2011	2012	2013	2014	Cost
3.1 Capacity building activities in the MWT and RSU	P	\$0.00	\$100,000.00	\$200,000.00	\$200,000.00		\$500,000.00
	P(a)	\$0.00	\$100,000.00	\$200,000.00	\$200,000.00		\$502,717.81
	A	\$0.00	\$53,994.49	\$85,750.64	\$128,830.30	\$161,126.41	\$680,883.39
							Component Revised Cost
4 Project Implementation Support							
Other Cost		2010	2011	2012	2013	2014	Cost
% of the project execution unit established	P	\$100.00	\$100,000.00	\$200,000.00	\$100,000.00	\$100,000.00	\$500,100.00
	P(a)	\$0.00	\$100,000.00	\$200,000.00	\$100,000.00	\$100,000.00	\$345,100.00
	A	\$100.00	\$52,183.05	\$45,068.49	\$100,000.00	\$124,626.49	\$321,978.03
Total Cost		2010	2011	2012	2013	2014	Total Cost
	P	\$5,602.00	\$900,000.00	\$3,600,000.00	\$4,300,000.00	\$1,200,000.00	\$10,005,602.00
	P(a)		\$900,000.00	\$3,600,000.00	\$4,300,000.00	\$1,200,000.00	\$8,434,572.82
	A	\$5,602.00	\$1,055,537.40	\$2,721,680.23	\$1,179,228.28	\$2,175,888.26	\$9,825,179.89

Note: The costs include both IDB and Local Counterpart amounts and must be consistent with the information presented in the last PMR report. If there is any inconsistency in the data the PCR document must be rejected for correction.

² For multiphase projects, a separate cost table should be prepared for each phase. For PBLs, the decomposition of costs per component is not required.

3.4 Sustainability

- 3.4.1 The routine maintenance system designed under the program considered the use of microenterprises comprising of local community labor. While the implementation was not successful in using these microenterprises, the execution of the maintenance did include community labor hired by the NSWMA. In order for the microenterprises to be successfully used the following factors have to be addressed; (i) the identification of an entity with the required specialty and experience to undertake and manage the formation of the microenterprises; (ii) appropriate policy to allow for the contracting of microenterprises; and (iii) a payment mechanism that caters for the cash flow needs of these entities.
- 3.4.2 Road traffic signs and marking degrade over time and would need maintenance and replacement in some cases. To increase the sustainability of the investments, thermoplastic instead of paint was used for the road marking and this material has an expected life of eight to ten years. Similarly, the grade of road signs used has a life expectancy of ten years. Some attention would need to be paid to these features if the desired effect is to be achieved. The cost of maintenance is small, and the NWA has the inhouse capacity to undertake these remedial works.
- 3.4.3 The traffic control center and interconnected traffic signals and cameras in Kingston was a good achievement under the program. To capitalize on its benefits, to the system should be expanded to cover a wider graphical area along the busy corridors and at congested junctions in the Kingston Metropolitan Area. Loan 3877/OC-JA (approved 14-Dec-2016) includes a component that will finance the purchase and installation of equipment to complete the Urban Traffic Management System (UTMS) in Kingston and consists of: (i) a central control ITS integration platform for traffic monitoring, operation, planning and modeling; (ii) upgraded traffic controllers, closed-circuit television cameras, detectors, and communication switches at intersections to provide real-time traffic counts and patterns; and (iii) training and coaching of NWA staff for planning, operation and maintenance of the UTMS.
- 3.4.4 In the current world financial situation, countries such as Jamaica are facing cash flow difficulties, which is a threat to local funding for maintenance activities. At the end of the pilot under this program, there were no local funds allocated to continue with the maintenance activities using the piloted methodology. Road maintenance is typically funded from a vehicle tax which has decreased in value due to the Jamaican currency losing ground against the UD dollar. To ensure that road maintenance is adequately funded, and the full useful life of road infrastructure is realized, it could be beneficial for the Bank to continue to include the routine as a feature in it is transport infrastructure projects in Jamaica and provide funding for maintenance activity where that becomes necessary.
- 3.4.5 The traffic accident database was updated by clearing the backlog of information that was not entered over the years. There needs to be a system in place for the collection and entering of traffic data in a timely manner in order to ensure that a backlog does not occur again in future. The mobile data capture pilot offers one possible solution for the collection and uploading of the information into the database and is worthwhile adopting to ensure sustainability.
- 3.4.6 The Institutional Capacity of the staff at the MTWH along with the MNS and MNH, has improved significantly as a result of training on road safety. The capacity of the MTWH was also improved in project management.

IV. NON-CORE CRITERIA

4.1 Strategic Alignment

- 4.1.1 The Bank's Country Strategy expressed in GN-2422-1 and GN-2422-3 set out three principal areas of focus: (i) private sector development; (ii) getting value for money; and (iii) reducing vulnerability to natural disaster. The strategy acknowledged that private sector development will require reliable transport as a complementary input and highlighted maintenance as a corresponding constraint. Impaired and unsafe road infrastructure has a detrimental effect on the business environment, productivity, and private sector development, as the ability to efficiently move goods and services and leverage the country's resources towards economic growth is impeded. Addressing the state of the road network safety will serve as a complementary input to enhancing the business climate strategy of assisting with rehabilitation and reconstruction activities, as well as align with the Bank's third strategic pillar of reducing Jamaica's vulnerability to natural disasters, through prevention and mitigation activities relating to road closures. The Bank supported the country's long-term program by means of four prior operations that focused on the rehabilitation and maintenance of the main road network.
- 4.1.2 The Bank's programs have been collectively contributing since 2001, to incrementally improving the condition of the road network, and in building significant, self-sustaining and important institutional and systemic reforms within the NWA to manage road maintenance in Jamaica. The NRSIP introduced an informatics RMMS which provides data, information, analyses and justification for optimum road maintenance expenditure. The Bank, following this long-term strategy, has been financing rehabilitation works along the main road network and has contributed to develop sustainable routine maintenance mechanisms. The Bank operations also included explicit road safety components or implicit activities for safety improvements.
- 4.1.3 The Bank has supported this strategy through four operations; (i) the US\$59.5 million Northern Coastal Highway Improvement Program (NCHIP) Loan 972/OC-JA focused on road improvement and rehabilitation; (ii) the US\$18.5 million NRSIP Loan 1363/OC-JA focused on the preservation of the road network by supporting improvement and reengineering of the systems of road maintenance; (iii) the US\$10 million National Emergency Assistance Program (NEAP) loan 1959/OC-JA, focused on supporting emergency improvement and rehabilitation to the road network following hurricane and flood damage; and (iv) the US\$50 million Transport Infrastructure Rehabilitation Program (TIRP) Loan 2026/OC-JA, focused on rehabilitation of essential portions of the main road system.
- 4.1.4 Although the program was approved in 2009, much of the implementation was done during the period of execution of the Bank's Institutional Strategy 2010-2020 and its update. The results of the operation was aligned to the challenge of "Low productivity and innovation" in that it developed and provided an opportunity for the mobilization of community labour in a field that was previously dominated by private Contractors; thus increasing the gainful employment and productivity of these communities. The operation was also aligned to the cross cutting theme of "Strengthening institutional capacity and the rule of law" in that the capacity of a number of government agencies were strengthened to investigate road traffic crashes and to develop evidence base interventions and enforcement strategies to reduce the loss of human capital and productivity.

- 4.1.5 The country's strategy for the road subsector at the time of project consisted of: (i) rehabilitation and improvement of the road network, financed by external resources; and (ii) routine maintenance of the rehabilitated network financed by recurrent resources. This strategy aimed to reduce transportation costs, improve travel conditions and road safety along public roads, improve market access and overall competitiveness, and increase coverage of maintenance activities.

4.2 Monitoring and Evaluation

a. M&E Design

- 4.2.1 The proposed indicators and means of verification maximized the use of the information that the MTWH and the NWA should have been collect directly or indirectly during the execution of the project. Most of the proposed indicators already had baseline data collected since 2002-2003. This baseline was the reference level for the evaluation of the program. All the output indicators were measured directly; the outcome indicators were to be either measured directly or indirectly by the police in the case of road accidents. These measures and estimates were compared with the expected outputs and outcomes presented in the Results Matrix. However, for the indicators, vehicle operating cost and travel time, and, percentage of gross national volume of gasoline consumed for land transport, the methodology and baseline were not well defined.

b. M&E Implementation

- 4.2.2 The monitoring and evaluation strategy included the following: (i) annual audited financial statements; (ii) annual plan of operations; (iii) semiannual progress reports; (iv) mid-term review; and (v) final review.

c. M&E Utilization

- 4.2.3 The information on the results from the program was obtained from the Semester Reports, Final Evaluation Report and the Road Safety Unit. The information on the all the outputs and some of the outcomes namely the ones related to road safety, roads maintained, roads closed, and community based labour contracted was collected, reported on and used in evaluation the achievements of the program.
- 4.2.4 Since M&E plan did not define the methodology and baselined for the indicators, vehicle operating cost and travel time, and, percentage of gross national volume of gasoline consumed for land transport. The reported results are not useful in to the evaluation of the operation.
- 4.2.5 It is worth noting that the traffic accident database updated under the project contains data that is useful beyond the life of the project. This data could be used to analyze trends and patterns in road accidents and provide insight into the measures that are necessary to reduce traffic accidents in Jamaica. The information from the database should also be used to continuously monitor road section on which interventions were made, to evaluate the effectiveness of those solutions. The analysis of the traffic accident data indicated that fatalities amongst the vulnerable road user groups did not reduce as it was the case of the groups traveling in motor vehicles. Further analysis of the data is needed to identify the causative factors for this non-reduction and the design or adjustment of interventions to reduce the fatalities amongst the vulnerable groups.

4.3 Use of Country Systems

- 4.3.1 Country systems were not utilized in the execution of this operation.

V. FINDINGS AND RECOMMENDATIONS

5.1 VERTICAL LOGIC

- 5.1.1 The Progress Monitoring Report (PMR) included some impact indicators not identified at the design stage of the project. These indicators were more related to outcomes rather than impact.

5.2 EXECUTION AND BUDGET

- 5.2.1 The factors that affected project implementation were:

The implementation of a pilot for the routine maintenance of the north coast road corridor, utilizing community-based microenterprises faced a few hurdles in implementation, as described below:

- (i) Backlog maintenance in the form of bushing of the verges and ditch cleaning, was needed to reinstate the road corridor into a maintainable condition prior to the start of routine maintenance contracts. The agreement with the Bank for these works was made in December 2010, while the activity did not commence until April 2011 and was finally completed in August 2011;
- (ii) By February 2012, it had been decided that the following works would no longer be included in this component: pavement and shoulder patching, repair and replacement of traffic signs and guardrails. This modification was made due to the inherent high cost to conduct these activities along with the essential skill set which was not readily available at the community level;
- (iii) Following multiple discussions and a risk identification exercise with key stakeholders it became apparent that the original model of creating micro-enterprises under the current GoJ Procurement Guidelines, would not be possible. A revised approach would be required if the stated works were to be conducted by the community-based workforce; and
- (iv) Consequently, a hybrid approach was agreed whereby the NSWMA, supervised by the NWA, would execute the routine maintenance of the target corridor on a performance-based contract. Being the national waste management agency, the NSWMA was understood to be uniquely qualified having previously worked with community-based groups to spearhead sanitation and clean-up efforts. The GoJ in 2013 launched the Micro, Small and Medium Enterprise and entrepreneurship policy. This initiative recognizes the importance of micro-enterprises as a seed-bed for entrepreneurship and potential for growth.

- 5.2.2 It was intended that the road marking be done by the NWA using the self-propelled road marking machine obtained through European Union funding. The road marking exercise was slow due to mechanical problems experienced with the equipment, which resulted in only 40 km of road being marked in four months. Consequently, the mountainous sections of the main road were tendered out and eventually completed by a local contractor.

- 5.2.3 With regards to the goods contracts awarded for the provision of road marking supplies, these contracts had delivery periods of 60 days. This delivery time was exceeded by some suppliers given that it may have been short for international suppliers. In one instance, the road marking paint provided by a supplier did not meet the specifications and had to be returned.

5.3 OVERALL EXPERIENCE WITH PROJECT MANAGEMENT

(i)	Participation and quality of its contributions during project design	Low ← 1 2 3 4 → High	○ N/A
(ii)	Organization for project execution (Executing / coordinating unit's staff, infrastructure, coordination, communication, etc.)	Low ← 1 2 3 4 → High	○ N/A
(iii)	Coordination and integration of the project executing/coordinating unit with the executing agency	Low ← 1 2 3 4 → High	○ N/A
(iv)	Establishing a monitoring and results framework (baseline data, systems, procedures, data analysis and reporting, etc.)	Low ← 1 2 3 4 → High	○ N/A
(v)	Executing/Coordinating Unit's management and decision-making capacity	Low ← 1 2 3 4 → High	○ N/A
(vi)	Timeliness in the fulfillment of the Bank's policies, procedures and contractual clauses	Low ← 1 2 3 4 → High	○ N/A
(vii)	Financial management (securing counterpart resources, disbursements, quality and timeliness of AFS, etc.)	Low ← 1 2 3 4 → High	○ N/A
(viii)	Timeliness and efficiency for procurement of goods, works and consulting services	Low ← 1 2 3 4 → High	○ N/A
(ix)	Executing agency top-level management's leadership, ownership and support to project execution	Low ← 1 2 3 4 → High	○ N/A
(x)	Concrete actions to secure project sustainability	Low ← 1 2 3 4 → High	○ N/A

The project execution unit performed well during the execution of the project and this resulted in the activities being completed within the five years' disbursement period. The six months' extension granted to the operation was for the financial closure since there were budgetary restrictions on spending related to the economic situation in Jamaica at the time.

5.4 IMPACT EVALUATION

5.4.1 There was no impact evaluation planned for this operation.

5.5 UNRESOLVED ISSUES

5.5.1 There were no unresolved issues in the operation.

Table 4
Findings and Recommendations

Findings	Recommendations
Project Design	
The M& E Plan prepared at the time of design was not sufficiently detail to monitor and evaluate all of the indicators in the Results Matrix.	The M&E Plan for project of this nature should include the methodology for determining the metric of each indicator at the time of project design. This Plan could be reviewed at the project launch to ensure that the indicators are measurable with the recommended methodology.
Execution and Budget	
The NWA does not have the mission, vocation or the appropriate human and capital resources to organize and manage performance-based road maintenance by local community residents or organizations.	In order for the NWA to execute maintenance utilizing the labor from community groups it would have to be given the mandate and capacity to do this
	In the absence of the capacity of the NWA to engage community groups to undertake maintenance, it would be useful for that agency to have formal partnerships with agencies with the capacity and experience mobilizing community based labour.
At present Jamaica's procurement policies does not allow for the non- competitive process usually used in the contracting microenterprises made up of locally based labor. This policy is needed if schemes utilizing these microenterprises are to be successful.	Special provisions and mechanisms would be needed for contracting should the use of community based labor be mainstreamed.
Contracts for good with overseas suppliers being procured using IDB procurement policies need to have ample delivery time to allow for the logistics of acquiring the items and shipping to Jamaica in order to avoid late delivery and potential conflicts.	The delivery schedule should take into account the logistics time for items being shipped form all Bank member countries while also giving consideration to whether items being ordered are off the shelf or manufactured just in time.
For IDB funded projects, foreign suppliers of goods could opt for payment via letter of credit as opposed to money transfers on delivery. Long delays in executing this instrument could result in contracts having to be annulled and retendered.	A procedure needs to be put in place for the timely execution of letter of credits for payment to international suppliers in cases where IDB policies are being used for procurement.

Overall experience with project management	
The operation would have been completed and closed within the original disbursement period of five years had it not been for inter-agency delays affecting the final payments.	Inter-agency coordination on financial matter need to be a focus area in order for timely execution of Bank funded operations.