

# **NORTHERN COASTAL HIGHWAY IMPROVEMENT PROJECT**

## **SEGMENT 2**

**(JA-0044)**

### **EXECUTIVE SUMMARY**

**BORROWER:** Government of Jamaica

**EXECUTING AGENCY:** Ministry of Local Government and Works (MLG&W)

**AMOUNT AND SOURCE:** IDB: US\$59.5 million (OC)  
Local counterpart funding: US\$25.5 million  
Total: US\$85 million

**FINANCIAL TERMS AND CONDITIONS:** Amortization period: 20 years  
Disbursement period: 5 years  
Interest rate: variable (IFF subsidy)  
Inspection and supervision: 1%  
Credit fee: 0.75%  
Currency: US\$ from the Single Currency Facility

**OBJECTIVE:** The primary objective of the Project is to improve the standards of the Montego Bay - Ocho Rios component (Segment 2) of the Northern Coastal Highway in order to reduce overall road transportation costs along the route, improve vehicular and pedestrian safety, and alleviate congestion along certain sections. The Project will contribute towards the continued expansion of the tourism industry without unduly upsetting the local socio-economic and ecological balance. Highway improvement would also provide the physical infrastructure required to diversify Jamaica's economy and provide foreign exchange reserves necessary to support economic development.

**DESCRIPTION:** The Northern Coastal Highway connects 270 km (168 miles) of the north coast between Negril in the west and Port Antonio in the east, including the tourism centers of Montego Bay and Ocho Rios. The Northern Coastal Highway Improvement Project (NCHIP) is made up of three Segments being funded from different sources. Segment 1, covering 71 km from Negril to Montego Bay, is being funded by the Overseas Economic Co-operation Fund of Japan; Segment 3 stretches 92 km from Ocho Rios to Port Antonio, and will be financed by the European Union.

The IDB Project comprises three components: (a) civil works (US\$54.9m) on the 92-km Segment 2 of the Highway between Montego Bay and Ocho Rios including strengthening, rehabilitation or reconstruction of the existing road, realignments of short sections, and replacement and upgrading of traffic signs and other safety elements; (b) an environmental protection plan and resettlement program (US\$11.8m) for affected areas along the entire Northern Coastal Highway; and (c) a pilot road maintenance program (US\$2.6m) to be tested along the northern highway corridor and later expanded nationwide. Financial and unallocated costs equal US\$15.7m.

**ENVIRONMENTAL  
CLASSIFICATION:**

The Environmental Management Committee, at its meeting of March 14, 1995, classified this as a Category III operation. The Committee approved the Environmental Summary of the Project during its meeting of 22nd October 1996.

**BENEFITS:**

The Project is designed to reduce vehicle operation and road maintenance costs by improving the design geometry, drainage and surface conditions of Segment 2 of the Northern Coastal Highway. In addition, the Project has important safety features by increasing visibility and providing greater shoulder width.

The Project will also have important social benefits by relocating families currently residing on the right-of-way to areas of greater safety with more secure land tenure.

**RISKS:**

The principal risk to successful conclusion of the Project relates to the institutional capacity of the Executing Agency. NCHIP is one of the largest investments made in Jamaican infrastructure in decades. To address this risk, the Project includes measures to provide close supervision and monitoring.

Secondly, there is the risk that the environmental protection and resettlement plans are not carried out as agreed between the GOJ and the Bank. Delays would likely induce additional Project costs. This possibility is addressed by the intensity of Bank monitoring described in paragraph 3.28 and laid out in detail in the Project Monitoring Checklist (Appendix 2).

Finally, there is the risk that the road maintenance program that emerges from the pilot program is inadequate. Again, there are conditions within this document for implementing the program and assuring its financing. Additionally, it is expected that the issue of maintenance will be central to the Roads and Bridges Program (JA-0043) scheduled for review next year.

**THE BANK'S  
COUNTRY AND  
SECTOR STRATEGY:**

The Bank's strategy is to focus its efforts on four primary objectives: (a) consolidating the structural transformation of the Jamaican economy, focussing on the rationalization of the state; (b) improving the sustainability and quality of social services; (c) reducing poverty and conserving the environment; and (d) promoting more rapid export growth. In particular, the Bank has identified the lack of adequate infrastructure as the major constraint to the growth of tourism, which is the largest contributor to the country's foreign exchange earnings. The Project directly addresses this infrastructural deficiency in the most important tourist region of the country.

**POLICY CRITERIA  
RELATING TO  
POVERTY AND SOCIAL  
ASPECTS:**

In reference to the Eighth Replenishment recommendations (AB-1704), the proposed Program does not meet the criteria of an operation that targets the poor in terms of beneficiaries, nor is it aimed specifically at women.

**SPECIAL  
CONTRACTUAL  
CONDITIONS:**

The conditions prior to first disbursement and contracting of works are given in the attached Appendix 2.

To assure proper Project implementation representatives of the Executing Agency, the IDB and interested governmental and non-governmental agencies, coordinated by the PIOJ, will meet twice yearly (four times during the first year of execution) to monitor the advance of the Project (§3.29).

The financial statements of the Project, during its execution, will be certified by the Auditor General of Jamaica.

For the purposes of the Contract any reference to "calendar year" in the General Conditions shall be replaced by "fiscal year."

The threshold above which procurement will be subject to international competitive bidding is US\$250,000 for goods and services and US\$2,500,000 for civil works (see paragraph 3.20).

Pursuant to Part III, Section 2(a), of the Regulations of the Board of Executive Directors, this loan proposal must be submitted for consideration by the Committee of the Whole.

## I. FRAME OF REFERENCE

### A. Macroeconomic context

- 1.1 Jamaica, with a population of about 2.5 million, has been experiencing declining economic growth. Between achieving independence in 1962 until 1973, the country achieved a growth rate of 5% per annum. Since then the growth rate deteriorated to 2.9% in the late 1980s, and 1.6% in the 1990s. The growth rate in 1995 was 0.5%, and the outlook for 1996 is for negative growth. Even so, during this period the authorities had 12 IMF programs, and the Bank and the IBRD each provided US\$1.2 billion in investment and policy-based loans. The pace of economic reform accelerated significantly from the late 1980s. In varying degrees, improvements were made in the foreign exchange and trade regimes, in the financial sector, in the elimination of State monopolies, in the divestment of state-owned enterprises, and in investment and agricultural policies.
- 1.2 A major thrust of recent economic policy has been to reduce inflation through domestic credit control, while raising net international reserves. Much of this has been achieved through high domestic interest rates and an accumulation of domestic debt to sterilize capital inflows (transfers and remittances). As a result, inflation has been successfully contained and net official reserves rose to over four months' import cover. However, while external debt and debt service are still manageable, interest payments absorb about two-fifths of central government expenditure or 12% of GDP.
- 1.3 The central government's fiscal account deteriorated in the 1990s, and capital expenditures fell. The overall surplus has gradually declined from 4.2% of GDP in FY92/93 to 1.0% in FY95/96. During this period, wages and salaries increased from 5.1% of GDP to 9.7%, while interest payments increased from 9.0% of GDP to 12.3%. On the other hand, capital expenditure and net lending fell from 5.3% of GDP to 4.9%. In FY96/97, the largest growth in expenditure relates to wages and salaries, which is estimated at 13.6% of GDP, including the back pay to government employees for preceding fiscal years equivalent to 2 percentage points. Preliminary indications suggest that the overall balance in FY96/97 will turn out to be a small deficit.
- 1.4 Although the financial sector is now contracting because of macro-economic and sectoral policies, Bank-supported economic reforms provided needed impetus to growth, particularly in tourism, non-traditional exports and financial services. The proposed Northern Coastal Highway Improvement Project will further contribute to sustainable growth in tourism and non-traditional exports.

### B. Regional context

- 1.5 The Government's Northern Jamaica Development Project (NJDP), supports both increasing tourism and the resident population. The NJDP con-

sists of five sub-projects under the general guidance of the Planning Institute of Jamaica (PIOJ):

1. Montego Bay sewerage
2. Negril water supply
3. Montego Bay drainage and flood control
4. Ocho Rios port expansion
5. The Northern Coastal Highway Improvement Project (NCHIP).

- 1.6 The first four of these sub-projects are in varying states of completion with financing from the Government and the Overseas Economic Co-operation Fund (OECF). All four are expected to be finished within two years. NCHIP is the key transportation component of the NJDP, physically linking all the tourist centers of the coast.

C. Transport sector context

- 1.7 Transportation in this island nation relies almost exclusively upon the road network. Cabotage is almost non-existent and what railroads exist are vestiges of plantation systems having more touristic than transportation value. There are two international airports -- in Kingston and Montego Bay -- both oriented towards international traffic, as well as a number of public and private ports, four of which can accommodate cruise ships.

- 1.8 Jamaica has a mature road network. Practically all rural communities are connected to the system, and new roads are built only for specific purposes such as access to mining sites. The total length of the highway system including national and parochial roads is approximately 18,000 km of which the great majority are paved (see Table I-1).

- 1.9 Responsibility for managing the road network was given to the Ministry of Local Government and Works (MLG&W) in 1995 upon its formation from the merger of two ministries, Works and Local Government. Nevertheless, it has delegated the administration of parochial roads to the Parish Councils and concentrated its efforts upon the national road network which makes up over one third of the total (Table I-2). Budget allocations to the Parish Councils still come through the local

**Table I-1**  
**Road Network by Functional Classification**  
(in Km)

Type of Road	Asphalt	Gravel	Earth	Total
Arterial & Secondary	4,710	55	0	4,765
Tertiary	8,614	2,220	1,048	11,882
Urban & Township	1,040	0	0	1,040
Agricultural	0	200	160	360
<b>TOTALS</b>	<b>14,364</b>	<b>2,475</b>	<b>1,208</b>	<b>18,047</b>

Source: MLG&W, "A Roads Maintenance Policy for Jamaica," February 1996

government administration chapter of the Ministry's budget <sup>1/</sup>. The only other agency involved in the public road transport system is the Ministry of Agriculture which oversees some 360 km of rural roads.

- 1.10 Government's investment strategy has focused upon preserving, rehabilitating and improving the road network. However, the system has suffered deterioration due in part to increased traffic and extreme climate events (e.g. Hurricane Gilbert), and in part as a consequence of inadequate maintenance. Therefore Government's Five-Year Infrastructure Investment Program (1995-2000 FYIIP) has the dual objectives of bringing the system up to maintainable standards, and developing a systematic maintenance program. Because of the importance of the Northern Coastal Highway to tourism and to development of the region as a whole, and the obvious need to raise it to maintainable standards, the proposed Project has been assigned high priority within the FIIYP.

Table I-2 Road Network by Administrative Classification (in Km)				
Type of Road	MLG&W	Parish Council	Ministry Agriculture	Total
Arterial & Secondary	4,765	0	0	4,765
Tertiary	1,184	10,698	0	11,882
Urban & Township	853	187	0	1,040
Agricultural	0	0	360	360
Total	6,802	10,885	360	18,047

Source: MLG&W, "A Roads Maintenance Policy for Jamaica," February 1996

**D. The Northern Coastal Highway Improvement Project (NCHIP)**

- 1.11 The Northern Coastal Highway provides trunk road links among all the towns on the north coast including the major cities (and tourism centers) of Montego Bay and Ocho Rios. It is also the terminus of the three major trans-island routes to Kingston, where the country's leading international port and airport facilities are located. The Highway directly serves all the principal beach resorts in Jamaica used by tourists, as well as being the nearly exclusive link between these and the international airport at Montego Bay. Cruise ships call predominantly at Montego Bay and Port Antonio and the road is extensively used by their passengers for visits and day trips.
- 1.12 The Northern Coastal Highway Improvement Project has been in preparation for a number of years. It has been divided into three distinct Segments, each with its own construction timing and source of financing:

---

<sup>1/</sup> By recent order, the parishes are given two-thirds of vehicle license taxes and 100% of local property taxes to help fund their road maintenance costs.

Segment 1: 71 km from Negril to Reading (Montego Bay)  
Segment 2: 92 km from Montego Bay to Ocho Rios  
Segment 3: 92 km from Ocho Rios to Port Antonio

1. Historical background

- 1.13 Improvement of transport conditions along the north coast has been an issue for many years. While the NJDP was being developed, the Overseas Economic Cooperation Fund (OECF) of Japan sent a Special Assistance for Project Formulation (SAPROF) team to Jamaica to review the Highway sub-project. Specific locations for road realignment were identified and many of these are incorporated into the current Project.
- 1.14 A feasibility and preliminary design study was carried out for the then Ministry of Construction (MOC) in 1990 by De Leuw, Cather International (DCI) with United States Agency for International Development (USAID) support. The resulting program included only minor realignments along with pavement improvement and formed the basis for an OECF loan to the GOJ.
- 1.15 Stanley Consultants, Inc. (SCI) was selected in mid-1993 to provide detailed designs of the improvements recommended in the feasibility study. SCI was directed, wherever technically feasible, to provide a 90 kph (55 mph) design speed for inter-urban unrestricted sections, and a 55 kph (35 mph) design for speed-restricted sections. The standards also included a design width of 7.3 meters with 2.4-meter shoulders on both sides where feasible. The initial cost of these improvements came to US\$130 million, but was redesigned to comply with a US\$90 million cap set by the Ministry of Finance.
- 1.16 Early in 1995 the MLG&W commissioned O'Sullivan & Graham Ltd. to carry out an economic feasibility study. Applying a prototype of the World Bank's HDM-Q Model, the consultants found the project to be economically viable at the estimated construction cost of US\$90 million. The rates of return along the Highway as a whole and its three major components all exceeded 20 per cent, but did not consider associated costs such as land acquisition, environmental amelioration and involuntary resettlement.
- 1.17 In June 1994 an Environmental Impact Assessment (EIA) was submitted to the Natural Resources Conservation Authority (NRCA) of Jamaica by SCI. The EIA included a general plan to mitigate the negative environmental impacts of the project developed by SCI, and many of the recommended actions have been incorporated into project design. The NRCA issued a letter of no objection on 18 April 1995.
- 1.18 Further environmental studies were required in light of IDB policy, and an Environmental Assessment Report was commissioned in November 1995. SCI was again chosen; their Report and its findings form the basis of Sections III.C and D of this Document.

- 1.19 In mid-1995 the IDB hired the services of Institutional Development Associates (IDA) to analyze core MLG&W functions and identify key institutional issues affecting the capability and effectiveness of the MLG&W to manage NCHIP and maintain the Highway once completed. The findings of this study are used extensively in assessing the institutional framework of the Project within this Document. (See particularly Section III.G.)

## 2. Parallel financing

- 1.20 Agreements have been reached between the GOJ and the OECF of Japan and the EU for the partial financing of Segments 1 and 3, respectively, of the Highway. Each of these carry their own terms and conditions as follow:

OECF A loan in the amount of ¥8.6 billion (equivalent to about US\$80 million) was agreed in 1991 to fund a portion of the costs of the North Coast Development Project. Of the total, the equivalent of US\$3.2 million were designated for engineering and supervision costs and another US\$22.8 million equivalent has been allocated to construction. The funds are to be applied to the Negril-Reading (Montego Bay) segment of the Highway, of which they will cover about 85% of the total construction costs. This operation carries an interest rate of 2.7% annually and is to be repaid over 25 years, including 7 years' grace. The date for final disbursement is 3 March 1997, but this is likely to be extended until December 1999.

EU A grant of ECU 35 million (equivalent to US\$44.0 million) has been agreed. The funds are to be applied to the Ocho Rios-Port Antonio segment of the Highway, of which they will cover about 48% of currently estimated total costs. There are early indications that this amount could be supplemented from country funds early next year should the economic analysis of Segment 3 warrant. The EU is developing sector conditions to this loan, specifically an organized approach to road maintenance, complementing and extending the pilot program included in the IDB operation.

## E. Bank and other donor experience in the road sector

- 1.21 The Bank has financed road improvements for a total of about US\$60 million through the following operations: (a) construction and improvement of secondary main and parochial roads and the construction of St. Ann's Bay bypass road (261/OC-JA and 376/SF-JA); (b) Township Development Programs I and II (437/OC-JA, 721/SF-JA, 522/OC-JA, and 523/OC-JA); (c) Comprehensive Township Development Program III, including the Ocho Rios Development Road (654/OC-JA & 655/OC-JA); and (d) rural road construction (765/SF-JA) and rehabilitation (581/OC-JA & 582/OC-JA). These operations have had implementation difficulties, cost overruns and delays in execution of works.



- 1.22 The Bank is currently preparing a Roads and Bridges Program (R&B: JA-0043) scheduled for analysis late in 1997 in support of the Government's FYIIP. In addition to providing funds for periodic maintenance and rehabilitation of some 800 to 1,000 km of the national road network, the project is to address institutional and financial shortcomings within the Ministry including the enforcement of laws and regulations regarding road safety and axle weight limits. The Project here under review is a key segment of the national road network but because of its unique importance to the economy (mainly tourism), its design standards, financing characteristics and its advanced stage of development, it was separated from R&B.
- 1.23 Among other international donors, the World Bank assisted in drafting the FYIIP and as a result has designed a Road Infrastructure Planning and Maintenance Project. This effort includes financing for over US\$20 million of road improvements and nearly US\$10 million in feasibility studies and institutional strengthening assistance. The IBRD is also preparing a project for two specific segments of the national road network with an estimated cost in excess of US\$100 million.
- 1.24 The Canadian International Development Agency (CIDA) and the European Commission (EC) have provided grant funds for bridge and road rehabilitation programs, respectively. The CIDA program is scheduled for completion this year, while a second EC project for Road Rehabilitation and Institutional Strengthening (about US\$26 million) is financing the rehabilitation of 298 km of parochial roads during 1994-1996. A further US\$15 million equivalent of EC funding has been designated for the rehabilitation of secondary roads in the national network.

F. Project linkages with Bank strategy

- 1.25 The Bank's strategy, as proposed to the Board in September 1995, recommended that

"... the Bank focus its efforts on four primary objectives: (a) consolidating the structural transformation of the Jamaican economy, focussing on the rationalization of the state as a key element in achieving fiscal stability and increased overall economic efficiency; (b) improving the sustainability and quality of social services; (c) reducing poverty and conserving the environment; and (d) promoting more rapid export growth." (pp. 13-14)

- 1.26 Under the last of these the Country Paper (CP) cites the Jamaica Tourism Action Plan (TAP) that "identifies the lack of adequate infrastructure as the major constraint to the growth of the tourism industry, which is the largest contributor to the country's foreign exchange earnings" (p.2, Annex I of the CP). So long as any negative environmental impact of the Highway and its construction can be avoided or ameliorated, the strategic impact of the project is evident.

G. Rationale for Bank financing

- 1.27 This Project is a key element of Jamaica's investment strategy, both in the transport and tourism sectors. The incorporated pilot maintenance program is expected to set an example upon which a national effort can be based to benefit road users throughout the country. It is anticipated, moreover, that improvement of the Northern Coastal Highway will induce further private direct investment in hotels and other tourist amenities that would generate employment and foreign exchange.

## II. THE PROJECT

### A. Objectives

- 2.1 The objective of the Project is to finance the improvement of 92 kilometers of the Northern Coastal Highway between Montego Bay and Ocho Rios (Segment 2), including amelioration of environmental impacts and resettlement of affected persons. Most sections of this two-lane Highway were built in the 1960s and 1970s and have long since exceeded their expected lifetimes. Furthermore, inadequate maintenance, coupled with poor drainage conditions uncompensated by initial engineering designs, have led to accelerated surface deterioration in many sections. Consequently, the route requires periodic maintenance, rehabilitation and occasional renovation to serve existing and future traffic.
- 2.2 The Project would reduce overall road transportation costs along the route, improve vehicular and pedestrian safety, and alleviate congestion in certain sections. By so doing, it would contribute towards attaining one of the country's primary objectives by providing the physical infrastructure to diversify Jamaica's economy through tourism promotion, and thereby provide foreign exchange reserves required to support economic development. The Project has been designed to maintain the local socio-economic and ecological balance.

### B. Project description

#### 1. Scope

- 2.3 The Project includes three components: and program of investments in civil works, an environmental and resettlement plan, and a pilot road maintenance program.

#### a. Civil works

- 2.4 The investment component of the Project is designed to allow safe traveling at 55 mph in unrestricted areas declining to 35 mph or less through townships and other restricted zones. Civil works comprise four basic types of improvement: resurfacing (64 km), reconstruction on alignment (16 km), curve flattening (1 km), and realignment (11 km). A brief description of each of these follows.
- 2.5 Resurfacing, the least-cost alternative, will be used in rural areas and small communities where traffic projections are relatively low and the state of the road surface suggests that road foundation and base layers are relatively sound. It may also include the widening of pavement and shoulders, and the digging of ditches, clear zone grading and improvement of drainage.

- 2.6 Resurfacing will also be done in urban areas where other improvements would be disruptive. Here it may include pavement widening, the construction of sidewalks and improvements to drainage works.
- 2.7 Reconstruction on existing alignment will be performed where pavement conditions are caused by damaged base course or poor subgrade conditions.
- 2.8 Curve flattening realignments are at least partly contained in the existing right of way and will be used in areas where the existing alignment does not meet design speed requirements but can be improved without departing from the immediate vicinity of the existing road.
- 2.9 Realignment occurs principally outside the existing reservation and is proposed to replace sections of the Highway that either run through congested urban areas or that have numerous sharp curves that cannot otherwise be brought near to design criteria.
- 2.10 Decisions regarding the type of construction to apply to each portion of the Highway were made on the basis of two factors: overall design standards for speed, safety and visibility; and all-inclusive cost. This latter encompasses not only direct construction costs, but also those associated with land acquisition and resettlement of affected residents, mitigation or elimination of adverse ecological impacts, and maintenance requirements.

b. Environmental protection and resettlement component

- 2.11 NCHIP is anticipated to cause certain environmental impacts over the entire route between Negril and Port Antonio, as well as creating the need to remove some 435 dwellings from the proposed right of way. The Bank has sponsored several analyses of these impacts and the Project finances measures designed to mitigate negative impacts:

- selection of optimal alternative realignments;
- agreements with the JNHT to evaluate possible sites of historic or archaeological importance and design corresponding protective actions;
- incorporation of general, specific and site-specific environmental mitigation measures into the contract tendering documents;
- design of an environmental monitoring plan;
- special measures to protect scarce forest lands from further degradation;
- training and other assistance to the NRCA; and
- a detailed program to resettle families affected by physical works along the Highway.

c. Routine maintenance component

- 2.12 The Project includes a pilot program for maintaining the works once completed. In the past, the Jamaican road system was characterized by deficient maintenance administration causing the need for periodic

and costly road rehabilitation and reducing road safety. The pilot program has been designed to overcome the key obstacles to effective road maintenance: inadequate and unreliable funding, and a management and professional structure within the MLG&W depleted by repeated organizational restructuring.

- 2.13 Designed to be cost-effective, the program entails the contracting and supervision of private-sector firms to provide routine maintenance activities according to annual planning and detailed periodic (monthly and weekly) programming. After a three-year trial period during which the model will be calibrated to Jamaican conditions, the pilot will serve as the basis for a nation-wide effort financed partially from resources of the Roads and Bridges Program 2/.

C. Project cost and financing

- 2.14 The total cost of the Project has been calculated at the equivalent of US\$85 million, including financial costs and a margin for contingencies and price escalation (see Table II-1). The IDB would finance US\$59.5 million (70%) of the total, and the GOJ the remaining US\$25.5 million (30%).

1. Civil works

- 2.15 Construction costs were estimated from bids received in June, 1996, for construction of Segment 1 of the Highway 3/. By taking an average of unit prices submitted by the next three lowest bids and applying them to the quantities of works, direct construction costs are estimated at US\$38.2 million.
- 2.16 Works supervision will be contracted out and is estimated to represent 10.5% of the value of civil works. This cost is higher than usual for this type of project because the firm shall be made responsible for overseeing the environmental and resettlement programs, ensuring construction rights on the land have been properly acquired in addition to ensuring that work continues on schedule with a minimum of contractor claims. The costs of a Project Administration Unit have been calculated at the equivalent of US\$2.0 million for the four-year execution period.
- 2.17 Land acquisition costs are estimated at US\$6.9 million from a cadastral census done in 1996 by Stanley Consultants in collaboration with local experts. To this sum must be added the US\$2.8 million cost of commercial structures. The actual amounts paid will depend upon negotiations between the Land Agency of the ME&H and the individual property owners.

---

2/ The Roads and Bridges Program will also specifically address the issues of road safety and enforcement of axle weight limits.

3/ The low bid, offered by a Korean firm, has been approved by the Jamaican authorities and is pending approval by the lender, OECF.

Cost and Sources of Financing

(In US\$ million equivalent)

Table II-1

Cost Items	IBRD	GOI	Total	%
1. Civil works	43.2	11.7	54.9	64.6
1.1 Direct construction costs	38.2	0	38.2	44.9
1.2 Engineering studies	1.0 <sup>d</sup>	0	1.0	1.2
1.2 Supervision <sup>b</sup>	4.0	0	4.0	4.7
1.3 Administration	*	2.0	2.0	2.4
1.4 Land acquisition	0	9.7	9.7 <sup>c</sup>	11.4
2. Environmental mitigation and resettlement	6.4	5.4	11.8	13.9
2.1 Environmental mitigation	1.4	*	1.4	1.6
2.2 Resettlement program	5.0	5.4	10.4 <sup>d</sup>	12.2
3. Road maintenance	2.4	0.2	2.6	3.1
3.1 Pilot Road Maintenance <sup>e</sup>	2.4	0.2	2.6	3.1
4. Financial costs	2.2	0.4	2.6	3.1
4.1 Interest	1.5	0	1.5	1.8
4.2 Credit Fee	0	0.4	0.4	0.5
4.3 Inspection & Supervision	0.7	0	0.7	0.8
5. Unallocated Expenses	5.3	7.8	13.1	15.4
5.1 Contingencies	4.3	4.5	8.8	10.4
5.2 Price Escalation	1.0	3.3	4.3	5.1
TOTAL	59.5	25.5	85.0	100.0

Notes: a Funded from the PPF - complementary engineering (\$650,000); pilot road maintenance project (\$125,000);

b and land acquisition study (\$225,000).

c Supervisory firm (10.5% of costs) will have responsibility for supervising all elements of the Project

d including land acquisition, resettlement and technical works. It will have ability to authorize minor changes

e Land (\$6.9 mio) and non-residential buildings (\$2.8 mio) in Segment 2.

d Purchase, moving or rebuilding of dwellings in Segments 1, 2 & 3 (\$9.0 mio), and economic rehabilitation

e and consultancy (\$1.4 mio)

c Contracted-out maintenance (\$1.5 mio) and RMMS (\$480,000 for consultancy); \$150,000 for accounting

systems, \$234,000 for equipment, and \$246,000 for staff expenses

\* Less than US\$ 50,000

Detail may not add to totals due to rounding.

## 2. Environmental mitigation and resettlement

- 2.18 Most environmental mitigation cost during construction are included within civil works costs as a result of standard engineering practices. Additional mitigation expenses are detailed in Chapter V of the *Environmental Summary* (18 October 1996) and include a survey and rescue or recovery of potential archaeological and historical sites in the entire right of way (Segments 1, 2 and 3), training and institutional strengthening of the NRCA, site-specific environmental protection measures, support for development orders, and preparation of declarations of protected areas with a total cost of US\$1.35 million.
- 2.19 Included within the costs of resettlement are the purchase value, moving and rebuilding costs of dwellings in all three Segments, at US\$9.0 million, plus US\$1.4 million to finance economic rehabilitation and Operation Pride's administrative costs.

## 3. Pilot road maintenance

- 2.20 TRDI presented a report in which they recommend a series of measures to improve maintenance activities (see paragraphs 3.30 *et seq.*). The cost of this program, estimated by TRDI, is US\$2.6 million, of which about US\$246,000 is for salaries of MLG&W staff and the remainder is for installing and training on an RMMS, accounting, and maintenance on a small sample of works in Segments 2 and 3.

### III. PROJECT EXECUTION

#### A. Status of project preparation

- 3.1 The GOJ contracted the services of Stanley Consultants, Inc. to prepare engineering and design studies along the entire length of the Northern Coastal Highway. Designs are complete, including complementary topographical, material management and road-surface studies financed in part by the Bank. With these designs in hand, it is anticipated that contracting of the necessary works can go forward with a minimum of delays and claims from contractors. The degree of detail of the designs gives the Bank assurances that Project cost estimates are within a 15% margin of error at 1996 prices.
- 3.2 During the design phase of the Project, the consultants and the MLG&W have maintained contact with the utility companies to provide for the movement of telephone and electricity poles and other structures well ahead of the actual roadway works.

#### B. Land acquisition

- 3.3 Throughout the length of Segment 2, significant improvements in alignment are expected and many of these will involve widening the existing right of way or acquiring new land for realignments. Based upon Project design concept, nearly two-thirds of the overlay and reconstruction on the existing alignment will require the acquisition of land. With this in mind, in 1995 the Bank, with resources of the Japanese Special Fund, hired the services of SCI, in association with Hugh Small & Associates, to support the GOJ in identifying the land and buildings that would be affected by the Project, determining the corresponding acquisition costs, and developing an action plan with specific recommendations to obtain occupancy rights in a timely manner.
- 3.4 The initial report of the consultants was delivered in November 1995. It presented a list of steps necessary to acquire land occupancy for the Project, including approval by the Cabinet, publication in *The Gazette*, description of the route under the Land Acquisition Act (LAA), surveys, valuations, final negotiations and payment.
- 3.5 The draft final report of the consultants was delivered in early August 1996, and describes the 959 parcels of land that will have to be acquired in the Project area (see Table III-1) 4/. Preliminary estimates place the value of private-sector land at J\$243.1 million, equivalent to approximately US\$6.9 million 5/. Government has

---

4/ For the purposes of the SCI study, each structure was also assigned a surrounding parcel. Therefore the 959 total parcels includes 118 parcels with structures and 841 parcels without.

5/ This is the gross value of land to be acquired. No estimate is available for the value of land to be released by the Project, nor of the extent to which it could be sold or swapped to reduce costs.



provided evidence that Cabinet has agreed to the acquisition of land required for construction of works associated with the Project.

C. Environmental management

- 3.6 The Bank's Environmental Management Committee approved the Environmental Brief for the Project in March 1995 and classified it as Category III, indicating that the mainly moderate negative impacts anticipated can be prevented or mitigated with environmentally sound measures. The Committee subsequently approved the "Environmental Summary" in its meeting of 22 October 1996.
- 3.7 NCHIP has undergone two separate environmental assessments. The initial Environmental Impact Assessment (EIA) was conducted in 1994. Given the technical refinements in proposed realignments, and to meet the environmental requirements set by the IDB, an Environmental Assessment Report (EAR) was done in 1996.
- 3.8 Extensive public review took place during the EAR preparation. The points raised in the public consultation process were taken into account and incorporated into the final document.
- 3.9 The likely adverse effects of most NCHIP components will be minor to moderate, easily identifiable, spatially restricted and of short duration. However, realignment activities have the potential to cause significant, diverse and widespread environmental impacts, including damage to or destruction of primary and secondary forest ecosystems and wetlands, alteration of their hydrological regimes, dislocation of residents and economic activities, and damage or loss of cultural and historical artifacts.
- 3.10 An Environmental Protection Strategy has been developed for the Project that consists of the following elements:
- a. an environmental evaluation of alternative alignments to avoid or minimize significant impacts;
  - b. a Resettlement Plan to compensate affected residents and business owners;
  - c. an agreement with the Jamaica National Heritage Trust to evaluate and protect sites believed to have historical or archeological remains, artifacts or buildings;

Table III-1 Land Acquisition Summary of Information			
	Number of Parcels	Area (in m <sup>2</sup> thousands)	Estimated Value (in J\$ mil)
Total	959	1,012.2	247.04
Govt Owned	15	118.2	3.93
Private	944	894.0	243.10

- d. the incorporation of physical mitigating measures for negative impacts and site-specific environmental protection plans into the conditions and specifications of the Construction Tender Documents;
  - e. a plan consisting of three levels of environmental monitoring: (i) a geotechnical engineer and an environmental specialist hired by the Contractor to ensure that stabilization works and protection measures in wetlands are implemented according to specifications; (ii) a Supervisory Firm with environmental expertise to oversee compliance with all contract specifications; and (iii) a trained MLG&W monitoring engineer;
  - f. training and strengthening in environmental management for MLG&W and NRCA staffs; and
  - g. support to NRCA staff for their oversight capability.
- 3.11 The MLG&W has designated an engineer with environmental expertise to ensure that mitigating measures outlined in the Environmental Summary and those contained in the bidding documents and eventual construction contract are carried out. The Ministry has also confirmed final alignment designs as required by the Environmental Summary, and has demonstrated that the NRCA has issued a Certification of "no objection" to the Project.
- 3.12 The Project Monitoring Checklist, attached as Appendix 2 to this document and which shall also be attached to the eventual Loan Contract, contains conditions to ensure that the Bank receives satisfactory evidence that (a) all pavement, material and topographical surveys, construction contracts, and general, particular and site-specific environmental specifications have been incorporated into final designs and contractors' bidding documents; (b) institutional arrangements have been made with the NRCA to implement a program of institutional strengthening in monitoring activities; (c) the review of Coastal Development Orders and Parish Development Orders is progressing satisfactorily; and (d) the area of dry semi-evergreen forest north of the realignment at Coral Spring / Mountain Spring has been declared protected under the National Resources Conservation Act.

D. Resettlement requirements 6/

3.13 The study referred to in paragraph 3.3 provided a base-line count of all structures within the right of way of the entire Northern Coastal Highway. In turn, this count served as a cut-off for considerations of resettlement and as a basis for a census of affected population. The total number of structures in the right of way is 873, of which half are residential (Table III-2). Of the total number of structures, 54% are occupied by squatters with no legal rights to the land they occupy.

3.14 Jamaican law and policy on resettlement is limited. There are provisions for compensating landowners, tenants and others with some form of title to the property on which they gain their livelihood or reside, but none for illegal occupants of structures or land (squatters). To address this issue, a Task Force has been established under the leadership of the Ministry of Environment and Housing to develop a national policy in the area of involuntary resettlement, and more specifically to design a pilot resettlement plan for persons affected by the Northern Coastal Highway Improvement Project. The development of policy shall become a World Bank sponsored project for which specific terms of reference have been developed.

**Table III-2**  
**Distribution of Affected Buildings**

Number of Structures	Segment			
	TOTAL	1	2	3
Residential	435	175	71	189
Commercial	404	186	44	174
Agricultural*	34	10	3	21
TOTAL	873	371	118	384

\* Includes unspecified.

3.15 A preliminary plan for involuntary resettlement was submitted by the Jamaican authorities to the IDB for review in September 1996. On the basis of that plan and from discussion with representatives of the Task Force, it is concluded that there will be three types of resettlement activity. For land and structures owned by individuals or groups above some basic income level, affected persons are assumed to have recuperative ability without physical support from government and compensation will be monetary.

3.16 Wherever possible, structures will be physically removed from the proposed roadway to areas out of the new right of way. This will imply only the lifting and repositioning of these structures without need for rebuilding, replacing for them the public utilities they had previously had (electricity, water, sanitation, etc.).

---

6/ The Resettlement Program included within the Project covers the entire Highway (three Segments).

- 3.17 In other cases, however, and especially in those involving residences and artisanal businesses in poor condition, relocation involves resettlement into communities removed from the road reservation itself. Options available to the authorities include both the provision of basic building sites with basic utility connections, and more elaborate settlement communities that would include new structures.
- 3.18 A Resettlement Action Plan has been presented to the Bank outlining a program of information dissemination and community consultation, an inter-institutional arrangement for carrying out the Resettlement Plan, a time-table for executing this Plan conforming to conditions set forth in the following paragraph, and confirming the cost estimates included in paragraph 2.18.
- 3.19 The Project Monitoring Checklist contains the condition that a Final Resettlement Plan for Segments 1 and 2 must be approved by the Bank before the MLG&W calls for construction contract pre-qualification. To be acceptable, such a Plan must at least include a census of all affected households identifying everyone within each household; an analysis of how each household is affected and what specific ties they may have to the land or geographic area in which they reside or work; a definition of the compensatory measures to be undertaken on their behalf with sufficient detail to permit immediate implementation in the field; and evidence that the affected community has been consulted in the design of the Plan and shall continue to participate in its implementation and evaluation. Finally, the Checklist requires that the Resettlement Plan must be implemented prior to awarding the construction contract.

E. Procurement of goods and services

- 3.20 In contracting works to be financed by the Bank, the IDB Basic Procurement Policies and Procedures shall be followed. International competitive bidding will be required for goods and services valued at US\$250,000 or more and for civil works valued at US\$2.5 million or more. It is anticipated that all Bank-financed civil works will be let in a single contract to a pre-qualified firm.
- 3.21 Works and services to be financed exclusively from funds provided by the GOJ shall be procured in accordance with the laws and procedures in effect in Jamaica.

F. Schedule for project execution

- 3.22 Project construction is expected to begin within nine months from the signature of the respective IDB funding agreements. The time delay is caused by the need first to hire the Supervisory Firm and to submit all contracts to the Jamaican Cabinet and General Contracts Committee before signature. Works should be essentially completed within 48 months of mobilization (see Appendix 2 and Table III-3).

Table III-3

Timing of Expenditures

(In US\$ million equivalent)

Cost Item	1997	1998	1999	2000	Total
1. Civil works	8.8	19.0	14.3	12.8	54.9
1.1 Direct construction costs	2.0	12.5	12.5	11.2	38.2
1.2 Engineering studies	1.0	0.0	0.0	0.0	1.0
1.3 Supervision	0.3	1.3	1.3	1.1	4.0
1.4 Administration	0.5	0.5	0.5	0.5	2.0
1.5 Land acquisition	5.0	4.7	0.0	0.0	9.7
2. Environmental mitigation and resettlement	5.3	5.9	0.6	0.0	11.8
2.1 Environmental mitigation	0.3	0.5	0.6	0.0	1.4
2.2 Resettlement program	5.0	5.4	0.0	0.0	10.4
3. Road Maintenance	0.7	1.5	0.4	0.0	2.6
3.1 Paved Road Maintenance	0.7	1.5	0.4	0.0	2.6
4. Financial Costs	0.2	0.8	1.3	1.7	4.0
4.1 Interest	0.0	0.5	1.0	1.4	2.9
4.2 Credit Fee	0.1	0.1	0.1	0.1	0.4
4.3 Inspection & Supervision	0.1	0.2	0.2	0.2	0.7
5. Unallocated Expenses	0.8	2.8	4.4	3.7	11.7
5.1 Contingencies	0.5	2.0	3.0	1.9	7.4
5.2 Price Recalculation	0.3	0.8	1.4	1.8	4.3
TOTAL	15.8	30.0	21.0	18.2	85.0
%	18.6	35.3	24.7	21.4	100.0

Note: Detail may not add to totals due to rounding.

G. Execution mechanism

3.23 The Executing Agency is the MLCW, and specifically the Office of the Chief Technical Director which has direct responsibility for road administration in Jamaica. The Chief Technical Director reports to the Permanent Secretary of the MLCW, as shown in the Organization Chart in Appendix I.

3.24 The experience of the Bank and other donor agencies in executing transportation projects in Jamaica has been less than satisfactory (see Section I.D above). The MLCW has been affected by the effort to reduce government expenditures with the consequence that many able professionals have left government for the private sector where they may earn far greater salaries and are insulated from the repeated

shifts of public policy. As a result, the Bank and the Ministry have decided to institute a tiered Project supervisory system with clear differentiation among the functions and responsibilities in each layer, and regular meetings during Project implementation to review milestones outlined in Appendix 2.

1. Works supervision

- 3.25 A single Contractor will be retained for Project construction. The Contractor will be overseen by a Supervisory Firm hired by the MLG&W with Project funds, in accordance with terms of reference agreed with the Bank. The firm will have the direct responsibility to familiarize itself with designs, verify that the Government has the legal ability to build on land rights acquired, confirm that resettlement plans are proceeding according to an agreed timetable, make minor adjustments where applicable, and establish appropriate inspection, quality control and quality assurance procedures. The Firm will also review all technical documentation at the beginning of its contract period and at regular intervals throughout the Project execution period to ensure, *inter alia*, the adequacy of the programming of work such as geotechnical and subsurface investigation, drainage, environmental specifications and mitigation measures, and worker safety recommendations, and confirm that Contractor qualifications and equipment capacity satisfy design requirements. It will also prepare as-built drawings for all work performed upon the completion of each major work component. It is recommended that it be a condition of the eventual contract that this firm be hired prior to completing contractor pre-qualification to ensure adequate supervision over the process and avoid unnecessary claims (see Appendix 2).

2. Project administration

- 3.26 The MLG&W will monitor the Project through a Project Administration Unit (PAU) reporting directly to the Chief Technical Director. In accordance with the Terms of Reference for the PAU agreed with the Bank, the Unit will have a Project Director to whom will report three Project Engineers (one for each Segment), a Chief Administrative Officer and a Chief Financial Officer. These in turn may have small support staffs.
- 3.27 The responsibilities of the PAU are threefold: to monitor the activities of the Supervisory Firm, to act as liaison between the Ministry and the several governmental, parish, NGOs and private corporations involved in the Project, and to administer the operation by maintaining financial controls, processing disbursement requests and acting on behalf of the Borrower in such matters as Contractor claims and major design changes.
- 3.28 Because of the importance of adequate financial control of the Project, the IDB has allocated funds in the Administration budget of the Project to pay for a short-term consultant to set up proper bookkeeping registers.

### 3. Project monitoring

- 3.29 The Bank and the Ministry of Finance (through the PIOJ) will have over-all monitoring responsibilities. Responsibility for Bank administration will reside with the Country Office in Jamaica. Additionally, review meetings will be held at least twice yearly (four times during the first year of execution) among representatives of the Bank (CO and Project Team), the PAU, the Supervisory Firm, and interested government and non-government agencies, to monitor the advance of the Project in accordance with the Checklist attached as Appendix 2 to this Document.

#### H. Routine maintenance program

- 3.30 Maintenance activities have been deficient despite contractual conditions of IDB and World Bank loans. A number of factors have intervened, most importantly financing and inadequate maintenance management procedures that have led to inefficient application of the limited funds available. A study commissioned by the Bank <sup>7/</sup> pointed out that, apart from reconstruction and rehabilitation works for which external assistance has been forthcoming, the funding assigned to the Ministry has been insufficient to provide for adequate routine maintenance of the road system. Recent figures show a budgeted level of funding for this activity of the equivalent US\$1,600/km, in itself only slightly lower than minimum required under Jamaican conditions. However, actual expenditures were about 1/20 the budgeted level, wholly inadequate for local needs.
- 3.31 The shortfall of funding is aggravated by the fact that such funds cannot be counted on regularly. For reasons associated with the pattern of revenue collection, money is generally less available when most needed (before the rainy season). The consequence is general deterioration of the network and a *de facto* policy of neglect followed by rehabilitation and reconstruction. This is extremely expensive over the long term.
- 3.32 The lack of timely funding has had the secondary effect of driving off private sector contractors who, unable to count upon the MLG&W complying with its contractual financial obligations, have practically ceased operating in road maintenance.
- 3.33 Earlier this year the MLG&W submitted to Cabinet a "Draft Maintenance Policy for Jamaica." The policy includes a number of strategic positions that the Government intends to implement, among them:
- a. to establish systems for routine and periodic maintenance on all roadways;

---

<sup>7/</sup> "Report: Institutional Organization Review, Ministry of Local Government and Works," Institutional Development Associates, 31 August 1996.

- b. to establish programs for rehabilitation, emergency repairs and reconstruction;
- c. to increase its reliance on contractors to undertake routine maintenance activities and to promote the establishment of a cadre of contractors who will be experienced and equipped to undertake such maintenance; and
- d. to allocate funding on a timely basis in order that maintenance activities will be undertaken when required.

The Cabinet agreed the major tenets of this draft policy but before submitting it to Parliament for ratification requested some clarifications that are now being prepared.

3.34 The various modalities for providing maintenance, rehabilitation and reconstruction of the network, according to the Draft Policy, are summarized in Table III-4.

3.35 The Lengthman program in the last column consists of hiring individuals to care for about one mile of road using hand tools at their disposal. While not properly road surface maintenance, the work provides for control of vegetation on the verges and clearing of minor obstructions to drains and culverts.

3.36 "Petty contracts" are let by the Ministry for works costing less than J\$500,000 (US\$14,300 equivalent). Unit prices are determined by the Ministry and contracts are let without active competition by small businesses. Often the Ministry will supply materials and even construction equipment, hence broadening the scope for this type of contract.

3.37 The policy provides only the framework for an effective maintenance program, but in itself it is insufficient. Consequently the Bank, with funding from ATN/JF-4920-JA, financed a study to develop a pilot program centering on the Northern Coastal Highway. The objective of the pilot is to explore alternative outsourced road and bridge maintenance systems on a limited geographic scale before extending it wider. The technical cooperation also includes an analysis of the capability

Table III-4

Category of Activity	Method of Execution			
	Contract	Force Account	Petty Contract	Lengthman
Routine	x			
Periodic	x			
Rehabilitation & Patching	x	x	x	
Reconstruction	x			
Emergency Repairs	x	x	x	



of indigenous small- and medium-sized enterprises to effectively perform routine maintenance activities, and recommendations for adapting the institutional structure of the Roads Maintenance Directorate to the exigencies of any proposed system.

- 3.38 A specific intention of the pilot program is to introduce a simplified routine maintenance management system (RMMS). This is a computerized tool to assist in planning, programming and monitoring all routine road maintenance activities. Initially it will include the following modules:

- a. a practical road inventory along the Highway corridor and a simplified pavement evaluation;
- b. annual and monthly planning, and monthly and weekly programming of maintenance activities under various scenarios of availability of funds and accuracy of input data;
- c. a system for registering maintenance activities actually carried out, with unit costs and quantities; and
- d. a system for monitoring and evaluating the effectiveness of maintenance activities, standards and quality assurance criteria.

- 3.39 Because the characteristics of the Northern Coastal Highway are so well known, the introduction of modern modeling systems should be relatively easy, as should be the monitoring of their functioning. Over time, this effort is expected to be extended to the rest of the region and eventually the country as a whole. The EU is funding the initial survey indicated in sub-paragraph (a) above for Jamaica as a whole. As a condition to first disbursement under the proposed loan, the GOJ has agreed to submit to the Bank a plan for the introduction of the RMMS.

- 3.40 The consultants, Texas Research and Development Incorporated (TRDI), have presented their initial report which refers to the capabilities of indigenous firms and the institutional framework of the Ministry. The company makes a number of recommendations for an on-going improvement of the maintenance function in Jamaica. Principal among them are:

- a. creation of an autonomous road-maintenance Agency, reporting to the Permanent Secretary, with its own CEO and Board of Advisors;
- b. initial funding of the Agency for a three-year period for administration, financial oversight, and maintenance works;
- c. gradual replacement of all force-account activity by contracting out;

- d. installation and calibration of a computerized RMMS initially applying data from NCHIP and a few selected feeder roads; and
- e. a commitment from Government to fund the Agency annually after the three-year pilot period.

3.41 These recommendations were discussed with the Jamaican authorities and there was general agreement to implement them. Timing was an issue, as the consultants had advocated beginning with the next fiscal year (April 1997), which gives scarce time to obtain the required approvals from Government. Nonetheless, it is recommended that the eventual Contract contain a clause requiring the Government, prior to first disbursement, to ensure adequate funding of maintenance activities on the Northern Coastal Highway for the lifetime of the proposed Project (Appendix 2); and to present annual maintenance reports up to and including the fifth year after last disbursement, as established in the Contract.

I. Natural disaster management

3.42 Because of its geographic location Jamaica is subject to occasional damage from tropical storms and hurricanes as well as seismic action. The works have been designed to withstand weather conditions considered normal within a 5- to 10-year period for roads, and a 25- to 50-year period for bridges, but not such disasters as direct hurricanes and seismic action.

J. Advance of funds

3.43 The scope of the Project and the anticipated pace of construction favor an advance of funds up to 10% of Bank funding to cover estimated outlays for a 120-day period to accelerate payment for Bank-funded components.

#### IV. BORROWER AND EXECUTING AGENCY

##### A. Entities involved

- 4.1 The borrower is the Government of Jamaica. The executing agency is the Ministry of Local Government and Works.

##### B. Sectoral institutional framework

###### 1. Legal mandate

- 4.2 Following a reorganization of the sector in early 1995, the Ministry of Local Government and Works (MLG&W) was created from the Ministry of Local Government and Sports and the Ministry of Construction (Works). After spinning certain function off to other agencies, the new MLG&W was left with the responsibility for

- a. roads administration (all functions);
- b. local government administration, support and administrative services for and management of operating expenses of local authorities (Parish Councils);
- c. community amenity services: disaster management, fire protection, parks management; and
- d. other: general governmental services, social security and welfare, etc.

- 4.3 Specifically within the field of roads administration, the Ministry is chartered with maintaining the system, reducing congestion, improving access to farming communities, providing adequate drainage and other flood controls, maintaining and rebuilding bridges, managing the equipment pool, and developing and maintaining a national traffic management system.

###### 2. Internal organization

- 4.4 An organizational chart of the MLG&W is presented in Appendix 1. A series of mergers among ministries led to blurring of roles and a lack of a clear internal structure able to manage the large pool of transportation assets with professionalism. Consequently, the Ministry was identified by the World Bank financed Public Sector Modernization Program as one of two most likely to benefit from reorganization.
- 4.5 A study commissioned by the IBRD 8/ recommends, among other measures, that "[t]here should be a small core Ministry which would

---

8/ Corrine McLarty & Associates, *Public Sector Modernization Project, Ministry of Local Government and Works*, October 1995.

concentrate on policy, planning and monitoring and financial control," and that a Department of Works be established "as an autonomous department or Executive Agency...." It further recommends establishment of an earmarked road fund.

- 4.6 In its draft Staff Appraisal Report, the IBRD takes a two-stage approach to upgrading the level of service provided by public-sector agencies. According to this document, "[t]he modernization plan for the [the MLG&W and the ME&H] would involve the strengthening of their central divisions engaged in policy formulation, monitoring of policy implementation and corporate functions.... Operational agencies affiliated to these ministries ... would be taken up in Stage II."
- 4.7 On several occasions and in a number of reports <sup>2/</sup>, the suggestion has been made that responsibility for roads either be divested from the Ministry into a semi-autonomous agency or that the Roads Directorate be given greater autonomy within the Ministry. Although this suggestion is not specifically advanced in the latest World Bank project, it has been openly discussed and is generally understood to represent current thinking. The principal advantages to be gained by separating the Directorate are greater focus upon the requirements of the system without considering the other obligations of the Ministry, and, in the case of an executive agency, freedom from Public Service regulations permitting higher salaries for staff. The European Union has offered to underwrite much of the cost of setting up such an agency and is now working with the World Bank and the Bank in this direction. We anticipate that this process will be well under way by mid-1997 when we expect to present the Roads and Bridges Program to the Board, and the World Bank is expected to present their new road project.

C. Sectoral financial base

1. Sector investment and the national budget

- 4.8 Budgeted expenditures on roads increased by nearly 50% in J\$ terms between fiscal 1994/95 and 1996/97 (see Table IV-1). As a percentage of total government expenditures, roads outlays represented 2.3% in 1994/95, rising gradually to 3.2% in the following year and to 3.5% in the current budget. Capital outlays on roads have been rising steadily from 5.1% of the Government's total in 1994/95, to 8.8% currently.
- 4.9 Within the roads budget, recurrent expenditures have been constant in current J\$ terms (including expenditures on parochial roads), which translates into a real decline of over one-third. While this down-

---

<sup>2/</sup> e.g. Corrine McLarty & Associates, *op. cit.*; "Organizational Framework for Road Maintenance Operations" by the then Ministry of Construction (Works); "Institutional Organization Review" by Institutional Development Associates, and "Report on Roads Sector Costs and Financing", by Garth Edge, the latter two financed with IDB resources.

sizing has followed government policy, it has resulted in severe under-funding of routine maintenance (paragraphs 3.30 *et seq.*).

- 4.10 Fully one-third of all investments in roads since 1995 has been channeled into the Hub Rehabilitation Project. The Ministry established this project to rehabilitate approximately 1,200 miles (1,920 km) of roads feeding 39 town hubs nationwide at an expected cost of US\$131.6 million. This project, financed domestically, is expected to be completed by 1998.

## 2. Counterpart financing

- 4.11 The Project is expected to require US\$25.5 million in counterpart financing, of which the great majority will go towards funding such local costs as land acquisition and resettlement expenses. Peak counterpart funding requirements are expected to come in fiscal 1997/98, when local funds equivalent to about US\$10 million will be required, mainly for land acquisition (see Table III-3).

- 4.12 To judge the availability of counterpart funds, a summary sources and uses of funds was done (see Table IV-2). Demands for funding were taken from the next three years of the Five-Year Infrastructure Investment Program, as last updated in September 10/. It may be expected that NCHIP itself, together with the Roads and Bridges Program and certain World Bank financed works will make up the majority of investment outlays in those years, so we have adjusted the FYIIP with data taken from those projects.

- 4.13 For sources of funds, we have taken data from two sources: external funding was estimated from the current cost of NCHIP, as well as

**Table IV-1**  
**Total Government and**  
**Road Sector Expenditures**  
(in J\$ billions)

	1994/95 Budget	1995/96 Budget	1996/97 Budget
Central Gov't Expenditure	68.3	80.6	99.9
Current	38.7	51.3	61.1
Capital <sup>a/</sup>	29.6	29.3	38.8
Road Sector Expenditures	1.6	2.6	3.5
Current	0.1	0.1	0.1
Capital	1.5	2.5	3.4
% Roads to C.Gov't	2.3	3.2	3.5
Current	*	*	*
Capital	5.1	8.5	8.8

a/ includes net lending

Sources: GOJ; MLG&W Budget Proposal (1996/97); and Garth Edge, "Report ..."

10/ This period was selected because the FYIIP suffers from the fact that data on investments projected for later years are sketchy at best.

projected new operations by the Bank, the World Bank, and the EU Ministry of Finance data regarding actual and budgeted expenditures through FY1996/97. For later years, estimates were constructed on the basis of the trend of road financing over the previous five fiscal years.

**Table IV-2**  
**Sources and Uses of Funds**  
**in the Transport Sector**  
**(in millions of US\$)**

	FY1995/96	FY1996/97	FY1997/98	FY1998/99	FY1999/00
<b>USES OF FUNDS</b>					
Emergency & Reconstruction Expenses	1.9	1.6	6.8	2.0	2.3
Maintenance	24.9	29.0	31.8	46.45	45.88
Rehabilitation & Reconstruction	50.0	46.9	86.3	136.5	115.8
<b>NCMR<sup>a</sup></b>	6.7	17.9	30.0	47.8	54.1
<b>TOTAL</b>	<b>83.5</b>	<b>95.4</b>	<b>154.9</b>	<b>232.7</b>	<b>218.0</b>
<b>SOURCES OF FUNDS</b>					
International & Bilateral Financing	44.0	33.8	63.1	125.7	104.7
Required Local Funding	39.5	61.6	91.8	107.0	113.3
<b>- Actual and Projected Budget</b>	<b>74.3</b>	<b>100.0</b>	<b>110.0</b>	<b>125.0</b>	<b>140.0</b>

Notes: <sup>a</sup> Includes all three Segments.

Detail may not add to totals due to rounding

4.14 The resulting balance shows GOJ (or alternative source) financing rising from a current level of US\$62 million to just over US\$113 million in 1999/2000. Through the current fiscal year, the MOF has assigned the MLCW steeply rising fund allocations. It is not anticipated that this rate of increase will be maintained in the future, but even at lower growth rates of funding, there appear to be sufficient allocations to cover the needs of the Project, as well as for other programs now under way and envisioned over the next year or two.

4.15 The estimates above give comfort that the Government should have the required funds, but beyond this there are additional comforting factors:

- a. The MLG&W has been spending large amounts for road reconstruction under the Hub Program; redirecting these funds would provide nearly US\$50 million annually for other purposes.
- b. The Minister of Finance has repeatedly committed his Government to the provision of adequate counterpart funding.
- c. The Government has options other than cash purchases of land, including land swaps and bonds.
- d. Actual payment for land required by the Project may take place well after construction, and the Land Acquisition Act separates Government's right to use the land from the negotiation and purchase thereof.

Given that a large portion of counterpart funding is earmarked for land acquisition and the ability to occupy the land has been secured, there shall be initial controls over the absolute amounts and timing of counterpart requirements.

### 3. Cost recovery

- 4.16 There are no plans for direct recovery of the costs of the Project. Consideration was given to the possibility of making all or part of this highway a toll road to recover at least a portion of the investment. The idea had to be abandoned when it became clear that the very extent of the Jamaican road system provides numerous by-passes to the Northern Coastal Highway. Erecting toll booths under the circumstances would simply encourage traffic to use alternative routes causing congestion and further damage on roads ill-equipped to handle them. At a future date, perhaps when NCHIP is rehabilitated and even upgraded as traffic merits, the Highway could support a toll system and even privatization 11/.

---

11/ The *Report on Road Sector Costs and Financing* by Garth Edge calculates that road users in general contribute the equivalent of US\$ 164 million in revenues to the fisc, against road expenditures in the current fiscal year of US\$ 95.4 million.

## V. VIABILITY AND RISKS

### A. Feasibility summary

- 5.1 The Project Team has reviewed all available information regarding the Project and concludes that there are no known technical, environmental, financial, institutional or socio-economic obstacles to proper implementation. To the fullest extent possible, the Team has attempted to anticipate issues and ensure that they have been considered in designing the Project so as to maximize benefits accruing and reduce to a reasonable minimum unexpected costs.

#### 1. Technical feasibility

- 5.2 The technical feasibility of the proposed Project has been established on the basis of the Project Team's review of the studies, basic and final designs and specifications to verify that they meet relevant engineering standards. Considerations related to proper environmental management and provisions for foreseeable seismic activity and tropical storms have been incorporated into final designs and construction specifications and into Program flexibility.
- 5.3 The Project Team has provided for the contracting of an internationally reputable supervisory firm to supplement scarce local expertise in managing projects of this scope in order to ensure the technical capacity and experience necessary for timely Project execution. In addition, given the lack of local experience in contracting out routine road maintenance, the Team has included funding for hiring international consultants to help consolidate a pilot program in the Northern Coastal Region.
- 5.4 Finally, the execution schedule takes into account the nature of the works to be financed and the amount of time required to carry out the bidding process. It is the opinion of the Project Team that the schedule is realistic given the assurances of support by the GOJ.

#### 2. Environmental feasibility

- 5.5 The extensive studies made of the environmental impact of the Project confirms that there is likely to be some localized negative short-term impact during construction, mainly in terms of noise, dust pollution, storm run-off from construction activity, as well as traffic disruption and restricted access. These impacts are controllable and appropriate mitigation measures have been incorporated into Project specifications, and monitoring activities have been set out for the supervisory consultants. Longer-term impacts have been identified and, to the fullest extent possible, have been mitigated by redesign of works and by other controls. In fact, construction of the works will, in many cases, lead to improvements in actual conditions, particularly insofar as drainage, seawall solidity and pedestrian and traffic safety are concerned.



### 3. Economic feasibility

- 5.6 A comprehensive cost-benefit analysis was carried out of the Project and of its individual "links." This analysis applies the World Bank HDM (Highway Design and Maintenance) analytical model. The model considers the costs of construction, land purchase and maintenance against the net savings in vehicle operating and road maintenance costs for anticipated traffic carried by the Highway over its projected 20-year lifetime. The initial analysis was done by the consulting firm O'Sullivan and Graham and submitted in early 1995; a review of the analysis was performed by the MLG&W in October 1996.

**Table V-1**  
**Internal Rates of Return and Net Present Values**

Link	From:	To:	AADT		IRR (%)	NPV (US\$m)
			1995	2016		
3	Montego Bay	Falmouth	9,782	15,455	50.6	56.70
4	Falmouth	Discovery Bay	5,187	8,096	46.1	47.15
5	Discovery Bay	St. Ann's Bay	5,000 <sup>a</sup>	11,388	47.8	43.36
6	St. Ann's Bay	Ocho Rios	11,428	17,971	75.5	29.20
					53.7	176.41

Source: O'Sullivan & Graham, "...Feasibility Study"

- 5.7 The results of the revised analysis are summarized in Table V-1. Economic returns for each of the links are very positive, with the highest IRRs registered by link 6 (St. Ann's Bay - Ocho Rios: 75.5%) where traffic includes both tourist movement to and from Montego Bay, and supplies from Kingston on the Spanish Town - St. Ann's Bay connector. The net present value of the Project is US\$176 million, a substantial return on the US\$85 million investment planned.

### 4. Institutional and financial feasibility

- 5.8 An analysis of the MLG&W, and in particular of the Project Administration Unit gives the Project Team confidence that this Project can be carried forward as described in this Document.
- 5.9 The Planning Institute of Jamaica has assigned NCHIP very high priority in Government investment programs, and the Ministry of Finance has made repeated assurances of counterpart availability. With fairly intensive supervision by the Bank during Project execution, it is the

opinion of the Project Team that the Project is institutionally and financially feasible.

#### 5. Socio-economic impact

- 5.10 The Project has not specifically been designed directly to reduce poverty; the primary beneficiaries of the Project will be users of the transportation system in Jamaica, and in the first instance the actual owners of vehicles. Nevertheless, the Resettlement Program associated with the Project will directly benefit some 294 low-income families by providing them with secure housing farther removed from the dangers of the Highway.
- 5.11 In addition, at least two indirect forces will promote certain trickle-down effects. First, by widening and generally improving the roadway, pedestrians and non-motorized vehicles will benefit from greater safety, and as these are generally from the poorer segments of society, the Project will have secondary benefits in this direction. Similarly, a large proportion of traffic on the existing Highway is made up of mass transportation vehicles, either buses, common taxis or small trucks that carry people. Again, improved road surfaces will definitely make their trips more comfortable and, to the extent that competition among private providers of services is active, tariffs may be expected to fall. This last effect may also have an impact on the cost of cargo transport, but experience shows that the effect is usually small.

#### B. Risks

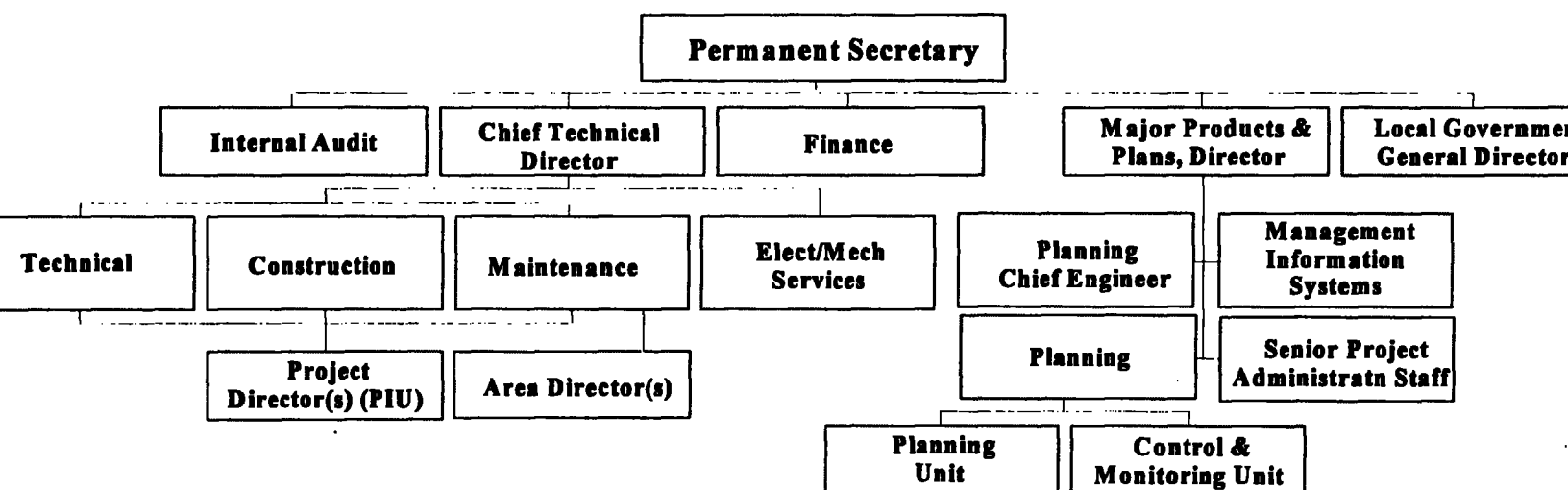
- 5.12 Throughout this document we have pointed out that the largest single risk to satisfactory project implementation is the weakened state of the executing agency, the Ministry of Local Government and Works. The World Bank has undertaken a wide-ranging Public Sector Modernization Program that has been crafted to improve the efficiency of certain key agencies of the Government, among them the Ministry. The first stage of their assistance, however, is constrained to supporting the core functions of planning, programming and budgeting, leaving for later any restructuring of the operational units of the Ministry.
- 5.13 Nevertheless, the European Union is considering a technical cooperation project to fund the reorganization of the Ministry, specifically the units involved with road construction and maintenance. This funding is still being studied within the EU, but is likely to be attached to, and a condition of their second-stage rural road program for which funding has been allocated. Under these circumstances it has been considered wiser that, rather than becoming directly involved in the program itself, the Bank lend its assistance in structuring and promoting the program within Government. This will become particularly important as the Bank analyzes the Roads and Bridges Program in 1997, but has obvious relevance to the immediate Project.
- 5.14 In the interim, the Ministry has agreed to create a Project Administration Unit with the responsibility of monitoring the execution of

the Northern Coastal Highway Improvement Project, including coordination with the three lending/donor organizations. It is the opinion of the Project Team that, once staffed in accordance to our recommendation, this Unit will have sufficient expertise and experience to ensure satisfactory project implementation.

- 5.15 Secondly, there is the risk that the environmental protection and resettlement plans are not carried out as agreed between the GOJ and the Bank. Delays would likely induce additional Project costs. This possibility is addressed by the intensity of Bank monitoring as laid out in detail in the Project Monitoring Checklist.
- 5.16 Finally, there is the risk that the road maintenance program that emerges from the pilot program is inadequate. Again, there are conditions within this document for implementing the program and assuring its financing. Additionally, it is expected that the issue of maintenance will be central to the Roads and Bridges Program scheduled for review next year.

# Ministry of Local Government and Works

## Road Administration Organization



## PROJECT MONITORING CHECKLIST

	Milestone	Condition to be met Prior to Milestone		
		Civil Works	Environment & Resettlement	Maintenance
	Board Approval			
	Call for pre-qualification of Construction firms	Bidding documents finalized to Bank satisfaction, including general, specific and site-specific environmental requirements (¶3.12)	Final Resettlement Plan presented to Bank satisfaction (¶3.19)	
	Pre-qualification of contractors completed	Project Supervisory Firm contracted (¶3.25)		
	First disbursement		Government has presented evidence that (a) arrangements have been made for institutional strengthening NRCA; (b) dry semi-evergreen forest in Coral Spring declared protected under the National Resources Conservation Act; and (c) satisfactory advance in review of Coastal Development and Parish Development Orders by Town Planning Dept. (¶3.12)	GOJ adopts maintenance plan to Bank satisfaction, including introduction of RMM and the assurance of funding of maintenance on the Northern Coast (¶3.41)
	Construction contract let		Resettlement in Segments 1 and 2 completed (¶3.19)	

**JAMAICA****Northern Coastal Highway Improvement Project****Segment 2**

(JA-0044)

**Procurement Plan**

<u>Description</u> No. Lots:  Total: US\$ millions	% Financing		Method of Procurement  ICB/Other	Prequalification Yes/No	Publicity SPN  Quarter/Year
	IDB	Local			
<u>Project Supervision</u>					
Lots: 1	100	0	ICB	Yes	I/1997
Total: US\$4.0 million					
<u>Civil Works</u>					
Lots: 1	100	0	ICB	Yes	I-II/1997
Total: US\$38.2 million					

Threshold amounts: goods and services: US\$250,000  
civil works: US\$2,500,000  
consultancy: US\$200,000

**J A M A I C A**  
**Northern Coastal Highway Improvement Project - JA-0044**  
**Logical Framework**

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTION
To reinforce the Northern Coastal Region of Jamaica as a first-quality internationally competitive tourism region	Tourism expenditures in the region increase at a rate of at least 6% annually through 2002	Annual statistical reports on tourism and tourist expenditures	
1) Lower road user costs along Segment 2 of the Highway and rights of way clear of dwellings and commercial structures 2) Pilot road maintenance project extended nation-wide (Roads & Bridges Program - JA0043)	1) Average roughness indicator of NCHIP up to arterial road standards; driving times from Montego Bay to Negril and Ocho Rios reduced to approximately one hour by 2002 2) RMMS used for all national roads by 2000	1) Annual statistical reports by road agency on basis of RMMS system 2) CO reports and analysis of Roads and Bridges Program	No major upheavals in tourism to and within the Caribbean  Jamaica escapes major natural disasters
1) Segment 2 of the Northern Coastal Highway completed satisfactorily 2) Environmental plan successfully implemented; 435 families resettled 3) Pilot road maintenance system completed; RMMS installed and calibrated	1) Project completed on time and within budget; 2) Minimal negative environmental impacts; all dwellings removed from right of way and residents moved elsewhere 3) Road maintenance organization in place and RMMS functioning properly	1) Reports of supervisory firm, PAU & CO 2) <i>ibid.</i> from information supplied by NRCA and Operation Pride  3) Reports from supervisory firm, PAU and CO	Staffing of counterpart adequate  Labor disputes avoided
1) Rehabilitate Segment 2 of the Northern Coastal Highway 2) Carry out an environmental and resettlement plan for NCHIP 2) Execute a pilot road maintenance program	1) US\$54.9 million including engineering, supervision, and land acquisition 2) US\$11.8 million  3) US\$2.6 million	1) Routine CO progress reports and semi-annual reviews 2) <i>ibid.</i>  3) <i>ibid.</i>	Counterpart funding adequate  Inflation controlled to price stabilization plan

PROPOSED RESOLUTION

JAMAICA. /OC-JA TO THE GOVERNMENT OF JAMAICA  
Northern Coastal Highway Improvement Project - Segment 2

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf the Bank, to enter into such contract or contracts as may be necessary with the Government of Jamaica, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Northern Coastal Highway Improvement Project. Such financing will be for the amount of up to US\$59,500,000 from the Single Currency Facility of the Ordinary Capital resources of the Bank, and will be subject to the "Terms and Financial Conditions" and "Special Contractual Conditions" of the Executive Summary of the Loan Proposal.



PROPOSED RESOLUTION

JAMAICA. LOAN No. \_\_\_\_/OC-JA  
Northern Coastal Highway Improvement Project - Segment 2

The Board of Executive Directors

RESOLVES:

That the President of the Bank, or such representative as he shall designate, is authorized, in the name and on behalf of the Bank as administrator of the Intermediate Financing Facility Account, hereinafter referred to as the "Account", to enter into such contract or contracts as may be necessary with the Government of Jamaica, as Borrower, and to adopt other pertinent measures to use the resources of the Account to pay a portion of the interest due by the Borrower on outstanding balances of the loan authorized by Resolution DE- /96, in accordance with the provisions set forth in Document FN-263-2, as amended, approved by the Board of Executive Directors on December 21, 1983.