

**PROGRAM TO STRENGTHEN HIGHWAY ADMINISTRATION
AND LOCAL ROAD REHABILITATION**

(PN-0117)

EXECUTIVE SUMMARY

BORROWER: Republic of Panama

EXECUTING AGENCY: Ministry of Public Works (MOP) through the program executing unit.

AMOUNT AND SOURCE OF FINANCING:

IDB:	US\$156 million (OC)
Local counterpart:	US\$ 67 million
Total:	US\$223 million

FINANCIAL TERMS AND CONDITIONS:

Amortization period:	20 years
Disbursement period:	3 years
Interest rate:	variable
Inspection and supervision:	1%
Credit fee:	0.75%
Currency:	Single Currency Facility U.S. dollars

OBJECTIVES: The objectives of the program are to: (i) strengthen MOP's capacity to formulate policies, and to plan, administer, and supervise the execution of the works under contract; ii) rehabilitate and improve rural roads, including the replacement and repair of bridges, and improvement of rainwater drainage in several provinces of the country; and (iii) expand the coverage of routine system maintenance.

DESCRIPTION:

Subprogram I: Technical assistance to supplement MOP's institutional strengthening efforts. Includes activities to: (i) increase capacity to manage and operate the highway sector; (ii) strengthen capacity for establishing priorities and formulating strategies; (iii) strengthen capacity for contract supervision; and (iv) increase the efficiency of resources allocated to maintenance of the system.

Subprogram II: Works to rehabilitate 1,260 km of secondary and local roads, replace 30 bridges and perform drainage works at seven specific sites. Roads were selected for the program on the basis of broad geographical distribution, the location of agricultural production centers, and communities with market access needs, predominantly composed of

persons native to the service areas of these projects.

**ENVIRONMENTAL
REVIEW:**

The provinces of Darién, San Blas, and Bocas del Toro, where the indigenous communities reside and where there are large forest reserves, are not included in the program. The impact on indigenous communities is nil, and the presence of indigenous groups or ethnic communities has not been detected in the project areas. Population resettlement will not be necessary.

The works are not expected to alter any site that has not already been developed in the past. The regions selected for road rehabilitation are comprised of farmland that in most cases has been served by roads for more than 20 years.

The relatively limited environmental impairment expected during the construction phase is as follows: (i) air quality, dust, and emissions from the burning of fossil fuels; (ii) soil erosion in very limited areas; (iii) highly localized pollution from asphalt and hydrocarbons; and (iv) no direct impact on flora and fauna in the forest areas. Various options to mitigate these effects have been provided for. The cost of rehabilitation and improvement takes into account the financing necessary to take environmental mitigation measures according to the estimates of the environmental management plans (PAMAs).

The environment and social impact report (ESIR) was approved by the CESI on May 29, 1998. The environmental impact assessments (EIAs), the PAMAs for works whose bidding process has already begun, and the ESIR for the Program have been made available to the public for review at the regional offices of the Instituto Nacional de los Recursos Naturales Renovables [Natural Institute of Renewable Natural Resources] (INRENARE).

BENEFITS:

Reduce transportation costs and integrate the economy and the rural population with the rest of the country by providing better access to basic services and markets for inputs and products. Execution of the program will reduce the execution period of the works and improve the availability and reliability of the highway system.

RISKS:

The main risks of the program pertain to the possibility that the resources allocated to the highway sector may encounter competing claims for public sector spending, and in particular for the

social sectors. In view of the nature of the program and its importance for the rural sector, this is a minor risk, and the government has allocated resources from the development trust fund to make financing for the highway sector viable.

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

The proposed operation is consistent with the strategies of the country and the Bank. Strengthening and modernization of the State's institutional capacity in the highway sector, and the rehabilitation and development of rural roads will help to promote economic activity in rural areas, reduce the tax burden, and promote more efficient sector spending. The operation complements Bank-supported programs for economic openness and integration, privatization, macroeconomic and financial strengthening, and reform of the country's incentive structure and microeconomic framework.

**PROCUREMENT OF
WORKS, GOODS, AND
CONSULTING
SERVICES:**

The applicable Bank policies will apply to the procurement of goods, works, and consulting services to be financed with program resources. When resources from the Bank financing are used, the threshold amounts beyond which procurements under this program must be conducted by international competitive bidding are: US\$350,000 for goods; US\$4 million for works; and US\$200,000 for consulting services.

To accelerate the execution of works included in the first Program contract (see "Special Contractual Conditions, II of this Summary), the Government has requested the Bank's non-objection to the continuation of administrative support from the United Nations Development Program (UNDP), which has been provided in connection with contracting for the first group of works under the Program (paragraph 3.23). In the case of the second contract (see "Special Contractual Conditions, II of this Summary), when the amounts concerned are less than those specified in the first paragraph of this section, and in the case of procedural requirements not included in the Bank's rules (Annexes B and C of the contract for this loan), simplified procedures under Panamanian legislation - which are compatible with Bank procedures - will be applied.

**EXCEPTIONS TO
BANK POLICY:**

See information on works procurement above.

It is proposed that the least-cost selection method be used in recruiting consulting services. Under this method, a "minimum technically acceptable" level

is established for evaluation of the technical proposals (paragraph 3.25).

**POVERTY AND SOCIAL
POLICY CRITERIA:**

In accordance with the Eighth Replenishment document (AB-1704), it has been determined that the proposed program does not have the characteristics of a poverty-targeted program – neither geographically nor in terms of its beneficiaries – and is not specifically targeted to the participation of women.

Nonetheless, based on available information collected for the analysis of the project benefits, low-income groups are expected to receive approximately 15% of the economic benefits resulting from road rehabilitation under the Program. It is also estimated that 10% to 15% of the total cost of the works could be performed under contract by small and medium-sized enterprises, especially for the surveying, hauling, and highway maintenance activities (paragraph 2.8).

**SPECIAL
CONTRACTUAL
CONDITIONS:**

I. Establishment of the project executing unit (paragraph 3.2) will be a condition precedent to the first disbursement of the Bank financing. In addition, the conditions necessary for execution, monitoring (paragraph 3.3 and 3.27, and 3.28), and evaluation (paragraph 3.29) of the projects will be set forth in the loan contract.

II. Taking into account the goals of Panama's macroeconomic policy, and in particular those related to the country's foreign debt, the contractual arrangements for the financing referred to in this document will consist, at the request of the Government of Panama, of two separate contracts: one contract for up to US\$85 million to be signed this year, and a second contract to be signed in the first quarter of 1999 for up to US\$70 million (see paragraphs 3.4 and 3.5).

I. FRAME OF REFERENCE

A. Context of the operation

- 1.1 At the beginning of the 1990s, the government began to prepare projects to rehabilitate the country's infrastructure. In the transportation sector, the IDB and the World Bank approved financing in August 1993 for a multiyear highway investment plan for the period 1994-1997, with resources going mainly to rehabilitation of the country's urban and interurban road system. Although the investment objectives of this plan have been fully realized, rural roads, which account for approximately 80% of the national system, are deteriorating, leaving producers without reliable and efficient access to markets.
- 1.2 The market economy liberalization, deregulation, and development program undertaken by the government includes and requires a substantial transformation of the rural sector. To meet this need, and to promote the program objectives of development and social equity, the Ministry of Public Works (MOP) has begun, inter alia, the execution of an investment program to rehabilitate the road infrastructure in rural areas.
- 1.3 The investments proposed in this operation are intended to meet that challenge and, based on a substantial amount of work already performed by MOP, the government wishes to complete the works within the next 36 months.

B. The proposed operation

- 1.4 The operation consists of Bank technical assistance financing in the amount of US\$3 million to supplement MOP's institutional strengthening efforts, together with US\$156 million in financing for the execution of works. The program structure is centered on strengthening MOP's capacity for managing and operating the highway system and promoting private sector participation in the design, execution, and maintenance of the works.

C. Government and Bank strategies

- 1.5 The proposed operation is consistent with the strategies of the country and the Bank. Strengthening and modernization of the State's institutional capacity in the highway sector, and the rehabilitation and development of rural roads will help to promote economic activity in rural areas, reduce the tax burden, and promote more efficient sector spending. The operation complements Bank-supported programs for economic openness and integration, privatization, macroeconomic and financial strengthening, and reform of the country's incentive structure and microeconomic framework.

D. Support from other financing agencies

- 1.6 In March 1998, the Andean Development Corporation (CAF) approved financing in the amount of US\$60 million in support of an interoceanic corridor road infrastructure program with a total cost of US\$95.6 million. The program includes investments in construction works, widening and rehabilitation of the main highways along the interoceanic corridor, and investments in pavement rehabilitation for the connecting roads in Panama City and Colón. The estimated duration of the program is three years, with most of the projects beginning in 1998.
- 1.7 The World Bank has made progress in preparing a US\$85 million loan in support of a second road rehabilitation operation. Its objective is to improve transportation efficiency within the primary highway system, reduce traffic congestion in Panama City and Colón, consolidate strengthening of MOP highway administration and maintenance, and increase competition in the public transport sector. The program includes institutional strengthening and rehabilitation for 414 km of interurban roads.

E. Special considerations

- 1.8 MOP's prior experience, and that gained in other operations, have been taken into account in designing the institutional strengthening component and the execution plan proposed for this program.
- 1.9 With regard to the institutional strengthening component, technical assistance is directed specifically towards strengthening capabilities directly linked with the program objectives and execution plan. Accordingly, little emphasis is placed on the preparation of studies and participation in specialization courses, with preference given to training in the field and the necessary equipment to deal with matters directly related to contract administration and supervision, the establishment of a cost analysis system, and quality control techniques.
- 1.10 With regard to the execution plan, the country has had unfavorable experience with awarding separate contracts for the design and execution of works. Separation of these two phases has been an important cost factor for the country, since it adds six to eight months to the execution of works and, moreover, makes it difficult to apportion the cost of design errors. In the latter case, MOP has had to assume the additional cost.
- 1.11 It can be argued that these problems should be detected by MOP before it approves the designs, but it is not always possible to fully resolve inconsistencies in information implicit in such execution plans without incurring costs not justified by the benefits derived. To address this problem, the program is based on the award of a single contract for design, execution, and

maintenance for each works project, or group of projects, included in the program.

- 1.12 The proposal is also based on MOP's recent success with awarding contracts for a series of works under a "**comprehensive contract**". Numerous firms have participated in the bidding for such contracts, with no systematic increase in contract prices. This result, moreover, was accomplished at the same time that MOP was increasing the amounts for performance guaranties and penalties.
- 1.13 Recent experience shows that in the context of macroeconomic adjustment, MOP has not had sufficient resources to meet the needs of the highway system. The component most affected has been routine maintenance of the suburban system. Similarly, it has not been possible to maintain a system for financing maintenance in the absence of a comprehensive reform of the mechanisms for defining priorities and formulating the national budget.
- 1.14 As an initial step to solve this problem, MOP has been contracting system maintenance out to the private sector. Under the program proposed here, MOP will commit US\$25 million to five-year contracts for the routine maintenance of roads covered by this operation, and US\$15 million for the World Bank's second road rehabilitation project. Separately, to cover routine highway maintenance needs, MOP will allocate resources sufficient to expand the coverage of routine maintenance from 59.4% (approximately 6,164 km) in 1997 to 75% by completion of this program. This indicator will be taken into account for preparation of future operations in the sector.
- 1.15 Lastly, with regard to MOP's rightsizing, and as part of the efforts to modernize the public sector, consideration must also be given to the objective of developing and maintaining the system and the private sector's capacity to assume some of the functions that MOP has been performing until now. In particular, experience shows that many activities, especially on the smaller roads, are not of interest to the private sector. Accordingly, in designing this program, every effort was made to transfer functions and risks to the private sector, but it is not feasible to propose explicit targets for MOP beyond the staff reductions already made over the past three years.

II. OBJECTIVES AND DESCRIPTION OF THE PROGRAM

A. Objectives of the program

- 2.1 The objectives of the program are to (i) strengthen MOP's capacity to formulate policies, and to plan, administer, and supervise the execution of the works under contract; ii) rehabilitate and improve rural roads, including the replacement and repair of bridges, and improvement of rainwater drainage in several provinces of the country; and (iii) expand the coverage of routine system maintenance.

B. Program components

- 2.2 Subprogram I: Technical assistance will be provided to supplement MOP's the institutional strengthening efforts. This includes activities to: (i) increase capacity to manage and operate the highway sector; (ii) strengthen capacity for establishing priorities and formulating strategies; (iii) strengthen capacity for contract supervision; and (iv) increase the efficiency of resources allocated to maintenance of the system.
- 2.3 Subprogram II: Works will be performed to rehabilitate 1,260 km of secondary and local roads, replace 30 bridges and perform drainage works at seven specific sites. The roads were selected for the program on the basis of broad geographical distribution, the location of agricultural production centers, and communities with market access needs, predominantly composed of persons native to the service areas of these projects.

C. Scale of the program

TOTAL COST AND FINANCING
(equivalent in millions of US\$ dollars)

INVESTMENT CATEGORIES	IDB LOAN	LOCAL COUNTERPART	TOTAL
1.0 Supervision and administration	11.3	4.4	15.7
2.0 Direct costs	140.2	39.0	179.2
3.0 Concurrent costs. Institutional strengthening	3.0	0.0	3.0
4.0 Financial costs	1.5	23.6	25.1
COST OF THE PROGRAM	156.0	67.0	223.0
PERCENTAGE (%)	70.0	30.0	100.0

- 2.4 To determine the scale of the program and establish the cost, consideration was given to the needs for rehabilitation and

maintenance of the system, the availability of financial resources from the government, and the capacity of MOP and the private sector to carry out the rehabilitation, maintenance, and supervision efforts MOP has undertaken with the various external financing institutions.

D. Goals and results of the program

- 2.5 By the end of the year 2000 the road rehabilitation works should be fully completed, with interim goals of 48% by the end of the third quarter 1999 and 76% by the end of the first half of 2000. Replacement of the 30 bridges should be completed towards the end of the second half of 1999, and the drainage works by mid-1999.
- 2.6 In this way, by the time the program is completed, system inaccessibility should have diminished, and the coverage of routine maintenance should have expanded to 75% of the system.

E. Impact on low-income groups

- 2.7 On the basis of available information obtained for the analysis of project benefits, the findings indicate that low-income groups will receive roughly 15% of the economic benefits resulting from road rehabilitation under the Program.

F. The participation of small and medium-sized enterprises

- 2.8 The nature of the program, which includes design, rehabilitation, and maintenance, will provide an opportunity for small and medium-sized enterprises to participate. An estimated 10% to 15% of the total cost of the works could be contracted out to such enterprises, in particular to carry out the surveying, hauling and road maintenance work. During work on the Pan American Highway, surveying was contracted out to small companies, and it is expected that the practice will be even more frequent with the smaller works to be performed under this program. The hauling work has always been performed by small companies operating their own equipment. The activity offering the most long-term opportunities is road maintenance, once the rehabilitation works have been completed. The contractors have clear incentives to subcontract such work out to small companies rather maintaining their own operation for this relatively less profitable activity.

III. EXECUTION AND PROPOSED PLAN

A. Borrower and executing agency

- 3.1 The borrower will be the Republic of Panama. By law, MOP is responsible for the functions of planning, preparation of plans and specifications, construction, and road signs and signals for the highway system.
- 3.2 MOP will be responsible for executing the program through the same executing unit established by that Ministry for execution of the highway rehabilitation and administration program (769/OC-PN). The unit will operate out of the General Secretariat, with the support of MOP's administrative and technical departments. The assignment of functions and resources necessary for execution of this program to the executing unit will be a condition precedent to disbursement of Bank financing.
- 3.3 To ensure program flexibility, execution will be conducted according to annual plans that include in particular the procurements, timetable for activities and investment (for counterpart resources as well as the Bank financing), the environmental audit performed under PO-769/OC-PN, and the environmental management system for this operation.

B. Special contractual arrangements for the Bank loan

- 3.4 Taking into account the goals of Panama's macroeconomic policy, and in particular those related to the country's foreign debt, the contractual arrangements for the financing referred to in this document will consist, at the request of the Government of Panama, of two separate contracts: one contract for up to US\$85 million to be signed this year, and a second contract to be signed in the first quarter of 1999 for up to US\$70 million.
- 3.5 In the process of making this separation, special attention has been given to the integrity of the institutional strengthening component and full completion of the works to be performed under each of the contracts.

C. Status of program preparation

- 3.6 The program has reached an advanced stage of preparation. The following steps have been taken to date: (i) With UNDP support, MOP has begun the bidding process for the program works, and plans to complete the process by the end of the first half of 1999; (ii) MOP has completed the economic evaluation of all road works included in the first group; (iii) the terms of reference for preparation of the environmental impact assessments (EIAs) and the environmental management plans (PAMAs) were prepared with the

support of Bank technical units and an external advisor; (iv) with the support of the Procurement Unit the documents and conditions for the calls for bids on the works have been reviewed and agreed upon; and (v) the general procurement notice was published in *Development Business* on April 16, 1998; and (vi) the ESIR, EIAs, and PAMAs have been made available to the public.

D. Plan components and rationale

1. Contracting for the design, execution of works, and routine maintenance

- 3.7 The program will be executed under the "comprehensive contract" modality. Under this modality, bidding will be conducted for the design, execution, and maintenance (D/E/M) of works or groups of works to be contracted out. Interested firms will compete on the basis of price, and the winning firm will undertake to design, execute, and maintain the works for five years after completion of the program.
- 3.8 The strength of this approach depends on the efficient operation of markets. The proposal seeks to resolve the problems encountered in the past by spreading the risks of executing the program investments more efficiently.
- 3.9 In the recent past, MOP has been using this modality successfully on projects financed with its own resources. The available evidence shows that there is now a sufficient number of construction firms to ensure effective competition in the bidding process for the program works. During the period from January 1995 to March 1998, MOP concluded 176 registered instruments leading to contracts totaling US\$414 million for the execution of road works. One hundred nine companies and consortiums - 23 of them foreign - participated. Over the same period, construction companies have significantly increased their execution capacity with large purchases of construction and roadworking equipment.
- 3.10 A sufficient number of firms have participated in those processes to ensure competitive prices, which in turn has resulted in economically efficient designs, and the nation has reaped the benefits of this process. The proposed approach is also justified by the simplicity of the engineering required to design the rehabilitation works, which would not justify the cost in time and resources that would result from separate contracting of such work.

2. Guarantee bonds and penalties

- 3.11 The modality to be used also entails an increase in the performance bonds required for Bank projects from 30% to 50% of the value of the contract, and in the case of the irrevocable bank guarantees, from 10% to 20%. Panama has been using this higher amount for projects financed with its own resources and by the CAF.

- 3.12 The available evidence shows that these higher penalties and guarantees provide better protection for the country's interests without adversely affecting the firms' interest in participating in the bidding process or the prices agreed upon.

3. Technical inspection of execution of the works

- 3.13 Starting in 1990, the use of private sector contracting for technical inspection of construction works has been increasing. International competitive bidding will be conducted for all inspections of works whose cost exceeds US\$1 million. For works costing less than US\$1 million, MOP will have the option to perform the inspection using its own resources.

4. Maintenance

- 3.14 Under the proposed comprehensive contract modality, the executing firms will undertake to provide maintenance for a period of five years.
- 3.15 An analysis of the current situation is more important in the case of routine maintenance, where 59.4% of the financial needs to maintain the roads at a minimum in average or good condition are covered. The coverage for periodic maintenance and rehabilitation is 89% of system needs.
- 3.16 Starting in 1996, the government has been outsourcing routine road maintenance under contracts with private firms and including maintenance as part of the works contracts. MOP has reduced staff assigned to this type of work by 17%, but continues to maintain portions of the system that are not of interest to the private sector.
- 3.17 Projections for the period 1998-2001 show that periodic maintenance and rehabilitation needs will be covered almost entirely through execution of the IDB, World Bank, and CAF programs. As for routine maintenance, the following steps will be taken to reduce future system investment and rehabilitation needs: (i) based on the 59.4% (approximately 6,164 km) coverage provided in 1997, MOP has undertaken to allocate sufficient resources to increase routine maintenance coverage to at least 75% of system needs. This is one of the indicators that will be used during program monitoring and evaluation and entails an increase of approximately 1,620 km, which is justified as a goal achievable over the medium term with a view to expanding coverage over the long term to the entire paved road system and 80% of the non-paved system; and (ii) the period for the maintenance component included in the private sector contracts was increased from three to five years.
- 3.18 The adoption of a sustainable plan for maintenance financing requires the participation not only of MOP, but also of other government institutions. MOP fully supports the idea of

implementing a scheme of this type, but an effective proposal must be accompanied by comprehensive reform of the mechanisms for national budget formulation. As part of the program proposed here, a proposal to that effect will be prepared for consideration by the Executive Branch.

E. Execution period, investment and disbursement timetable

- 3.19 The period of execution for the program is 36 months, starting from signature of the contract. This time frame is consistent with the progress made in preparing the program and the institutional capacity of the executing agency.

F. Procurement of goods and services and calls for bids

- 3.20 Bank procedures will be applied to the procurement of goods and services, works construction, and consulting services, and, as annexes, will form part of the loan contract.
- 3.21 International competitive bidding will be conducted for procurement of goods valued in excess of US\$350,000, US\$4 million for works, and US\$200,000 for consulting services.
- 3.22 The US\$4 million threshold for international bidding on works was chosen based on past experience with contracts financed with the MOP's own resources, and those for the execution of IDB and World Bank programs during the period 1994-97. Past experience has shown that international companies are generally interested in projects for amounts above US\$6 million, and participate regardless of the means used to issue the calls for bids. According to the procurement plan already prepared, approximately 45% of the works contracts will be awarded through international bidding (Annex III-1). The second World Bank highway rehabilitation program also established the US\$4 million threshold for international bidding on works.
- 3.23 To accelerate the execution of works, the Government has requested the Bank's non-objection to the continuation of administrative support from the United Nations Development Program (UNDP), which has been provided in connection with contracting for the works included in the program's first contract (see paragraphs 3.4 and 3.5). This request is based on the Government's interest in, and need for, accelerating execution of the works, and the fact that, prior to approval of this operation by the Bank, the Government did not have expeditious procedures enabling it to advance the contracting process in a manner consistent with the objectives of the program.
- 3.24 In the case of the second contract (see paragraphs 3.4 and 3.5), when works and activities are for amounts below the US\$4 million indicated above, and in the case of procedural requirements not included in the Bank's rules simplified procedures under Panamanian

legislation, which are entirely compatible with Bank policies and procedures, will be applied. Thus, while the regulations of the Bank and the country are respected, this approach will ensure that the procurement process is conducted properly, allowing, for instance, the officials concerned to participate simultaneously and eliminate reviews and formalities that are unnecessary in terms of the transparency and effectiveness of the process.

- 3.25 It is proposed that the least-cost selection method be used in selecting consulting services. Under this method, a "minimum technically acceptable" level is established for evaluation of the technical proposals. Bids will be submitted in two separate envelopes. The technical bids are opened first and evaluated. Those which fall short of the minimum acceptable level will be rejected and only the remaining bidders' monetary bids will be opened. The firm with the lowest price will be selected. Under this method, the "minimum technically acceptable level" is understood to mean the level above which bids will compete solely on the basis of cost. This minimum level will be explicitly specified in the invitations to tender.

G. Bidding on the works

- 3.26 The bidding process for the road rehabilitation works is organized in four groups, within which packages were established to reduce the probable costs (efficiencies in the use of equipment and minimized transport costs), and to attract greater interest from construction firms (Annex III-1).

H. Monitoring and evaluation

- 3.27 Program monitoring and evaluation based on the annual action plans will be conducted by means of semiannual progress reports and semiannual meetings of designated officials from the Ministry of Public Works and the Bank. The project team will take part in the semiannual meetings as appropriate during program execution.
- 3.28 The purpose of these semiannual meetings, *inter alia*, will be to: (a) evaluate actions taken during the preceding period relative to the respective action plan and based on the logical framework indicators agreed upon with the Bank, progress in the execution of the action plan, including technical assistance, maintenance, environmental considerations, executing unit staffing requirements, and an analysis of the difficulties encountered during execution and how to overcome them; (b) review the MOP's financial projections; and (c) agree on the action plan for the following period, as appropriate.

I. Ex post evaluation

- 3.29 The borrower is not interested in conducting an ex post evaluation of the program. Nonetheless, the findings of the semiannual

monitoring and evaluation exercise will be made available to the country and the Bank for reference should an ex post evaluation of the program be conducted.

J. Audit

- 3.30 The financial statements will be audited by an independent auditing firm acceptable to the Bank. Throughout the period of execution the financial statements will be presented annually within 120 days of the close of the executing agency's financial year, starting with the financial year in which program execution is initiated.

K. Technical assistance

- 3.31 The technical assistance resources will be used to increase MOP's capacity to administer and operate Panama's highway system. The program includes: (i) financing to supplement actions taken by MOP to implement a central system for management and processing of sector activities; (ii) introduction of the management information system and processing of the results of the HDM-EBM, GIS and others, for the short-, medium- and, long-term plans; (iii) strengthening of contract administration with operational systems for the organization of bidding, supervision, and technical/financial monitoring of the design, rehabilitation, and maintenance contracts; (iv) introduction of a cost analysis system and strengthening of quality control techniques; and (v) strengthen environmental management capacity.
- 3.32 The emphasis of the assistance will be placed on equipping and training MOP personnel in the field on matters related to the program objectives. Past experience has shown that in some cases, the preparation of studies and personnel training programs on subjects not directly related to their daily responsibilities are not given priority and lose effectiveness.

L. Environmental and social impact

- 3.33 The provinces of Darién, San Blas, and Bocas del Toro, where the indigenous communities reside and where there are large forest reserves, are not included in the program. The impact on indigenous communities is nil, and the presence of indigenous groups or ethnic communities has not been detected in the project areas. Resettlement will not be necessary.
- 3.34 Under the agreed plan of execution, local independent consultants will prepare the environmental impact assessments (EIAs) and the environmental management plans (PAMAs) for the works based on MOP's preliminary designs and the terms of reference agreed upon with the Bank. The recommendations resulting from the respective EIAs and PAMAs will be included in the bidding documents for the works. The ESIR and the EIAs and PAMAs for the works now in the bidding process have already been made available to the public,

particularly in the communities concerned, for review in the regional offices of INRENARE [National Institute of Renewal Natural Resources]. According to the PAMAs, the potential environmental impacts are not significant and can in general be mitigated. The EIAs for the rest of the roads, bridges, and drainage works will be prepared prior to May 1999.

- 3.35 The MOP Environmental Unit, reporting to the General Secretariat and with responsibility for environmental management within the Ministry, will send the final draft EIAs for the projects to INRENARE for approval, follow-up, and environmental monitoring. It will also include recommendations for action to mitigate the environmental impact in the bidding specifications.
- 3.36 The works are not expected to alter any site that has not already been developed in the past. The regions selected for road rehabilitation are comprised of farmland that in most cases has been served by roads for more than 20 years.
- 3.37 The relatively limited environmental impairment expected during the construction phase is as follows: (i) air quality, dust, and emissions from the burning of fossil fuels. These effects are relatively insignificant in that they are localized and will be produced only during the initial construction stages. Recommendations have been made to control dust during the movement of machinery, especially in areas near communities; (ii) soil erosion in very limited areas. Such erosion is anticipated around the storm drains and outfalls, earth and equipment moving activities, and with ditch, road base, and small backfill operations. Areas with fragile soil subject to erosion have been identified, but are not considered of great significance because the damage can be easily mitigated; (iii) highly localized pollution from asphalt and hydrocarbons (asphalt plants, removal of old asphalt, transportation of asphalt). The road rehabilitation will consist of asphalt paving, whose effects are not expected to be significant because the sections in question concerned are short (6-21 km) and in most cases asphalt plants will not be set up, but rather the asphalt will be brought into the work site; and (iv) flora and fauna. The work sites do not present characteristics that are out of the ordinary or requiring special consideration. There are reports of notable fauna (iguanas and a few mammals) whose natural systems were altered in most cases long ago. Various options are planned to mitigate these effects.
- 3.38 The cost of rehabilitation and improvement takes into account the financing necessary to take environmental mitigation measures according to the estimates of the environmental management plans (PAMAs).
- 3.39 Under subprogram I, technical assistance in support of the institutional strengthening of MOP and training with regard to the environmental variable will focus on the implementation of an

effective environmental policy and includes activities for:
(i) the preparation and review of terms of reference for the EIAs;
(ii) the review of environmental impact documents and studies;
(iii) environmental supervision and inspection; and
(iv) environmental monitoring and control.

IV. FEASIBILITY AND RISKS

A. Economic feasibility

- 4.1 MOP has estimated the net present value of the benefits and the economic internal rate of return (EIRR) for each road section separately. A total of 50 road sections represent 80% of the total number of kilometers and 50% of the total cost of the rehabilitation component of the program. The economic evaluation of the 19 road sections included in the initial call for bids in 1998, with a total length of 240.5 km, traffic volumes fluctuating between 120 and 1,400 vehicles daily, and an estimated cost of US\$28 million (including the cost of the designs), indicates an average EIRR of 33.5%. The analysis shows that the results are not sensitive to errors in the estimate of costs or benefits. A cost increase of 20% would reduce the average EIRR to 29.1%, and a decline of 20% in benefits would reduce the average EIRR to 28%. The EIRRs are high primarily owing to reductions in the costs of vehicle operation. The sections to be rehabilitated are in poor condition because of the scarce resources allocated to their maintenance in the past.
- 4.2 Several technical alternatives were considered, in most cases relating to double surface treatment, an asphalt layer of 50 mm or 75 mm, and an asphalt layer of 75 mm with routine maintenance. In most cases, the 50 mm asphalt layer alternative yielded a higher EIRR.
- 4.3 Four of the 30 bridges, representing a cost of US\$1.9 million, were evaluated and yielded an average EIRR of 49%, but highly sensitive to benefit estimates, which consist mostly of large savings generated by reducing the operating cost of the vehicles because of the shorter distance they would have to travel if the bridges were rehabilitated.

B. Technical feasibility

- 4.4 MOP, through the Dirección de Programación y Desarrollo Institucional [Department of Institutional Programming and Development] (DIPRODI), selected the works by using the results of Highway Design Model III (HDM-III) simulations and the economic evaluation of each road section. Priority was established according to the following parameters: (i) the condition of each of the highway and rural road sections; (ii) surface washboarding; (iii) traffic count; (iv) geographic location; and (v) socioeconomic status of the beneficiary population.

C. Financial feasibility

- 4.5 The financial feasibility of this operation has been established on the basis of an analysis of: (i) MOP's capacity to execute its budget in the 1994-97 period; (ii) the national financing allocated to MOP's construction, improvement, rehabilitation, and maintenance program; and (iii) the use of external resources from multilateral institutions (IDB, World Bank and CAF), bilateral sources (United Kingdom and Taiwan) and national sources (Banco Nacional de Fomento [National Development Bank]).
- 4.6 A summary of the financial projections is provided below. MOP's current expenditures, which include administrative expenses and all expenses for maintenance performed directly by MOP, are financed exclusively with resources from the budget allocated annually for these purposes. Because the MOP's 1999-2000 strategy includes increased contracting for periodic maintenance work, financial projections include only a modest increase in current spending.

FINANCING OF THE MOP BUDGET
(millions of US\$ dollars)

	Annual average 1994-97	Budget 1998	Annual average 1999-2002
1. CURRENT EXPENDITURES	25.0	25.3	28.5
Government of Panama	25.0	25.3	28.5
2. CAPITAL EXPENDITURES	77.8	228.8	143.6
Government of Panama	23.5	63.9	87.8
IDB	35.0	33.2	30.0
World Bank	9.3	22.3	17.0
CAF	0.0	21.6	8.9
Bilateral	7.8	57.8	0.0
National Bank of Panama	2.3	30.0	0.0
TOTAL	102.8	254.1	172.1

- 4.7 The capital expenditures, which include all construction, rehabilitation, and periodic and routine maintenance performed by private contractors, were financed during the 1994-97 period with resources from the MOP budget accounting for approximately 30%. The rest was financed by multilateral loans, bilateral grants, and a loan from the National Bank. The projections for financing the capital expenditures for the period 1999-2002 do not include new bilateral assistance or domestic loans, or new operations with the IDB, the World Bank, or the CAF.

- 4.8 Projections for the period 1999-2002 include the resources needed to raise the portion going to raise the proportion of the system receiving a high level of maintenance services to 75%. To reach this target and execute the program agreed upon with the Bank and other MOP programs on a timely basis, the government must provide roughly US\$116 million, i.e. US\$27 million per year more than allocated to MOP in 1998. From the standpoint of periodical and routine maintenance needs, the above figures represent an average annual increase of approximately 15% over the annual average for the past four years.

D. Institutional feasibility

- 4.9 The additional financial effort the government must undertake in the years ahead is considered feasible in terms of its financial capacity. The prospects for increases in fiscal revenue are considered very favorable based on continued economic growth of approximately 4.5%, a continued low rate of inflation, and sustained investment by the private sector. In the recent past significant amounts of budget resources have been allocated to construction and rehabilitation programs, but allocations for maintenance expenses have been insufficient. The allocation strategy will be adjusted starting in 1999 in such a way that normal execution of the operation will not pose special risks from the financial point of view.

E. Risks

- 4.10 The program does not pose significant risks. In its design, with respect to the investments as well as the technical assistance, the lessons learned from previous programs have been applied (paragraph 3.29).
- 4.11 From the standpoint of the program's short-term output, the main risk relates to competing claims on the sector's resources from other sectors, particularly the social sectors. This could in particular affect the routine maintenance component. To mitigate this risk, the government has allocated resources from the Development Trust Fund to finance the highway sector. The program also includes specific actions to increase the efficiency of resources allocated to routine maintenance.

LOGICAL FRAMEWORK

PANAMA: STRENGTHENING OF HIGHWAY ADMINISTRATION AND LOCAL ROAD REHABILITATION (PN-0117)

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Objective			
my and population with the national economy. asic services for the rural Reliable and competitive oduct and input markets for	Social indicators from the national population and household census, December 1991.	National Census for the year 2000.	
Objectives			
the cost of transport. ne volume of traffic.	Transport cost reduced by 5 to 10%. The number of days/year that problem roads are inaccessible reduced from 7 to 0. Economic benefits resulting from the rehabilitation of roads and the replacement of bridges enjoyed by low- income groups is 15% and 6% respectively.	Updated economic studies. Census report performed for each of the road sections in the sample by DIPRODI, DINAMAN, and DINATRATE.	Macro- and microeconomic policy consistent with the objectives for diversification of gross domestic p and economic activity.
tructure accessible ne year. act on low-income groups.	The coverage of routine maintenance expanded from 63% to 75%. Time required to prepare and conduct bidding for works reduced by six months. Amount of works managed by local SMEs is approximately 15% of the project.	MOP budget. MOP annual reports. Reports of the semiannual monitoring meetings. Inspection reports.	The basic service infrastructure for rural population is developed.
coverage increased. ct completion. s for the participation of protected and enhanced.	Environmental audit of PO-769/OC-PN placed under contract by the fourth quarter of 1998. Environmental audit of PO-769/OC-PN completed by the second quarter of 1999. Environmental management program 60% completed by the second half of 2000; 100% completed by the second quarter of 2001.		

OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS																						
Program I. Institutional Strengthening. Sustainable financing of maintenance prepared and approved by Executive Branch. Operational capacity of Highway Department. Management capacity	<p>Sustainable plan proposal submitted to the Executive Branch for consideration by the third quarter of 2000.</p> <p>Executive unit for maintenance by contract in DINAMAN created by the fourth quarter of 1998. Coordinating consultant for the management and operations consulting activities placed under six-month contract in November 1998. Management information system operating by the first quarter of 1999. Pavement auscultation, traffic monitoring, and works control equipment in use by the second quarter of 1999. HDM-IV operating by the third quarter of 1999. MOP staff trained, with special emphasis during the first one and-a-half years.</p> <p>Environmental management system adopted and progress made with institutional strengthening program.</p>	<p>Copy of the proposal with certification of receipt.</p> <p>Report of the semiannual monitoring missions. Inspection reports. MOP annual reports.</p>	<p>The government will have political support to agree to and approve proposal for sustainable financing maintenance. Trained personnel remain with MOP.</p>																						
Program II. Rehabilitation of Infrastructure Roads rehabilitated; Bridges replaced; Drainage problems resolved.	<table><tr><td>1,260 km of rehabilitated roads</td><td></td></tr><tr><td>Percentage</td><td>Time</td></tr><tr><td>48%</td><td>Quarter III of 1999</td></tr><tr><td>76%</td><td>Quarter II of 2000</td></tr><tr><td>100%</td><td>Quarter IV of 2000</td></tr><tr><td>30 bridges replaced</td><td></td></tr><tr><td>27%</td><td>Quarter II of 1999</td></tr><tr><td>63%</td><td>Quarter III of 1999</td></tr><tr><td>100%</td><td>Quarter IV of 2000</td></tr><tr><td>Drainage works in seven critical sites</td><td></td></tr><tr><td>100%</td><td>Quarter II of 1999</td></tr></table>	1,260 km of rehabilitated roads		Percentage	Time	48%	Quarter III of 1999	76%	Quarter II of 2000	100%	Quarter IV of 2000	30 bridges replaced		27%	Quarter II of 1999	63%	Quarter III of 1999	100%	Quarter IV of 2000	Drainage works in seven critical sites		100%	Quarter II of 1999	<p>Report by the semiannual monitoring missions. Inspection reports. MOP annual reports.</p>	<p>The macroeconomic and business environment are compatible with the objectives of the program. Other complementary infrastructure works are executed. 1,260 km of roads will remain permanent to traffic. 800 km of roads in poor condition will be rehabilitated.</p>
1,260 km of rehabilitated roads																									
Percentage	Time																								
48%	Quarter III of 1999																								
76%	Quarter II of 2000																								
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100%	Quarter II of 1999																								
Investment financing and strengthening.	<p>Budget executed.</p>		<p>Private sector firms have the capacity to absorb the work. MOP has the capacity to prepare and supervise the program. Executing firms are prepared to assume the risks implicit in the proposed program. Counterpart funds are available. Works are executed in accordance with the specifications.</p>																						

PROCUREMENT PLAN

No.	Main procurements under the program	Total amount (US\$000)	Financing (%)		Method	Prequalification (yes/no)	Estimated date of GPN publication
			IDB	LOCAL			Quarter/year
A.	CIVIL WORKS						
1.	Design/rehabilitation/maintenance of highways and roads. First group: 19 roads (240 km)	30,059	100	0	LCB	YES	II/98
2.	Design/rehabilitation/maintenance of highways and roads. Second group: 7 international roads (164 km)	31,835	100	0	ICB	YES	III/98
3.	Design/rehabilitation/maintenance of highways and roads. Second group: 20 national roads (194 km)	23,082	45	55	LCB	YES	III/98
4.	Design/rehabilitation/maintenance of highways and roads. Third group: 11 international roads (243 km)	32,143	100	0	ICB	YES	IV/98
5.	Design/rehabilitation/maintenance of highways and roads. Third group: 9 national roads (114 km)	16,288	45	55	LCB	YES	IV/98
6.	Design/rehabilitation/maintenance of highways and roads. Fourth group: 5 international roads (123 km)	13,908	100	0	ICB	YES	II/99
7.	Design/rehabilitation/maintenance of highways and roads. Fourth group: 16 national roads (180 km)	20,412	45	55	LCB	YES	II/99
8.	Bridge replacement. First group: 8 bridges (317 lin m)	3,222	100	0	LCB	YES	III/98
9.	Bridge replacement. Second group: 11 bridges (379 lin m)	3,827	100	0	LCB	YES	III/98
10.	Bridge replacement. Third group: 11 bridges (298 lin m)	2,995	100	0	LCB	YES	I/99
11.	Drainage solution, 10 sites	2,000	100	0	LCB	YES	IV/98
B.	EQUIPMENT						
1.	Computer equipment	210	100	0	LCB	YES	I/99
2.	Pavement evaluation equipment, 2 lots	300	100	0	ICB	YES	I/99
3.	Traffic counting equipment	220	100	0	LCB	YES	I/99

4.	Inspection laboratory equipment	460	100	0	ICB	YES	I/99
C.	CONSULTANCIES						
1.	Design/rehabilitation supervisory firm. First group: 2 international roads	417	100	0	ICB	YES	II/98
2.	Design/rehabilitation supervisory firm. First group: 17 national roads	1,604	100	0	LCB	YES	II/98
3.	Design/rehabilitation supervisory firm. Second group: 9 international roads	2,364	100	0	ICB	YES	III/98
4.	Design/rehabilitation supervisory firm. Second group: 18 national roads	1,456	100	0	LCB	YES	III/98
5.	Design/rehabilitation supervisory firm. Third group: 11 international roads	2,181	100	0	ICB	YES	III/98
6.	Design/rehabilitation supervisory firm. Third group: 9 national roads	1,120	100	0	LCB	YES	IV/98
7.	Design/rehabilitation supervisory firm. Fourth group: 6 international roads	688	100	0	ICB	YES	I/99
8.	Design/rehabilitation supervisory firm. Fourth group: 15 national roads	1,512	100	0	LCB	YES	I/99
9.	Bridge construction supervisory firm: 4 bridges	187	0	100	LCB	YES	IV/98

LCB = Local competitive bidding.

ICB = International competitive bidding.

Original signed
RGII-PN131P
PN-0117
Original: Spanish

PROPOSED RESOLUTION

PANAMA. LOAN ___/OC-PN TO THE REPUBLICA DE PANAMA
Program to Strengthen Highway Administration and Local Road Rehabilitation

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, to enter into such contract or contracts as may be necessary with the República de Panamá, as Borrower, for the purpose of granting it a financing to cooperate in the execution of a Program to Strengthen Highway Administration and Local Road Rehabilitation. Such financing will be for the amount of up to US\$156,000,000, from the resources of the Single Currency Facility of the Bank's Ordinary Capital, and will be subject to the "Terms and Financial Conditions" and to the "Special Contractual Conditions" of the Executive Summary of the Loan Proposal.