

NATIONAL HIGHWAY PROGRAM

(TT-0043)

EXECUTIVE SUMMARY

BORROWER: Republic of Trinidad and Tobago

EXECUTING AGENCY: Ministry of Works and Transport (MOWT)

AMOUNT AND SOURCE:

IDB:	US\$120 (OC) million
Parallel Financing:	US\$ 37 million
Local counterpart funding:	US\$143.4 million
Total:	US\$300.4 million

TERMS AND FINANCIAL CONDITIONS:

Amortization period:	20 years
Disbursement period:	7 years
Period for initiating works:	6 years
Interest rate:	variable
Inspection and supervision:	1%
Credit fee:	0.75%

OBJECTIVES: The main objective of the Program is to improve the road services provided by the national main roads network which is administered by the Highways Division of the Ministry of Works and Transport in Trinidad and by the Works Division of the Tobago House of Assembly in Tobago. Such improvement is expected to reduce overall transportation costs through effective planning and maintenance management thereby contributing to a more competitive and diverse economic base.

DESCRIPTION: To provide the better road services, the proposed Program is structured as a six-year "time-slice" of investment and routine maintenance expenditures supported by institutional changes needed to ensure their effective utilization. The main components are therefore: (i) rehabilitation of 630 km and 65 bridges; (ii) trunk road expansion works for 50 km; (iii) routine maintenance of the entire 2700 km national network including 1000 bridges to be fully contracted out by the end of the Program incurring savings of about 50% of current costs; and (iv) institutional strengthening of the above mentioned divisions, including organizational changes to focus on planning, contracting and supervising investment and routine maintenance activities increasingly executed by the private sector.

ENVIRONMENTAL CLASSIFICATION: The Environmental Management Committee, at its meeting of June 7, 1994, classified this as a Category III operation. This committee discussed the Program's Environmental Report during its meeting of August 29, 1995.

BENEFITS: The direct benefits in terms of reduced vehicle operating costs will accrue to road users, include safer driving conditions and reduced travel time. Given that commercial transportation of goods relies almost exclusively upon the highway network, these cost savings should improve the competitiveness of firms and, in the medium and long term, support economic expansion and diversification, particularly in areas developing tourism and export agriculture, which are being supported in other operations.

POVERTY TARGETED INVESTMENT: Geographically targeted: No
Beneficiary targeted: No

RISKS: There are two significant risks associated with the Program. The first relates to the challenges associated with the institutional shift from the execution of civil works through force account to a system of contracting. The second is related to the ability of the Executing Agency to mobilize the human resources necessary to manage and implement the Program. Regarding the first, Government is sensitive to the possible short term negative impacts and by way of mitigation measures will provide opportunities for training, counselling, and employment in the new contracting out arrangements.

The second risk related to staffing has been minimized with the establishment of the project implementation unit in MOWT to lead and monitor the progress of the Program and its organizational changes.

EXCEPTIONS TO BANK POLICY: None

THE BANK'S COUNTRY AND SECTOR STRATEGY: Trinidad and Tobago has as a major objective the expansion and diversification of its economy, away from dependence on petroleum and towards a more ample industrial, agricultural and commercial base. In accordance with this objective, which is supported by the Bank's strategy, the proposed Program seeks to improve the quality and condition of the national highway system, so that it can provide a level of service sufficient to encourage and support the diverse economic activities which will comprise the country's future economic base.

**SPECIAL
CONTRACTUAL
CONDITIONS:**

To assure an appropriate institutional framework for the Program, the following conditions are proposed:

a. Prior to the first disbursement:

- (i) Government has approved a plan of action agreed with the Bank for the institutional changes in the highway administration units in MOWT (paragraph 2.16);
- (ii) Project implementation unit in MOWT has been staffed and equipped (paragraph 3.2);
- (iii) The Head of the Environmental Unit in MOWT has been appointed and has been designated Environmental Officer by the Environmental Management Authority (paragraph 3.7); and
- (iv) The environmental evaluation procedures agreed with the Bank have been formally adopted (paragraph 3.8).

b. Prior to the first disbursement of resources for Tobago components:

- (i) Memorandum of understanding has been signed between MOWT and THA to define their responsibilities in the execution of the Program in Tobago (paragraph 3.1).
- (ii) Government has approved a plan of action agreed with the Bank for the institutional changes in the highway administration units in THA (paragraph 2.16);
- (iii) Project implementation unit in MOWT has been staffed and equipped (paragraph 3.2);
- (iv) The Head of the Environmental Unit in THA has been appointed and has been designated Environmental Officer by the Environmental Management Authority (paragraph 3.7); and
- (v) The environmental evaluation procedures agreed with the Bank have been formally adopted (paragraph 3.8).

c. During execution:

- (i) The Executing Agency, and the Bank will meet twice yearly to review the progress and reach agreement on yearly targets for each component. The Bank may suspend further commitments upon the failure to achieve such agreement or substantial deviation from agreed targets signalling a reversal of agreed Program objectives, policy or principles (paragraph 3.24).

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.

● Standard
procedure

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

I. FRAME OF REFERENCE

A. Macroeconomic Context

- 1.1 After the collapse of oil prices in 1982, real GDP fell by around one-third between 1982 and 1993. Adjustment measures were adopted slowly at first but with increasing urgency and conviction after 1987. Fiscal and balance of payments deficits were eliminated through fiscal discipline and tight monetary policies. In addition, the government implemented structural reforms through trade and exchange regime liberalization, divestment of state-owned enterprises and improvements in the legal and regulatory framework.
- 1.2 These policies controlled inflation, reduced external debt, and improved the incentive framework. In 1994, the economy rebounded with GDP growth of 4.6 percent. Economic recovery was further consolidated in 1995 with real growth of 3.5%. The recovery was led by a boom in petrochemical exports and by increased investment in the hydrocarbon sector--which remains the mainstay of the economy. Much of the increased investment came from abroad and foreign direct investment amounted to one-tenth of GDP. Economic growth led to a moderate decline in unemployment, although at 17.3 percent it still remains a major economic and social problem.
- 1.3 In part because of recent structural reforms, economic prospects are clearly more favorable now than they have been for many years. The macroeconomic situation remains stable, with a strong balance of payments position and a roughly balanced government budget. The economy is likely to continue growing, albeit more slowly. The major economic challenges remain the diversification of the economy, increasing international competitiveness, and making a sustainable reduction in unemployment.

B. Transport Sector Context

- 1.4 Intra-island passenger and freight transport in this two-island nation is exclusively based on the road network; coastal traffic is minimal and the railway consists of remnants of sugar cane tracks. Other elements of the transport system include two international airports, three public ports and wharf facilities, as well as 14 private ports and dockyards. The configuration of the road network follows island physical and economic geography. In Trinidad there is one main north-south highway along the western coast intersected by three main east-west corridors: the first running through Port-of-Spain to Chaguaramas in the west and Valencia in the east; the second originating in petro-chemical center of San Fernando and running east to Mayaro; and the third from San Fernando to the western most tip of the island. A second north-south road on the east coast connects with the east-west branches and provides access to the eastern most corner.

- 1.5 The total length of the highway system including national, municipal, and rural roads is approximately 10,000 km. Principal and secondary highways of national importance account for 2700 km (including 1000 bridges) 650 km of which are located on the island of Tobago. The road network is relatively well developed and widely distributed. The main issues relate to: (i) the heavy road traffic on the main arteries which serve as both long distance and urban roads reflecting the country's high rate of motorization; and (ii) the maintenance backlog equivalent to almost one-half of the length of the national highway (arterial and secondary) network which requires at least some rehabilitation. Although some network expansion related to industrial development in the south of Trinidad is contemplated and will be the subject of a prefeasibility study, sector investment is targeted more in rehabilitation than in new construction.
- 1.6 The Ministry of Works and Transport (MOWT) oversees transport sector administration and policy through its Maritime Services, Civil Aviation, Traffic Management, Transport, and Highways Divisions. MOWT oversight extends to two statutory authorities -- the Airports Authority of Trinidad and Tobago (AATT) which owns and operates the two airports and the Port Authority of Trinidad and Tobago (PATT) which owns and operates the two public ports, including that of Port of Spain which is the main cargo port.
- 1.7 Other agencies with responsibilities within the sector include: (i) the Ministry of Public Utilities which directs the Public Transport Service Corporation providing public bus services; (ii) the Ministry of National Security which directs the Police Service enforcing traffic laws; (iii) the local councils and regional corporations which maintain local roads under their jurisdiction; (iv) the Ministry of Agriculture which has responsibility for administration of agricultural feeder roads; and of importance to the proposed Program, (v) the Tobago House of Assembly which administers all roads in Tobago.

C. Bank and Other Donor Experience

- 1.8 The Bank is currently financing improvements to selected rural portions of the road infrastructure, through the Access Roads and Bridges Program (700/OC-TT; US\$31.5 million). The purpose of this program is to improve accessibility to agricultural areas and thus reduce overall production costs. Since construction started in October 1993, rehabilitations works have been completed for 19 km of agricultural access roads and 10 bridges. To date 30% of Bank financing has been disbursed. A second phase of works to begin in the third quarter of 1995 involved approximately 70 km of access roads and reconstruction of 11 bridges. Supporting institutional strengthening efforts are ongoing in: (i) the design of rural roads maintenance management system (implementation estimated for early in 1996), and (ii) training of staff from MOWT and the Ministry of Agriculture Lands and Marine Resources in environmental management and monitoring.

- 1.9 The European Union (EU) and the Caribbean Development Bank (CDB) are also supporting Government's six-year highway investment program (1996-2001). The former will finance via grant and loan funds totalling Ecu15 million the reconstruction of about 31 km of the Solomon Hochoy Highway. The CDB is also supporting reconstruction of trunk roads in this area with a loan of US\$17.5 million for a total project cost of US\$28.4 million involving about 10 km. Both EU and CDB projects are scheduled for execution in 1996 and 1997.

D. Program Linkages with Bank Strategy

- 1.10 In support of Government's priorities towards achieving a more diversified market oriented economy, Bank strategy focuses on supporting activities which will contribute to: (i) private sector growth and employment generation, and (ii) more effective public sector administration and more efficient resource allocation. The proposed Program seeks to improve the quality and condition of the national highway system, so that it can provide a level of service sufficient to encourage and support the diverse economic activities which will comprise the country's future economic base. Beyond the civil works, the Program supports Government's objective to focus public sector highway administration on policy, planning and regulation and leave execution to the private sector. Specifically, this means contracting out routine maintenance activities thereby providing improved incentives for greater productivity and improved road services. This scheme will provide opportunities for current employees to join contracting companies or organize microenterprises. It will be implemented gradually and *pari passu* with the general construction industry activity to minimize labor displacement.

E. Rationale for Bank Financing

- 1.11 In addition to financing investment of long life expectancy which is currently not possible via commercial domestic or international borrowing, the Program supports a key component of Government's overall public sector reform agenda which includes other utilities as well as other transport subsectors, particularly ports and public transportation. The rationalization of highway administration will prepare the groundwork that may in the future, given traffic and economic growth, allow for more active participation by the private sector.

II. THE PROGRAM

A. Objectives

- 2.1 Consistent with Government's Medium Term Policy Framework and Bank strategy, the overall goal of the proposed Program is to help support a diversified economy and export base in Trinidad and Tobago. A serviceable highway network is a critical element of the physical infrastructure requirements of most economic activity as transportation costs impact on profitability and competitiveness. Accordingly, as shown in the logframe summary below, the proposed Program seeks to provide users a higher level of road service at lower cost than is presently the case.
- 2.2 These productivity improvements in road service delivery require physical investments and institutional changes. In recent years, the highway network has not received adequate maintenance and restoration due to a combination of fiscal austerity and internal inefficiencies in the road administration. As a result about 45% of the 2700 km national network is in need of at least periodic maintenance. Further postponement of needed rehabilitation risks widespread serious deterioration and the prospect of even more expensive future investments. The proposed Program will target priority segments encompassing about 630 km, or slightly over one-half of the identified investment needs. Such priority investments will reduce vehicle operating costs and travel times as well as improve safety.
- 2.3 In terms of institutional arrangements, Government policy has defined clearly the focus of public sector actions towards planning, policy formulation and regulation. Although most execution of civil works is now contracted to the private sector, routine maintenance is done by force account. This involves over 90% of the 4500 employees in the MOWT's Highways Division and about half of the 3000 employees in the THA's Works Division. Consistent with the realignment of public sector road administration functions, the proposed Program supports Government's decision to phase-in *pari passu* with the investment program and increasing activity in the construction industry, the contracting out of routine maintenance.
- 2.4 This new institutional framework will require enhanced management tools along with further training in the Highway Design and Maintenance (HDM) model for road network planning. These tools include the maintenance management systems for pavement, bridges, roads, and equipment which the Bank has been supporting through a technical assistance operation in preparation of the proposed Program (550/OC-TT and 764-OC-TT).

NATIONAL HIGHWAY PROGRAM (TT-0043) - LOGFRAME SUMMARY

	OBJECTIVES	INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
Goal	Support diversified economy and export base through lower transportation costs	Reduction in vehicle operating costs	Ex-post confirmation of savings achieved utilizing EDM model	Macroeconomic policies structural reforms continue focus on private sector as engine of growth and favor export promotion
Purpose	Provide higher levels of road service at lower cost	1) surface conditions on treated roads improve from poor to good 2) routine maintenance unit costs decrease by about 50%	1) Annual statistical reports of road inventory and surface conditions 2) MOWT & TBA accounts and routine maintenance management system (RTMS) reports	1) Traffic projections achieved, including assumptions regarding growth of time-sensitive perishable exports 2) MOWT & TBA establish appropriate incentive structure contracting out routine maintenance
Outputs	1) Priority segments of national network improved 2) Routine maintenance is assuring serviceable useful life of rehabilitation investments 3) Rationalized institutional framework in place 4) Institutional strengthening implemented 5) Routine maintenance is contracted out	1) Civil works executed by end 2000: - periodic maintenance or rehabilitation of 630 km and 65 bridges; - trunk road expansion of 50 km 2) routine maintenance of 2700 km by contracting out; 3) Organizational changes completed by end 1999 including labor services unit and microenterprise support in place by mid 1997 4) Technical Assistance completed by end 1998: - pavement & routine maintenance management systems completed/in use - training program imparted & evaluated - environmental staff trained - proposals for policy & procedures regarding weight control, transport toxic materials and local government coordination	1) Reports by construction supervision consultant on civil works 2) Reports by routine maintenance inspectors 3) MOWT & TBA monitoring reports on organizational changes 4) MOWT & TBA proposals for implementation based on consultant reports	1) MOWT & TBA follow agreed project selection criteria, and quality control & assurance procedures 2) Labor assistance proceeds on a timely basis 3) Government policy regarding scope of public sector activities is maintained 4) Procurement procedures streamlined and interagency coordination achieves consensus course of policy and actions 5) Efforts to streamline debureaucratize the public sector provide increased opportunities for hiring and maintaining skilled staff
Activities	1) Execute, contract out and supervise routine maintenance 2) Contract and supervise civil works projects ranging from periodic maintenance to trunk road expansion 3) Contract and supervise Technical Assistance areas: - supply and install weighing stations; - institutional strengthening and related studies	1) US\$105.9 million 2) US\$149.9 million 3) US\$3 million	1) Semi-annual summary report of targets achieved in last semester and updated targets for following semester, including disbursement records & estimates 2) Same as above 3) Same as above	1) Adequate sector financing made available over and above fuel levy 2) Local inflation does not exceed 6% and erode Project financing 3) MOWT and TBA bring to bear qualified professional staff for Project execution 4) Land acquisition takes no more than 10 months

B. Program Description

1. Scope

- 2.5 The National Highway Program is structured as a six-year time-slice operation supporting priority investments and maintenance of the national network as well as the institutional strengthening measures required for execution. Total Program costs are estimated at US\$300.4 million over the 1996-2001 period. The design of Program components seeks to: (i) optimize the maintenance system for the national network through the use of state-of-the-art but practical systems and technologies; (ii) achieve an adequate level of road maintenance through a balanced allocation of funds in annual spending programs between investment and maintenance, in line with government policies and priorities; (iii) give higher priority in annual spending programs to maintaining the existing road network over expansion and new construction by monitoring the programming of new investments based on project eligibility criteria agreed upon with the Bank (see paragraph 3.4); and (iv) strengthen the technical and managerial capacity to meet the challenge of increased participation of private sector in highway administration.

2. Investment and maintenance components

a. Routine maintenance

- 2.6 This component covers yearly routine maintenance for the 2700 km of roads and 1000 bridges forming part of the national network, with the exception of those segments undergoing periodic maintenance and rehabilitation which, as these civil works are completed, will be subject to routine maintenance. These activities focus on arresting road deterioration and minimizing high-severity surface distress through cleaning and pavement repair, such as patching, painting, manual clearing of vegetation and filling cracks.
- 2.7 Routine maintenance is a critical activity and it is driving the institutional changes. Although these changes are described in para. 2.13, it is important to explain the change of incentives which should lead to a higher level of road services at lower costs from contracting out. The activities to be performed are generally labor intensive. However, estimates indicate that too much labor has been employed (on average 3.5 times more) and provided with too little equipment and materials (on average 4 times less). In the current situation a large number, about 5600 in total, of daily-paid mostly semi-skilled and unskilled workers execute routine maintenance activities.
- 2.8 After analyzing the options, Government has decided on a contracting out scheme involving district contractors for more equipment intensive tasks and microenterprises and roadmen (in

sparsely populated areas) for more labor intensive ones. Options are being analyzed to provide incentives for the participation of existing employees in the three contract modalities while assuring that contracting rules (bidding procedures, award criteria, contract duration, work specifications, basis of payment) provide incentives for improved productivity.

b. Periodic maintenance and rehabilitation

- 2.9 This component covers road and bridge investment projects with life expectancies from 3 to 7 years for periodic maintenance up to 10 to 15 years for complex rehabilitation or reconstruction. The scope of work for these projects includes the repair of surface distress, pavement strengthening and reduction of roughness, reconstruction of inadequate drainage facilities, retaining walls and slopes as well as improvement of geometrical and structural characteristics to meet minimum standards for periodic maintenance and rehabilitation works, or renovate the road to its original standards for reconstruction activities.
- 2.10 The identification and prioritization of projects began with a survey and assessment of the physical condition combined with traffic projections along the 2700 km of the national highway network including associated bridges. From this data 1200 km and 160 bridges representing poor road conditions and high traffic segments were identified. These investment needs were evaluated using the HDM model to simulate pavement performance, and determine the associated costs and benefits of alternative parameters. This economic, financial and technical evaluation led to the selection of 340 km which were then the subject of environmental analysis and final design work. Given the Program's financial parameters can accommodate approximately 630 km and 65 bridges over 1996-2001, half of the preparatory technical work is completed for this component.

c. Trunk road expansion

- 2.11 This investment activity refers to significant upgrading of existing highways or expansion (mainly lane expansions) and new construction of trunk roads, where feasible according to the project eligibility criteria covering technical, economic, financial and environmental aspects. The Program anticipates the improvement or construction of 50 km of trunk roads, estimated at US\$ 47.2 million over the course of the program execution period between 1996 and 2001. Already 40 km are represented by the projects in southern Trinidad financed by the EU and CDB and slated for execution during 1996 and 1997. The balance is a conservative estimate of possible projects involving: (i) capacity expansions of the Churchill Roosevelt Highway (the main east-west corridor connecting with Port of Spain) for which feasibility and preliminary designs were contracted in the first quarter of this year with financing from the Japan Special Fund; and (ii) extension southward of the main north-south corridor (Solomon Hochoy Highway

to Point Fortin) for which prefeasibility will be contracted before end of year with financing from loan 764/OC-TT.

d. Summary of physical targets and costs

- 2.12 The first-year physical targets and associated costs as well as those for the entire Program are summarized below:

National Highway Program (1996-2001) Summary of Physical Targets and Costs				
Activity	Years 1 to 6 Total		Year 1	
	Km target	US\$ millions	Km target	US\$ millions
Routine Maintenance:	Per Year			
Highways	2500	105	2500	22.9
Bridges (number)	1000		990	
Periodic Maintenance & Rehabilitation:				
Highways	630	89.1	78	10.8
Bridges (number)	65	13.6	8	1.7
Trunk Roads:				
Highways	50	47.2	21	16.8

3. Institutional strengthening component

a. Rationalizing the institutional framework

- 2.13 As noted above the single most important element of the institutional changes is the contracting out of routine maintenance. This will reorient the public sector road administration agencies away from execution of civil works activities and towards sector policy, network planning including project programming, and contract management and supervision. Without the routine maintenance execution function, the road administration agencies will become technical and administrative bodies with a streamlined internal organization vested with supportive management tools and systems.
- 2.14 Organizational change will proceed in stages to accommodate the phasing-in of contracting out. This staged implementation approach has a number of advantages. Perhaps the single most important is minimizing worker dislocation and consequent social impacts. Contracting out will proceed in parallel with the investment program and the general upswing in construction activity; as fewer workers are required in routine maintenance activities, opportunities are provided in the execution of road and other construction projects. The review of experience in countries which have implemented contracting-out of routine maintenance demonstrated the need to avoid the social costs of a one-time dislocation of large numbers of workers. Apart from the opportunities for absorption in the contracting out arrangements, the phasing-in process also facilitates the delivery of outplacement, counselling and other labor services for affected workers as well as the gradual buildup in the capacity of the road

administration agencies to manage contracts and of future contractors to gear up to satisfy them.

- 2.15 These organizational changes are tailored to the specific situations of the Highways Division of MOWT and the Works Division of THA; the main thrust of these changes is described in Chapter IV. They begin with the establishment of project implementation units and further changes proceed as needed throughout Program execution. In the case of the MOWT, more significant internal reorganization is required while in THA more limited adjustments to the current structure are envisioned, in part reflecting the Works Division's wider responsibility over other types of infrastructure.
- 2.16 Given Government's decision to fully implement contracting out within the Program period such changes are geared to assuring the managerial and administrative capacity is in place to execute this ambitious investment and institutional strengthening program. A plan of action for institutional rationalization of road administration is currently being finalized at the technical level. It is proposed as a condition prior to the first disbursement, that the plan of action agreed with the Bank and indicating key milestones to facilitate monitoring will have been approved by Government.

b. Technical assistance

- 2.17 The objective of this technical cooperation component is to support the implementation of the National Highway Program. Therefore, technical support is programmed to supplement staff capabilities within an evolving institutional framework during Program execution. Implementation support is targeted for three general areas:
- a. The preparatory work for contracting out of routine maintenance including: (i) implementation support in testing contract packages, procedures and systems; (ii) enhancement of and training in Routine Maintenance Management System and complementary Pavement Management System; (iii) establishment of labor services units in THA and MOWT; (iv) coordination of microenterprise support; and (v) development of management information system for Program monitoring.
 - b. Training for other core functions of road administration focussing on network planning, environmental evaluation, and management training; and
 - c. Technical studies in: (i) coordination with local government on routine maintenance activities, and (ii) development of a hazardous materials transport policy.
- 2.18 This support is estimated at about 145 expert-months, with 30% of these requiring international consultancies. In addition, the Project Team recommends the financing of approximately US\$1 million in weighing equipment for axle-load control activities.

C. Program Cost and Financing

1. Total Cost

- 2.19 The MOWT has identified investment and maintenance needs for the national road network estimated at a total cost of US\$300.4 million over 1996-2000. The Bank will finance US\$120 million of this total cost, the government local counterpart US\$143.4 million, and US\$37 million from EU and CDB. Bank financing was dimensioned based on sector investment needs, other available sources particularly those locally generated, and a preliminary review of the implications for external debt and local counterpart requirements of the Bank's lending program.
- 2.20 The proposed distribution of Bank and other financing is presented in the following table:

National Highway Program (1996-2001) Total Cost and Sources of Financing (in millions of US\$)				
COST ITEMS	BANK	LOCAL & OTHER	TOTAL	% OF TOTAL
1. Engineering & Supervision	6.0	12.5	18.5	6.2
2. Direct Costs - civil works	92.2	163.6	255.8	85.2
2.1 Routine Maintenance - annual activities on entire network		105.9	105.9	35.3
2.2 Periodic Maintenance and Rehabilitation	70.0	19.1	89.1	29.7
2.3 Bridges - repair and replacement	5.0	8.6	13.6	4.5
2.4 Trunk roads expansion	17.2	30.0	47.2	15.7
3. Technical Assistance	2.6	0.4	3.0	1.0
3.1 Weighing Stations - 2 mobile and 2 permanent weighing posts	0.9	0.1	1.0	0.3
3.2 Institutional Strengthening	1.7	0.3	2.0	0.7
4. Finance Charges	19.2	3.9	23.1	7.7
4.1 Interest	18.0	2.0	20.0	6.7
4.2 Credit Fee		1.9	1.9	0.6
4.3 Inspection/Supervision	1.2		1.2	0.4
Total	120.0	180.4	300.4	100.0

- 2.21 These costs reflect current market conditions confirmed by the ongoing procurement of the Rural Access Road Project. They provide for cost escalation of 6% based on current inflation. In the case of routine maintenance, costs were determined on the basis of actual expenditures for 1995 with subsequent years' projections taking account of contracting out this activity. Such projection was based on field evaluation of representative road sections, standards validated by the maintenance programming system in terms of productivity, unit costs, input mix of labor, materials,

equipment and spare parts. As noted earlier, it is expected that contracting out of routine maintenance will reduce overall annual expenditures by about 50% by the end of the Program. All engineering, supervision and other studies (under the technical assistance component) will be carried by consultants under contract according to the agreed terms of reference (TOR).

- 2.22 The above indicative distribution seeks a balance in financing different components such that the Bank will: (i) participate in all eligible activities thereby reducing the risk that a component may not be executed in its entirety due to local financing constraints; and (ii) focus its financing in accordance with the relative priority of components and subcomponents. As shown, Bank financing represents about 40% of total Program costs and is targeted to priority items such as institutional strengthening technical assistance, periodic maintenance and rehabilitation, and engineering and supervision.

2. Parallel Financing

- 2.23 Agreements have been finalized amounting to a Ecu15 million grant and US\$17.5 million loan, respectively from the EU and CDB, providing a total of approximately US\$37 million for trunk road expansion and reconstruction.

III. PROGRAM EXECUTION

A. Execution Mechanism

- 3.1 MOWT is the Executing Agency for the Program, and specifically the Highways Division which is in charge of road administration in Trinidad. To take account of the THA's jurisdiction over Tobago's 650 km, the MOWT and THA will formalize a memorandum of understanding to make explicit the responsibilities of each in the implementation of the Program and establish the coordination mechanisms between the two project implementation units. This memorandum establishes that compliance with the proposed conditions of the Program and subsequent disbursement will be the responsibility of each road administration agency in its respective jurisdiction. The signing of this memorandum is proposed as a condition prior to first disbursement.
- 3.2 The project implementation unit (PIU) for MOWT in Trinidad has been established with the appointment of 8 core engineering, accounting and systems staff reporting to the Permanent Secretary of Works. The Trinidad PIU within the MOWT will be in charge of monitoring and leading the execution of the Program. The Tobago PIU within the Works Division of the THA and reporting to the Technical Officer will monitor Tobago Program activities and liaise with the Trinidad unit which will provide a comprehensive view of Program targets and progress. The staffing and equipping of these two PIUs is proposed as a condition prior to first disbursement. The final section in this chapter summarizes the proposed conditions for Program execution.

B. Status of Program Preparation

- 3.3 All requisite engineering and design studies for projects to be financed by the Bank during the first year have been carried out satisfactorily according to the technical and quality standards agreed in model terms of reference to be used throughout the Program. Annex III-1 presents a listing of these road and bridge projects and Chapter II's description of the Program components summarizes the methodology for project selection (see paragraphs 2.5 and 2.10). Given the target starting date for construction of February 1996, contracting procedures aim to assure that the supervisory consultants will be in place about two months prior to that date to verify that documentation is updated and complete.
- 3.4 The design documents for activities to be financed by the Bank during the first year of the Program include information on: (i) the work needed to rehabilitate or upgrade the conditions of the highways and bridges including specification of environmental mitigation measures; (ii) the location, characteristics and installation procedures of safety elements; (iii) the dimension and location of pavement and drainage facilities; (iv) the procedures

of site preparation and protection and, where needed, the special specifications of various works appropriate to local conditions (emphasis is given to reduce the risk of bridge flooding from tropical storms by means of adequate hydrology, hydraulic and geotechnical investigation); and (v) detailed unit cost analyses. All the engineering drawings and principal documents are detailed to allow bidding.

C. Eligibility Criteria, Environmental Management and Other Requirements

1. Project eligibility criteria

3.5 National Highway Program projects must:

- a. be part of the national main roads system comprising the 2700 km of trunk and secondary roads;
- b. comply with the agreed priority for expenditures -- in descending order -- routine maintenance, periodic maintenance, and rehabilitation of existing, with new highway construction to be included only to the extent permitted by available funding;
- c. in the area of routine maintenance, allocation of funds should reflect an assessment of road serviceability and traffic volume using comprehensive Road and Bridge Maintenance Management System methodologies to derive the best technical and economic alternative;
- d. in the area of periodic maintenance, rehabilitation or reconstruction allocation of funds should reflect an assessment of road serviceability and traffic volume projections using the HDM or equivalent program to derive the best technical and economic alternative;
- e. have a budgetary allocation provided for the corresponding year;
- f. have a minimum economic internal rate of return of 12%;
- g. be environmentally feasible thereby:
 - (i) comply with the country's environmental legislation and natural conservation regulations;
 - (ii) comply with the agreed environmental quality control procedures;
 - (iii) have final designs prepared according to agreed terms of reference and have incorporated mitigation measures to prevent, correct or compensate direct environmental impacts;
 - (iv) have general and particular environmental specifications included as part of the contract documents;
- h. have complete final engineering studies, corresponding general and specific provisions to be included in bidding documents to assure technical quality; and
- i. be free of legal problems or conflict involving third-party rights in respect to the site in cases of land acquisition, as well as outstanding contracts or claims.

2. Environmental management

- 3.6 Given that the Program supports Government's six-year transport sector public investment program, the institutional framework for executing the Program must be able to manage a range of road investment projects. This is especially true of environmental management and therefore the Program's proposed strategy focuses on three components ^{1/}: (i) building institutional capacity by creating environmental units in THA and MOWT; (ii) establishing an environmental evaluation procedure to incorporate environmental review throughout the project cycle (as comply with the environmental eligibility criteria as in g. above); and (iii) implementing an environmental monitoring system.
- 3.7 Institutional capacity building will extend the initial training and experience gained from the Rural Access Roads Program. The conformation of the units will focus scarce specialized environmental expertise so that they can begin to disseminate the techniques of environmental analysis and introduce environmental management considerations throughout the road/bridge investment project cycle. The technical assistance component supports the establishment of these units. In light of their importance, the naming of the Heads of these units and their designation as Environmental Officers by the Environmental Management Agency (EMA) is proposed as a condition prior to first disbursement.
- 3.8 The procedures for environmental review accommodate the variety of projects beginning with environmental screening which ranks proposed projects based on their level of potential environmental effects. For most projects without significant impacts, the next stage is one of monitoring mitigation measures identified during the initial analysis. For projects with significant impacts where an Environmental Impact Assessment (EIA) is required, the stages follow the preparation of TOR, the supervision of the EIA and the review of its final report to ensure the overall quality of the EIA and provide opportunity for interested parties to comment. The final stages involve monitoring mitigation measures to assure that projects are executed with minimum environmental harm and review by participating agencies, including required actions by the institutions directly involved in the procedure, in accordance with the country's environmental legislation and the Bank's policy. The formal adoption of these procedures is proposed as a condition prior to first disbursement.
- 3.9 The environmental monitoring plan is based on existing practices which give oversight responsibilities in technical as well as environmental quality control to the supervisory consultant. This

^{1/} This strategy is detailed in the corresponding Environmental Summary for the proposed operation which includes the terms of reference for the environmental units, description of the environmental evaluation procedure, guidelines for environmental analysis of road projects, environmental eligibility criteria, and general environmental specifications for tender documents.

consultant is the first line of oversight over contractor activities assuring that the specifications both general and environmental are satisfied during the execution of the civil works. The environmental unit provides a second level of oversight reviewing the supervisory consultant's reports and taking occasional site visits, depending upon the complexity of the works, to confirm compliance with the mitigation plan. If the mitigation plan is not executed, this unit will advise the EMA who will then take appropriate action.

- 3.10 In accordance with Bank policy, the environmental analyses of the first-year projects have been completed and made accessible to the public. This procedure will be repeated in successive years and in the case of projects with more significant impacts, an EIA may be required in accordance with current provisions for EIAs.

3. Other requirements

a. Construction supervision and quality control

- 3.11 The PIUs will be responsible for coordinating the technical and environmental supervision and quality control of works performed under the program, using outside consultants with terms of reference agreed with the Bank. Government's procurement timetable has provided for the contracting and commencement of supervision services at least two months prior to start of the construction contractor to ensure adequate project supervision.
- 3.12 As included in the agreed terms of reference, project supervision consultants will be required to familiarize themselves with designs, make minor adjustments where applicable, and establish appropriate inspection and quality control and quality assurance procedures for implementation. They will also review technical documentation upon commencing their activities and at regular intervals throughout the contract performance period to ensure, among other things, the adequacy of the programming and sequence of project work such as the geotechnical and subsurface investigations, drainage, environmental specifications and mitigation measures, and worker safety recommendations, and confirm that contractor qualifications and equipment capacity satisfy design requirements. They will also prepare final detailed drawings (as built) for all work performed upon completion of each given project.

b. Rights of way

- 3.13 For the first-year projects to be financed by the Bank, all rehabilitation and maintenance projects will be performed on existing rights of way. Therefore, no additional rights of way are required for the execution of these civil works.
- 3.14 Trinidad and Tobago law contains express provisions for immediate occupancy of the land required for a public work with prompt

payment of compensation to owners. Before issuing the call to public bidding, the MOWT will submit evidence to the Bank that it has legal possession, easements, and other rights to the land where the works will be executed.

- 3.15 Specific projects in trunk road expansion, especially in urban areas must be duly authorized under appropriate national, or local regulations, with proof of their authorization to be assembled as an integral part of their respective final engineering studies and presented prior to issuing the respective calls for bids.

c. Coordination with utilities

- 3.16 Lack of coordination in investment plans as well as procedures for dealing with pavements during emergency utility repair has adversely affected road conditions. In the case of the first-year projects all were coordinated with the various utilities (namely those in charge of water, electricity and telecommunications). The design documents include locations of the relevant utility features, but contractors will be required to confirm these locations in order to avoid any accidental interference for which they would be liable. In order to streamline this process, the road administration agencies will assist and coordinate these efforts with the utilities; this is proposed as a condition for execution.

d. Natural disaster management

- 3.17 Because of its geographical location there is a risk of flood damage from tropical storms and depressions which may result in damage to embankments and bridges and the closing down of sections of highway and feeder roads. In the event of a declared disaster, the Bank may authorize the use of Bank loan proceeds under conditions established under its natural disaster policy. In addition, the specific operating procedures of a multiyear program facilitate a flexible, rapid response in the event of a natural disaster.

D. Procurement of Goods and Services

- 3.18 The contracting of civil works or other goods and services will follow the procedures stipulated in Annex B of the loan contract. International competitive bidding will be required in each case where the value of such services and civil works contracts exceeds US\$250,000 and US\$2.5 million, respectively. Experience in the ongoing roads project (700/OC-TT) confirmed that civil works projects below the suggested limit are not of interest to foreign companies given the equipment investment required for asphalt. Furthermore, bridge projects which consisted mainly of small bridges (average span of 7 to 20 m) and culverts widely dispersed throughout the country did not attract foreign bidders. The procurement plan is presented as Annex III-2.

- 3.19 In cases where the amounts are below these thresholds, national legislation will apply. Government has recently taken steps to simplify procurement procedures by delegating greater autonomy to the individual line ministries. The limits for Permanent Secretary and the Ministerial Committee to award contracts for goods and services has been increased to TT\$100,000 and TT\$500,000, respectively. These limits apply also to the Clerk of the Tobago House of Assembly and the Assembly Finance Committee. Above these limits the procurement of goods and services must be processed through the Central Tenders Board legislation. Selective tendering and sole selective tendering procedures are followed where considered necessary. Sole selective tendering is seldom applied, i.e., when there is only one source. Selective tendering involves acquiring price quotations from at least three bidders.
- 3.20 To streamline procurement, the project team recommends that MOWT prequalify prospective contractors for Bank-financed projects with separate bidding procedures for each project or groups of projects, according to the size, location and estimated project cost, with the method to be applied in each case agreed upon between the Bank and MOWT. Furthermore, standard bidding documents supplemented by appropriate conditions of particular application for each specific case or type of work will help to limit revisions by oversight agencies (in this case, the Central Tenders Board and the State Solicitor) to the particular application.
- 3.21 Where possible, the Project Team recommends that civil engineering services be combined in bid packages comprising several projects in search of lower offers as a result of ensuing economies of scale, in which case interested bidders may bid on an entire package, on any individual project or any combination of packages within the package according to the results of the prequalification process. Likewise, in the procurement of goods, similar goods and equipment will be assembled into bid packages to allow for and facilitate the participation of specialized suppliers.

E. Schedule for Program Execution

a. Investment and disbursement

- 3.22 Annual investments were programmed taking into account current estimates of both institutional and financial capability. A lag in disbursements was programmed due to the time required for execution of the civil works. The results of this indicative programming exercise is presented in the table below:

National Highway Program (1996-2001) Schedule of Annual Investments and Disbursements (in millions of US\$ unless otherwise specified)						
YEAR	Investment and Maintenance Components				Disbursements	
	BANK	LOCAL & OTHERS	TOTAL	% SHARE TOTAL	BANK	% SHARE TOTAL
1996	11.3	49.3	60.6	20	6	5
1997	14.0	47.8	61.8	21	11	9
1998	24.5	23.6	48.1	16	23	19
1999	23.0	21.2	44.2	15	23	19
2000	23.9	21.4	45.3	15	23	19
2001	23.3	17.1	40.4	13	20	17
2002			0.0	0	14	12
TOTAL	120.0	180.4	300.4	100	120	100

b. Program components

- 3.23 Most program components will run on an annual cycle requiring a procurement process involving prequalification and selection, then bidding and contracting, before the start of each activity. In the current year, the engineering studies for next year's works, as well as the contracting of supervision consultants and civil works contractors will run parallel with the current year's investment and routine maintenance activities. On the other hand, the institutional changes and the technical assistance component will be executed at discrete periods throughout the six-year commitment period.

F. Monitoring and Supervision

- 3.24 Throughout the program execution period, the MOWT will meet with the Bank during March and September of each year, beginning in 1996, to evaluate Program progress and reach agreements on required adjustments to correct problems in both investment and institutional rationalization components which are driven by the shift to contracting out of routine maintenance. The Bank may suspend further commitments upon the failure to achieve such agreement or substantial deviation from agreed targets signalling a reversal of agreed Program objectives, policy or principles. The MOWT will submit reports to the Bank at least two weeks prior to the scheduled date of each of these meetings with all necessary data and supporting evidence; an initial outline of the contents of this report is presented in Annex III-3 and will be subject to elaboration under the proposed technical assistance. The purpose of such assistance is to minimize additional reporting requirements and begin to establish a management information system for monitoring the sector investment and institutional rationalization program.

- 3.25 The bi-annual meetings will review the results of the preparation and execution of each Program component during the course of the previous year, including evaluations of: (i) investment and maintenance activities focusing on physical targets achieved against original ones and fulfillment of agreed project selection criteria; (ii) institutional rationalization, including the implementation of contracting out of routine maintenance; (iii) the flow of budget funds, pace of disbursement with actual spending, and financial projections; (iv) procurement and contracting procedures; and (v) the progress and recommendations emerging from the technical assistance program and timetables for implementation. The bi-annual meetings will be performed jointly by the Country Office and the Project Team.
- 3.26 The final element of Program monitoring requires the presentation of audited financial statements of Program components (investment projects and routine maintenance) during the period of Program execution.

G. Ex-post Evaluation

- 3.27 The impact of the Program and the degree of fulfillment of its physical (civil works) and institutional targets will be evaluated on a regular basis through the monitoring reports referred above. These reports will provide comprehensive information on all major elements, permitting an evaluation at the end of each year on its accomplishments over the course of the preceding year. These reports and corresponding data will serve as the data base for purposes of the evaluation of each component to be addressed in the project completion report. Moreover, they will provide a structure and inputs for the ex-post evaluation which Government intends to carry out 3 years after Program completion with own financing.

H. Advance of funds

- 3.28 The nature of the program and the anticipated pace of work point to the expediency of an advance of funds equal to 10% of the loan to cover average estimated outlays for a 120-day period, which would speed up payments of Bank-financed components.

I. Summary of Recommended Conditions

- 3.29 To assure an appropriate institutional framework for the Program, the following conditions are proposed:
- a. Prior to the first disbursement:
- (i) Project implementation unit in MOWT has been staffed and equipped (paragraph 3.2);
 - (ii) Government has approved a plan of action agreed with the Bank for the institutional changes in the highway administration units in MOWT (paragraph 2.16);

- (iii) The Head of the Environmental Unit in MOWT has been appointed and has been designated Environmental Officer by the Environmental Management Authority (paragraph 3.7); and
- (iv) The environmental evaluation procedures agreed with the Bank have been formally adopted (paragraph 3.8).

b. Prior to the first disbursement of resources for Tobago components:

- (i) Memorandum of understanding has been signed between MOWT and THA to define their responsibilities in the execution of the Program in Tobago (paragraph 3.1).
- (ii) Project implementation unit in the THA has been staffed and equipped (paragraph 3.2);
- (iii) Government has approved a plan of action agreed with the Bank for the institutional changes in the highway administration units in THA (paragraph 2.16);
- (iv) The Head of the Environmental Unit in THA has been appointed and has been designated Environmental Officer by the Environmental Management Authority (paragraph 3.7); and
- (v) The environmental evaluation procedures agreed with the Bank have been formally adopted (paragraph 3.8).

c. During execution:

- (i) The Executing Agency and the Bank will meet twice yearly to review the progress and reach agreement on yearly targets for each component. The Bank may suspend further commitments upon the failure to achieve such agreement or substantial deviation from agreed targets signalling a reversal of agreed Program objectives, policy or principles (paragraph 3.24);
- (ii) All components included within the Program must meet the agreed selection criteria (paragraph 3.5);
- (iii) The Executing Agency will take actions to facilitate the coordination of civil works activities with the Utility authorities (paragraph 3.16);
- (iv) All financial statements of the Program will be presented to the Bank after being audited by a firm of independent public accountants acceptable to the Bank or by the Auditor General during the period of execution of the Program (paragraph 3.26).

IV. BORROWER AND EXECUTING AGENCIES

A. Entities Involved

- 4.1 The borrower is the Government of the Republic of Trinidad and Tobago. The executing agency is the Ministry of Works and Transport.

B. Sectoral Institutional Framework

1. Legal mandate

- 4.2 Under provision of the Highways Act, the MOWT is responsible for all main and secondary roads covering all aspects of highway use, management, control and construction. Through this Act, the Minister holds extensive powers to reclassify roads, delegate or transfer a highway to any highway authority and authorize the construction of new highways. The Motor Vehicles and Road Traffic Act deals with the multiplicity of issues relating to the user of vehicles and control of traffic on the highway and for this purpose establishes the Trinidad Transport Board which includes among others the Commissioner of Police for the purpose of enforcement.

2. Internal organization

- 4.3 In the implementation of the Program, the MOWT will be responsible for components in Trinidad and the THA, in accordance with a memorandum of understanding, will be responsible for Program components in Tobago.
- 4.4 The MOWT is large organization comprised of over 10,000 employees, some of whom (as noted earlier in the case of daily paid workers) flow in and out of the Ministry as work program needs dictate. Four main branches are easily distinguishable: (i) the Works Secretariat which includes seven divisions including Highways, Mechanical Services, Drainage, Construction and Maintenance (buildings), Infrastructure Development and Unemployment Relief Program; (ii) four divisions providing support services for the Ministry under Works; (iii) the Transport Secretariat with eight divisions including those for Traffic Management, Civil Aviation, and Maritime Services; and (iv) the statutory bodies including the airport and ports authorities and two state enterprises, the Maintenance Training and Security Company and the Shipping Corporation.
- 4.5 Since December 1994, the MOWT has engaged consultants to conduct a management audit to recommend an organizational structure to increase accountability and effectiveness including development of complementary systems for personnel records and performance management. The diagnostic review of the existing structure is nearing completion but decision making on organizational changes is

still some months away. The focus of the Ministry is currently on the Highways Division and effective delivery of road services. The main issues regarding this division are outlined in the next section.

- 4.6 The THA, established as a body corporate by a 1980 Act of Parliament, is comprised of nine secretariats reporting to the Chairman including those for Health and Social Services, Education, Tourism, Agriculture, Forestry and Environment, and Works Infrastructure. Recently, the THA has undergone some organizational adjustments to increase its commercial orientation including in the case of the Works Division the sale of repair services and aggregates, and equipment rentals. These adjustments take account of the relative small size of Tobago as it relates to economies of scale and the need to integrate specialized needs into single individuals and/or functional units.

3. Main issues

a. Highways Division of MOWT

- 4.7 Analysis of the Highways Division points to five main issues in its internal organization:
- (1) Planning and programming are not integrated;
 - (2) Traffic planning and management report to different permanent secretaries;
 - (3) Environmental management as a function is project specific;
 - (4) Project implementation units are not coordinated to meet the demands for the larger programs supported by financing agencies; and
 - (5) Senior level coordination of the various initiatives and donor programs is weak.
- 4.8 This suggests the need to regroup road administration functions in accordance with the requirements for effective management throughout the life cycle of road assets. This cycle begins with planning (including budgeting and programming), moves on to implementation (including funding authorization and final project design and construction), and finally to operations and maintenance. Moreover, with the implementation of contracting out of routine maintenance, the decentralized district organization (8 in Trinidad) will also require adjustment or consolidation as the focus shifts from managing the execution of these activities to overseeing their contracting.

b. Works Division of THA

- 4.9 In addition to road administration, the Works Division also has responsibility for public buildings and facilities and drainage works. The monthly paid staff (which do not rotate like the daily rated) are involved in all functions and activities not just roads. Because the THA administers all classes of roads in Tobago, the contracting out of routine maintenance will apply to the entire

Tobago road network. Consequently, organizational changes are recommended almost entirely at the district level to accommodate contracting out. It is envisaged that six (6) subdistricts will be needed given routine maintenance will be contracted out on all roads. At the divisional level, there is a need to strengthen project management and environmental management capabilities.

C. Sectoral Financial Base

1. Sector investment and the PSIP

- 4.10 As shown in the table below, the six-year sector investment program represents on average about 10% of the annual Public Sector Investment Program (PSIP) taking into account Government's targets to incrementally increase the PSIP as a share of GDP subject to revenue performance. Particularly in the first-year of the Program, 1996, there is a peak in terms of the sector's share of development or capital expenditures where this share rises to almost 20%. These capital expenditures are financed primarily by the foreign donor community, with the Bank providing the largest single contribution or about 30%. The Government's share declines slightly after meeting the counterpart requirements for the EU and CDB projects in 1996 and 1997, leaving for the most part MOWT's 50% contribution from the Road Improvement Fund (RIF). This fund created in 1994 channels the equivalent of a 5% fuel tax to the MOWT; the latter distributes the other half to other roads not included in the main roads system. 2/

2/ The RIF tax is 10 cents per litre for unleaded premium gasoline; 8 cents for regular leaded gas, and 5 cents for diesel fuel.

NATIONAL HIGHWAY PROGRAM (1996-2001) SELECTED SOURCES AND USES OF FUNDS (in millions of US\$ unless percentage (%) noted)						
ITEM	1993-94 AVERAGE	1995 ACTUAL	1996 ESTIMATE	1997 PROJECTED	1998-2001 AVG PROJ.	1996-2001 TOTAL PROJ.
USES OF FUNDS						
Routine Maintenance (RM)	25.0	23.8	22.9	22.0	15.3	105.9
Rehabilitation	0.0	0.0	12.5	11.1	19.8	102.7
Trunk Roads	0.0	0.0	16.8	19.6	2.7	47.2
Subtotal Capital Projects*	3.0	6.5	38.1	39.9	29.3	185.2
TOTAL (Capital+Recurrent)	28.0	30.3	61.0	61.9	44.6	300.4
SECTOR SHARES						Average % shares
RM % Share of Sector Recurrent Budget	92.1	89.7	81.4	78.2	72.1	74.7
Sector % Share of Total Recurrent Budget	2.4	2.3	2.3	2.3	2.3	2.3
Sector % Share of Total Capital Budget**	1.8	3.0	18.9	11.5	5.7	9.0
SOURCES OF FUNDS						
GOTT RM Budget	25.0	23.8	22.9	22.0	15.3	105.9
GOTT Capital Contribution	2.8	1.0	9.6	5.6	5.6	37.5
EU & CDB Capital Contribution	0.2	4.7	16.8	20.2	0.0	37.0
IDB NHP Capital Contribution	0.0	0.0	11.3	14.0	23.6	120.0

* This subtotal includes other charges beyond the direct civil works construction costs detailed in the two preceding items of the table; these charges include studies, supervision and finance charges at about 30% of those costs.

** Projections for the PSIP are based on RE3/OD6 GDP projections and Government targets regarding the share of GDP (between 0.6% and 0.9%) to be devoted to the PSIP during the period. These figures on capital expenditures also exclude the ongoing Rural Access Roads Program (700/OC-TT) which when included more than double the sector's share of the total capital budget prior to 1996; for 1996 and 1997, these shares would increase to about 21% and 17%, respectively.

2. Consolidated fund allocations

4.11 In terms of recurrent expenditures, road administration which represents routine maintenance costs for the most part, is financed from budgetary allocations from the consolidated fund. The MOWT and THA receive separate allocations. Nonetheless, in terms of road administration on both islands, recurrent expenditures are projected to remain just below 2.5% of total government recurrent expenditures.

- 4.12 Although the capital expenditures for 1993 to 1995 represent an underfunding in terms of the backlog of maintenance and rehabilitation activities, analysis of routine maintenance costs per km suggest that this activity was not affected by underfunding. It demonstrates that routine maintenance expenditures are very high compared to other countries; per km costs range from US\$7,300 in Trinidad to nearly US\$14,000 in Tobago. As noted earlier, it is the allocation of these resources that leads to low productivity. Unlike the situation in many other countries, fiscal austerity has not reduced significantly the funding for routine maintenance which appears to have enjoyed dependable and fairly high levels of financing.

3. Cost recovery

- 4.13 Analysis of the revenues generated by the variety of road user taxes indicates that with the implementation of the Program the sector contribution to revenues will about balance the costs. Three sources of revenues associated with the operation of different motor vehicle types were included: 3/
- (a) Motor vehicle fuels accounting for 72% of road user charges includes the excise, VAT and RIF duties applied on three types of gasoline (unleaded, premium and regular) and diesel which is taxed at about one-third of gasoline;
 - (b) Vehicle license and fees including license to operate along the 25 km priority bus route and the vehicle purchase tax yield about 20%; and
 - (c) Customs duties on vehicles, spare parts and tires contributed the balance.
- 4.14 In apportioning sector costs (routine and periodic maintenance and rehabilitation) and revenues by vehicle type, passenger cars and light pickups contribute significantly more than their share. The contribution from public transportation vehicles (maxi-taxi's) indicates a progressive policy favoring these vehicles.

4. Main issues

- 4.15 Comparing the recent expenditure levels with the estimated needs (or costs) for road administration during the next six years, indicates a gap of about US\$26 million per year on average which would be filled by Bank, EU and CDB financing. If, however, costs were to increase and Government were unable to make a larger

3/ The analysis is based on the premise that inputs used in the road transport industry are taxed like all other factors of production as a means of raising general revenues. By examining the tax and duty rates on similar classes of industrial commodities as those in the road sector, it is possible to estimate a basic level of taxation that is the sector's share to general government revenue. For these different fees and taxes, the percentage of total revenues assumed attributable to road user charges is: (i) between 60% and 70% for gasoline and 9% for diesel; (ii) 100% for license and related fees, the vehicle purchase tax, and the priority bus route given their specific application; and (iii) between 30% for customs duties on spare parts and 60% for those on vehicles. Any additional revenue above this basic level is considered a notional estimate of the sector's own user charges or revenues.

allocation out of general revenues, more revenues could be raised from road users. The primary source would be diesel fuel taxes given that trucks are not contributing sufficient revenue to compensate for the costs they incur to the road network; user charges for trucks cover only about 20% of their proportionate costs. ^{4/} This alternative has been discarded in the past considering the likely inflationary impact of increasing transportation costs as well as the regressive effect on public transportation users.

- 4.16 A secondary source would be increasing annual license fees for vehicles by revising the fees on trucks according to maximum gross weight. This together with weight control enforcement (supported by the technical cooperation component) which would reduce maintenance costs are Government's preferred alternatives in the event of cost escalations.
- 4.17 Dedicated road taxes or RIF will cover only a small portion of national network financing needs. MOWT has committed to allocating 50% of RIF revenues towards the Program providing about US\$24 million of the total US\$37.5 million capital (development budget) contribution. Government has committed to an additional US\$105.9 million under the recurrent budget over the six-year period of Program execution. In light of past trends, these commitments signal a reliable source of financing for the Program. Therefore, there is little support for a call to earmark or dedicate additional tax revenues to the road sector for the purpose of Program execution, particularly given the loss of budgetary flexibility that such earmarking would entail.

D. A New Institutional Framework

- 4.18 The conclusions of the organization review, summarized in section B.3 above lead to a program of institutional change paralleling the civil works activities and enabling their more effective management. This program takes account of the different circumstances and scope of responsibilities of the road administration agencies, the MOWT and THA.
- 4.19 In the former, the organizational changes will begin with the establishment of a new special projects implementation unit within the Highways Division of MOWT to focus on Program management and execution. The second stage will focus on adjusting other units within this division to accomplish the tasks of planning, operations and maintenance. As noted, this will involve a reorganization along functional lines to respond to the life cycle management tasks of each core function in road administration. As proposed, a subunit of the PIU would specialize in routine maintenance contracts while the operations and maintenance unit in

^{4/} The ratio of road user charges to road costs is lowest for heavy trucks at 0.1% and highest for light trucks at 0.3%.

charge of maintenance, working through a streamlined district structure (reduced from the present 10 to 4), would supervise the technical aspects of routine maintenance.

- 4.20 A third and final phase may involve transferring the Highways Division to a new Highway Authority and establishing a Roads and Bridges planning and policy formulation unit to assist the Minister in the oversight of the Authority. Since the latter requires legislative action, this phase would proceed only after evaluation of the achievements of the Program. At this time, the financial base of the Authority, specifically the need for additional dedicated funds, would also be reviewed.
- 4.21 In the case of the Works Division in Tobago, given their responsibility for all public works activities on the island and ongoing institutional modernization, some minor modifications to the existing management structure of this division are anticipated to accommodate a small PIU to coordinate with the MOWT the execution of the Program within the jurisdiction of the THA. The changes at the district level parallel those in Trinidad, except that within the two Tobago districts the four existing subdistricts will have to be further subdivided to six to reduce the span of control given the inclusion of local roads.

V. VIABILITY AND RISKS

A. Feasibility Summary

1. Technical feasibility

- 5.1 The technical feasibility of the proposed program has been established partially on the basis of the Project Team's review of the studies, basic designs and specifications to verify that they were prepared in accordance with generally accepted engineering standards and principles. Considerations related to proper environmental management, natural disaster management were incorporated into the construction specifications.
- 5.2 Taking into account the scarcity of local expertise in road maintenance and construction management projects and their quality assurance/quality control procedures, the Project Team has made provision for hiring of internationally reputable consulting firms to guarantee the technical capacity and experience necessary to support Program execution, both in terms of investment projects and the new scheme for contracting out routine maintenance.
- 5.3 The borrower's contractual obligation to make the necessary funds available, should ensure that the completed facilities do not lack for adequate maintenance. Lastly, the execution schedule takes into account the characteristics of the works and the amount of time needed to carry out the bidding process. Based on past experience, it is considered to be a realistic schedule.

2. Environmental feasibility

- 5.4 Environmental analyses of the first-year projects confirm that the Program's investment component is likely to have some localized negative short-term impacts during construction, mainly in terms of noise, dust pollution, storm run-off from construction activity, as well as disruption of traffic and accessibility. However, as mentioned previously, these impacts are controllable, appropriate mitigation measures have been incorporated into the project specifications, and monitoring of these actions will be carried out in the first instance by the supervisory consultants. Moreover, the Program also provides for the strengthening of MOWT and THA's environmental management capacity. In short, the proposed Program is environmentally feasible, considering its built-in technical and institutional measures to mitigate adverse environmental effects. Indeed, the rehabilitation works will address a variety of problems with pavement and drainage to improve traffic safety and environmental conditions.

3. Economic feasibility

- 5.5 The appraisal methodology used for first-year projects of the proposed Program is based on the quantification of savings for road users. Project benefits will take the form of savings in vehicle operating costs, mainly reductions in annual maintenance costs. The economic appraisal is based primarily on the results of the HDM model, which focuses on optimizing road maintenance strategies and preparing systemwide road maintenance programs. The HDM model predicts damage to road surfaces and evaluates different design alternatives and maintenance policies over time to select the alternative with the highest economic return for each section of the road system, as a function of traffic density, physical highway conditions, economic routine and periodic maintenance costs and, if necessary, budgetary constraints. Project and subprogram net present value is maximized by combining the effect of savings in the operating costs of vehicles using the highways and routine maintenance costs with the costs of different periodic maintenance options. The HDM analysis led to the establishment of the best maintenance alternative for each project based on economic criteria.
- 5.6 The economic internal rates of return (EIRR) for first-year projects ranged from 24% to 140%, with the exception of one rehabilitation project having EIRR of 15%. A sensitivity analysis of first-year projects shows a low risk of inadequate economic returns. The first-year bridge component includes the replacement or reconstruction of 8 bridges that had completed their life expectancy, and can no longer provide adequate and safe service.

4. Institutional and financial feasibility

- 5.7 As detailed in Chapter IV, the organizational changes supported by the Program are geared to strengthen the managerial and technical capability of the road administration agencies. These changes seek to ensure an appropriate institutional framework for the timely implementation of the Program and achievement of its targets.
- 5.8 Government and, in particular, the Ministry of Finance have reviewed the projected local contribution under the financing plan presented in Chapter II (and analysed further in Chapter IV) and have agreed to it as financially feasible. This plan will be reviewed and updated at each twice-yearly monitoring meeting to confirm its continued financial feasibility.

5. Socioeconomic Impact

- 5.9 The maintenance and investment projects will benefit all road users. The contracting out of routine maintenance will impact upon the large number of daily paid workers whose numbers at any one moment fluctuate depending upon work program needs i.e., from 2900 at end of June 1995 to about 3700 in August 1995 in the Highways Division of the MOWT who are entitled to severance payments. As

contracting out is phased-in, these workers would be offered the first opportunity to participate in the new scheme either as roadmen or through microenterprises which they would form with fellow workers. District contractors would also be offered incentives to take on these workers. Estimates suggest that about half of the current work force could be absorbed by the new contracting out scheme. About 10% to 15% are near retirement. Government is sensitive to the possible short term negative impacts and by way of mitigation measures will provide opportunities for training, counselling, and employment in the new contracting out arrangements.

5.10 Preliminary estimates suggest that the upswing in the construction industry (already putting downward pressure on the number of unemployed construction workers) will be able to absorb significant numbers, particularly in the skilled and semi-skilled occupations. Matching these needs with the profiles of likely affected MOWT and THA workers, suggests the need to: (i) provide opportunities for upgrading of skills; and (ii) develop targeted programs for those with special requirements such as workers just under the retirement age and single heads of households.

5.11 These items are incorporated into the technical assistance component, specifically the microenterprise support and labor services units. The objective is to assist workers by assessing their specific needs and coordinating with the specialized agencies who can satisfy their requirements. Already Bank financing supports a number of efforts in the areas of retraining of displaced workers and strengthening specialized agency capability for technical assistance and credit for microenterprises.

B. Risks

5.12 There are two significant risks associated with the Program. The first relates to the challenges associated with the institutional shift from the execution of civil works through force account to a system of contracting. With GDP growth registered at above 4% last year and the ongoing upswing in the construction industry, preliminary estimates suggest that contracting out of routine maintenance is not likely to produce major net labor displacement. Rather, if the mitigating measures are implemented in a timely fashion, there will be opportunities for current workers to benefit from the construction industry's upswing and respond to potential labor shortages for skilled workers in these activities. As noted, Government will institute measures to provide opportunities for training, counselling, and employment in the new contracting out arrangements.

5.13 The second risk related to staffing has been minimized with the establishment of the project implementation unit to lead and monitor the progress of the Program and its organizational changes. This first critical step is however not sufficient. Measures associated with ongoing public sector reform to improve the terms

and conditions for qualified staff will be required to appropriately staff a reorganized road administration agency.

TRINIDAD AND TOBAGO
NATIONAL HIGHWAY PROGRAM (TT-0043)
FIRST YEAR PROGRAMME: ROADS PROJECTS

ANNEX
Page

Road code	Road Name	Length (km)	Classification ^{1/}	EIRR, %	Construction Duration (months)
Package A - South Central Trinidad					
0248	Cipero Road	12.509	R	28%	8
0436	Guaracara Tabaquite Road	18.500	R	43%	10
0581	Manahambre Road	4.290	PM	140%	6
		35.299			
Package B - South Trinidad					
0890	Siparia Road	11.963	R	37%	8
85402	S.S. Erin Road # 2	20.047	R	78%	14
		32.010			
Package C - Tobago					
0670	Northside Road	10.160	PM	47%	8
		10.160			
Total Programme		77.469			

^{1/} PM: Periodic Maintenance; Rehabilitation

**TRINIDAD AND TOBAGO
NATIONAL HIGHWAY PROGRAM (TT-0043)**

FIRST YEAR PROGRAMME: BRIDGES PROJECTS

ANNEX III-

Page 2 of 2

BRIDGE	ROAD NAME	LENGTH (M)
B 2/5	COUVA MAIN ROAD	15
B 1/5	CUNAPO SOUTHERN ROAD	15
B 1/8	WESTERN MAIN ROAD	6
B 1/61	SOUTHERN MAIN ROAD	15
B 1/64	SOUTHERN MAIN ROAD	15
B 1/71	SOUTHERN MAIN ROAD	10
B 1/73	SOUTHERN MAIN ROAD	2
B 2/9	GUARACRA TABAQUITE ROAD	15

**TRINIDAD AND TOBAGO
NATIONAL HIGHWAY PROGRAM (TT-0043)
PROCUREMENT PLAN**

ANNEX III

<u>Description</u> No. Lots:	% FINANCING		METHOD	PREQUALIFICATION	PUBLICITY SPN QUARTER/YEAR
	IDB	LOCAL			
Total: US\$ M			ICB/OTHER	YES/NO	
Rehab./Reconstruction of Roads (680 Km)					II/1996 (1 lot, 78Km) II/1997 (1 lot) II/1998 (1 lot) II/1999 (1 lot) II/2000 (1 lot) II/2001 (1 lot)
Lots: 6	55	45	ICB	YES	
Total: US\$ 136M					
Rehab./Reconstruction of Bridges (65)					III/1996 (1 lot, 8 No.) III/1997 (1 lot) III/1998 (1 lot) III/1999 (1 lot) III/2000 (1 lot) III/2001 (1 lot)
Lots: 6	55	45	NCB	YES	
Total: US\$ 14M					

Threshold Amounts: Goods US\$250,000; Works US\$2,500,000

**TRINIDAD AND TOBAGO
NATIONAL HIGHWAY PROGRAM**

ANNEX III-3

MONITORING REPORT OUTLINE

1. Summary evaluation of:
 - (a) each project and component for the current program year from the standpoint of spending, income, performance of work and attainment of physical targets;
 - (b) the degree of achievement of service goals and milestones for organization changes;
 - (c) the itemized investment and maintenance budget proposal for the following year, including supporting documents and criteria used as a basis for the budget proposal, project selection, inclusion and potential eligibility for Bank financing;
 - (f) Road administration agency financial projections; and
 - (d) proposed technical, economic and environmental studies to be performed during the course of the following year.
2. Routine Maintenance report:
 - (a) description of structure and responsibilities of MOWT staff administering routine maintenance works -- units in charge of maintenance; numbers and qualifications of staff members attached to such units; annual and monthly availability of funds, equipment, and materials; and maintenance contracts awarded (by type of contract modality);
 - (b) updated survey of the national main roads system (2700 km of roads) conditions and traffic volumes;
 - (c) a performance evaluation of the previous year's maintenance program including: (i) a comparison of current conditions in different road sections with conditions described in the previous year's survey; (ii) statistics on projects executed, volumes of work completed, productivity indicators (physical and financial resources used), and (iii) progress in implementing contracting out; and
 - (d) the national main roads system maintenance program for the following fiscal year, including priorities, a timetable, scheduled projects, physical resource requirements and an itemized budget with adequate annual appropriations for proper maintenance.
3. Evaluation of compliance with general and specific environmental measures and the results of specific environmental studies.

PROPOSED RESOLUTION

TRINIDAD AND TOBAGO. LOAN /OC-TT TO THE REPUBLIC OF TRINIDAD AND
TOBAGO. National Highway Program (TT-0043)

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 Republic of Trinidad and Tobago as Borrower, for the purpose of granting it a financing to cooperate in the execution of a National Highway Program. Such financing will be for the amount of up to US\$120,000,000, or its equivalent in other currencies, except that of the Republic of Trinidad and Tobago, which are part of the Ordinary Capital resources of the Bank, and it will be subject to the "Terms and Financial Conditions" and "Special Contractual Conditions" of the Executive Summary of the Loan Proposal.