

DOCUMENT OF THE INTER-AMERICAN DEVELOPMENT BANK

## **URUGUAY**

### **ROAD INFRASTRUCTURE PROGRAM**

**(UR-L1001)**

### **LOAN PROPOSAL**

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Basic socioeconomic data	<a href="http://www.iadb.org/res/index.cfm?fuseaction=externallinks.countrydata">http://www.iadb.org/res/index.cfm?fuseaction=externallinks.countrydata</a>
Status of loans in execution and loans approved	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=350885">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=350885</a>
Tentative lending program	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=374275">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=374275</a>
Information available in the RE1/FI1 technical files	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=374278">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=374278</a>
Annex I. Logical framework	<a href="http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=374283">http://opsws3.reg.iadb.org/idbdocswebservices/getDocument.aspx?DOCNUM=374283</a>
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**PROJECT SUMMARY**

**URUGUAY**

**ROAD INFRASTRUCTURE PROGRAM**

**(UR-L1001)**

<b>Financial Terms and Conditions<sup>1</sup></b>				
Borrower: Executing Agency:	Eastern Republic of Uruguay Ministry of Transportation and Public Works (MTO), National Highways Department (DNV)		Amortization period:	20 years
			Grace period:	48 months
			Disbursement period:	48 months <sup>2</sup>
			Commencement of works	36 months
<b>Source</b>	<b>Total</b>	<b>%</b>	Interest rate:	Adjustable
IDB (OC)	US\$ 77,000,000	70%	Inspection and supervision:	0%
Local	US\$ 33,000,000	30%	Credit fee:	0.25%
Total	US\$110,000,000	100%	Currency:	SCF (dollars)
<b>Project at a Glance</b>				
<p><b>Project objective:</b></p> <p>The program's general objective is to improve overland transportation of freight and passengers along the key corridors of Uruguay's road system, in order to enhance competitiveness and regional integration. The purpose of the program is to lower transportation costs and travel times, preserve Uruguay's road assets, and increase road safety by improving and resurfacing integration corridors with Argentina and Brazil and key national roads and highways linking Uruguayan production centers with domestic and external markets. It also supports road system sustainability by making road management more effective.</p>				
<p><b>Special contractual clauses:</b></p> <p>Conditions precedent to the first disbursement of the loan:</p> <p>(i) Hiring an environmental specialist to work closely with DNV professional staff as a member of the environmental unit, to strengthen it in the areas of contractor training and the environmental monitoring and supervision of works (see paragraph 3.13).</p> <p>(ii) Bank approval of standard procurement and bidding documents (see paragraph 3.24).</p>				

<sup>1</sup> The interest rate, credit fee, and inspection and supervision fee mentioned in this document are established pursuant to document FN-568-3 Rev. and may be changed by the Board of Executive Directors, taking into account the available background information, as well as the respective Finance Department recommendations. In no case will the credit fee exceed 0.75%, or the inspection and supervision fee exceed 1% of the loan amount. With regard to the inspection and supervision fee, in no case will the charge exceed, in a given six-month period, the amount that would result from applying 1% to the loan amount, divided by the number of six-month periods included in the original disbursement period

<sup>2</sup> With the exception of up to US\$1.5 million for the outsourced traffic count contract included in item 3 (institutional strengthening). This contract will be valid for five years and commence in the third year of the program, and the corresponding disbursement period will consequently be 7 years.

Exceptions to Bank policies:	None.
Project consistent with Country Strategy:	Yes [x] No [ ]
Project qualifies as:	SEQ [ ] PTI [ ] Sector [ ] Geographic [ ] % Beneficiaries [ ]
Verified by CESI on:	30 July 2004
Environmental/social review:	See paragraphs 4.17 to 4.25.
Procurement:	See paragraphs 3.20 to 3.24.

## **I. FRAME OF REFERENCE**

### **A. Macroeconomic context**

- 1.1 In the 1990s, following the structural reforms implemented during the previous decade, the Uruguayan economy experienced average annual growth of 3.2%, while considerably reducing the inflation rate that fell from over 100% in 1991 to approximately 5% at the outset of the current decade. Despite these successes, the external shocks originated in the second half of the decade by the Asian and Russian crises, the devaluation of the Brazilian real, the drop in Uruguayan commodity export prices, and the recession and subsequent financial crisis in Argentina all had a serious impact on Uruguay's economy, culminating in the economic and financial crisis of 2002, during which economic activity fell by over 10%.
- 1.2 However, the decisive fiscal stabilization, monetary, and exchange measures introduced in response to this situation with firm financial backing from the principal multilateral lenders, including the Bank, helped to limit the effects of this crisis on the financial sector, methodically and voluntarily restructure Uruguay's international obligations, and reembark on the path of economic growth and the gradual recovery of employment levels from the second half of 2003 onward. Consequently, the Uruguayan economy has managed to achieve high growth rates in recent quarters and, following expansion of more than 14% in the first quarter of this year, GDP is currently projected to grow by 7% to 9% for 2004 as a whole. In the current context of economic recovery and rapid growth, one of the main issues facing Uruguay relates to the structural challenges currently hampering the competitiveness of domestic industry, specifically the lack of public investment in economic and social infrastructure to complement private investment, especially in key sectors such as road transportation.
- 1.3 As a result, the Government of Uruguay is striving to target public investment to key areas that, like the one targeted by the proposed operation, are vital to support industry and drive economic recovery and sustained growth in the medium and long term.

### **B. The transportation sector in Uruguay**

- 1.4 Road transportation is the dominant means of land transportation in Uruguay, which has the highest-density road system in South America, providing uninterrupted access to the entire country. This system helps transport some 2.5 million metric tons of crossborder cargo annually, representing 92% of

Uruguayan international land trade<sup>1</sup> in terms of volume. The national highway system is administrated by the Ministry of Transportation and Public Works (MTOP) through the National Highways Department (DNV) and comprises approximately 8,730 km, 3,020 of which have superior-quality pavement (concrete or asphalt); 4,770 km have medium-quality pavement (bituminous treatment or reinforced priming); and 940 km have a crushed-surfacing top course (road ballast). In turn, departmental and municipal road networks comprise 67,000 km and are almost exclusively crushed surfacing and dirt roads.

- 1.5 The Uruguayan road system, as it exists today, was completed in the mid-twentieth century and, consequently, in the early 1990s some designs (particularly for bridges and the main international integration corridors) were no longer suited to the traffic demands placed on them, and many highways had completed their useful life and needed resurfacing. The significant rise in demand (car ownership increased 40% in the last decade) and declining investment in road maintenance as a result of fiscal constraints since the early 1990s left only 37% of the system in good condition in 1994. The advanced state of decay of highways at the time and accelerating regional economic integration made it necessary to prepare an investment plan to upgrade the road transportation infrastructure with a view to lowering operating costs and making the productive sectors more competitive. This plan was part of the MTOP Five-Year Plan for 1995-1999 and was supported by a Bank operation (loan 1022/OC-UR).
- 1.6 Significant institutional and policy transformations aimed at eliminating deficiencies and delays in the sector began to take shape at the DNV from 1995 onward, gradually lowering the high operating costs of transportation. Accordingly, activities have focused on making the DNV more efficient and giving investment and maintenance priority over administrative expenditures. Consequently, the transformation of this sector has been geared primarily to improving the existing road system and giving higher priority to, while boosting efficiency in, road maintenance. The DNV has been introducing new road management systems and financing arrangements with increasing private sector involvement for activities related to upgrading, resurfacing, and maintaining the national road system, vehicle weigh stations on highways, and road safety issues. In addition, there has also been an upward trend in outsourcing for other modes of transportation, including the ports, air, and railway sectors.
- 1.7 Other significant progress in terms of institutional modernization achieved by the MTOP and the DNV since the mid-1990s, much of which was supported by the 1022/OC-UR loan and was executed in a highly satisfactory manner, includes:

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<sup>1</sup> A total of 1.3 million metric tons (MT) were exported from Uruguay, and approximately 1.2 million MT imported, in 2002. Other Mercosur countries constituted the main origin or destination for cargo transported by road.

improvements in information systems relating to the physical condition of the road system, traffic volumes, vehicle weigh stations, road safety, user satisfaction levels, etc., as well as strengthening planning to ensure that investment decisions adhere to works organization and planning criteria in line with their economic return and priority within the framework of the detailed analysis and optimization of the entire road system. The DNV has reliable, ongoing, and systematic data systems<sup>2</sup> for this purpose. In addition, every opportunity has been taken to incorporate the private sector into new road investment, operation, and maintenance arrangements, including road concessions, maintenance contracts with microenterprises, CREMA-type upgrade and maintenance contracts with private-sector enterprises, outsourcing of traffic counts and weigh stations on national routes, etc. There has been a significant increase in administrative efficiency at the MTOP, and at the DNV in particular, including a considerable reduction in staffing levels.<sup>3</sup> Lastly, the DNV management model was significantly modified from an activity-based management system to management based on road system service levels with objective, verifiable performance and quality indicators that were formally incorporated into the current Five-Year Plan for 2000-2004.

- 1.8 As part of this institutional transformation process, the DNV formed its team of managers and department heads via an open and transparent competitive selection process. Both technical staff and executives are committed to achieving results in their individual areas based on specific action plans and goals. This team has become the cornerstone of the transportation process within the institution, firmly establishing the DNV as the leader for integrated management of Uruguay's road system. The team has established advisory and cooperation programs with national road agencies in other Latin American countries including Peru, Honduras, Costa Rica, Chile, and Paraguay. In addition, there are plans to implement an internal management model based on annual commitments and goals for each area of responsibility within the entity; this process is currently at the stage of quantifying the indicators to be employed. All these institutional changes have put the DNV at the forefront of entities of this type in Latin America and enabled it to identify the most appropriate upkeep strategies, perform maintenance economically and efficiently, optimize resource use, and

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<sup>2</sup> These systems include the SIPLA highway planning system, highway inventory, bridge management, signage management, traffic accident analysis, and maintenance management.

<sup>3</sup> Within the framework of State reform policies introduced from 1995 onward and as mandated in the Budget Act for the previous five-year period, since the mid-1990s the number of MTOP staff was cut by almost 40% from approximately 7,460 in January 1995 to some 4,200 in mid-2003. DNV staffing levels were reduced by 45% from approximately 3,450 to 1,900 over the same period. This not only led to a substantial reduction in administrative costs but also raised the level of expertise and salaries of more highly qualified staff, and made it possible to outsource a number of activities previously done directly by the MTOP and focus road management more on policy, planning, and monitoring.



substantially improve the state of repair of Uruguay's road system, which is currently one of the region's best maintained and managed.

- 1.9 Current road management arrangements include: (a) **toll concessions**, under which four concessions have been awarded, including the Ruta Interbalnearia, Route 1, Route 8, and Route 5, covering a total of 447 km (5% of the national road system), as well as approximately 784 km (9% of the national road system) under the so-called **Megaconcession**<sup>4</sup> arrangement; (b) **CREMA rehabilitation and maintenance contracts** for some 929 km (equivalent to 11% of the system), a format that consists in achieving a suitable level of trafficability in a specific road network and subsequent maintenance, benefiting from private contractors' experience and generating price competitiveness; (c) **contracting microenterprises for maintenance work**, especially routine maintenance, covering some 1,311 km (15% of the system); and (d) **work done on force account by the DNV** covering some 5,260 km (60% of the system). The various road management arrangements employed on the basis of traffic levels and the importance of individual routes had a positive impact by gradually returning 43% of the national road system to good condition in 2000. However, lower investment since 2001 has produced a 4.8% decline in Uruguay's road assets in the last three years and some backsliding in their state of repair.

#### C. The country's sector strategy: DNV Five-Year Plan 2000-2004

- 1.10 The DNV intends to continue the main lines of the strategy employed in the previous plan and deepen it further in its Five-Year Plan for 2000-2004, now in effect. The plan sets the following goals: (i) continue efforts to resurface the existing national road system and improve the quality of service for users; (ii) consolidate the principal national and international transportation corridors and adapt them to Mercosur requirements and standards; (iii) increase private-sector involvement in national road management; and (iv) make the DNV operate more efficiently as road system manager. This plan will cost US\$461 million in all for the 2001-2005 implementation period, comparable to the 1996-2000 figure of US\$478 million, despite the fiscal constraints Uruguay has been facing.<sup>5</sup>

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<sup>4</sup> Under this arrangement, the Corporación Vial del Uruguay S.A. [Road Corporation of Uruguay] (CVU), a public corporation operating under private law as part of the National Development Corporation (CND), contracts with private companies to resurface, maintain, and manage various stretches of main thoroughfares in the national highway system, export corridors, and bridges. These investments will be financed by income from the eight new CVU-managed toll gates being set up along the routes being resurfaced, budget allocations from the DNV to the CVU (the DNV guarantees a minimum annual revenue of US\$25 million for the first four years of the Megaconcession contract and has committed to pay the CVU the difference between the guaranteed US\$25 million and annual revenues from the toll gates for the stretches for which concessions have been granted), and toll revenue for any new stretches incorporated into this arrangement in the future.

<sup>5</sup> On average, IDB financing has represented between 20% and 25% of this annual investment.

- 1.11 The proposed program is expected to culminate in the replacement or reinforcement of bridges in the national road system, bringing them up to Mercosur allowable load limits and lifting restrictions still in place on some stretches of Uruguay's international integration corridors that are part of IIRSA projects.<sup>6</sup> Sustained action is also planned in terms of investment, education, and promotion to increase road safety, including pavement markings and road signs, lighting, traffic protection devices and improved grade and grade-separated intersections, particularly in urban and suburban areas where conflicts arise with through-traffic flows over the national road system. The private sector will also continue to participate in the various road management systems. The program will ensure that by 2008, approximately 45% of the national road system will be in a good state of repair (vs. 39% in 2003), 75% will provide a good level of comfort (vs. 60% in 2003), and the existing deficit gap (-1.35%) vis-à-vis the optimal road asset value in the national system will be closed.
- 1.12 As mentioned above, in institutional terms significant progress has been made in shifting the DNV toward more efficient internal organization and operations management, giving an increasingly important role to private sector involvement. This has enabled DNV to better its service quality and become a leader in the region. Accordingly, the DNV has a high-quality, up-to-date database on individual road status, traffic and weight records, etc., which enables it to plan sector operations optimally and set priorities for investment in the road system. This is also reflected in its technical and professional teams, who are often called upon to advise road units in other Latin American countries, particularly with regard to organization and operations management. However, to make progress in consolidating the successes of the last five years, certain specific areas should be improved through specific initiatives under the institutional component of the proposed program.
- 1.13 One particularly notable aspect is the priority the DNV gives to ensuring the sustainability of investment in the sector, through actions to make the road system operate efficiently and effectively, especially with regard to international corridors and the primary network, preventing any further deterioration in service levels, and striving to avoid any increase in operating costs for users. In this respect, one of the main rationales of the proposed operation is to contribute to the preservation and recovery of Uruguay's considerable road assets.

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<sup>6</sup> Initiative for the Integration of South American Regional Infrastructure (IIRSA), the technical coordination of which is the responsibility of the IDB, the Andean Development Corporation (CAF), and the Fondo Financiero para el Desarrollo de la Cuenca del Plata [River Plate Basin Development Fund] (FONPLATA). One of the central objectives of this initiative is to support a coordinated regional effort to promote the expansion and efficient delivery of regional infrastructure, which are seen as essential to improving global competitiveness in the region.

#### **D. The Bank's experience and lessons learned**

- 1.14 The integration corridors program (1022/OC-UR), approved in 1997 for a total of US\$176 million, of which the Bank financed US\$123 million, is in its final stage of execution with 99% of the loan proceeds disbursed and all resources committed. Under this program approximately 530 km of main roads were resurfaced and 27 bridges widened or rebuilt, and program execution was rated highly satisfactory as indicated in the Bank project performance monitoring report (PPMR). All physical targets identified at the outset should be met or exceeded, albeit with some delays due to budget constraints.
- 1.15 In fact, in 2000-2002 the program had to overcome an execution delay caused by the severe fiscal constraints imposed as a result of the acute economic crisis in Uruguay at the time. At its peak, this crisis affected all public investment and the execution period had to be extended to August 2004. Despite this, one lesson learned is that, even in the context of severe fiscal constraints and marked fluctuations in budget appropriations during the fiscal crisis, international lender involvement can be instrumental in providing greater continuity in needed sector investments, preserving institutional reforms, and keeping up efforts to modernize the sector and continue to enhance effectiveness and efficiency.
- 1.16 Perhaps one of the most important lessons learned from previous program was that its success was due in great measure to the sound institutional capacity of MTOP and DNV, and the high level of expertise and stability of their permanent professional staff. This yielded a number of benefits for the project, most notably: (i) good ex ante planning and prioritizing of sector investments in line with objective criteria of socioeconomic return; (ii) strong technical design of the works included in the program; (iii) transparent and predictable procurement procedures; (iv) well-prepared and updated technical, environmental, and process manuals and regulations for use in execution, which made it unnecessary to have specific operating regulations for the program; and (v) fluid communication with Bank technical staff, both at Headquarters and at the Bank's Country Office in Uruguay.

#### **E. Involvement and coordination with other multilateral agencies**

- 1.17 The World Bank has been executing two projects in the sector: (i) the second transportation project (4395-UR), with a loan of US\$64.5 million, completed in September 2003 and intended to rehabilitate certain routes and bridges serving Mercosur traffic while boosting private sector involvement in road management;<sup>7</sup> and (ii) the forest products transportation project (4202-UR), with a loan of

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<sup>7</sup> According to the March 2004 project completion evaluation by the World Bank, the project and executing agency performance were both rated satisfactory, having achieved the physical investment, institutional development, sustainability and project execution objectives.

US\$76 million, slated for completion in December 2004 and intended to facilitate cost cutting and infrastructure improvements for the transportation of forest products to export ports. Both operations complement the Bank program with the objective of rehabilitation and improvement of the national road system. In addition, the Andean Development Corporation (CAF) provided sector assistance with a US\$25 million loan approved in 2002, to finance a portion of investments under the Megaconcession arrangement in 2002-2004.

**F. The Bank's country strategy with Uruguay and value added by Bank participation**

- 1.18 The central aim of the Bank's country strategy with Uruguay, contained in document GN-2119-1, dated 27 September 2000, is to support development programs and government policies during the five-year period 2000-2004 with the goal of achieving sustained growth with stability that will, in turn, lead to greater social equity. This strategy focuses on the following areas: (i) support for competitiveness and regional integration, based on export-oriented production that exploits the country's comparative advantages and on the implementation of modern technology, to create healthy competition for closer integration with regional and international markets; (ii) modernization of the State and governance, making the public sector more efficient and effective by streamlining and targeting its interventions, and reducing its direct participation in the production of goods and services; and (iii) enhancement of social welfare and equity.
- 1.19 The proposed program contributes directly to the first objective, inasmuch as it will reduce transportation costs, heighten competitiveness in the delivery of road infrastructure services, and overcome the constraints on productive development that Uruguay's main road integration corridors still constitute, through public and private sector investment, the promotion of road concession contracts, and the outsourcing of preventive maintenance services.

**G. Program strategy and support for the IIRSA**

- 1.20 In this context, the new program will help to ensure that the next few years will see the investment needed to improve the main export corridors and other priority segments of the nation's primary network, so that the current strong economic growth can be sustained and not adversely affected by restrictions on the country's basic infrastructure. In addition, the program will support continuity of MTOP initiatives aimed at deepening the process of reform and modernization of Uruguayan road sector management that has been underway for almost a decade.
- 1.21 As indicated above (see paragraph 1.11), the proposed program will help to improve the main highways in the Uruguayan road system, several of which form part of the Mercosur-Chile corridor, which runs from southern Brazil through

southeastern Paraguay, Uruguay, central and northern Argentina to central Chile, by bringing all Uruguay's bridges up to Mercosur allowable load limits and gradually lifting the restrictions that still persist along some segments of its international integration corridors. In addition, other projects with a crossborder impact, currently at the design and prefeasibility stage, are being identified. These IIRSA projects are being established as public works or public-private partnerships and may also be eligible for financial support from this operation.

## II. THE PROGRAM

### A. Objectives and description

- 2.1 The program's general objective is to improve overland transportation of freight and passengers along the key corridors of Uruguay's road system, in order to enhance competitiveness and regional integration. The purpose of the program is to lower transportation costs and travel times, preserve Uruguay's road assets, and increase road safety by improving and resurfacing integration corridors with Argentina and Brazil and key national roads and highways linking Uruguayan production centers with domestic and external markets. It also supports road system sustainability by making road management more effective.

### B. Description

- 2.2 The proposed program would be implemented as a global multiple works program with a 48-month period for disbursement of the Bank loan and a 36-month period<sup>8</sup> for physical startup of all works under the road rehabilitation and bridge improvement component. The total program cost, including financial and administrative expenses, would be in the order of US\$110 million. Of that amount, US\$77 million would be financed by the Bank, and the remaining US\$33 million would be contributed in local counterpart resources. Bank financing would represent 70% of total program costs. The direct costs of the program would be approximately US\$97.8 million for the following three components:

- 2.3 **Component 1: Highway rehabilitation and bridge improvement works** (US\$89.8 million) to upgrade approximately 650 km of key segments and bring bridges on the main corridors of the national road system up to pre-established minimum service levels. The proposed works are divided into three subcomponents:

- a. **Subcomponent 1 (estimated cost US\$38.4 million):** rehabilitation of international corridors within the national road system. The works could be of any of the following three types, depending on route characteristics, traffic, and condition: (i) rehabilitation of topographic routing, widening of roadways, and resurfacing; (ii) pavement upgrade by adding a wearing course; and (iii) pavement upgrade by resurfacing and bituminous treatment. Two hundred ninety-five kilometers of roads have been tentatively identified for inclusion in

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<sup>8</sup> With the exception of up to US\$1.5 million for the outsourced traffic count contract under Component 3, "institutional strengthening. That contract will be for five years and commence in the third year of the program. Consequently, the corresponding disbursement period will be 7 years.

this subcomponent, 108 km (37%) of which have been included in the representative sample. All works to be included in this subcomponent must meet the following eligibility criteria:

- (i) They must be registered as part of the national road system, be located in segments classified as international corridors or primary road networks, and not be slated for rehabilitation under a private-sector concession contract.
  - (ii) Their designs must stipulate that, once work is complete, subcomponent 1 segments maintain a minimum surface condition index of 70 and a maximum roughness index of 2.8 IRI for at least five years.
  - (iii) They must form part of the approved five-year investment plan.
  - (iv) They must have a preliminary engineering design, including a plan for pavement markings and road signs, approved by the DNV Department of Traffic Safety.
  - (v) They must have completed engineering, economic feasibility, and environmental studies and have completed and received any required prior environmental authorization.
  - (vi) They must have an internal rate of return of 12% or higher, and have been assigned priority by the SIPLA highway planning system.
- b. **Subcomponent 2 (estimated cost US\$41.3 million):** rehabilitation and improvement of national road system secondary routes connecting departmental capitals or production centers. Roadway conditions for works under this subcomponent are similar to those in subcomponent 1. Three hundred fifty kilometers of such routes have been identified, 150 km (43%) of which are included in the representative sample. Works under this subcomponent must meet eligibility criteria (iii) to (vi) of paragraph 2.3(a), as well as the following specific criteria:
- (i) They must be registered as part of the national road system, form part of the secondary road network, be segments connecting capitals or production hubs with minimum annual average daily traffic (AADT) of 600, or be segments connecting important cities with minimum AADT of 1,000.
  - (ii) Their designs must stipulate that, once work is complete, subcomponent 2 segments maintain a minimum surface condition index of 65 and a maximum roughness index of 3.5 IRI for at least five years.

- c. **Subcomponent 3 (estimated cost US\$10.1 million):** bridge construction and improvement. As with previous operations with the Bank, bridge improvements will include three types of works, depending on the specifics of each case: (a) construction of new bridges and access roads (US\$5 million); (b) widening and reinforcing of existing bridges (US\$3.7 million); and (c) various bridge rehabilitation and repair works (US\$1.4 million). All works have been designed to achieve operating service levels in accordance with regional loads at strategic points within the national road system.
- 2.4 For works under heading (a), the bridge spanning the Arroyo las Vacas Creek has been tentatively identified and included in the sample. For works under heading (b), four bridges spanning the following creeks have been tentatively identified for widening: Arroyo Sánchez (included in the sample), Arroyo Retamosa, Arroyo Gutiérrez, and Arroyo Pirarajá. All works under headings (a) or (b) must meet the following eligibility criteria to be included in the program:
- (i) Bridges must be registered as part of the national road system, be key bridges in terms of traffic volume on international freight corridors, be part of significant national transportation roads, and be located in areas with no economically viable detours. Priority will be determined via the Bridge Management System.
  - (ii) Where possible, the original location of bridge access roads must be maintained, to reduce the impact and cost of project works.
  - (iii) Designs must include widening the road superstructure to at least 8 meters and provide for unrestricted access for trucks with a full load of up to 45 tons, in compliance with current Mercosur rules and standards.
  - (iv) They must form part of the approved five-year investment plan.
  - (v) They must have completed engineering, economic feasibility, and environmental studies and have completed and received any required prior environmental authorization.
  - (vi) They must have an internal rate of return of 12% or higher, and have been assigned priority by the bridge management system.
- 2.5 Works under heading (c) have been divided into five groups by geographic location: south (11 bridges to be rehabilitated, all included in the sample), central, east, west, and north (six bridges tentatively identified for each area). All of these works must meet the following eligibility criteria:



- (i) They must be registered as part of the national road system, and have been assigned priority for transit in their area. Priority will be determined via the bridge management system.
- (ii) Structural condition must be average or below average for bridges in the system (indicator of bridge condition from the bridge management system).
- (iii) They must have completed engineering studies (bridge inspections).

2.6 **Component 2: Road safety investment plan** (US\$4.3 million). The program will finance works directly related to improving road safety on corridors within the national road system that have been assigned priority under the traffic accident analysis system (TAAS) on the basis of risk and effectiveness indicators. Investments in this area include:

- a. Improvement and replacement of signs in the national road system in accordance with Uruguay's Road Signage Standard (US\$950,000).
- b. Projects to improve lighting at critical intersections and intersections near urban areas (US\$600,000).
- c. Improvement of pavement markings in segments and intersections identified as danger spots due to the high incidence of accidents (US\$1,430,000).
- d. Road safety containment elements, including metal barriers in high-risk areas in accordance with international standards governing the length and design of terminals. High accident concentration segments and segments that constitute potential risk areas will be selected (US\$600,000).
- e. Support for schools located in areas of influence of national roads and highways. This includes the procurement of support materials (signs, cones, armbands, vests, etc.), building pedestrian shelters, and marking pedestrian pathways (US\$130,000).
- f. Consulting on the design of road safety education and citizen awareness campaigns (US\$20,000).
- g. Road safety education and citizen awareness campaigns to be jointly conducted by the various MTOP units and units from other agencies, departments and municipalities (US\$570,000).

2.7 **Component 3: Institutional strengthening and training** (US\$4.5 million). This component supports activities to strengthen the DNV and consolidate its position as the planning and oversight body for the road system. The institutional strengthening component design was based on evaluation of the outcomes of

previous technical assistance to the DNV and specific needs identified during project preparation. It includes actions in the following areas:

- a. Updating the road system status survey, so that the agreed performance indicators can be measured and an ex post evaluation done of completed subprojects. This survey will include geometric and physical aspects of the system and determine surface condition and roughness indices (US\$750,000).
- b. An analytical study of technical alternatives to facilitate and automate toll collection on national road system segments for which concessions have been granted (US\$140,000).
- c. Independent technical audits, based on sampling, of the design and execution quality of works under the program, including environmental considerations and road safety (US\$500,000).
- d. An analytical study of alternatives to build capacity to better control loads and overweight vehicles on highways (US\$100,000).
- e. Consolidation of the outsourced vehicle count system for the national road system (US\$2,500,000).
- f. Road management model training (US\$50,000).
- g. Training in social and environmental aspects of the work of the DNV and its contractors (US\$250,000).
- h. Strengthening and modernization of the road signage management system (US\$130,000).
- i. Improvement of the traffic accident analysis system (US\$80,000).

## **C. Cost and financing**

- 2.8 Table II-1 presents the estimated total cost of the program and the proposed financing. Bank financing represents 70% of the total program cost.

**Table II-1**  
**Total Program Cost and Program Financing**  
**(in millions of US\$)**

<b>Components and investment categories</b>	<b>Bank</b>	<b>Local</b>	<b>Total</b>	<b>%</b>
<b>1. Engineering, environmental studies, and administration</b>	<b>0.2</b>	<b>0.1</b>	<b>0.3</b>	<b>0.27%</b>
<b>2. Direct costs</b>	<b>68.5</b>	<b>30.1</b>	<b>98.6</b>	<b>89.63%</b>
2.1 Road rehabilitation and bridge improvement works	62.9	26.9	89.8	81.63%
2.1.1 Primary network rehabilitation	26.9	11.5	38.4	34.91%
2.1.2 Secondary network rehabilitation	28.6	12.7	41.3	37.54%
2.1.3 Bridge rehabilitation and improvement	7.4	2.7	10.1	9.18%
2.2 Road safety	3.0	1.3	4.3	3.91%
2.3 Institutional strengthening and training	2.6	1.9	4.5	4.09%
<b>3. Contingencies</b>	<b>1.1</b>	<b>1.7</b>	<b>2.8</b>	<b>2.55%</b>
<b>4. Financial expenses</b>	<b>7.2</b>	<b>1.1</b>	<b>8.3</b>	<b>7.55%</b>
4.1 Interest	6.9	1.1	8.0	7.27%
4.2 Credit fee	0.3	0.0	0.3	0.27%
4.3 Inspection and supervision	0.0	0.0	0.0	0.0%
<b>TOTAL</b>	<b>77.0</b>	<b>33.0</b>	<b>110.0</b>	<b>100%</b>
<b>Percentages</b>	<b>70%</b>	<b>30%</b>	<b>100%</b>	

### **III. PROGRAM EXECUTION**

#### **A. Borrower, guarantor, and executing agency**

- 3.1 The borrower will be the Eastern Republic of Uruguay. The executing agency will be the Ministry of Transportation and Public Works (MTOP) through two units that form part of its organizational structure: the National Highways Department (DNV) and the Office of the External Financing Advisor within the MTOP Secretary's office.
- 3.2 The DNV will be the technical executing agency for the program and is the MTOP unit responsible for efficiently managing (studying, planning, preserving, building, and promoting) the road system under national jurisdiction and bringing connecting road corridors up to international traffic requirements under commitments with the other Mercosur countries.
- 3.3 The IDB unit at the Office of the External Financing Advisor will be responsible for program management, a role it has performed satisfactorily as the project coordination unit for IDB loan 1022/OC-UR. This is the core unit that directly advises the minister on issues relating to the management of international loan resources. The IDB unit currently comprises a coordinator and two specialists. If necessary, this structure would be strengthened to execute the program. The IDB unit will be responsible for ongoing monitoring and supervision of program execution and will take the necessary action to ensure compliance with program commitments and objectives.

#### **B. Project execution and management**

- 3.4 DNV permanent staff or specialist consultants hired by the DNV will identify projects and prepare feasibility studies, environmental studies, final designs, and bidding documents. The DNV will determine whether projects meet the eligibility criteria for the program, have been assigned priority via the various planning systems, and are included in current investment plans, as explained in Chapter I and in the component descriptions in Chapter II. The DNV will approve pavement upgrades and bridge improvement projects autonomously, but must obtain the Bank's nonobjection for road rehabilitation projects under the heading of "(i) rehabilitation of topographic routing, widening of roadways, and resurfacing," and bridge projects under the heading of "(a) construction of new bridges and access roads," prior to initiating the tender process for the respective works.
- 3.5 As technical executing agency for the program, the DNV will also be responsible for contracting and procurement, supervision of works contracts, and technical and environmental supervision. It will also establish the contract awards advisory

committees. The DNV will execute all project works through private construction firms contracted in accordance with Bank procedures, and supervise all contracts.

- 3.6 The program will be implemented as a multiple works program, inasmuch as the road works to be financed are similar, physically independent of each other, and independently viable. A program sample has been identified that represents at least 35% of the various types of works involved. This sample has been used to establish the methodology for preparing and evaluating projects. The project cycle for additional works to be included involves the following steps: (i) works to be financed must be included in the current five-year investment plan and have been assigned priority by the corresponding planning systems (the highway planning system for road works and the bridge management system for bridges); (ii) the DNV must conduct technical, economic, and environmental studies in line with the methodology established for the sample projects for all additional works to be included in the program; and (iii) the DNV must determine whether projects meet the eligibility criteria of paragraphs 2.3 to 2.6, and submit all documents for the Bank's review and nonobjection, as required.
- 3.7 DNV directors of works will be responsible for the technical inspection of all program works. Independent technical audits, based on sampling, will be done of the design and execution quality of works under the program, including environmental considerations and road safety. Program resources will be used to hire a consulting firm for this purpose.
- 3.8 As program coordinator, the IDB unit at the Office of the External Financing Advisor is responsible for the operational, financial, and accounting management of the program (payment processing, documenting the use of resources and supervising their proper allocation), monitoring the tender schedule, coordinating consulting contracts, and preparing the required execution reports in accordance with the guidelines stipulated in the loan documents.
- 3.9 On behalf of the executing agency, the IDB unit will perform the financial duties related to auditing, disbursements, financial management, and internal control of the program, including: (i) opening separate bank accounts to handle financing and local counterpart resources; (ii) submitting disbursement requests and supporting documentation to the Bank; (iii) maintaining effective systems for contract management and keeping accounting and financial records of program transactions; (iv) preparing and delivering to the Bank annual financial statements for the program, duly audited by Bank-approved independent auditors, and half-yearly reports on the status of the revolving fund; and (v) maintaining an internal control system acceptable to the Bank.
- 3.10 The executing agency will deliver annual financial statements for the program to the Bank during the program execution period, audited by independent auditors acceptable to the Bank in accordance with terms of reference previously agreed

- with the Bank. They will be deliverable within 120 days after the close of the executing agency's fiscal year. The final audited financial statements for the program will be deliverable within 120 days after the last disbursement date. The audits will be done by the Tribunal de Cuentas de la República [Office of the Auditor General].
- 3.11 The National Environmental Protection Department (DINAMA) of the Ministry of Housing, Planning, and Environment (MVOTMA) is responsible for formulating, executing, supervising, and evaluating national environmental protection plans and proposing and implementing policy in this area. As such, it is responsible for (i) determining the need to conduct environmental evaluations and rating works on their environmental impact; (ii) issuing environmental licenses for road works under the program; and (iii) following up and verifying compliance with current regulations and approved plans.
- 3.12 The DNV Works Environmental Unit, created in 1997, is responsible for providing assistance in the preparation of environmental designs, issuing opinions on the environmental rating of works, reviewing environmental studies prepared by specialists, and managing the processing of, and applications for, prior environmental authorizations for projects that require it, among other functions. The group of specialists that make up this unit assist in the preparation of environmental impact assessments for projects, as required. In addition, the environmental unit is supported by the works director for the authorization and inspection of works associated with the environmental management item (3%) in accordance with the environmental management plan proposed by the contractor.
- 3.13 To ensure effective environmental and technical monitoring, the program makes provision for an environmental specialist to work closely with DNV professional staff as a member of the environmental unit, to strengthen it in the areas of contractor training and the environmental monitoring and supervision of works. **Hiring this environmental specialist will be a condition of eligibility for program disbursements.**
- 3.14 The environmental specialist will have the following duties and responsibilities: (i) environmental supervision of works under the program; (ii) the review, monitoring, and supervision of environmental management plans of contractors, worksite facilities, quarries, material disposal sites, asphalt plants, concrete mixing plants, and other works-related activities; (iii) development, scheduling, and delivery of training courses; (iv) preparation of environmental reports for the DNV and the Bank; (v) advising on communications and reports to the environmental authorities and preparing documents informing the DINAMA of works startup and progress; (vi) advising the DNV on matters related to informing and contacting communities in the vicinity of the works; (vii) evaluation of contractor contingency plans for works that require them; (viii) supervision of all any required social and environmental monitoring; (ix) making recommendations

- to the DNV on approvals of disbursements to contractors for the environmental management item (3%) and works subcomponents related to the management plan; (x) updating and supplementing the DNV environmental manual for works; (xi) preparation of reports and monitoring environmental liabilities located or generated within the area of influence of the works and in all quarries and dumping grounds used for program works; and (xii) reporting to DINAMA on works startup, and coordinating with in on all matters related to compliance with its requirements.
- 3.15 The environmental specialist will work directly with the works directors and report to the DNV Works Office. He or she will exercise full professional autonomy and judgment in evaluating the condition of works and issue opinions on construction progress as he or she deems necessary. To do so, the environmental specialist will review the background of all project-related studies and technical and environmental designs, as well as all contractual documents and the contractor's proposal. The environmental specialist will also consider the specific requirements of permits and authorizations granted by the various local authorities in relation to project implementation.
- 3.16 Environmental supervision reports will include considerations of: (i) compliance with the environmental works schedule; (ii) compliance with environmental specifications; (iii) compliance with construction details and designs and mitigation measures; (iv) compliance with the environmental management plan proposed by the contractor; (v) quantitative analysis of works execution; (vi) remediation of environmental liabilities; (vii) corrective action and recommendations suggested by the "Projects and Studies" and "Construction" Divisions; (viii) supervision of quarries and dumping grounds; (ix) site-visit reports and photographic records; (x) training records for DNV professional and ancillary staff, contractors, and subcontractors; and (xi) updating of manuals and environmental specifications.
- 3.17 For all works involving potential interference with public utilities or buried infrastructure (gas or oil pipelines, multipurpose pipelines, water supply lines, sewers, drains, etc.), as is the case with the Route 102 works, the bidding conditions must stipulate that the contractor submit a contingency plan for any emergencies that might jeopardize this buried infrastructure. The plan must provide for: (i) interference identification; (ii) identification of entities in charge of the respective utilities; (iii) identification of support entities (fire departments, civil defense, police, hospitals, emergency services, spillage containment equipment suppliers, etc.); (iv) identification of the action plan, organization required, resources, lines of command, and communications; (v) needs as far as personal protective gear and equipment; and (vi) procedures to correct resulting environmental liabilities.

- 3.18 Bidding conditions and contracts for works will contain clauses establishing contractors' environmental liability and the penalties for noncompliance. The DNV will be responsible for overseeing these requirements.

### C. Execution period and disbursement timetable

- 3.19 The execution and disbursement period for the loan will be 48 months in accordance with the disbursement timetable given in Table III-1, with the exception of up to US\$1.5 million for the traffic count contract under the institutional strengthening component, which is to be disbursed in years 5 to 7 as indicated in paragraph 2.2. The time limit for physical startup of all works under Component 1, "Road rehabilitation and bridge improvement works," will be 36 months.

**Table III-1: Disbursement Timetable (in millions of US\$)**

Components	Items	Year 1	Year 2	Year 3	Year 4
Engineering, environmental studies, and management	0.2	0.05	0.05	0.05	0.05
Direct costs	68.5	13.70	20.50	20.50	13.80 <sup>9</sup>
Contingencies	1.1	0.00	0.00	0.00	1.10
Financial expenses	7.2	0.15	1.01	2.40	3.64
<b>Totals</b>	<b>77.0</b>	<b>13.90</b>	<b>21.56</b>	<b>22.95</b>	<b>18.59</b>
%	100.0	18.1	28.0	29.8	24.1

### D. Procurement

- 3.20 The executing agency will conduct and oversee tendering processes for works. These will be conducted through the Road Corporation of Uruguay (CVU) (see paragraph 1.9) only for national road system works with a maintenance contract subsequently awarded under the concession contract with the National Development Corporation (CND). Up to US\$5 million of the loan proceeds may be allocated under such arrangements, in which case Bank policies and procedures will also apply. None of the loan proceeds will be used to cover any payment by the borrower to the CND or CVU for administrative expenses associated with these tendering processes.
- 3.21 Works will be executed by private construction enterprises, while independent specialized consulting firms will perform all studies and technical assistance

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<sup>9</sup> Includes US\$1.5 million to be disbursed in years 5 to 7 for the traffic count contract under the institutional strengthening component.



financed by the program. Procurement of goods, works, and consulting services will be done in accordance with the Bank's procurement policies and procedures.

- 3.22 Procurements will be made by international competitive bidding when foreign currency derived from the Bank's financing is used and estimated contract amounts exceed US\$3.5 million equivalent for works contracts, US\$350,000 equivalent for goods and related services, and US\$200,000 equivalent for consulting services.
- 3.23 In accordance with the Bank procedures stipulated in document GN-2220-10, the following methods may be considered for the selection and contracting of consulting services: quality based selection (QBS), quality and cost based selection (QCBS), least cost based selection (LCBS), and fixed budget based selection (FBBS).
- 3.24 Tenders for procurement of works and goods will use standard documents previously agreed upon and approved by the Bank. **The approval of standard documents will be a condition of eligibility for program disbursements.** To facilitate program execution, the requirement of the Bank's prior nonobjection will apply only to works contracts in excess of US\$1.5 million and goods procurement contracts in excess of US\$100,000. The Bank will conduct ex post reviews of these tenders based on sampling.

#### **E. Maintenance of program works**

- 3.25 For program works the borrower will undertake, through the executing agency, to properly maintain bridges, highways, and immediate accessways up to applicable technical standards. It must also submit maintenance reports to the Bank in the first half of each calendar year for five years after the effective date of the loan contract. These reports will include a performance evaluation of maintenance during the past year, and the maintenance plan for the following fiscal year with a proposed budget.

#### **F. Monitoring and evaluation**

- 3.26 The executing agency will provide the Bank with half-yearly execution reports containing project progress outcomes evaluated on the basis of the performance monitoring and technical indicators in the project logical framework (Annex 1). In addition, these reports will include the following information: (i) progress achieved in terms of the agreed program performance indicators and disbursement timetable; (ii) updated execution and disbursement timetables with respect to the rest of the program; (iii) a detailed work plan and action plan prepared in advance for the following two six-month periods, including the updated procurement plan (Annex II); (iv) a report on progress and developments in the environmental programs; and (v) an evaluation of the technical performance indicators specified

in the logical framework matrix, for the purpose of updating of the project performance monitoring report (PPMR).

- 3.27 Project outcomes will be evaluated using a series of objective technical indicators specified in the program logical framework. Values for these indicators will be set prior to the program and upon completion.
- 3.28 The main evaluation tool for the investment components will be the Highway Design and Maintenance Standards Model (HDM-III). This model will be used to determine the main economic indicators (IRR, NPV) for each action to be financed by the program. The baseline for this evaluation (including traffic counts, roughness and surface condition indices, and projected vehicle operating costs) has already been determined by the DNV for the road segments in the sample.
- 3.29 Evaluation of the outcomes of DNV institutional strengthening components will be based on road management indicators. These indicators provide data on changes in road assets, return on investments, and the efficiency of various road management models. This information is collected annually by the DNV and published in a yearly management indicators report. The 2003 report supplies the baseline data for the program. The road safety indicators will be evaluated using the traffic accident analysis system (TAAS) operated by the DNV Department of Traffic Safety.

#### **G. Ex post evaluation**

- 3.30 In line with Bank policy, after consultation with the executing agency, the country authorities stated that they did not consider it necessary to commit program funds for an ex post evaluation, inasmuch as detailed data on indicators and targets will be available at program completion. As part of its normal activities, the DNV has the necessary resources, means, and information systems to compile the data required to conduct such an ex post evaluation in the future, if proposed by the Bank or the country. In such case, the baseline would be the same as used for the logical framework and for assigning priority to investments under the proposed program.

## **IV. VIABILITY AND RISKS**

### **A. Institutional viability**

- 4.1 As noted above (see paragraphs 1.6 to 1.8), the National Highways Department (DNV) has considerable, recognized management capacity to execute a program with the features of the proposed operation, as demonstrated by its successful execution of previous programs financed by the IDB and the World Bank (see paragraphs 1.14 to 1.17). The road management systems currently in operation, many of which were introduced with Bank support, currently enable the DNV to properly carry out all activities connected with improving, rehabilitating, and preserving the national road system and obtain the necessary information on its physical condition, traffic volumes, weigh stations along highways, and road safety issues.
- 4.2 The proposed operation will continue to support DNV efforts to remain at the forefront of the region's road institutions. Specific institutional strengthening activities are planned to support this through such actions as updating the road system status survey, analyzing technical alternatives to facilitate and automate toll collection on road segments for which concessions have been granted, building capacity to better control loads and overweight vehicles on highways, consolidating the outsourced vehicle count system for vehicles using the national road system, updating road management models, and strengthening road safety management systems (see paragraph 2.7).
- 4.3 In addition, the results obtained during execution of the previous program confirm that the DNV possesses sufficient capacity in the area of environmental management. The DNV has an organizational hierarchy and the trained staff to support environmental protection and conservation activities through its environmental unit, and procedures are also in place to ensure environmental design quality and mitigate the potential social and environmental impact of subprojects. Furthermore, the DNV has experience in environmental management relating to tendering processes, contracting, construction, and works monitoring.
- 4.4 Notable outcomes of the environmental strengthening activities under the previous program are the creation of the DNV environmental unit and the official approval and incorporation of the environmental manual into the bidding documents for each works project. In addition, the DNV complied with the environmental recommendations for loan 1022/OC-UR, including training courses, the environmental liabilities study, and the decree establishing a "response plan for emergencies involving hazardous materials on national highways and departmental roads."

## **B. Socioeconomic viability**

- 4.5 The socioeconomic viability of projects to be included in the program will be verified through cost-benefit analysis and identification of economic feasibility indicators. This evaluation will also make it possible to rank projects and adjust the intervention level (surface treatment or wearing course, etc.) based on traffic demand. Only road projects with an internal rate of return over 12% may be included in the program (see paragraph 2.3).
- 4.6 The HDM-III model will be used for economic analysis of the project. This model can calculate total transportation costs by quantifying project benefits in terms of vehicle operating costs, shorter travel times, savings on future road maintenance, and the potential benefits of fewer accidents.
- 4.7 The model internally calculates speeds and vehicle operating costs, as well as wear and tear and road upkeep costs based on road design, maintenance practices, traffic volume, axle loads, and environmental conditions. Total road upkeep and vehicle operating costs are calculated internally on the basis of physical quantities and specified unit prices, to determine the required financial and economic costs. Various intervention options are then compared with the baseline option, and the most efficient alternative selected on the basis of objective economic indicators.
- 4.8 This methodology has been used to evaluate each project in the sample, representing at least 35% of the various types of roadwork to be financed by the program,<sup>10</sup> in order to determine the economic benefits and cost of each. This evaluation was used to rank projects and adjust the intervention level (pavement, surface treatment, or wearing course) based on traffic demand. Analysis of projects in the sample yielded IRRs of 17% to 28.5%, as illustrated in the Table below.<sup>11</sup> Future projects to be included will undergo the same economic evaluation process.

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<sup>10</sup> The sample covers 42.4% of the amount allocated for international corridors, 36.5% of the amount allocated for secondary roads, and 62.1% of the amount allocated for bridges.

<sup>11</sup> The sensitivity analysis assumed a reduction in benefits on the order of 20% and a 10% increase in investment costs. Even if these adverse events occur simultaneously, the economic return on subprojects remains at acceptable levels of 12% to 23.8%.

**Table IV-1**  
**Sample of Program Works**  
**(in thousands of US\$)**

Route	Segment	Amount	NPV	IRR (%)
<b>International corridors and primary network</b>				
3	San José (km 90) – km 111	4,100	1,680	19.6
5	End of Route 5 concession – Route 12	1,676	680	25.2
5	Route 12 – La Cruz (south access)	3,000	744	18.8
11	Route 86 (km 130.4 - km 131.2) – Route 7	479	301	28.5
11	Route 7 – La Pedrera	1,205	263	18.8
11	La Pedrera – Route 8 (km 46.6)	1,102	182	17.0
101	Route 102 – Route 8 (km 29.5)	2,233	550	24.4
102	Route 101 – Route 8 (km 18)	2,500	1,060	19.5
<b>Secondary network</b>				
14	Trinidad – km 157.3	2,262	676	17.7
14	Km 157.3 – Durazno	2,800	680	21.0
25	Young (Route 3 km 318.1) – Menafra	2,263	600	18.5
26	Arroyo Sauce del Capote – Ansina	1,929	663	22.8
26	Arroyo Caraguatá – P. Aguiar (Río Negro)	2,261	506	18.3
26	P. Aguiar (Río Negro) – Arroyo del Sauce	2,251	481	18.0
26	Arroyo del Sauce – Route 7 junction	1,681	346	18.3
<b>Bridges</b>				
21	Puente Arroyo Las Vacas and access roads	5,000	2,675	23.0
20	Arroyo Sánchez y Coladeras	648	245	20.0

### C. Financial viability

- 4.9 The program is scaled to ensure financial viability, considering the availability of DNV budget resources and cash flow, and other short- and medium-term investment commitments it has assumed, especially in connection with implementation of the so-called Megaconcession (see paragraph 1.9). The DNV currently has sufficient budget allocations to ensure that the program is executed properly in 2004 and 2005, so no difficulties are anticipated in contracting works and initiating the planned investments under this operation. In addition, the DNV has the resources to cover the transfers needed to partly finance Megaconcession

investments.<sup>12</sup> This obligation will expire in 2007 under the current DNV-CVU contract.

**D. Technical viability**

- 4.10 Lessons learned from the execution of road projects in previous road programs implemented by the DNV and financed by the Bank and other multilateral organizations were considered in evaluating the program's technical viability. No major technical difficulties are anticipated, given the DNV's proven technical capacity and the relatively simple features of the projects to be included in the program.
- 4.11 Tenders for all works to be included in the program will call for complete final designs. The Bank has conducted a detailed review of final designs for the program works included in the sample and confirmed their quality. All designs evaluated contain effective technical solutions and construction cost estimates in line with current market prices. Projects not included in the sample are similar to those sampled, so their cost could be reasonably estimated.
- 4.12 All works will be supervised by trained DNV professional staff. This oversight mechanism has produced excellent results in previous programs. The program provides for independent technical audits, based on sampling, of final designs and work execution quality. These audits will provide independent confirmation of the effectiveness of DNV works supervision.
- 4.13 Special care has been taken to ensure that work designs and plans incorporate all relevant road safety features. All designs will be reviewed and formally approved by the DNV Department of Traffic Safety prior to the tender process.
- 4.14 Draft terms of reference specific to each activity under the institutional strengthening component have already been prepared.
- 4.15 The expectation is that all works to be executed will be properly maintained. The DNV has been ranking upkeep activities in order of priority and developing various road management models based on demand levels and road network characteristics. Budget allocations for these activities have been sufficient and maintained at reasonable levels, even during years of tight budget constraints.
- 4.16 Maintenance has been done on higher-demand segments and roads via private-sector contracts (concessions, CREMAs, and microenterprises). Maintenance on less traveled stretches of road is done on force account. All maintenance

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<sup>12</sup> The DNV must guarantee the CVU a total of US\$25 million annually for the first four years of the contract and is obligated to transfer any shortfall between the US\$25 million and total annual toll revenue on Megaconcession toll roads.

outcomes are evaluated annually using technical indicators of road system condition. Outcomes in recent years show that the road management models adopted have been highly efficient.

**E. Environmental and social viability**

- 4.17 The works in the representative sample of the multiple works included in the program relate mainly to repaving, rehabilitation, and improvement of existing highways. Given the technical features of these works, it was determined that the majority of projects require no environmental impact study and may be executed on the basis of adherence to good engineering practices and the implementation of an environmental management plan. The Bank's Committee on Environment and Social Impact (CESI) reviewed the project and approved this proposal.
- 4.18 Only two projects in the sample require realignment and/or rerouting: (i) Route 21—Bridge spanning Arroyo Las Vacas Creek and alternate route to Carmelo City; and (ii) Route 25, Young-Menafrá segment (a bend in this segment has to be adjusted and this project may require the purchase of a narrow strip of land on an adjacent property).
- 4.19 Various alternatives were studied for the Route 21 project, and the option selected requires no resettlement. The project was submitted for public consultation, the required environmental studies done, and official approval obtained from the local authorities and local communities. The Young-Menafrá segment of Route 25 was also studied, and the DNV submitted the documentation to DINAMA. The works are small-scale and the studies are deemed sufficient. It is worth noting that, after receiving the relevant documentation, DINAMA approved the application to classify the works as category A, so they require no environmental impact assessment.
- 4.20 Given DNV experience with the previous program and its proven environmental management capacity (see paragraph 4.3), the program is considered viable from the socio-environmental standpoint.

**F. Environmental and social impact and proposed measures**

- 4.21 Road rehabilitation and repaving that involve no rerouting (see paragraph 4.17) generate a series of temporary adverse impacts and generally involve only an area of influence limited to the roadside fringes per se and the areas used for extracting materials, dumping waste, setting up worksite facilities, etc. These impacts are widely known and include: (i) disruption and risks for pedestrians, neighboring residents, and users; (ii) inconvenience and risk of accidents, affecting residential and commercial activities and adjacent buildings; (iii) environmental degradation risks in areas on temporary loan, dumping grounds, encampments, bodies of

water, and routes used for transporting materials; and (iv) adverse impacts on existing utility infrastructure, direct or indirect air, water, and soil pollution, etc.

- 4.22 On the other hand, improving road system trafficability will create considerable tangible and intangible benefits. Greater competitiveness as a result will have significant positive impacts extending to the entire population, and benefits users and neighbors directly.
- 4.23 The “Environmental Manual for Road Sector Works and Activities,” prepared by the DNV with Bank support, is part of the bidding documents and covers the environmental protection procedures for all impact types associated with road works in detail. These procedures must be followed during and on completion of all works. For the purposes of the program, compliance with the manual’s specifications will be deemed equivalent to a general environmental management plan. To supplement the environmental requirements and comply with the specific terms and conditions of each works project, the DNV requires that all contractors submit specific plans for worksite facilities, quarries, and other installations.
- 4.24 As a rule, moreover, the DNV requires that all contractors make provision for social and environmental management and mitigation measures in the works budget, and that the allocated costs be at least three percent (3%) of the total value of the works.
- 4.25 Works that call for rerouting or bridge relocation may produce a number of additional adverse impacts, which may directly affect protected areas or areas that are sensitive from the social or environmental standpoint, or even require expropriations and/or resettlement. Applicable Bank policies and procedures will be observed in all cases. Also importantly, works of this type require an additional analytical study, an environmental impact assessment, public consultations, and making environmental study reports available to the public locally and through the Bank’s public information office. As this is a multiple works program, should any projects requiring an additional environmental impact study be presented under this operation,<sup>13</sup> the corresponding environmental studies will have to be carried out and the Bank’s nonobjection obtained.
- 4.26 To ensure effective environmental and technical monitoring, the program makes provision for an environmental specialist to work closely with DNV professional staff as a member of the environmental unit, to strengthen it in the areas of contractor training and the environmental monitoring and supervision of works (see paragraphs 3.13 to 3.16).

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<sup>13</sup> If included in the program, the Yaguaraão-Rio Branco binational bridge and access roads project will require this type of analysis.



## **G. Benefits and beneficiaries**

- 4.27 The main benefits expected from the proposed program include: (i) lower transportation costs and shorter travel times; (ii) preservation of the country's road assets with consequent future savings from lower maintenance costs; (iii) improved connectivity and integration between production centers and national and international markets; (iv) safer road transportation, reducing the risk of accidents; and (v) improved road management efficiency.
- 4.28 Users of road segments selected for the project will be the main beneficiaries in terms of lower vehicle operating costs, shorter travel times, and fewer accidents as road safety improves. In addition, these benefits may be passed on to the owners and consumers of freight transported over these segments. Improvements in road management will result in more efficient public spending and considerable future savings on road maintenance, thus freeing up fiscal resources for other programs.

## **H. Risks**

- 4.29 The main risk inherent in the program is the possibility of future cuts in the operating budget due to fiscal adjustment. To mitigate this risk, and bearing this possibility in mind, although a program of up to US\$330 million with a Bank contribution of US\$230 million had been initially envisaged, analysis of macroeconomic conditions in Uruguay and budgeted funds available for the MTOP in the next few years, as well as the experience of executing the 1022/OC-UR program, it was agreed to scale down the program to US\$110 million (including financial expenses) with a Bank contribution of up to US\$77 million. In any event, this risk is seen as having diminished considerably since the second half of 2003, to the extent that Uruguay's economy has been swiftly recovering, with the consequent increase in tax revenue and improvement in the country's fiscal position.