

**REPORT AND RECOMMENDATION
OF THE
PRESIDENT
TO THE
BOARD OF DIRECTORS
ON A
PROPOSED LOAN
TO INDIA
FOR THE
EAST-WEST CORRIDOR PROJECT**

October 2002

CURRENCY EQUIVALENTS

(as of 31 October 2002)

Currency Unit	–	rupee/s (Re/Rs)
Re1.00	=	\$0.0207
\$1.00	=	R48.39

In this report, an exchange rate prevailing during fact-finding —\$1.00 = Rs49.00— was used for calculation purposes.

ABBREVIATIONS

ADB	–	Asian Development Bank
BLT	–	build-lease-transfer
BOT	–	build-operate-transfer
CMU	–	corridor management unit
CRF	–	central road fund
EIA	–	environmental impact assessment
EIRR	–	economic internal rate of return
EMMP	–	environmental management and monitoring plans
ESDU	–	Environment and Social Development Unit
E-W	–	East-West Corridor
FIRR	–	financial internal rates of return
GAAP	–	generally accepted accounting practices
GRC	–	grievance redressal committee
IEE	–	initial environmental examination
IPDP	–	indigenous people development plan
IPSA	–	initial poverty and social analysis
IRI	–	international roughness index
LIBOR	–	London interbank offered rate
MORTH	–	Ministry of Road Transport and Highways
NACO	–	National Aids Control Organization
NGO	–	non-government organization
NH	–	national highway
NHAI	–	National Highways Authority of India
NHDP	–	National Highways Development Program
N-S	–	North-South Corridor
O&M	–	operation and maintenance
PIB	–	Public Investment Board
PIU	–	project implementation unit
PPP	–	public private partnership
SBE	–	small business enterprise
SMT	–	Surat-Manor Tollway Project
SPV	–	special purpose vehicle
TOR	–	terms of reference
WTC	–	Western Transport Corridor Project

NOTES

- (i) The fiscal year (FY) of the Government ends on 31 March. FY before a calendar year denotes the year in which the fiscal year ends. For example, FY2003 begins on 1 April 2002 and ends on 31 March 2003.
- (ii) In this report, "\$" refers to US dollars.

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LOAN AND PROJECT SUMMARY

Borrower	India
Classification	Thematic: Economic growth Private sector development
Environment Assessment	Category B. An initial environmental examination was undertaken and the summary is attached as a core appendix.
Project Description	<p>Faced with the highway system's chronic capacity shortage, the Government of India launched a nation-wide program to upgrade key arteries of the National Highways Development Program (NHDP). Its key components are: (i) rehabilitation and widening of the Golden Quadrilateral, approximately 6,000 kilometers (km) of highway network, slated to be completed by the end of 2003 (phase 1); and (ii) rehabilitation and widening of the North-South (N-S; 4,000 km) and East-West (E-W; 3,300 km) corridors, which are to be completed by the end of 2007 (phase 2).</p> <p>The Asian Development Bank (ADB) provided two loans in 2000 and 2001 to develop the Golden Quadrilateral. The proposed Project is the first in the series of loans to be extended to the E-W and N-S corridors, mainly to remove the capacity constraints in the E-W Corridor in the State of Gujarat by expanding 504 km of two-lane national highways into four lanes. Of these, 468 km will be developed under a straightforward public finance arrangement, and the remaining 36 km under a build-operate-transfer (BOT) scheme.</p>
Rationale	<p>ADB takes a programmatic approach to achieve its medium- to long-term goals in a progressive and evolutionary manner. The Report and Recommendation of the President (RRP) on the Western Transport Corridor Project states these goals as follows: (i) transform the National Highway Authority of India (NHAI) into a managerially and financially autonomous body, (ii) enhance its fund mobilization and financial management capability, (iii) strengthen institutional capacity for project implementation and highway operation and maintenance (O&M), (iv) institute transparent corporate governance, and (v) promote public-private partnerships.</p> <p>The Project intends to pursue these goals through policy dialogue and assistance programs that will (i) secure more funds for phase 2 of NHDP, (ii) establish "an arm's-length relationship" between NHAI and its oversight agency, (iii) institute a clearly defined organizational structure with increased accountability for O&M, and (iv) facilitate private sector participation through BOT schemes.</p>

Objectives and Scope

ADB's multi-year lending program to NHDP aims to establish an enabling environment for efficient highway development and O&M with maximum private sector participation. The Project was designed to (i) facilitate the transformation of NHAI into a lean and efficient organization with strong managerial and financial autonomy; (ii) reduce the capacity constraint of the E-W Corridor by rehabilitating and widening the two-lane highways to four-lane standard; (iii) promote public-private partnership by helping NHAI design and implement a BOT component; and (iv) strengthen NHAI's capacity to deal with emerging social issues such as grievance handling, stakeholder participation, communicable diseases, and road safety.

Cost Estimates

Total project cost is estimated at \$576 million equivalent, including allowances for contingencies and interest during construction. Foreign exchange costs are estimated at \$377 million, representing 65% of the total cost, while the local currency costs are estimated at \$199 million equivalent, representing 35%.

Financing Plan

It is proposed that ADB provide a loan of \$320 million from its ordinary capital resources to help finance the Project, while the Government cover the foreign currency cost of \$28 million to cover the front-end fee and interest during construction, and \$183 million equivalent in local currency cost.

	(\$ million)			
	Foreign Exchange	Local Currency	Total Cost	Percentage
Asian Development Bank	320	0	320	56%
Government	28	183	211	37%
Private Sector	29	16	45	8%
Total	377	199	576	100%

Loan Amount and Terms

A loan of \$320 million from the ADB's ordinary capital resources will be provided under ADB's London interbank offered rate (LIBOR)-based lending facility. The loan will have a 25-year term including a grace period of 5 years, an interest rate determined in accordance with ADB's LIBOR-based lending facility, a commitment charge of 0.75% per annum, a front-end fee of 1.0%, and such other terms and conditions set forth in the draft Loan and Project Agreements. The Government will cover the cost of \$211 million equivalent in foreign and local currency cost. The Government will promptly make the proceeds of the loan available to NHAI. The Government's current policy of assistance to NHAI for the Golden Quadrilateral in this regard is a loan-grant ratio of 20:80, and for this Project, that forms part of the E-W Corridor, Public Investment Board clearance has already been given in a loan-grant ratio of 20:80 on which a cabinet decision is expected soon. The Government will bear the foreign exchange risk of the loan.

Period of Utilization

Until 31 December 2006

Estimated Project Completion Date	30 June 2006
Executing Agency	NHAI
Implementation Arrangements	The Project will be implemented by two project implementation units to be established by NHAI along the project highways.
Procurement	Procurement of civil works will be undertaken in accordance with ADB's <i>Guidelines for Procurement</i> following international competitive bidding procedures.
Consulting Services	Consulting services will be required for construction supervision. They will be recruited using the quality- and cost-based selection method in accordance with ADB's <i>Guidelines on the use of Consultants</i> , and other arrangements acceptable to ADB for selecting and engaging domestic consultants.
Project Benefits and Beneficiaries	<p>The main quantifiable project benefit is savings in vehicle operating costs, which will reduce transport costs. The Project's economic internal rate of return is estimated at 22%. Direct beneficiaries of the Project are road users and transport operators. Since the transport industry is competitive and likely to pass on the benefits of transport cost savings to end users, the public will also benefit.</p> <p>Improved road networks will increase the economic opportunities of the rural poor by (i) enabling villagers to shift from subsistence farming to market oriented agricultural surplus production; and (ii) encouraging poor agricultural workers to move out of their villages to work in better-paid occupations in manufacturing or trading. Improved roads will also provide social benefits such as (i) improved access to health, education, and social services; and (iii) increased access to learning opportunities, thus reducing the sense of isolation from cultural and commercial centers. The Project will also have a short-term impact on poverty reduction. Construction works and tree planting, together with ensuing maintenance works, will allow the rural poor to earn cash. They are generally not engaged in wage-earning jobs and are thus largely dependent on occasional and uncertain employment, so these opportunities have a direct impact on earnings.</p>

Risks and Assumptions

A potential risk is delayed implementation due to prolonged land acquisition. However, the need for land acquisition is limited except for the two bypasses, grade separations, and realignments along the existing routes. Additional land required for service roads and drainage lines is mostly available within the existing right of way. The land acquisition procedures recently introduced by the National Highway Act (1997) will minimize the potential risk of implementation delay. The new procedure will enable NHA to proceed with land acquisition more expeditiously and predictably.

Resettlement could also delay project implementation. Mobilizing the implementing nongovernment organizations (NGOs) within 2 months of ADB Board approval of the Project has also minimized this risk. NGO staff will process and resolve all resettlement-related matters, including payment of compensation. Coordination mechanisms will be established at the state and district levels to resolve land acquisition or resettlement-related issues.

I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to India for the East-West Corridor Project.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

A. Performance Indicators and Analysis

2. India's 58,000-kilometer (km) national highway (NH) system, 2% of India's total road network in length, carries over 40% of the country's road traffic. Yet the system's highway capacity, riding quality, and road safety are all poor.

3. **Highway Capacity.** Of all NHs, 38% still have one lane; 59%, two lanes; and 3%, four or more lanes. Nearly half of these roads are seriously congested, with volume capacity ratio of more than 1.3. With rapid economic expansion in the last 10 years at the rate of 6-7% inadequate highway capacity has seriously threatened the continued expansion of the national economy. The Government has thus launched the National Highways Development Program (NHDP), an ambitious program to upgrade 13,000 km of NHs to increase the percentage of four- and six-lane highways from 3% to 22% by 2007.

4. **Riding Quality.** Poor road conditions reduce the average vehicle speed and thus raise vehicle operating costs. On project highways, for example, the average vehicle speed is 38 km per hour, enabling vehicles to travel only 300 km per day as opposed to 500-600 km per day in advanced economies. The international roughness index is currently 4-7 meter (m) per km on NHs and is to be improved to 2.5-3.0 m per km by 2007 on NHDP roads.

5. **Road Safety.** Poor driving conditions, coupled with the undivided carriageway design of NHs, caused traffic accidents to rise at an average of 5% per year in 1971-1998. Among Asian countries, India ranks fourth for road traffic accidents. The number of fatalities per 10,000 vehicles in India is 20, which is lower than in Bangladesh (45), People's Republic of China (25), and Sri Lanka (24), but significantly higher than in Viet Nam (11), Thailand (10), and Malaysia (9).¹ As a leading economy in Asia, India should reduce this figure to 10 in 10-15 years.

B. Analysis of Key Problems and Opportunities

6. The highway sector has long suffered from lack of funding, weak project implementation capability, and lack of clear separation between policy and implementation functions of the Government, resulting in a huge backlog of highway development and maintenance programs, which has led the Government to start reforms (Appendix 3 for the sector profile).

7. The most important was the establishment of the National Highways Authority of India (NHAI) as an operating arm of the Ministry of Road Transport and Highways (MORTH) by the National Highways Authority of India Act of 1988, to develop, maintain, and manage NHs vested in or entrusted to, by the Government. The act allows NHAI to engage the private sector in highway development and operation and maintenance (O&M) and to mobilize funds from capital markets. NHAI does so as a government authority, not as a corporation, as NHs are a mixture of the public and private goods and because NH development needs public sector funds.

¹ Road Safety Guidelines of ADB.

8. Since NHA started operating in 1995, its size and scale of operations have grown significantly. Starting with a dozen staff and capital of Rs7 billion, NHA now has over 500 staff and handles more than Rs40–100 billion per year. NHA's mandate is to rehabilitate and upgrade three key national corridors: the 5,800 km Golden Quadrilateral; the 3,300 km East-West (E-W) Corridor; and the 4,000 km North-South (N-S) Corridor (Map, Supplementary Appendix Y). Total program cost is estimated at \$13 billion, unprecedented in government investment in transport.

1. Policy Dialogue

9. Implementation of such an enormous program requires an enabling policy environment. The Government has taken steps to create it by

- (i) simplifying the century-old land acquisition procedure by amending the National Highways Act in 1997;
- (ii) issuing a policy guideline² in 1997 to facilitate private sector participation in highway development, and implementing several key policy actions, including (a) government commitment to acquiring land, removing utilities, and cutting trees along the right of way before land is concessioned to the private sector; and (b) authorization of NHA to extend grants to private sector investors up to 40% of capital cost;
- (iii) adopting a policy in 1997 that, once a national highway is upgraded to four lanes, tolls can be collected on it;
- (iv) revamping the central road fund by introducing an additional excise duty levied on petrol and diesel ("cess") in 1998 and 1999 (Supplemental Appendix U); and
- (v) delegating broad decision-making authority to NHA in 2000 so it could decide on individual investments and procurement without going through the lengthy process of obtaining approval from the Public Investment Board (PIB).

10. While these policy actions have significantly changed NH sector management, the Asian Development Bank (ADB) has adopted a programmatic approach to solving remaining problems. ADB has set medium- to long-term goals for intervention in the NH subsector and pursues them in a progressive and evolutionary manner through multiyear lending operations rather than project by project. The goals include (i) strengthening institutional capacity to implement projects and manage contracts, (ii) strengthening financing and financial management capability, (iii) enhancing highway operations and management, (iv) advancing public-private partnerships, and (v) transforming NHA into a financially and managerially autonomous body.

11. Noticeable progress has been made in all reform fronts with ADB assistance. To improve project implementation capacity, ADB has provided two technical assistance (TAs): one³ to enhance NHA's capacity for social development, and the other⁴ to strengthen NHA's capacity for contract management, with resultant strengthening of NHA's project

² MORTH. 1997. *Guideline for the Private Sector Participation in the Road Infrastructure*. New Delhi.

³ TA 3365-IND: *Capacity Building for Social Development*, for \$800,000, approved on 23 December 1999.

⁴ TA 3361-IND: *Capacity Building for Contract Supervision and Management*, for \$600,000, approved on 22 December 1999.

implementation capacity. Initiatives have been undertaken in the other areas listed in the above para.

12. **Financing.** To develop NHDP, NHAI has relied on a diverse array of financing sources. Approximately 50% of NHAI investment funding has been directly or indirectly mobilized through annual contributions from cess. Grants and loans from multilateral and bilateral agencies account for an estimated 25% of total investment funding. The remaining 25% of NHAI's investment is financed through debt and a mix of other mechanisms, including build-operate-transfer (BOT) concessions, build-lease-transfer (BLT) annuities, and special-purpose vehicle (SPV) scheme.

13. Having started phase 1 of NHDP (highway construction), NHAI has begun phase 2 (development of the N-S and E-W corridors). An estimated additional Rs350 billion is required to develop 7,300 km more. Based on its projected level of borrowing and the level of funds already committed for investment in 1,000-2,000 km of phase 2, NHAI could support an estimated additional Rs50 billion–100 billion debt starting in 2005/06. Completion of the remaining 5,300-6,300 km of phase 2 could require financing the remaining Rs250 billion–300 billion, which, in turn, would need a substantial increase in revenue from either cess or tolls, or their combination.

14. ADB should initiate policy dialogue with the Government on the future financing strategy for phase 2, especially the possibility of increasing the cess and collecting tolls more aggressively. The prerequisite for policy dialogue is cash-flow analysis to enable the Government to evaluate a variety of financing scenarios and the resultant financial performance of NHAI. A cash-flow model was developed and preliminary analysis carried out under the ongoing project preparatory technical assistance (PPTA) for the National Highway Corridor–Public-Private Partnership Project (Supplementary Appendix Z). The analysis results are under review by NHAI. During project appraisal, the parties agreed that the NHAI analysis results would be discussed with ADB and also with relevant government agencies to develop a medium-term financing strategy for phase 2.

15. **Managerial Autonomy.** With the initiation of NHDP program, NHAI has been able to achieve a significant level of managerial autonomy. With expanded board membership to include key ministerial officials from the Department of Expenditure, Planning Commission, and MORTH, the NHAI board has been able to exercise broader authorities with respect to procurement and disbursement decisions. However, NHAI is subjected to several constraints including the lack of official sanction being accorded to NHAI to retain tolls as its own revenue. A further review would be necessary, from a long-term perspective, on the need of establishing an “arm's length relationship” between NHAI and line ministries.

16. Difficulties in retaining essential staff within NHAI should also be urgently addressed. Almost all professional staff of NHAI are deputed from MORTH or from the state public works departments (PWDs) for 2 years, with a possible 3-year extension. Deputation may meet short-term construction and other needs, but continuity of staff assignment is critically important to fundamentally and consistently change the institution. Deputation has also weakened the results of capacity-building efforts made by multilateral and bilateral aid agencies. The current staffing practices should be assessed, and an effective staffing policy, developed so that NHAI can be more efficient and effective. During project appraisal, the parties agreed that the two issues

would be addressed by the ongoing Institutional Strengthening Study financed by the World Bank and jointly reviewed with ADB.⁵

17. **Operation and Maintenance.** For the past few years, NHAI has been in accelerated construction mode with less attention being paid to O&M. As more highways are constructed and placed in service, O&M is becoming an increasingly important agenda for NHAI. Newly created assets need to be appropriately sustained, and their ROW kept clear, i.e. free from encroachment. To explore possible operational approaches to best address O&M issues, NHAI has initiated pilot programs for corridor management units (CMUs).⁶ While CMU approach needs to be further pursued, NHAI should also start to look at the revenue earning aspect of toll road operation. During the appraisal, it was agreed to initiate a study to examine the organizational options that would best support effective management and delivery of NHAI's O&M functions, including the possibility of establishing a separate line of business for O&M activities. The study will be undertaken again as a part of the above Institutional Strengthening Study (see Supplementary Appendix D for more detailed discussions on the O&M issue).

18. **Private Sector Participation.** Since 1999, NHAI has actively explored options to increase private sector participation in highway development. While it has been successful in involving the private sector in small investments in short highway sections and bypasses, NHAI has had difficulty attracting larger private investment in longer sections. This trend may, however, be changing at least for the high-density traffic corridors such as Golden Quadrilateral. The Delhi-Gurgaon section, a 28 km stretch of six and/or eight lanes, and the Jaipur-Kishangarh section, a 98 km stretch, were recently successfully tendered as BOT schemes for \$117 million and \$137 million, respectively. This trend is attributable to (i) increased interest in highway development of India's financial institutions, which have devised innovative financial instruments supported by sophisticated risk allocation mechanisms; and (ii) development of alternative private sector investment schemes including BLT annuities and SPVs. NHAI's future challenge is how to secure private sector participation in the less trafficked routes such as the E-W and N-S corridors. ADB will continue to assist this process through public sector operation and private sector operation arms (e.g., an NHAI annuity-based project being considered under ADB's private sector operations).

2. Lessons Learned

19. Since 1988, ADB has given India five loans for NH projects: Road Improvement (\$198 million, 1988); Second Road (\$250 million, 1990); National Highways (\$245 million, 1993); Surat-Manor Tollway Project (\$180 million, 2000); and Western Transport Corridor (\$240 million, 2001). Implementation of the first three were significantly delayed by operational and institutional shortcomings, many of which have been overcome in the last two. Measures taken in these projects include (i) allowing advance procurement of civil works and recruitment of supervision consultants, ensuring award of contracts before loan effectiveness; (ii) establishing project implementation units (PIUs) before loan effectiveness and appointment of key staff to prepare the Project for execution; (iii) removing utilities and other encumbrances before construction starts; (iv) increasing the size of contract packages to attract experienced international contractors; and (v) raising the level of authority of the independent engineer under the contract to ensure efficient and quick decision making during execution.

⁵ The study was financed by the World Bank. Based on the discussion between ADB, the World Bank, and NHAI, the study's scope was expanded to include the institutional reform elements ADB regards as important. The study is under way, and will be jointly reviewed by ADB and the World Bank.

⁶ Financed by two World Bank Projects: Third National Highway Project (2000) and Grand Trunk Line Project (2001).

III. PROPOSED PROJECT

A. Objectives

20. The overall objective of ADB's multiyear lending program to NHDP is to establish an enabling environment for efficient highway development and O&M with maximum private sector participation. This year's project focuses on the western half of the E-W Corridor to achieve the following:

- (i) Facilitate the transformation of NHAI into a lean and efficient highway management organization with stronger managerial and financial autonomy.
- (ii) Reduce the capacity constraint on the E-W Corridor by rehabilitating and widening highways to four lanes.
- (iii) Promote public-private partnership by helping NHAI design and implement a BOT component.
- (iv) Strengthen NHAI's capacity to deal with emerging social issues such as grievance handling, stakeholder participation, communicable diseases, and road safety.

B. Components and Outputs

21. To achieve the objectives, the Project has the following components:

- (i) **Investment.** Two-lane highways totaling 468.3 km will be rehabilitated and widened to dual two-lane carriageways with various road safety features (Supplementary Appendix E). These sections, once constructed, will be operated and maintained by private sector contractors under O&M agreement to be concluded with NHAI. Sections to be financed under this component are: (i) Porbandar – Bhiladi (50.5km); (ii) Bhiladi – Jetpur (64.5km); (iii) Bamanbore – Garamore (71.4km); (iv) Garamore – Gogadhar (106.2km); (v) Gogadha – Radhanpur (106.2km); and (iv) Radhanpur – Deesa (85.4 km).
- (ii) **Private Sector Participation.** This component will support NHAI prepare BOT package for identified sections between Jetpur–Bamanbore. Given the level of anticipated volume of traffic which is significantly lower than Golden Quadrilateral, the E-W and N-S corridors require an innovative approach in designing BOT packages if they are to attract an adequate level of interest from the private sector.⁷ Development of “green field” components (Jetpur-Gondal section - 26 km highway and 10 km Rajkot Bypass section) alone would not provide a rate of return attractive to the private sector, but their combination with “brown field” component(s) including four-laned section of the Gondal–Rajkot would present a sufficiently attractive package which would yield a reasonably high rate of return (see Appendix 4 for detailed analysis). Support for the preparation of these packages has been, and would continue to be, provided under the PPTA (which is partially funded by the Project). An agreement has also

⁷ While the development of one fifth of E-W and N-S corridors have already been undertaken, none has been developed by the private sector to date.

been reached with NHA1 for their engagement of a financial advisor with its own fund (see Supplementary Appendix F for terms of reference (TOR)).

- (iii) **Capacity Building.** This component will strengthen NHA1's capacity to deal with emerging social issues: (i) grievance handling, (ii) stakeholder participation, (iii) HIV/AIDS,⁸ (iv) resettlement, and (v) road safety. NHA1 recently established within it the Environment and Social Development Unit (ESDU) to coordinate activities (i) to (iv). The general manager of the Corridor Management Unit will coordinate activity (v). TA will be provided to implement these activities.⁹ Supplementary Appendix G provides outline TOR for this TA and implementation arrangements. The following modules will deal with the social issues:
- (a) **Grievance handling.** Training will be provided to strengthen NHA1's capacity to deal with and quickly respond to grievances filed by people and/or nongovernment organizations (NGOs) affected by the Project. This module was based on the lessons learned from recent inspection cases, which indicate that many of the possible cases could have been avoided if the complaints had been properly handled early on by executing agencies.
 - (b) **Stakeholder participation module.** NHA1 tries to strengthen communication with key stakeholders through the recently established Advisory Council. NHA1 has also decided to strengthen the general consultation process with a broader range of stakeholders to increase their understanding of the Project and obtain feedback early on in project preparation. NHA1 management and staff will be familiarized with the concept of stakeholder participation and best practices in participation.
 - (c) **HIV/AIDS.** NHA1 will carry out HIV/AIDS awareness and prevention campaigns with the help of an NGO. Activities will include field campaigns at truck parking spaces and other appropriate locations to increase awareness of truck drivers, construction workers, sex workers, and local communities about the risks and danger of HIV/AIDS. HIV/AIDS awareness brochures will also be distributed at tollbooths.
 - (d) **Resettlement.** Resettlement officers and NGO staff will be trained to work for PIUs.
 - (e) **Road safety.** Advisory service will be provided to develop a mechanism for a regular highway patrol system and emergency medical services (phase 1). The mechanism will be tested on a pilot program basis in the proposed BOT component. Under the mechanism, service contracts will be concluded with the state police and State Medical Department, and relevant clauses, drafted and incorporated in the BOT contract. Building on the pilot program, advisory service will be provided to explore the possibility of applying a similar mechanism to NHDP highway systems on

⁸ Human immunodeficiency virus/acquired immunodeficiency syndrome.

⁹ The mission will seek management's approval to modify the scope of the advisory TA for the corporate finance enhancement study on reallocating the cost of phase-2 activities (which will be canceled due to the incorporation of phase-2 activities in the World Bank-financed study for institutional strengthening).

a network-wide basis. In addition, advisory service would be provided to develop a highway police system covering the entire NHAJ network (phase 2).

C. Special Feature

22. The programmatic approach adopts a mechanism that starts project processing when an agreed-on milestone (a trigger point) is achieved.¹⁰ During the 2002 pre-country programming mission, the project trigger point was set as substantial progress of private sector participation in highway development. The Fact-Finding Mission of May 2002 reviewed the project trigger point and found that substantial progress had been made in private sector participation. In the last 3 years, NHAJ introduced six BOT projects, eight annuity-based concession projects, and one SPV, which, combined, accounted for 14% of the length of the Golden Quadrilateral (Supplementary Appendix H, para. 18). The Mission then began to process the Project.

D. Cost Estimates

23. The total project cost is estimated at \$575.8 million equivalent, including allowances for contingencies and interest during construction. Foreign exchange costs are estimated at \$376.9 million, representing 65.4% of the total cost, while the local currency costs are estimated at \$198.9 million equivalent, representing 34.6% (Table 1 and Appendix 5).

Table 1: Project Cost Estimates
(\$ million)

Item	Foreign Exchange	Local Currency	Total
A. Base Cost			
1. Civil Works	284.8	158.0	442.8
2. Right of Way	0.0	3.5	3.5
3. Resettlement	0.0	4.3	4.3
4. Relocation of Utilities	0.0	3.4	3.4
5. Environment	0.0	0.9	0.9
6. Consulting Services	18.4	3.7	18.4
7. PPTA Consultant above threshold	0.5	0.0	0.5
8. Project Management	0.0	3.7	3.7
Subtotal	303.7	173.7	477.4
B. Contingencies	44.2	24.7	68.9
C. Front-End Fee	3.2	0.0	3.2
D. Interest/Commitment Charges During construction	25.8	0.5	26.2
Total	376.9	198.9	575.8

PPTA = project preparatory technical assistance.

¹⁰ ADB. 2000. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to India for the Western Transport Corridor*. Manila. para. 31.

E. Financing Plan

24. The Government has requested a loan of \$320 million from ADB's ordinary capital resources to help finance the Project. The loan will have a 25-year term, including a grace period of 5 years, an interest rate determined in accordance with ADB's LIBOR-based lending facility, a commitment charge of 0.75% per annum, a front-end fee of 1.0%, and such other terms and conditions set forth in the draft Loan and Project Agreements. The Government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB.

25. The Government will cover the foreign currency cost of \$27.8 million to cover the front-end-fee and the interest during construction. The Government will also cover the local currency cost equivalent to \$182.9 million. The proceeds of the loan will be made available by the Government to NHAI promptly as required for the purposes of the Project. The Government's current policy of assistance to NHAI for Golden Quadrilateral in this regard is a loan-grant ratio of 20:80, and for this Project, that forms part of the E-W Corridor, PIB clearance has already been given in a loan-grant ratio of 20:80 on which a cabinet decision is expected soon. The Government will bear the foreign exchange risk of the loan. Civil works between Jetpur and Gondal section and Rajkot Bypass section of the Project will be carried out under BOT scheme. The cost for the works, \$45.1 million equivalent, will be covered by a private concessionaire. The detailed financing plan is provided in Table 2.

Table 2: Financing Plan
(\$ million)

Source	Foreign Exchange	Local Currency	Total Cost	Percentage
Asian Development Bank	320.0	0.0	320.0	56%
Government	27.8	182.9	210.7	37%
Private Sector	29.1	16.0	45.1	8%
Total	376.9	198.9	575.8	100%

F. Implementation Arrangements

1. Project Management

26. NHAI will be the Executing Agency for the Project (Supplementary Appendix I for NHAI's organization). The Project will be implemented by two specially created PIUs, which will be located in Rajkot for the sections between Porbandar and Samakhiali, and in Palanpur for the sections between Samakhiali and Deesa. PIUs should be adequately staffed, which should be completed within two months of loan effectiveness, and in any case, prior to the award of civil works contracts under the Project, whichever is earlier. Two general manager level staff will be assigned as project directors, one for each PIU, who would be assisted by three/four deputy general managers or managers, each responsible for one contract package or a BOT component. An additional deputy general manager or manager would be assigned for each of the PIU for overseeing resettlement activities and also handling grievances to be filed by the public including project affected persons and NGOs. An accountant/financial management

specialist will be assigned for each PIU. The activities of the PIUs will be overseen by the Chairperson of NHAI who will be assisted by a chief general manager in-charge of the E-W Corridor development. Sufficient administrative authority will be delegated to the PIUs for effective and timely implementation of the Project. Supplementary Appendix J gives the organization structure of PIUs.

2. Implementation Schedule and Period

27. The Project will be implemented over 48 months, inclusive of procurement and preconstruction, and is expected to be completed by 30 June 2006. The schedule will allow for land acquisition and resettlement and clearance of all utilities, trees, and any other obstructions from the land to be used for construction. The implementation schedule is in Appendix 6.

3. Procurement

28. Civil works will be procured in accordance with ADB's *Guidelines for Procurement* following international competitive bidding procedures. Civil works will be divided into six packages. The contract packages (\$47 million–88 million) are large enough to attract capable contractors with international experience. A list of contract packages and the mode of procurement are in Appendix 7. To expedite procurement, in July 2002 ADB approved advance action for prequalification. The Government has been advised that this approval does not commit ADB to finance the Project.

4. Consulting Services

29. Given the length of project highways, NHAI decided to engage two consulting firms as project engineers to ensure adequate construction supervision of civil works. With the expanded power of the engineer, as adopted in the Western Transport Corridor Project, NHAI will continue to ensure objective and transparent processing of contract variations. NHAI will also engage another consulting firm of similar function for the BOT component. NHAI will engage these three consulting firms using quality- and cost-based selection for full technical proposals in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB on the selection and engagement of domestic consultants. Summary TOR for these services are in Supplementary Appendix K. Consultant inputs will consist of 3,414 person-months (447 for international and 2,967 for domestic) with an estimated cost of \$18.4 million.

5. Disbursement Arrangements

30. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (January 2001) and *Interim Guidelines for Disbursement, Operations; LIBOR-Based Loan Products* (July 2002), as amended from time to time, using direct payment. To facilitate project implementation through the timely release of funds, an imprest account may be established by the Government with the Reserve Bank of India. The imprest account will be managed, replenished, and liquidated in accordance with the *Loan Disbursement Handbook*. The initial amount to be deposited in the imprest account is not to exceed estimated expenditures for the next 6 months or 10% of the loan amount, whichever is lower. Any individual payment to be reimbursed or liquidated under the statement-of-expenditures method for reimbursement of eligible expenditures for consulting services will not exceed the equivalent of \$300,000.

6. Accounting, Auditing, and Reporting

31. NHAI will maintain separate records and accounts adequate to identify works, goods, and services financed from the loan proceeds; financing resources received; expenditures incurred for the Project; and local funds. The project accounts will be established and maintained in accordance with sound accounting principles.

32. NHAI's accounting system has been established in accordance with government requirements, and its financial statements are prepared in a format prescribed by the Controller and Auditor General of India who audits NHAI's financial statements annually (Supplementary Appendix L). As a public sector authority, NHAI's accounting system generally adheres to basic commercial accounting practices commonly employed in India and is in accordance with generally accepted accounting practices (GAAP) of India. Accrual accounting is used, transactions are recorded on a historical cost basis, and a balance sheet and a profit-and-loss statement are annually prepared (see Supplementary Appendix M for financial statements of NHAI).

33. NHAI operates as an agent of the Government with primary responsibility for developing NHs. Road infrastructure is vested or entrusted from the Government to NHAI but not recorded since no value is attached to the infrastructure. On the balance sheet, nonrecurrent expenditures for road improvement are shown as work in progress until completion. An accounting policy to convert these works in progress into fixed assets in the books has yet to be determined.

34. NHAI's primary source of reported revenue is the management fee received from the Government in return for completing the entrusted works. Toll revenues are not treated as NHAI income but as accounts payable to the Government. Interest received on unused advances is not treated as NHAI income but recognized as a capital surplus or an increase to capital. As of FY2001, the main differences between NHAI accounting practices and statement presentation, and GAAP of India are detailed in the notes to the financial statements.

35. An independent auditor satisfactory to ADB will annually audit NHAI project accounts and financial statements. The audited project accounts will be submitted to ADB not later than 6 months after the end of the fiscal year to which the accounts relate, and the audited financial statements, not later than 9 months. The annual audit of the project account should cover the imprest account and statement-of-expenditure procedure. During the Appraisal Mission, NHAI was made aware of ADB's policy on delayed submission and the importance of satisfactory and acceptable quality of the audited reports. NHAI has appointed M/s Price Waterhouse Coopers, India, as its internal auditors effective for FY2002. As part of the assignment, the company is required to advise on accounting policies and practices and internal control procedures, conduct a 100% post-audit of all transactions, and certify NHAI's statements of expenditures to be submitted to funding agencies.

36. NHAI will provide quarterly reports to ADB on project execution. Three months after project completion, NHAI will provide ADB with a project completion report.

7. Project Performance Monitoring and Evaluation

37. With help from the supervision consultants, NHAI will monitor and evaluate project performance in accordance with ADB's *Project Performance Management System Handbook*. Primary monitoring indicators to be used by NHAI and reported to ADB will be (i) percentage of roads without discernable congestion, to measure capacity expansion; (ii) international

roughness index, to measure the riding quality of the project roads; (iii) travel time, to measure increased efficiency for passenger transport; (iv) freight for trucking service, to measure reduction in transport costs; (v) traffic fatalities, to measure increased road safety; and (vi) length of highway sections to be developed by the private sector, to measure the extent of private sector participation.

38. Initial and target values for each indicator, together with the methodologies for compiling data, are in Supplementary Appendix N. Similar set of performance monitoring indicators will be used for all NHAI projects to be financed by ADB under the programmatic approach.

8. Project Supervision and Review

39. Soon after the loan approval of the Project, a project inception mission will be fielded to start project implementation. The Government and NHAI will periodically review the Project to assess and evaluate its scope, implementation arrangements (with participation of local NGOs and community), benefit monitoring, progress, and achievement in accordance with ADB's *Project Performance Management Systems Handbook*. NHAI and ADB will undertake a midterm project review in May 2004 to (i) evaluate the project scope, design, and implementation arrangements; (ii) identify changes needed since project appraisal; (iii) assess implementation performance against project performance indicators; (iv) review resettlement operations; (v) review and establish compliance with the legal covenants; (vi) identify problems and constraints; and (vii) if necessary, recommend changes in project design or implementation. If the midterm review concludes that project implementation should be changed, NHAI and ADB will agree on appropriate measures, including changes in implementation arrangements, to ensure that project objectives are met.

IV. PROJECT BENEFITS, IMPACTS, AND RISKS

C. Social Aspects

40. An initial poverty and social analysis was carried out during project preparation. Participatory processes were applied, including consultation with local communities and persons affected by the Project about the proposed highway improvements. The communities were supportive of the Project owing to its significant economic benefits and road safety features incorporated in highway design. Scheduled tribes live in the project areas. A preliminary assessment report on indigenous people indicated that the Project will not specifically impact on scheduled tribes. As scheduled tribes living in the project areas are already integrated into mainstream communities, a separate indigenous peoples development plan was not required. As a vulnerable group, however, STs will receive special assistance under the resettlement plan. During the Fact-Finding Mission, a summary poverty reduction and social strategy was prepared (Appendix 8).

1. Resettlement

41. The existing right of way of the project highways is generally 45 m except for NH14 and NH15, which have 60 m rights of way. The proposed four-lane highways comprise 7 m segregated carriageway divided by medians of varying widths and, on the average, 2 X 1.5 m paved shoulder. Highway improvement will be carried out within the existing right of way except for minor realignments and two bypasses. Therefore, new land acquisition will be minimal and confined largely to construction of bypasses in Ranavav and Upleta. An estimated 364 ha of land will be acquired, half of which are privately owned (mainly agricultural), and the remainder,

government-owned uncultivated wasteland. Land acquisition will likely affect 308 households, of which only about 25 may require relocation; the rest will lose only agricultural plots. Land acquisition and resettlement impacts were minimized by (i) keeping the improvement works within the right of way, (ii) adopting asymmetrical widening, (iii) elevating carriageways over graveyard and/or cultural sites, and (iv) constructing bypasses to avoid congested urban settlements.

42. The census/socioeconomic surveys carried out in May 2002 generated a full inventory of losses by affected persons for relocation assistance and other relocation purposes (Appendix 9). In all, 2,526 households/businesses (13,064 persons) will be affected, but the impact will be largely limited to the roadside squatters/informal settlers and small business enterprises (SBE). Of all affected units (informal settlers, SBEs, and agricultural families), 68% are business/commercial enterprises. Owners of SBEs are “illegal” occupants of right-of-way land. An estimated 1,000 informal households/SBEs will require relocation. Most informal settlers are small business owners and vendors and, therefore, considered vulnerable.

43. Affected persons will suffer loss of (i) agricultural land, crops, and trees; (ii) business/residential structures; (iii) business/employment; (iv) income, temporarily; and (v) access to right of way to income-generating and livelihood sources. Compensation for land and other assets will be paid at replacement/market value. The entitlement matrix recognizes all types of affected persons irrespective of ownership status. The matrix identifies the affected persons and losses, and defines compensation and entitlements. The resettlement plan aims to restore and improve the economic conditions of affected persons, particularly vulnerable groups, through a variety of programs, including training for alternative income. The resettlement plan is guided by the ADB policy on involuntary resettlement as well as NHA1 policies and practices related to resettlement in ongoing ADB-funded projects.

44. Two resettlement sites have been identified in Rajkot and Thara in consultation with affected persons and local administration. In Rajkot, about 400 informal residential units will be resettled and provided basic amenities. In Thara, affected units are largely SBEs—over 600 shops. They will be rehabilitated in the adjacent new market centers to be built by the Project. Encroachers—private owners who have extended their property on the right of way—will be notified to remove their structures before civil works commence and allowed to salvage materials from the demolished structures. However, vulnerable families in this category will be helped on a case-by-case basis to improve their incomes, and compensated at replacement cost for their lost assets. Female-headed households will receive additional assistance for relocation and/or income restoration. Ongoing poverty-reduction programs to rehabilitate child workers will target the families of child laborers in SBEs.

45. NHA1 made copies of the draft resettlement plan available to affected persons and other stakeholders (e.g., block development officer and district commissioner’s office) in the project area on 2 July 2002 in English and on 9 July 2002 in Gujarati. NHA1 conducted two workshops in the project area to inform affected persons, and discuss and review their comments, which were later incorporated in the revised resettlement plan. To avoid an influx of informal dwellers and fraudulent claims during implementation, NHA1 will issue photo identification cards to all identified owners of residential structures and shops (including employees) by March 2003. To facilitate timely and effective implementation of the resettlement plan, NHA1 has agreed to hire NGOs within 2 months after ADB Board approval of the Project. The estimated resettlement cost for the Project, including NGO services, will be Rs434 million.

46. Various stakeholders consulted during the project preparation include (i) heads of households and/or businesses to be affected, (ii) affected persons in small groups, (iii) village *panchayat* (elected council at village level) members and *sarpanch* (village head), (iv) local voluntary organizations and NGOs, (v) government agencies and departments; and (vi) women and other vulnerable groups. NHA will depute resettlement officers to PIUs to supervise resettlement plan implementation work by NGOs, which will be selected by ESDU.

2. Communicable Disease

47. HIV/AIDS are major development challenges. According to the National AIDS Control Organization (NACO), India had close to 4 million people with HIV/AIDS in 2001, or less than 1% of the adult population. However, HIV could infect at least 5% of the adult population (over 37 million) by 2005 if no effective preventive measures are taken. The Government has shown increasing commitment to HIV/AIDS control, and established a consortium-like collaboration with external aid agencies to provide technical and financial assistance to NACO to help implement national HIV/AIDS policies.

48. Gujarat's HIV/AIDS incidence is sixth after that of Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, and Manipur. However, awareness of HIV/AIDS risks is low in Gujarat: only 22.7% of rural women in Gujarat (against 72.5% among rural women nationally) are aware of HIV/AIDS risks.¹¹ Clearly, awareness must be raised in the state.

49. Truck drivers and construction laborers spread sexually transmitted diseases. HIV/AIDS is thus a possible negative impact of highway construction. Under the Project, an information and education campaign on the risks of HIV/AIDS will be conducted by a qualified NGO and target construction workers at campsites, truck drivers at truck stops (*dhabas*), and local communities along project highways, particularly rural women. The NGO will form local AIDS awareness groups and work closely with the relevant state agencies (particularly Gujarat State AIDS Control Society) and other existing networks dedicated to the prevention of HIV/AIDS.

3. Road Safety

50. While an improved network would contribute to economic growth, more roads have also brought in their wake more accidents: 5% annual increase for the last two decades, with 90,000 fatalities in 2001, 40% of which on NHs. About 50–60% of road traffic accidents involve heavy commercial vehicles such as trucks and buses (Supplementary Appendix O).

51. The Project has several road safety features, including provisions for overpass and underpass at necessary locations, with particular attention to rural areas so that farm families can safely move their herds. Right-of-way management, alternative markets for roadside vendors, and provision for bus and truck stops will address safety issues. Road improvement plans will include traffic management features such as signs, markings, streetlights, guard rails, crosswalks, intersection layout and control, and provisions for different types of road users.

52. At various stages of project design and implementation, road safety audits will identify potential road safety hazards and design defects, which can be redressed by improving design and other engineering measures. Road safety audit will be combined with other ongoing

¹¹ Awareness rates were highest in Kerala (96.4%), Goa (92.4%), and Andhra Pradesh (90.6%). See *HIV/AIDS Indian Scenario—Executive Summary*, NACO, 2001.

projects (SMT and WTC). Necessary costs will be financed out of loan proceeds of the SMT Project (see Supplementary Appendix P for outline TOR for road safety audit).

4. Poverty Impact

53. Poverty in Gujarat is significantly less severe than in the rest of India,¹² with 14.1% of the population below the poverty line. In 1993–2000, Gujarat achieved higher-than-average economic growth of 7.2% per year, reducing poverty slightly faster than the national average.¹³ The Project is expected to stimulate the state's economic growth, which will, in turn, reduce poverty (Supplementary Appendix Q).

54. Improved road networks will increase long-term economic opportunities of rural communities by (i) enabling villagers to shift from subsistence farming to market-oriented agricultural surplus production; and (ii) helping local people, particularly the youth, move out of their communities to work at better-paid jobs in manufacturing or trading. The Project will provide social benefits such as improved access to health, education, and social services. The Project will have a short-term poverty reduction impact as the rural poor are hired for construction, tree planting, and ensuing maintenance works. These opportunities will directly increase earnings for the poor largely dependent on occasional and uncertain employment.

55. ADB's road projects are intended to assist the Government's overall efforts to improve the entire road network consisting of national, state, and rural roads. The Government's road development policy is comprehensive with an aim to establish total connectivity with highest priority being accorded to the rural road segment. Thus ADB intends to provide lending not only to the national highway segment, but also to state roads from this year on, and also to rural roads from the next year on.

56. The proposed 506 km highway improvement will pass through approximately 170 villages and 12 urban areas. Community assessment surveys on poverty impact carried out in June 2002 revealed that project area residents generally perceive a positive linkage between poverty reduction and highway improvement. The survey also revealed that 20% of workers, many of whom are agricultural laborers, were employed an average distance of 9 km from their villages. Improved mobility would provide these workers with better-paying jobs outside the villages, including in towns. Respondents also indicated that the Project would improve public transport services and possibly make them cheaper and faster, which would directly benefit agricultural laborers working outside their villages. Nearly half the respondents felt that increased mobility would facilitate their access to educational and medical facilities.

B. Environmental Assessment

57. The Project is classified under environmental category B. An initial environmental examination (IEE) report was prepared by NHA consultants and submitted to ADB in June 2002. The IEE findings indicate that the Project will not have significant adverse environmental impacts as it will upgrade existing highways and be executed primarily within existing rights of way. Cultural/heritage areas, protected areas, wetlands, and other environmentally sensitive areas will not be disturbed. A summary IEE was prepared (Appendix 10). The Project will

¹² 26.1% being defined as below the poverty line.

¹³ During these 6 years, poverty has gone down by 10.2% in Gujarat, while the national average has gone down by 9.9%. During the same period, state gross domestic product (GDP) grew by 7.2%, faster than the national average of 6.4%.

comply with ADB's *Environmental Guidelines for Selected Infrastructure Projects* (1993) and *Environmental Assessment Requirements of the Asian Development Bank* (1998).

58. The environmental management and monitoring plan is sufficiently detailed to help NHAI and contractors mitigate the Project's potential environmental impacts. The plan summarized the mitigation proposals and allocated responsibilities, including implementation, testing, and monitoring during construction and operation.

C. Economic Assessment

59. Project economic evaluation is based on the comparison of scenarios with and without the Project. Economic costs and benefits are compared in constant value. The economic costs were computed using the financial costs. Project benefits were computed based on reduced vehicle operating costs due to improved road quality and capacity. Vehicle cost savings were computed using Highway Design and Maintenance Model – IV (HDM-IV) modified for India. The economic internal rate of return (EIRR) was estimated for the Project as a whole, as well as for each of the 11 roadway sections. The project EIRR is 22.0%, and section EIRRs were 14.8–30.4%.

60. A sensitivity analysis of the EIRR has been undertaken for changes in the underlying cost-and-benefit parameters. Under the worst-case scenario of a simultaneous 15.0% increase in project costs and a 15.0% reduction in project benefits, the overall EIRR is estimated at 18.8%. A possible 1-year delay in project implementation would bring down the EIRR to 20.9% (Supplementary Appendix R).

D. Financial Analysis

61. A financial analysis of the Project was also undertaken to assess the projected toll revenues generated from the traffic on project highways against the construction cost to widen the road, and the annual costs for road operations and for routine and periodic maintenance over 30 years.

62. Revenue projections are based on traffic forecasts, which use as a baseline the average of recent traffic counts and an extrapolation of past counts. Separate growth rates were computed for each type of vehicle. Growth rates vary for passenger vehicles from 6% to 10%, and for medium-weight to heavy trucks, from 6% to 10%, with the proportion of traffic that should and does pay tolls assumed at 75%. Total construction costs are expected to be incurred over 33 months, with construction completed and traffic tolls initiated by mid-2006.

63. Based on the above assumptions, the project financial internal rate of return is calculated at 8.2 %, above NHAI's 4.2% weighted average cost of capital in real terms.

E. Potential Risks

64. A potential risk to the Project is the possible delay in implementation due to prolonged land acquisition. However, the need for land acquisition is limited except for the two bypasses, grade separations, and realignments along the existing routes totalling 37 km or 7% of the total project highways. Land required for service roads and drainage lines is mostly available within the right of way. Land acquisition procedures introduced in 1997 by the amended National Highways Act will minimize the risk of implementation delay. The new procedures will enable NHAI to proceed with land acquisition expeditiously and predictably (Supplementary Appendix

S). NHAI assured the Mission that land necessary for commencement of construction activities will be acquired by June 2003.

65. Resettlement can also potentially delay implementation. To facilitate timely and effective implementation and monitoring of the resettlement plan, NHAI will hire NGOs and depute resettlement officers in the PIUs. Mobilizing the implementing NGOs within 2 months of ADB Board approval of the Project will minimize the risk of delayed compensation. The NGO staff will dedicate their time to processing and resolving all resettlement problems. Coordination mechanisms will be established at the district level to resolve any land acquisition or resettlement issues that may arise.

V. ASSURANCES

66. The Government and NHAI have given the following specific assurances, in addition to the standard assurances, which will be incorporated in the legal documents:

A. General

- (i) The Government will ensure that sufficient budgetary allocations, counterpart funds (including additional funds as required in case of revisions to resettlement plans) and staff are made available in a timely manner for the efficient and timely implementation of the Project.
- (ii) The Government will ensure timely administrative clearances as required by NHAI for the speedy implementation of the Project.

B. Implementation Arrangements

- (i) The Borrower will ensure that NHAI is continued to be delegated with sufficient administrative and financial authority for the expeditious implementation of procurement and disbursement under the Project.
- (ii) NHAI will ensure that the Project Implementation Units (PIUs) are adequately staffed by experienced personnel at both managerial and professional levels during the entire period of the Project implementation. The PIUs will be headed by a Project Director. The activities of PIU will be overseen by the Chairperson of the NHAI who would be assisted by a chief general manager.

C. Highway Upgrading

- (i) NHAI shall not award any civil works contract until after the conditions stipulated under Section F (vii) of paragraph 66 have been complied with.
- (ii) Notwithstanding the provisions of the above clause and subject to the provisions of Section F (vii) of paragraph 66, NHAI will, (i) acquire or make available on a timely basis, the land and rights in land, free from any encumbrances; and (ii) clear the utilities, trees and any other obstruction from such land, on a timely basis, as required for construction activities relating to the contract.

D. Road Safety Subcomponent

- (i) NHAI will monitor the incidence of traffic accidents and report to ADB, in a format agreeable to ADB, during the project implementation period, and two years after the project completion.
- (ii) NHAI will carry out a road safety audit for the Project Highways during the project implementation period and develop recommendations to be used on other parts of the national highway system by 31 May 2005.

E. Operation and Maintenance

- (i) NHAI will ensure that upon completion of the Project highway, its operation and maintenance are awarded to the private sector under arrangements satisfactory to ADB. NHAI will submit the terms and conditions of the proposed arrangements to ADB for review and comment prior to inviting bids from the private sector.
- (ii) The Government will actively consider NHAI to retain its toll revenue for maintenance of the National highways and other necessary purposes by December 2004.

F. Environmental and Social Safeguards

- (i) NHAI will ensure that all environmental mitigation measures identified in the IEE and SIEE are incorporated into the detailed Project design and are followed during construction, operation, and maintenance of the Project highway. NHAI will also ensure that the Project is designed and constructed according to the Environmental Management and Monitoring Plan agreed upon with ADB in accordance with ADB's *Environmental Guidelines for Selected Infrastructure Projects*.
- (ii) NHAI will continue with the training program for environmental management for its staff and also the staff of the contractors under the Project.
- (iii) The Government and NHAI will implement the resettlement plan agreed upon with ADB in consultation with State and district authorities concerned and with persons affected by the Project, under arrangements satisfactory to ADB in accordance with the Governments applicable laws, ADB's policy on Involuntary Resettlement and ADB's Handbook on Resettlement, 1998, as amended from time to time. NHAI will ensure that any person who may be affected as a consequence of the Project is consulted and fairly compensated on replacement values such that his or her living standards are not adversely affected by the Project.
- (iv) To ensure timely monitoring of the resettlement plan implementation, NHAI will appoint an independent monitoring expert within three months of effective date in accordance with resettlement plan.

- (v) NHAI will ensure training to NGOs and resettlement officers to be conducted on matters relating to resettlement by a local resettlement specialist and the EDSU officials.
- (vi) If the detailed design requires updating of the resettlement plan, NHAI will update the resettlement plan and provide it to ADB for approval, prior to awarding civil works contracts.
- (vii) NHAI will carry out settlement of issues relating to land acquisition and resettlement compensation payments for the Project that shall include: (i) payments of full compensation/replacement value for land/structure (residential/commercial) to legal titleholders prior to commencement of the civil works; (ii) payments of full replacement value of structure (residential/commercial) to affected informal settlers/roadside squatters before the commencement of civil works; (iii) payments of compensation for acquired land to titled owners prior to the commencement of civil works; and (iv) payments of all other additional benefits and provision of assistance in accordance with resettlement plan provisions, including income restoration grants/skill training during the implementation of the Project.
- (viii) Public awareness and acceptance of the Project through participation of NGOs and communities shall be ensured by NHAI. To avoid influx of informal dwellers and fraudulent claims during implementation, NHAI will issue photo ID cards to all identified owners of residential structures and shops (including employees) to be completed by March 2003. To facilitate timely and effective implementation and monitoring of resettlement plan, NHAI will hire NGOs and depute resettlement monitoring officers in the PIUs.
- (ix) NHAI will set up the grievance handling units at its headquarters (in the ESDU) and in each of the PIUs functioning to address environmental, resettlement and other social issues in a timely manner. Grievance redress committees will be formed in accordance with the resettlement plan in each district for resolution of disputes concerning resettlement.
- (x) NHAI will ensure that civil works contracts incorporate provisions to the effect that contractors (i) shall carry out HIV/AIDS awareness and prevention programs for labor, and (ii) shall not use children as labor. The civil works contracts shall also provide for termination of the contract by NHAI in case of breach of any of the stated provisions by the contractors.
- (xi) NHAI will recruit qualified NGOs to carry out education campaign on the risks of HIV/AIDS targeted at construction workers, truck drivers and women. The NGOs shall work closely with the relevant State agencies (particularly the State AIDS Control Society) and other existing networks dedicated to the prevention of HIV/AIDS.

G. BOT Project

- (i) The Government and NHAI will ensure that the project sponsor for the BOT section of the Project is selected in a transparent manner through competitive bidding procedures under intimation to ADB.

- (ii) NHAI will ensure that the bidding process and award of contract to the successful bidder are carried out in a timely manner so that the related BOT section is completed, for operationalization along with the rest of the Project Highway.
- (iii) NHAI will ensure that the bidding process for the BOT section of the Project Highway is reported to ADB in a timely manner so that the Government and the ADB can take necessary actions in a prompt manner in case that the BOT project fails to be materialized.
- (iv) The financial advisor for BOT packaging shall be engaged in a timely manner by not later than 28 February 2003.

67. In addition to the above assurances the Government and NHAI have given the following assurances:

1. Conditions for Award of Civil Works Contract

NHAI will not award any civil works contract unless it has subject to the provisions of Section F (vii) of paragraph 66: (i) acquired or made available the land and rights in land, free from any encumbrances; and (ii) cleared the utilities, trees and any other obstruction from such land, required for commencement of construction activities relating to the contract.

2. Conditions for Disbursement

The Government shall have paid the front-end fee of one percent of the loan amount to ADB.

V. RECOMMENDATION

68. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and acting in the absence of the President, under the Provisions of Article 35.1 of the Agreement of ADB, I recommend that the Board approve the loan of \$320,000,000 to India for the East-West Corridor Project from ADB's ordinary capital resources with interest to be determined in accordance with ADB's LIBOR-based lending facility; a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board.

MYOUNG-HO SHIN
Vice President

31 October 2002

PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanism	Assumptions and Risks
GOAL <ul style="list-style-type: none"> Contribute to sustainable economic growth 	<ul style="list-style-type: none"> Reduce freight for trucking service by 20% (on a constant price base) before and after NHDP completion 	Progress report	<ul style="list-style-type: none"> Market mechanism functions well for trucking services.
PURPOSES <ul style="list-style-type: none"> Facilitate the transformation of NHAI into a lean and efficient highway management organization Reduce capacity constraints of the E-W Corridor Execute PPP through BOT and other private sector investments Strengthen NHAI's capacity to deal with emerging social issues 	<ul style="list-style-type: none"> Maintain a ratio of less than 5 staff per 100 highway km Increase the portion of the four-lane highways in the E-W Corridor from 5% to 90% by 2007 Increase the proportion of PPP development to from 0% to 5% by 2007 for the E-W Corridor. 	<ul style="list-style-type: none"> Progress report Supervision mission 	
OUTPUTS <ul style="list-style-type: none"> NHAI to be equipped with (i) adequate funds for NHDP development, (ii) an arm's-length relationship with line ministries, and (iii) separate line of business for O&M Four-lane highways with high design standards Jetpur-Bamanbore (99 km) section to be developed and managed under a BOT scheme NHAI to be able to discharge emerging social responsibilities 	<ul style="list-style-type: none"> Four-lane project highways to be in operation by the end of 2006 The entire BOT section to be put in service by the end of 2006 	<ul style="list-style-type: none"> Progress report Supervision mission 	<ul style="list-style-type: none"> Increase of cess and/or tolls is not accepted by the public. Land acquisition and resettlement are delayed. The private sector is uninterested in investing in the Project.
ACTIVITIES <ul style="list-style-type: none"> Development of a financing plan for NHDP 2 Implementation of an ISS Widening of existing two-lane highways Conclusion of a contract with a BOT contractor Training of NHAI staff for grievance handling and participation Launching of an HIV/AIDS awareness campaign 	<ul style="list-style-type: none"> A financing plan to be developed by the end of 2002 ISS to be completed by the end of 2003 Construction of project highways to be completed by June 2006 Financial closure to be done by April 2004 Training to be started by June 2003 Campaign started by June 2003 	<ul style="list-style-type: none"> Progress report Supervision mission 	<ul style="list-style-type: none"> Procurement is delayed. Negotiation with a BOT contractor is delayed.
INPUTS <ul style="list-style-type: none"> Execution of a cash-flow model by NHAI Engagement of a consultant for ISS Procurement of civil works Bidding of a BOT package Engagement of training consultants Engagement of an NGO to carry out an HIV/AIDS awareness campaign 	<ul style="list-style-type: none"> PPTA consultant developed a computer model for cash-flow analysis ISS consultant was engaged under a World Bank loan ADB financed \$320 million PPTA consultant developed a bidding document, including concession agreement Capacity building TA of \$200,000 provided for training, HIV/AIDS awareness campaign, and others 	<ul style="list-style-type: none"> Progress report Supervision mission 	

BOT = build-operate-transfer, E-W = east-west, ISS = Institutional Strengthening Study, NGO = nongovernmental organization, NHAI = National Highways Authority of India, NHDP = National Highways Development Program, O&M = operation and maintenance, PPP = public-private partnership.

CHRONOLOGY OF THE PROJECT

1. Faced with chronic capacity shortage of national highways, the Government launched a massive program to rehabilitate and upgrade key arteries of National Highway Development Program (NHDP). Its key components are (i) rehabilitation and upgrading of the Golden Quadrilateral, approximately 6,000 kilometers (km) of highway network, slated to be completed by the end of 2003; and (ii) the rehabilitation and upgrading of the North-South (N-S; 4,000 km) and East-West (E-W; 3,300 km) corridors, which are to be completed by the end of 2007. NHDP is expected to cost \$13 billion for 10 years (1998-2007).
2. During the 1998 Country Programming Mission, the Government requested the Asian Development Bank (ADB) to provide a series of loans for the Golden Quadrilateral. ADB extended two loans, for the Surat-Manor Tollway Project (2000) and the Western Transport Corridor Project (2001). During the 2000 Country Programming Mission, the Government requested extension of assistance to develop the E-W and N-S corridors. The proposed loan is ADB's third to NHDP and the first to the E-W and N-S corridors.
3. Project preparatory technical assistance for the above project was approved in October 2001, and the consultant team was fielded to India in May 2002 to help National Highways Authority of India (NHAI) consultants conduct the feasibility study, focusing on ensuring the NHAI consultants' conformity with ADB's requirements. In May-June 2002, the ADB Fact-Finding Mission reviewed the technical, institutional, economical, financial, environmental, and social viability of the Project. The Appraisal Mission was sent to India in August-September 2002 to finalize project evaluation.
4. In assisting NHDP, ADB has adopted a programmatic approach to achieve its medium- to long-term goals in a progressive and evolutionary manner. The medium- to long-term goals set out in the Report and Recommendation of the President on the Western Transport Corridor Project are (i) transform NHAI into a managerially and financially autonomous body, (ii) enhance financial management and planning capability, (iii) strengthen institutional capacity for project implementation and highway operations and management (O&M), (iv) institute a transparent corporate governance, and (v) advance public-private partnerships.
5. A key element of this approach is a specific milestone that would trigger the next project (a trigger point).¹ The Fact-Finding Mission reviewed recent private sector participation in development and O&M, a trigger point agreed on during the 2002 pre-country programming mission. The Mission found that substantial progress had been made in quantity and quality. NHAI introduced six build-operate-transfer (BOT) projects, eight annuity-based concession projects, and one special-purpose vehicle during the last 3 years, which accounted for 14% of the Golden Quadrilateral's length. Two are large-scale BOT projects: Delhi-Gurgaon (28 km, six and or eight lanes, \$117 million); and Jaipur-Kishangarh (98 km, four lanes, \$137 million). This development is major progress, since NHAI has experienced difficulties in attracting the private sector to invest in large-scale BOT projects.

¹ ADB. 2001. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to India for the Western Transport Corridor Project*. Manila, para. 31.

SECTOR ANALYSIS, GOVERNMENT STRATEGY, AND SECTOR PROFILE

1. India has an extensive and diverse transport system of about 3.4 million kilometers (km) of road; 63,028 km of rail; 12 major and 139,182 minor and or intermediate ports; 4 major international airports; 86 domestic airports; and about 14,500 km of navigable inland waterway. The ratio of road to rail transport has been continuously shifting as demand for transport services changes. Road transport now accounts for over 60% of freight movement and 80% of passenger traffic, with rail transport accounting for much of the remainder. A profile of transport in India is in Supplementary Appendix V.

A. Government Sector Strategy

2. Faced with chronic capacity shortage on major arterial links, the Government decided to undertake the radical National Highways Development Program (NHDP) to upgrade key national highway (NH) corridors, especially the Golden Quadrilateral, approximately 6,000 km of highway network connecting four major metropolitan areas (Delhi, Mumbai, Chennai, and Kolkata) and slated to be completed by the end of 2003. NHDP will also upgrade the North-South (4,000 km) and East-West (3,300 km) corridors, to be completed by the end of 2007.¹ All these corridors are to be upgraded to a minimum four-lane standard. NHDP also includes upgrading access to major ports under the Port Connectivity Project. Once NHDP is implemented, the focus will shift to construction of a national expressway network and rehabilitation of parts of the NH network not included in NHDP.

3. Construction costs for NHDP are estimated at \$13 billion. To finance the program, NHAI intends to raise \$4.4 billion through a levy on petrol and diesel, \$2.7 billion through financial markets, \$1.4 billion through private sector participation in the Project, and the remaining \$4.4 billion through external assistance. The Government's strategies include revamping the road fund for development, issuing domestic bonds to tap India's capital markets, engaging the private sector to develop the road network, and using international and bilateral assistance.

B. Sector Profile

1. Transport Planning and Coordination

4. Transport planning, coordination, and policy setting at the central government level are handled by several line ministries, with overall coordination by the Planning Commission. The Ministry of Surface Transport, was reorganized in November 2000 into the Ministry of Road Transport and Highways (MORTH) and Ministry of Shipping (MOS). MORTH's duties are to develop and maintain NHs, and formulate road transport policies. MORTH coordinates state roads and issues guidelines on highway planning, design, and construction. MOS is responsible for major ports, inland water transport, and shipping. All railway planning and operations are under the Ministry of Railways. The Ministry of Rural Development is responsible for policy development, monitoring, and coordination of rural roads being funded by the Central Road Fund (CRF). Airports and civil aviation are the responsibility of the Ministry of Civil Aviation.

5. The responsibility for developing and maintaining the NH system rests with the central Government, while state and district roads are the responsibility of the state governments. To separate its planning and operational functions, the Government established NHAI in 1988 to develop and maintain NHs. NHAI's responsibilities include the Golden Quadrilateral, North-

¹ The original target of 2009 was recently revised to 2007.

South and East-West corridors, and several links to major ports and industrial centers. NHA covers one fourth of the NH network length, and MORTH is responsible for the rest.

2. Road Network and Traffic

6. The road network is divided into (i) NHs, (ii) state highways and major district roads, and (iii) other district roads and rural roads (Supplementary Appendix T). The national and state highways facilitate mobility, while the district and rural roads provide much-needed means to meet social needs and to transport agricultural produce to markets. The road network grew by 7.5 times, from 400,000 km in 1951 to 3.4 million km in 2001 (including 230,000 km of urban roads). Road density is now 1 km per square km, which is higher than in other developing countries, but the length, quality, and capacity of the road network are grossly inadequate to meet present and future demand for freight transport and passenger traffic.

7. The NH network of 58,122 km carries about 40% of total road traffic. However, 39% of this network is still single lane, 58% two lane, and only 3% four lane.

8. From 1990 to 2000, annual passenger road transport grew at 7.8%, and freight transport by 7.6%, which was higher than the growth rate of the gross domestic product (GDP) (6%). By 2001, passenger traffic was expected to reach about 3,000 billion passenger-km, and freight traffic, 800 billion ton-km.

3. Vehicle Fleet and Road Transport Industries

9. India had 300,000 vehicles in 1950/51, and around 50 million in 1999/00. Buses accounted for 1%; trucks, 5%; cars and jeeps, 13%; and motorcycles and scooters (two-wheelers), 71%. The rest were mostly auto-rickshaws (three-wheelers) and agricultural tractors. The number of automobiles has been growing at approximately 9% a year, and heavy commercial vehicles, at 7.5% over the last 9 years.

10. India's automobile manufacturing industry has been regulated since independence. In 1947, the Government declared that only indigenous firms operating according to an approved plan could manufacture motor vehicles. A vehicle manufacturing industry was established using domestic capital and little foreign technology. Deregulation started with two-wheelers in the mid-1980s, then passenger cars and commercial vehicles in the 1990s to encourage production of more fuel-efficient, safer, and better-quality vehicles at reasonable prices. In 1999/2000, 4.8 million motor vehicles were manufactured in India, 156% over the 1992/93 level, due to the unprecedented increase in manufacturing of two- and three-wheeler vehicles from 1.5 million to 3.9 million.

4. Road Transport Services

11. The private sector almost wholly operates road freight. The national freight fleet increased from 963,000 in 1985/86 to 2.6 million in 1999/2000. Light commercial vehicles increased much faster than the heavy commercial vehicles. In this multilevel industry, shippers usually contact transport companies that can assume the legal liabilities associated with cargo haulage. Since these transport companies have limited fleets, most use trucks provided by cargo brokers. After receiving orders from shippers, transport companies contact cargo brokers based in the regions from where the cargo originates. These brokers (usually individuals) will then contact truck owners (again, often individuals) or truck drivers, who often wait for cargo at truck parking lots or along highways. Truck parking lots are usually found in city outskirts, and

most are informal and often surrounded by small buildings housing cargo brokers. The trucking industry performs poorly because of (i) the high proportion of overage vehicles; (ii) lack of backhaul cargo; and (iii) lack of loading and unloading facilities, preventing transshipment from larger to smaller trucks, which is often needed in the peripheries of major cities that have truck bans.

12. The upgraded NH system is designed for an operating speed of 100 km per hour. However, trucks usually run at 40–50 km, particularly when carrying heavy-duty cargo such as containers. Unless trucking services are modernized, the full benefits of the upgraded highway network will not be realized. A policy is needed to modernize trucking services, particularly for intermodal operation. In 2002, MORTH asked the Asian Development Bank (ADB) to consider helping develop a trucking policy.

13. The public and private sectors provide passenger services through road transport. Over the years, the share of the public sector in the total bus fleet has declined. In 1980/81, the public sector held 45% of the total number of buses, but only 21% in 1999/2000.

5. Revenues/Expenditures and Road Fund

14. The central Government provides funds from yearly budgetary allocations to develop and maintain NHs, while state governments fund state highways and district and rural roads. Transport investments have accounted for about 13% of total public sector spending under the Government's 5-year plans.

Table A3: Five-Year Plan Expenditure in the Transport Sector

	(Rs billion)			
Subsector	VI Plan (1980-85)	VII Plan (1985-90)	VIII Plan (1992-97)	IX Plan (1997-2002)
Railways	65.85	165.49	321.39	464.05
Roads	38.87	63.35	161.33	475.10
Road Transport	12.76	21.51	36.34	59.33
Ports	7.25	15.13	24.91	53.31
Shipping	4.68	7.20	47.26	29.67
Inland Water Transport	0.63	1.88	1.54	2.80
Civil Aviation	9.57	19.48	75.04	69.58
Other Transport	-	0.72	2.44	18.51
Total Transport	139.61	294.76	670.25	1,172.35
Total Public Transport	1,092.91	2,187.29	5,332.52	n.a.
Total Transport as a % to Public Sector	12.8		12.6	n.a.

Source: Planning Commission, Government of India. n.a.: not available.

15. Road expenditure increased by 11 times from Rs39 billion in the Sixth Five-Year Plan to Rs475 billion in the Ninth Five-Year Plan. The transport budget allocation increased by about 7 times in the same period. The road sector's share of total transport investment also increased from about 28% in the Sixth Five Year Plan (1980-85) to about 40% in the Ninth Five Year Plan (1997-2002), reflecting government commitment to improve highway infrastructure to meet the demands of the growing economy and help reduce poverty.

16. A very limited central road fund has existed for years. The central Government revamped it through excise duties (cess) of Re1 per liter of petrol (1998) and diesel (1999, through the Central Road Fund Ordinance). These cess are expected to raise Rs60 billion (\$1.2 billion) per annum. To institutionalize the revamped CRF, Parliament passed the Central Road Fund Act in November 2000. According to its allocation formula, and assuming Rs10 billion is

raised from petrol and Rs50 billion from diesel, approximately Rs25 billion will be allocated for rural roads, Rs20 billion for NHs, Rs11 billion for state highways and major district roads, and Rs45 billion for railway crossings and other purposes. Unlike a typical road fund, which is primarily used for maintenance, CRF will be used mainly to develop the road network (Supplementary Appendix U).

6. Maintenance

17. NH network maintenance has been neglected due to inadequate fund allocation. The Ninth Five Year Plan allocated more than twice the amount in the previous 5-year plan for NH maintenance, but in FY 2000, the maintenance shortfall, which was 48.3% in 1993/94, remained at practically the same level (50%) in FY 2002. However, MORTH partly solved this problem through riding-quality improvements for the maintenance programs.

18. NHA, which is required to maintain NHs entrusted to it, currently does so through the Public Works Departments (PWDs) or contracts it out to a private contractor (occasionally NHA does it by itself). The maintenance cost has been covered by budgetary support from the Central Government. Faced with rapid expansion in the road network entrusted to it, NHA has decided to explore the possibility of introducing an asset management concept to maintain and manage its road network more systematically. It commissioned a study under World Bank funding on the corridor management units (CMUs). A key element of the CMU concept is to operate and maintain the road network through contracting out to private contractors. A CMU is also responsible for ensuring the integrity of the right of way by maintaining fences and markers, controlling overloading of trucks, taking necessary accident prevention measures, removing obstacles on roads, controlling emission, and keeping noises within acceptable limits. With the recent completion of the study, two pilot CMUs will be established under the Third National Highway Project of the World Bank (see Supplementary Appendix W for the CMU concept).

19. The current O&M policy of NHA is to contract them out as much as possible to the private sector. Under the Surat-Manor and Western Transport projects, advisory services will be provided for the development of performance based O&M agreements to be carried out by the private sector.

7. Environmental Issues

20. Since 1991, the Government has gradually intensified its control over gas emission from vehicles. First-stage control was introduced for petrol-powered vehicles in 1991 and for diesel-powered vehicles in 1992. The Bharat stage-1 emission standards, which are akin to Euro-1 standards, have become effective throughout the country since 2000. The Government plans to introduce tougher standards, corresponding to Euro-2 requirements for passenger cars and commercial vehicles. Bharat stage-2 standards, which are close to Euro-2 standards, have been in force in the National Capital Region and are intended to be enforced shortly throughout the country. Leaded fuel has been gradually phased out from metropolitan cities since 1998 with the introduction of unleaded fuel. Now petrol fuel is fully unleaded all over the country. Benzene in petrol has also been reduced to 3% all over the country and to 1% in Delhi. Since December 1998, commercial vehicles over 15 years old have been banned from Delhi's center.

21. ADB has been working with the Government to solve road sector-related environmental problems by preventing environmental degradation during construction and operation of

highways, for example, and controlling urban traffic pollution. An ADB technical assistance² on environmental management prepared highway project guidelines. They are now used on all highway improvement and reconstruction projects in India. ADB's Second Road Project³ studied measures to control traffic pollution in urban areas. The Central Pollution Control Board then updated its mass emission regulations and enforced them more stringently.

² ADB. 1993. Technical Assistance to India for *Environmental Management of Road Projects*. Manila.

³ ADB. 1990. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to India for the Second Road Project*. Manila.

DESIGN STRUCTURE OF A BUILD-OPERATE-TRANSFER COMPONENT

1. This appendix discusses the possible investment package of the proposed build-operate-transfer (BOT) component. The areas of concern are preparation, packaging, and promotion of the BOT project; and the structure of the concession agreement. Two potential BOT projects have been identified and are presented below. Problems in project preparation, packaging, and promotion, and how the project will address them, are discussed. The analysis which was prepared by PPTA consultant¹ will be further modified or verified at a later stage when more detailed traffic counts are gathered and tolling strategies are developed.

A. Identification of Sections to be developed under BOT

2. The portion of the project road to be undertaken as a BOT project was selected after individual road sections were examined, and various combinations of these sections tested. The evaluation was made using a generally accepted accounting practices model, which developed a financing structure to meet project cash-flow requirements and provide an optimum score based on debt service coverage ratio and internal rate of return. For all of the links considered, the model assumed a 60:40 debt-to-equity ratio, with 13% interest on the loans. The best loan structure was found to be 13 years with a 5-year grace period.

3. Two road sections were found to be feasible for BOT financing. One includes two sections connecting Mobri and Samakhali; both will be widened to four lanes. The second road section includes three road sections and a bypass connecting Jetpur and Bamanbore; two are already four-lane roads but not yet tolled. The section from Jetpur to Gondal will be widened to four lanes, and a bypass constructed around Rajkot. The various sections are described in Table A4.1. Their locations are in Figure 1.

Table A4.1 Description of Various Sections

Section	Location	Length	Existing Condition	Capital Expenditure (Rs10 million)
A	Jetput-Gondal	26.3	2-lane	109.3
B	Gondal-Rajkot	32.0	4-lane	
C	Rajkot Bypass	10.0	None	101.1
D	Rajkot-Bamanbore	31.0	4-lane	
E	Morbi-Maliya	25.4	2-lane	85.9
F	Maliya-Samakhali	40.0	2-lane	173.9

4. The resulting values for the debt service coverage ratio and internal rates of return for various combinations of these sections are shown in Table A4.2. The widening of the Mobri-Samakhali link provides a good return. The northern section provides a higher return than the southern section, but the combination would be a larger project more attractive to contractors and allowing for economies of scale in management. This link is expected to serve a growing number of multi-axle vehicles, and the revenues are likely to be enhanced with a toll structure based on truck size. Diversion from this road, which has few access roads, is also not likely.

¹ Individual consultant engaged under the PPTA arrangement, John Arnold.

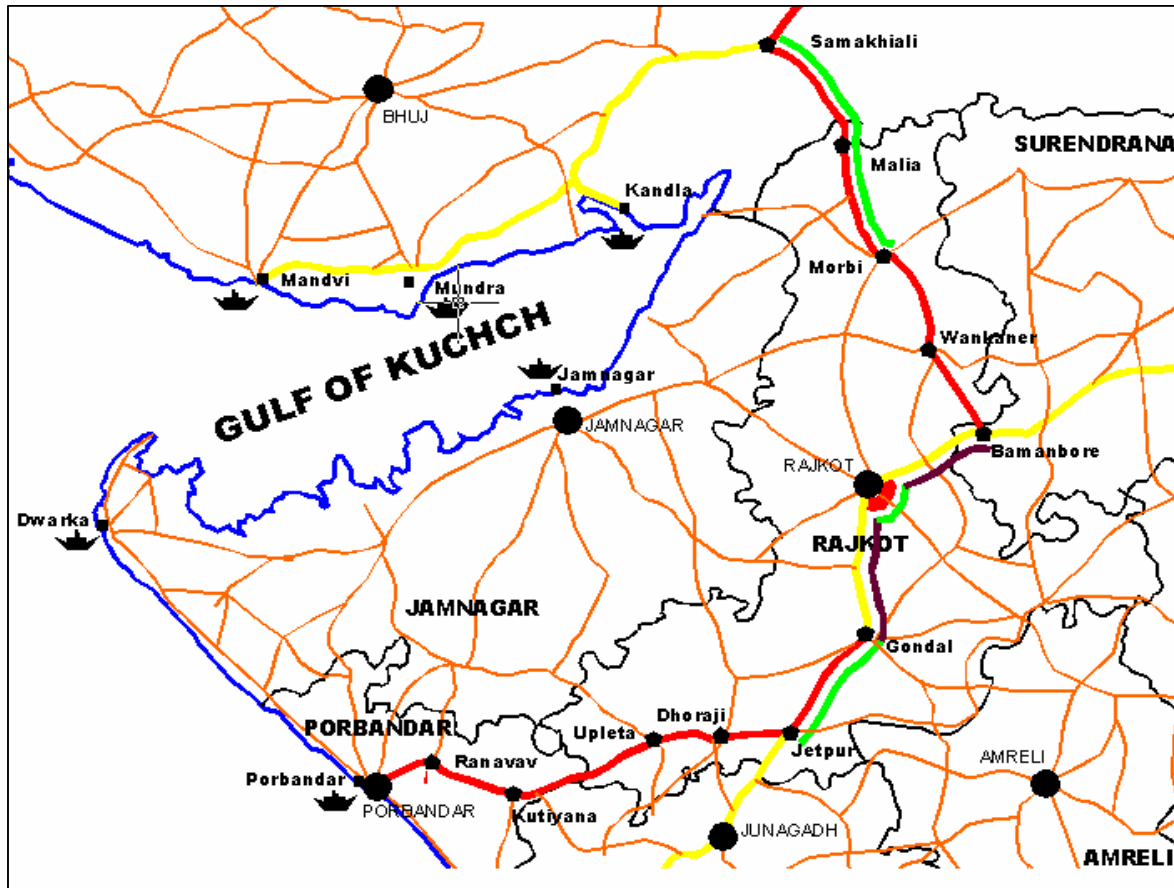


Table A4.2: Internal Rates of Return

Project Indicator	A	C	A+C	A-B-C	A-B-C-D	E	F	E-F
Debt Service Coverage Ratio								
Minimum	0.62	0.01	0.38	0.39	-0.14	0.31	1.19	0.88
Average	2.34	0.64	1.59	2.59	2.88	2.22	2.92	2.71
Internal Rates Of Return								
Project (post-tax, all equity)	17.6%	5.3%	13.1%	18.8%	20.9%	17.8%	20.3%	19.3%
Equity (post-tax with debt)	18.7%	<0	11.8%	20.4%	23.9%	18.8%	23.4%	21.7%
Weighted Scores	15	3	9	16	16	15	17	16

Note: Assume debt-to-equity of 60:40, debt with tenor of 13 years starting after disbursement, and a 5-year grace period.

5. The only section that is clearly not viable as a stand-alone is the Rajkot Bypass, where the return on equity is negative. The section from Jetput to Gondal has a reasonable return but not when combined with the bypass. The two sections are separated by 32 kilometers (km), and adding the intervening section to the BOT project will improve returns, operation and management, and tolling. The extension of the northern section to Bamanbore is an additional sweetener to financial performance, and adds more flexibility to tolling, and economies to administration and use of equipment. This project has the advantage that the revenues generated from the existing four-lane sections can be used to offset some of the construction costs—a factor that has not been included in the calculations. Traffic levels on the existing four-lane roads are based on older traffic counts, which are well below earlier tariff counts and traffic levels on adjoining sections. Traffic levels are likely higher than reported, which would contribute to the funds available during construction as well as overall. Finally, the estimated costs for the bypass were based on certain design requirements. This cost could be substantially reduced and returns improved.

6. The concept of sweetening marginal BOT projects with toll revenues from existing road sections rather than grants should be of increasing importance as the network develops. Of the two possible packages (A-B-C and A-B-C-D), package A-B-C-D was recommended.

7. This BOT project is expected to be offered to the market without a grant component and possibly a negative grant. During project preparation, a survey will determine market appetite for the project. A financial advisor to be engaged by NHAI will interact with potential investors and lenders during preparation of the concession agreement. If, despite these efforts, interest in the project is still insufficient, then the National Highways Authority of India (NHAI) may either introduce a grant component, removing the traffic risk by converting BOT to an annuity structure (requiring little change in contract documents), or using a traditional construction contract to be supported by cess² funds.

B. BOT Project Design Issues

1. Preparation

8. The extent of project preparation is important to increase investor confidence. Three areas of preparation require review: traffic projections, project design, and permits.

9. The major source of risk for BOT projects is traffic. Bidders undertake their own traffic surveys, which, however, adds to the cost and time to prepare the bid. The scope of the survey will also be limited by time to verifying the results of earlier surveys.³ NHAI must provide a comprehensive set of traffic counts along the route so that bidders can verify these results rather than develop new numbers. The location and format of these counts should be carefully designed. In some cases, the results should be supported with driver interviews. Given the awareness among investors of the weakness of past traffic counts, NHAI must set a high standard for its own. The BOT project solves this problem by resurveying the traffic based on a review of traffic flows and closely supervising the enumerators.

10. The current level of design performed by NHAI consultants varies. For some projects, a detailed project design including a substantial percentage of the final drawings is prepared while

² Excise duty levied on fuel.

³ It is not possible to obtain information on seasonal variations or to obtain sufficient coverage to predict traffic along the entire routes.

others have a preliminary design. While the contracts accommodate this variation, NHAI is ultimately responsible for these roads and they should be consistent with the rest of the network. The NHAI consultants should be required to prepare a detailed design report. This not only provides comfort to the contractors and their lenders but also reduces the possibility of significant variations which could affect the cost of the project. It also ensures that the bidders will be bidding against consistent expectations of what their obligations are. The planning for the current BOT project is well along towards the development of the detailed design and no problem is expected.

11. Where BOT projects involve short stretches, natural choke points or isolated links, there is little problem of designing the tollbooths. However, for road stretches in which there are many access roads and considerable movement of traffic on and off the tolled road, then the placement of tollbooths become a strategic consideration. In an open-toll situation, the tolling is done through a combination of barrier and tollbooths. The location and number of these determine both the cost of collection and the portion of the traffic that actually pays for the use of the road. NHAI has yet to develop a comprehensive tolling strategy for the network and the private sector has limited experience. The design of tolling requires traffic information on alternative sites, an economic comparison of the costs and revenues for collection, and the effect of the amount charged at each collection point on diversion of traffic. The design of the concession should include identification of tolling sites. While the concessionaire can modify the plan, this basic plan would provide a common starting point for bid preparation. Presumably this plan would be based on more detailed traffic data than the bidder could collect during the bid process. This information is also necessary for determine the financial viability of a BOT project. More detailed analysis will be carried out later to determine what percentage of traffic will pay tolls.

12. The primary source of risk to the contractors at the design stage is securing the right of way and necessary permits to develop the roadway. This is a universal problem. So far, India has, however, been free of high-profile controversy where a major road is delayed or cancelled because of these types of problems, but past successes are not solutions. The contract provides some comfort to the proponent in this regard, but the private sector continues to regard this as a significant risk. The NHAI should gradually increase the amount of preparation prior to awarding the bid. The current BOT project has a limited number of permitting issues since the right of way has been secured or to be secured by NHAI.

b. Packaging

13. The BOT project should offer (i) a road investment possible additional investment opportunities to capture the benefits from the higher than expected traffic growth, (ii) a high probability of achieving an acceptable rate of return for the private sector, and (iii) a level of investment acceptable to contractors and lenders. The BOT project should generate a significant level of competition for the contracts to develop roads at reasonable cost and of acceptable quality. The two most important considerations in meeting these objectives are the size of the package and the cash flow to be generated from tolls.

14. Project size is critical as it determines the extent of competition. Whereas smaller contracts only attract small contractors, larger projects attract a mix of large contractors and consortium of smaller contractors. Thus, large contracts offer potentially more effective competitive bidding where permitted by the prequalification process. Limits on project size are determined primarily by cost rather than road length or nature of construction. In recent years, the contracting industry has demonstrated an ability to construct good roads in a variety of

situations. Like most construction industries, however, the contracting industry has limited access to capital. The largest Indian contractor has a turnover of less than Rs2,000 billion. Below that, the average for larger firms is probably no more than Rs300 billion, suggesting that the amount of equity that could be committed to a 2-year construction effort would not exceed Rs600 billion and, given current leverage, maximum project size would be Rs1.5 billion. NHAI has been offering projects up to Rs6 billion. Smaller contractors take on these larger projects by forming consortia, or involving foreign contractors, which is an increasingly important mechanism. As NHAI's experience and reputation with larger projects increases, foreign contractors will become more interested in them and competition will thus increase.

15. Physically large projects offer potential economies of scale in construction and maintenance, derived from spreading administrative and planning costs over a greater length of road and providing a sufficient volume of work over time to achieve a high level of equipment use. These advantages extend to road maintenance where the level of activity per km is low and large roads allow use of efficient equipment and permanent labor. These advantages depend not only on road length but also continuity. Noncontiguous sections create operation and maintenance problems.

16. Significant economies of scale may also be associated with revenue collection. The larger the project, the greater the options for toll plaza location. Since these roads have an open-toll system, toll plaza placement has a major impact on toll-paying traffic. The more toll plazas, the higher the proportion of toll-paying traffic, but also the higher the operating costs and the lower the average travel speed. The appropriate distance between toll plazas cannot be determined by formula but only by careful analysis of present and planned roads that link with the project road, and a study of traffic-flow patterns. The longer the stretch of road, the greater the flexibility in selecting locations and the fewer toll plazas required per km. To the extent that the contractor can encourage traffic in one section through the pricing or quality of the adjoining section, a larger project will allow an increase in traffic volume.

17. Lenders are generally neutral about project size. For larger projects, they can form consortia or employ other mechanisms to share the risk. Lenders' major concern is the expected level and robustness of potential project returns. Loans to construction contractors are seen as high risk. The experience with nonrecourse lending to private builders of public infrastructure is limited, having only started in 1999. Investor involvement in these projects has been limited since the markets for investments are limited. Interest is growing among the large investment companies and industrial companies that perceive the potential for significant gains in road projects with a strong upside on traffic growth. The infrastructure funds that appeared in the 1990s have lowered investors' expectations of potential returns but have also become a less potent force in the market as their focus was on short-term involvement (less than 10 years). Potential investors interested in long-term, secure investments such as pension funds, provident funds, and insurance companies have remained on the sidelines. These potential investors are seen as sources of debt rather than investment, which may make sense given the limited contract periods.

18. A key consideration in project design is cash flow. Projects that require a long construction period or have low initial traffic levels will have an extended period of negative cash flow, which is difficult for the private sector, especially with its higher cost of capital. Grants have been used to offset the negative cash flow. The amount of grant is determined through bidding. An upfront payment is inherently more costly because of the high discount rates applied by the bidders to determine grant size, and riskier for NHAI. The grants have been relatively large—30% of estimated project cost. Assuming that these estimates are high by 20–30%, the grant

provides 40% of project cost, reducing the equity and lending requirements of the proponents. The grant also provides a cash input to the proponent during construction. A substantial upfront payment effectively transfers most of the financing risk to NHAI.

19. A more logical approach would be to spread the grant over time, thus taking advantage of the discount rate differential and tying the grant to contractor performance.⁴ This approach would also require the contractor to commit its own equity to the project. The amount of grant would still be determined through competitive bidding, but the payments would be according to a prearranged schedule.

20. An alternative method to reduce the cost and risk to the contractor during construction is to combine greenfield and brownfield toll road sections, thus providing the contractor with cash-generating activity during the initial years of the project and reassuring lenders since a stream of revenue will be available to cover the initial debt service. The proposed BOT projects have combined contiguous sections of roads to ensure adequate size of investment—Rs2-2.5 billion. The amount of construction—36-65 km—is moderate. Project size was limited by the lack of contiguous sections offering an adequate return. One of the two proposed projects includes a mix of greenfield and brownfield projects.

c. Promotion

21. Project success requires strong competition among bidders, which can be encouraged by promoting the project through road shows among foreign contractors and lenders, especially for large projects requiring substantial equity. Promotion is less necessary for small projects involving local contractors and lenders.

22. Promotion may be useful to attract new contractors where the prequalification requirements or the terms of the contract have been changed, and to build confidence among potential investors and contractors. Local lenders and investors are uncertain about the potential for successful road concessions. Promotion can be used to inform the financial community of successful undertakings and to dispel concerns about unsuccessful ones. Promotion can be especially useful when complemented by improved project design, as is the case with the proposed BOT project, which introduces innovations in combining greenfield and brownfield components and complementary changes in project design.

23. For this project, promotion targets local contractors as well as the financial community, not through a road show but rather through workshops presenting the project format and a discussion of concerns of this community about past and present BOT projects.

d. Selection Criteria

24. Concessionaires who claims the lowest amount of grant from NHAI (including the negative grant) will be selected.

⁴ Assuming that the paid-in capital would be phased during construction, the NHAI grant might still be used to provide project equity.

PROJECT COST ESTIMATES
(\$ million)

Item	Foreign Exchange	Local Currency	Total
A. Public Sector Portion			
1. Base Cost^a			
a. Civil works			
i. Package 1 (Porbandar-Bhiladi; 50.5 km)	30.4	16.5	47.0
ii. Package 2 (Bhilada-Jetpur; 64.5 km)	38.9	21.1	60.0
iii. Package 3 (Barmanbore-Garamore; 71.4 km)	41.3	22.8	64.1
iv. Package 4 (Garamore-Gogadhar; 90.3 km)	50.5	28.0	78.5
v. Package 5 (Gogadhar-Radhanpur; 106.2 km)	56.4	31.6	88.0
vi. Package 6 (Radhanpur-Deesa; 85.4 km)	43.6	24.4	68.0
b. Right of Way	0.0	3.5	3.5
c. Resettlement	0.0	4.3	4.3
d. Relocation of Utilities	0.0	3.4	3.4
e. Environment	0.0	0.9	0.9
f. Consulting Services ^b	18.4	0.0	18.4
g. PPTA Consultant above threshold	0.5	0.0	0.5
h. Project Management	0.0	3.7	3.7
Subtotal (1)	280.0	160.3	440.2
2. Contingencies			
a. Physical ^c	19.6	11.0	30.6
b. Price ^d	21.0	11.6	32.7
Subtotal (2)	40.6	22.7	63.3
3. Front-End Fee	3.2	0.0	3.2
4. Interest during Construction^e	19.8	0.0	19.8
5. Commitment Charges during Construction^f	4.1	0.0	4.1
Subtotal (A)	347.8	182.9	530.7
B. Private Sector Participation			
1. Base Cost^a			
a. Civil Works			
BOT Component (36.3 km and 63.0 km O&M)	23.7	13.5	37.2
2. Contingencies			
a. Physical ^c	1.7	0.9	2.6
b. Price ^d	1.9	1.1	3.0
Subtotal (2)	3.6	2.0	5.6
3. Interest During Construction^e	1.8	0.5	2.3
Subtotal (B)	29.1	16.0	45.1
Total	376.9	198.9	575.8

BOT = build-operate-transfer, km = kilometers, O&M = operation and maintenance, PPTA = project preparatory technical assistance.

^a In April 2002 prices, inclusive of taxes and duties

^b Costs of consulting services are listed as foreign exchange cost because of the way the services are procured.

^c At 7% of base costs, excluding right-of-way costs at 2%.

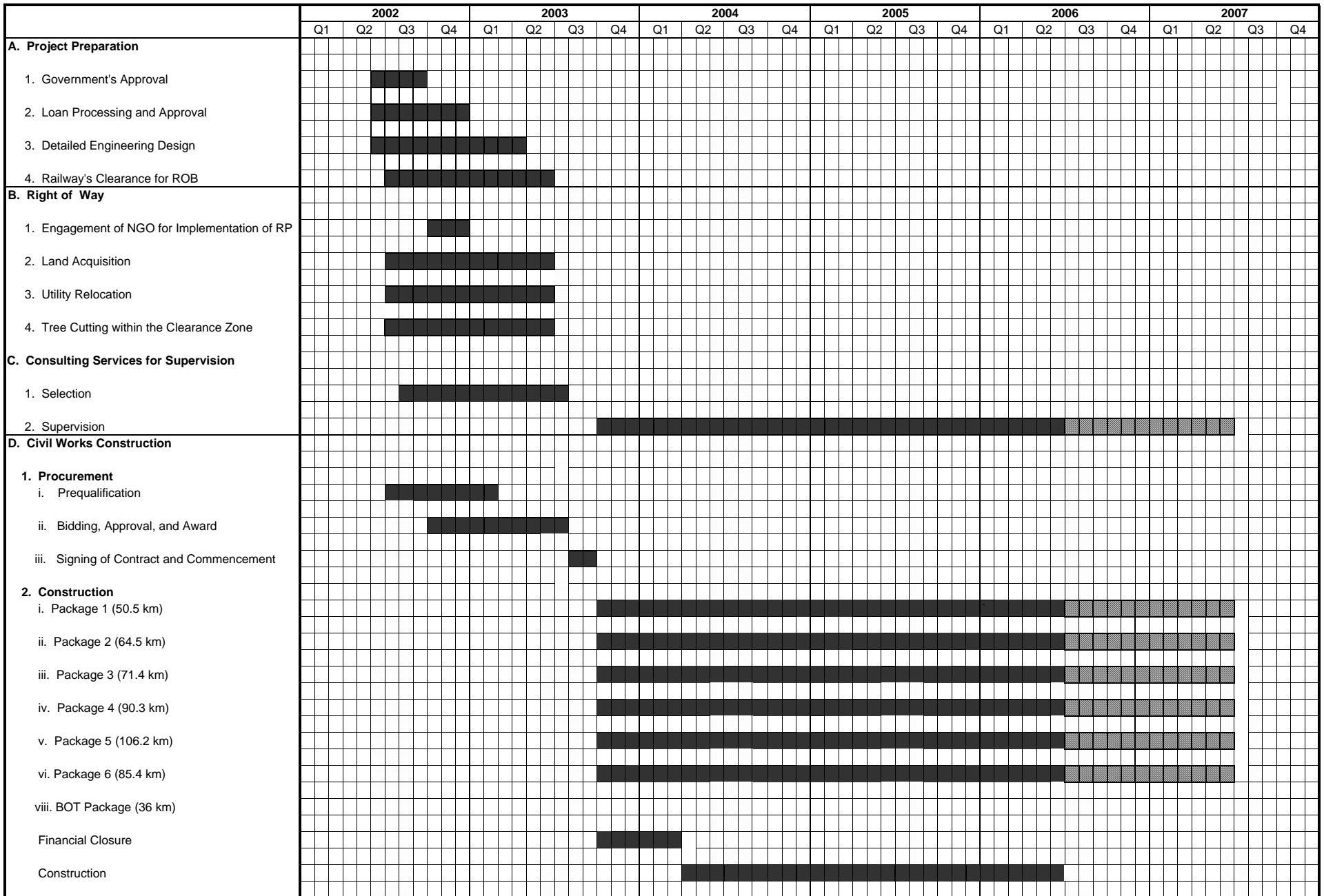
^d At 2.6% annually of foreign exchange and dollar equivalent local currency costs.

^e At 3.40% for US\$ London interbank offered rate, plus 0.60 Asian Development Bank spread, and 0.75% for commitment charge.

^f At 0.75% for commitment charge

Source: Preliminary Project Report and Mission

IMPLEMENTATION SCHEDULE



BOT = build-transfer-operate, NGO = nongovernment organization, ROB = railway over bridges, RP = resettlement plan.

■ Defect Liability Period

LIST OF CONTRACT PACKAGES AND MODE OF PROCUREMENT

Civil Works Contract No.	Contract Details	Approximate Value (\$'000)	Procurement Mode
1	Package 1 (Porbandar-Bhiladi; 50.5 km)	47.0	ICB
2	Package 2 (Bhiladi-Jetpur; 64.5 km)	60.0	ICB
3	Package 3 (Bamanbore-Garamore; 71.4 km)	64.1	ICB
4	Package 4 (Garamore-Gogadhar; 90.3 km)	78.5	ICB
5	Package 5 (Gogadhar-Radhanpur; 106.2 km)	88.0	ICB
6	Package 6 (Radhanpur-Deesa; 85.4 km)	68.0	ICB
Total		405.6	

ICB = international competitive bidding, km = kilometers.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

A. Linkages to the Country Poverty Analysis

Sector identified as a national priority in country poverty analysis? No	Sector identified as a national priority in country poverty partnership agreement? No
<p>Contribution of the highway/road sector to reduce poverty in India:</p> <p>The highway and road sector development significantly but indirectly reduces poverty by stimulating economic growth, in turn raising incomes and improving the quality of life.</p> <p>The Project will pass through agricultural areas, increasing economic opportunities by (i) enabling villagers to shift from subsistence farming to market-oriented agricultural surplus production; and (ii) helping local people, particularly rural youth, move out of the village to work at better-paid jobs in manufacturing or trading. The Project will also provide social benefits such as (i) improved access to health, education, and social services; and (ii) increased access to learning opportunities, including information technologies, thus reducing the project areas' isolation from cultural and commercial centers. Road improvement will also have short-term impact on poverty reduction as the rural poor are hired for construction, tree planting, and ensuing maintenance works. These opportunities will directly increase earnings of the poor who are largely dependent on occasional and uncertain employment.</p> <p>The Project will help the Government improve national, state, and rural roads. Its road development policy is comprehensive and aims to connect the entire country, with the highest priority accorded to rural roads. Asian Development Bank will extend assistance not only to develop national highways but also state roads beginning this year and rural roads next year.</p>	

B. Poverty Analysis

Proposed Classification: Thematic Economic growth and private sector development

<p>Analysis:</p> <p>Poverty in Gujarat is significantly less severe than in the rest of India,¹ with 14.1% of the population below the poverty line. In 1993–2000, Gujarat achieved higher-than-average economic growth of 7.2% per year, reducing poverty slightly faster than the national average.² The Project is expected to stimulate the state's economic growth, which will, in turn, reduce poverty (Supplementary Appendix Q). The proposed 506-kilometer (km) highway improvement will pass through approximately 170 villages and 12 urban areas. Community assessment surveys on poverty impact carried out in June 2002 revealed that project area residents generally perceive a positive linkage between poverty reduction and highway improvement. The survey also revealed that 20% of workers, many of whom are agricultural laborers, were employed an average distance of 9 km from their villages. Improved mobility would provide these workers with better-paying jobs outside the villages, including in towns. Respondents also indicated that the Project would improve public transport services and possibly make them cheaper and faster, which would directly benefit agricultural laborers working outside their villages. Nearly half the respondents felt that increased mobility would facilitate their access to educational and medical facilities.</p>
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C. Participation Process

<p>Participation strategy: NHAI continues to strengthen communication with stakeholders and has recently established the Advisory Council, representing various groups, including consumers and road users.</p>

¹ 26.1% is defined as below the poverty line.

² During these 6 years, poverty has gone down by 10.2% in Gujarat, while the national average has gone down by 9.9%. During the same period, state gross domestic product (GDP) grew by 7.2%, faster than the national average of 6.4%.

During project preparation, NHAI consulted a broad range of stakeholders, including (i) heads of households and or businesses to be affected, (ii) affected persons in small groups, (iii) village *panchayat and sarpanch*, (iv) local voluntary organizations and nongovernment organizations (NGOs), (v) government agencies and departments; and (vi) women and other vulnerable groups.

As a part of the poverty assessment, community assessment was conducted with various local communities, including scheduled castes and tribes.

The Project includes a capacity-building component to familiarize NHAI management and staff with the concept of stakeholder participation and best practices in participation, inside and outside India. This component will help NHAI better understand highway development activities and feedback from them.

D. Potential Issues

Subject	Significant, Not Significant, Uncertain, None	Strategy to Address Issues	Output Prepared
Resettlement	Significant	All affected persons, identified through census surveys Complete inventory of assets prepared	Draft resettlement plan outlining measures, including resettlement and income restoration
Gender	Not significant	Additional assistance to female-headed household, to be provided as a part of the resettlement plan	Not applicable
Labor	Not significant	A survey conducted by the labor commissioner of Gujarat found that child labor is rampant generally in India but not in Gujarat. However, through the resettlement plan, implementing NGOs will be required to link services available to mitigate child labor in roadside small business enterprises.	Addressed in the resettlement plan
Indigenous People	Not significant	An assessment survey on project impact on indigenous people conducted by the project preparatory technical assistance consultant found that the scheduled tribes have been mainstreamed into Gujarat society. Scheduled tribes will be affected by the Project but not differently from the other social groups. When scheduled tribes are affected by the Project, they will receive additional assistance as a part of that extended to vulnerable people under the resettlement plan.	Not applicable
Other Risks/ Vulnerabilities	Not significant	Vulnerable people will receive additional assistance as a part of the resettlement plan.	Resettlement plan

SUMMARY RESETTLEMENT PLAN

A. Description of the Project

1. The East-West Corridor Project in Gujarat, western India, will improve and upgrade 504.6 kilometers (km) of national highway ([NH] 8A, 8B, 14, and 15) from Porbander to Dessa. The corridor is the principal one in the state. The Project consists of five NH sections (Table A9.1) and will widen the entire stretch to four lanes; and improve junctions, underpasses, and two bypasses.¹ The National Highway Authority of India (NHAI) is the project Executing Agency.

Table A9.1: Project Roads

Road	Roads	Length (km)
Section 1	Porbander-Jetpur Road (NH8B)	115.0
Section 2	Jetpur-Gondal Road and Rajkot Bypass (NH8B)	36.3
Section 3	Bamanmore-Samakhiali Road (NH8A)	125.4
Section 4	Samakhiali-Radhanpur Road (NH15)	142.5
Section 5	Radhanpur-Deesa (NH14)	85.4
Total		504.6

2. The existing right of way of NHs are generally 45 meters (m), except for NH14 and NH15 (sections 4 and 5), which have a 60 m right of way. The four-lane facility comprises a 7 m segregated carriageway divided by medians of varying width and on an average 2.0 X 1.5 m paved shoulder. The four-lane carriageway is designed for vehicles traveling at an average of 100 km/hour. Improvement works can be carried out within the existing right of way except for minor adjustments and alignment straightening. Since NHAI already owns the existing right of way for entire road sections, new acquisition will be minimal and confined largely to construction of the bypasses in Ranavav and Upleta.

B. Project Impacts

1. Land Acquisition

3. The Project will permanently acquire nearly 364 hectares. The bulk of land acquisition (Table A9.2) will be in sections 1 (NH8B), 2 (NH8A), and 3 (NH8A) for major bypasses, resettlement site, and realignment. Efforts have been made to minimize land acquisition and significantly reduce resettlement impacts by (i) keeping the improvement works within the existing right of way, (ii) adopting symmetrical widening, (iii) raising carriageway over congested segments, and (iv) building bypasses to avoid congested urban settlements. Provisions for 10 railways over bridge and/or under bridge and 138 underpasses were made following consultations with affected communities and local government officials, to facilitate uninterrupted movement of people, livestock, and tractor and or trucks used for cultivation.

¹ Although these five sections are different from those for packaging purposes, both sections cover the same stretches.

Table A9.2: Land Acquisition for the Project

Section	Junction Improvements	Bypasses	Realignments	Development of Resettlement Sites	Total (ha)
NH8B–Section 1	55.0	111	51.0		217
NH 8B–Section 2	10.1	—		4.9	15
NH8A–Section 3	24.0	—	42.0	—	66
NH15–Section 4	20.0	—	28.0	—	48
NH14–Section 5	15.0	—	3.0	—	18
Total	124.1	111	124.0	4.9	364

Ha = hectares, NH = national highway

2. Types of Losses

4. The census/socioeconomic surveys carried out in May 2002 generated a full inventory of assets and losses of affected persons for relocation assistance. A sizeable number of 1,738 small business enterprises (SBEs), 480 informal settlers, and 308 agricultural families will be affected; a total of 13,064 people will be affected by the Project (Table A9.3).

Table A9.3: Project Affected Families

Sections	Affected Families	Affected Persons	Population (% of total)
Section I	423	1,589	12.17
Section II	401	2,141	16.38
Section III	411	2,368	18.13
Section IV	176	910	6.97
Section V	1,115	6,056	46.35
Total	2,526	13,064	100.00

Source: Census Survey.

5. Close to 60% of all affected SBEs are in section 5 (Radhanpur to Deesa). Roadside informal settlers (business and residential) form the largest group (68%) and are concentrated in sections 5, 2, and 3. Most informal settlers are small business owners and vendors. About 69% of all affected units (2,526 informal settlers, SBEs, and agricultural families) are business/commercial enterprises. An estimated 480 informal settlers (19%) will be relocated. Land acquisition for the bypasses will likely affect an estimated 300 households, of which only about 25 may require relocation; the rest will lose only agricultural plots. However, because of strip acquisition, impacts are not expected to be significant.

6. According to the census data, over two thirds of these small business owners are poor, largely depend only on their businesses, and are mainly illegal occupants on the right of way and thus vulnerable economically and socially. Roadside residents will lose access to right of way and structures whereas business owners will lose their livelihoods. Losses include (i) structures (business and/or residential), (ii) business, (iii) employment, (iv) income (temporarily), and (v) access to right of way to income-generating activities and livelihood sources. About 71% of the affected structures are roadside commercial units. Close to 16% of the structures are residential. The over 100 community structures will also be affected by project road widening. Types of structures are (i) temporary (*kuccha*, 28%); (ii) semipermanent (*semi-pucca*, 52%); and (iii) permanent (*pucca*, 20%).

3. Project Impact on Indigenous and Vulnerable groups

7. The project census identified 334 indigenous and or scheduled tribes in five sections, who are largely small business owners on the right-of-way alignments. The census identified the scheduled tribes without differentiating them. However, *Anthropological Survey of India* and other secondary sources state that the most important scheduled tribes in the project area are the Koli, Bhil, Paradhi, and Vaghri. Socioeconomic and occupational/income data clearly suggests that the project-affected scheduled tribe households and SBEs are similar to the overall affected population and largely assimilated into the local mainstream communities.

8. The vulnerable group consists of scheduled castes (371 members), scheduled tribes (305), female-headed households (16), those below the poverty line (729), and other backward castes (882). A trained and experienced nongovernment organization (NGO) will work exclusively with these vulnerable groups, especially scheduled tribes, to restore their income through training and skill development and other sustainable programs to be designed after needs assessment during project implementation. The NGO will help vulnerable affected persons benefit from ongoing poverty reduction programs targeted at scheduled tribes and the very poor.

C. Resettlement Principles and Compensation

9. The land acquisition is governed by the National Highways Act of 1956 as amended in 1997, which has considerably simplified acquisition procedures. The resettlement plan is guided by the Asian Development Bank (ADB) policy on involuntary resettlement as well as NHAI policies and practices related to resettlement in ongoing ADB-funded projects. The primary objective of the plan is to address all kind of losses and impacts of the project on different target groups, businesses, and structures. Based on the inventory of losses, an entitlement matrix has been developed that identifies the affected persons and their losses, defines compensation and entitlements, and allocates accountability for various resettlement tasks. Affected persons' losses will be dealt with as follows: (i) titled owners will be paid at market rates; (ii) sharecroppers/tenants will be compensated for loss of access and/or crops; (iii) loss of structures (by type) will be compensated at current construction/replacement costs; (iv) material can be salvaged at no cost; and (v) income losses will be compensated, with vulnerable groups receiving additional assistance. For nontitled persons (informal settlers/SBEs), the cut-off date for eligibility is the date of the census in that road section. Publication of notification under section 3A(i) of the NHAI Act will apply to landowners.

10. Another major objective of the resettlement plan is to restore and improve the economic condition of the affected persons, particularly the vulnerable groups. Measures such as facilitating transition allowance for lost livelihood, business/economic rehabilitation support, and alternative livelihood training have been adopted. Further details will be prepared during project implementation. Economic rehabilitation will be partly supported by jobs in project construction. As many children working in roadside business will be affected, the project NGO will help mainstream them in education and tap various government schemes to help the children's households earn income. The resettlement plan implementing agencies will liaison with the block development officer, *zilla parishad* (district council), and *gram panchayat* to rehabilitate child workers.

D. Stakeholder Participation, Disclosure of the Resettlement Plan, and Grievances

11. At various stages of project planning, affected persons have been informed and consulted about the likely project impacts. Various stakeholders consulted include (i) heads of households/business units to be affected; (ii) affected persons in small groups; (iii) village panchayat, sarpanch, and their members; (iv) local voluntary organizations and NGOs; (v) government agencies and departments; and (vi) women and other vulnerable groups. The consultation will continue throughout project implementation.

12. The draft resettlement plan was translated into Gujarati and disclosed to the affected persons and other stakeholders for review and comments on the policy in general and adequacy of the mitigation measures in particular. Comments were collected 1 month after disclosure. NHAI organized public consultation meetings and workshops to share the public's views on the resettlement plan. Key findings of disclosure and consultation indicate full support for the Project. Some of the concerns raised have already been addressed by adjusting the road design and improving compensation and resettlement policy measures and entitlements. The grievance redress centers (GRCs) will comprise the project director (NHAI); district commissioner or his or her representative; representatives of affected persons (male and female); local government/panchayat representative; resettlement officer for the project section (NHAI); local Land acquisition officer; and a representative of the NGO implementing the resettlement plan. GRC claims will be reviewed and resolved within three weeks from the date of submission to the local committee.

E. Relocation Site Development and Rehabilitation Assistance

13. Two relocation and resettlement sites have been identified in Rajkot (section 2) and Thara (section 5) in consultation with the affected persons and local administration. In Rajkot, about 400 informal residential units will be resettled; the affected persons are generally poor migrant laborers and depend largely on the local industries/service sectors for their livelihood. The site is approximately 2-km from the existing settlements. In Thara, affected units are over 600 shops. The proposed site is next to the existing location, which will minimize disruption of businesses during project construction.

14. Several relocation options and strategies have been developed. The site for residential dwellers will be developed with basic civic amenities (e.g., internal roads, sanitary facilities, water and power supply, and community facilities). The households affected by land acquisition have expressed their desire for self-relocation. In addition to compensation for lost assets, relocated families will receive house reconstruction grants and shifting allowances for resettlement.

F. Road Safety, HIV/AIDS,² and Health Risks

15. The economic cost of road accidents in Gujarat is estimated at Rs500 million. The project road sections have hardly any signs for pedestrians, schools, hospitals, bus and truck stops, and rural markets. The improved road will likely cause highway accidents due to heavy traffic; faster vehicles; and combination of multimodes of traffic, including slow-moving and human-powered vehicles. However, the project design has integrated some safety measures such as provisions for intersections, underpasses, rail over bridges, paved shoulders, and service roads for local traffic, especially in rural areas so that farmers can safely move their

² Human immunodeficiency virus/acquired immunodeficiency syndrome.

herds. The project design also integrates right-of-way management, alternative markets for roadside vendors, and provisions for bus and truck stops to reduce accidents. The Project will conduct safety awareness and traffic education campaigns through the NGO, which will work with state government agencies and involve private sector institutions such as automobile companies, automobile associations, truckers associations, and community groups.

16. Focus group discussions with truck, *chakra* (improvised auto-rickshaw), and taxi drivers; roadside *dhaba* (wayside restaurant) owners; and tea-stall owners reveal that HIV is a serious problem among highway sex workers and their clients. Gujarat has the sixth-largest HIV-infected population in India. HIV infection is 5% or more among high-risk groups such as the poor; marginalized groups, including sex workers; migrant laborers; and truck drivers. These groups, particularly truckers, spread HIV/AIDs around the country. Road improvements will likely worsen the already alarming situation.

17. The resettlement plan addresses HIV/AIDs and health issues. During project implementation, qualified NGOs will conduct information and education campaign on HIV/AID and other sexually transmitted diseases. The campaign will target project construction workers at campsites, truckers at truck stops and *dhaba*, and everyone along the alignment. The NGOs will work closely with state agencies and community networks dedicated to prevention work.

G. Implementation Framework and Budget

18. The Environmental and Social Development Unit of NHA will implement and supervise the resettlement plan. NHA will engage qualified and experienced NGOs separately to (i) implement the resettlement plan, (ii) run road safety and HIV/AIDs awareness and education programs, and (iii) work with scheduled tribes and affected persons and communities. NGOs will play an important role in conducting the information campaign on resettlement plan policies and entitlements, disbursing compensation packages as described in the matrix, ensuring redressal of affected persons' legitimate grievances, and attending to the needs of vulnerable groups.

19. A resettlement unit will be established within the Project Implementation Unit (PIU) for project-level resettlement plan implementation. The resettlement unit will be headed by the project director (PIU), and supported by five NHA resettlement and rehabilitation officers, one for each section. They will coordinate and supervise NGO work in the field and help all committees at the district level resolve issues related to resettlement. Under technical assistance, NHA will conduct resettlement management training for its staff and partner agency personnel implementing the resettlement plan. The training will also focus on issues related to the corridor and right-of-way management and develop guidelines for right-of-way land management and development plans.

20. The resettlement plan, including land acquisition, will be implemented over 36 months. Compensation for acquired assets will be paid before construction begins. The resettlement site will be built before people are relocated. Social development and income restoration will continue throughout the project period. The total resettlement budget is Rs34,290,000. The estimates include all costs related to land acquisition and resettlement, including compensation/resettlement assistance, relocation, shifting costs, NGO services, and monitoring and evaluation.

H. Monitoring and Evaluation

21. The resettlement plan will have internal and external monitoring, methods of which are specified in the resettlement plan. Internal monitoring will be done by the resettlement unit. It will monitor compliance with the resettlement plan's principles and matrix, compensation payment, compensation record, completion of compensation three months before construction, job creation, raising of safety and HIV/AIDs awareness, and GRCs, including satisfaction of the aggrieved parties.

22. External monitoring will be carried out by a suitably qualified external expert/agency to be hired by NHAI (with ADB's concurrence) to monitor and evaluate the resettlement plan activities. The external monitor will be selected within three months of loan approval. Monitoring will be carried out every six months in the first two years, and then annually through 2005. The monitoring findings will be shared as reports to NHAI and ADB.

SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

A. Introduction

1. The East-West (E-W) Corridor Project is under category B in accordance with the environmental assessment requirements of the Asian Development Bank. A consulting firm engaged by the National Highways Authority of India (NHAI) prepared an initial environmental examination (IEE), on which this summary IEE is based.

B. Description of the Project

2. The Project will have an investment component to rehabilitate and widen five highway sections totaling 504 kilometers (km). The project roads cover the Porbandar-Deesa stretch, which connects the highways and forms a part of the E-W Corridor. The investment component is in the following sections:¹

- (i) Porbandar-Jetpur, National Highway (NH) 8B (km 2–117), 115 km total;
- (ii) Jetpur-Gondal, NH8B; and Rajkot Bypass (km 117.0–143.3, and km 175.0–185.0), 36.3 km total;
- (iii) Bamanbore-Samakhiyali, NH8A (km 182.5–308.0), 125.4 km total;
- (iv) Samakhiyali-Radhanpur, NH15 (km 281.3–138.8), 142.5 km total; and
- (v) Radhanpur-Deesa, NH14, 85.4 km total.

3. The project road has a generally two-lane carriageway configuration with flexible pavement. Some semiurban roads have four-lane dual carriageways. The existing shoulders are either granular or earthen, but are paved in urban and semiurban areas.

4. Road rehabilitation and improvement will (i) expand two-lane roads (26.5 meters [m] wide, including shoulders) to four lane; (ii) construct a 94.2 km service road in built-up areas, with a carriageway width of 5.5–7.0 m and separators of 1.5–2.0 m; (iii) improve 205 bridges and 542 culverts, and reconstruct the Surajbari bridge; (iv) construct seven railway over bridges; and (v) establish road accessories, segregate slow- and fast-moving traffic, and build emergency parking and toll plazas.

C. Description of the Environment

5. The project sections are under Gujarat provincial administration. The environmental conditions of the project areas are summarized below:

- (i) **Porbandar-Jetpur.** In Porbandar and Rajkot districts, the area is flat. Road alignment passes mainly through agricultural land. Soil is alluvial and contains lime. About 142 big and small rivers, including streams, are in the area, and about 10 tanks exist along the road alignment. The groundwater table is about 5–15 m deep. Rainfall is very low. No conservation area exists in and around the project road area. About 40,000 trees on both sides of the road, and about 18,000 other trees will likely be cut to widen the road.

¹ Although the way of dividing Project highway is different from that in the main text, these five sections cover the entire stretches of the Project highway.

- (ii) **Jetpur-Gondal.** This section passes mainly through Rajkot. The area is flat. Groundwater is about 5–15 m deep, and about 19 big and small rivers, including canals, cross the road alignment. The area is congested, but about 80% of the road alignment passes through an agricultural area. No conservation or sensitive area exist within 10 km of either side of the road. About 8,000 trees on both sides of the road, and about 5,500 other trees will likely be cut to widen the road.
- (iii) **Bamanbore-Samakhiyali.** In Surendranagar and Kachch districts, this road section passes through some rolling terrain, but 80% passes through flat area, mostly farms. The climate is dry, and rainfall is only about 30–60 centimeters per year. The road crosses 26 rivers, streams, and canals. Within 10 km of either side of the road are 16 patches of forest but none categorized as a conservation area. About 9,000 trees on both sides of the road, and about 5,000 other trees will likely be cut to widen the road.
- (iv) **Samakhiyali-Radhanpur.** In Kachch and Patan districts, it mostly passes through a flat, mainly agricultural area. Groundwater is about 5–15 m deep. This section crosses 23 rivers, streams, and canals; 9 ponds exist along the road alignment. From km 199 to 205, the two-lane road passes close to the Ghudkar wildlife sanctuaries. However, the existence of endangered species is not reported. The area is highly populated, however, with 23 patches of forest within 10 km of either side of the road. About 24,000 trees grow along the roadside. About 14,000 will likely be cut for road widening.
- (v) **Radhanpur-Deesa.** In Patan and Banaskantha districts, the road passes through a mostly flat, mainly agricultural area. Only one river crosses the road alignment, but 108 small tanks exist along the alignment. No conservation or other sensitive areas exist within 10 km of either side of the road. However, of the 55,000 trees on both sides of the alignment, 50% will likely be cut for road widening.

D. Screening of Potential Environmental Impacts and Mitigation Measures

6. Potential impacts were screened but no significant environmental impact was identified. The Project is to upgrade the existing roads, none of which are in environmentally sensitive areas.

7. The environmental impacts associated with construction include (i) disruption of traffic in the construction area, (ii) increased air pollution due to dust and other volatile chemical substances from the asphalt plant, (iii) noise and vibration, (iv) disruption of the water system due to cutting and filling and other earth works, (v) potential erosion and landslides due to elevation of some part of the road, and (vi) impacts due to disposal of construction wastes. These impacts will be limited to the construction period and are thus manageable. Mitigation measures include (i) rerouting the traffic with clear signs, (ii) maintaining the optimum moisture content during handling of soil, spraying water to minimize dust, and maintaining a safe distance between the asphalt plant and public facilities, including schools, (iii) strictly controlling the construction works that create noise and vibration by prohibiting night works in residential areas, (iv) pumping stagnant water away, and providing an adequate drainage system, (v) prohibiting the asphalt plant from being built near forests and residential areas, (vi) stabilizing road embankment side slopes, (vii) confining stage construction in flood areas to the dry season, and (viii) avoiding road widening at pond sites. These measures will be required in contractors'

contracts. Borrow pits in fertile agriculture lands and in areas prone to erosion and landslides will be restricted. Former borrow pit areas will be restored and rehabilitated.

8. The environmental impacts associated with project operation are (i) increased air pollution and noise, and (ii) increased accidents. To address these problems, physical barriers will be established and good road signs installed.

E. Institutional Requirements and Environmental Monitoring Program

9. The environmental management and monitoring plans (EMMP) were prepared as part of the IEE study for all road sections in this investment component. On this basis, it was recommended that the Environmental and Social Development Unit be responsible for ensuring that the bidding documents and contract clearly define environmental responsibilities and penalties for noncompliance. Contractors will implement mitigation measures during the construction. The project engineer for each road section will check that the contractors do so. The state's Department of Forestry will plant trees. NHAI will implement the EMMP to mitigate the Project's environmental impacts.

F. Findings and Recommendations

10. The IEE study shows that the Project will significantly reduce vehicle operating costs, increase jobs during construction, and reduce traffic congestion. However, the Project will also have negative environmental impacts. The IEE thus recommends taking measures to minimize them. It identifies the project area as not environmentally sensitive and a full environmental impact assessment (EIA) study is thus not required. NHAI assures that no civil works will be carried out before clearance from the Department of Forestry on tree cutting. Monitoring will be continuous. Total cost for implementing the EMMP, including mitigation measures and tree compensation, is approximately \$2.1 million

G. Conclusion

11. Overall, the IEE found that the Project will not cause significant environmental problems. Potential adverse impacts are temporary and, thus, manageable. They will not affect any environmentally sensitive area, and a full EIA study is, therefore, not required. The EMMP is sufficiently detailed and provides enforceable actions to be undertaken by NHAI to mitigate the impacts and maintain environmental quality during project operation.

EXTERNAL ASSISTANCE TO THE ROAD SECTOR

A. Asian Development Bank

TA No.	Technical Assistance Project Name	Type	Amount	Date Approved
0955	Road Improvement	PP	75,000	24 Feb 1988
1058	Pavement Management	A&O	490,000	3 Jan 1989
1059	Expressway System Planning	A&O	260,000	3 Jan 1989
1164	Second Road	PP	100,000	9 Jun 1999
1325	Vadodara-Bombay Expressway	PP	600,000	15 Jun 1990
1402	Pavement Management for National Highways	A&O	760,000	30 Oct 1990
1403	Private Sector Participation in Expressway Financing, Construction and Operation	A&O	500,000	30 Oct 1990
1404	Road Construction Industry	A&O	340,000	30 Oct 1990
1325	Vadodara-Bombay Expressway (Supplementary)	PP	250,000	19 Mar 1991
1678	Third Road	PP	250,000	26 Mar 1992
1942	Faridabad-Noida-Ghaziabad Expressway	PP	550,000	27 Aug 1993
1951	Bombay-Vadodara Expressway Technical Assistance Project Environmental Impact Assessment	PP	90,000	10 Sep 1993
2001	Road Safety	A&O	210,000	29 Nov 1993
2002	Environmental Management of Road Projects	A&O	240,000	29 Nov 1993
2003	Technical Standards of Highway Concrete Structures	A&O	350,000	29 Nov 1993
2986	Western Transport Corridor-Facilitating Private Participation	PP	1,000,000	9 Feb 1998
3142	North-South Corridor Development in West Bengal	PP	1,000,000	23 Dec 1998
3538	Preliminary Engineering for the West Bengal Corridor Development	PP	150,000	13 Nov 2000
3539	Resettlement and Environmental Assessment for the West Bengal Corridor Development	PP	150,000	13 Nov 2000
3361	Capacity Building for Contract Supervision and Management in the National Highways	A&O	600,000	22 Dec 1999
3365	Capacity Building for Social Development	A&O	800,000	23 Dec 1999
3540	Economic and Poverty Analysis for the West Bengal Corridor Development	PP	150,000	13 Nov 2000
3724	Enhancing the Corporate Finance Capability of National Highways Authority of India	A&O	700,000	20 Sept 2001
3751	Madhya Pradesh State Road Sector Development Project	PP	600,000	29 Oct 2001
3752	National Highway Corridor -Public-Private Partnership- Project	PP	700,000	29 Oct 2001
3845	Madhya Pradesh Road Project	PP	1,000,000	14 Mar 2002
Loan No.	Ordinary Capital Resources Project		Amount	Date Approved
0918	Road Improvement		198.00	10 Nov 1988
1041	Second Road		250.00	30 Oct 1990
1274	National Highways		245.00	29 Nov 1993
1747	Surat-Manor Tollway Project		180.00	27 Jul 2000
1839	Western Transport Corridor Project		240.00	20 Sept 2001
1870	West Bengal Corridor Development Project		210.00	11 Dec 2001

B. Other Funding Sources

Region/ State	Name	Project Length (km)	Loan Amount (Y million)	Equivalent (\$'000)
1. Japan Bank for International Cooperation				
Uttar Pradesh (NH2)	Mathura-Agra (four lane)	51	4,855	43.3
Uttar Pradesh (NH27)	Allahabad-Naini Bridge (over Jamuna Bridge)	5	10,037	89.6
Andhra Pradesh (NH5)	Chilakaluripet-Vijayawada (four-lane)	83	11,360	101.4
Orissa (NH5)	Jagatput-Chandikhol (four-lane)	33	5,836	52.1
Uttar Pradesh (NH24)	Ghaziabad-Hapur (four-laning and Hapur Bypass)	33	4,827	43.0
			Amount (\$'000)	Date Approved
			IBRD	IDA
2. The World Bank Group				
Countrywide	Roads		72.11	1 Jun 1961
Bihar	Bihar Rural Roads		35.00	1 Nov 1980
Countrywide	National Highway	200.00		1 May 1985
Gujarat	Gujarat Rural Roads		119.60	1 Feb 1987
Countrywide	State Roads		80.00	1 Oct 1988
Countrywide	State Roads	170.00		1 Oct 1988
Countrywide	Second National Highways	153.00		1 May 1992
Countrywide	Second National Highways		153.00	1 May 1992
Countrywide	State Road Infrastructure Development Technical Assistance		51.50	1 Dec 1996
Andhra Pradesh	State Highways	350.00		1 Jun 1997
Countrywide	Third National Highways	516.00		12 May 2000
Countrywide	Gujarat State Highways	381.00		15 Sept 2000
Countrywide	Grand Trunk Road Development	589.00		21 Jun 2001
Kerala	Kerala State Transport Project	255.00		13 Mar 2002
Mizoram	Mizoram State Transport Project	60.00		14 Mar 2002

A&O = advisory and operational, IBRD = International Bank for Reconstruction and Development, IDA = International Development Agency, NH = national highway, PPP = public-private partnership.

NATIONAL HIGHWAY AUTHORITY OF INDIA

A. Background

1. The National Highways Authority of India (NHAI) was created under an act of Parliament in 1988, and became fully operational in 1995 with the appointment of the chair. In 1995, NHAI's mandate was limited to implementing Asian Development Bank (ADB)-assisted works for a total of 333 kilometers (km) of highway. From 1995 to 1998, the Ministry of Surface Transport entrusted other projects to NHAI. In 1998, its mandate was significantly enlarged when the agency was entrusted with the National Highways Development Project (NHDP). It is an ambitious road building program with two major components: (i) the 5,952 km Golden Quadrilateral, which connects Delhi, Mumbai, Chennai, and Calcutta; and (ii) the 7,300 km North-South and East-West corridors connecting Srinagar-Kanya Kumari and Silchar-Porbandar. Responsible now for NHDP and upgrading 1,000 km of road linkages to India's major ports, NHAI has authority over a 14,000 km network of national highways.

B. Legal Status and Autonomy

2. As defined in the National Highway Authority of India Act of 1988, which legally constituted NHAI, its mandate and function is the "development, maintenance, and management of national highways" (and any other highways vested in or entrusted to it by the Government). The act defines NHAI as a "body corporate" with the power to "acquire, hold, and dispose of property, to contract and to sue and be sued."

3. In the discharge of its functions, NHAI will act, "so far as may be, on business principles." With the consent of the central Government, NHAI may (i) "borrow money from any source by the issue of bonds, debentures or such instruments as it may deem fit for discharging any of its functions"; (ii) "form one or more companies (under the Companies Act 1956) to further the efficient discharge of its functions"; (iii) engage or entrust any of its functions to any corporation or body corporate owned or controlled by the Government; and (iv) collect fees on behalf of the central Government (and state government) for services or benefits rendered under section 7 of the National Highways Act of 1956 on terms and conditions as may be specified by such governments.

4. The act enables the Government, with notification in the *Official Gazette*, to supersede NHAI for such period not exceeding 1 year. The act also requires that NHAI comply with central Government orders (i) on such directions on questions of policy; (ii) on contract form or contract values that exceed such value or amount as prescribed by the central Government; and (iii) on instruction to entrust the development, maintenance, or management of any national highway or a part thereof, to such person as may be specified by the central Government.

C. Corporate Structure and Staffing Level

5. NHAI's management board consists of "a Chairman, not more than five full-time members and not more than four part-time members," to be appointed by the central Government with their term of office, remuneration level, and other conditions of service therein prescribed. NHAI is to "appoint such number of officers and other employees as it may consider necessary on such terms and conditions as may be laid down by [its] regulations."

6. NHAI's management board is composed of four full-time members: for administration, finance, technical matters, and private investment; and four part-time members: secretaries of

the Ministry of Road Transport and Highways (MORTH), Ministry of Planning, Ministry of Expenditure, and Director General for Roads Department of MORTH. NHAI's operations are organized on two tiers: the head office and the project implementation unit. The head office has 10 departments and or divisions: administration, finance and accounts, information technology and planning, vigilance, technical, corridor management, East-West Corridor, North-South Corridor, World Bank projects, and private investment. Forty-six PIUs have been established across the country, each reporting to its regional technical department: five support ADB project activities (Chitradurga, Durgapur, Gurgaon, Valsad, and Vijayawada); six support World Bank project activities (Agra, Allahabad, Kanpur, Koderma, Trichy, and Varanasi); and four support Japan Bank for International Cooperation (JBIC) project activities (Bhubaneswar, Ghaziabad, Guntar, and Naini).

7. As of the beginning of FY2003, NHAI had 530 full-time employees: 126 (24%) regular, 270 (51%) on deputation from various government departments; and 134 (25%) hired on a contract basis. The head office has a staff of 235: 96 professional and 139 support. PIUs have a total of 295 staff: 182 professional and 113 support. At the head office, the administration and finance departments employ 49 staff each, with the technical departments employing the rest. The number of PIU staff depends on the unit's workload, with an average of six staff per PIU.

8. NHAI has issued to the end of FY2002 87 contracts valued at Rs170.8 billion to build highways: 78 are for construction (Rs144.6 billion), 4 for build-operate-transfer (Rs15.2 billion), and 5 for special-purpose vehicles (Rs11.0 billion).

9. At the end of FY2002, NHAI will manage and maintain the 1,881 km of highway it has completed. NHAI has issued four maintenance contracts of Rs53 million to maintain 486 km of national highways.

D. Past ADB Assistance to the National Highways Authority of India

10. ADB provided a \$180-million loan for the Surat-Manor Tollway (SMT) Project in 2000, and a \$240-million loan for the Western Transport Corridor (WTC) Project in 2001. Both loans helped NHAI upgrade the Golden Quadrilateral. The SMT Project covered 180 km from Surat to Manor; and the WTC Project, 259 km from Tumkur to Haveri. Civil works contracts have already been awarded for both projects, with expected time of completion in 2004 for the SMT Project and 2005 for the WTC Project.

11. The SMT and WTC projects both have three study and or capacity-building components and one technical assistance (TA): (i) development of a concession agreement for road operation and maintenance (to start soon); (ii) toll system study (now selecting consultants); (iii) environmental management training (not started yet, but agreement secured during the appraisal meeting for early training); and (iv) study to enhance corporate financing capability (two of four components have already been undertaken as a part of the other exercises). A computer model has been developed for financial planning and subsequent development of an investment strategy under the ongoing project preparatory technical assistance arrangement for the National Highway Corridor —Public-Private Partnership— Project. Phase-2 activities have commenced as a part of the World Bank-financed Institutional Strengthening Study, with its terms of reference modified to incorporate ADB's. Because of these changes, the team intends to seek management approval to modify the scope of the study separately from this Project. Efforts will be made to ensure the early initiation and completion of the studies and capacity-building exercises.