



INFRASTRUCTURE
Building for Growth



Government of India

Report of the Core Group

**Financing of the National Highway
Development Programme**

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Contents

Preface

1.	Introduction	4
2.	Assumptions for the Financing Plan	6
3.	Past expenditure and absorption capacity	9
4.	Outlays under different modes of delivery	10
5.	Sources of Financing	11
6.	Financing issues	12
7.	Recommendations	15

List of Annexures

Annexure I

Assumptions for the Financing Plan of NHDP	23
--	----

Annexure II

Cash Flow Statement for Toll Revenue, Maintenance Expenses and servicing of Loan Component of External Assistance	28
---	----

Annexure III

Statement showing highway section-wise annual toll revenues: year 2004-05	30
--	----

Annexure IV

Combined Cash Flow Statement of NHDP-I to VII assuming commitment of cess up to 2029-30	32
--	----

Annexure V A

Cash Flow Statement for BOT (Toll) Projects: 2005-06 to 2015-16	36
--	----

Annexure V B

Cash Flow Statement (CC, LA, DPR & US): 2005-06 to 2015-16	38
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Annexure V C

Cash Flow Statement for BOT (Annuity) Projects: 2005-06 onwards	40
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Annexure V D

Combined Cash Flow Statement of NHDP-I to VII: 2005-06 to 2015-16	42
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Secretariat for the Committee on Infrastructure

Preface

This Report outlines the financing plan for a quantum augmentation of the national highway network in India. It responds to the direction of the Committee on Infrastructure, chaired by the Prime Minister, to initiate measures that would upgrade Indian highways to world class standards. The Committee has approved a programme for upgrading 40,000 km of national highways and construction of 1,000 km of new expressways. The programme includes six-laning of the Golden Quadrilateral and other selected sections which have high traffic density. The Committee has directed that scarce budgetary resources may be leveraged through Public Private Partnerships that would also improve the quality of service at competitive costs.

A Core Group under the chairmanship of Shri Rajeeva Ratna Shah, Member Secretary, Planning Commission was constituted with representatives from the Prime Minister's Office, the Department of Road Transport & Highways, Finance Ministry and the National Highways Authority of India (NHAI). After extensive deliberations, the Core Group evolved a plan that represents an optimal and sustainable approach to financing of the National Highway Development Programme (NHDP).

To the extent feasible, the plan relies on PPPs for raising resources, improving efficiencies and controlling time and costs. Apart from private capital, resources would be raised from a variety of sources such as cess revenues, market borrowings and toll revenues of projects

operated by NHAI. This well-articulated plan should help in ensuring timely and cost-effective implementation of the ambitious highway programme launched by the Government.

Since national highways constitute the lifeline of the transport network, and considering a projected GDP growth rate of 8% plus, the scale and quality of these highways would be a critical factor in sustaining the growth momentum. The NHDP envisages a mammoth investment of Rs. 2,20,000 crore (US\$ 50 billion) on concessions/contracts to be awarded by 2012 and the financing plan demonstrates the feasibility of this approach.

The recommendations of the Core Group have since been approved by the Committee on Infrastructure and implementation has already begun.

(Gajendra Haldea)

Introduction

1.1 The Committee on Infrastructure (CoI) in its third meeting held on January 13, 2005 approved the broad contours of the National Highway Development Programme (NHDP) and mandated that the programme as given in Table 1, be undertaken by 2012.

1.2 In a meeting held on February 17, 2005 under the chairmanship of Principal Secretary to PM, it was decided that the financing plan of NHDP would be examined in detail by a Core Group consisting of:

Shri Rajeeva Ratna Shah, Member Secretary, Planning Commission

Shri Ashok Jha, Secretary, Department of Economic Affairs

Shri L.K. Joshi, Secretary, Department of Road Transport and Highways (DoRTH)

Shri Jawed Usmani, Joint Secretary, PMO

1.3 The Core Group co-opted **Dr. Adarsh Kishore**, Secretary, Expenditure.

1.4 The Core Group met on June 29 and July 29, 2005 to discuss the financing plan of NHDP, as prepared by NHAI. In its meeting held on July 29, 2005, the Core Group constituted the following Sub-Group under the chairmanship of Adviser to Deputy Chairman, Planning Commission to deliberate and submit its recommendations to the Core Group:

Shri Gajendra Haldea, Adviser to Deputy Chairman, Planning Commission

Shri A.K. Jain, Member (Finance), NHAI

Shri Jawed Usmani, Joint Secretary, PMO

Shri P.K. Deb, Joint Secretary, Department of Economic Affairs

Shri Vivek Rae, Joint Secretary, Expenditure

Table 1: National Highway Development Programme (NHDP)

NHDP Phase	Particulars	Length (in km)	Indicative Cost (in Rs. crore)
NHDP-I & II	Balance work of GQ and EW-NS corridors	9,000	42,000
NHDP-III	4-laning	10,000	55,000
NHDP-IV	2-laning	20,000	25,000
NHDP-V	6-laning of selected stretches	5,000	17,500
NHDP-VI	Development of expressways	1,000	15,000
NHDP-VII	Ring Roads, Bypasses, Grade Separators, Service Roads etc.	N.A.	15,000
Total		45,000	1,69,500

Shri A.P. Bahadur, Chief Engineer (PIC),
DoRTH

1.5 The Sub-Group had meetings on August 8, August 18, September 15, October 1, October 25, November 3, November 9, November 14 and November 18, 2005 to formulate its recommendations. The report of the Sub-Group was submitted for consideration of the Core Group.

1.6

The Core Group met on December 28, 2005, January 30 and February 6, 2006 to deliberate on the Sub-Group's report and to finalise its recommendations as contained in this Report.

Assumptions for the Financing Plan

2.1 Assumptions

2.1.1 For evolving a financing plan, the Sub-Group adopted a set of assumptions which have been stated at Annex-I.

2.2 Construction cost

2.2.1 The costs per km have been indicated at Annex-I. However, in a review meeting held under the chairmanship of Deputy Chairman, Planning Commission, it was decided that MoSRTTH would constitute an expert group to review the costs of construction. Pending the report of the expert group, the cost estimates given by NHAI have been provisionally adopted.

2.2.2 While adopting provisional cost estimates indicated by NHAI, the Core Group noted that project costs were escalating rapidly and there was need to economise with a view to increasing the reach of the programme within

the available resources. The Group noted that the estimate of Rs. 1,69,500 crore (excluding Rs. 2,500 crore for the North East) that was presented to the CoI in January, 2005 had been revised to Rs. 2,20,000 crore in January 2006 implying an increase of about 30%. It would be difficult to fund increased costs without either curtailing the scope of the programme or increasing the toll rates/cess rates. A holistic view would need to be taken regarding the scope of work and its affordability in terms of cess/toll rates. The Group recommended that the review of construction costs and scope of work should be completed expeditiously so that projects can be formulated and sanctioned accordingly.

2.3 Modes of delivery

2.3.1 The total length proposed to be developed under NHDP has been split into sections to be covered under different modes of delivery viz. BOT (Toll), BOT (Annuity)

Table 2: Coverage under different modes of delivery

NHDP Phase	Length under different modes of delivery (in km)			Total
	BOT (Toll)	BOT (Annuity)	CC	
NHDP-I (Balance Work)	20	7	1,711	1,738
NHDP-II (Balance Work)	1,237	930	4,569	6,736
NHDP-III	10,000	-	-	10,000
NHDP-IV	5,000	15,000*	-	20,000
NHDP-V	6,500	-	-	6,500**
NHDP-VI	1,000	-	-	1,000
NHDP-VII				***
Total	23,757	15,937	6,280	45,974

* To be determined based on budgetary resources and the tolling policy for two-lane highways.

** CoI has approved six-laning of 6500 km instead of the 5000 km mandated earlier.

*** Length to be covered under NHDP-VII is not shown because specific sections are yet to be identified

and Construction Contract (CC). These are indicated in Table 2.

2.3.2 The projections for BOT (Annuity) under NHDP-IV are tentative and may be firmed up based on the tolling policy for two-lane highways to be approved by the Committee on Infrastructure (CoI)/Cabinet and the allocation of additional budgetary resources.

2.4 Inter-se priority among phases

2.4.1 NHDP-II, NHDP-III and NHDP-V are

expected to be completed by December 2012, while concessions/contracts for NHDP-IV, NHDP-VI and NHDP-VII would be awarded by Dec. 2012 and works completed by Dec. 2015.

2.4.2 NHDP-II and NHDP-III are sanctioned as ongoing programmes of NHAI. While NHDP-II is scheduled to be completed by December 2009, NHDP-III is to be completed by December 2012. NHDP-V has since been approved by CoI and preparatory work has commenced with a view to completing the programme by December 2012.

Table 3: Priority of different Phases of NHDP

Priority	NHDP Phase	Length (in km)	Present Status	Approval Date	Completion Date
1.	Balance of Phase-I	1,738	Fully awarded	Dec '00	Dec '06
2.	Phase-II	6,736	Award in progress	Dec '03	Dec '09
3.	Phase-III A	4,000	Already identified	Mar '05	Dec '09
4.	Phase-V	6,500	5700 km of GQ 800 km to be identified	Nov '05	Dec '12
5.	Phase-III B	6,000	Already identified	Mar '06	Dec '12
6.	Phase-VII A	Ring roads etc.	To be identified	Dec '06	Dec '12
7.	Phase-IV A	5,000	To be identified	Dec '06	Dec '12
8.	Phase-VII B	Ring roads etc.	To be identified	Dec '07	Dec '13
9.	Phase-VI A	400	Already identified	Dec '07	Dec '14
10.	Phase-IV B	5,000	To be identified	Dec '07	Dec '13
11.	Phase-VII C	Ring roads etc.	To be identified	Dec '08	Dec '14
12.	Phase-VI B	600	To be identified	Dec '08	Dec '15
13.	Phase-IV C	5,000	To be identified	Dec '08	Dec '14
14.	Phase-IV D	5,000	To be identified	Dec '09	Dec '15
Total		45,974*			

* Total length excludes length under NHDP-VII which has not been estimated yet. Projects under this phase will be taken up concurrently throughout the term of the programme.

2.4.3 Cabinet approval to NHDP-IV, NHDP-VI and NHDP-VII is yet to be accorded.

These programmes would be taken up under the Eleventh Five Year Plan depending upon resource availability. In particular, NHDP-IV would be suitably modified and rescheduled depending upon the toll policy for two-lane highways and overall resource availability for NHDP.

2.4.4 Based on the above, the Core Group recommends that the various Phases be prioritised as per Table 3.

Past expenditure and absorption capacity

3.1 Details of expenditure incurred by NHAI during the past five years are shown in Table 4. The expenditure was largely through item rate construction contracts and indicates NHAI's capacity to absorb budgetary outlays of about Rs. 5,000 crore per annum under this mode. As such, annual allocations of about Rs. 5,000 crore for construction contracts would seem feasible and adequate.

3.2 NHAI believes that it may be able to enhance its absorption capacity beyond the projections made in this Report (see Annex-V). In such an event, allocation of additional resources could be considered on a year to year basis by advancing the borrowing limits reserved for subsequent years. However, any significant increase in the annual allocation for the construction contract mode may be avoided so as to preserve the minimum requisite supervision and quality of works.

Table 4: Past Expenditure by NHAI (Rs. in crore)

Year	Expenditure by NHAI		
	Capital*	Maintenance	Total
2000-2001	1,235.58	143.66	1,379.24
2001-2002	3,854.67	192.43	4,047.10
2002-2003	5,142.28	200.59	5,342.87
2003-2004	6,191.44	275.27	6,466.71
2004-2005	4,728.82	278.67	5,007.49
Total	22,206.38	1,215.70	23,422.08

* includes viability gap funding, annuity payments, land acquisition, DPRs etc.

3.3 The break-up of funding sources for the plan outlay of 2005-06 as per budgetary estimates, is shown in Table 5.

Table 5: Allocation for 2005-06 (Rs. in crore)

Particulars	2005-06 (BE)
External Assistance	3,000
NHAI (Investment)	3,270
NHDP-III, Two-laning, Expressways and Six-laning	1,400
Internal & Extra Budgetary Resources	8,500
Total	16,170

3.4 The expenditure incurred up to December 31, 2005 is Rs. 9,999 crore (including debt service of Rs. 5,703 crore), suggesting significant savings compared to the budget estimate (BE).

Outlays under different modes of delivery

4.1 The phase-wise outlays under different modes of delivery are indicated in Table 6, with a total estimated cost of Rs. 2,20,000 crore.

4.2 CoI has approved six-laning of 6,500 km under NHDP-V instead of 5,000 km decided earlier in its meeting on 13.1.2005.

Subsequently, MoSRTTH and NHAH have made substantial additions to the scope of work. The estimated cost of NHDP-V has, therefore, been revised.

4.3 The financing plan for NHDP does not include the Special Accelerated Road Development Programme for North-East (SARDP-NE). In the CoI meeting held on 13.1.2005, the costs of SARDP-NE were projected as Rs. 2,500 crore, but these have since been revised to Rs. 12,000 crore. Provisions of this amount may be considered separately by way of additional budgetary support.

Table 6: Outlays under different modes of delivery

NHDP Phase	Item	CC	BOT (Toll)	BOT (Annuity)	Total
NHDP-I (Balance Work)	Length (in km.)	1,711	20	7	1,738
	Cost (in Rs. Cr.)	8,145	581	85	8,811
NHDP-II (Balance Work)	Length (in km.)	4,569	1,237	930**	6,736
	Cost (in Rs. Cr.)	29,493	8,065	6,064	43,623
NHDP-III	Length (in km.)	-	10,000	-	10,000
	Cost (in Rs. Cr.)	-	65,197	-	65,197
NHDP-IV	Length (in km.)	-	5,000	15,000**	20,000
	Cost (in Rs. Cr.)	-	6,950	20,850	27,800
NHDP-V	Length (in km.)	-	6,500	-	6,500
	Cost (in Rs. Cr.)	-	41,210	-	41,210
NHDP-VI	Length (in km.)	-	1,000	-	1,000
	Cost (in Rs. Cr.)	-	16,680	-	16,680
NHDP-VII	Length (in km.)	-	-	-	*
	Cost (in Rs. Cr.)	2,594	9,638	4,448**	16,680
Total	Length (in km.)	6,280	23,757	15,937	45,974*
	Cost (in Rs. Cr.)	40,232	1,48,321	31,447	2,20,000

* Length to be covered under NHDP-VII is yet to be finalised.

** To be determined based on budgetary resources and the tolling policy for two-lane highways.

Sources of Financing

5.1 Revenues from cess

5.1.1 The cess inflows of Rs. 3,270 crore for the year 2005-06 are based on the approved Budget Estimates. For 2006-07, the total inflow calculated @ Rs. 2 per litre on diesel and petrol has been estimated at Rs. 6,691 crore. The growth rate in cess has been assumed as 3% per annum, based on projected growth in consumption.

5.2 Surplus from toll revenues

5.2.1 An average toll revenue of Rs. 50 lakh per km and Rs. 18 lakh per km has been assumed for GQ and NHDP-II respectively. The projections of net surplus from toll revenues after adjusting maintenance costs and servicing of loan component of external assistance are at Annex-II. It was noted that the average toll collection for GQ in 2004-05 was Rs. 30 lakh per km (see Annex-III) and it is Rs. 110 lakh per km in 2005-06 for the Jaipur-Kishangarh section. There is significant scope for additional resource mobilization through better toll recovery.

5.3 Additional budgetary support

5.3.1 It was noted that NHDP-I, NHDP-II and NHDP-III did not envisage any budgetary support other than cess and external assistance. Since the cess revenues would be doubled next year onwards, the proposed financing plan does not assume any additional budgetary support except for the North East.

5.4 Borrowings

5.4.1 The shortfall between the inflows from all sources and the projected outflows, including the payment of annuity, is proposed to be met out of market borrowings.

5.4.2 Market borrowings would have to be raised against suitable forms of support or back-stopping by the Finance Ministry. This may include a commitment that cess revenues at a pre-determined level would be made available to NHAI and may be suitably assigned for debt service. Given the size and tenure of borrowings, it would be necessary for the Ministry of Finance to provide the requisite comfort to lenders so that NHAI is able to raise the projected borrowings.

Financing issues

6.1 Present Status

6.1.1 As a matter of policy and by law, NHAI is required to act on business principles. In the past, however, its plans and priorities have been determined mainly by allocation of budgetary resources including cess. While the programme implemented in the past by the Ministry was entirely based on budgetary outlays, the creation of NHAI was aimed at commercialising highway projects so that a larger programme could be undertaken on a self-sustaining basis.

6.1.2 The policy framework for toll-based BOT projects was approved by the Cabinet in 1997. Subsequently, in-principle approval of NHDP Phase I & II was given by the Cabinet on April 5, 2000 followed by CCEA approval of NHDP-I on December 12, 2000. Under the said approval of NHDP, contracts were to be awarded to the extent possible on BOT (Toll)/BOT (Annuity) model. However, 5,810 km under NHDP-I have been four-laned through item rate construction contracts that were funded entirely out of budgetary allocations, including cess. 476 km were taken up under the BOT (Annuity) mode that would require deferred budgetary payments over 15 years. The total length of four-laning through toll-based BOT mode (in accordance with the framework specified in 1997) was 454 km.

6.2 Mandate for BOT approach

6.2.1 There have been several decisions at the level of PM/Cabinet, 2000-01 onwards, emphasising the need to shift from construction contracts to the BOT mode of delivery.

In a meeting held under the chairmanship of the Prime Minister on March 15, 2005, it was decided that besides awarding contracts under BOT for a total road length of up to 2,100 km under NHDP-II, all future programmes/projects would be awarded only on BOT basis. The relevant extracts of the decisions of the said meeting are reproduced below:

“As regards the issue of EPC vs. BOT, it was agreed that for ensuring provision of better road services, i.e. higher quality of construction and maintenance of roads and completion of projects without cost and time overrun, contracts based on BOT model are inherently superior to the traditional EPC contracts. Accordingly, it was decided that for NHDP Phase-III and onwards, all contracts for provision of road services would be awarded only on BOT basis (either based on Toll or Annuity or a suitable Toll/Annuity hybrid), with EPC awards being made in specified exceptional cases only.”

6.2.2 Briefly stated, the basic difference between BOT (Toll) and BOT (Annuity) is that while in case of the former, construction, maintenance and tolling form part of the concession and budgetary support is restricted to an upfront grant to the concessionaire determined through competitive bidding, in the case of the latter, construction and maintenance form part of the concession and the concessionaire relies on annuity payments determined by competitive bidding and made out of budgetary allocations spread over time. In the former mode, the traffic/commercial risks are borne by the concessionaire and the investment is sustained

by toll revenues while in the latter mode, all costs are borne by the Government in the form of deferred budgetary payments. The Government may grant a separate tolling contract for annuity projects if it so decides.

6.2.3 In case of projects where tolling is not contemplated, BOT (Annuity) offers several advantages over construction contracts. Appropriate packaging of BOT (Annuity) projects can help capture the benefits arising out of allocation of construction and maintenance risks to the concessionaire while minimising the downside associated with comparatively high cost of funds. As such, BOT (Annuity) option is superior to the construction contract mode.

6.2.4 Given the policy directive for adoption of BOT mode on the basis of duly approved model concession agreements (MCAs) for BOT (Toll) and BOT (Annuity), the Group noted that while the MCA for BOT (Toll) projects was already in place, the MCA for BOT (Annuity) needed to be finalized expeditiously.

6.2.5 The Group noted that the principles for choosing between BOT (Toll) and BOT (Annuity) would also need to be laid down.

6.2.6 The Group further noted that the borrowing limits would have to be specified by the Government in order to determine the broad contours of a financial plan.

6.3 Balancing the NHAI Budget

6.3.1 In order to balance the NHAI budget, its revenue streams and expenditures would need

to be rationalised. It would also be necessary to impose a hard budget constraint so that contractual liabilities are incurred within the four corners of fiscal prudence. This is all the more critical because NHAI has virtually no asset base of its own (the highways are owned by GoI) and any liabilities that NHAI fails to discharge would in effect devolve upon GoI. For determining the expenditure outlays/ceilings for NHAI, its sources of revenue could be treated on the following lines.

6.4 Cess revenues

6.4.1 As noted earlier, the cess allocation for 2005-06 is Rs. 3,270 crore which will be enhanced to Rs. 6,691 crore in 2006-07 on account of imposition of additional cess. It is proposed that earmarking of cess may be done for viability gap funding relating to the approved programme of BOT (Toll) projects. The earmarking would be done annually by the Planning Commission in consultation with MoSRTTH and Finance Ministry, along with fixing of the borrowing limits of NHAI. The remaining cess revenue may continue to be used for ongoing expenditures including construction contracts, annuity repayments, land acquisition, DPR preparation etc.

6.5 Additional Budgetary Support

6.5.1 Additional budgetary support may be provided for road projects in the North Eastern Region and for any additional projects undertaken during the Eleventh Plan. In case BOT (Annuity) mode or EPC mode are adopted for projects in NHDP-IV and NHDP-VII,

additional budgetary allocations would be necessary.

6.6 Market Borrowings

6.6.1 Borrowings may be permitted to the extent they can be raised by assigning the toll revenues of NHAI. If necessary, such toll revenues could be placed in an escrow account that could be assigned to the lenders. NHAI may also establish SPVs for raising non-recourse project debt. NHAI may also be allowed to raise short term borrowings/ overdraft equal to 20% of its annual budget for meeting its short-term requirements.

6.6.2 In addition to the above, a prudent limit of long-term borrowings may also be approved from year to year for funding current capital expenditures against future cess revenues. One view was that the borrowing limit should be fixed in a manner whereby the debt service obligations did not exceed 50% of the projected annual cess revenues of NHAI. The other view was that the entire cess revenue up to 2029-30 could be committed for debt service.

6.7 Toll Revenues

6.7.1 Toll revenues may be maximised by NHAI and the additional resource mobilisation on this account may be used by NHAI for funding its capital and revenue expenditures.

6.8 Revision of Cost Estimates and funding thereof

6.8.1 The programme, as approved by CoI

on January 13, 2005, was estimated to cost Rs. 172,000 crore including Rs. 2,500 crore for North Eastern Region. These costs have since been revised to Rs. 220,000 crore excluding the North Eastern Region. While the outlays for North Eastern region would be funded out of additional budgetary support, the funding of Rs. 220,000 crore would have to depend on cess revenues, market borrowings and private participation.

6.8.2 The increased funding requirement would have to be met out of additional resource mobilization or by economising on costs. Additional resources may be mobilised by:

- (a) Increasing toll rates;
- (b) Improving toll collection; and/or
- (c) Increasing the rate of cess.

6.8.3 Cost reduction may be achieved by:

- (a) Substituting the BOT (Annuity) mode and C.C. mode by BOT (Toll) mode;
- (b) Tolling of two-lane projects under NHDP-IV;
- (c) Postponing construction of paved shoulders on 4-lane highways under NHDP-II and NHDP-IIIA, where traffic volumes are less than 20,000 PCUs; and/or
- (d) Undertaking cost reduction through efficient designing and timely completion.

6.8.4 While seeking approval for annual borrowing limits, NHAI should update its financing plan and make appropriate adjustments in resources and/or costs for ensuring that all its projects are fully funded. In case of a shortfall, it should reschedule the construction programme based on the priorities stated at paragraph 2.4.

Recommendations

Legislative Mandate

7.1 Steps should be taken to align the outlook and operations of NHAI in line with the legislative mandate to act on business principles. In this context, attention is invited to section 10 of the NHAI Act, which reads as follows:

“Authority to act on business principles - In the discharge of its functions under the Act, the Authority shall act, so far as may be, on business principles.”

Assumptions for planning

7.2 The assumptions used for making financial projections are stated at Annex-I. These may be adopted for purposes of planning and estimation except as stated below.

Prioritisation

7.3 The prioritisation of different phases of implementation comprising over 46,000 km is recommended as given in Table 7.

7.4 During the remaining period of Tenth Plan, focus should be on implementation of NHDP-I, NHDP-II, NHDP-III and NHDP-V. The remaining programmes, i.e., NHDP-IV, NHDP-VI and NHDP-VII should be taken up under the Eleventh Plan after they are duly approved by the Cabinet. Construction schedule should, however, be adjusted to conform to the adjusted financing plan from year to year. In making such adjustments, the order of priority indicated above may be adhered to.

Table 7: Priority among different phases of NHDP

Order of Priority	NHDP Phase	Length (in km)
1.	Balance Work under NHDP-I	1,738
2.	NHDP-II (NS, EW)	6,736
3.	NHDP-III A (BOT-4 lane)	4,000
4.	NHDP-V (BOT-6 lane)	6,500
5.	NHDP-III B (BOT-4 lane)	6,000
6.	NHDP-VII A	Ring roads, Bypasses etc.
7.	Phase-IV A (BOT-2 lane)	5,000
8.	Phase-VII B	Ring roads, Bypasses etc.
9.	Phase-VI A (Expressways)	400
10.	Phase-IV B (2 lane)	5,000
11.	Phase-VII C	Ring Roads, Bypasses etc.
12.	Phase-VI B (Expressways)	600
13.	Phase-IV C (2-lane)	5,000
14.	Phase-IV D (2 lane)	5,000

7.5 The programme of two-laning 20,000 km under NHDP-IV should be divided into four parts of 5,000 km each. A detailed project proposal may be formulated offering different alternatives and posing policy issues for decision by the Cabinet. The implementation of NHDP-IV would depend upon the resource availability during the Eleventh Plan, which in turn would significantly depend upon whether or not these highways are to be tolled. Depending upon the Cabinet decision on tolling for two-laning of national highways, the programme size and schedule would need to be suitably adjusted in accordance with the resource availability.

Unit Costs

7.6 The unit costs and specifications have been adopted provisionally but the Group expressed concern over the revision of costs from Rs. 1,69,500 cr. projected in January, 2005 to Rs. 2,20,000 cr. projected in January 2006. These will be adjusted on the basis of recommendations to be made by an Expert Group which has since been constituted by MoSRTTH. The report of the Expert Group may be considered by the Core Group in view of its impact on the Financing Plan.

GoI Approval/Guarantees for borrowings

7.7 The borrowing powers of NHAI are governed by section 21 of the NHAI Act which reads as follows:

“Borrowing powers of the Authority-

- (1) The Authority may, with the consent of the Central Government or in accordance with the terms of any general or special authority given to it by the Central Government, borrow money from any source by the issue of bonds, debentures or such other instruments as it may deem fit for discharging all or any of its functions under this Act.*
- (2) Subject to such limits as the Central Government may, from time to time, lay down, the Authority may borrow temporarily by way of overdraft or otherwise, such amounts as it may require for discharging its functions under this Act.*

(3) The Central Government may guarantee in such manner as it thinks fit the repayment of the principal and the payment of interest thereon with respect to the borrowings made by the Authority under sub-section (1).”

7.8 All borrowings would require prior approval of the Government in accordance with the provisions of the aforesaid Section 21. This is particularly relevant as NHAI has no asset base of its own and its toll revenues are rather slender to be able to sustain the required borrowings. In consultation with the Planning Commission, the Finance Ministry would need to indicate the annual borrowing limit from year to year keeping in view the repaying capacity of NHAI based on its projected cess revenues.

7.9 The nature of liabilities created by annuities is similar to that of borrowings, as both require repayments spread over 10-15 years. As such, Government approvals required for borrowings would also have to include annuities. In other words, borrowing limits to be set for NHAI would include annuity repayments as both would constitute a charge on future cess revenues of NHAI.

7.10 Cess revenues cannot be said to belong to NHAI and should not, therefore, be pledged by it. In this context, the provisions of Section 4 of the Central Road Fund Act, 2000 are relevant and read as follows:

“ 4. Crediting of cess to Consolidated Fund of India. - The proceeds of the cess levied under Section 3 shall first be credited to the Consoli-

dated Fund of India, and the Central Government may, if Parliament by appropriation made by law in this behalf so provides, credit such proceeds to the Fund from time to time, after deducting the expenses of collection, for being utilised exclusively for the purposes of this Act.”

7.11 The Group discussed various issues related to leveraging of the cess revenue stream for funding the NHDP including the issues raised in a paper titled “Can cess revenues be leveraged?” It was felt that considering the economy was growing at a robust pace of 7% to 8% and traffic on roads was increasing rapidly, the investment imperatives more than justified leveraging of cess revenue well beyond the project execution period. From the point of view of the economy, investments in road sector had a high multiplier and were very desirable. If NHAI were not allowed to borrow, it would have still made sense for GOI to make these investments against GOI borrowings. Therefore, leveraging of cess revenues, based on back-stopping by the Finance Ministry, was an acceptable and legitimate way of financing the NHDP.

7.12 In view of the above, one of the suggestions made was that as a general rule, borrowing limits of NHAI, including annuity repayments, should be so fixed that its annual debt service obligations did not exceed 50% of its projected annual revenues. It was pointed that in case the entire cess up to 2029-30 was assigned for debt service, it would virtually imply a ‘debt trap’ for NHAI and future capital investment would be possible only if the cess rate was increased or additional budgetary

resources provided. It was also suggested that such borrowings should be allowed only for funding the grant element of PPP projects as that would maximize the leveraging effect. The other view was imposition of such ad-hoc borrowing limits on that NHAI will become an impediment in programme implementation and, therefore, NHAI should be allowed to borrow to such limit as is necessary for time-bound execution of the programme. According to this view, in order to undertake the NHDP as envisaged, the entire cess revenue up to 2029-30 could be committed for debt service.

7.13 The Group recommends that keeping in view the considerations stated above and in Part 6 of the Report, the annual borrowing limit for NHAI may be fixed from year to year by the Finance Ministry in consultation with the Planning Commission. While fixing the annual borrowing limit, the updated financing plan of NHAI should be kept in view with the objective of ensuring that:

- (a) all NHAI projects are fully funded; and
- (b) the borrowings (including annuity payments) are determined such that they can be serviced out of the projected cess revenues.

7.14 The proposed market borrowings would have to be raised against suitable forms of support or back-stopping by the Finance Ministry. This may include a commitment that cess revenues at a pre-determined level would be made available to NHAI and may be suitably assigned for debt service. Given the size and tenure of borrowings, it would be necessary for the Ministry of Finance to provide the

requisite comfort to lenders so that NHAI is able to raise the projected borrowings.

7.15 Further, in terms of Section 21(2), the limit for short-term overdraft facility of NHAI may be fixed at a level equal to 20% of the Annual Budget of NHAI.

Review and approval of the Tolling Policy

7.16 The Group noted that the extant Cabinet decisions required tolling of all national highways with four-lanes and above. However, there was no such decision with respect to two-lane highways. The Group further noted that in terms of a CoI decision, the tolling policy was being reviewed.

7.17 It was noted that 20,000 km of two-lane roads were proposed to be constructed under NHDP Phase-IV. If Government decided to toll two-laning of national highways, a revenue stream would be available and to that extent, the requirement of budgetary support would be reduced. However, if it were decided that two-laning would not be tolled, then the programme size and schedule would have to be suitably adjusted.

Modes of Delivery

7.18 The Group identified the following modes of delivery in order of priority:

- (a) BOT (Toll)
- (b) BOT (Annuity)
- (c) EPC
- (d) Item rate construction contract

7.19 All highways which are to be tolled should adhere to the BOT (Toll) mode in accordance with the extant framework approved by CoI/ Cabinet, especially a cap of 40% on the grant element. In case bids exceed the cap of 40%, the project structure would be reviewed by the competent authority for shifting the project from BOT (Toll) to BOT (Annuity) mode along with provision of requisite funding, as necessary.

7.20 Highway projects which are not amenable to BOT (Toll) mode, including projects which are not to be tolled under Government policy, should be undertaken on BOT (Annuity) mode. However, the current BOT (Annuity) model would need to be reviewed by an IMG which has been constituted by the CoI. In the course of such review, concerns relating to cost effectiveness of this model may be addressed. Issues relating to inflation and traffic risks may also be addressed. Following such a review, an MCA evolved by the IMG would be submitted for approval of CoI.

7.21 Only those highway projects which are not amenable to BOT (Toll) or BOT (Annuity) approach may be taken up through the EPC mode with competent approvals and after provision of requisite funding.

7.22 The Group recommends that item rate construction contract mode should be discarded for contracts to be awarded after April 1, 2006. Thereafter, EPC mode should be relied upon wherever BOT mode is not feasible.

Earmarking of Cess Revenues for Viability Gap Funding

7.23 Allocation of cess revenues by the Government for funding the annual plan outlays of NHAI may be split into two parts viz. (a) PPP component, and (b) EPC, O&M and Misc. component. These two components may be treated on the following lines:

- (a) A part of the cess revenues from 2006-07 onwards may be earmarked and put under a separate budget head for PPP to be used only for meeting the viability gap requirements of BOT (Toll) projects. The earmarking would be done annually by the Planning Commission in consultation with MoSRT, and Finance Ministry, along with fixing of the borrowing limits of NHAI. For meeting any gaps in funding, short-term or medium-term borrowings may be allowed subject to overall borrowing limits of NHAI.
- (b) The remaining cess revenues along with toll revenues and committed external aid may be used for funding CC, O&M, establishment expenditure, land acquisition, DPRs, feasibility studies etc. For meeting any shortfalls under this head, NHAI may raise market borrowings that should be serviced out of future revenues under this head.

Financial Projections

7.24 Based on the assumptions specified in Annex-I, particularly in relation to BOT

(Annuity) projects, the financial projections and cash flows have been tabulated in Annex-IV. If this package is adopted, all cess revenues likely to be received up to 2029-30 would have to be assigned/ pledged for debt service and payment of annuities. The outstanding borrowings of NHAI from 2011-12 to 2022-23 would be Rs. 40,000 to Rs. 48,000 crore. The borrowings could rise significantly if the costs are revised upwards.

7.25 As an alternative scenario and based on the allocation of budgetary resources suggested in paragraph 7.22 above, financial projections for NHDP I to VII have been made at Annex-V (A to D), which relies on the assumptions at Annex-I. Projections at Annex-VA suggest that the proposed BOT (Toll) programme, as stated in Table 6, can be fully funded out of 50% of cess revenues, leaving a surplus of Rs. 6,464 cr. at the end of 2015-16. Annex-VB indicates that the estimated expenditure on item rate construction contracts, land acquisition, DPR preparation etc. could be funded out of the remaining 50% of cess coupled with toll revenues and committed external aid. There would be a deficit of Rs. 4,458 crore at the end of 2015-16. The net surplus from Annex-VA and VB would be about Rs. 2,000 crore at the end of 2015-16.

7.26 The outflows projected at Annex-VA and VB exceed the inflows in certain years. NHAI may have to borrow up to Rs. 24,000 crore to meet the mismatch between inflows and outflows. Such borrowings would be well within the limits suggested in paragraph 7.12.

7.27 NHAI believes that it may be able to enhance its absorption capacity beyond the projections made in Annex-VA and VB. In such an event, allocation of additional resources could be considered on a year to year basis by advancing the borrowing limits reserved for subsequent years. However, any significant increase in the annual allocation for the construction contract mode may be avoided so as to preserve the minimum requisite supervision and quality of works.

7.28 Annex-VC contains the projections for the BOT (Annuity) programme, as provisionally included in Table 6. This would require significantly enhanced borrowing limits and budgetary allocations that would imply pledging of all cess revenues up to 2029-30. Annex-VD suggests that NHAI would be left with an outstanding debt of about Rs. 47,000 crore and balance annuity payments of over Rs. 77,000 crore at the end of 2015-16 (see Annex-VC), if the proposed annuity programme were implemented. On the other hand, if these projects were undertaken through the BOT (Toll) mode, the total capital investment of about Rs. 28,000 cr. (see Annex-VC) would not require more than Rs.11,000 cr. of Government funding even if 40% viability gap were assumed. This outlay can be met out of the projected surplus of Rs.2,000 cr. indicated in paragraph 7.25 and the cess revenue for 2015-16 (Rs. 8,730 crore), leaving no outstanding liability in 2016-17, and thus creating space for additional projects. This, however, pre-supposes that two-laning under NHDP-IV would be tolled. To the extent Government decides not to toll

such highways, the financing requirements would increase correspondingly.

7.29 In sum, the entire programme under NHDP-I to VII would be financiable out of cess revenues realised up to 2015-16 if (i) BOT (Toll) approach is relied upon for all future projects including two-laning under NHDP-IV; and (ii) costs are controlled, without compromising on quality. To the extent tolling is exempted or in the event of non-responsive bidding, projects may have to be taken up through BOT (Annuity) or EPC mode requiring additional funding.

Additional Programmes to be based on GBS

7.30 All new programmes or projects not included in this Report, such as those for the North Eastern Region, should be supported out of additional budgetary allocations to be provided by the Planning Commission from time to time.

Hard Budget Constraint

7.31 In order to instill financial discipline and for adherence to business principles, the above recommendations governing the financing plan of NHAI may be reviewed and approved by CoI/ Cabinet. The financing of NHAI expenditure should be clearly circumscribed by the following:

- (a) Budgetary support equal to cess revenues (since doubled);
- (b) Private investment;
- (c) Toll revenues; and
- (d) Borrowings and annuity payments to be determined by the repaying capacity of NHAI.

7.32 In particular, the manner and extent of liabilities that NHAI would be permitted to incur in the form of borrowings and/ or annuity payments may be specified on the above lines and restricted to the funds available. The division of cess revenues between (a) viability gap funding for PPPs and (b) expenditure on construction contracts, annuity payments etc. may also be reviewed and approved.

7.33 Based on the above recommendations and within the four corners thereof, NHAI should have the freedom to raise resources and implement its plans.

Annexures I - V D

Annexure I

Assumptions for the Financing Plan of NHDP

1. General assumptions

1.1 Constant Prices

1.1.1 All estimates in the financing plan including cost of construction, toll rates, maintenance cost etc. would be based on constant prices as on 1.1.2006.

1.2 Construction Cost

1.2.1 The costs per km have been assumed as follows:

(Rs. in crore)			
NHDP	Land Acquisition, DPR, pre-construction activities	Construction Costs	Total
Phase I	Total Rs. 8,811 crore required for balance 1,738 km		5.07
Phase-II	0.67	5.85	6.52
Phase-III	0.67	5.85	6.52
Phase-IV	0.11	1.28	1.39
Phase-V	0.56	5.78	6.34
Phase-VI	1.68	15.00	16.68

1.3 Operation & Maintenance (O&M) Cost

1.3.1 The maintenance cost for four-lane highways under NHDP-I and NHDP-II has been estimated as Rs.10 lakh per km per year including periodic maintenance considered on annualized basis.

1.3.2 In working out the financing plan, the O&M costs have been considered only on highways not awarded on BOT basis. As such, for NHDP-III, NHDP-IV, NHDP-V, NHDP-VI

and NHDP-VII the cost of maintenance has not been included.

1.4 Cess

1.4.1 The cess inflows of Rs. 3,270 crore for the year 2005-06 are based on the approved Budget Estimates.

1.4.2 For 2006-07, the total inflow from Cess levied @ Rs.2 per litre on diesel and petrol has been considered as Rs.6,691 crore.

1.4.3 The growth rate in inflows from cess has been assumed as 3% per annum, based on projected consumption growth of diesel and petrol.

1.4.4 The inflow of cess has been assumed up to 2029-30.

1.5 Toll

1.5.1 After detailed discussions, it was decided to assume toll collection at the rate of Rs. 50 lakhs per km. per annum on NHDP-I and Rs.18 lakhs per km per annum on NHDP-II. Toll Collection under Phase-I has been considered as per Schedule of completion of projects and up to one year after award of six-laning projects under Phase-V.

1.5.2 The growth rate of toll revenue has been assumed as 5% per annum on account of traffic growth.

1.5.3 NHDP-IV has been split into four phases. Accordingly in framing the financing

plan, it has been assumed that a length of 5,000 km. would be taken up for two-laning under NHDP-IV A on BOT (Toll) basis. This, however, will depend on the overall tolling policy that the Government may adopt.

1.6 Market Borrowings

1.6.1 Market borrowings have been considered on net requirement basis i.e., the deficit between the estimated expenditure under Phase-I to Phase-VII (including the payment of annuities and servicing of interest on market borrowings) and receipts.

1.6.2 The interest on market borrowings has been calculated @ 9% on annualised basis.

1.7 Annuity

1.7.1 In respect of annuity projects, IRR has been considered @ 15% per annum for the purpose of calculation of annuity payments.

1.7.2 The term of the annuity has been assumed as 15 years in accordance with the current practice.

2. NHDP Phase-specific assumptions

2.1 NHDP Phase-I

2.1.1 The cost of execution for the balance period (2006-07 onwards) has been assessed based on the balance expenditure remaining against the approved cost of Phase-I up to 31.12.2005.

2.1.2 The balance expenditure for 2005-06 (from 01.01.06 to 31.03.06) has been kept as per the revised expenditure estimates of NHAI. For remaining years, expenditure is apportioned based on expected date of completion.

2.1.3 The net surplus/deficit of toll collection over the expenditure on maintenance of the stretches on which toll has been collected and on interest & repayment of loan component of external assistance provided by the Govt. (including direct loan from ADB for Surat-Manor project) has been considered in the cash flows.

2.2 NHDP Phase-II

2.2.1 The balance expenditure for 2005-06 (from 1.1.06 to 31.03.06) has been kept as per the revised expenditure estimates by NHAI.

2.2.2 The cost for preparation of DPR, land acquisition and utility shifting etc. has been taken as Rs.0.67 cr. per km though the Core Group felt that considering the initial estimate of Rs.0.36 cr. per km, this was on the higher side and there was scope for economy. The construction cost per km has been taken as Rs.5.85 crore at constant prices on 1.1.2006.

2.2.3 The land acquisition and DPR cost has been spread over the year of award and the subsequent year in the ratio 25:75.

2.2.4 In case of highway length completed under construction contracts (NHAI funded projects), the construction cost is spread over

four years ending in the planned year of completion in the ratio 10%:30%:40%:20%.

2.2.5 In the case of highway length under BOT Projects, the construction cost is spread over three years ending in the planned year of completion in the ratio 20%:40%:40% assuming completion of construction in 3 years. The grant is spread over three years in the ratio 0:25:75.

2.2.6 The annuity cash flows have been assessed at an IRR of 15% per annum spread over 15 years after the construction period of 3 years.

2.2.7 The net surplus/deficit of toll collection over the expenditure on maintenance of the stretches on which the toll has been collected and on interest & repayment of loan component of external assistance provided by the Govt. (including direct loan from ADB for Surat-Manor project) has been considered in the cash flows.

2.3 NHDP Phase-III

2.3.1 The proposed length of 10,000 km. is to be awarded on BOT (Toll) basis. This has been divided into two parts as under:

- (a) Part-A: 4000 km- already approved by the CCEA
- (b) Part-B: 6000 km- in-principle approval of CCEA has already been accorded

2.3.2 The average viability gap funding has been assumed as 30% of the project cost. The maximum in selected cases can go up to 40% of the project cost.

2.3.3 The construction cost per km has been taken as Rs.5.85 crore for the 10000 km programme at constant prices on 1.1.2006.

2.3.4 The cost of DPR, LA/ Utility shifting etc. has been tentatively taken as Rs. 0.67 crore per km though there was scope for economy considering that BOT projects would require only a feasibility report and not a DPR.

2.3.5 The construction cost has been spread during 1st, 2nd and 3rd years in the ratio 20%:40%:40% respectively. The grant has been spread over three years in the ratio 0:25:75.

2.3.6 The land acquisition and DPR cost has been spread over the year of award and the subsequent year in the ratio 25:75.

2.4 NHDP Phase-IV

2.4.1 It is recommended that the proposed length of 20,000 km be divided into four parts:

- (a) Part-A: 5000 km: Award on BOT (Toll) basis with 35% average viability gap funding subject to Cabinet approval for tolling two-lane highways. Maximum viability gap funding in selected cases can go up to 40% of the project cost.
- (b) Part-B, Part-C and Part-D each of 5000 km: Award on BOT (Annuity) basis, subject to Cabinet approval for annuity projects and provision of additional budgetary support.

2.4.2 The construction cost per km has been taken as Rs. 1.28 crore at constant prices on 1.1.2006 for the 20,000 km programme.

2.4.3 The cost of LA/ Utility shifting etc. has been taken as Rs. 0.11 crore per km.

2.4.4 The construction cost has been spread over the 1st, 2nd and 3rd years of execution in the ratio 20%:40%:40% respectively. In respect of BOT (Toll) projects under Part A for 5,000 km. the grant has been spread over three years in the ratio 0:25:75.

2.4.5 The land acquisition and DPR cost has been spread over the year of award and the subsequent year in the ratio 25:75.

2.4.6 The annuity cash flows have been assessed at an IRR of 15% per annum spread over 15 years after the construction period of 3 years.

2.5 NHDP Phase-V

2.5.1 The average viability gap funding of 5% of the project cost for award on BOT- Toll basis has been assumed. In individual cases, the maximum VGF may go up to 10%.

2.5.2 The construction cost per km has been tentatively taken as Rs.5.78 crore at constant prices on 1.1.2006 for 6,500 km programme. This was quite high considering the initial estimate of Rs. 3.20 cr. per km and there was scope for reduction in costs.

2.5.3 The cost of DPR & LA/Utility shifting etc. has been tentatively taken as Rs.0.56 cr. per km as compared to the initial projection of Rs.0.30 cr. per km. The Group felt that there was scope for cost reduction because BOT

projects would require only a feasibility report and not a DPR.

2.5.4 The construction cost has been spread over the 1st, 2nd and 3rd years of execution in the ratio 20%:40%:40% respectively. The grant has been spread over three years in the ratio 0:25:75.

2.5.5 The land acquisition and DPR cost has been spread over the year of award and the subsequent year in the ratio 25:75.

2.6 NHDP Phase-VI

2.6.1 It is recommended that the proposed length of 1,000 km to be constructed on BOT (Toll) basis be divided into two parts as under:

- (a) Part-A: 400 km-stretch identified (Vadodara-Mumbai Section)
- (b) Part-B: 600 km- stretches to be identified

2.6.2 The viability gap funding has been assumed as 40% of the construction cost.

2.6.3 The construction cost per km has been taken as Rs.15 crore at constant prices on 1.1.2006 for the 1,000 km programme.

2.6.4 The cost of DPR & LA/utility shifting has been taken as Rs.1.68 crore per km.

2.6.5 The construction cost has been spread over five years period of execution in the ratio 10%:20%:20%:25%:25% respectively. The grant has been spread over four years in the ratio of 0%:25%:25%:50%.

2.6.6 The DPR cost has been spread over the year of award and the subsequent year in the ratio 25:75.

2.7 NHDP Phase-VII

2.7.1 The construction of Ring Roads would be done on BOT- Toll basis with average viability gap funding of 40% of the construction cost.

2.7.2 The construction of major Bypasses (each costing more than Rs.100 crore) would be done on BOT- Annuity basis.

2.7.3 The work under this Phase will proceed concurrently throughout the period of NHDP Programme.

2.7.4 A consolidated cost assumption of Rs. 16,680 crore (at 1.1.2006 prices) has been made for this phase, because the length of ring road, bypasses and flyovers is still being worked out.

2.7.5 Out of total cost of Rs. 16,680 crore, the cost of DPR, LA, RR and Utility Shifting amounts to Rs. 3,892 crore. The contribution by the Private Sector is Rs. 7,784 crore.

Annexure II

Cash Flow Statement for Toll Revenue, Maintenance Expenses and Servicing of Loan Component of External Assistance

Year 1	Opening Balance 2	Phase-I											
		Length in km 3	Toll Revenue 4	Maint- enance Exp. 5	Servicing & Repayment of Loan against EA			Servicing & Repayment of ADB Loan for Surat-Manor			Total Outflows 8	Net Surplus 9	
					Interest 6A	Principal 6B	Sub- Total 6C	Interest 7A	Principal 7B	Sub- Total 7C			
2005 - 2006	-345	3827	773	383	186	140	326	34	6	40	748	-320	
2006 - 2007		5173	1894	517	167	140	307	34	13	46	871	1,023	
2007 - 2008		5164	2677	516	148	140	288	33	14	47	851	1,826	
2008 - 2009		3794	2031	379	129	140	269	32	16	48	696	1,335	
2009 - 2010		1794	999	179	110	140	250	32	17	49	478	521	
2010 - 2011		0	0	0	91	140	231	31	19	50	281	-281	
2011 - 2012		0	0	0	72	140	212	30	21	51	263	-263	
2012 - 2013		0	0	0	53	140	193	29	23	52	245	-245	
2013 - 2014		0	0	0	34	110	144	28	25	53	197	-197	
2014 - 2015		0	0	0	19	81	100	27	28	55	155	-155	
2015 - 2016		0	0	0	8	6	14	25	31	56	70	-70	
2016 - 2017		0	0	0	7	6	13	24	34	58	71	-71	
2017 - 2018		0	0	0	6	6	12	22	38	60	72	-72	
2018 - 2019		0	0	0	6	6	11	20	41	62	73	-73	
2019 - 2020		0	0	0	5	6	10	19	46	64	75	-75	
2020 - 2021		0	0	0	4	6	10	16	50	67	76	-76	
2021 - 2022		0	0	0	3	6	9	14	56	70	78	-78	
2022 - 2023		0	0	0	2	6	8	11	61	73	81	-81	
2023 - 2024		0	0	0	2	6	7	9	67	76	83	-83	
2024 - 2025		0	0	0	1	6	6	5	74	80	86	-86	
2025 - 2026		0	0	0	0	0	0	2	40	42	42	-42	
2026 - 2027		0	0	0	0	0	0	0	0	0	0	-	
2027 - 2028		0	0	0	0	0	0	0	0	0	0	-	
2028 - 2029		0	0	0	0	0	0	0	0	0	0	-	
2029 - 2030		0	0	0	0	0	0	0	0	0	0	-	
2030 - 2031		0	0	0	0	0	0	0	0	0	0	-	
Total	-345		8374	1975	1049	1370	2419	477	721	1198	5592	2437	

Assumptions:

- Opening balance has been worked out based on the net of the total amount of toll collection, total amount of maintenance exp. & total amount of int. & repayment of loan component up to 2004-05.
- Length has been taken based on the quarter-wise completion schedule
- Toll has been considered on the completed length excluding the length under BOT(T)
- Toll has been considered @ Rs.0.50 crores per km in Phase-I, @ Rs.0.18 crores per km in Phase-II with 5% p.a. growth on a/c of traffic.
- Maintenance has been considered @Rs.0.10 crores per km. on annualised basis (including the routine maintenance @ Rs.0.04 crore per km pa + cost of HTMS & other equipments @Rs.0.02 crores per km + periodic maintenance on annualised basis @ Rs.0.04 crore.

(Rs. in crore)

	Length in km 10	Toll Revenue 11	Maint- enance Exp. 12	Phase-II Servicing & Repayment of External Assistance			Total Outflows 14	Net Surplus 15	Net Surplus carried over to main Cash Flow Statement 16
				Interest 13A	Principal 13B	Sub- Total 13C			
	0	-	-	4	3	7	7	-7	-327
	50	4	5	33	25	58	63	-59	964
	1696	40	170	129	99	228	398	-358	1,468
	4176	307	418	149	123	272	690	-383	952
	5499	767	418	172	152	324	741	26	546
		1,028	418	151	152	303	721	307	26
		1,080	418	131	152	283	700	379	116
		1,134	418	110	152	262	680	454	209
		1,190	418	90	152	242	659	531	334
		1,250	418	69	152	221	639	611	456
		1,312	418	48	149	198	615	697	627
		1,378	418	28	127	155	573	805	734
		1,447	418	11	53	65	482	965	893
		1,519	418	4	29	33	450	1,069	995
		1,595	418	0	0	0	418	1,177	1,103
		1,675	418	0	0	0	418	1,257	1,181
		1,759	418	0	0	0	418	1,341	1,263
		1,846	418	0	0	0	418	1,429	1,348
		1,939	418	0	0	0	418	1,521	1,438
		2,036	418	0	0	0	418	1,618	1,532
		2,137	418	0	0	0	418	1,720	1,678
		2,244	438	0	0	0	438	1,806	1,806
		2,357	460	0	0	0	460	1,896	1,896
		2,474	483	0	0	0	483	1,991	1,991
		2,598	508	0	0	0	508	2,091	2,091
		2,728	533	0	0	0	533	2,195	2,195
	11421	37844	10114	1130	1522	2652	12766	25078	27515

- vi) Interest on loan component of EA under phase-I has been calculated on the reducing balance as per simple int. rate given in the approval letter of the funds received so far. For the estimated loan funds to be received against phase-I & phase-II interest rate has been considered @ 13.5% p.a. on simple interest basis on reducing balance.
- vii) Repayment of loan component of EA under phase-I has been considered in the specified number of installments given in the approval letter of the funds received so far. For the estimated loan funds to be received against phase-I & phase-II the repayment has been considered in 10 equal annual instalments based on the latest approval letter.
- viii) The Loan amount of ADB is taken as US\$ 165 million against the original amount of US\$ 180 million. Repayment of loan has been considered in 6 monthly installments starting from 01.01.2006 to 01.07.2025 as per the repayment schedule. Interest has been calculated @4.7%

Annexure III

Statement showing highway section-wise annual toll revenues: Year 2004-05

SNo	NH	Name of the section	Date of start of collection during 04-05
1	8	Gurgaon-Kotputli	
2	8	Kotputli-Jaipur Bypass	
3	8	Ratanpur-Himatnagar	9.7.04
4	8	Vadodara-Bharuch	
5	8	Bharuch-Surat	
6	8	Kajali-Manor	
7	8	Manor- Dahisar	
8	79	Bhilwara-Chittorgarh	21.02.05
9	79&79 A	Kishangarh-Bhilwara	21.02.05
10	4	Belgam-Maharastra Border	5.03.05
11	4	Satara-Khandala	23.03.05
12	2	Badarpur-Kosi	
13	2	Kosi-Agra	
14	2	Barwa- Adda-Panagarh	
15	5	Bhubaneswar-Cuttack-Jagatpur	
16	5	Ankapalli -Vishakhapatnam	
17	5	Chilkaluripet-Vijayawada	
18	5	Vijayawada-Gundugolanu(31/8Km)	
19	5	Vijayawada-Gundugolanu(53/3Km)	
20	1	Panipat-Ambala	
21	1	Ambala-Khanna	
22	1	Khanna-Jalandhar	
23	8A	Samakhayali- Gandhidham	
24	6	Amravati Bypass	
25	24	Ghaziabad-Hapur & Hapur Bypass	
26	45	Chennai Bypass	
Total			

(Rs. in crore)

Length (in kms)	Annual income	Annualised collection	Annualised collection per km	Annual income as per assumed rates of Rs.40 lacs/km. per year
120.500	41.50	41.50	0.34	48.20
106.200	48.09	48.09	0.45	42.48
54.820	7.07	9.70	0.18	21.93
83.000	28.28	28.28	0.34	33.20
65.000	12.46	12.46	0.19	26.00
57.400	27.41	27.41	0.48	22.96
63.000	26.85	26.85	0.43	25.20
82.900	3.18	29.76	0.36	33.16
101.000	3.69	34.53	0.34	40.40
55.240	1.08	15.16	0.27	22.10
47.000	0.47	19.06	0.41	18.80
90.100	17.21	17.21	0.19	36.04
90.100	18.54	18.54	0.21	36.04
116.486	20.19	20.19	0.17	46.59
27.800	6.83	6.83	0.25	11.12
40.707	5.36	5.36	0.13	16.28
83.000	26.14	26.14	0.31	33.20
39.100	10.53	10.53	0.27	15.64
39.100	10.67	10.67	0.27	15.64
110.000	52.74	52.74	0.48	44.00
66.000	18.97	18.97	0.29	26.40
100.000	25.56	25.56	0.26	40.00
56.160	13.40	13.40	0.24	22.46
17.500	3.93	3.93	0.22	7.00
32.245	10.66	10.66	0.33	12.90
19.170	4.21	4.21	0.22	7.67
1763.528	445.02	537.75	0.30	705.41

Annexure IV

Combined Cash Flow Statement for NHDP Phase I to VII assuming commitment of cess up to 2029-30: Inflows

Year	Opening Balance	Cess	Net Surplus from Toll Collection	Budgetary Support for LA/DPR	Inflows (including Borrowing)		EA	Share of Private Sector	EA	Share of Private Sector Ph-IV	
					Phase-I	Phase-II					
2005 - 2006	2957	3270	-327	700	1900	520	1100	83			
2006 - 2007		6691	964		73	146	1905	602			
2007 - 2008		6892	1468				2236	3865			
2008 - 2009		7098	952				1894	3213			
2009 - 2010		7311	546				324	2012			
2010 - 2011		7531	26								
2011 - 2012		7757	116								
2012 - 2013		7989	209								
2013 - 2014		8229	334								
2014 - 2015		8476	456								
2015 - 2016		8730	627								
2016 - 2017		8992	734								
2017 - 2018		9262	893								
2018 - 2019		9540	995								
2019 - 2020		9826	1103								
2020 - 2021		10121	1181								
2021 - 2022		10424	1263								
2022 - 2023		10737	1348								
2023 - 2024		11059	1438								
2024 - 2025		11391	1532								
2025 - 2026		11733	1678								
2026 - 2027		12085	1806								
2027 - 2028		12447	1896								
2028 - 2029		12821	1991								
2029 - 2030		13205	2091								
2030 - 2031	9080		2195								
Total		233618	27515	700	1973	666	7459	9776			

(Rs. in crore)

Inflows (including Borrowing)							Total Inflows
	Phase-III Share of Private Sector [Pt-A&B]	Phase IV Share of Private Sector	Phase V Share of Private Sector	Phase VI Share of Private Sector	Phase VII Share of Private Sector	Borrowing (Term Loans & Bonds etc)	
	0	0	0	0	0	2418	12620
	1360	0	135	0	0	-932	10943
	4320	0	3745	0	133	8875	31535
	6780	0	8165	0	467	9418	37988
	8489	270	10658	0	2002	9801	41412
	8160	1633	7989	270	2068	7291	34969
	6654	4369	3844	1170	1779	6229	31917
	4168	6207	1156	1800	1334	3209	26072
	1020	5760		1935		4	17282
		3840		2250		743	15764
		1280		1575			12212
						846	10572
						477	10631
						124	10659
							10929
							11302
							11687
							12085
							12497
							12923
							13411
							13891
							14343
							14812
							15296
							11275
	40950	23360	35691	9000	7784	48503	

Combined Cash Flow Statement for NHDP Phase I to VII assuming commitment of cess up to 2029-30: Outflows

		Utilisation										
Year	Total Inflows (from page 33)	Phase-I		Phase-II		Phase-III		Phase IV		Phase-V		
		Balance *Exp(by NHAI)	Balance *Exp (by Private Sector)	Balance *Exp (by NHAI)	Balance *Exp (by Private Sector)	*Exp (Part-A) (by NHAI)	*Exp (Part-A) (by Private Sector)	*Exp (by NHAI)	*Exp (by Private Sector)	*Exp (by NHAI)	*Exp (by Private Sector)	
2005 - 2006	12620	3380	520	2117	83	58	0	0	0	5	0	
2006 - 2007	10943	1384	146	5498	602	1000	1360	5	0	65	135	
2007 - 2008	31535	1735		11025	3865	3748	4320	78	0	1172	3745	
2008 - 2009	37988	1646		7594	3213	4717	6780	325	0	1407	8165	
2009 - 2010	41412			5943	2012	4121	8489	696	270	1438	10658	
2010 - 2011	34969			1670		4851	8160	1080	1633	544	7989	
2011 - 2012	31917					4107	6654	1447	4370	774	3844	
2012 - 2013	26072					1645	4168	810	6207	114	1156	
2013 - 2014	17282						1020		5760			
2014 - 2015	15764								3840			
2015 - 2016	12212								1280			
2016 - 2017	10572											
2017 - 2018	10631											
2018 - 2019	10659											
2019 - 2020	10929											
2020 - 2021	11302											
2021 - 2022	11687											
2022 - 2023	12085											
2023 - 2024	12497											
2024 - 2025	12923											
2025 - 2026	13411											
2026 - 2027	13891											
2027 - 2028	14343											
2028 - 2029	14812											
2029 - 2030	15296											
2030 - 2031	11275											
Total		8145	666	33846	9776	24247	40950	4440	23360	5519	35691	

Note:- The estimated expenditure for Phase-I to VII based on revised costs agreed to by the Core Group was Rs.1,97,750 crore on Dec., 04 prices. In view of high rise in bitumen, cement and steel prices during the year and escalation of 11.2% was agreed to for updating this cost to Dec., 05 level which works out to Rs.2,19,640 crore or say Rs.2,20,000 crore.

(Rs. in crore)

Utilisation									Cumulative outstanding balance of borrowings
	Phase-VI		Phase-VII		Payment of Annuity	Repayment of Borrowings	Interest on Borrowings @ 9% annualised	Total Outflows	
	*Exp (by NHAI)	*Exp (by Private Sector)	*Exp (by NHAI)	*Exp (by Private Sector)					
	0	0	0	0	576	5593	299	12631	2418
	0	0	0	0	576		168	10938	1486
	1	0	667	133	576		512	31577	10362
	172	0	1668	467	576		1300	38029	19780
	489	0	2632	2002	576		2127	41451	29581
	618	270	1297	2068	1948		2863	34991	36872
	851	1170	1353	1779	2140		3445	31932	43101
	1500	1800	1131	1334	2354		3850	26069	46310
	1950	1935	148		2461		3988	17262	46314
	2100	2250			3538		4020	15748	47056
	0	1575			4898	425	4034	12212	46632
					6504		4052	10556	47478
					6504		4109	10613	47955
					6504		4135	10639	48079
					6504	296	4128	10929	47782
					5929	1314	4059	11302	46468
					5929	1835	3923	11687	44633
					5929	2417	3740	12085	42217
					5929	3064	3504	12497	39152
					5929	3785	3209	12923	35367
					4556	6070	2785	13411	29298
					4364	7318	2208	13891	21979
					4150	8674	1519	14343	13305
					4043	10056	713	14812	3250
					2966	3250		6216	
					1606			1606	
	7680	9000	8896	7784	97566	54097	68689		

*Exp = Expenditure

Annexure V A

Cash Flow Statement for BOT (TOLL) Projects : 2005-06 to 2015-16

Inflows										
Year	50% Cess	Investment by Private Sector							Total	
		Phase-I	Phase-II	Phase-III	Phase IV	Phase V	Phase VI	Phase VII		
2005 - 2006	1635	435	83	0	0	0	0	0	2153	
2006 - 2007	3346	146	602	1360	0	135	0	0	5588	
2007 - 2008	3446		1689	4320	0	3745	0	0	13200	
2008 - 2009	3550		1284	6780	0	8165	0	0	19779	
2009 - 2010	3656		677	8489	416	10658	0	1112	25008	
2010 - 2011	3766			8160	1248	7989	270	1112	22545	
2011 - 2012	3879			6654	1664	3844	1170	1112	18323	
2012 - 2013	3995			4168	832	1156	1800	1112	13063	
2013 - 2014	4115			1020			1935		7070	
2014 - 2015	4239						2250		6489	
2015 - 2016	4366						1575		5941	
Total	39993	581	4335	40951	4160	35692	9000	4448	139159	

(Rs. in crore)

Outflows (Utilisation)										Cumulative Surplus
	Viability Gap Funding by NHAI						Capital Expenditure by Private Sector	Total	Surplus	
	Phase-II	Phase-III	Phase IV	Phase-V	Phase-VI	Phase-VII				
5	0	-	0	-	0	518	523	1630	1630	
324	532	-	2	-	0	2242	3101	2488	4118	
1305	1707	-	52	-	0	9754	12818	382	4500	
1173	3077	0	287	-	0	16229	20766	-987	3513	
88	3750	0	598	-	741	21352	26528	-1520	1993	
	3510	280	544	0	741	18779	23854	-1309	684	
	3330	1120	347	450	741	14444	20432	-2109	-1426	
	1645	840	49	1500	741	9068	13843	-780	-2206	
				1950		2955	4905	2165	-41	
				2100		2250	4350	2139	2098	
						1575	1575	4366	6464	
2895	17551	2240	1879	6000	2964	99166	132695	6464		

Annexure V B

Cash Flow Statement for CC,LA/DPR & US : 2005-06 to 2015-16

Inflows									
Year	50% Cess	Net Surplus from Toll Collection	EA		Total	Phase-I	Phase-II	Phase-III	
			Phase-I	Phase-II				LA/DPR, etc.	
2005 - 2006	1635	-327	1900	1100	4307	3380	2112	50	
2006 - 2007	3346	964	73	1905	6288	1384	5174	468	
2007 - 2008	3446	1468		2236	7150	1735	9720	2041	
2008 - 2009	3550	952		1894	6396	1646	6421	2425	
2009 - 2010	3656	546		324	4526		5855	1713	
2010 - 2011	3766	26			3792		1680		
2011 - 2012	3879	116			3995				
2012 - 2013	3995	209			4204				
2013 - 2014	4115	334			4449				
2014 - 2015	4239	456			4695				
2015 - 2016	4366	627			4993				
Total	39993	5371	1973	7459	54795	8145	30962	6697	

(Rs. in crore)

Outflows (Expenditure by NHAI)						Surplus	Cumulative Surplus
	Phase IV	Phase-V	Phase-VI	Phase-VII	Total		
	LA/DPR, etc.	LA/DPR, etc.	LA/DPR, etc.	LA/DPR, etc.			
0	5	0	0	5547	-1239	-1239	
5	63	0	0	7094	-806	-2045	
78	1120	1	667	15362	-8211	-10256	
325	1120	172	1668	13776	-7380	-17637	
550	840	489	1890	11338	-6811	-24448	
545	427	618	556	3826	-34	-24482	
473	65	401	612	1550	2445	-22036	
225	0	0	389	614	3590	-18447	
		0	148	148	4301	-14146	
		0		0	4695	-9451	
		0		0	4993	-4458	
2200	3640	1680	5930	59254	-4458		

Annexure V C

Cash Flow Statement for BOT (Annuity) Projects: 2005-06 onwards

Year	Investments by Private Sector					
	Phase-I	Phase-II	Phase IV	Phase VII	Total	
2005 - 2006	85	247	0	0	332	
2006 - 2007		1335	0	0	1335	
2007 - 2008		2176	0	133	2309	
2008 - 2009		1682	0	467	2149	
2009 - 2010			0	890	890	
2010 - 2011			640	956	1596	
2011 - 2012			2560	667	3227	
2012 - 2013			5120	222	5342	
2013 - 2014			5760		5760	
2014 - 2015			3840		3840	
2015 - 2016			1280		1280	
2016 - 2017						
2017 - 2018						
2018 - 2019						
2019 - 2020						
2020 - 2021						
2021 - 2022						
2022 - 2023						
2023 - 2024						
2024 - 2025						
2025 - 2026						
2026 - 2027						
2027 - 2028						
2028 - 2029						
2029 - 2030						
2030 - 2031						
Total	85	5440	19200	3335	28060	

(Rs. in crore)

	Payment of Annuity by NHAI					Cumulative Payment of Annuity
	Phase-I	Phase-II	Phase IV	Phase-VII	Total	
576	0	0	0	0	576	576
576	0	0	0	0	576	1151
576	0	0	0	0	576	1727
576	0	0	0	0	576	2303
576	0	0	0	0	576	2878
576	1244	0	128		1948	4826
576	1244	0	321		2140	6967
576	1244	0	535		2354	9321
576	1244	0	642		2461	11782
576	1244	1077	642		3538	15321
576	1244	2437	642		4898	20219
576	1244	4043	642		6504	26723
576	1244	4043	642		6504	33227
576	1244	4043	642		6504	39732
576	1244	4043	642		6504	46236
	1244	4043	642		5929	52165
	1244	4043	642		5929	58094
	1244	4043	642		5929	64022
	1244	4043	642		5929	69951
	1244	4043	642		5929	75880
		4043	513		4556	80436
		4043	321		4364	84800
		4043	107		4150	88950
		4043			4043	92993
		2966			2966	95960
		1606			1606	97566
8635	18660	60648	9624		97567	

Annexure V D

Combined Cash Flow Statement for NHDP Phase I to VII from 2005-06 to 2015-16

Inflows (including borrowings)						
Year	Opening Balance	Surplus/Deficit				
		Annex V A (BOT-Toll)	Annex V B (EPC and others)	Annex V C (BOT-Annuity)*	Sub-Total	
2005 - 2006	2957	1630	-1239	-576	2772	
2006 - 2007		2488	-806	-576	1106	
2007 - 2008		382	-8211	-576	-8405	
2008 - 2009		-987	-7380	-576	-8943	
2009 - 2010		-1520	-6811	-576	-8907	
2010 - 2011		-1309	-34	-1948	-3291	
2011 - 2012		-2109	2445	-2140	-1804	
2012 - 2013		-780	3590	-2354	455	
2013 - 2014		2165	4301	-2461	4005	
2014 - 2015		2139	4695	-3538	3295	
2015 - 2016		4366	4993	-4898	4460	
Total	2957	6464	-4458	-20219	-15256	

Note:-

* Balance Annuity Payments between 2016-17 and 2030-31 : Rs.77,347 crore.

** The difference of Rs.5593 crore between the borrowings shown under inflows and the repayments of borrowings shown under outflows is due to the borrowings which were made prior to 2005-06 and which is due for repayment in 2005-06.

(Rs. in crore)

			Outflows (Servicing & repayment of borrowings)			Cumulative outstanding Balance of borrowings
	Borrowings (Term Loans & Bonds, etc.)	Total	Repayment of Borrowings **	Interest on Borrowings @ 9% annualised	Total	
	2418	5190	5593	299	5892	2418
	-932	174		168	168	1486
	8876	471		512	512	10362
	9418	475		1300	1300	19780
	9801	894		2127	2127	29581
	7291	4000		2863	2863	36872
	6229	4425		3444	3444	43101
	3209	3664		3850	3850	46310
	4	4009		3988	3988	46314
	743	4038		4020	4020	47056
		4460	425	4034	4459	46632
	47056	31800	6018	26605	32623	