

ASIAN DEVELOPMENT BANK

TA 7055-IND: Capacity Development of National Capital Region Planning Board (NCRPB) –
Package 1 (Components A and C)

Public Works Department (B&R), Haryana
Sanction of Loan of Rs. 50802.86 Lakhs for Nine Road Projects

(Sample Appraisal-Consolidated)

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EXECUTIVE SUMMARY

		Project 1	Project No.2	Project No.3	Project No.4	Project No.5
1.	Project	13 road projects in Jhajjar district for about 128.73km	Improvement of Punhana to Juhera road km. 0.00 to km 6.78	Service road and drains on Gurgaon Nuh Alwar road (13.648km)	Badli bypass 0-5.680 (New construction) (5.68km)	Widening of Rohtak Kalanaur Bhiwani Road km 91.600 to 113.910
2.	Project Cost <i>in Rs. Lakhs</i>	20575.59	2161.02	3624.19	5260.53	8174.15
3.	Means of Finance (<i>Rs. in Lakhs</i>)					
	NCRPB loan	15431.69	1620.77	2718.14	3945.40	6130.61
	Own Contribution	5143.90	540.26	906.05	1315.13	2043.54
	Total	20575.59	2161.02	3624.19	5260.53	8174.15
4.	Draw down schedule of loan (<i>Rs. In Lakhs</i>)					
	Tranche 1	6172.68	648.31	1087.26	1578.16	2452.25
	Tranche 2	9259.01	972.46	1630.88	2367.24	3678.37
5.	Economic Rate of Return	Average 13.43%	15.27%		45.62%	29.46%

		Project No.6	Project No.8	Project No.7	Project No.9
1.	Project	Widening of Rohtak – Hissar road from km 79.200 – 86.800	Five ODR road projects under Sonipat district	Road No. 1. Pataudi - Khandewla via Rampur Jataula Road from Rd0 to 8.39 km 2. Wazirpur to Farrukh Nagar road from Rd 0 to 8.20 km	Road No. 1. Gurgaon Pataudi Road - 9.50km 2. DJ Road (Rampur) to Kota Khandewla 6.970km 3. Urban Estate to Kherki Majra up to Dhankot Road 6.190km 4. Manesar to Kasan up to Puran Bhagat Mandir road 4.420 km 5. Hayatur Dhana to Bhangraula road 4.57km)
2.	Project Cost <i>in Rs. Lakhs</i>	3195.09	12553.76	3156.99	9035.83
3.	Means of Finance (Rs. in Lakhs)				
	NCRPB loan	2396.31	9415.32	2367.75	6776.87
	Own Contribution	798.78	3138.44	789.25	2258.96
	Total	3195.09	12553.76	3156.99	9035.83
4.	Draw down schedule of loan (Rs. In Lakhs)				
	Tranche 1	958.59	3766.13	947.10	2710.75
	Tranche 2	1437.79	5649.19	1420.65	4066.12
5	Economic Rate of Return	29.36%	Totally 5 roads Road 1 - 29.5% Road 2 - 19.9% Road 3 - 18.7% Road 4 - 17.2% Road 5 - 39.1%	43.96%	Totally 5 roads Road 1 - 21.51% Road 2 - 77.81% Road 3 - 43.04% Road 4 - 40.05% Road 5 - 86.86%

The security mechanism and the terms of loan are common for all the projects and is given below:

5. Security Mechanism:

As the loan is being availed by the Government of Haryana, there is no need for a state government guarantee instead; a letter of comfort from the state finance department would be obtained confirming that the interest payment and principal repayment would be made by the state government.

6. Terms of Loan for all projects

The terms of loan are common to all the projects. The rate of interest is 8.25% and the tenor of loan is 10 years with 2 years principal moratorium. The interest payments and principal repayments are to be made annually.

7. All the projects are proposed to be implemented in two years inclusive of the procurement period.

APPRAISAL SUMMARY

1. INTRODUCTION

The State of Haryana acts as a major entry point to National Capital Region. The traffic from state of Jammu & Kashmir, Punjab, Himachal Pradesh and Rajasthan enters NCR through Haryana. Haryana state envelops the NCT on three sides. This leads to huge traffic congestion on the highways. Thus Haryana is implementing various road development projects to improve its road network. Haryana has increased its road network from 6137km in the year 1966-67 to 23480 km in 2003-04. As part of the development initiatives, Haryana Government has proposed to improve its road network with financial assistance from NCRPB for the projects given in **Table 1**:

TABLE 1 – List of projects proposed for financial assistance

Project No.	Project Name	Estimated Cost Rs. In Crores
1.	Road stretch development for <ul style="list-style-type: none"> • Jharli Mohanbari approach road (3.235km) • Jhajjar, Talao, Chuchakawas road (13.46km) • Beri, Rohtak road (8.56km) • Badli to Durina via Ladpur Munimpur (11.43km) • Badli Pela Sondhi Yakubpur road (9.80km) • Sahlawas Amnoli Bithla Dhakla SH-22 including Jatwara approach road (16.22km) • Subana (SH-22) Sarola Ahri road (6.64km) • Patauda (MDR-132) Dhani Saniya Kahari Machroli (NH-71) (10.08 km) • Jhajjar Farrukhnagar road (SH15A) Mubarakpur Ismailpur Mundakhera (MDR-136) • Badli, Iqbalur Galibpur up to Dist Border (11.755km) • Badli Iqbalpur road Lohat Delhi Boarder (3.765km), • Chuchakawas (MDR-130) Achej Paharipur, Malikur Safipur road (12.475km) • Godhri Safiur Impota (6.29km) • Gawalision (VT) Kheri Hosadur Karodha Rajiya (SH-22) Salodha Gijrodh (NH-71) (15.02km) 	205.76
2.	Punhana Jorheda Road in Gurgaon dist (6.78km)	21.61
3.	Providing Service lane and drains on Gurgaon Nuh Alwar road - 14km	36.24
4.	Badli bypass 0-5.680 (New construction along with strengthening of existing 2kms stretch) (5.68km)	52..61
5.	4 lanning of Rohtak Bhiwani road	81.74

Project No.	Project Name	Estimated Cost Rs. In Crores
6.	4 lanning of Rohtak Hissar road from Drain No. 8 to Bahujamalpur (km 79.200 to 86.800)	31.95
7.	Road No. 1. Pataudi to Khandewla via Rampur Jataula Road from Rd0 to 8.39 km 2. Wazirpur to Farrukh Nagar road from Rd 0 to 8.20 km	31.57
8.	Road development in Sonipat District for stretches <ul style="list-style-type: none"> • Sonipat Farmana road - 21.863km • Kharkhoda Assodha - 18.045 km • Gohana Sisana - 28.563 km • Jagsi Gangana - 6.770 km • Sonipat Bidhlana - 19.635 km 	125.53
9.	Road No. 1. Gurgaon Pataudi Road from rd2.5 to 12.00) - 9.50km 2. DJ Road (Rampur) to Kota Khandewla via Naurngur Road from RD0 to 6.970km 3. Urban Estate to Kherki Majra up to Dhankot Road from RD 0 to 6.190km 4. Manesar to Kasan up to Puran Bhagat Mandir road from Rd0 to 4.420 km 5. Hayatur Dhana to Bhangraula road from Rd 0 to 4.57km)	90.36

2. COMPLIANCE WITH REGIONAL PLAN

'NCR RP 2021' has stated that "the objective of the Transport Plan is to promote and support the economic development of the region and relieve the Capital of excessive pressure on the infrastructure including traffic congestion. It is to provide accessibility to all parts of the region and discourage the transit of passengers and goods through the core area of NCT by providing bypasses and thereby opening areas for economic development of the rest of the region".

The Transportation Functional Plan has recognized the primary importance of road system in the NCR and has categorized the development program as primary, secondary and tertiary road network development. In the primary road network, the functional plan proposes to develop various national highways, state highways and sub-arterial roads linking small business and employment centres to these express ways. As per this plan the Kundli-Manesar-Palwal Expressway and four laning of NH-71 is under implementation. In secondary road network development, the plan has recommended development of Major District Roads to connect smaller towns with priority towns and primary network. In tertiary road network development the plan has proposed development of ODRs to provide access to all the villages, work places, small business & employment centers, residential areas and agriculture / forest areas.

Project 1. Improvement of 13 roads in Jhajjar district

The proposed roads involve development of highways roads, MDRs and ODRs. These roads would act as feeder roads to the major corridors. Hence this would come under primary network development in NCRPB Transportation Functional Plan.

Project 2. Improvement of Punhana Joehera Road

The proposed project involves improvement of MDR/ODR in Gurgaon district. This acts as feeder roads to major roads and also eases local traffic. Hence this would come under tertiary network development in NCRPB Transportation Functional Plan.

Project 3. Providing Service lane and drains on Gurgaon Nuh Alwar road

The proposed road is along the state highways which are already under implementation. As the service lanes and drains were left out in the original proposal, this project is taken as a supplementary work. As this project is part of state highways development this will come under primary network development in NCRPB Transportation Functional Plan.

Project 4. Road development in Badli by pass road (New Construction)

The proposed project involves construction of new by pass in Badli in Jhajjar district. Currently all the traffic passes through the town and the roads are very much congested and unusable by the local people. The proposed road is for by passing the traffic flowing in MDR 136. This would come under secondary network development as per NCRPB Transportation Functional Plan.

Project 5. Rohtak – Kalanaur Bhiwani road

The proposed project road will serve as a feeder (sub-arterial) which connects the business district to NH-10. This would come under the primary road network development as per NCRPB Transport Functional Plan.

Project 6. Rohtak – Hissar road

The proposed project road will serve as a feeder (sub-arterial) which connects the business district to the Kundli-Manesar-Palwal express way and to NH-71. This would come under the primary road network development as per NCRPB Transport Functional Plan.

Project 7. Pataudi –Khandwal road and Wasirpur to Farrukh Nagar road

The proposed project has two roads namely Pataudi to Khandewal via Rampura Jataula road and Wazirpur to Farrukh nagar road. These roads are categorised as ODRs. This would come under secondary network development in NCRPB Transportation Functional Plan.

Project 8. Road development in Sonipat District for five stretches

The proposed roads are under other district roads (ODR) category which connects the residential areas and other villages to the major industrial/business area. This would come under tertiary road network development as per NCRPB Transport Functional Plan.

Project 9. Road development in Gurgaon District for five stretches

The proposed project has five roads namely Gurgaon Pataudi Road, DJ Road (Rampur) to Kota Khandewla, Urban Estate to Kherki Majra up to Dhankot Road, Manesar to Kasan up to Puran Bhagat Mandir road and Hayatur Dhana to Bhangraula road. The first road is state highways, the second road is MDR and rest are ODR. This is mixture of all the three category of development i.e., as per NCRPB Transportation Functional Plan this project would come under all the three primary, secondary and tertiary development.

3. TECHNICAL APPRAISAL

3.1. Demand - Supply Gap

The economy of Haryana is growing at a fast pace. The state gross domestic product at constant prices was 9.35% in 2007 and reduced marginally to 8.02% in 2008-09, despite the economic situation. This growth is higher than most of the states in India. The existing infrastructure is not sufficient to cater the fast pace of growth and industrialization. The road length per 100 sq. km is only 63.80 km as against the all India average of 77.60 km. In terms of population coverage, Haryana road network has only 133km/lakh of population as against all India average of 238.8km/lakh population, whereas the number of vehicles/lakh of population is 9108 as against all India average of 5671. Thus there is a clear need for further expansion of road network as well as improvement activities such as widening construction of ROB/RUB, culverts etc. in the state of Haryana.

3.1.1. Improvement of 13 roads in Jhajjar district

The proposed roads are in Jhajjar district. In Jhajjar, Bahadurgarh is emerging as an industrial hub of the district, is famous for glazed Tiles, steel pipes, biscuits and sanitaryware products. The up coming project, Kundli-Manesar-Palwal Express Highway will pass through the district of Jhajjar. Besides, there are SEZ proposals for the districts of Jhajjar and Gurgaon that will open up new avenues for industrial and economic activities in these districts. In addition to these industrial developments this district is also an agri based district adjacent to NCT. Hence in order to meet the requirement of these industries, the government has proposed to improve the road infrastructure in the district. In addition to the requirement for widening, the condition of the existing road is very bad and needs immediate re-vamping.

3.1.2. Improvement of Punhana Jorhera Road in Gurgaon district

The proposed project is in Gurgaon district. Gurgaon is synonymous with 'Maruti', but is also emerging as an Electronic hub. There are about 13 industrial estates in this district. The proposed road is frequently used for transportation of building materials (aggregates) to Gurgaon and Delhi. Moreover, heavy traffic is expected as two thermal power plants are to be commissioned at Chhuchkawas and village Badli. Traffic moving from Rajasthan to other parts of Haryana, Punjab and Himachal Pradesh are using these roads to avoid Delhi. In addition to the requirement for widening, the condition of the existing road is very bad and needs immediate re-vamping.

3.1.3. Providing Service lane and drains on Gurgaon Nuh Alwar road

The proposed project corridor is on Gurgaon-Nuh-Rajasthan border and is a state highway (No. SH-13). The state government is already widening the existing carriage-way in to four-lanes. This road is passing through five major urban centers. However, there is no service lane/pedestrian path in the development proposal made for carriage ways. During the execution of carriage-way contract it was reviewed and found that the highway traffic flow would be intercepted due to local traffic and would also create safety issues, hence the government has proposed a supplementary project to develop the service lanes, pedestrian paths and drains for about 13.648km.

3.1.4. New construction of Badli by pass

The Jhajjar district is rapidly industrialising and there are many quarries available in this district. Badli town in Jhajjar district has become an important road junction as the roads from major

towns such as Delhi, Gurgaon, Bahadurgarh etc are meeting at this town. The existing road which used to cater major pass through traffic, has become heavily congested. Further there is no scope of widening of road as these areas are fully developed. Hence, the state government has proposed to construct a new by pass in this area.

3.1.5. Rohtak – Kalanaur Bhiwani road

This project is also in Rohtak district and extends to Bhiwani district. Both these districts are fast growing and there are major industrial parks proposed in these areas which will boost the economy. Apart from the proposed Reliance SEZ, there are various small and medium industries and power plants which are under construction in the adjacent district. Recognising the need for better road infrastructure, the state government is proposing to improve this road through HSRDC.

3.1.6. Rohtak – Hissar Road

The proposed project is in Rohtak district. Rohtak district is a major educational hub and Jhajjar district, which is adjacent district to Rohtak is a major industrial hub. Reliance SEZ is under execution in this district. In addition, Hissar is an agriculture hub and transports most of agri-products to the neighbouring districts such as Rohtak and Jhajjar. All these activities require a good road network. The proposed road was originally a National Highways road which has been handed over to state after formation of a new by-pass for NH. The state has partially developed this road. The stretch from 69.35 km to 79.20 km has already been upgraded under NCRPB loan in the year 2007-08. The proposed stretch is from 79.20km to 86.80km where it connects to the national highway. As this stretch is not developed, this is acting as a bottle neck and traffic piles up in this stretch. Hence in-order to remove the bottle-neck, Haryana government is proposing to improve this stretch through HSRDC. This road will act as a feeder road to Kundli-Manesar-Palwal Express way and NH-71 (Rohtak-Jhajjar).

3.1.7. Pataudi –Khandwal road and Wasirpur to Farrukh Nagar road

The proposed project is in Gurgaon district. Gurgaon is synonymous with 'Maruti', but is also emerging as an Electronic hub. There are about 13 industrial estates in this district. The proposed road is frequently used for transportation of building materials (aggregates) to Gurgaon and Delhi. Moreover, heavy traffic is expected as two thermal power plants are to be commissioned at Chhuchkawas and village Badli. Traffic moving from Rajasthan to other parts of Haryana, Punjab and Himachal Pradesh are using these roads to avoid Delhi. In addition to the requirement for widening, the condition of the existing road is very bad and needs immediate re-vamping.

3.1.8. Road development in Sonipat District for five stretches

All the proposed roads are in Sonipat district except one where it is partly in Jhajjar district. These roads are categorised as ODRs. Sonipat District is one of the important hubs of industrial activities in the Haryana Sub-region. Besides the industrial development that has taken place in and around the Sonipat tehsil, the area between Kundli and Sonipat town falls under a highly industrialized zone. Sonipat, a growing industrial city, has huge potential for development and expansion. Atlas Cycles, Hilton Rubber, Indo Asian Fuse-gear, ECE, Hindustan Everest Tools and Satnam Overseas are some of the premier units located in this district. Besides industrial growth, Sonipat is also a rich agricultural base with quality rice and vegetables being cultivated in plenty. Sonipat has taken the lead in growing export quality button mushrooms in a big way. These roads acts as feeder roads to these activities and people in that district are using these roads on a day to day basis. There are major traffic congestions on these stretches and because of the bad condition the wear and tear of the vehicles are also very high. Hence in

order to improve the situation HSRDC has proposed to improve these ODRs and widen the road from single lane to two-lane road and improve the riding quality of the road.

3.1.9. Road development in Gurgaon district in five stretches

Gurgaon is synonymous with 'Maruti', but is also emerging as an Electronic hub. There are about 13 industrial estates in this district. The proposed road is frequently used for transportation of building materials (aggregates) to Gurgaon and Delhi. Moreover, heavy traffic is expected as two thermal power plants are to be commissioned at Chhuchkawas and village Badli. Traffic moving from Rajasthan to other parts of Haryana, Punjab and Himachal Pradesh are using these roads to avoid Delhi. In addition to the requirement for widening, the condition of the existing road is very bad and needs immediate re-vamping.

3.2. Technical details

In order to assess the traffic pattern, volume, flow pattern and composition traffic study has been conducted by the consultants continuously for a period of seven days. To make the analysis easier all types of vehicle were converted to a common scale called passenger car units (PCU) as per IRC standard. The consultants have projected the vehicle traffic based on the survey results. The consultants have also considered connecting/adjacent nature of the roads during analysis and has designed these project based on the standards prescribed by MORTH and IRC. The rates were estimated based on the standard schedule of rates of PWD, Haryana and for non-available items in PWD standard schedule of rates, the rates/norms adopted by NHA were considered.

3.2.1. Improvement of 13 roads in Jhajjar district

The project has proposed for development of 13 roads in Jhajjar District. The annual average daily traffic survey has been conducted for each road. The fast moving vehicles range from a minimum of 3381 in Road 10 to a maximum of 15367 in Road 2 projected. With this survey results and the growth rate assessed the consultant has estimated the requirement of road widening for each roads as given in **Table 2A**. The proposal includes widening of roads, improvements to bridges and culverts, improvement to the drainage facility along the roads and providing proper road signs and other street furniture's. The cost of the project is estimated to be Rs. 205.76 Crores and the breakup is given in **Table 2B**.

TABLE 2A – Length of roads and its widening proposal

Road No.	Name of Work	Length in (km)	Existing width (m)	Proposed width (m)
1.	Jharli Mohanbari Approach road	3.235	3.66	5.50
2.	Jhajjar, Talao, Chhuchakawas road	13.460	5.50	10.00
3.	Beri, Rohtak road	8.560	5.50	7.00
4.	Badli to Durina via Ladpur Munimpur	11.430	5.50	7.00
5.	Badli Pela Sondhi Yakubpur road	9.800	5.50	7.00
6.	Sahlawas Amboli Bithla Dhakla SH-22 including Jatwara approach road	16.220	3.66	5.50
7.	Subana (SH-22) Sarola Ahri road.	6.640	3.66	5.50
8.	Patauda (MDR-132 Dhani Saniyan Kahari Machroli(NH-71).	10.080	3.66	5.50
9.	Jhajjar Farrukhnagar road (SH15A) Mubarakpur Ismailpur Mundakhera (MDR-136) Badli, Iqbalpur Galibpur upto	11.755	3.66	5.50

Road No.	Name of Work	Length in (km)	Existing width (m)	Proposed width (m)
	Distt Border.			
10.	Badli Iqbalpur road Lohat Delhi Border.	3.765	3.66	5.50
11.	Chhuchakwas (MDR-130) Achej Paharipur, Malikpur Safipur road.	12.475	3.66	5.50
12.	Godhri Safipur Impota.	6.290	3.66	5.50
13.	Gawalision (VT)Kheri Hosdarpur Karodha Raiya (SH-22) Salodha Gijrodh (NH-71)	15.020	3.66	5.50
	Total	128.73		

TABLE 2B – Abstract Cost estimate

Sl. No.	Description	Amount Rs. In lakhs
1	Site Clearance	52.23
2	Earth work	1043.61
3	Sub base & Base course	4339.65
4	Bituminous Course	4614.36
5	Cement Concrete Pavement	2611.77
6	Bridges, Culverts and Causeways	882.47
7	Traffic Safety & Road Appurtenances	1322.35
8	Drainage & Protection works	1431.94
9	Shifting of Utilities	643.65
10	Retaining wall	505.95
11	Removal of trees and compulsory aforestation	901.11
12	Improvement of Railway crossing	400.00
	Total (A)	18749.09
	Add 1.5% contingency charges	281.24
	Add 2% Supervision & Quality Control Charges	380.61
	Total (B)	19410.94
	Add 6% escalation from start till completion of project	1164.66
	Grand Total	20575.59

Engineers India Ltd., New Delhi was appointed as the appraisal agency for this project. EIL has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision the appraisal agency confirmed that the designs are carried out as per the norms and all required provisions were made in the project cost. In addition the appraisal agency has commented that the project cost arrived is reasonable as per the current condition.

3.2.2. Improvement of Punhana-Joehera Road

The annual average daily traffic survey has been conducted and the fast moving vehicles are about 4243 out of which about 2735 (about 64%) are multi axle vehicles. Thus, the survey shows that more than 50% vehicles passing through this road are multi axle vehicles and leads to inconvenience for the local traffic. The width of the road is 3.66 m and it is proposed to widen

it to 10m. The project cost is estimated to be Rs. 21.16 Crores and the breakup is given in **Table 2C**.

TABLE 2C: Abstract cost estimates

Sl. No.	Description	Amount Rs. In lakhs
1	Site Clearance	9.15
2	Earth work	123.61
3	Sub base & Base course	556.31
4	Bituminous Course	884.93
5	Cement Concrete Pavement	0.00
6	Bridges, Culverts and Causeways	100.96
7	Traffic Safety & Road Appurtenances	118.44
8	Drainage & Protection works	67.78
9	Shifting of Utilities	33.90
10	Retaining wall	26.66
11	Removal of trees and compulsory aforestation	47.46
	Total (A)	1969.19
	Add 1.5% contingency charges	29.54
	Add 2% Supervision & Quality Control Charges	39.97
	Total (B)	2038.70
	Add 6% escalation from start till completion of project	122.32
	Grand Total	2161.02

Engineers India Ltd., New Delhi was appointed as the appraisal agency for this project. EIL has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision the appraisal agency confirmed that the designs are carried out as per the norms and all required provisions were made in the project cost. In addition the appraisal agency has commented that the project cost arrived is reasonable as per the current condition.

3.2.3. Providing Service lane and drains on Gurgaon Nuh Alwar road

Based on the average daily traffic pattern assessed for widening proposal of carriage way the width of the service lanes are determined. This project is primarily focussed on the five developed areas namely Badshapur, Sohna, Nuh, Badkali and Firozpur Zirka. Pedestrian path along with rectangular lined drains has been proposed along the roads next to the service lane. As part of the main carriage way widening a provision is made for service lanes for a width of 5.5m. The project is proposed with in this space provided and hence no land acquisition is required. The project cost is estimated to be Rs. 36.24 Crores and the abstract is given in **Table 2D**

TABLE 2D – Abstract of project cost

Sl. No.	Description	Amount Rs. In lakhs
1	Site Clearance	3.94
2	Earth work	248.32
3	Sub base & Base course	644.93
4	Bituminous Course	1339.61
5	Drainage & Protection works	928.43
6	Traffic Safety & Road Appurtenances	406.62
	Total (A)	3571.85
	Rebate @5.4% of (A)	-192.88
	Total (B)	3378.97
	Add 1.5% contingency charges	50.68
	Add 2% Supervision & Quality Control Charges	68.59
	Total (B)	3498.25
	40% Financial Progress in first Year	1399.30
	60% Financial Progress in Next year with escalation @6%	2224.89
	Grand Total	3624.19

Central Road Research Institute, New Delhi was appointed as the appraisal agency for this project. CRRRI has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision the appraisal agency conformed that the designs are carried out as per the norms and all required provisions were made in the project cost.

3.2.4. Badli – by pass

The annual average daily traffic survey has been conducted in the existing MDR. Based on the OD survey the number of fast moving vehicles are about 24108 out of which about 8523 (about 35%) are pass through vehicles. Based on the survey and IRC standards an average traffic growth rate of 7.5% is considered and the design period is considered as 10 years. With this assumption the project has been designed and the proposal includes construction of new by pass and improvement of existing road for about 2km, construction of drainage facilities, construction of bridges and culverts and providing proper road signs and other street furniture's. Land acquisition is involved in this project and hence care should be taken that all land is in possession before starting implementation. The cost of the project is estimated to be Rs.52.61 Crores and the breakup as per road is given in **Table 2E**.

TABLE 2E – Cost estimate of badli by pass

SI. No.	Description	Amount Rs. In Lakhs
1	Site Clearance	5.91
2	Earth work	435.27
3	Sub base & Base course	695.27
4	Bituminous Course	1332.44
5	Bridges, Culverts and Causeways	181.15
6	Traffic Safety & Road Appurtenances	140.20
7	Drainage & Protection works	416.29
8	Shifting of Utilities	28.41
9	Removal of trees and compulsory aforestation	39.77
10	Land acquisition	1518.84
	Total (A)	4793.55
	Add 1.5% contingency charges	71.90
	Add 2% Supervision & Quality Control Charges	97.31
	Total (B)	4962.76
	Add 6% escalation from start till completion of project	297.77
	Grand Total	5260.53

Engineers India Ltd., New Delhi was appointed as the appraisal agency for this project. EIL has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision the appraisal agency conformed that the designs are carried out as per the norms and all required provisions were made in the project cost. In addition the appraisal agency has commented that the project cost arrived is reasonable as per the current condition.

3.2.5. Rohtak Kalanaur Bhiwani Road

The survey results shows that the average annual daily traffic (AADT) is about 14746 fast moving vehicles, out of which about 70-75% of volume of PCU is goods vehicle. For design purpose, the project life is considered as 10 years and the growth rates are calculated accordingly. Considering the current flow and the project life and growth trend an average vehicle growth rate of 7.5% is assumed as per IRC standard. The pattern of traffic is similar to Rohtak – Hissar road. Thus with inferred pattern, the assumed growth rate and the required service it is estimated in the detailed project report that four lane road is required in the project

area. The proposed project is for four lanning of roads for about 22.3 km. The cost of the project is estimated to be Rs.81.74 Crores and the components and its estimates are given in **Table 2F**.

TABLE 2F: Components of Project

Sl. No.	Description	Amount in Rs. Lakhs
1	Site Clearance	276.85
2	Earth work	582.92
3	Sub base & Base course	1110.61
4	Bituminous Course	4313.87
5	Cross Drainage Works	808.02
6	Traffic Safety & Road Appurtenances	48.39
7	Drainage & Protection works	181.95
8	Miscellaneous	300.68
	Total (A)	7623.29
	Add 1.5% contingency charges	114.35
	Add 2% Supervision & Quality Control Charges	152.47
	Total (B)	7890.11
	40% Financial Progress in Current Year	3156.04
	60% Financial Progress in Next year with escalation @6%	5018.11
	Grand Total	8174.15

Engineers India Ltd., New Delhi was appointed as the appraisal agency for this project. EIL has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision, the appraisal agency has confirmed that the designs are carried out as per the norms and all required provisions were made in the project cost. In addition the appraisal agency has commented that the project cost arrived is reasonable as per the current condition.

3.2.6. Rohtak Hissar Road

The survey results shows that the average annual daily traffic (AADT) is about 15720 fast moving vehicles, out of which about 70-75% of volume of PCUs are goods vehicles. For design purpose, the project life is considered as 10 years and the growth rates are calculated accordingly. Considering the current flow and the project life and average vehicle growth rate of 7.5% is assumed as per IRC standard. Thus with the assumed growth rate and the required service it is estimated in the detailed project report that four lane road is required in the project area.

The proposed project is for four laning of roads from 79.20km to 86.80km (7.6Km). The cost of the project is Rs. 31.95 Crores and the components and its estimates are given in **Table 2G**.

TABLE 2G: Components of Project

Sl. No.	Description	Amount in Rs. Lakhs
1	Site Clearance	122.40
2	Earth work	211.09
3	Sub base & Base course	331.73
4	Bituminous Course	1618.02
5	Cross Drainage Works	407.21
6	Traffic Safety & Road Appurtenances	18.62
7	Drainage & Protection works	82.59
8	Miscellaneous	188.12
	Total (A)	2979.77
	Add 1.5% contingency charges	44.70
	Add 2% Supervision & Quality Control Charges	59.60
	Total (B)	3084.06
	40% Financial Progress in Current Year	1233.62
	60% Financial Progress in Next year with escalation @6%	1961.46
	Grand Total	3195.09

Engineers India Ltd., New Delhi was appointed as the appraisal agency for this project. EIL has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision, the appraisal agency confirmed that the design was as per the norms and all required provisions were made in the project cost. In addition the appraisal agency has commented that the project cost arrived is reasonable as per the current market conditions.

3.2.7. Pataudi –Khandwal road and Wasirpur to Farrukh Nagar road

The annual average daily traffic survey has been conducted and the fast moving vehicles are about 5964 for Pataudi – Khandwal road and 25464 for Wasirpur Farrukh Nagar road. Based on the traffic volume the lane widening proposal has been decided. The width of Pataudi – Khandwal road is 3.66 m and is proposed to widen for 5.5m and the width of Wasirpur – Farrukh Nagar road is 5.5m and is proposed to increase to 10m. The cost of the project was estimated to be Rs.31.57 Crores and the breakup as per road is given in **Table2H**.

TABLE 2H: Abstract cost estimates

Sl. No.	Description	Amount Rs. In lakhs
1	Site Clearance	8.29
2	Earth work	166.11
3	Sub base & Base course	634.77
4	Bituminous Course	1203.64
5	Cement Concrete Pavement	19.77
6	Bridges, Culverts and Causeways	171.10
7	Traffic Safety & Road Appurtenances	140.20
8	Drainage & Protection works	88.23
9	Shifting of Utilities	82.95
10	Retaining wall	45.57
11	Removal of trees and compulsory afforestation	116.13
12	Improvement of Railway crossing	200.00
	Total (A)	2876.75
	Add 1.5% contingency charges	43.15
	Add 2% Supervision & Quality Control Charges	58.40
	Total (B)	2978.30
	Add 6% escalation from start till completion of project	178.70
	Grand Total	3156.99

Central Road Research Institute, New Delhi was appointed as the appraisal agency for this project. CRRRI has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision, the appraisal agency confirmed that the designs are carried out as per the norms and all required provisions were made in the project cost.

3.2.8. Road development in Sonipat District for five stretches

The annual average daily traffic survey has been conducted for all roads. The fast moving vehicles range between minimum of 966 to maximum of 3316 in one of the roads. The growth rate of cars and two wheelers is about 11% and the growth rate of bus and trucks is about 7% and 6% respectively. With this survey results and the growth rate the consultant has estimated that the road needs to be widened to two-lane. The proposal includes widening of roads, improvements to bridges and culverts, improvements to junctions, improvement to the drainage facility along the roads and providing proper road signs and other street furniture's. The cost of the project was estimated to be Rs.125.51 Crores and the breakup for each road is given in **Table 2I**.

TABLE 2I – Cost estimate and length of each road

Sl. No	Description	Sonipat Bidhlana	Jagsi Gangana	Gohana Sisana	Kharkhoda Assodha	Sonipat Farmana road	Total
	Road length in km	19.64	6.18	28.56	18.05	21.88	94.30
Cost Estimate							
1	Site Clearance	7.75	3.33	16.92	6.52	9.86	44.38
2	Earth work	180.96	66.93	210.88	122.10	205.15	786.02
3	Sub base & Base course	702.69	245.35	1035.99	400.46	617.83	3002.32
4	Bituminous Course	557.73	184.89	1432.80	946.48	646.20	3768.10
5	Concrete pavement	118.66	0.00	86.26	153.08	0.00	357.99
6	Cross Drainage Works and Bridges	160.28	83.42	237.70	24.96	139.54	645.90
7	Drainage & Protection works	153.67	0.00	68.84	197.02	150.03	569.55
8	Traffic Safety & Road Appurtenances	251.76	81.44	357.42	229.30	270.93	1190.84
9	Miscellaneous	49.08	16.89	87.62	43.68	617.83	815.11
10	Deforestation	157.08	49.42	228.50	144.36	175.06	754.42
11	Utility Shifting	39.27	12.35	57.13	36.09	43.77	188.61
12	Land Acquisition*	6.00	0.00	0.00	0.00	0.00	6.00
	Sub Total	2384.93	744.01	3820.05	2304.03	2876.21	12129.24
	Add 3.5% towards Contingencies, Agency charges, quality control, etc...	83.47	26.04	133.70	80.64	100.67	424.52
	Total Project cost	2468.40	770.05	3953.75	2384.68	2976.88	12553.76

* A provision of Rs. 6 Lakhs is made for land acquisition. However in Environmental and Social aspects of DPR, it was mentioned that there is no land acquisition envisaged. This has to be clarified.

Central Road Research Institute, New Delhi was appointed as the appraisal agency for this project. CRR I has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision, the appraisal agency confirmed that the design was carried out as per the norms and all required provisions were made in the project costs.

3.2.9. Road development in Gurgaon district in five stretches

The proposed project has five roads namely Gurgaon Pataudi Road, DJ Road (Rampur) to Kota Khandewla, Urban Estate to Kherki Majra up-to Dhankot Road, Manesar to Kasan up-to Puran

Bhagat Mandir road and Hayatur Dhana to Bhangraula road. The annual average daily traffic survey has been conducted for each road. The fast moving vehicles range from a minimum of 4208 in Road 4 to a maximum of 25439 in Road projected. The growth rates of PCUs are in the range of 5% to 7%. With this survey results and the growth rate the consultant has estimated the requirement of road widening for each roads as given in **Table 2J**. The proposal includes widening of roads, improvements to bridges and culverts, improvement to the drainage facility along the roads and providing proper road signs and other street furniture's. The cost of the project is estimated to be Rs.90.36 Crores and the breakup is given in **Table 2K**.

TABLE 2J – Length of roads and its widening proposal

Sl. No.	Name of work	Length in Km.	Existing width	Proposed width
1	Gurgaon Pataudi Road from Rd.2.5 to 12,	9.500	7 m	Four lane 2x 7.5m
2	DJ Road (Rampur) to Kota Khandewla via Nurngur Road from RD 0 to 6.970 km.,	6.970	5.5 m	7 m
3	Urban Estate to Kherki Majra upto Dhankot Rd. 0 to 6.190 km.,	6.190	5.5 m	7 m
4	Manesar to Kasan upto Puran Bhagat Mandir Rd. from 0 to 4.420 km	4.420	3.66 m	5.5 m
5	Hayatur Dhana to Bhangraula Rd. from 0 to 4.570 km	4.570	3.66 m	7 m
	Total	31.65		

TABLE 2K – Cost estimate of all the five roads

Sl. No.	Description	Amount Rs. In lakhs
1	Site Clearance	17.95
2	Earth work	264.20
3	Sub base & Base course	1185.37
4	Bituminous Course	3020.72
5	Cement Concrete Pavement	450.59
6	Bridges, Culverts and Causeways	546.74
7	Traffic Safety & Road Appurtenances	1195.29
8	Drainage & Protection works	854.80
9	Shifting of Utilities	158.25
10	Retaining wall	218.24
11	Removal of trees and compulsory aforestation	221.55
12	Improvement of railway crossing	100.00
	Total (A)	8233.72
	Add 1.5% contingency charges	123.51
	Add 2% Supervision & Quality Control Charges	167.14
	Total (B)	8524.37
	Add 6% escalation from start till completion of project	511.46
	Grand Total	9035.83

Central Road Research Institute, New Delhi was appointed as the appraisal agency for this project. CRRRI has appraised the project technically and has given its observations. These observations were addressed by HSRDC. After the revision, the appraisal agency has confirmed that the design was carried out as per the norms and all required provisions were made in the project cost.

4. FINANCIAL APPRAISAL

4.1. Means of Finance

As per NCRPB lending policy, the financial assistance would be extended only for 75% of the project cost. The means of finance is worked out based on this policy and is given in **Table 3**.

TABLE 3: Means of finance

	Project 1	Project 2	Project 3	Project 4	Project 5
All in Rs. Lakhs	13 roads in Jhajjar district	Punhana Joeheda	Service lane and drains on Gurgaon Nuh Alwar road	Badli by pass	Rohtak - Bhiwani
NCRPB loan	15431.69	1620.77	2718.14	3945.40	6130.61
Own Contribution	5143.90	540.26	906.05	1315.13	2043.54
Total	20575.59	2161.02	3624.19	5260.53	8174.15

	Project 6	Project 7	Project 8	Project 9
All in Rs. Lakhs	Rohtak-Hissar	Pataudi –Khandwal & Wasirpur to Farrukh Nagar	5-roads in Sonipat dist.	5 - roads in Gurgaon dist
NCRPB loan	2396.31	2367.75	9415.32	6776.87
Own Contribution	798.78	789.25	3138.44	2258.96
Total	3195.09	3156.99	12553.76	9035.83

4.1.1. Loan terms of NCRPB loan

The terms of loan are common to all the projects. The rate of interest is 8.25% and the tenor of loan is 10 years with 2 years principal moratorium and payable annually.

4.1.2. Draw down schedule

The draw down schedule is proposed based on the implementation period of the project. The draw down schedule is given in **Table 4**.

TABLE 4: Draw down schedule

	Project 1	Project 2	Project 3	Project 4	Project 5
Tranche Amount (Rs. In Lakhs)	13 road project in Jhajjar district	Punhana Joeheda	Service lane and drains on Gurgaon Nuh Alwar road	Badli by pass	Rohtak - Bhiwani
Tranche 1	6172.68	648.31	1087.26	1578.16	2452.24
Tranche 2	9259.01	972.46	1630.88	2367.24	3678.37
Total	15431.69	1620.77	2718.14	3945.40	6130.61

	Project 6	Project 7	Project 8	Project 9
Tranche Amount <i>(Rs. In Lakhs)</i>	Rohtak - Hissar	Pataudi –Khandwal & Wasirpur to Farrukh Nagar	5-roads in Sonipat dist.	5 - roads in Gurgaon dist
Tranche 1	958.52	947.10	3766.13	2710.75
Tranche 2	1437.79	1420.65	5649.19	4066.12
Total	2396.31	2367.75	9415.32	6776.87

4.2. Project Financial Appraisal

The financial sustainability of the project would be determined by project revenues in relation to debt servicing and O&M expenditure. As no tolls are proposed to be levied, the O&M expenses have to be met out of the PWD's budget only, financial appraisal of project is not required. However borrower appraisal and economic appraisal is recommended for the project.

Though the financial analysis cannot be worked out for the project, O&M cost of the project has to be arrived at and PWD has to ensure that sufficient funds are provided for O&M in the state budget to the PWD department.

4.3. Borrower Financial Appraisal

As state government is the borrower state government finances were reviewed. The past financials of Haryana state is given in **Table 5**. A snap shot of the past financial position of the state government from 2004-05 to 2008-09 reflects growth in both revenues as well as expenditure. The compounded annual growth rate (CAGR) of revenue income from 2004-05 to 2007-08 is 15.37% and revenue expenditure is 9.86%. Thus the rate of growth of revenue income is more that the growth of revenue expenditure, facilitating reduction in revenue deficits from Rs. 2492.54 Crores in the year 2004-05 to Rs. 121.90 Crores in the year 2007-08. however this positive trend was reversed in 2008-09 when revenues were affected by the economic slowdown, whereas revenue expenditure went up dramatically. It is hoped that this is a temporary aberration and the state will revert to its trajectory of fiscal prudence. The CAGR of capital receipts from 2004-05 to 2006-07 is 24.20%. The capital receipt growth is compared only for three years as there is an exceptional negative trend in the year 2007-08. The CAGR for capital expenditure for same three year period is 33.22% (35.38% for four years). It may be observed that the CAGR for capital expenditure is more that the capital receipt, which shows that the state is allocating more resources for plan expenditure.

The financial performance of the state government has also been analysed based on 12th Finance Commission, recommendations and compared with NCR states and the national average. The 12th Finance Commission, as part of restructuring of public finances, has recommended certain measures to improve the long term financial sustainability of Centre and state governments. The suggested indicators suggested by the 12th finance commission include the following:

- The Tax to GDP ratio should be improved to 17.6 % by 2009-10
- Debt to GDP ratio to be brought down to 75% by 2009-10
- Fiscal deficit to GDP should be less than 3%
- There should not be any revenue deficit by 2008-09

- Interest payment to revenue receipts to be brought down to 15% in case of state government

The above ratios were computed for all four NCR states namely Haryana, Delhi, Uttar Pradesh and Rajasthan and the comparison is shown in **Table 6**.

The analysis shows that Haryana has achieved most of the targets in 2008-09 except the revenue deficit and fiscal deficit which has slipped marginally. However due to the slow down in the economy the deficit has increased in the year 2008-09. Even the Centre in its budget has relaxed the norms of gross fiscal deficit by 0.5% for 2008-09 and further 0.5% for 2009-10 to extend the fiscal stimulus to accelerate the growth in economy. Further all other recommendations given by 12th finance commissions have been achieved by the state. The growth rate of gross state domestic product at nominal rates is about 9.35% and 8.02% in the year 2007-08 and 2008-09 respectively. On the whole, Haryana has demonstrated better economic and fiscal management.

Table 5: Haryana state financials

		2004-05	2005-06	2006-07	2007-08	2008-09
	<i>All in Rs. Crores</i>	Actual				Revised Estimates
I	Revenue Receipts					
1	Tax Revenue	805 9.53	102 79.62	122 23.4	13252.18	16222.72
2	Non-Tax Revenue	308 9.53	357 3.69	572 9.03	6498.56	5547.88
	Total Revenue Receipts(a) = (1)+(2)	11149.06	13853.31	17952.43	19750.74	21770.60
II	Capital Receipts					
3	Recoveries of Loans	157. 11	289. 7	220 0.74	213.80	377.89
4	Misc.Capital Receipts				10.15	14.17
5	Public Debt. (Net)	146 0.22	224 1.24	898. 12	2.58	3402.85
	Total Capital Receipts (b) = (3)+(4)+(5)	1617.33	2530.94	3098.86	226.53	3794.91
	Total Receipts (c) = (a)+(b)	12766.39	16384.25	21051.29	19977.27	25565.51
III	Revenue Expenditure					
	Non-Plan Expenditure	9806.93	10721.90	13999.05	14626.38	17646.12
6	On Revenue Account	995 4.40	106 25.09	139 08.03	14351.36	17220.05
7	Interest Payments	223 4.50	209 9.83	226 5.06	2345.77	2354.36
	Plan Expenditure					
8	On Revenue Account	145 2.7	201 4.8	245 4.12	3175.51	4495.14
	Total Revenue Expenditure (d) = (6)+(7)+(8)	13641.60	14739.72	18627.21	19872.64	24069.55
IV	Capital Expenditure					
	Non-Plan Expenditure					
9	On Capital Account	- 147.47	96.8 1	91.0 2	275.02	426.07
	Plan Expenditure					
10	On Capital Account	125 2.46	169 2.17	252 1.3	3436.65	3729.55
	Total Capital Expenditure (e) = (9)+(10)	1104.99	1788.98	2612.32	3711.67	4155.62
	Total Expenditure (f) = (d)+(e)	14746.59	16528.70	21239.53	23584.31	28225.17
11	Revenue Surplus(+)/Deficit(-) (g) = (a)-(d)	-2492.54	-886.41	-674.78	-121.90	-2298.95
12	Fiscal Surplus(+)/Deficit(-) (h) = (c)-(f)	-3440.42	-2385.69	-1086.36	-3609.62	-6062.51

Source: Haryana state budgets

TABLE 6: Comparison of state fiscal indicators

	Norms	Haryana		Delhi		Rajasthan		Uttar Pradesh		Consolidation of 27 states (w.r.t GDP)		National (w.r.t GDP)	
		FY08	FY09	FY08	FY09	FY08	FY09	FY08	FY09	FY08	FY09	FY08	FY09
Revenue deficit/GSDP	Zero by FY09	0.12%	2.04%	Surplus by 2.65%	Surplus by 3.69%	Surplus by 0.20%	Surplus by 0.89%	Surplus by 3.54%	Surplus by 4.05%	Surplus by 0.9%	Surplus by 0.1%	0.20%	4.40%
fiscal deficit/GSDP	<3%	3.46%	5.39%	5.12%	4.33%	Surplus by 0.15%	Surplus by 0.14%	0.83%	Surplus by 0.68%	1.50%	2.70%	4.20%	8.90%
Debt/GSDP	<75% by FY10	27.50%	28.61%	26.34%	23.24%	61.22%	63.43%	--	--	27.80%	27.10%	60.10%	58.90%
Interest payment/revenue receipts	<15%	11.88%	10.81%	16.49%	14.02%	19.65%	19.52%	18.31%	17.00%	2.10%	2.00%	24.60%	24.50%
Tax Income/GSDP	>17.6% by FY10	12.72%	14.41%	12.14%	11.47%	10.19%	10.96%	10.89%	11.93%	9.20%	9.40%	18.50%	18.10%
GSDP Growth at nominal rates		9.35%	8.02%	15.06%	12.48%	7.11%	5.48%	7.16%	6.46%	--	--	9.01%	6.70%

#Source: RBI Annual report 2008-09 and respective Government website. Data on debt outstanding for UP is not available hence not included.

5. ECONOMIC APPRAISAL

As the project is non-remunerative, the investment has to be justified with Economic Analysis. The EIRR has been worked out based on the vehicle operating cost and time saved because of the improvement. The types of vehicles for vehicle operating cost considered based on the category of vehicles identified during survey and the projects were assumed based on the traffic projection made as per IRC standards.

1. Based on EIL appraisal the average EIRR is 13.43%
2. The EIRR for Punhana to Jurhera road is 15.27%
3. The EIRR has not worked out for providing the service roads and drains in Gurgaon Nuh Alwar road as this is only a supplementary proposal.
4. The EIRR for Badli – Bypass is 45.62%
5. The EIRR for Rohtak – Bhiwani is 29.46%
6. The EIRR for Rohtak Hissar is 29.36%
7. The average EIRR for Pataudi –Khandwal &Wasirpur to Farrukh Nagar is 43.96%
8. The EIRR for Five stretches in Sonipat District are
 - a. Gohana – Sisana 29.50%
 - b. Sonipat – Mehalana – Farmana 19.90%
 - c. Sonipat – Karol – Bidhal 18.70%
 - d. Jagsi – Gangana 17.20%
 - e. Kharkhauda – Assaudha 39.10%
9. The EIRR for Five stretches in Gurgaon District are
 - a. Gurgaon Pataudi Road 21.51%
 - b. DJ Road (Rampur) to Kota Khandewla 77.81%
 - c. Urban Estate to Kherki Majra upto Dhankot rd 43.04%
 - d. Manesar to Kasan upto Puran Bhagat Mandir rd 40.05%
 - e. Hayatur Dhana to Bhangraula road 86.86%

The above results show that the projects are economically justified. However the assumptions made to arrive at these conclusions have not been shared with NCRPB.

6. ENVIRONMENT AND SOCIAL ASSESSMENT

6.1. Environment Appraisal

Broadly a provision was made for tree cutting and replacement in all project DPRs based on past experience. However it is not sufficient to give provision only for tree cutting. An assessment on exact tree cutting, change in hydrology and drainage patterns, need for road side drains for densely populated area, increase in air pollution and noise levels due to traffic, disturbance to other utilities/services during construction, destruction of roadside microhabitat/vegetation due to widening and construction, Community and cultural severance, Impact on natural habitats, Pollution from construction equipments, etc. have to be conducted in detail.

An Environment Impact Assessment covering all the above impacts has to be prepared along with suitable mitigation measures. These measures have to be duly supported with provisions in the cost estimates.

6.2. Social Appraisal

It was mentioned that there is no land acquisition in any of the project except Badli by pass and hence Resettlement and Rehabilitation (R&R) is not applicable for these projects. For Badli by pass it was mentioned that the R&R is not required as there is no structures proposed to acquire. However even if structures are not available in the lands to be acquired, the R&R has to be prepared as that land may be a source of livelihood to its owners. In addition, in project 8 an amount of Rs. 6 lakhs has been included in the cost estimate for land acquisition which conflicts the statement given in the Environmental and social aspect of the DPR. This has to be clarified by PWD to NCRPB. Even for other projects, as it envisages road widening wherein there are possibility of acquiring land or alienating other department land where certain settlements would present. Hence, the PWD should prepare a detailed list of land to be alienated from other departments and list out the settlements in those lands. If there are any settlements or acquisition of land which affects their livelihood, then a detailed R&R matrix covering the following aspects has to be prepared:

- Extent of land
- Ownership of land along with assessment numbers
- Cost of land
- Classification of land
- Nature of activities in the land and impact on the lively hood of removing such activities
- Guideline and market value of the land, etc...

A Social Impact Assessment identifying all the number of project affected person (PAP) and assessing the impact has to be conducted for all the projects and based on the impacts R&R plan has to be prepared. This R&R plan has to be duly supported with provisions in cost estimates. If there is any requirement of R&R then PWD has arrange additional funds to implement R&R.

In addition the Environmental and Social related approvals from various departments have to be obtained when ever required.

7. INSTITUTIONAL FRAMEWORK AND RESPONSIBILITIES

The project is owned and financed by Public Works Department, Haryana. The PWD has entrusted the work to Haryana State Road Development Corporation to call for tenders and implement the work. Haryana State Road Development Corporation is a state owned organisation created for executing road projects having its administrative office at Panchakula. It has already implemented various similar projects. Haryana State Road Development Corporation has seven divisions spread across the state and each division is headed by a Deputy General Manager.

The HSRDC through its divisions has so far implemented about 620km of various road projects starting from widening of roads to construction of bridges and tunnels and these roads are maintained by the HSRDC. This organisation has adequate quality control mechanisms, where entire testing process is clearly prescribed and is remotely monitored. Agencies are engaged for each road for monitoring the quality of the construction. All tests carried out at the field level for all the projects can be monitored online at head office level.

HSRDC is proposing project management consultants to supervise the construction with random checks by its own engineers. Overall, HSRDC has the capacity to execute the proposed projects within specified cost, quality and fine estimate.

8. SECURITY

8.1. Direct Government Borrowings

The Government of Haryana is availing the loan and a letter of comfort would be obtained from the state finance department confirming that interest payment and principal repayment could be made by the state government.

9. RISK IDENTIFICATION AND MITIGATIONS

Two major risks for the proposed project are:

(a) Procurement risk

These risks can be mitigated or reduced with the following measures:

- Wider publication of the tender notice
- Providing clear, transparent terms and conditions
- Explicit mentioning of all the provisions given for components such as insurance, taxes, etc...
- If required a bidders conference may be conducted to understand the capacity of the contracting industry and packaging of the contracts may be done according to availability of the potential bidders
- BOQ and cost estimates nearest to the market value
- The qualification criteria and bid evaluation criteria have to be clearly spelt out in the bid document

(b) Construction risk – to avoid the delay in execution

- All land should be in possession with the employer before award of contract
- Proper public consultation has to be conducted in order to avoid local agitations during the implementation of the project.
- Proper due diligence of the bidder while conducting bid evaluation – The employer should check the financial strength and the past experience of the contractor and also should check the utilization of his capacity.
- Detailed implementation plan including Man, Money and Material (MMM) has to be obtained from the contractor during the contract award
- Regular monitoring of the project by HSRDC and NCRPB which will help in supervising the achievement of mile stone by the contractor – this will help in identification of the problems in the early stage and can do mid course correction as and when required
- Simpler deviation approval mechanism in HSRDC which will reduce the time taken for deviation approvals
- Proper planning of traffic diversions within the city, which should be in coincidence with the PERT given by the executing agency.

- To avoid the financial risk to the employer a bank guarantee may be obtained in case any advance paid to the contractor
- The dispute resolution mechanism should be simple and clear which should help in resolving the disputes at faster pace thus reduce time and cost over run.

10. IMPLEMENTATION SCHEDULE

The project would be implemented in two years.

11. QUALITY STANDARDS

The project is designed with MORTH standards. The same along with relevant IS codes has to be followed while implementing the project.

12. RECOMMENDATION

By considering the necessity of the project, economic return and security by the state, the following loans may be sanctions as per the terms and conditions stipulated below:

Project No.	Project Name	Loan Rs. In Lakhs
1)	Road stretch development for <ul style="list-style-type: none"> • Jharli Mohanbari approach road (3.235km) • Jhajjar, Talao, Chuchakawas road (13.46km) • Beri, Rohtak road (8.56km) • Badli to Durina via Ladpur Munimpur (11.43km) • Badli Pela Sondhi Yakubpur road (9.80km) • Sahlawas Amnoli Bithla Dhakla SH-22 including Jatwara approach road (16.22km) • Subana (SH-22) Sarola Ahri road (6.64km) • Patauda(MDR132)Dhani Saniya Kahari Machroli(NH71)(10.08 km) • Jhajjar Farrukhnagar road (SH15A) Mubarakpur Ismailpur Mundakhera (MDR-136) • Badli, Iqbalur Galibpur up to Dist Border (11.755km) • Badli Iqbalpur road Lohat Delhi Boarder (3.765km), • Chuchakawas (MDR-130) Achej Paharipur, Malikur Safipur road (12.475km) • Godhri Safiur Impota (6.29km) • Gawalision (VT) Kheri Hosadur Karodha Rajiya (SH-22) Salodha Gijrodh (NH-71) (15.02km) 	15431.69
2)	Punhana Jorheda Road in Gurgaon dist (6.78km)	1620.77
3)	Providing Service lane & drains on Gurgaon Nuh Alwar road - 14km	2718.14
4)	Badli bypass 0-5.680 (New construction along with strengthening of existing 2kms stretch) (5.70km)	3945.40

Project No.	Project Name	Loan Rs. In Lakhs
5)	4 lanning of Rohtak Bhiwani road	6130.61
6)	4 lanning of Rohtak Hissar road from Drain No. 8 to Bahujamalpur (km 79.200 to 86.800)	2396.31
7)	Road No. 1. Pataudi to Khandewla via Rampur Jataula Road from Rd0 to 8.39 km 2. Wazirpur to Farrukh Nagar road from Rd 0 to 8.20 km	2367.75
8)	Road development for stretches • Sonipat Farmana road - 21.863km • Kharkhoda Assodha - 18.045 km • Gohana Sisana - 28.563 km • Jagsi Gangana - 6.770 km • Sonipat Bidhlana - 19.635 km	9415.32
9)	Road No. 1. Gurgaon Pataudi Road from rd2.5 to 12.00) - 9.50km 2. DJ Road (Rampur) to Kota Khandewla via Naumgur Road from RD0 to 6.970km 3. Urban Estate to Kherki Majra up to Dhankot Road from RD 0 to 6.190km 4. Manesar to Kasan up to Puran Bhagat Mandir road from Rd0 to 4.420 km 5. Hayatur Dhana to Bhangraula road from Rd 0 to 4.57km)	6776.87
	TOTAL	50802.86

Terms and Conditions:

Agreement	The Borrower shall execute a Memorandum of Agreement (MOA) in the form prescribed by National Capital Region Planning Board hereafter referred to as 'the Board' for the purpose of availing loan and submit all other documents as required within 40 days of the date of letter of sanction of loan. However, in case the Borrower applies before the expiry of 40 days with valid reasons, the Board reserves the right to give a time extension.
Rate of Interest	8.25% p.a., incentives would be made as applicable and the performance incentives are _____. However the board has the right to revise the interest rate during disbursement or during the tenor of the loan. The Borrower shall pay interest on the said Loan at the rate of interest prevailing on the date of each disbursement. The interest in favour of the Board shall begin to accrue from the date of cheque issued by the Board. The instalment of interest will be payable annually and shall accrue from the date of disbursement by the Board and shall be payable on the anniversary date

	every year. The amount of interest payable will be calculated at the applicable rate up to the date immediately preceding the due date of payment. Computation of interest shall be made on a daily basis using a factor of 365 days.
Repayment	<ol style="list-style-type: none"> 1. Tenor – 10 years 2. Principal moratorium – 2 years 3. Interest moratorium – Nil 4. Repayment period – 8 years 5. Frequency of Instalments – Annual <p style="text-align: right;">All payments should be realized at par in New Delhi</p>
Penalty and prepayment charges	<ol style="list-style-type: none"> 1. In the event of the interest or the principal not being paid to the Board by the Borrower on the due date as indicated in the foregoing clauses, the Borrower shall pay to the Board a penal interest of 2.75% over and above the rate of interest at which the loan is disbursed. 2. Under normal circumstances the Board shall not accept prepayment. In the event of a Borrower deciding to pre-pay the loan after withdrawal of one or more instalments, the Borrower will pay a pre-payment charge @ 1% of the principal loan amount outstanding. Prepayment shall not be accepted during the moratorium period of the Project. Notwithstanding anything stated above, it is stipulated that for cases with litigation or where the Project is completed before the schedule and the borrower is getting huge cash inflow etc., it will be at the discretion of the PSMG to accept prepayment more than 25% on the case to case basis. 3. The Borrower shall also pay on demand all costs, charges, expenses, losses and other money that may be incurred by the Board, in connection with remittance/ receipt of moneys to or to the order of or from the borrower, or in connection with protecting and/or enforcing the rights of the Board under the Memorandum of Agreement and/or Guarantee Deed and/or any other document for the loan in question. The decision of the Board with regard to the amount/loss incurred on these, shall be final and binding on the Borrower
Appropriation of amount paid by the borrower	<ol style="list-style-type: none"> 1. The money paid by the Borrower shall be appropriated in the following order: <ol style="list-style-type: none"> (a) Costs, charges, expenses, losses, applicable taxes, statutory duties and other moneys, (b) Interest on costs, charges, expenses, losses, applicable taxes, statutory duties and other moneys, (c) Penal interest, (d) Interest/ interest tax, (e) Repayment of principal in the order of the occurrence of the dues; & (f) Prepayment of principal.
Security	Letter of comfort from state finance department confirming to service the proposed department liability has to be submitted
Pre-disbursement conditions	Necessary statutory approvals including Administrative sanction, technical sanction, clearances on account of Environment and R&R have to be obtained.

<p>Release of funds</p>	<ol style="list-style-type: none"> 1. The Borrower shall furnish to the Board a Execution Schedule with Expenditure Details (ESED) in the prescribed form indicating complete details of the activities/tasks completed/to be completed along with task-wise cost and Date of Completion of each task for which the payments are required to be made or become due at the time of drawal of loan instalments. 2. The Borrower shall submit an Application for drawal of the loan duly supported by various Certificates and Documents as prescribed by the Board. 3. The loan shall be disbursed according to the disbursement procedure of the Board as modified/ amended from time to time. Normally, disbursement will be made on the basis of the Report of appointed TPI&M agency duly certifying progress of work in physical and financial terms including the quality and quantity of equipment/ materials ordered/ supplied as required for the completion of the Project / Scheme and payments for such equipments/ materials becoming due to the supplier(s) concerned and also in respect of the civil/ electric works completed / proposed to be completed in the next phase of implementation of the Project/ Scheme through any agency(ies) engaged for the said purpose. 4. The Board shall not be liable for any charge whatsoever for which the Borrower may become liable due to delayed payment by the Borrower in respect of equipments/ materials ordered/ supplied or in respect of civil/ electrical works executed by agencies (appointed by the Borrower). 5. The borrower shall draw the loan as per drawal schedule and the closing date of loan shall be by the end of _____ or such other date as may be agreed to by the Board.
<p>Inspections</p>	<ol style="list-style-type: none"> 1. It would be open to the Board to depute its Officers/nominees for inspection of record relating to this loan and its purposes. The inspecting staff shall be provided full access to such books, records and stores of the Borrowers as will be deemed necessary by the inspecting Officers/ nominees. The Borrower shall extend all facilities to the inspecting officers/ nominees for the purpose of carrying out inspections and render such explanation or elucidation as may be required by the Officers of the Board and or its nominees as well as permit photocopies of/or extracts of documents. 2. The Board shall appoint a Third Party Inspection and Monitoring agency to carry out physical and financial monitoring of the Project. The cost incurred on such TPI&M work shall be an integral part of the total project cost and will be borne by the borrower. In case the project is being implemented with the finance /collaboration of a PSU or any other body supported by the Central Govt. which has a well-developed institutional system for TPI&M, the Board reserves the right to desist from engaging a separate TPI&M agency.
<p>Reports</p>	<ol style="list-style-type: none"> 1. The Borrower shall also furnish to the Board such Reports on its working, either in general or with specific reference to this loan, in the

	<p>manner prescribed by the Board from time to time.</p> <ol style="list-style-type: none"> 2. The Board shall monitor the progress of the Project/ Scheme financed by it on a continuous basis. In this respect : <ol style="list-style-type: none"> a. The Borrower shall furnish periodic progress Reports in the formats, as prescribed by the Board, on the utilization of this loan and on the physical progress of the Project/Scheme on a monthly or quarterly basis (as required). b. The Borrower shall provide full cooperation and access to the officials of the Board for monitoring the Project through visits to Project related sites, stores as well as its Head Quarters. The Borrower shall also provide all documents, as may be deemed necessary, for assessing the physical as well as financial progress of the Project. 3. The Borrower shall furnish a Completion Report on the successful completion of the Project within three months of the date of completion of the Project/ Scheme as per the format prescribed by the Board. 4. In case the Board is not satisfied with the progress of the Project/ Scheme financed or the utilization of financial assistance provided, it may resort to remedial measures as stipulated in the default clause given hereunder
Default	<ol style="list-style-type: none"> 1. In case the Board comes to the considered conclusion at any time during the implementation of the Project or the pendency of the loan that the amount already disbursed has not been properly and effectively utilized by the Borrower for the Project/ Scheme or the progress achieved in its implementation is inadequate or certain condition(s) of this loan have not been complied with, the Board shall have absolute discretion to suspend, reduce, cancel, alter or delay disbursement of said loan and/or instalments in any manner and may decline to disburse any or all the remaining instalments without assigning any reason thereof to the Borrower and without being liable for any losses or damages. 2. Recall of Loan: If the Borrower defaults in the payment of principal or interest or any other payment required under the loan agreement, the Board may issue a Notice to the Borrower and to the guarantor, for recall of the principal amount outstanding, the interest payable and other charges leviable thereon. The Borrower will be required to reply within 21 days of the date of issue of the said Notice. In case the Board does not find the reply tenable, the Board reserves the right to recall the entire principal amount, interest payable and other charges leviable thereon in one full and final payment. In the event of the Board deciding on Recall, the Borrower shall comply with the Recall by making the said full and final payment within 15 days of the order of Recall. In case the Borrower delays the full and final payment beyond 15 days from the order of recall, the delay will attract a penal interest @ 2.75% per annum over and above the normal rate till the date of full and final payment without prejudice to the right of the Board to initiate action with regard to recovery of the principal amount outstanding, the interest payable and other charges leviable thereon by invoking guarantees, charge on assets and other securities.
Utilization of loan &	<ol style="list-style-type: none"> 1. The Borrower shall ensure that the equipment/ materials for which the loan has been obtained from the Board are utilized for the

completion of project	<p>implementation of the stated Project.</p> <p>2. The Borrower shall take all necessary steps to ensure that the project is completed as envisaged in the manner and according to the time schedule envisaged, i.e. by the end of _____.</p> <p>3. The borrower shall furnish a Completion Report on the successful completion of the project within two months of the completion of the Project/ Schemes as per the format prescribed by the Board.</p>
Other Conditions	<p>1. The said loan shall also be subject to such further terms and conditions as may be laid down in the form of an agreement to be executed by the Borrower with the Board.</p> <p>2. The Borrower shall during the currency of the loan and the implementation of the Project bear all such imposts, duties and taxes or any other charges as may be levied in relation to the Project / Scheme from time to time by the Government or any other competent authority.</p> <p>3. The borrower has to assess the exact Environmental and social impacts and the same has to be mitigated. If the provisions made in the project cost is not sufficient, the borrower has to arrange necessary funds before release of final tranche to implement the mitigation measures</p>