

InARoaD Award Submission

Theme Category : Road Infrastructure Finance & Economics



Government of Rajasthan



RAJASTHAN MEGA HIGHWAYS PROJECT (INDIA)

A Model for Public Private Participation

Implemented By:



Road Infrastructure Development Company of Rajasthan Ltd.

November, 2010

InARoad Award Submission**Theme Category : Road Infrastructure Finance & Economics****THE RAJASTHAN MEGA HIGHWAYS PROJECT (INDIA)**

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THE RAJASTHAN MEGA HIGHWAYS PROJECT (INDIA)

A Model for Public Private Participation

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1. ACHIEVEMENT

(in so far as possible clear evidence of improvement of quality of life)

1.1 Salient Features of Project Roads with Benefits

While formulating the project proposals it was considered that these roads would have high level of service and consequently requisite bypasses, Rail Over Bridges & New Major Bridges were proposed wherever required. As such, in the 1053 km road stretches, a total of 3 Major Bridges, 11 Road Over Bridges and Bypasses at 30 locations have been planned. Salient features of the Project, on each of the road stretches, is brought out in the following sections of this note

(i) Phalodi to Ramji Ki Gol (PR-1 & PR-2)

- (a) Salient Features: The project corridor takes off from Km 168 of NH-15 near Phalodi and again joins NH-15 at Km 243 at Ramji Ki Gol. Total length of the project road is 292 Km, including 35 Km length of National Highway. The road stretch passes through the districts of Jodhpur and Barmer. Major towns/villages enroute are Dechu, Shergarh, Thob, Pachpadra, Balotra, Sindhri and Guda Malani. To avoid congestion of traffic through urban areas, two bypasses have been constructed for Thob and Balotra Towns. One Road Over Bridge (ROB) has been constructed on the Jodhpur-Barmer line on the Balotra Bypass.

Length	ROBs	Major Bridges	Bypasses
292 kms	1 No.	2 Nos.	2 Nos.

- (b) Benefits (Direct): The existing route for the vehicles traveling from Punjab, Haryana and other parts of Northern India to Kandla Port (in Gujarat), is via Phalodi – Jaisalmer – Barmer – Ramji Ki Gol on NH-15. The development of this new corridor has led to a saving of about 120 Km for all these vehicles. Better facilities for transportation of petroleum products and chemicals have also become available from the oil exploration programme in the districts of Barmer & Sanchore.

(ii) Hanumangarh to Kishangarh (HK-1 & HK-2)

- (a) Salient Features: The project corridor takes off from Sangaria junction of Hanumangarh bypass on SH-7 and joins NH-8 at Kishangarh. The total length of the project road is about 407 Km, including 5 Km length of National Highway. This corridor connects the districts of Hanumangarh, Churu, Nagaur

and Ajmer. The major towns along the road include Rawatsar, Sadarshaar, Ratangarh, Chhappar, Sujangarh, Ladnun, Didwana, Kuchaman and Parbatsar. Due to limited availability of RoW in towns/villages, seven bypasses in a length of about 42 Km, have been constructed for Chhappar, Sujangarh, Didwana, Kuchaman, Parbatsar, Roopangarh and Sursura. There are 9 Railway level crossings on this alignment of which three crossings qualify for construction of ROBs based on economic consideration and traffic volume. These are at Hanumangarh (on Jaipur–Ganganagar line), Parbatsar (on Jaipur–Jodhpur line) and Ratangarh (Jaipur–Bikaner line).

Length	ROBs	Major Bridges	Bypasses
407 kms	3 Nos.	1 No.	7 Nos.

- (b) **Benefits (Direct):** The existing route for the vehicles traveling to and from the cement plants of Rajasthan & Kandla port, Punjab, Haryana and Northern India, is via NH-8 and NH-10 through Delhi and Ambala. The development of this road stretch has led to a saving of about 120 Km to 200 Km for these vehicles.

(iii) Alwar to Sikandra (AS)

- (a) **Salient Features:** The project corridor takes off from junction of Alwar–Delhi road on Alwar bypass and joins NH-11 at Sikandra. The project road is a part of SH-25 for its total length of 77 Km. Development of the approach road to Abhaneri, a tourist place, has also been done. Length of the approach road is 4 km. As such, total length of the project road is 81 Km.

The road stretch passes through the districts of Alwar and Dausa. Major towns enroute are Rajgarh and Bandikui. Due to limitation of RoW, bypasses have been proposed for Rajgarh and Bandikui towns. A realignment has been made near Baswa for a length of 3 Km to avoid two level crossings as also for the improvement of geometrics. There exist four railway crossings on the project road, construction of ROBs has been done on all the four railway level crossings.

Length	ROBs	Major Bridges	Bypasses
81 kms	4 Nos.	Nil	3 Nos.

- (b) **Benefits (Direct):** The project road caters to vehicles traveling from Delhi, Bhiwadi, Gurgaon and Alwar to Kota and the southern part of the country. It is estimated that the vehicles traveling from Alwar to Kota are saving about 60 Km of travel length resulting in savings of time and fuel. The tourist town of Abhaneri, which is a developing tourist spot, has also been connected.

Presently, the road passes through the congested towns of Bandikui, Rajgarh etc. The construction of 17.9 Km length of bypasses has relieved the road from traffic congestion along with the savings in Vehicle Operating Cost (VOC).

(iv) Lalsot to Kota (LJ-1)

- (a) **Salient Features:** The project corridor takes off from NH-11A at Lalsot and joins NH-12 at Kota. The alignment of this part of the stretch passes through

Bharoti, Sawaimadhopur, Indergarh, Laban and Keshorai Patan. Lalsot to Bharoti Road is a part of SH-24 for a length of 37 Km.

The road links Dausa, Sawai-Madhopur, Tonk, Bundi and Kota Districts of Rajasthan. Bypasses have been constructed for the towns/villages of Malarna, Surwal, Indergarh, Lakheri and Kapasan. There exists three railway level crossings, on all of these ROBs have been proposed.

Length	ROBs	Major Bridges	Bypasses
195 kms	3 Nos.	Nil	6 Nos.

- (b) **Benefits (Direct):** With the development of this corridor, there is a saving of 70 Km of length for the vehicles traveling from NH-11 (Dausa) and going on to Kota (NH-12) and beyond to South India. Further proposed construction of 3 ROBs in this corridor will lead to savings in VOC.

(v) **Baran to Jhalawar (LJ-2)**

- (a) **Salient Features:** The project corridor starts at 3 Km off NH-76 from the proposed Baran Bypass and joins NH-12 near Jhalawar. The entire alignment is a part of SH-1. Total length of the project corridor is 78 Km. This road stretch connects the districts of Baran, Kota and Jhalawar. The alignment passes through towns of Khanpur and Mandawar. Due to limited Right-of-Way (RoW), bypasses have been constructed at Kalmanda, Bapawar Kalan, Khanpur, Golana, Ladania, Mandawar, Soomer, Bilasra, Bamla, Bherpura, and Bagher.

Length	ROBs	Major Bridges	Bypasses
78 kms	3 Nos.	Nil	11 Nos.

- (b) **Benefits (Direct):** With the development of this corridor, vehicles going towards Madhya Pradesh and southern India are benefited.

1.2 Improvement Works

The improvement works carried out by RIDCOR are broadly as follows:

- (i) Widening/Strengthening of existing carriageway to two-lane paved/hard shoulder configuration;
- (ii) Formation of bypasses, as may be required and feasible, subject to availability of required Right of Way (RoW);
- (iii) Construction/repair of major/minor bridges, culverts and other drainage structures;
- (iv) Construction of Road Over Bridges (RoB), as found necessary and feasible;
- (v) Junction improvements, signages;
 - (a) Metal beam crash barriers at high embankments, curves and bridge approaches, as found necessary;
 - (b) Retro-reflective road signages including Overhead Gantries and Cantilevers
 - (c) Cat's Eyes and Delineators;

- (vi) Road markings with retro-reflective thermoplastic paint;
- (vii) Construction of User fee Plaza(s) and Office complexes;
- (viii) Construction of bus-bays, passenger shelters and truck lay-byes;
- (ix) Provision of landscaping and arboriculture, including maintenance thereof;
- (x) Rehabilitation and Resettlement (R&R) of project affected families, as may be required; and
- (xi) Any other activity incidental to the above activities.

1.3 Operation and Maintenance (O&M)

Following the Improvement Works Completion, RIDCOR has undertaken the following works as part of their Operations and Maintenance of Project Assets:

(i) Operation

- (a) Allow users to access the project road and ensure uninterrupted flow of traffic, upon payment of User fee;
- (b) User fee collection and other revenue generating activities as contained in Partnership and Development Agreement (PDA) Article 2.1;
- (c) Levy and collect O&M fees and other appropriate charges, including but not limited to upfront development/capital costs and carrying charges, from various service providers;
- (d) Buy/sell earmarked lands or issue suitable negotiable instruments related to the same as part of land banking; and
- (e) Any other activity that may be incidental to the above activities

(ii) Maintenance

Carry out all maintenance related activities, including but not limited to normal and routine and periodic maintenance (overlays, renewals and replacements), upgradations, special repairs, emergency works, etc. based on applicable standards as mutually agreed and as varied from time to time, as per prudent utility practices

(iii) Value Added Services

- (a) 24 Hour Accident Relief and Trauma Care/Ambulance Services
- (b) Round-the-clock Highway Patrolling
- (c) Emergency/SOS Helpline facilities at regular intervals (say every 2 Km)
- (d) Vehicle break down/Tow away services (on call)
- (e) Develop, participate and support environmental, community development/ social and tourism initiatives along the Right-of-Way and in the adjoining villages/inhabited areas

- (f) Introduce/adopt new/additional features on the Project Roads, including but not limited to:
 - i) Provision of landscaped features/installations;
 - ii) Provision of additional way-side amenities, shops, kiosks, restaurants and similar road user services;
 - iii) Installation of structures/services/system such as help-line, other communication systems, etc along the project road at suitable intervals to enhance road user safety and emergency management;
 - iv) Develop, establish and display hoardings/ billboards/ advertising signboards and other information panels.

1.4 Status of Project Corridors Achieved

(i) **Phalodi to Pachpadra (PR-1)**

Substantially completed in April 2007 (within the scheduled period of 15 months) and well ahead of the 24 months period contemplated in the PDA. Independent Engineer issued a Partial Completion Certificate for PR-1 package with Improvement Works completion on 10.4.07. Tolling started on 15th June, 2007.

(ii) **Pachpadra to Ramji Ki Gol (PR-2)**

Substantially completed on November 30, 2007 and dedicated to the nation on 15th December 2007 by Hon'ble Chief Minister, Rajasthan. Tolling started on 28th December, 2007.

(iii) **Hanumangarh to Ratangarh (HK-1)**

Substantially completed on December 31, 2007, well ahead of the 24 months period stipulated in the PDA and dedicated to the nation on 10th April 2008 by Hon'ble Chief Minister, Rajasthan. Tolling started on 28th February, 2008.

(iv) **Ratangarh to Kishangarh (HK-2)**

Substantially completed on December 31, 2007, well ahead of the 24 months period stipulated in the PDA and dedicated to the nation on 10th April, 2008 by Hon'ble Chief Minister, Rajasthan. Tolling has started on 28th February, 2008.

(v) **Alwar to Sikandra (AS)**

Substantially completed in April, 2007 and 4 Nos. RoBs & bypasses also since completed and opened to traffic.

(vi) **Lalsot to Kota (LJ-1)**

Work completed and the road opened to traffic in 2009.

(vii) **Baran to Jhalawar (LJ-2)**

Substantially completed in February, 2008, and opened to traffic. Tolling started on 15th April, 2008. The stretch has been opened to traffic.

1.5 Major Districts of Rajasthan State covered by Project Packages

The Project roads pass through 386 towns/ villages spread over 13 districts of the State.

Package Name	Package ID	District-wise Length	No. of Towns/ Villages	No. of People Impacted
Phalodi to Pachpadra	PR-1	Jodhpur (109 km), Barmer (45 km)	30	339,060
Pachpadra to Ramji Ki Gol	PR-2	Barmer (138 km)	28	190,440
Hanumangarh to Ratangarh	HK-1	Churu (102 km), Hanumangarh (98 km)	73	346,820
Ratangarh to Kishangarh	HK-2	Ajmer (38 km), Nagaur (117 km), Churu (52 km)	68	682,440
Alwar to Sikandra	AS	Dausa (28 km) Alwar (53 km)	61	597,780
Lalsot to Kota	LJ-1	Kota (2.5 km), Bundi (100 km), Tonk (2.5 km), SWM (70 km), Dausa (20 km)	94	920,000
Baran to Jhalawar	LJ-2	Kota (8 km), Baran (19 km), Jhalawar (51 km)	32	305,160
		14 Districts	386	3,381,700

1.6 Impact on Quality of Life

- (i) Improvement of these roads is leading to development, participation and supporting environmental and community developmental/social initiatives along the Right-of-Way and in the adjoining villages/inhabited areas.
- (ii) Value added services would introduce/adopt new/additional features on the Project Roads, including but not limited to:
 - (a) Provision of landscaped features/installations
 - (b) Provision of additional way-side amenities, shops, kiosks, restaurants and similar road user services.
- (iii) Emergency/SOS Helpline facilities at regular intervals
- (iv) Better transport facilities to/from work/business, medical facilities and centers with time & cost savings.

1.7 Employment Generation

The proposed road project enhanced the employment activities of the project area as it engaged the local people for the construction purpose to the extent possible. The impacts of the project on employment generation are positive.

1.8 Improvement in Productivity

Development of these roads is not only saving the travel distances of inter-state traffic with considerable savings in Vehicle Operating Cost (VOC), but also the hinterland of these corridors is opened to large scale economic and social development. Especially, the tourism industry in the state will get a new boost with construction of good quality roads along these corridors.

1.9 Benefits to Government of Rajasthan (GoR)

- (i) Road to an extent of 1053 kms is developed
- (ii) Investment of about Rs 1500 crores in infrastructure is mobilised through private sector participation
- (iii) Major thrust to infrastructure development in 24 months period
- (iv) High Quality service level in Road is ensured
- (v) Huge savings of about Rs 3000 crores in maintenance of Road for 30 years
- (vi) Government's investment gets return on equity @ 15% p.a.
- (vii) Government's support of Rs 240 crores is paid back
- (viii) Surplus available in the Project is paid to Government

1.10 Benefits to Road Users

(i) Direct Benefits

The proposed road improvements as implemented would benefit road users directly in the form of:

- (a) Vehicle operating cost savings due to increased speed and better road quality
- (b) Savings in travel time due to increased speeds
- (c) Reduced accidents due to the presence of sufficient road signs and other road safety furniture
- (d) Other intangible benefits such as increased comfort, improved aesthetics

(ii) Indirect Benefits

In addition to the direct impact, indirect social benefits include:

- (a) Improvements in health and education of local population in influence area
- (b) Appreciation in value of land adjacent to roads
- (c) Improvements in agriculture, industry, mining, trade
- (d) Improvements in environmental standards

1.11 Spin-off Effects in related/other areas

(i) **Development of Road Network**

The North-South road corridors under the Project will attract the traffic plying on other competing routes, thereby creating enormous potential for developmental activities in the area including scope for improvement of cross connecting interior roads network for better communication and boosting the economy of these areas.

(ii) **Development of Other Areas**

(a) **Industries**

A large number of small-scale industrial units have come up across the state, over and above several medium/large industrial units. Improved Project roads will boost up these industries by way of improved and more economical transportation of goods, mobility of workers, time saving etc.

(b) Tourism

The state is one of the most favoured tourist destinations of India for both domestic & international traffic on account of historical forts, palaces, art and culture. Due to improved Project roads, the tourism industry will grow faster by way of generating employment and developing a ready market for the rich and varied handicrafts and will contribute significantly to socio-economic development of the state by making tourism a truly People's Industry in Rajasthan.

(c) Agriculture

By way of improved Project roads, transportation of agricultural produce, particularly perishables, to the nearby markets and mandies of the area as well as adjoining districts/centres of growth will become much easier, time saving and more economical due to savings in vehicle operating costs.

2. RESEARCH

(based on a definite proposition)

2.1 Project Background

- (i) The Government of Rajasthan (GoR) is pro-actively improving the State's infrastructure to boost its industrial and economic growth, with the aim of fully leveraging the State's locational advantage and its enormous tourism and business potential. Towards this, GoR has embarked on an ambitious programme to create world-class infrastructure facilities in the State of Rajasthan with the aim of making it the most favoured investment and tourism destination in the country.
- (ii) As part of this vision, GoR has conceptualized a comprehensive road improvement programme titled 'Mega Highways Project' envisaging improvement to important North-South road corridors aggregating a total length in excess of 1,000 km to two lane paved/hard shoulder configuration at an estimated cost of over Rs. 1500 Crore. The identified roads include Phalodi to Ramji-Ki-Gol, Hanumangarh to Kishangarh, Alwar to Sikandra, Lalsot to Kota and Baran to Jhalawar. These roads provide alternative and more efficient connectivity to National Highways and are expected to witness substantial traffic diversion. The development of these roads is expected to significantly enhance Rajasthan's attractiveness as an investment destination and could serve as a blue print for similar road development projects across the country.
- (iii) The Mega Highways Project is an important milestone in the development of Rajasthan into a preferred destination. Infrastructure Leasing & Financial Services Ltd. (IL&FS) with its extensive expertise in developing similar road Projects in other States has actively associate with the State Government of Rajasthan in positioning the Mega Highways Project as an Iconic Infrastructure Project in the country.

2.2 Project Framework

- (i) GoR is particularly interested in:
 - (a) Leveraging the budgetary resources of the State Government to attract private capital in road projects.
 - (b) Efficient utilization of these funds to create good quality road assets without cost and time overruns.
 - (c) Establishing appropriate systems and contractual structures for effective operations and maintenance of the road assets.
 - (d) Creating incentives for design, construction and operation and maintenance mechanisms that are aimed at minimizing "full life cycle costs".
- (ii) GoR has implemented the Project through the Public Private Partnership (PPP) framework in partnership with IL&FS and has set up a 50:50 Joint Venture Company under the name and style of Road Infrastructure Development Company of Rajasthan Ltd (RIDCOR)

- (iii) GoR, IL&FS and RIDCOR have entered into a Partnership and Development Agreement (PDA) in August 2005 for the improvement of the following selected Project road corridors:

Description	Length (km)
Phalodi to Ramji-ki-Gol	292
Hanumangarh to Kishangarh	407
Alwar to Sikandra	81
Lalsot to Kota	195
Baran to Jhalwar	78
Total	1053

2.3 Model PPP : Public-Private-Participation

The cost of Mega Highways Project estimated at Rs 1,500 Crores has been funded by an innovative financing plan. The Project is unique and one of its kind in the road sector in the country since, it is proposed to develop such long stretches of road under the PPP model for the first time, wherein the projected revenue stream is essentially predicated on diverted traffic

(i) PPP Structure

- (a) The PPP process is extremely dynamic
- (b) Particulars of most arrangements are tailored to the specific project requirements
- (c) There can therefore be no one generic or 'best' model of PPP structure. Commercial viability is neither necessary nor sufficient for success of PPP

(ii) PPP Approach

- (a) Goal
 - Attract private capital and efficiency for infrastructure projects
- (b) Need
 - Lack of Budgetary Resources
 - Need to improve efficiency in service delivery
- (c) PPP Approach
 - Private sector contribution for:
 - Financial investments
 - Management practices
 - Efficiency in service delivery
 - Public Sector contribution limited to:
 - Financial gap funding
 - Providing institutional commitment to project
- (d) Advantages
 - Attracts market investments and leverages limited Public Finances
 - Develop & execute more projects on sustainable basis
 - Reduces cost to public sector
 - Improves service delivery and efficiency

3. COMPLEXITY

3.1 Project Design

Background

The Mega Highways Project is a user fees/ toll based Project implemented across the various Project stretches over a 24 month timeframe.

(a) Project Roads

For easier identification and management of Project execution, the Project Roads have been divided in terms of the proposed Integrated Improvement-cum-Maintenance Contract (IIMC) packages and their respective lengths are as follows:

Package ID	Package Name	Length (km)
PR-I	Phalodi to Pachpadra	154
PR-2	Pachpadra to Ramji Ki Gol	138
HK-I	Hanumangarh to Ratangarh	200
HK-2	Ratangarh to Kishangarh	207
AS	Alwar to Sikandra	81
LJ-1	Lalsot to Kota	195
LJ-2	Baran to Jhalawar	78
	Total	1053

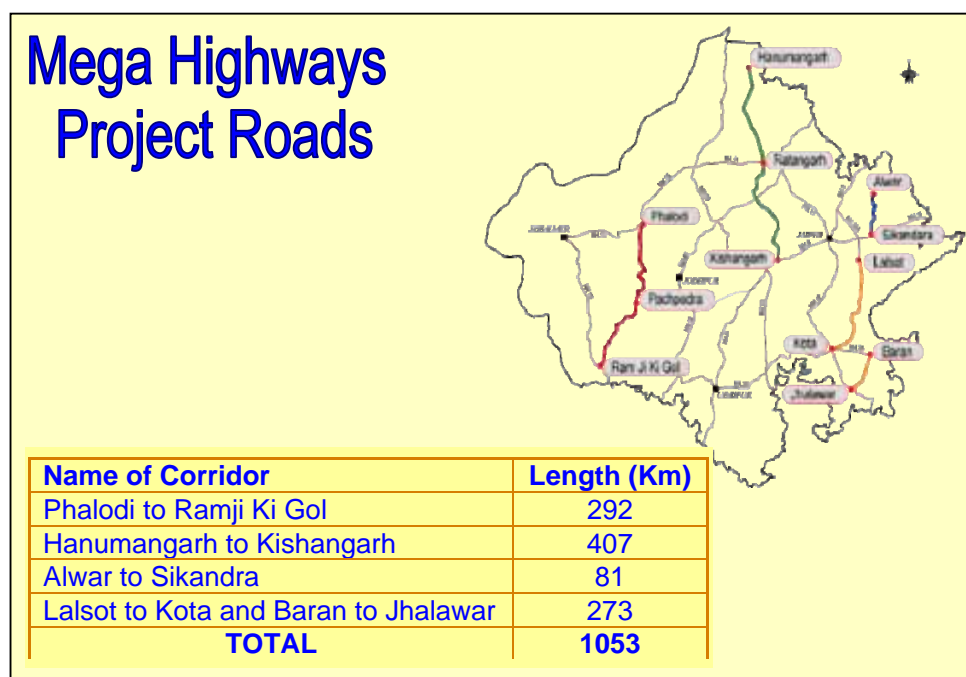
(b) Basis of Selection of Corridors

In terms of area, Rajasthan is the biggest state in India. Traffic from the Northern States of the country traverse through Rajasthan for reaching their southward destinations. Similarly, traffic from southern states of India traveling towards north Indian destinations pass through the State of Rajasthan. The road corridors being used by this traffic presently are NH-8, NH-11, NH-12, NH-14 and NH-15. By using these national highway corridors, vehicles are required to travel substantially longer distances to reach their destinations. Considering this aspect and strategic location of the state of Rajasthan, GoR conceptualized the idea for development of linking roads for connectivity from North to South. Four road corridors (vide map given below) aggregating to more than 1000 Kms were earmarked for development to world class standards under the project titled 'Mega Highways Project'.

Presently, these road corridors are classified as State Highway roads. Development of these roads is not only saving the travel distances of inter state traffic with considerable Vehicle Operating Cost (VOC) savings, but also the hinterland of these corridors is now opened to large scale economic and social development. Especially, the tourism industry in the state will get a new boost with the construction of good quality roads along these corridors.

As part of the 'Mega Highways Project', GoR has improved the following important North-South road corridors/road stretches, aggregating a total length of 1,053 Km to

two lanes with paved and hard shoulder configuration including provision of by-passes, ROBs and geometric improvements, wherever found economically feasible.



(c) Project Timelines

Assumptions regarding the commencement and completion of various activities under the framework of Partnership and Development Agreement (PDA) are as follows:

Description	Period	Date
PDA Execution Date	-	07-Aug-2005
Improvement Works Commencement Date	Within 90 days of PDA execution	01-Oct-2005
Project Period (including Improvement Works Period)	32 years from Improvement Works Commencement Date	October 01, 2005 - September 30, 2037
Improvement Works Period	Maximum upto 24 months	October 01, 2005 – September 30, 2007
Pre-commissioning Period	6 months from Improvement Works Completion Date	-
Trial Operations Period	Period immediately following Pre-commissioning Period till a maximum of 30 months after Improvement Works Commencement Date	-
Improvement Works Completion Date	-	01-Oct-2007
Operations Date	Maximum of 30 months from Improvement Works Commencement Date	01-Apr-2008
Stabilisation Period	5 years from Operations Date	01-April 2008 to 31-March-2013
Operations Period		29½ years

(d) Scope of Work

RIDCOR executed the improvement works as 'item rate contracts' while the maintenance works are conducted on a lumpsum fee basis. The indicative scope of work includes the following but is not limited to:

- Improvement Works
 - Widening/strengthening of existing carriageway to two lane paved/hard shoulder configuration
 - Formation of bypasses, as may be required and feasible, subject to availability of required Right of Way (RoW)
 - Construction/repair of major/minor bridges, culverts and other drainage structures
 - Construction of ROBs and flyovers as found necessary and feasible
 - Junction improvements, signaling and lighting
 - Provision of adequate road furniture such as:
 - Metal beam crash barriers at high embankments, curves and bridge approaches, as found necessary
 - Retro-reflective road signages including Overhead Gantries and Cantilevers
 - Cat's Eyes and Delineators
 - Road markings with retro-reflective thermoplastic paint
 - Construction of User Fee Plaza(s) and Office complexes
 - Construction of bus-bays, passenger shelters and truck lay-byes
 - Provision of landscaping and arboriculture
 - Rehabilitation and Resettlement (R&R) of project affected families
 - Any other activity incidental to the above activities
- Maintenance

RIDCOR is obligated to carry out all maintenance related activities, including but not limited to normal and routine maintenance, overlays, renewals and replacements, upgradations, special repairs, emergency works, etc. based on applicable standards as mutually agreed between Government of Rajasthan (GoR) and Road Infrastructure Development Company of Rajasthan Ltd. (RIDCOR) and varied from time to time, and as per prudent utility practices
- Operations
 - Allow users to access Project roads and to ensure uninterrupted flow of traffic upon payment of user fee as specified in the PDA
 - Levy and collect O&M fees and other appropriate charges, including but not limited to upfront development/capital costs and carrying charges, from various service providers
 - Buy/Sell earmarked lands or issue suitable negotiable instruments related to the same as part of land banking
 - Any other activity that may be incidental to the above activities

- Value Added Services
 - 24 hour Accident Relief and Trauma Care/Ambulance Services
 - Round-the-clock Highway Patrolling
 - Emergency/SOS helpline facilities at regular intervals
 - Vehicle break down/Tow away services
 - Develop, participate and support environmental, community development/ social and tourism initiatives along the Right-of-Way and in the adjoining villages/inhabited areas
 - Introduce/adopt new/additional features on the Project roads, including but not limited to:
 - Landscaped features/installations
 - Additional wayside amenities, shops, kiosks, restaurants and similar road user services
 - Installation of structures/services/systems such as help lines, other communication systems, etc along the Project roads at suitable intervals to enhance road user safety and emergency management
 - Develop, establish and display hoardings/billboards/ advertising signboards and other information panels

(e) Major Districts Covered by the Packages

The Project roads pass through 13 districts of the State and there are 386 towns/ villages enroute. Details are as provided in the following table:

Package ID	District-wise Length	No of Towns/ Villages
PR-1	Jodhpur (109 km), Barmer (45 km)	30
PR-2	Barmer (138 km)	28
HK-1	Churu (102 km), Hanumangarh (98 km)	73
HK-2	Ajmer (38 km), Nagaur (117 km), Churu (52 km)	68
AS	Dausa (28 km) Alwar (53 km)	61
LJ-1	Kota (2.5 km), Bundi (100 km), Tonk (2.5 km), SWM (70 km), Dausa (20 km)	94
LJ-2	Kota (8 km), Baran (19 km), Jhalawar (51 km)	32
	14 Districts	386

(f) Originally existing status of the roads

The road stretches, as originally existing, had varying widths with about 26% of the total being 3.5m, 43% being 5.5m and 7% being 7m. Remaining 16% i.e., length of

173 km was proposed to be newly constructed either for improving the geometrics or constructing new by-passes. The details are as follows:

Package ID	3.5 m	5.5 m	7.0 m	New Construction	Total Length (km)
PR-I	32	83	27	12	154
PR-2	75	30	8	25	138
HK-I	0	155	12	33	200
HK-2	6	77	62	62	207
AS	4	15	44	18	81
LJ-1	121	60	1	13	195
LJ-2	36	30	2	10	78
Total	274	450	156	173	1053

(g) ROBs, Bypasses and Major Bridges

There are a total of 11 ROBs and 3 major bridges in the 7 packages. There are 30 bypasses aggregating to a length of 123.46 km. Details are as follows:

Package ID	ROBs	Major Bridges (New)	Bypasses	Length of Bypasses (km)
PR-I	-	-	1	2.68
PR-2	1	2	1	14.60
HK-I	2	1	-	-
HK-2	1	-	7	43.63
AS	4	-	3	18.30
LJ-1	3	-	6	26.50
LJ-2	-	-	12	17.75
Total	11	3	30	123.46

(h) Road User Facilities

In order to cater to road user requirements and to provide high quality service, 94 Bus-bays, 27 truck lay-byes, SoS Phone facility at every 2 km interval and 16 Toll plazas have been provided. The package wise details are as follows:

Package ID	Bus-bay	Truck Lay-bye	Helpline Kiosks	Toll Plazas
PR-I	6	3	75	2
PR-2	8	3	68	2
HK-I	35	2	100	3
HK-2	15	4	100	4
AS	12	2	40	2
LJ-1	12	9	97	3
LJ-2	6	4	39	1
Total	94	27	519	17

(i) Improvement of Geometrics and Drainage

Improvement of the geometrics and drainage conditions along the road has been made as another major component of the improvement works. To achieve this, about 391

sharp curves have been improved, 95 major intersections widened, 737 drainage works either newly constructed or widened. Details are as follows:

Package ID	Sharp Curve Improved	CD works (new+widened)	Intersections Major	Intersections Minor
PR-1	53	60	11	57
PR-2	15	76	7	32
HK-1	56	98	8	85
HK-2	33	57	30	98
AS	50	88	15	39
LJ-1	95	226	14	80
LJ-2	93	132	10	-
Total	395	737	95	391

(j) Physical Possession, Statutory Approvals & Clearances

GoR handed over the required physical possession of the Project sites without any encumbrances together with necessary Right of Way (RoW) for implementing the Project in accordance with the PDA.

Necessary statutory approvals and clearances were obtained from concerned Government Departments/Organizations.

(k) Integrated Improvement-cum-Maintenance Contract (IIMC)

As per the PDA, RIDCOR was required to commence the improvement works within 90 days of signing the Agreement. Towards this, RIDCOR developed a comprehensive Integrated Improvement-cum-Maintenance Contract for the Mega Highways Project. Under this contract arrangement, selected Contractors would be made responsible for implementing improvement works and also maintenance and upkeep of the Project roads for a period of 5 years.

The improvement works were structured on a unit rate framework whereas the maintenance works are to be paid on lumpsum basis and are performance based and output linked. This mechanism provided an inherent incentive to the Contractor to implement the improvement works to high quality standards so that the maintenance commitments during the subsequent five years could be optimized.

RIDCOR initiated a comprehensive transparent two stage bidding process for selection of the improvement-cum-maintenance works contractor. The qualification process was completed in March 2005. In all, 62 firms participated in the qualification out of which 13 to 18 firms were qualified for respective packages.

The invitation process for financial proposal was completed by the third week of September 2005 and the works could commence by October 2005.

In order to ensure timely completion of improvement works, adequate penalties and incentives have been built into the contract structure. Also, payments for maintenance works are linked to the performance of the Contractor(s) so as to ensure that the Contractor(s) discharge their obligations without any default. Performance Security in the form of bank guarantee equivalent to 10% and 5% of the improvement works are to be furnished by the Contractor(s) during the improvement works and maintenance period respectively.

Upon completion of 5 years of maintenance, the RIDCOR could consider extending the arrangement with the selected Contractor(s) or would invite fresh proposals from potential maintenance contractors.

RIDCOR also engaged Supervision and Monitoring Consultant(s) for each package to assist it in monitoring the performance of the Contractor(s).

3.2 Environmental Safeguards

Environmental Monitoring Plan (EMP) for Construction and Maintenance Phases were in place for:

- (i) Ambient Air Quality
- (ii) Noise Quality
- (iii) Water Quality
- (iv) Soil Quality

To implement the EMP, an Environmental Management Cell (EMC) was constituted before start of the construction work to undertake environmental monitoring and audits during construction and operation phases of the project and will check that environmental management measures are satisfactorily implemented with appropriate environmental performance. Specialized on-site training was imparted to construction engineers, contractors, staff and workers for effective implementation of the suggested EMP.

3.3 Rehabilitation & Resettlement

3.3.1 Land Acquisition

The land acquisition was not required much as the strengthening has been done mostly within the available land. However, marginal land had to be acquired in the realignment and bypass locations. This caused changes in the land use pattern of the area. Major portions of the land acquired were used for grazing purposes. The displacement of these lands affected the local livestock. Construction of bypass and highway realignments involved extensions to the right-of-way (ROW), which typically required the acquisition of private property. The acquisition of land resulted in the following losses:

- Productive agricultural soils and operating farms;
- Community space (common gathering places, Choupal);
- Private properties, residences and businesses and amenities'

As per government policy, affected people were (a) compensated for their loss at full replacement cost, (b) assisted in the move and supported during the transition period, and (c) assisted in their efforts to improve their living standards, income earning capacity and production levels, or at least to restore them.

3.3.2 Land Use Changes

Changes in land use mostly occurred in the bypass segments, as increased roadway access increased the desirability of the land for purposes such as residential and commercial/industrial development. The increased attractiveness for these uses resulted in increased land values, which in turn lead to land speculation. The availability of cheaper labour in the rural areas combined with increased access to urban markets resulted in significant changes to land use and community dynamics in the areas that were previously deserted.

Mitigation Measures

A Resettlement Action Plan (RAP) was developed for the project which detailed the specific losses anticipated as a result of the acquisition of private properties for ROW expansion and realignments (e.g. bypasses). In addition to financial compensation for property acquisition, government practices also included financial compensation for lost business (e.g. revenues from agriculture) and moving expenses.

The compensation rates awarded by the Government of Rajasthan for land acquired were based on the registered price of land in respective areas over the past three years. Accordingly, the revenue department has declared compensation at the rate of Rs. 2,000/- to Rs. 80,000/- per Bigha which works out to approximately to Rs. 12,360/- to Rs. 1,70,154/- per hectare for landholdings. In addition to this amount, a solatium at 30 per cent and the interest at 12 percent per annum on the land value since the date of Notification Section 4(1) are given.

3.3.3 Monuments / Historical Areas

There are no monuments/historical features in the immediate study area of project roads. However there are many temples and religious structures located within vicinity of the study area, most of which are located adjacent to the road (within 50 m). Most of the temples/mazars etc. are small, and are located outside the proposed ROW. As a result the amount of relocation was limited.

Operation Phase

Traffic volumes and vehicle speeds, as expected, increased after the improvement/widening. Widening of the roadway / ROW resulted in alterations to access roads / driveways to religious properties, shrines and other religious structures. In addition, access and egress from these access points became more difficult due to increased vehicle movements and speeds. This in turn resulted in increased risk of collisions, especially at night.

Mitigation Measures

All community assets were replaced and cultural properties were conserved by means of special protection and relocated or replaced in consultation with the community. Places of worship that are affected were relocated in consultation with the local community and where the location was not viable the project went for a change in the road alignment.

3.3.4 Health, Safety and Hygiene of Construction Workers

The most significant impact of the project on public health arose from construction camps. These camps housed up to 200 people for a period of 24-30 months. Given this concentration of people, the potential for disease and illness transmission increased, but was closely guarded against.

Mitigation Measures

Construction workers were fully trained and provided adequate safety measures such as safety helmets, safety boots, earplugs, and gloves. Construction workers were also provided ready access to on – or off-site health care facilities to reduce the transmission of infectious diseases, and provided first aid for minor injuries.

3.3.5 Impacts to Indigenous Communities

There are few scheduled tribes communities living in villages reported all along the project road. These persons rely primarily on animal husbandry for their main source of income,

and follow a traditional subsistence lifestyle. Vulnerable persons whose source of income is affected were employed on the project as far as possible.

3.3.6 Other Measures

- (i) Afforestation – 2 times the number of trees cut
- (ii) Culverts/minor bridges provided in order to drain out excess water during rains for preventing flooding
- (iii) Latest world class machineries used e.g. Batch type Hot Mix Plants which have Bag filter house facilities which help in capturing extra dust generated during preparation of hot Bituminous mixes
- (iv) The dust is hazardous hence these were further used in preparation of different mixes in suitable proportions for building up the road crust
- (v) Regular testing of various pollution parameters are conducted and necessary measures to control them were undertaken at the locations where the permissible limits are exceeded. (e.g. Sprinkling of water at crusher site for reducing suspended particles)
- (vi) Retaining walls etc. were constructed in order to prevent spreading of dunes
- (vii) EMP was made part of the contract, where EPC contractors were given the responsibility of implementation of EMP as per guidelines prescribed in the Contract

3.4 Disaster Recovery Management

3.4.1 In the event of occurrence of a disaster, such as flood, famine, water scarcity, earthquake, epidemics etc., the following set-up/arrangements are mobilized to meet the situation effectively and provide relief to the affected people:

- (a) Disaster Management Cell of State Level
- (b) District-level Disaster Management Cells under chairmanship of Collector
- (c) Reserve police and Home Guards for rescue operations
- (d) NGOs and voluntary organizations for relief operations

3.4.2 Provision for Insurance

Insurance requirements in the Works Contract were as under:

S. No.	Description of Cause	Minimum Cover of Insurance
(i)	Loss or damage to Works, Plant and Material for full replacement value	Contract Price + 15%
(ii)	Loss or damage to Equipment	Sum sufficient to provide replacement at site
(iii)	Loss or damage to Property, other than (i) and (ii) above, in connection with the Contract	Rs 2 Crore
(iv)	Personal injury or death insurance. Unlimited number of occurrences. After each occurrence, Contractor will pay additional premium necessary to make insurance valid for unlimited occurrences always	Rs 5 Lacs per occurrence for unlimited nos.
(v)	Against liabilities for death or injury to any person or loss of or damage to any property	In accordance with statutory requirements, applicable in India.
(vi)	Loss or damage to works during Maintenance Period	Contract Price + 15%

3.4.3 RIDCOR to Maintain Insurance

- (a) RIDCOR has been required to maintain insurance policies at its own expense from thirty days from the Improvement Works Commencement Date
- (b) The premiums payable on insurance coverage including costs and expenses incidental to the procurement and enforcement of such insurance coverage would be accounted as expenses for the Project and would, prior to the Operations Date be included in the Project Cost and thereafter as O & M Expenses.

3.5 **Performance Monitoring & Feedback for Improvement**

Independent Engineer

The Partnership and Development Agreement (PDA) envisages that the Independent Engineer would, during the Project Period, inspect the Project Site at regular intervals to determine the progress of Improvement Works and operations and maintenance of the Facility and the extent of compliance with technical requirements and standards and Prudent Utility Practices.

The Independent Engineer would ensure that his inspections does not unreasonably impede or interfere with the design, construction, improvement, operation and maintenance of the Facility. The Independent Engineer would submit suitable reports to the GoR, RIDCOR and lenders.

3.6 **Independent Auditor**

The Partnership and Development Agreement (PDA) envisages the Independent Auditor to certify costs, expenses and charges during the Project Period and other activities incidental thereto.

3.7 **Review Committee to monitor Consultant's Works and Review Reports**

A review committee consisting of the following and other officers, as may be nominated from time to time, would review the progress of the work and the reports to be submitted by the Consultant including compliance of comments provided by ITNL/RIDCOR.

- (a) Managing Director – Chairman
- (b) Chief Project Officer/Vice President – Member
- (c) Project Manager – Member
- (d) To be nominated – Member
- (e) To be nominated – Member

Procedure for Review of Reports

The Review Committee would review the reports submitted by the Consultant, give suggestions and modifications, if any, within three weeks of receipt and would have sole authority to approve the reports.

Review Committee would also hold meeting with the Consultant as necessary to discuss reports submitted and review the progress etc

3.8 Citizens' Committee

- (a) RIDCOR would establish a Citizens' Committee (CC) to obtain suggestions, feedback and/or inputs for further improving/enhancing the quality of Service on the Project Facility, so as to retain its world-class character.
- (b) The Citizens' Committee would consist of not less than five members comprising eminent persons, experts and prominent citizens preferably from amongst the road users. The CC would, inter-alia, deliberate on issues pertaining to quality of service and facilities available and recommends suitable strategies thereto.
- (c) The Citizens' Committee would, however, not be involved in any administrative and operational matters, for example, relating to determination of User Fee for a particular vehicle category and classification thereto.

4 INNOVATION

(brand new project or local initiative)

4.1 Promoters

4.1.1 Government of Rajasthan

Rajasthan is one of the largest states in India. Covered in large parts by the Thar Desert and the Aravali hills, it is a state rich in history, culture, heritage, beauty and natural resources. The state is spread over a total area of 342,239 sq km. Local Government is based on 32 administrative districts grouped into 7 divisions.

Approx 23.4% of the population of Rajasthan resides in cities and like in most other states in India a large percentage of the population is involved in agriculture as a means of livelihood.

Rajasthan is well endowed in terms of natural resources and the state has large deposits of zinc, copper, gypsum, lignite, mica, etc. A large number of small-scale industrial units have come up across the state and the state's rich natural resource base is now being proactively tapped by the local industry. Rajasthan also has a large production base for cotton and textile industries.

Tourism is another major industry in Rajasthan. The state is one of the most favoured tourist destinations in India for both domestic & international traffic on account of its historical forts, palaces, art and culture. GoR is proactively pursuing improvement in infrastructure across the state.

4.1.2 Infrastructure Leasing & Financial Services Ltd. (IL&FS)

IL&FS is a premier financial services institution focused on developing infrastructure projects on a commercial basis. IL&FS was incorporated in 1987 and commenced operations in 1988. The key promoters of IL&FS include Central Bank of India (CBI), Housing Development Finance Corporation Ltd (HDFC) and Unit Trust of India (UTI).

The IL&FS group of companies, have successfully collaborated with several other State Governments including Andhra Pradesh, Goa, Gujarat, Himachal Pradesh, Karnataka, Kerala, Tamil Nadu and Uttar Pradesh to assist the State Governments in structuring, developing and implementing infrastructure projects under Public Private Partnership (PPP) formats.

IL&FS also has the requisite know-how and skill to develop road projects, identify prospective promoters, undertake mobilization of financial resources from both the domestic financial institutions and multilateral agencies and offer specialized services inter alia in the areas of Operations and Maintenance, Toll Management and other services relating to infrastructure projects.

Organisationally, the IL&FS Group has evolved along routes perfectly configured to business requirements. Technical support and service groups provide specialised expertise. Project development and sectoral companies house the ability to seed initiatives and carry them through to completion. Strong core skills - key to successful project development and project financing across sectors - have been developed within the Group. These have aided IL&FS in spreading its expertise across a variety of sectors, nationwide.

4.1.3 Road Infrastructure Development Company of Rajasthan Ltd. (RIDCOR)

- (a) GoR is cognizant of the fact that developing an implementation methodology for a large road development programme would involve mobilization of financial resources and developing “bankable projects” capable of attracting the interest of investors/lenders, contractors and operators and is a complex and time-consuming exercise.
- (b) With an increasing number of projects proposed to be implemented/maintained under a public-private partnership framework, a need was felt to evolve efficient management systems for conceptualization, implementation and management of these projects.
- (c) In consideration of the above, GoR and IL&FS decided to set up Road Infrastructure Development Company of Rajasthan Ltd (RIDCOR) as a 50:50 Joint venture company for developing and implementing the identified projects under the PPP umbrella and carry out other activities required for implementation of its road infrastructure initiatives.
- (d) Pursuant to this, a company in the name and style of Road Infrastructure Development Company of Rajasthan Ltd (RIDCOR) was incorporated in October 2004.
- (e) RIDCOR has been primarily formed for implementing and supporting the comprehensive road improvement programme of Government of Rajasthan titled the ‘Mega Highways Project’. The company’s registered office is at First Floor, LIC Jeevan Nidhi Building, Bhawani Singh Marg, Jaipur – 302 005.

4.2 Shareholder’s Agreement

4.2.1 Considering the public private partnership framework of the project, the stakeholders in the project i.e. Government of Rajasthan and IL&FS entered into a shareholder’s agreement to outline the partnership framework.

4.2.2 The salient features of the agreement are

- Both parties to hold 50:50 equity in the Company at all times
- Transfer of shares by either parties to have prior approval of the other
- In no case would the shareholding of either parties go below 26%
- Transferee of shares to be bound by the terms of the agreement and to sign a deed of adherence
- GoR and IL&FS to have equal representation on the Board of the Company
- GoR to nominate Chairman of the Board and Chairman to have second and casting vote
- MD/CEO to be appointed by IL&FS in consultation with GoR
- One Director from GoR and IL&FS necessary to form quorum for Board meetings
- Management of the day to day affairs to vest with MD/CEO

4.3 Partnership & Development Agreement

4.3.1 The Partnership & Development Agreement (PDA) was signed on August 7, 2005 between Government of Rajasthan (GOR), Road Infrastructure Development Company of Rajasthan Ltd (RIDCOR) and Infrastructure Leasing and Financial Services Ltd (IL&FS).

4.3.2 Salient features of the PDA are as follows:

(a) Authorisations to RIDCOR

RIDCOR has been authorised the following during the Project Period:

- To develop, design, engineer, finance, construct, establish/repair, rehabilitate, improve, upgrade, manage, operate and maintain the Project roads
- To enjoy complete, uninterrupted, unencumbered and peaceful possession and control of the Project Site and its right of way and manage, operate and execute all rights over the project assets
- To demand, collect by way of use fees/ toll from users of the Project roads from the Pre Commencement Period
- To develop, establish and display hoardings/billboards/ signboards and other information panels
- To develop, finance, improve, own, manage, operate, and maintain wayside amenities and landscaped areas
- To undertake 'land banking' by procuring parcels of land, through outright purchase or lease along Project Site and disposing them off, so as to capture the appreciation in their value on account of the Project

(b) Obligations of RIDCOR

The key obligations of RIDCOR are as follows:

- Commencement of improvement works within 90 days of execution of PDA
- To Arrange and procure firm Financing commitments from Lenders/ Investors and achieve Financial Close within 180 days from date of signing the PDA
- To undertake to achieve Substantial Completion within 24 months from the Improvement Works Commencement Date
- To organise supervision, monitoring and control of the improvement works and to operate, manage and maintain the Facility
- To levy and collect fees from users of the Project Roads at the rates set forth in the fee notifications
- To undertake 'land banking' wherever feasible, and to utilise the proceeds thereof, as certified by the Independent Auditor
- To open and maintain Financial Security Support Fund (FSSF), during the Pre Commencement Period by crediting the Project Revenues earned during this Period. Monies credited into the FSSF shall be available for meeting the deficit during the Operations period

(c) Obligations of GoR

The key obligations of GoR are as follows:

- To handover, within 120 days from the date of signing the PDA, encumbrance-free Project Site including required right of way for the Project Road and to authorise RIDCOR to carry out the activities.
- To arrange and disburse grant funds/interest free subordinate debt equivalent to 20% of the estimated Project Cost, subject to a maximum of Rs 240 Cr, in instalments for improving the viability/ feasibility of the Project, GoR would disburse:
 - Half of the amount due on or before September 30, 2005 provided the equity contributions from Government of Rajasthan and IL&FS have been made and in-principle debt tie up has been completed
 - The balance amount on or before June 30, 2006
- To issue within 30 days of signing of the PDA, a single User Fee Notification Order, applicable for the entire Project Period conferring on RIDCOR, the right to demand, collect, retain and appropriate User Fee from the users of the Project Facility.
- To provide necessary assistance for obtaining all clearances from Competent Authority as required for the Project
- To hand-over to RIDCOR, the Project Road/right-of-way maps, as-built drawings, site order books, other construction drawings, final certificate of completion and all test reports as available with regard to the existing Project Roads.
- To provide RIDCOR with access to all infrastructure facilities and utilities including water, electricity and telecommunication facilities.
- To open and maintain Financial Security Fund(s) (FSF), with a corpus of Rs 100 Cr for meeting the deficit during the Stabilisation Period. For this purpose, GoR shall issue the necessary administrative approvals and sanction within 30 days of signing this Agreement.
- To consider exemption from payment of taxes, levies, duties including stamp duty payable on this Agreement, Financing Agreements and other Project Contracts and such other payments stipulated by the State of Rajasthan.

5 COST EFFECTIVENESS

(economical in terms of the benefit gained for the money spent)

5.1 Project Financials

- (a) The estimated cost of the Project is Rs 1500 Crores to be expended within the improvement works period of 2 years. Both the promoters i.e. Government of Rajasthan and Infrastructure Leasing & Financial Services Ltd. paid-up their respective equity contributions of Rs 25 Crores each to the Company. Government of Rajasthan also sanctioned an interest free grant of Rs 240 Crores for the project. The Company achieved financial closure on November 23, 2005 and tied up with Banks/FIs for funding of the Project Cost. A consortium of bankers/FIs lead by Punjab National Bank committed to provide long term financial support of Rs 1100 Crores. Infrastructure Leasing & Financial Services Ltd. also committed to provide subordinate of Rs 110 Crores.

Source of Funds	Amount (in Rs Cr)
Equity Share Capital	
- GoR	25
- IL&FS	25
Interest-free Sub-debt from GoR	240
Sub-debt from IL&FS	110
Sub-Debt from Banks/ FIs	-
Term loans from FIs/Banks	1100
TOTAL	1500

(b) GoR Support to Project Finance

- Viability Gap Funding (VGF) assistance determined as Rs 240 crores, being 20% of Total Project Cost of Rs 1200 crores
 - NHAI/MORT&H guidelines stipulate 40%
- VGF for RIDCOR not a grant, but interest free subordinated debt
 - NHAI's assistance only in the form of capital subsidy/grant
- Project cashflows back-ended and hence VGF critical for mobilising cheaper debt and achieving timely Financial Close
 - Pre-tax Project IRR improves from 12.4% to 15.02%
- Disbursement of VGF to be in phased manner over implementation period and hence annual outflow not to exceed Rs 100 crores
 - Portion of State Road Fund considered adequate for this purpose

(c) Project Cost:

- Cost of Improvement Works to account for about 85% of Project Cost
 - Since cost of improvement works being a bid variable, competitive rates obtained
 - Cost of LA and R&R incurred by RIDCOR as against normal practice for BOT Projects

- Supervision charges capped to 4% of Project Cost as against 9-12% incurred by State Government Departments
- IL&FS being responsible for financial closure, mobilised funds at competitive rates facilitating reasonable levels of IDC
- Project development and pre-operative expenses much lower
 - RIDCOR positioned as a lean and efficient organisation
 - Extensive outsourcing to reduce overhead costs
- Items pertaining to more than 95% of the Project Cost were procured through competitive solicitation process
- Ownership and PDA structure to ensure that RIDCOR does not earn profits beyond a certain percentage during construction or O&M stage

S. No.	Particulars	Budgeted	
		Amount (Cr.)	%
1	Civil Cost of Seven Packages	1292	86.13%
2	Contingencies	6	0.40%
3	Land acquisition and related cost	34	2.27%
4	Financing cost	20	1.33%
5	Pre-operative Expenses	10	0.67%
6	Education & Social Initiatives	5	0.33%
7	Toll Plaza Automation & System	20	1.33%
8	Interest during Construction	50	3.33%
9	Agency charges	63	4.20%
Landed Project Total Cost (Cr.)		1500	100.00%

5.2 Means of Finance

(a) Equity and Subordinated Debt

- Equity for the Project brought upfront by GoR and IL&FS
- As per the PDA, GoR extended financial assistance of Rs 240 Cr as interest free sub-debt repayable after full repayment of senior debt
- Additional subordinated debt of Rs 100 Cr from Banks/FIs

(b) Senior Debt

- Senior Debt for the project is Rs 970 Cr

(c) Financial Security Fund

- GoR would provide funded support of Rs 100 Cr to meet any cash shortfalls during the Stabilisation Period (first five years of Operations). Rs 50 Cr deposited by GoR into FSF by April 30, 2007, while the balance Rs 50 Cr brought in by April 30, 2008. Interest rate on FSF would be @ 6% cumulative and would be payable along with repayments after senior and subordinated debt obligations to Banks/FIs have been fully retired

5.3 Key Performance Indicators

A summary of profitability projections is provided below:

	Rs Cr													
FY	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Toll Revenue	111.88	130.21	138.39	162.34	172.90	201.69	215.14	253.01	270.33	318.53	340.93	401.72	430.76	508.17
Other Income	11.50	12.30	12.74	13.21	13.70	14.22	14.77	15.36	15.98	16.64	12.34	13.08	13.86	14.70
Total Revenue	123.38	142.51	151.13	175.54	186.60	215.91	229.91	268.37	286.32	335.17	353.27	414.80	444.63	522.87
O&M Expenses	34.41	36.47	38.66	40.98	43.44	46.04	48.80	51.73	54.84	58.13	61.61	65.31	69.23	73.38
EBIDT	88.97	106.04	112.48	134.57	143.16	169.87	181.11	216.64	231.48	277.04	291.65	349.49	375.40	449.49
Depreciation	45.33	45.33	45.33	45.33	45.33	52.93	52.93	52.93	52.93	52.93	52.93	67.12	67.12	67.12
PBIT	43.64	60.71	67.14	89.23	97.83	116.94	128.17	163.70	178.55	224.11	238.72	282.37	308.28	382.37
Interest	99.72	104.31	104.02	102.66	101.33	100.02	97.75	93.87	90.03	82.94	70.43	61.22	52.60	35.18
PBT	(56.08)	(43.60)	(36.88)	(13.43)	(3.50)	16.92	30.42	69.83	88.52	141.17	168.30	221.15	255.68	347.19
Taxes	0.00	0.00	0.00	0.00	0.00	1.42	2.56	5.88	7.45	11.88	14.16	18.61	21.52	29.22
PAT	(56.08)	(43.60)	(36.88)	(13.43)	(3.50)	15.50	27.86	63.95	81.07	129.29	154.13	202.54	234.16	317.97
DSCR (without FSF) – Sr. debt	1.02	1.21	1.06	1.29	1.40	1.67	1.40	1.72	1.89	1.28	1.43	3.76	1.58	1.86
DSCR (without FSF) – Composite		1.08	0.96	1.17	1.26	1.51	1.29	1.58	1.73	1.21	1.35	3.35	1.51	1.56
Average DSCR (without FSF) – Sr Debt						1.59								
Average DSCR (without FSF) – Composite						1.85								
Average DSCR (with FSF) – Sr. Debt						1.64								
Average DSCR (with FSF) – Composite						1.90								
Project IRR (full project period)						14.9%								

5.4 Securitisation of User Fees/ Toll Receivables

The PDA envisages that in order to improve the commercial viability of the road Projects on a sustainable basis, RIDCOR could assign collection of user fees receivable to any person on a long term basis and/or securitise or discount future receivables. Provided, however, that the receipts from such assignment shall be used to enhance the commercial viability either through retiring of debt, for reduction of financial servicing or investment for a better return to improve the project revenues.

The Project IRR for the entire 32 years of the Project period is 14.9%. Debt repayment schedule for the Senior debt is spread over a maximum of 16½ years. With expected stabilisation of cash flows, it has been/would be possible to securitise the future receivables as mentioned.

RIDCOR currently proposes to securitise prospective cash flows for the residual Project period anytime after completion of the stabilisation period i.e. after 5th year of operations. However on a conservative basis, the Company has assumed to securitise the user fees/ toll receivables in the 10th year of operations.

On securitisation of user fees/ toll receivables, the entire outstanding dues of the Lenders (including Senior Debt and Subordinated Debt from Banks/FIs) shall be repaid in lumpsum. The value of discounted cash flows at the end of the 10th year, after accounting for taxes and major maintenance expenditure is estimated at approx Rs 3200 Cr, as against aggregate debt outstanding of Rs 707 Cr

5.5 Sensitivity Analysis

The project is subject to user fee/ toll revenue and IIMC/ operating cost risks. The results of the sensitivity analysis are as follows:

Scenario	Average DSCR with FSF - Sr Debt	Average DSCR without FSF - Sr Debt	Average DSCR with FSF - Composite	Average DSCR without FSF - Composite	Project IRR	Gross Value of 10th year securitised cash flows (Rs Cr)
Base Case	1.64	1.59	1.90	1.85	14.9%	3293
Revenue reduction by 25%	1.16	1.11	1.35	1.30	11.9%	2248
O&M cost increase by 10%	1.61	1.55	1.86	1.81	14.6%	3200
EPC cost increase by 10%	1.45	1.41	1.70	1.66	14.1%	3293
Growth rate reduction by 1%	1.50	1.44	1.70	1.66	13.6%	2621

5.6 Proposal

Particulars	Senior Debt from Banks/FIs	Subordinated Debt from Banks/FIs
Amount	Rs 970 Cr	Rs 100 Cr
Interest Rate	9% pa floating payable monthly in arrears	10.5% pa floating payable quarterly in arrears
Up front fee	0.75% of the amount availed, plus taxes as applicable	0.75% of the amount availed, plus taxes as applicable
Moratorium	24 months (2 years) from Operations date	156 months (13 years) from Operations date
Repayment Period	In 48 unequal quarterly instalments commencing June 30, 2010	In 3 equal annual instalments commencing March 31, 2022
Security	<p>The loan will be secured by first pari passu charge, by way of:</p> <ul style="list-style-type: none"> ▪ Hypothecation of all movable, tangible and intangible assets, receivables, cash and investments and monies lying in Trust and Retention Account into which all the investments in the Project and all Project revenues and insurance proceeds are to be deposited ▪ Assignment of all the rights, title, benefits, claims and demands of RIDCOR under Project documents i.e. Partnership & Development Agreement, Substitution 	<p>The loan will be secured by second pari passu charge, by way of:</p> <ul style="list-style-type: none"> ▪ Hypothecation of all movable, tangible and intangible assets, receivables, cash and investments and monies lying in Trust and Retention Account into which all the investments in the Project and all Project revenues and insurance proceeds are to be deposited ▪ Assignment of all the rights, title, benefits, claims and demands of RIDCOR under Project documents i.e. Partnership & Development Agreement, Substitution Agreement, IIMC

Particulars	Senior Debt from Banks/FIs	Subordinated Debt from Banks/FIs
	Agreement, IIMC Contract and Operations Contract, if any <ul style="list-style-type: none"> ▪ Assignment of all rights under project guarantees obtained pursuant to IIMC Contract or Operations Contract, if any ▪ Assignment of all insurance policies in relation to the Project and insurance proceeds thereof 	Contract and Operations Contract, if any <ul style="list-style-type: none"> ▪ Assignment of all rights under project guarantees obtained pursuant to IIMC Contract or Operations Contract, if any ▪ Assignment of all insurance policies in relation to the Project and insurance proceeds thereof
Proposal for take out of residual principal in the 10 th year	The company proposes to securitise future receivables of the Project roads at the end of 10 years from Operations date. The proceeds from such securitisation would first be utilised to settle residual outstanding amounts towards Senior and Subordinated debt from Banks/FIs. Notwithstanding the above, the company would have the right to prepay the rupee loans, in full or in part, without premium anytime after completion of five years of operations	

5.7 Revised Estimated Cost

- (a) The originally estimated project cost was Rs. 1500 Crores. However, due to the following factors the cost of the Project has gone up:
- Difference in the cost of civil works awarded for the LJ-1 package vis-à-vis the estimated cost
 - Increase in Land Acquisition and other related costs due to the introduction of a large number of bypasses and realignments
 - Unprecedented escalation of the prices of bitumen
 - Escalation as per contract due to delay in handing over of site

The difference in cost of civil works of Rs. 53 Crores for the LJ-1 package was decided to be met out of internal savings and any incremental costs were agreed to be arranged by IL&FS. The increase in land acquisition and related cost is mainly due to costs involved in shifting of utilities (electricity lines, water supply lines & communication cables), Forest & Tree cutting approvals, approval for ROBs which is estimated at Rs. 31.5 Crores. The PDA makes it obligatory on the GoR to provide encumbrance free project site to RIDCOR (Article 2.3 (a)). As per Article 2.6 (C) of the PDA, the costs of shifting of utilities have to be borne by the Service Providers and if they have been shifted at RIDCOR's cost then such costs shall be recovered from the service providers. The increase in the prices of bitumen in the 5 years preceding the award of the contract was only to the tune of 19% (annualized 3.8%), and the Company had made a provision based on the same in the estimate. However, the increase in prices of bitumen in the last 2 years had been huge and unprecedented @ 133% i.e. an annualized rate of 66.5%, which by any standards could not have been predicted.

The total increase due to the above factors is presently estimated to be around Rs. 217 Crores. The management has taken all measures to contain the increase in cost by affecting as much savings as possible through optimization, value engineering and re-appropriation of allocations and has made the following savings:

S. No.	Item	Original estimated amount	Revised estimated amount	Savings
1	Interest during Construction (IDC)	100	65	35
2	Civil works cost	1253	1199	54
3	Education & Social Initiatives	15	5	10
	Total	1368	1240	99

Thus the increase in the project cost presently estimated at Rs. 217 Crores was offset to some extent by the savings of Rs. 99 Crores such that the net increase estimated in the project cost due to the other factors would come to Rs. 118 Crores. The Company had executed several other works in accordance with the directions of GoR such as increase in the number & length of bypasses, development of internal roads, repairs due to flood damages, construction of pedestrian over-bridge etc. which cost around Rs. 42.69 Crores.

The break-up of the project cost increase vis-à-vis the earlier estimated project cost is as below:

Item	Revised Cost (in Lacs)	Original Estimate (in Lacs)	Difference (in Lacs)
Cost of Civil Works for six packages (including 6% additional cost i.e. Rs. 18 Crores)	921	975	-54
Civil Works Cost (Lalsot to Kota)	278	225	53
(Total Civil Works Cost)	1198	1200	-1
Contingencies (3%) (incl. Escalation & variation of bitumen)	164.6	36	128.6
Land Acquisition and Related Costs	72	36	36
Financing/Syndication Charges + Up-front Fees	20	20	0
Pre-operative Expenses	10	10	0
Education and Social Initiatives	5	15	-10
Toll Plaza Automation and Systems	20	20	0
Interest During Construction	65	100	-35
Project Cost	1554.6	1437	118.6
Agency Charges (@ 4% of Project Cost + 10.2% Service Tax)	63	63	0
Landed Project Cost	1617.6	1500	118.6

As per Agreement the excess project cost is to be invested by IL&FS.

6 COMMITMENT

(long-term implication in the project)

6.1 Project Packaging

For effective implementation controls, it was felt appropriate to divide the four Mega Highways Project roads in seven packages as below:

S. No.	Name of Package	Package ID	Length
(i)	Phalodi to Pachpadra	PR-1	154 Km
(ii)	Pachpadra to Ramji Ki Gol	PR-2	138 Km
(iii)	Hanumangarh to Ratangarh	HK-1	200 Km
(iv)	Ratangarh to Kishangarh	HK-2	207 Km
(v)	Alwar to Sikandra	AS	81 Km
(vi)	Lalsot to Kota	LJ-1	195 Km
(vii)	Baran to Jhalawar	LJ-2	78 Km

Engineering Studies and Detailed Project Reports (DPRs):

- (a) GoR had earlier initiated the detailed feasibility and engineering studies of the stretches of Mega Highways Project through the agency of Rajasthan State Road Development Corporation (RSRDC). RSRDC received the bids for detailed feasibility and engineering studies including preparation of detailed project reports and awarded the works to the following four consultants:
- M/s Sheladia Associates & Consultants India Pvt. Ltd., Ahmedabad Phalodi to Ramji Ki Gol (PR)
 - M/s Sowil Ltd, Noida Hanumangarh to Kishangarh (HK)
 - M/s Archtech Ltd, Kolkata Alwar to Sikandra (AS)
 - M/s Span Consultants Pvt. Ltd. New Delhi Lalsot to Kota & Baran to Jhalawar (LJ)
- (b) Subsequent to its incorporation these detailed feasibility and engineering studies work agreements were transferred by RSRDC to RIDCOR. RIDCOR requisitioned services of M/s Wilbur Smith Associates, Bangalore for managing and reviewing the consultant's submissions. Keeping in mind the possibility of taking up facts of the road corridors through centrally funded schedules as well as traffic potential in the long term, a set of road configuration, bye-passes and ROBs for each corridor was finalized by RIDCOR for the consideration of GoR.

6.2 Bidding Process

- (a) An innovative method of mitigating risk was adopted in the award of the contracts through an Integrated Improvement cum Maintenance Contract (IIMC). The contracts were designed in such a way that the contractor implementing the improvement works would be responsible for maintenance of the road stretch for the next five years. Hence an inbuilt mechanism was included in the contract to keep a check on any downgrading of the quality by the Contractor.

In order to ensure transparency and encourage adequate completion for price tenders, a two stage bid process was adopted.

The first stage involved submission of Statement of Qualification (SoQ) by the applicant in the prescribed format in a Request For Bid (RFQ) bid document. Based on eligibility criteria set out in the RFQ document the applicants were to be evaluated and a short list of qualified applicants prepared. In the second stage, detailed financial proposals were to be invited from the qualified applicants through the Request For Proposal (RFB) document.

The proposals received were evaluated to be for selecting the contractor quoting the lowest evaluated price for award of the project work.

A Statement of Qualification document was prepared as part of the RFQ. The qualification criteria prescribed for each package were as below:

Package ID	Cost of Package (Rs. in crores)	Average Annual Turnover for last 5 years (Rs. in crores)	Single Qualifying work in 24 months (Rs. in crores)	Major Bridge/ROBs (Nos.)
PR-1	120	100	70	1
PR-2	125	100	70	1
HK-1	180	200	140	1
HK-2	200	200	140	1
AS	90	100	70	1
LJ-1	225	200	140	1
LJ-2	100	100	70	1

- (b) RIDCOR invited the Request for Qualification (RFQ) incorporating these SoQ conditions from the bidders for the development works of the 7 packages of Mega Highways Project. For this an advertisement was published in all the leading newspapers of the country, on February 16, 2005. The period of sale for RFQ document was from February 16, 2005 to March 16, 2005. A clarification meeting was held on March 02, 2005. The last date of receipt of the Request for Qualification document (RFQ) from the bidders was March 21, 2005.
- (c) Requests from 62 leading highway construction firms were received for various packages. In all 203 RFQs for 7 packages were sold.
- (d) On due date of receipt of the RFQ document, 131 proposals were received from 29 bidders for the seven packages.
- (e) An Expert Committee was constituted with Shri K K Sarin as Chairman and Shri B G Sharma, Shri D P Gupta, Shri H L Mina, Shri V Murahari Reddy, Shri K Ramchand, Dr M Raisinghani and Shri Chandra Bose as members to interact with bidders during pre-bid conferences and for evaluating RFQs and RFBs. The Chairman and members of the Experts Committee were chosen based on their technical knowledge and vast experience in designing and executing complex highway projects in the country.

6.3 Processing of RFQ Bids

- (a) The Statement of Qualification called for in the RFQs submitted by the various bidders were processed as per the criteria mentioned in the RFQ. The details were presented in the meeting of Committee of Experts of RIDCOR for their examination and approval on April 15, 2005.

- (b) The Committee of Experts approved 120 proposals received from 29 bidders as per details below:

Package ID	PR-1	PR-2	HK-1	HK-2	AS	LJ-1	LJ-2	Total
No. of RFQ document sold	25	26	26	32	31	34	29	203
Total Bid Received	18	19	13	17	22	20	22	131
Total Qualified Bidders	18	18	13	16	18	18	19	120

- (c) All the qualified bidders were informed of their qualification and were requested for submission of their financial proposals through RFB document.

6.4 Request for Bid Documents

The Request for Bid (RFB) document was prepared on the basis of FIDIC, NCB and the standard NHA draft document. The RFB for 6 packages were prepared out of the 7 packages put for bidding. For Lalsot to Kota (LJ-1) package, consent of the Government of Rajasthan was required for finalization of alignment (received subsequently). As such, the RFB documents were initially prepared for 6 packages only comprising the following volumes:

- Volume-1 : Instructions to Bidders, Conditions of Contract and Specifications
 Volume-2 : Bill of Quantities and Forms for Bid
 Volume-3 : Drawings

The Consultants who prepared the DPR and engineering documents for these 6 packages were asked to submit details of intimated quantities (Bill of Quantities) (BoQ) and drawings. These were proof checked by M/s Wilbur Smith Associates, Bangalore. Team of experts from the proof consultant and the respective consultants for each package held series of meetings at Jaipur and Bangalore for finalizing the drawings and the BoQ. Accordingly, BoQ and Drawings were prepared (Volumes – 2 & 3).

Draft of the Volume–1 of the bid document was presented to the Committee of Experts (CoE) on May 7, 2005 and June 18, 2005. CoE discussed clauses of the document prior to approval. Chairman of CoE Mr K K Sarin and Mr V Murahari Reddy devoted considerable time exclusively for finalizing the bid document i.e. Volumes – 1 & 2.

6.5 Salient Features of Bid Document

The bid document approved by the CoE incorporated certain specific features, in order to secure the project objectives and better manage the construction period. Some of the specific features of the Bid Document are described briefly:

(a) Improvement Works

- The roughness index required immediately after the construction is 1800 mm/km. The roughness index is an indicator of comfort of road users and for a normal highway work, it is prescribed as 2500-3000 mm/km after the construction as permissible limits. To achieve this roughness index the quality of the work required is exceptionally high. In case the roughness index value goes beyond permissible limits the Contractor shall have to do the bituminous overlay at his own cost to bring the roughness value within permissible limits.
- The nature of work involves widening and strengthening of the existing carriageway. The originally existing carriageway had varied width from 3.5 m to

7.0 m. For the safety of the road users, during construction, the contractor was required to work on one side only which would not permit him to fully utilize the working capacity of the equipments and labour due to limitation of working space. Moreover, contractor had to provide retro-reflective fencing for the safety of the road users all along the highway for which no separate payment was made.

- There are numbers of cross drainage works. These include major, minor bridges and culverts. For construction of these CD works, contractor was required to construct diversion road. For construction of these diversion roads no extra payment was made to him.
- For the earth work in embankments, contractor was required to bring all the usable earth obtained out of cutting of existing road. No extra payment for carriage of these earths was paid. Looking to the longer lengths of the packages, the carriage of earth had a substantial financial implication.
- To ensure timely completion of the project, intermittent milestones were prescribed in the contract. Non-compliance of these milestones would attract penalty. Extra efforts by contractors were made for complying with the targets set for achieving these milestones.
- As per terms of the RFB document, contractor would not be entitled for any compensation on account of escalation in cost of the material, labour, selected items like cement and steel, POL etc. There is a provision of payment of escalation only on the bitumen to be paid on six monthly rate basis instead of monthly. As such, all the possible increase in the rates of various materials like steel, cement and POL was to be factored by the contractor in his financial offer.
- Contractor would be eligible for revision of rates for the items of BOQ only if the total value of works done is +/- 25% of the contract amount. The individual variations in the quantities for the items for which rates are not profitable even if result in additional financial burden on the contractor would be borne by him.
- The period of completion of the various packages, was from 15 to 21 months. Looking to the longer lengths of the stretches i.e. 200 Km contractors had to mobilize additional equipment for timely completion of the project. The cost of additional equipments required to be deployed, could vary from 25 to 30% of the cost of the project. In a normal highway project the cost of equipment is around 10 to 12% of the cost of the project. The equipments proposed for the deployment are of the highest standard compatible with NHAI projects. Contractor had to factor the additional financial resources along with the manpower required for the purpose.
- There is a clause for the liquidated damages. In case of an unforeseen delay, the contractor would have to account for this in his financial offer.

(b) Maintenance Works

- Subsequent to completion of the Improvement Works, Contractor is responsible for maintaining the project road and appurtenances thereto to specified performance standards and service quality levels as per stringent norms for a period of 5 (Five) years from the Improvement Works Completion Date.
- For evaluation of the Maintenance Works, road asset groups have been prescribed. These groups prescribe the service quality levels, measurement direction, intervention standards and rectification standards/periods prescribed for each activity of the item. These activities have been classified in seven road asset groups. Details of each group, items are mentioned in the bid document. Each

Road Asset Group has been given weightage as per its requirement. Non compliance of any of the items of the Road Asset Groups will result in no payment to the contractor for that period.

- It is pertinent to mention that the users' riding comfort is directly related to the surface roughness of the highway. The service quality levels prescribed for surface roughness varies from 1800 mm/km to 2500 mm/km at the end of the 5 year. This is to ensure best performance standards during the maintenance period.
 - For the maintenance work the contractor is required to hold a set of equipment like vibratory rollers, sensor pavers etc. to ensure required service quality levels. These equipments may not be utilized as per their prescribed output.
 - Removal of desert sand from the road surface is also a part of maintenance activities. The sand dunes of the Thar Desert are of migratory nature. During 4-5 months in a year huge sand is deposited on the road surfaces, which needs to be removed regularly. For stretches from Hanumangarh to Kishangarh (HK) and Phalodi to Ramji Ki Gol (PR) this will be a major maintenance activity.
 - The Contractor is also required to formulate an appropriate maintenance strategy, incorporating inspections, programming and work activities to:
- (c) While preparing the Bill of Quantities (BOQ) for each package, a standard specification of 2 m of paved shoulders and 1.75 m of hard shoulders were indicated along with other requirements such as roughness index of 1800 mm/km. This was done to obtain the most economic unit rates for these items. However, to provide for actual requirements during execution, a provision was made in the BOQs and the Volumes-1 & 2 of RFB that RIDCOR is entitled to vary quantities to the extent of +/- 25% of the total cost of each package. This was necessary since the actual road configuration required for each package was being finalized based on detailed field inspection keeping in mind the integrated maintenance requirement in the contract. The necessity for exploiting the economic potential of the road corridors in the long term and road safety majors peculiar to these road corridors.

6.6 Process of Request for Bid Document

- (i) All the qualified bidders were informed to purchase RFB document (Volumes-1, 2 & 3).
- (ii) 26 bidders were qualified for the six packages for which the RFB documents were to be issued on cost. As per qualification these bidders were eligible to submit 102 bids for various packages.
- (iii) 23 bidders purchased the document for various packages summing upto 84 bids.
- (iv) The schedule of bidding process was as below:

(a)	Period of sale of Request for Bid (RFB) Document	July 27, 2005 to August 31, 2005 between 1000 Hrs to 1700 Hrs IST on working days
(b)	Last date and time for receipt of queries on RFB document	August 16, 2005 upto 1100 Hrs IST
(c)	Pre-Bid Meeting	August 17, 2005 at 1100 Hrs IST
(d)	Last date and time for receipt of Bids	September 07, 2005 at 1500 Hrs IST
(e)	Date and time of opening of Bids	September 07, 2005 at 1530 Hrs IST

- (v) Pre-bid meeting held on August 17, 2005 was attended by members of the Committee of Experts. All clarifications received prior to the pre-bid meeting and during the pre-

bid meeting were presented to the members of Committee of Experts during their meetings on August 16 & 17, 2005. The replies were discussed and finalized by the Committee of Experts.

- (vi) Addendum to the bid document was issued and sent to all the qualified bidders. The pertinent modifications done were on request of the bidders to increase the period of completion of the packages. The Committee of Experts agreed for the revised period of completion for the packages as below:
- PR – 1 : 15 months
 - PR – 2 : 18 months
 - HK – 1 : 21 months
 - HK – 2 : 21 months
 - AS : 18 months
 - LJ – 2 : 18 months
- (vii) With the revision of period of completion of the packages the milestones prescribed for each package was modified accordingly.
- (viii) On due date of submissions 14 companies submitted their bids totaling to 36 for various packages.
- (ix) The details of the purchase of the RFB document and bids received are as below. The names of the firms are annexed at Annexure 'C':

Package ID	PR-1	PR-2	HK-1	HK-2	AS	LJ-2	Total
No. of qualified Bidders	18	18	13	16	18	19	102
Total Bidders–Purchased documents	16	16	11	14	13	14	84
Total Bidders – Submitted bids	6	8	3	8	5	6	36

6.7 Processing of Bid Received

- (a) A committee comprising of the following officers was appointed for processing the bids received including its opening:
- Mr Chandra Bose, Consultant & Member of CoE
 - Mr Muthukrishnan, CPO, TNRDC
 - Mr Harish Mathur, CPO, RIDCOR
 - Mr Munish Modi, Financial Controller, RIDCOR
 - Mr Victor Devdas, Advisor, TNRDC
- (b) Arithmetic calculations and rates quoted by the bidder were checked by the internal auditor of RIDCOR to ensure the correctness of the bid price of each bidder.

It is pertinent to note that the bids were invited on a standard specification for all the packages. However, considering the necessity for integrated maintenance requirement in the contract, the necessity for exploiting the economic potential of the road corridors is the long term and road safety measures required, peculiar for each road corridor, it was necessary to undertake detailed field inspections and based on that work out the optimum technical specification for these corridors. It was also necessary to arrive at quantities as close to the actual requirements during execution even before finalizing the contracts.

For this a detailed exercise was undertaken utilizing services of the consultants for each package. It is proposed to adopt a uniform carriageway of 7 m width, 1.75 m of

paved shoulders and 1.5 m of hard shoulders for all the corridors. Roughness index of 1800 mm/km would be prescribed. Some of the works such as toll plazas, bus-bays, lighting and associated works could be aggregated from all the six packages and separately bid out. Accordingly reduction of scope has also been considered package-wise as below:

Package	Details of items–separated from the scope of Improvement Works (Rs in crores)
PR-1	8.44
PR-2	4.12
HK-1	3.66
HK-2	4.70
AS	2.98
LJ-2	2.29
Total	26.19

This was bid out separately. Based on this, revised set of quantities have been worked out after taking with account the reductions offered by the L1 bidders.

6.8 Award of Works

Contracts for the Integrated Improvement and Maintenance works were entered into for six packages on 17th/18th January 2006, except for the seventh package of Lalsot to Kota, for which contract was signed on 2nd August 2006 due to late finalization of alignment on that particular stretch. The total cost of the Mega Highways Project is estimated at Rs 1500 Crores for all the seven packages. Details of the seven packages in which Integrated Improvement and Maintenance works were awarded are as below:

(Rs in Crores)

S. No.	Package No	Name of Contractor	Value of Improvement Works	Value of Maintenance Works*	Aggregate Contract Price
1	PR-1	Ashoka Buildcon Ltd	136.51	8.45	144.96
2	PR-2	IVRCL Infrastructures & Projects Ltd	141.47	8.62	150.09
3	HK-1	Punj Lloyd Ltd	262.44	8.66	271.1
4	HK-2	Punj Lloyd Ltd	219.15	8.33	227.48
5	AS	IVRCL Infrastructures & Projects Ltd	104.36	5.29	109.65
6	LJ-2	Punj Lloyd Ltd	91.31	3.65	94.96
7	LJ-1	Punj Lloyd Ltd	277.80	24.95	302.75
		TOTAL	1233.04	67.94	1300.99

* For five years

The Company had also engaged M/s IL&FS Transportation Networks Ltd (ITNL) as Management and Supervision Partner for the Project, who in turn, have appointed the following seven firms as Supervision and Monitoring Consultants on the seven packages for assisting in the improvement works implementation including monitoring and watching the quality and to certify the quantity of work done by the Contractors.

S No	Package No	Name of Consultant
1	PR-1	STUP Consultants Ltd.
2	PR-2	MSV International Inc
3	HK-1	Dorsch Consult (I) Pvt Ltd
4	HK-2	Scott Wilson Kirkpatrick India Pvt. Ltd.
5	AS	Consulting Engineers Services (India) Pvt. Ltd.

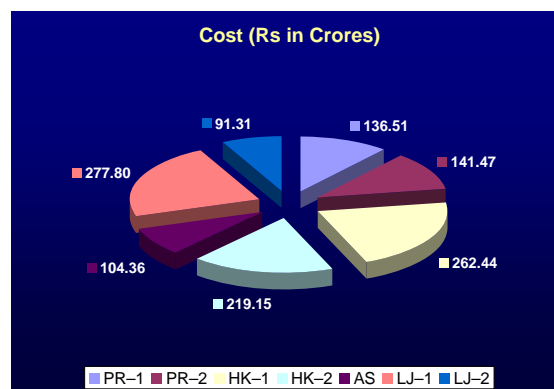
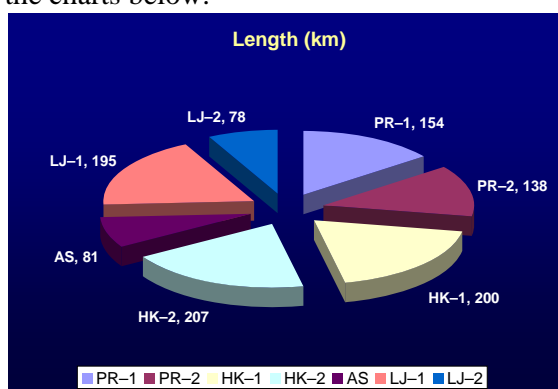
S No	Package No	Name of Consultant
6	LJ-2	SMEC India Pvt Ltd
7	LJ-1	SAI Consulting Engineers Pvt. Ltd.

In order to facilitate smooth implementation of the Project, the Company, through ITNL, has also deployed one Chief Executive Officer and Asst. Vice President besides entrusting each project stretch to a dedicated and competent team of Project Engineers lead by a Project Manager.

To achieve completion of the project within time, milestones have been prescribed for the Contractors. Penalties are imposed on the non-achievement of these prescribed milestones. A bonus for early completion of the project is also prescribed in the contract conditions. It is expected that this arrangement would encourage the contractors to deliver the improvement works within time.

Project Road (Name of Contractor)	1st Milestone		2nd Milestone		3rd Milestone	
	Length	Duration	Length	Duration	Length	Duration
Phalodi to Pachpadra (Ashoka Buildcon Ltd)	25 kms	6 Month	100 kms	12 Month	154 kms	15 Month
	Excluding bridge	(July 16,2006)	Excluding bridge	(Jan 16,2007)	Total Completion	(April 16,2007)
Pachpadra to Ramji Ki Gol (IVRCL Infrastructures & Projects Ltd)	25 kms	6 Month	100 kms	12 Month	138 kms	18 Month
	Excluding bridge/ROB	(July 16,2006)	Excluding bridge/ROB	(Jan 16,2007)	Total Completion	(July 16,2007)
Hanumangarh to Ratangarh (Punj Lloyd Ltd)	40 kms	8 Month	130 kms	15 Month	200 kms	21 Month
	Excluding bridge/ROB	(Sep 17,2006)	Excluding bridge/ROB	(April 17,2007)	Total Completion	(Oct 17,2007)
Ratangarh to Kishangarh (Punj Lloyd Ltd)	40 kms	8 Month	130 kms	15 Month	207 kms	21 Month
	Excluding bridge/ROB	(Sep 17,2006)	Excluding bridge/ROB	(April 17,2007)	Total Completion	(Oct 17,2007)
Alwar to Sikandra (IVRCL Infrastructures & Projects Ltd)	18 kms	6 Month	50 kms	12 Month	81 kms	18 Month
	Excluding bridge/ROB	(July 16,2006)	Excluding bridge/ROB	(Jan 16,2007)	Total Completion	(July 16,2007)
Baran to Jhalawar (Punj Lloyd Ltd)	20 kms	6 Month	50 kms	10 Month	78 kms	15 month
	Excluding bridge	(July 17,2006)	Excluding bridge	(Nov 17,2006)	Total Completion	(April 17,2007)
Lalsot to Kota (Punj Lloyd Ltd)	40 kms	9 Month	120 kms	15 Month	195 kms	21 month
	Excluding bridge/ROBs	(May 01,2007)	Excluding ROBs	(Oct 01,2007)	Total Completion	(May 01,2008)

A comparison of the total length of the packages vis-à-vis the respective cost is produced in the charts below:



7 REPLICABILITY

(show how the initiative has worked to allow is to be replicated elsewhere)

7.1 Lessons Learnt

(i) Natural Challenges

Permitted to cut 18,817 trees for initial alignment and saved almost 7000 trees by realignment/changing configuration of the road.

(ii) DPR should include all the details required for execution and the DPR Consultants should be entrusted with supervision work

(iii) Stringent technical and financial criteria to ensure only the best IIMC contractor(s) are engaged for improvement works and are also responsible for maintenance for five years thereafter

(iv) Land Acquisition (LA) – The routine procedure requires lot of time hence LA should be allowed on mutual negotiations beforehand

(v) Forest Area – In bypasses the forest area should generally be avoided or the permission may be sought in advance

(vi) Value Engineering & Technical Optimization

(vii) Railway Clearances. GADs should be approved beforehand

(viii) Proactive support from concerned Government must for sorting out local issues, utility shifting, encumbrances removal etc

(ix) Appraisal of performance of Supervision Consultant

(x) Aggressive efforts for statutory clearances

(xi) Cost & Time Over Run Control Measures

(xii) Strategy for Increase in Revenue

(xiii) High level of Maintenance Standards

(xiv) Regular monitoring with a recovery time limit of one month.

(xv) Public at large feels impact of work – Quality & Features

(xvi) Employer should have liberty to engage nominated assignee contractors, if required

(xvii) Safety is paramount

7.2 Social Responsibility

How to win over public inferences

(i) Construction of Foot Over Bridge

(ii) Development of bituminous roads near Schools

(iii) Development of compound walls/public utility structures

(iv) Development of junctions

7.3 Issues with Contractors

- (i) Progress of works – There was shortfall in the progress in some of the packages, due to which the contractors were allowed to assign part works for accelerating the work.
- (ii) The recovery of mobilization advance was not linked to progress of the work, hence enabled better cash flow of contractor
- (iii) New specialized contractors for CD works and ROBs were engaged as the main contractor did not have specialized bridge team
- (iv) The encumbrances free land could not be made available in some packages as per handing over schedule due to land acquisition, forest, railway approvals etc.
- (v) Variation allowed upto 25% of the Contract Amount
- (vi) Milestones/target prescribed for stage completion and handing over of land
- (vii) Comprehensive incentive/penalty mechanisms incorporated
- (viii) Maintenance works to be performance linked and output based and to be paid out on lumpsum basis
- (ix) Non compliance of work required in maintenance to be got done at the contractors risk & cost after expiry of intervention period.

7.4 Bidding Strategy

- (i) Success of the project – Based on Diversion of Traffic as these stretches do not have bonafide traffic
- (ii) 16 nos. of toll plazas covering 1053 Km road, are operational
- (iii) After stabilization, all 16 nos. toll plazas in seven stretches have been bid out at the prices near to the maximum collection
- (iv) MoRT&H has invited bids on BOT basis for stretches adjoining to our packages, hence in near future the toll revenue will increase substantially due to shorter connectivity and better riding quality

7.5 IL&FS/ITNL Achievements

- (i) ITNL is managing the implementation of the single largest project on PPP Model in the country
— Novel Experience
- (ii) IL&FS has shown to the country that large infrastructure projects can be implemented successfully within time, cost and quality in spite of all adversities.
- (iii) Road to the extent of 1053 Kms developed through private sector participation

7.6 Best Practices for Future Projects

- (i) Allocation of risk to the party best suited
- (ii) Detailed Project Report should contain all the parameters including identification of encumbrances and land acquisitions.

- (iii) Value Engineering and optimization of quantities by Employer in order to optimize the cost.
- (iv) Selection of contractors by open national competitive bidding process.
- (v) Unique Land Acquisition Process followed in which Govt. machinery is supported by RIDCOR officials and payment made by RIDCOR to PWD who in turn has disbursed it to land owners. Mutual Negotiations can be considered as a better way for future projects.
- (vi) Shifting of utilities timely by innovative methods as per site and the related department. Timely identification of hindrances and Action plan preparation based on practical considerations.
- (vii) Early Finalization of Design, Drawings and Alignments
- (viii) Railway Approvals of GAD should be obtained before inviting bids.
- (ix) Soil Investigations shall be carried out at all major bridges before finalizing the design & drawings
- (x) The construction Methodology and temporary structure Design & Drawings are required to be proof checked for major Bridges
- (xi) Actual estimation of revenues considering traffic surveys & various local effects like monthly/local/return passes is very important
- (xii) Regular Monitoring of progress of works
- (xiii) Revised estimates to be prepared along with design finalization initially

7.7 Details of New Mega Highway Roads being developed:

With the experience gained from the aforementioned four road corridors, leading to formulation of the best practices, the following new road stretches have been /are being taken up on similar lines:

Description	Arjunsar – Pallu (RD-2)	Alwar-Bhiwadi (4-Lane) (RD-3)	Jhalawar-Jhalawar Road (RD-5)	Hanumangarh –Sangaria (RD-1)	Kapren-Barod-Siswali-Mangrol (RD-4)	Jhalawar-Ujjain (Raj. Border) (RD-6)	Total
Width of Carriageway	(7m)	(14.5m)	(7m)	(10.0m)	(7m)	(10.0m)	
Project Km	38	85	30	22	58	31	264.00
Total Project Cost (excl. LA)	78.44	308.51	74.51	48.04	113.73	70.92	694.15
		461.46			232.69		694.15

8 SUSTAINABILITY

(evidence that the project will go on beyond the award monitoring and adjustment)

8.1 Implementation

(a) Contracting Agreement

- Selected Contractor responsible for improvement works and maintenance obligations for a period of 5 years thereafter
 - Improvement works to be paid on unit-rate basis
 - Maintenance works to be performance linked and output based and to be paid out on lumpsum basis
 - Comprehensive incentive/penalty mechanisms incorporated
- Project Roads expected to have higher traffic volumes in 5 to 6 years
- Periodic maintenance to be taken up every six years or as warranted depending on road deterioration and riding quality

(b) Performance Indicator

- In the road corridors chosen, corresponding SH requirement as per IRC Standards is 3000 mm/km (Level 1). Acceptable level is in fact 4000 mm/km (Level 2), whence improvements have to be carried out
- RIDCOR has prescribed a much higher specification of 1800 mm/km after improvement works, and 2500 mm/km even during 5th year of maintenance
- Maintenance Works classified into 7 asset groups with intervention standards on the basis for evaluation of payments to the contractor

(c) Ensuring Transparency

- Equal number of Government representatives on the Board of RIDCOR
- Decisions of the Board are on consensus basis
- Chairman of the Board, a representative of GoR, has a casting vote as the Chairman of the Board
- EPC bids called for on Competitive Bidding Route
- Independent Engineer has been appointed by GoR for ensuring quality of work and cost compliance
- Independent Auditor is appointed by GoR for certifying Project Cost, Revenues, Return and Surplus
- Tolls are based on GoR's policy

(d) Supervision & Monitoring Arrangement

- Project Works are being supervised and monitored by RIDCOR through Supervision Consultant for each package.
- RIDCOR has deployed its own team of Project Managers & Engineers on each project

- Independent Engineer has been appointed, as per PDA, for submission of regular reports to GoR on road condition et al
- Independent Auditor has also been appointed, as per PDA
- RIDCOR to periodically engage Technical and Safety Auditors to assess road condition for formulating suitable remedial measures

8.2 Extent of involvement of Shareholders

8.2.1 Stakeholder's Agreement

(i) Project

The project is domiciled in Road Infrastructure Development Company of Rajasthan Ltd (RIDCOR), which would be responsible for improvement, rehabilitation, operation, maintenance and management of the Project roads

(ii) Road Infrastructure Development Company of Rajasthan Ltd. (RIDCOR)

RIDCOR has been incorporated as a 50:50 Joint initiative between GoR and IL&FS in October 2004 with an authorised equity share capital of Rs 50 Cr.

RIDCOR has been primarily formed for implementing and supporting the comprehensive road improvement programme of Government of Rajasthan titled the 'Mega Highways Project'. The company's registered office is at First Floor, LIC Jeevan Nidhi Building, Bhawani Singh Marg, Jaipur – 302 005.

(iii) Shareholding Pattern

The shareholding pattern of RIDCOR is as follows:

Shareholder	Shareholding %
Government of Rajasthan	50
IL&FS	50

(iv) Considering the PPP framework of the Project, the stakeholders i.e. GoR and IL&FS entered into a Shareholders' Agreement on January 31, 2005 to outline the partnership framework.

(v) To enable the Company to realise the above objectives it is understood that the Parties to this Agreement will provide the Company by themselves and through their affiliates or subsidiaries as applicable with the following assistance in general and more specifically provided hereinafter, on the terms and conditions mutually accepted on case to case basis for each Project:

- | | | |
|-------|---|--------------------------------------|
| IL&FS | - | Project Development Expertise |
| | - | Technical expertise |
| | - | Management skills |
| | - | Financial Planning Expertise |
| | - | Aid in accessing global technologies |
| | - | Access to project supervision skills |
| | - | Training |
| | - | Merchant Banking Support |
| | - | Investment |

- | | | |
|-----|---|--|
| GoR | - | Project Development Support and Assistance |
|-----|---|--|

- Marketing support
- Assistance in obtaining clearances for land acquisition, environmental clearances and other clearances/approvals sanctioned by statutory authorities/agencies
- Assistance in local matters
- Investment

8.2.2 Involvement of Formulation Stage

(i) **GoR**

- (a) GoR shall based on the financial analysis, approve the -toll structure/tolling strategy and, notify the same as may be required.
- (b) GoR shall undertake that it shall not construct or operate either by itself or by any other Competent Authority or have the same, inter alia, built and operated on a commercial basis or otherwise the set of projects being assigned to the Company during the concession period granted for the infrastructure projects.
- (c) Provide support in development of the projects.

(ii) **IL&FS**

- (a) Advisory support for development of projects.
- (b) Assistance in financial planning, accounting and auditing, and interaction with lending institutions, etc.
- (c) Assistance in setting up Financial and other operational systems.
- (d) Assistance and co-ordination of project development from conceptualization to commissioning.
- (e) Develop financing plans and arrange merchant banking support for projects.
- (f) Seconding expert and suitably qualified personnel.
- (g) Development of specialized computer software for use specifically by the Company.
- (h) Management and supervision of technical studies, traffic forecasts, engineering design and preparation of alternatives.

8.2.3 **Involvement at Implementation Stage**

(i) **GoR**

- (a) Liaison with Government agencies.
- (b) GoR shall assist in obtaining all relevant permissions/approvals including, inter alia, environmental clearance and other clearances for the Projects from the Competent Authority.
- (c) GoR shall take all necessary steps to acquire land for the Project, shift the utilities, remove the encroachments and deliver physical possession of land, free of encumbrances, to Company for the Projects, in a timely manner. The cost and expenses of acquiring land, shifting the utilities, removing the

encroachments etc., and on account of litigation if any, upto the highest court, as may be stated by GoR, shall be borne by the Company.

- (d) In case GoR decides to widen the specified roads to four lane during the concession period, if warranted by traffic needs, Company Will have the first right of refusal for implementing such widening works on the terms and conditions to be agreed between the Panics.

(ii) IL&FS

- (a) Ongoing training on technical and managerial based subjects related to the Company's business.
- (b) Advice on planning, procurement, commissioning and erection of equipment/system(s).
- (c) Assistance in scheduling of Project and in its implementation; preparation of design and construction contracts and supervision of same.
- (d) Assistance in finalization of operation and maintenance contract for the Projects. including management and integration of toll road networks.
- (e) Preparation and monitoring of Quality Assurance programmes and audits.
- (f) Advice on contractual matters.
- (g) Preparation and publication of brochures and other publicity materials for marketing of the Projects to users.

8.3 Improvement Works Management

(i) Management & Supervision

The Company had also engaged M/s IL&FS Transportation Netowrks Ltd (ITNL) as Management and Supervision Partner for the Project, who in turn, have appointed the following seven firms as Supervision and Monitoring Consultants on the seven packages for assisting in the improvement works implementation including monitoring and watching the quality and to certify the quantity of work done by the Contractors.

S No	Package No	Name of Consultant
1	PR-1	STUP Consultants Ltd.
2	PR-2	MSV International Inc
3	HK-1	Dorsch Consult (I) Pvt Ltd
4	HK-2	Scott Wilson Kirkpatrick India Pvt. Ltd.
5	AS	Consulting Engineers Services (India) Pvt. Ltd.
6	LJ-2	SMEC India Pvt Ltd
7	LJ-1	SAI Consulting Engineers Pvt. Ltd.

(ii) CE and Vice President

In order to facilitate smooth implementation of the Project, the Company, through ITNL, has also deployed one Chief Executive and Vice President/Asst. Vice President besides entrusting each project stretch to a dedicated and competent team of Project Engineers lead by a Project Manager.

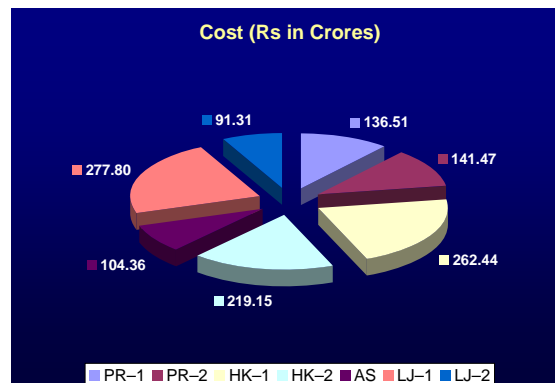
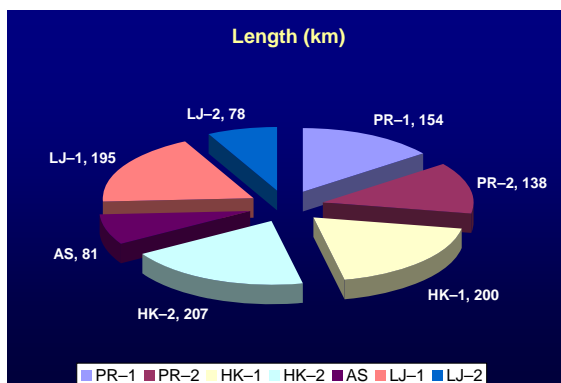
(iii) Milestones for Contractors

To achieve completion of the project within time, milestones have been prescribed for the Contractors. Penalties are imposed on the non-achievement of these prescribed milestones. A bonus for early completion of the project is also prescribed in the contract conditions. It is expected that this arrangement would encourage the contractors to deliver the improvement works within time.

Project Road (Name of Contractor)	1st Milestone		2nd Milestone		3rd Milestone	
	Length	Duration	Length	Duration	Length	Duration
Phalodi to Pachpadra (Ashoka Buildcon Ltd)	25 kms	6 Month	100 kms	12 Month	154 kms	15 Month
	Excluding bridge	(July 16,2006)	Excluding bridge	(Jan 16,2007)	Total Completion	(April 16,2007)
Pachpadra to Ramji Ki Gol (IVRCL Infrastructures & Projects Ltd)	25 kms	6 Month	100 kms	12 Month	138 kms	18 Month
	Excluding bridge/ROB	(July 16,2006)	Excluding bridge/ROB	(Jan 16,2007)	Total Completion	(July 16,2007)
Hanumangarh to Ratangarh (Punj Lloyd Ltd)	40 kms	8 Month	130 kms	15 Month	200 kms	21 Month
	Excluding bridge/ROB	(Sep 17,2006)	Excluding bridge/ROB	(April 17,2007)	Total Completion	(Oct 17,2007)
Ratangarh to Kishangarh (Punj Lloyd Ltd)	40 kms	8 Month	130 kms	15 Month	207 kms	21 Month
	Excluding bridge/ROB	(Sep 17,2006)	Excluding bridge/ROB	(April 17,2007)	Total Completion	(Oct 17,2007)
Alwar to Sikandra (IVRCL Infrastructures & Projects Ltd)	18 kms	6 Month	50 kms	12 Month	81 kms	18 Month
	Excluding bridge/ROB	(July 16,2006)	Excluding bridge/ROB	(Jan 16,2007)	Total Completion	(July 16,2007)
Baran to Jhalawar (Punj Lloyd Ltd)	20 kms	6 Month	50 kms	10 Month	78 kms	15 month
	Excluding bridge	(July 17,2006)	Excluding bridge	(Nov 17,2006)	Total Completion	(April 17,2007)
Lalsot to Kota (Punj Lloyd Ltd)	40 kms	9 Month	120 kms	15 Month	195 kms	21 month
	Excluding bridge/ROBs	(May 01,2007)	Excluding ROBs	(Oct 01,2007)	Total Completion	(May 01,2008)

(iv) Package Lengths vis-à-vis Costs

A comparison of the total length of the packages vis-à-vis the respective cost is produced in the charts below:



8.4 Maintenance Works Management (O&M Phase)

(i) Integrated Improvement-cum-Maintenance

- (a) Selected Contractor responsible for improvement works and maintenance obligations for a period of 5 years thereafter
 - Improvement works to be paid on unit-rate basis
 - Maintenance works to be performance linked and output based and to be paid out on lumpsum basis
 - Comprehensive incentive/penalty mechanisms incorporated
- (b) Project Roads expected to have higher traffic volumes in 5 to 6 years
- (c) Periodic maintenance to be taken up every six years or as warranted depending on road deterioration and riding quality

(ii) Performance Indicators

- (a) In the road corridors chosen, corresponding SH requirement as per IRC Standards is 3000 mm/km (Level 1). Acceptable level is in fact 4000 mm/km (Level 2), whence improvements have to be carried out
- (b) RIDCOR has prescribed a much higher specification of 1800 mm/km after improvement works, and 2500 mm/km even during 5th year of maintenance

(iii) Road Maintenance Works : Preamble

The road which has been completed under the Improvement Work has to be maintained by the Contractor, at all times till the contract completion date. The road shall be maintained above the Service Quality level indicated in Enclosure-I. In case of any deficiency being found, the Contractor shall rectify the same within the Rectification Standards and Periods, indicated therein.

(iv) Road Maintenance Works Evaluation

- (a) The Contractor's monthly payment certificates for Maintenance Works shall be evaluated based on the weighted values awarded to each of the Road Asset Groups mentioned in the Enclosure-I.
- (b) The Engineer shall assign the weighted values for each of the Road Asset Groups, either +1 (plus one) if all the items in the Road Asset Group are complied with the Service Quality level, or 0 (zero) if even one item in the Road Asset Group does not comply with the Service Quality level, as per the format at Table-1. In case of non-compliance of the Engineer's directions for remedying the defects and its continuing in the next month, then the award point for that Road Asset Group shall be -1 (minus one). The Engineer shall find out the overall coefficient of compliance for the road by adding up the award points for all the Road Asset Groups for that particular month. This overall coefficient of compliance shall be used for arriving at the monthly amount due for payment.

TABLE-1**MONTHLY EVALUATION OF SERVICE LEVEL FOR THE MONTH OF.....**

S. No.	Road Asset Group	Status (Complied/Not complied) (0 to 1 as per compliance)	Weight (%)	% Award Points (3 X 4)
(1)	(2)	(3)	(4)	(5)
1.	Pavement – Carriageway including Paved Shoulder		40%	
2.	Structures		8%	
3.	Signage and road safety items		20%	
4.	Shoulders – Unpaved and road formation		10%	
5.	Cleanliness, Drainage Systems and Traffic Management		15%	
6.	Landscaping, road-side vegetation, watering and arboriculture		5%	
7.	Road Surface Roughness Assessment		2%	
	% Overall coefficient of compliance		100%	(C)

Monthly payment due to the Contractor = $\frac{\text{Yearly Fee in Schedule 2}}{12} \times (C)$

12

(v) Compliance by Contractor

The Contractor shall report the compliance (or non-compliance) of each of the Road Asset Groups to the Engineer in the format as enclosed herewith (Enclosure–II)

8.5 Project Risk & Mitigation Strategy

Risk Involved	Mitigation Measures
Initial Cost of the Project is Rs. 1500 Cr. and landed cost of the Project is Rs. 1657 Cr.	Rs. 1392 Cr. (which includes Increased cost) have been arranged by IL&FS without any recourse to GoR.
GoR has Invested Rs. 50 Cr. as equity fund and a Interest free loan of Rs. 215 Cr.	
Project works commenced even before Financial Close by drawing upon Viability Gap Assistance and Equity Funds	Financial close achieved in 90 days
Interest reset by lenders every three years	IL&FS has borne all the variations
Unprecedented hikes in Bitumen/Steel/Cement 1. Bitumen increased from Rs. 14,000 to 40,000 per MT 2. Cement bag increased from Rs. 130 to 225 3. Steel increased Rs. 28,000 to 50,000 per MT	There was no escalation payable on commodities except Bitumen

Risk Involved	Mitigation Measures
Revenues mainly from tolling which is linked to the diverted traffic on Project Road	There is an option in PDA for securitization of Toll Revenue
In case of shortfall in revenue, promoters have to arrange for additional funds for repayment of Interest	Financial Security Fund by GoR to enable RIDCOR to draw from, in case of shortfall in fund requirement during initial stabilization period
Administrative & Supervision charges during construction phase fixed	(Not warranted)
5 years moratorium on loan repayment to help tide over the initial stabilization period	(Not warranted)
Road connectivity was cut off due to unprecedented flood in PR & LJ-2	32 Km of stretch was raised to 1.5m due to water logging in adjoining fields
40 Km of stretch was affected with seepage of water from adjoining canals in LJ-1	Sand blanketing was introduced in marshy area & seepage areas of Canal
DESERT/RAVINES	
Road Profile was modified and many sand dunes have been leveled to provide proper sight distances and smooth/straight alignment	The shoulders in such area have been protected by providing hard shoulders with 150 mm thick Granular Sub Base
ECOLOGICAL	
All possible efforts were made to cut least number of trees by realignment /changing configuration of the road	Saved almost 7000 trees – almost 36% of what we were permitted as per initial alignment (11981 trees were cut against 18817 trees)
EXTREME WEATHER CONDITIONS	
Contractors & Consultants found difficult to retain their personnel due to extreme weather conditions	Provided suitable amenities
Scarcity of water for construction activities	Developed new resources, such as tube/bore wells etc. transported water by tankers.
LITIGATIONS	
No. of LA cases pending with High Court and other various courts for which retired RAS officers have been deputed, who are regularly monitoring the matters.	Constant persuasion at local levels and follow up in Courts.

Abbreviations:

BoQ	–	Bill of Quantities
CBI	–	Central Bank of India
CD	–	Cross Drainage
CE	–	Chief Executive (RIDCOR)
Company	–	RIDCOR
Cr./Crore	–	10,000,000 (10 million)
DPR	–	Detailed Project Report
DSCR	–	Debt Service Coverage Ratio
EMC	–	Environmental Management Cell
EMP	–	Environmental Mitigation Plan
EPC	–	Engineering, Procurement, Construction
FI	–	Financial Institution
FIDIC	–	Federation Internationale Des Ingenieurs – Conseils
FSF	–	Financial Security Fund
GoR	–	Government of Rajasthan
HDFC	–	Housing Development Finance Corporation Ltd.
IIMC	–	Integrated Improvement-cum-Maintenance Contract
IL&FS	–	Infrastructure Leasing & Financial Services
IRR	–	Interest Rate of Return
LA	–	Land Acquisition
Lac	–	100,000 (100 Thousand)
MoRT&H	–	Ministry of Road, Transport & Highways
NHAI	–	National Highways Authority of India
O&M	–	Operation & Maintenance
PDA	–	Partnership and Development Agreement
PPP	–	Public Private Partnership
R&R	–	Rehabilitation & Resettlement
RFB	–	Request for Bid
RFQ	–	Request for Qualification
RIDCOR	–	Road Infrastructure Development Company of Rajasthan Ltd.
ROB	–	Road Over Bridge
RoW	–	Right of Way
Rs.	–	Indian Rupees
SoQ	–	Statement of Qualification
UTI	–	Unit Trust of India
VDF	–	Vehicle Damage Factor
VGF	–	Viability Gap Funding
VOC	–	Vehicle Operating Cost