

SOCIO- ECONOMIC PROFILE OF PROJECT

BIRPUR TO BIHPUR SECTION OF NH-106

CHAPTER 2

SOCIO- ECONOMIC PROFILE

2.1. GENERAL

Ministry of Road Transport and Highways (MORTH) has taken up the up gradation of various single/intermediate/two lane National Highways to 2 lane/ 2 lane with paved shoulders with the assistance from World Bank for National Highways Inter connectivity Improvement Project (NHIP-1). Consulting Engineers Group Ltd has been awarded the preparation of Detailed Project Report (DPR) including social study for the sub project NH-106 (SP/B/3) Birpur to Bihpur road in the state of Bihar. The Project Stretch NH-106 from Birpur to Bihpur traverses through 88 villages and falling in four Districts i.e. Supaul, Madhepura, Saharsa and Bhagalpur.

The Project Stretch for package-2 of NH 106 starts at Udakishanganj at km 106.00 and ends at Bihpur chowk at km 136.0 of NH 106 beside Hanumanji Mandir on RHS corner (km 321 of NH 31).

The road development is confined mostly within 24 m width of ROW. The people who are most affected are the encroachers and squatters within available ROW and those whose land is acquired for the development of the road for realignments for geometric improvements.

2.2. DEMOGRAPHIC FEATURES

Bihar is one of India's largest and most populated states with about 8 percent of the country's population. It is also one of poorest states with 41% people living below the poverty line. In 2004-05 Bihar outperformed the all-India performance in several areas: female literacy rise from 23 to 33.6 % over the decade 1991-2001(an increase of 46 %, compared to an increase of 37 % nationwide) and access to safe drinking water for households improved by 47 % (versus 25 % nationwide). For the project influenced districts, following socio-economic indicators are given in Table 2.1.

Table 2.1: Demographic Features of the State and Project Area Districts

State / District	Bihar		Madhepura		Bhagalpur	
	2001	2011	2001	2011	2001	2011
Area in sq km	94163	94163	1,787	1,787	2570	2570
Population	82878796	10,38,04,637	1,526,646	1,994,618	2,423,172	3,032,226
Male	43153964	5,41,85,347	797,180	1,042,373	129,658	1,614,014
Female	39724832	4,96,19,290	729,460	952,245	1,131,514	1,418,212



State / District	Bihar		Madhepura		Bhagalpur	
	2001	2011	2001	2011	2001	2011
Population Density per sq. km	880	1,102	854	1,116	943	1180
Sex Ratio	921	916	915	914	876	879
Literacy Rate	47.53	62.82	36.07	53.78	49.50	64.96
Male	60.32	73.39	48.80	63.82	59.22	72.30
Female	33.57	53.33	22.11	42.75	38.13	56.49
Population Growth Rate	21.54	25.01	29.45	30.65	27.24	25.13

Source: Statistical Abstract, 2001-11, Directorate of Economics and Statistics, Govt of Bihar.

2.3. URBANISATION

Urbanization is both a driver and a consequence of economic growth. The development of an urban area is also closely linked with the rural economy through exchanges of goods, services; labor, capital, information - technology and social transactions. In 2001, the level of urbanization in India as a whole was 27.78%, but in Bihar it is observed that only 10.47%. The details of level of urbanization in the state of Bihar are given in **Table 2.2** and the same is depicted in **Figure 2.1** and **Figure 2.2**.

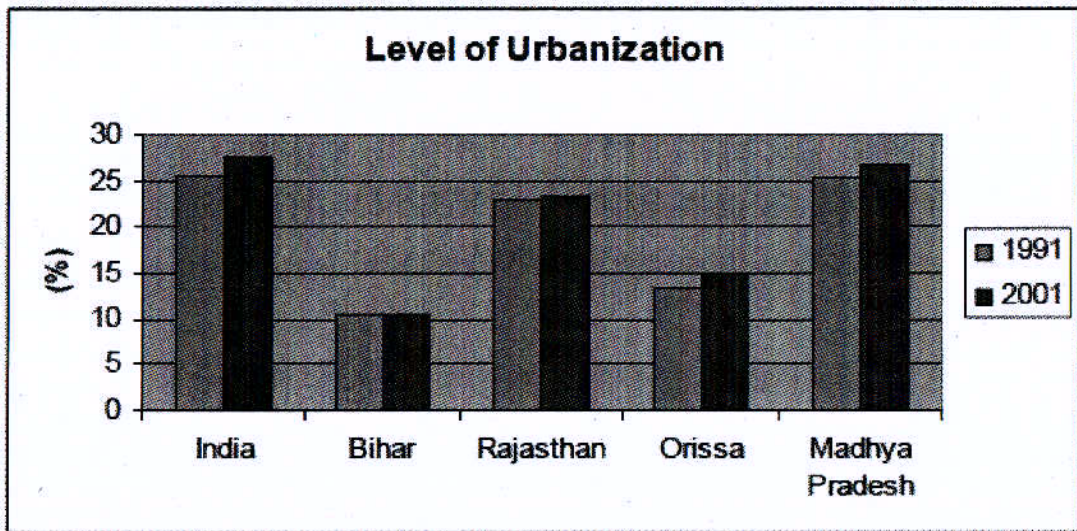
Table 2.2: Urban Population by Class of Towns affecting the Project Road

Districts	Size Class of Towns			
	Class-1 (1000000- above)	Class -2 (50000-99999)	Class -3 (20000-49999)	Class -4 (10000-19999)
Bhagalpur	1	0	2	2
Madhepura	0	0	3	0
Bihar	19	18	67	18

Source: (Directorate of Economics and Statistics, Govt of Bihar 2001-11)

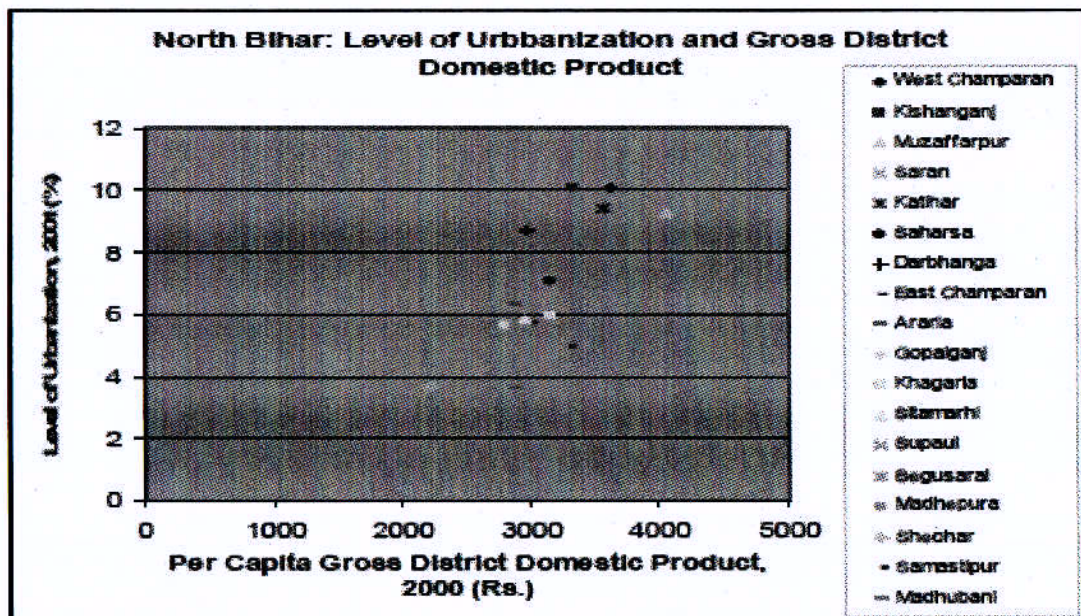
The comparison of level of Urbanization has been presented for the state of Bihar others for (1991 & 2001) are given in Figure 2.1 and per capita GSDP of some Indian states are plotted in Figure 2.2.





Source: Mathur O.P and Thakur S, "India's Municipal Sector, a study for Twelfth Finance Commission", 2004, NIPFP, New Delhi.

Figure 2.1: Level of Urbanization of Bihar



Source: Economic Survey of Bihar, 2005, Bihar Development Report, 2001.

Figure 2.2: Level of Urbanization of North Bihar and GDDP

2.4. EMPLOYMENT STRUCTURE

The employment pattern of different social groups is an indicator of the link between livelihood issues and per capita income. In 20 out of 38 districts of Bihar, rural female work participation ratio (WPR) has increased by more than 10 % between 1991 and 2001, Poverty, along with male



migration is the main explanatory factor and also observed that for increasing of female WPR due to involving and working as agricultural laborers details are given in **Figure 2.3**.

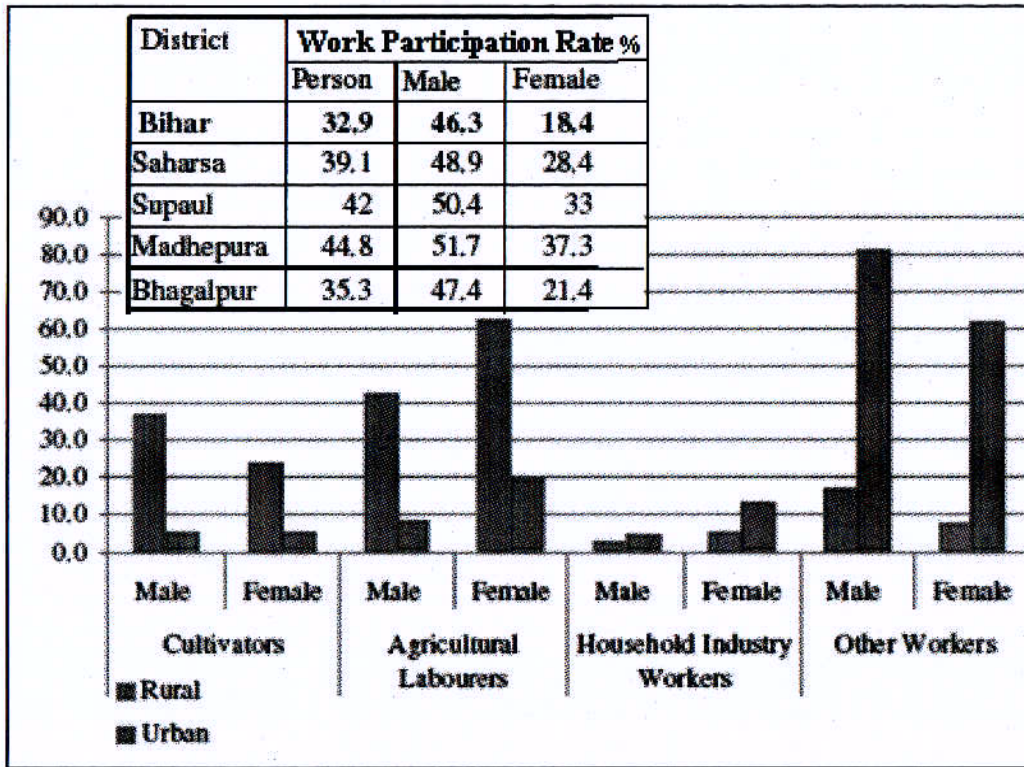
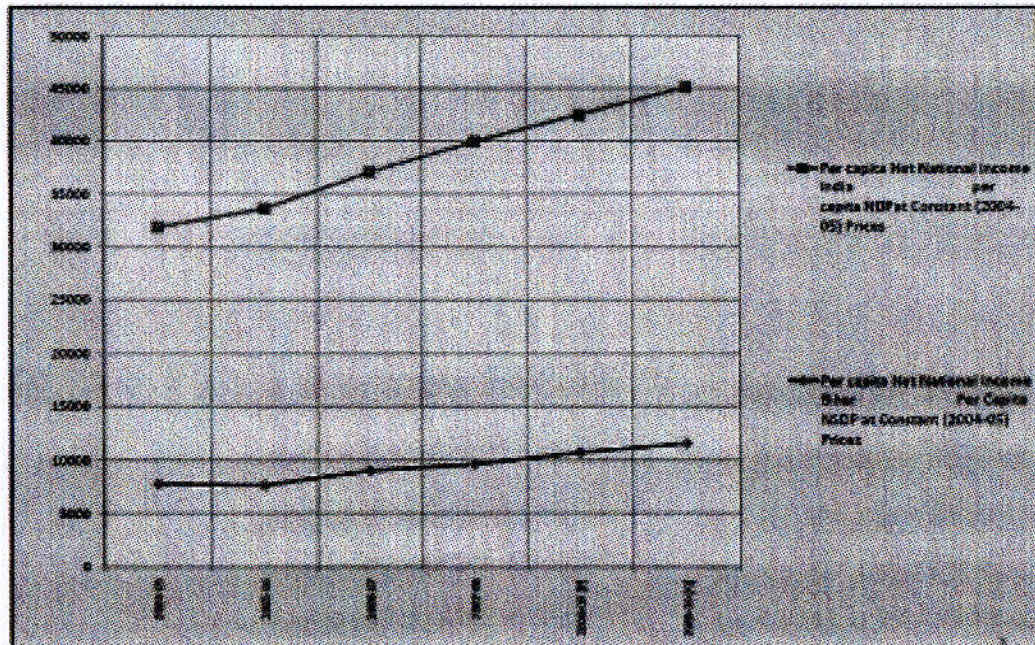


Figure 2.3: Employments by Sector



CHAPTER 3 EXECUTIVE SUMMARY

1 INTRODUCTION

MORTH has decided for widening and strengthening of Single/Intermediate lane of National Highways in eight states under Non NHDP category for about 3,800 km. Some of these stretches are proposed to be improved through the assistance of World Bank. The total stretches are classified in to four groups namely Group A, Group B, Group C and Group D. The project corridor i.e. NH 106 falls under Group B. Accordingly, the MORTH had invited tenders from eligible Consultancy firms for carrying out Feasibility study and preparation of Detailed Project Report for Rehabilitation and upgradation to 2-lane/2-lane with paved shoulders and strengthening of the Birpur-Bihpur Section of NH 106 (km 106 to km 136) in the State of Bihar. M/s Consulting Engineers Group Ltd has been selected as the preferred bidder for the above said NH Section in the State of Bihar.

1.1 General



The Project Highway from Birpur to Bihpur on NH 106 starts at Udakishanganj at km 106.00 and ends at Bihpur chowk at km 136.00 at junction with NH 31. The Project Highway traverses through four districts viz Madhepura, Saharsa and Bhagalpur in the state of Bihar. The road traverses through plain terrain with carriageway width varying mostly from single lane to Intermediate lane.

1.1.1 The Project Road

The Project Highways starts at km 106.00 at Udakishanganj and ends at Bihpur km 136.00 at junction with NH 31 in Bihpur (km 321 of NH31). The road traverses through plain terrain with carriageway widths varying from 3.05 m to 5.5 m. In general the existing right of way varies from 20 m to 24 m.

The horizontal alignment of the road is generally fluent without sharp curves. There is a Major Junctions and 20 Minor junctions existing along the road. The Project road meets National Highways (NH 31) at the finishing end.

Packaging of Project Stretch

The Project Road passes through major towns like Madhepura, Udakishanganj and Phulaut. The existing ROW generally varies from 20 m to 24 m



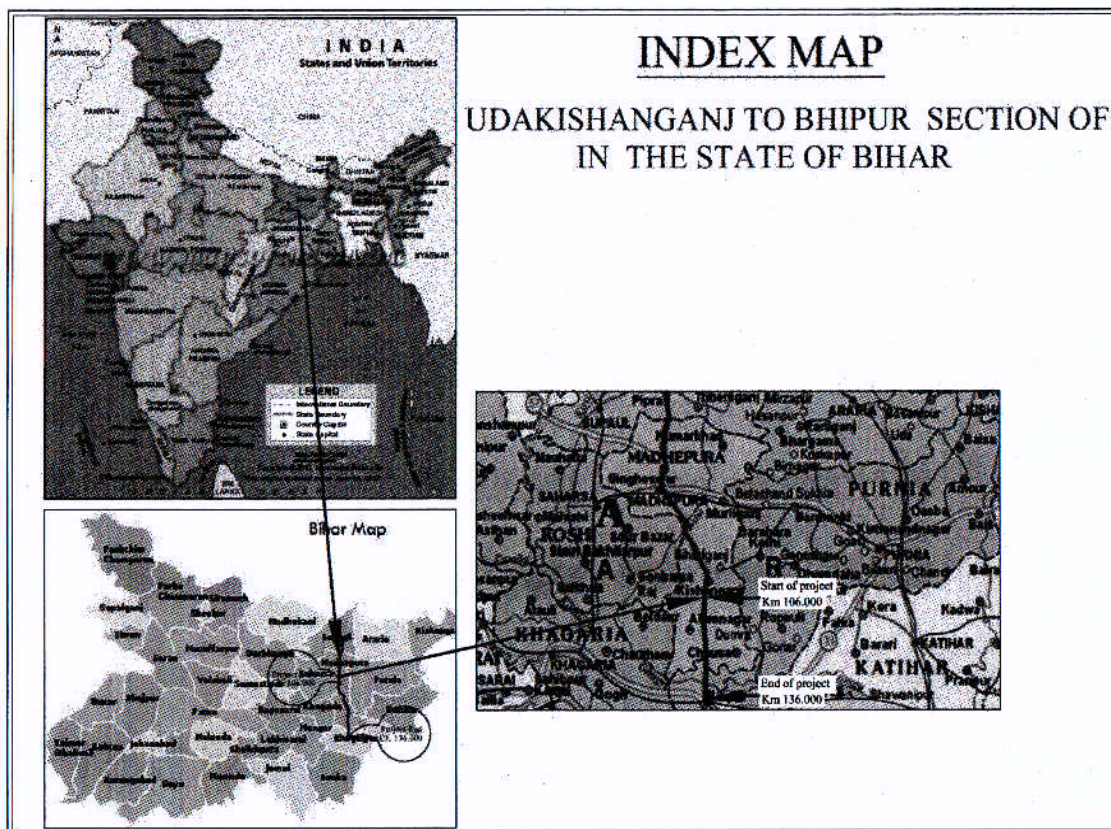


Figure ES.1: Index Map of Project Highway

2 SOCIO ECONOMIC PROFILE OF THE AREA

Bihar is one of India's largest and most populated states with about 8 percent of the country's population. It is also one of poorest states with 41% people living below the poverty line .In 2004-05 Bihar outperformed the all-India performance in several areas: female literacy rise from 23 to 33.6 % over the decade 1991-2001(an increase of 46 %, compared to an increase of 37 % nationwide) and access to safe drinking water for households improved by 47 % (versus 25 % nationwide).

The Socio Economic Details for Bihar State and Districts Are Mentioned In Below Table.

State/ District	Bihar		Supaul		Madhepura		Saharsa		Bhagalpur	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
Area in sqm	94163	94163	2420	2420	1,787	1,787	1,686	1,686	2570	2570
Population (millions)	82878796	10,38,04,637	1,745,069	2,228,815	1,526,646	1,994,618	1,508,182	1,897,102	2,423,172	3,032,226
Male	43153964	5,41,85,347	902,207	1,157,185	797,180	1,042,373	789,432	995,502	129,658	1,614,014
Female	39724832	4,96,19,290	830,371	1,070,582	729,460	952,245	718,750	901,600	1,131,514	1,418,212



State/ District	Bihar		Supaul		Madhepura		Saharsa		Bhagalpur	
	2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
Population Density per sq. km	880	1,102	724	919	854	1,116	895	1,125	943	1180
Sex Ratio	921	916	920	925	915	914	910	906	876	879
Literacy Rate	47.53	62.82	37.28	59.65	36.07	53.78	39.08	54.57	49.5	64.96
Male	60.32	73.39	52.42	71.65	48.8	63.82	51.6	65.22	59.22	72.3
Female	33.57	53.33	20.81	46.63	22.11	42.75	25.27	42.73	38.13	56.49
Population Growth Rate	21.54	25.01	29.25	28.62	29.45	30.65	33.03	25.79	27.24	25.13
Per capita NDDP (2004-05)	6724		5,094		4,950		5,879		7,313	

2.1 Traffic Studies and Analysis



The purpose of conducting traffic surveys is to understand the traffic flow pattern on the project highway. The Consultants have been carried out a reconnaissance survey of the project corridor to understand the general traffic and travel characteristics on the Project road. The traffic studies like CVC, Origin & Destination, Intersection Turning movement count, Speed and Delay Survey, Axle load survey, Pedestrian movement Survey Accumulation Survey at Level Crossing , Animal crossing survey, Truck Terminal Survey and Willingness to Pay have been carried out for the project road and the details of locations are shown in Figure ES.2.

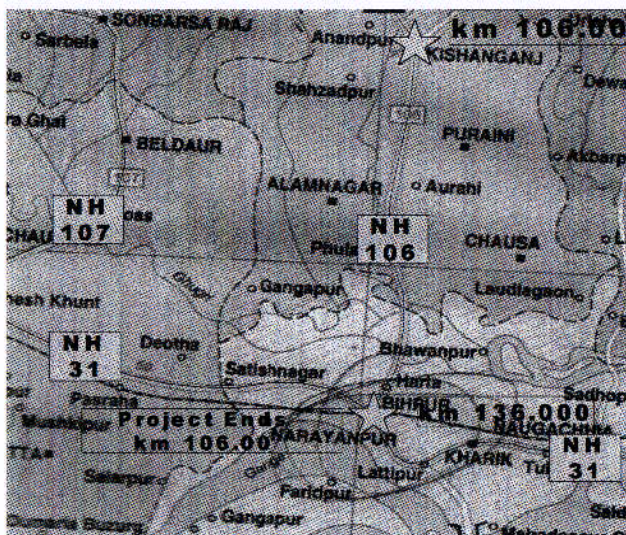
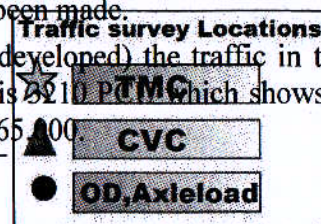


Figure ES.2: Traffic Survey Locations

Based on the Traffic studies conducted for the project road from km 106.000 to km 136.000 (Birpur – Bihpur Section of NH 106 in the state of Bihar (30 kms), the major findings are listed below:

- The journey speed of the corridor is about 32 km/h in morning and evening peaks.
- The road user willingness to pay toll is 97.14% and 2.86% are not willing.
- Traffic demand forecasting: The traffic growth rates have been derived based on the past traffic data as well secondary data collected on socio economic parameters like state (NSDP, NNP, GSDP, PCI, Population growth) with this the transport demand elasticity's found out and regression analysis have done to derive the final growth rates.
- From the growth rates calculated, it is observed the growth rates are not appropriate. Based on consultants experience and observing growth trend on other National Highway projects, the growth rates are adopted as given in Tables mentioned in the above chapter for the all three scenarios. Based on that, the forecasting has been made.
- Before the development of Kosi bridge (Missing Link not developed) the traffic in the year 2010 at km 65.000 is 7523 PCU and at km 106.000 it is 3210 PCU which shows a reduction of 50% of total traffic on the project road after km 65.000



- After the development of Kosi Bridge the users will use the project road because it is shorter in length amongst all other alternatives and the traffic is expected to increase by 50% than the originally projected traffic after the construction of Kosi Bridge and upgradation of project road, i.e. in the year 2020.
- The above table shows the capacity for 4 lane of 10,000 PCU as per ministry vide circular No. RW/NH-33044/28/2015/S&R (R) exceed in the year 2026 for project road section of NH-106 from km 106.000 to 136.000. Moreover, the construction of 10 km Kosi Bridge may take more than 3 years for completion.
- By the time the bridge is under operation, the traffic at that section reaches close to its 2 lane capacity and as it is a major structure involving huge investment, time & complex construction conditions, it is proposed to be 4 lane instead of 2 lane as it cannot be upgraded frequently.

Proposed Salient Features in Birpur-Bihpur Section of NH-106

S. No.	Descriptions	Features
1	Design Length (km.)	28.918km (km106.000 to km 136.000)
2	Civil Construction Cost (cr.)	1091.49 cr.
3	Proposed ROW	30m to 60m
4	Configuration	The existing highway shall be upgraded to 2 lane/ 2 lane paved shoulder with Four lane bridge over Kosi river having 6.93km length and 2x12.5m carriageway and 127no. x55m SPAN
5	Bypass	NIL
6	Grade separators	NIL
7	ROB	NIL
8	Major Junctions	1 No.
9	Minor Junctions	20 No.
10	Slip Roads/ Service Roads	NIL
11	Major Bridges	01 No (km 125+110 to km 132+040) over Kosi river having 6.93km length and 2x12.5m carriageway and 127no. x55m SPAN



S. No.	Descriptions	Features
12	Minor Bridges (with footpath)	7 Nos. (Reconstruction: 6 No. Reconstruction of Causeway: 1 No.)
13	Culverts	64 No. (Reconstruction: 9 No. New Pipe: 23 No. New Box: 32 No.)
14	Truck Lay Bye	NIL
15	Bus Bays	8 no. bus bays (Proposed both sides at 4 locations)
16	Toll Plaza	1 No. at Ch.133+450

