

**GOVERNMENT OF ODISHA
WORKS DEPARTMENT**



**VEHICLE SPEED PROFILE
ON THE CORE ROAD NETWORK
OF ODISHA WORKS DEPARTMENT**

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ANNEXURE

SURVEY FORMATS

1. BACKGROUND

The State Government of Odisha (GoO), through the Government of India (GOI), has received a loan from the International Bank for Reconstruction and Development (IBRD) for implementation of Odisha State Roads Project.

One of the project requirements is to evaluate the vehicle speed profile on the declared core road network of Odisha to assess the level of mobility. Mobility as defined by network characteristics is manifested in journey speed and delay characteristics. This survey is conducted to assess mobility levels provided by the network and identify bottlenecks.

2. CORE ROAD NETWORK OF ODISHA

The declared core road network of Odisha Works Department is about 1600 km (Refer Table 1).

Table 1: Core Road Network of Odisha

Sl. No.	Division	Road Name	Section Name	Road No	GIS Length (km)
1	Keonjhar	Barbil-Nalda-Bihar Border Road		SH10	13.11
2	Panikoili	Sathipur-Jajpur-Mangalpur-Kayanagola Road		MDR	47.60
3	Sambalpur	Barkot-Lahunipada Road	Barkote - Machurnali (From Km 0.00 to 17.9)	SH10A	17.91
	Rourkela		Machurnali - Lahunipada (From Km 17.9 to 48.5)	SH10A	30.63
4	Balasore	Jaleswar-Batgaon-Chandaneswar Road		MDR	35.67
5	Khurda	Khurda-Jatni-Pipli-Nimapara-Gop Road (Extended UptoKonark)	Budapadha - Mukundaprasad (From Km 9.0 to 22.360)	SH13	13.36
	Bhubaneswar-II		Budhapara-Pipili Bazar (From Km 13.000 to 22.004)	SH13	9.00
	Bhubaneswar-II		Pipili Market-Rench Bazar (From Km 22.004 to 30.377)	MDR108	8.37
	Puri		Rench Bazar - Gop - Konark (From Km 8.372 to 43.560)	MDR80	35.19
6	Jagatsinghpur	Kandarpur-Machhagaon Road		SH43	51.35
7	Bolangir	Bolangir-Patnagarh-Kantabanji-Bangomunda-Chandutora Road	Balangir - Division Limit (From Km 0.00 to 6.00)	SH42	5.98
	Kantabanji		Division limit to Bangamunda (From Km 6.00 to 95)	SH42	88.78
	Kantabanji		Bangamunda to Chantora (From Km 95.00 to 112.00)	SH42	16.33
8	Rairangpur	Baripada-Bamanghati Road	Boisoi to Tiring Border	SH50	65.43

Sl. No.	Division	Road Name	Section Name	Road No	GIS Length (km)
9	Ganjam-II	Purusottampur - Jagannathpur Road (Previously MDR-67)		SH32	24.80
10	Jagatsinghpur	Phulnakhara-Niali-Charichhak-Gop-Konark-Puri Road*	Phulnakhara-Niali-Madhab (From Km 0.00 to 36.500)	MDR	35.94
	Puri		Madhab-Charichhak-Gop (From Km 36.500 to 53.820)	SH60	17.32
11	Balasore	Seragada-Kaptipada-Udala-Baripada-W.B. Border	Sergarh-Nilgiri-Jharanaghati (From Km 0.00 to 31.5)	SH19	31.46
	Mayurbhanj		Kaladahi Near Kaptipada to Udala (From Km 31.458 to 44.305)	SH19	12.85
	Mayurbhanj		Udala to Chaksoliapada (Medinpur Border) (From Km 44.305 to 112.095)	SH19	67.79
12	Bhanjanagar	Balipadar-Karsing (SH-21 Jn.) Road		SH33	32.75
13	Angul	Angul-Chendipada-Sarpal Road		SH63	51.06
14	Ganjam-II	Huma-Boirani Road (Previously MDR-66)	Huma- GudialiChhaka	SH31	39.42
15	Kalahandi	Chhatikuda-Narla-Rampur Road		SH6A	38.53
16	Sambalpur	Kiakata-Deogarh-Kuchinda-Bamara-Talsara-Lulukidihi and MDR 30 TalsaraLulukidihi Roads	Kiakata-Rairakhol (From Km 9.00 to 36.00)	MDR	25.35
	Sambalpur		Rairakhol-Naktideol (From Km 36.00 to 65.62)	SH24	29.63
	Sambalpur		Naktideol-Chandarpur-Telimunda (From Km 65.2 to 83.655)	SH24	18.46
	Sambalpur		Kuchinda-Bamra (From Km 154.20 to 196.76)	SH24	42.56
	Sundargarh		Gariamal-Bamra	SH31	13.83
	Sundargarh		Karamdihi - Talsara - Lulkidihi	SH31	52.53
	Sundargarh	Talsara-Luhakera Road		MDR30	12.80
17	Rayagada	Kamatalapeta-Kalyansinghpur Road		SH45	38.31
18	Charbatia	Raj Athagada-Narsinghpur Road		SH65	80.50
	Charbatia	Raj Athagada Railway Station Road	Khuntuni - Raj Athagarh Railway Station	SH65	2.32
19	Baragarh	Godbhaga-Turum Road		MDR	39.92
20	Ganjam-II	Badasankha (NH-5 Jn) Tarini-Nandiko-Hinjili-Seragada (Extension up to Soroda)	Badasankha to Tarini (From Km 0.000 to 24)	MDR	23.75
	Ganjam-II		Tarini to Nandiko (From Km 24.000 to 32.062)	MDR	8.06
	Ganjam-I		Nandiko-Hinjili (From Km 32.061 to 40.722)	SH36	8.66
	Ganjam-I		NH-217-Sheragada (From 40.722 to 54.784)	SH36	14.06
	Bhanjanagar		Sheragada-Badagada-Sorada (From Km 54.784 to 96.788)	MDR	42.00
22	Rairangpur	Rairangpur-Jashipur-Karanjia-Dhenkikot Road	Rairangpur-Jashipur (From Km 0.000 to 35.752)	SH49	35.75

Sl. No.	Division	Road Name	Section Name	Road No	GIS Length (km)
23	Keonjhar	Suakati-Dubuna Road	Suakati to Kadakala	ODR	44.06
	Keonjhar		Basantapur to Dubuna	ODR	3.81
24	Keonjhar	Kuanra-Bansapal Road		MDR12C	14.12
25	Keonjhar	Barbil-Kiriburu Road		ODR	14.82
26	Keonjhar	Champua - Chamakpur Road		ODR	16.46
27	Keonjhar	Satkutunia- Patna Road		ODR	67.60
28	Keonjhar	Kanjiasola - Turumunga Road		ODR	28.28
29	Keonjhar	Jhumpura - Ukhunda Road		ODR	14.29
30	Keonjhar	Pipilia Patna Road		ODR	16.79
31	Keonjhar	Chhenapadi - Hadagarh Road		ODR	15.53
32	Bhadrak	Jhamjhodi-Dhamara Road Via Basudevpur	Bishnubindha - Dhamra (From Km 7.000 to 60.455)	MDR85	53.46
Grand Total (km)					1568.34

Note:

Road at Sl. No. 21 (Barkot - Lahunipada Road) is duplicate with Sl. No 3., hence it is excluded from the list.









* Road section from Konark to Puri (35 km) is declared as NH, hence excluded. Road section, Gop to Konark is added to Sl.No. 5.

3. SURVEY METHODOLOGY

The speed and delay studies was conducted using moving car observer method wherein in addition to journey time, delay etc. vehicle coming from opposite direction, vehicle overtaking test car and vehicle overtaken by test car were also counted. The survey formats are enclosed in Annexure. Two round trips are made on each section of the selected network for statistically sound result during day hours (peak/off-peak period). Analysis of the data provides journey speed, running speed, delay (if any) with its causes on each section / sub-section along with representative traffic flow. Appropriate PCU factors have been used to convert number of various types of vehicle into PCU to be able to estimate traffic flow in PCU/hr.

GPS referenced network map with start and end node clearly marked for each of the road of core road network is one of the pre-requisites of speed and delay survey. For this purpose, the road sections in each of the 32 corridor (refer to table) were identified. Further, each section was divided into sub-sections where there is an intersection with NH, SH, MDR or ODR.

Two separate survey teams were mobilized for the survey between 5.12.2012 and 23.12.2012. Photographs of various roads taken during the survey are provided in the following page.

	
<p>Survey being conducted with a GIS map, stop watch, GPS, data recording formats in a test car.</p>	
	
<p>Survey in-progress in Bolangir – Kantabanji – Bangomunda – Chandatora road</p>	
	
<p>Delay experienced due to railway under bridge on Komtalpeta – Kalyansinghpur road</p>	<p>Delay experienced due to pedestrian crossing on Anugul – Chhendipada – Sarpal road</p>
	
<p>Delay Experienced near railway level crossing and congestion on Jhamjhari-Basudevpur-Dhamara road</p>	

4. SPEED PROFILE

The speed and delay characteristics along with flow in each section are provided in Table 2. The overall journey speed is about 41 km/hr on the core road network. The average journey speed in various roads varies between 14.2 km/hr (Barbil – Nalda – Bihar Border road) and 63 km/hr (Barkot – Lahunipada road).

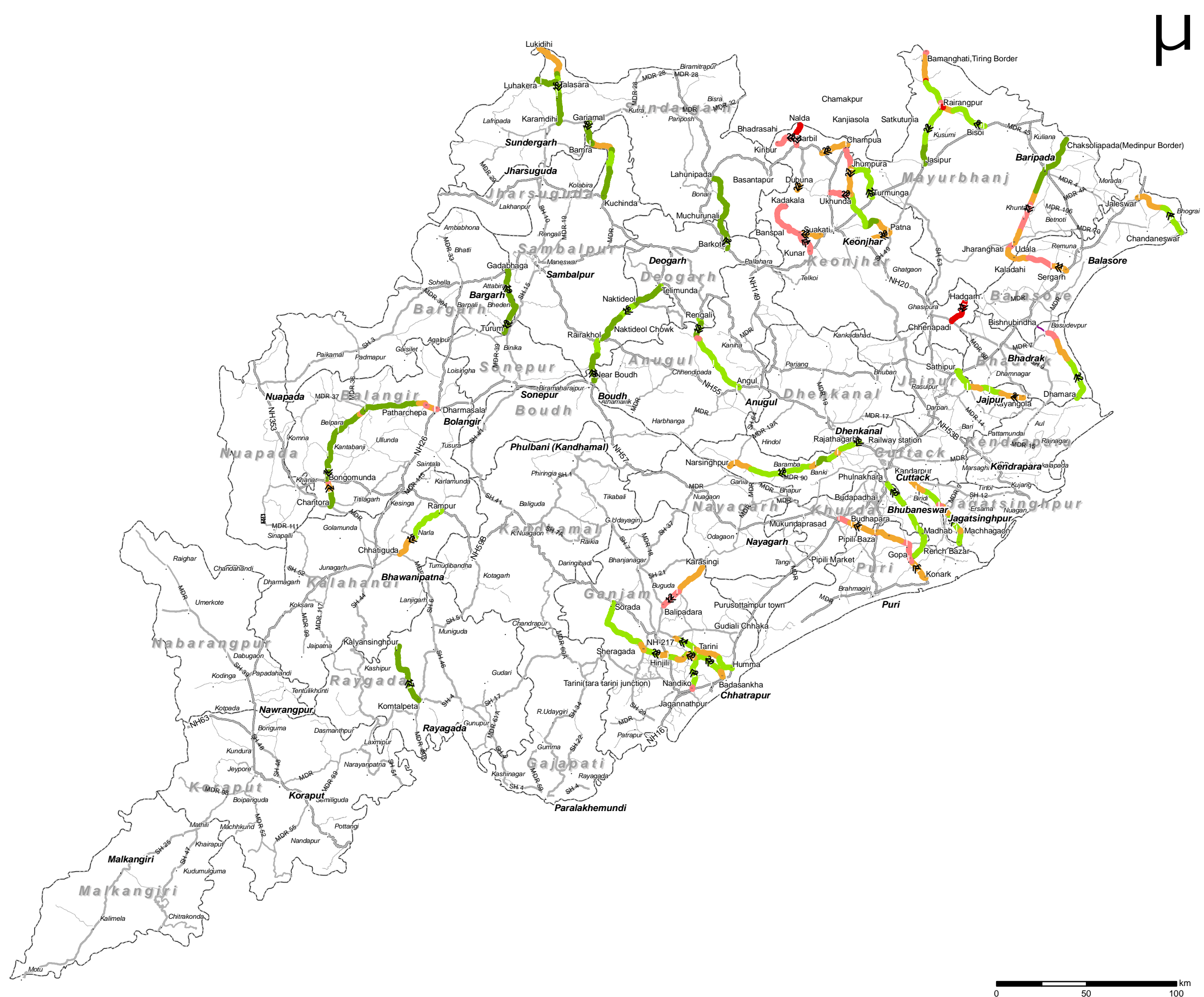
Table 2: Speed Profile on the Core Road Network

Corridor	Road	Section	Section Name	From (km)	To (km)	Length (km)	Average Journey Time (hh:mm:ss)	Average Delay Time (hh:mm:ss)	Average Running Time (hh:mm:ss)	Average Journey Speed (kmph)	Average Running Speed (kmph)	Average Flow (PCU/hr)
1	Barbil-Nalda-Bihar Border road	1	Bhadrasahi-Barbil	0.0	4.6	4.6	00:15:27	00:00:00	00:15:27	20.9	20.9	775
		2	Barbil-Barbil Town	4.6	6.2	1.7	00:17:32	00:00:00	00:17:32	6.9	6.9	359
		3	Badbil Town-Nalda Bihar Border	6.2	13.1	6.9	00:22:25	00:00:00	00:22:25	19.9	19.9	206
		Total				13.1	00:55:25	00:00:00	00:55:25	14.2	14.2	366
2	Sathipur-Jajpur-Mangalpur-Kayangola road	1	Sathipur-Budha Bridge	0.0	3.8	3.8	00:05:10	00:00:00	00:05:10	44.6	44.6	71
		2	Budha Bridge-Kianakula	3.8	14.3	10.5	00:13:07	00:00:00	00:13:07	49.4	49.4	180
		3	Kianakula-Rambag (Talia)	14.3	21.9	7.6	00:13:31	00:00:00	00:13:31	34.2	34.2	319
		4	Rambag (Talia)-Madhupur	21.9	34.5	12.6	00:16:10	00:00:00	00:16:10	47.6	47.6	237
		5	Madhupur-Kayangola	34.5	47.6	13.1	00:20:37	00:00:00	00:20:37	38.2	38.2	162
		Total				47.6	01:08:34	00:00:00	01:08:34	41.6	41.6	212
3	Barkote-Muchurunali-Lahunipada road	1	Barkote-Muchurunali	0.0	17.9	17.9	00:17:00	00:00:00	00:17:00	63.7	63.7	266
		2	Muchurunali-Lahunipada	17.9	48.5	30.6	00:29:14	00:00:00	00:29:14	62.9	62.9	304
		Total				48.5	00:46:14	00:00:00	00:46:14	63.0	63.0	287
4	Jaleswar-Batgaon-Chandaneswar road	1	Jaleswar-Sugo	0.0	6.7	6.7	00:11:21	00:00:43	00:10:38	35.8	38.1	631
		2	Sugo-Kamarda	6.7	17.5	10.9	00:17:13	00:00:00	00:17:13	38.0	38.0	344
		3	Kamarda-Chandaneswar	17.5	35.7	18.1	00:26:10	00:00:00	00:26:10	41.7	41.7	349
		Total				35.7	00:54:45	00:00:43	00:54:02	39.1	39.1	399
5	Khurdha-Jatni-Pipili-Nimapara-Gop-Konark road	1	Khurdha-Jatni	0.0	7.0	7.0	00:12:56	00:00:05	00:12:51	32.5	32.7	891
		2	Jatni-Pipili	7.0	22.4	15.4	00:30:50	00:00:56	00:29:54	30.0	30.9	329
		3	Pipili-Nimapara	22.4	42.6	20.2	00:30:23	00:00:45	00:29:38	40.0	41.0	545
		4	Nimapara-Gop	42.6	51.7	9.1	00:10:11	00:00:00	00:10:11	53.8	53.8	427
		5	Gop-Konark	51.7	66.1	14.4	00:17:33	00:00:14	00:17:19	49.1	49.8	285
		Total				66.1	01:41:52	00:02:00	01:39:52	38.9	38.9	468
6	Kandarpur-Machhagaon road	1	Kandarpur-Balia	0.0	12.4	12.4	00:19:55	00:00:44	00:19:11	37.6	38.8	510
		2	Balia-Basantpur	12.4	15.1	2.7	00:03:58	00:00:00	00:03:58	41.8	41.8	637
		3	Basantpur-Jagatsinghpur (Raghunathpur)	15.1	23.6	8.5	00:11:48	00:00:00	00:11:48	43.5	43.5	753
		4	Jagatsinghpur (Raghunathpur)-Jagatsinghpur (SVM College)	23.6	24.6	1.0	00:01:55	00:00:00	00:01:55	31.2	31.2	983
		5	Jagatsinghpur (SVM College)-Jagatsinghpur (Jajpur)	24.6	26.3	1.6	00:04:29	00:00:00	00:04:29	22.5	22.5	1358
		6	Jagatsinghpur (Jajpur)-Palli	26.3	31.9	5.7	00:08:52	00:00:00	00:08:52	38.8	38.8	673
		7	Palli-Balibhauri	31.9	33.4	1.5	00:02:12	00:00:00	00:02:12	40.9	40.9	656
		8	Balibhauri-Balikuda	33.4	42.3	8.9	00:11:09	00:00:00	00:11:09	47.8	47.8	355
		9	Balikuda-Kania (Santho)	42.3	44.1	1.8	00:02:59	00:00:00	00:02:59	37.9	37.9	374
		10	Kania (Santho)-Kania (Borikina)	44.1	44.8	0.7	00:01:14	00:00:00	00:01:14	34.1	34.1	458
		11	Kania (Borikina)-Machhagaon	44.8	51.4	6.6	00:08:46	00:00:00	00:08:46	45.8	45.8	169
		Total				51.4	01:17:17	00:00:44	01:16:33	39.9	39.9	569
7	Balangir-Patnagr-Kantabanji-Bangomunda-Chandtora road	1	Dharmasala-SH42	0.0	1.3	1.3	00:03:42	00:00:00	00:03:42	21.9	21.9	905
		2	S.H-42-Patharchepa	1.3	6.0	4.6	00:07:58	00:00:00	00:07:58	35.2	35.2	418
		3	Patharchepa-Barapudugia	6.0	15.6	9.6	00:11:13	00:00:00	00:11:13	51.6	51.6	209
		4	Barapudugia-Patnagarh(Tikarpara)	15.6	39.4	23.8	00:27:43	00:00:00	00:27:43	51.6	51.6	181
		5	Patnagarh(Tikarpara)-Patnagarh(Padampur)	39.4	40.3	0.9	00:02:32	00:00:00	00:02:32	23.1	23.1	532
		6	Patnagarh(Padampur)-Batharla	40.3	41.7	1.4	00:02:18	00:00:00	00:02:18	36.6	36.6	219
		7	Batharla-Belpara	41.7	63.4	21.7	00:21:29	00:00:00	00:21:29	60.5	60.5	157
		8	Belpara-Kantabanji	63.4	79.1	15.7	00:16:37	00:00:00	00:16:37	57.0	57.0	235
		9	Kantabanji-Bangomunda	79.1	94.6	15.5	00:16:47	00:00:00	00:16:47	55.5	55.5	265
		10	Bangomunda-Sindhikela	94.6	107.7	13.1	00:12:44	00:00:00	00:12:44	61.6	61.6	60
		11	Sindhikela-Chantora	107.7	110.9	3.2	00:05:10	00:00:00	00:05:10	37.9	37.9	283

Corridor	Road	Section	Section Name	From (km)	To (km)	Length (km)	Average Journey Time (hh:mm:ss)	Average Delay Time (hh:mm:ss)	Average Running Time (hh:mm:ss)	Average Journey Speed (kmph)	Average Running Speed (kmph)	Average Flow (PCU/hr)
		Total				110.9	02:08:12	00:00:00	02:08:12	51.9	51.9	232
8	Baripada-Bamanghati road	1	Bisoi-Banki	0.0	11.1	11.1	00:16:22	00:00:00	00:16:22	40.9	40.9	244
		2	Banki-Badamtolia	11.1	22.6	11.5	00:15:47	00:00:00	00:15:47	43.8	43.8	147
		3	Badamtolia-Ichinda	22.6	28.5	5.9	00:10:08	00:00:00	00:10:08	35.6	35.6	304
		4	Ichinda-Rairangpur (RJKD road)	28.5	29.5	1.0	00:04:19	00:00:00	00:04:19	16.5	16.5	648
		5	Rairangpur (RJKD road)-Rairangpur (G.mahisani road)	29.5	30.2	0.7	00:01:42	00:00:00	00:01:42	24.6	24.6	921
		6	Rairangpur (g.mahisani)-Murmuchhak	30.2	30.7	0.5	00:01:07	00:00:00	00:01:07	27.8	27.8	291
		7	Murmuchhak-Inspection Bangala	30.7	32.1	1.4	00:02:58	00:00:00	00:02:58	28.7	28.7	385
		8	Inspection Bangala-Near panposhi	32.1	35.1	3.0	00:04:10	00:00:00	00:04:10	44.0	44.0	292
		9	Near panposhi-Bahalda(chaibasa)	35.1	47.3	12.2	00:15:28	00:00:00	00:15:28	47.2	47.2	235
		10	Bahalda(chaibasa)-Bahalda(station)	47.3	48.3	1.0	00:03:08	00:00:00	00:03:08	18.7	18.7	246
		11	Bahalda(station)-Talsa	48.3	62.2	14.0	00:22:43	00:00:00	00:22:43	36.9	36.9	200
		12	Talsa-Tiring Border	62.2	65.4	3.2	00:08:01	00:00:00	00:08:01	24.3	24.3	128
				Total				65.4	01:45:54	00:00:00	01:45:54	37.1
9	Purusottampur-Jagannathpur road	1	Purusottampur-Bhimapur	0.0	2.5	2.5	00:04:59	00:00:02	00:04:58	30.2	30.4	475
		2	Bhimapur-Tarini	2.5	6.1	3.6	00:04:36	00:00:00	00:04:36	46.9	46.9	449
		3	Tarini-Bhaubandh (Patapur)	6.1	12.8	6.7	00:09:42	00:00:00	00:09:42	41.5	41.5	463
		4	Bhaubandh (Patapur)-Bhaubandh (Guranathi)	12.8	15.0	2.2	00:03:24	00:00:00	00:03:24	40.0	40.0	531
		5	Bhaubandh (Guranathi)-Tangarpalli	15.0	18.7	3.7	00:04:41	00:00:00	00:04:41	49.3	49.3	552
		6	Tangarpalli-Narendrapur	18.7	23.6	4.9	00:06:06	00:00:00	00:06:06	48.0	48.0	581
		7	Narendrapur-Jagannathpur	23.6	24.8	1.2	00:02:34	00:00:00	00:02:34	29.4	29.4	506
				Total				24.8	00:36:02	00:00:02	00:36:00	41.3
10	Phulnakhara-Niali-Charichhak-Gop road	1	Phulnakhara-Bagalpur	0.0	14.2	14.2	00:18:57	00:00:04	00:18:53	45.0	45.1	780
		2	Bagalpur-Olatpur	14.2	16.9	2.8	00:02:34	00:00:00	00:02:34	65.6	65.6	699
		3	Olatpur-SH Jn.	16.9	19.7	2.8	00:02:58	00:00:00	00:02:58	56.6	56.6	546
		4	SH Jn.-Madhav	19.7	35.9	16.3	00:23:36	00:00:04	00:23:32	42.2	42.3	519
		5	Madhav-Gop	35.9	53.3	17.3	00:27:41	00:00:22	00:27:20	37.6	38.1	160
				Total				53.3	01:15:46	00:00:30	01:15:16	42.2
11	Seragada-Kaptipada-Udala-Baripada-W.B. Border road	1	Seragarh-Sanhota	0.0	7.4	7.4	00:14:46	00:00:20	00:14:26	30.3	31.1	389
		2	Sanhota-Nijogarh	7.4	9.4	2.0	00:04:22	00:00:00	00:04:22	27.2	27.2	221
		3	Nijogarh-Gohira	9.4	23.5	14.1	00:29:16	00:00:00	00:29:16	29.1	29.1	132
		4	Gohira-Jharanghati	23.5	31.5	8.0	00:14:52	00:00:00	00:14:52	32.2	32.2	138
		5	Kaladahi-Udala	31.5	44.3	12.8	00:08:26	00:00:00	00:08:26	91.6	91.6	422
		6	Udala-Kanheibandh	44.3	55.5	11.2	00:09:40	00:00:00	00:09:40	70.1	70.1	430
		7	Kanheibandh-TilakChhak	55.5	100.9	45.3	00:44:11	00:00:00	00:44:11	61.6	61.6	740
		8	TilakChhak-DeuliBadasole	100.9	105.5	4.7	00:05:03	00:00:00	00:05:03	56.0	56.0	114
		9	DeuliBadasole-Chaksoliapada(Medinpur Border)	105.5	112.1	6.6	00:09:02	00:00:00	00:09:02	43.9	43.9	111
				Total				112.1	02:19:39	00:00:20	02:19:19	48.2
12	Balipadar-Karsing road	1	Balipadar-Buguda	0.0	11.9	11.9	00:31:36	00:00:02	00:31:34	22.7	22.8	94
		2	Buguda-Karasingi	11.9	32.6	20.6	00:36:38	00:00:05	00:36:34	34.0	34.1	74
				Total				32.6	01:08:15	00:00:07	01:08:08	28.6
13	Anugul-Chhendipada-Sarpal road	1	Anugul-Chhendipada (Jharpada)	0.0	38.0	38.0	00:51:18	00:00:04	00:51:15	44.4	44.5	437
		2	Chhendipada (Jharpada)-Near Chhendipada	38.0	39.5	1.5	00:03:42	00:00:11	00:03:32	24.1	25.5	542
		3	Near Chhendipada-Sendha	39.5	48.4	8.9	00:10:29	00:00:00	00:10:29	51.4	51.4	167
		4	Sendha-Rengali	48.4	51.1	2.7	00:03:42	00:00:00	00:03:42	45.3	45.3	430
				Total				51.1	01:09:11	00:00:14	01:08:58	44.3
14	Huma-Boirani road	1	Huma-Khandadeuli	0.0	11.3	11.3	00:16:21	00:00:18	00:16:02	41.5	42.3	154
		2	Khandadeuli-Purusottampur Town	11.3	26.3	15.1	00:23:09	00:00:11	00:22:58	39.1	39.4	206

Corridor	Road	Section	Section Name	From (km)	To (km)	Length (km)	Average Journey Time (hh:mm:ss)	Average Delay Time (hh:mm:ss)	Average Running Time (hh:mm:ss)	Average Journey Speed (kmph)	Average Running Speed (kmph)	Average Flow (PCU/hr)	
		3	Purusottampur Town-Bhutasarasingi	26.3	28.8	2.5	00:03:22	00:00:00	00:03:22	44.8	44.8	295	
		4	Bhutasarasingi-Jarada	28.8	35.8	7.0	00:09:52	00:00:05	00:09:47	42.8	43.2	90	
		5	Jarada-Gudiali	35.8	38.0	2.1	00:02:45	00:00:00	00:02:45	47.4	47.4	142	
		6	Gudiali-GudialiChhaka	38.0	39.4	1.5	00:02:14	00:00:00	00:02:14	39.2	39.2	177	
		Total					39.4	00:57:43	00:00:34	00:57:09	41.0	41.0	173
15	ChhatikudaNarla Rampur road	1	Chhatikuda--Narla	0.0	12.9	12.9	00:25:21	00:00:03	00:25:18	30.6	30.6	90	
		2	Narla-Rampur	12.9	38.5	25.6	00:36:33	00:00:04	00:36:29	42.1	42.2	125	
		Total					38.5	01:01:54	00:00:07	01:01:48	37.3	37.3	110
16	Kikata-Deogarh-Kuchinda-Bamara-Talsara-Lukidihiroad	1	Near Boudh-Kiakata	0.0	1.8	1.8	00:02:44	00:00:00	00:02:44	39.7	39.7	88	
		2	Kiakata-Kadaligad	1.8	9.7	7.9	00:08:42	00:00:00	00:08:42	54.8	54.8	97	
		3	Kadaligad-Rairakhol	9.7	27.1	17.4	00:21:29	00:00:00	00:21:29	48.6	48.6	154	
		4	Rairakhol-NaktideolChowk	0.0	29.6	29.6	00:29:26	00:00:02	00:29:24	60.4	60.5	42	
		5	NaktideolChowk-Telimunda	0.0	18.5	18.5	00:18:45	00:00:00	00:18:45	59.1	59.1	54	
		6	Kuchinda-Bamra	0.0	42.6	42.6	00:50:58	00:00:00	00:50:58	50.7	50.7	65	
		7	Bamra-Garimal	0.0	13.8	13.8	00:15:21	00:00:00	00:15:21	54.1	54.1	115	
		8	Karamdihi-Subdega	0.0	17.2	17.2	00:17:55	00:00:00	00:17:55	57.7	57.7	144	
		9	Subdega-Talasara	17.2	23.7	6.6	00:06:09	00:00:00	00:06:09	64.1	64.1	227	
		10	Talasara-Lukidihi	23.7	52.5	28.8	00:49:37	00:00:00	00:49:37	34.9	34.9	19	
	Total					184.1	03:41:05	00:00:02	03:41:03	50.0	50.0	75	
		TalsaraLuhakera road	1	Talsara-Balisankara	0.0	9.6	9.6	00:10:17	00:00:00	00:10:17	55.8	55.8	206
			2	Balisankara-Luhakera	9.6	12.8	3.2	00:03:30	00:00:00	00:03:30	55.5	55.5	309
Total							12.8	00:13:47	00:00:00	00:13:47	55.7	55.7	231
17	Kamatalapeta-Kalyansinghpur Road	1	Kamatalapeta-Kalyansinghpur Bypass	0.0	38.3	38.3	00:50:12	00:00:11	00:50:01	50.1	50.6	83	
		Total					38.3	00:50:12	00:00:11	00:50:01	45.8	45.8	67
18	Raj Athagada Railway Station road	1	Rajathagarh-Railway Station	0.0	2.3	2.3	00:09:13	00:00:15	00:08:58	15.2	15.6	104	
		Total					2.3	00:09:13	00:00:15	00:08:58	15.1	15.1	101
	Raj Athagada-Narsinghpur road	1	Rajathagarh-Dorada	0.0	8.7	8.7	00:10:48	00:00:00	00:10:48	48.3	48.3	213	
		2	Dorada-College	8.7	10.8	2.2	00:03:24	00:00:00	00:03:24	39.5	39.5	373	
		3	College-Athagarh Town	10.8	11.8	1.0	00:01:30	00:00:00	00:01:30	40.3	40.3	325	
		4	Athagarh Town-Athagarh	11.8	12.7	0.9	00:01:31	00:00:00	00:01:31	36.2	36.2	1352	
		5	Athagarh-Khuntakata	12.7	18.1	5.4	00:06:47	00:00:00	00:06:47	48.4	48.4	395	
		6	Khuntakata-Tigiria	18.1	26.3	8.2	00:08:56	00:00:00	00:08:56	57.2	57.2	353	
		7	Tigiria-Bindhanima	26.3	30.3	4.0	00:06:36	00:00:00	00:06:36	37.4	37.4	467	
		8	Bindhanima-Badamba Town	30.3	47.3	17.0	00:25:35	00:00:12	00:25:23	40.1	40.4	265	
		9	Badamba Town-Gopapur	47.3	51.0	3.7	00:05:17	00:00:00	00:05:17	42.1	42.1	417	
		10	Gopapur-Champeswar	51.0	66.4	15.4	00:22:28	00:00:14	00:22:14	41.4	41.7	143	
		11	Champeswar-Ekdal	66.4	69.4	3.0	00:05:22	00:00:00	00:05:22	33.6	33.6	271	
		12	Ekdal-PanchamuhinChhak	69.4	75.8	6.4	00:09:36	00:00:00	00:09:36	39.9	39.9	129	
		13	PanchamuhinChhak-Thana Chhak	75.8	76.8	1.0	00:03:14	00:00:00	00:03:14	19.5	19.5	171	
14	Thana Chhak-Narsinghpur	76.8	80.5	3.7	00:06:18	00:00:00	00:06:18	35.1	35.1	99			
Total						80.5	01:57:21	00:00:26	01:56:55	41.2	41.2	267	
19	GodbhagaTurumroad	1	Godbhaga-Mahulpalli	0.0	36.5	36.5	00:38:36	00:00:08	00:38:28	56.8	56.9	130	
		2	Mahulpalli-Turum	36.5	39.9	3.4	00:03:32	00:00:00	00:03:32	62.1	62.1	123	
		Total					39.9	00:42:07	00:00:08	00:42:00	56.9	56.9	130
20	Badasankha (NH-5 Jn)TariniNandikoHinjiliSeragada (Extension up to Soroda) road	1	Badasankha-Tarini	0.0	23.8	23.8	00:37:41	00:00:20	00:37:21	37.9	38.3	49	
		2	Tarini-Jamuni	0.0	5.7	5.7	00:07:42	00:00:00	00:07:42	44.8	44.8	42	
		3	Jamuni-Nandiko	5.7	8.1	2.3	00:04:26	00:00:07	00:04:19	32.9	33.4	51	
		4	Nandiko-PatpurNandiko	0.0	0.5	0.5	00:00:47	00:00:02	00:00:45	47.4	49.7	186	

Corridor	Road	Section	Section Name	From (km)	To (km)	Length (km)	Average Journey Time (hh:mm:ss)	Average Delay Time (hh:mm:ss)	Average Running Time (hh:mm:ss)	Average Journey Speed (kmph)	Average Running Speed (kmph)	Average Flow (PCU/hr)
		5	PatpurNandiko-Ralaba	0.5	2.3	1.8	00:03:07	00:00:00	00:03:07	36.0	36.0	64
		6	Ralaba-Hinjili	2.3	8.7	6.3	00:12:04	00:00:18	00:11:46	32.0	33.0	125
		7	NH217-Burupada	0.0	2.3	2.3	00:04:32	00:00:00	00:04:32	30.7	30.7	185
		8	BurupadaSheragada	2.3	14.1	11.8	00:15:00	00:00:00	00:15:00	47.2	47.2	59
		9	SheragadaBeramundali	0.0	4.2	4.2	00:07:03	00:00:00	00:07:03	36.3	36.3	86
		10	BeramundaliSorada	4.2	42.0	37.8	00:50:50	00:00:00	00:50:50	44.6	44.6	47
		Total						96.5	02:23:11	00:00:47	02:22:25	40.5
22	Rairangpur-Jashipur-Karanjia-Dhenkikot road	1	Rairangpur-Jhaldunguri	0.0	22.7	22.7	00:27:32	00:00:00	00:27:32	50.0	50.0	190
		2	Jhaldunguri-Jashipur	22.7	35.8	13.0	00:13:45	00:00:00	00:13:45	57.3	57.3	149
		Total				35.8	00:41:17	00:00:00	00:41:17	52.0	52.0	174
23	Suakati-Dubuna road	1	Suakati-Banspal	0.0	12.5	12.5	00:22:45	00:00:00	00:22:45	33.5	33.5	95
		2	Banspal-Kadakala	12.5	44.1	31.5	01:16:04	00:00:00	01:16:04	25.0	25.0	22
		Total				44.1	01:38:49	00:00:00	01:38:49	26.8	26.8	38
24	Kuanra-Bansapal road	1	Kuanra-Bansapal	0.0	14.1	14.1	00:36:07	00:00:00	00:36:07	23.5	23.5	26
		Total				14.1	00:36:07	00:00:00	00:36:07	23.5	23.5	26
25	BarbilKiriburu road	1	Barbil-Kiriburu	0.0	14.8	14.8	00:35:24	00:00:00	00:35:24	25.1	25.1	233
		Total				14.8	00:35:24	00:00:00	00:35:24	25.1	25.1	234
26	Champua-Chamakpur road	1	Champua-Chamakpur	0.0	16.5	16.5	00:24:55	00:00:00	00:24:55	39.7	39.7	235
		Total				16.5	00:24:55	00:00:00	00:24:55	39.6	39.6	234
27	Satkutunia-Patna road	1	Satkutunia-Kanjiasola	0.0	11.7	11.7	00:26:41	00:00:00	00:26:41	26.4	26.4	135
		2	Kanjiasola-Ukhunda	11.7	27.2	15.5	00:27:44	00:00:00	00:27:44	33.5	33.5	29
		3	Ukhunda-Maidankel	27.2	49.1	21.9	00:28:55	00:00:00	00:28:55	46.0	46.0	75
		4	Maidankel-Saradhapur	49.1	57.2	8.1	00:09:40	00:00:00	00:09:40	50.2	50.2	104
		5	Saradhapur-Patna	57.2	67.6	10.4	00:19:07	00:00:00	00:19:07	32.7	32.7	96
		Total				67.6	01:52:06	00:00:00	01:52:06	36.2	36.2	83
28	Kanjiasola - Turmungaroad	1	Kanjiasola - Turmunga	0.0	28.3	28.3	00:35:46	00:00:00	00:35:46	47.4	47.4	59
		Total				28.3	00:35:46	00:00:00	00:35:46	47.4	47.4	59
29	Jhumpura-Ukhunda road	1	Jhumpura-Ukhunda	0.0	14.3	14.3	00:37:15	00:00:00	00:37:15	23.0	23.0	42
		Total				14.3	00:37:15	00:00:00	00:37:15	23.0	23.0	42
30	Pipilia Patna road	1	Pipilia-Patna	0.0	16.8	16.8	00:32:48	00:00:00	00:32:48	30.7	30.7	34
		Total				16.8	00:32:48	00:00:00	00:32:48	30.7	30.7	34
31	Chhenapadi-Hadagarhroad	1	Chhenapadi-Hadagarh	0.0	15.5	15.5	00:54:47	00:00:40	00:54:07	17.1	17.3	46
		Total				15.5	00:54:47	00:00:40	00:54:07	17.0	17.0	46
32	Jhamjhadi-Dhamara road Via Basudevapur	1	Bishnubindha-Basudevapur	7.0	13.4	6.4	00:14:49	00:00:00	00:14:49	25.9	25.9	159
		2	Basudevapur-A.B. College Main Gate	13.4	14.3	1.0	00:02:29	00:00:00	00:02:29	23.5	23.5	540
		3	A.B. College Main Gate-Mandari	14.3	16.0	1.6	00:03:21	00:00:00	00:03:21	30.1	30.1	303
		4	Mandari-Birasa	16.0	27.8	11.8	00:19:37	00:00:00	00:19:37	36.2	36.2	205
		5	Birasa-Dhamara	27.8	60.5	32.7	00:52:26	00:11:16	00:41:10	43.2	58.5	157
		Total				53.5	01:32:42	00:11:16	01:21:26	34.6	34.6	174



List of Core Road Network (CRN)						
Sl.No. as per notification	Division	Road Name	Section Name	Road No	GIS Length (km)	
1	Keonjhar	Barbil-Nalda-Bihar Border Road		SH10	13.11	
2	Panikoli	Sathipur-Jajpur-Mangalpur-Kayanagola Road		MDR	47.60	
3	Sambalpur	Barkot-Lahunipada Road	Barkote - Machurnali (From Km 0.00 to 17.9)	SH10A	17.91	
	Rourkela		Machurnali - Lahunipada (From Km 17.9 to 48.5)	SH10A	30.63	
4	Balasore	Jaleswar-Batgaon-Chandaneswar Road		MDR	35.67	
	Khurda		Budapadha - Mukundaprasad (From Km 9.0 to 22.360)	SH13	13.36	
	Bhubaneswar-II		Budhapara-Pipili Bazar (From Km 13.000 to 22.004)	SH13	9.00	
5	Bhubaneswar-II	(Extended Upto Konark)	Pipili Market-Rench Bazar (From Km 22.004 to 30.377)	MDR10	8.37	
	Puri		Rench Bazar - Gop - Konark (From Km 8.372 to 43.560)	MDR80	35.19	
6	Jagatsinghpur	Kandarpur-Machhagaon Road	Kandarpur-Machhagaon road	SH43	51.35	
	Bolangir		Balangir - Division Limit (From Km 0.00 to 6.00)	SH42	5.98	
7	Kantabnaji	Bolangir-Patnagarh-Kantabnaji-Bangomunda-Chandutora Road	Division limit to Bangamunda (From Km 6.00 to 95)	SH42	88.78	
	Kantabnaji		Bangamunda to Chantora (From Km 95.00 to 112.00)	SH42	16.33	
8	Rairangpur	Baripada-Bamanghati Road	Boisoi to Tiring Border	SH50	65.43	
9	Ganjam-II	Purusottampur - Jagannathpur Road (Previously MDR-67)		SH32	24.80	
10	Jagatsinghpur	Phulnakhara-Niali-Madhab (From Km 0.00 to 36.500)	Phulnakhara-Niali-Madhab (From Km 0.00 to 36.500)	MDR	35.94	
	Puri		Madhab-Charichhak-Gop (From Km 36.500 to 53.820)	SH60	17.32	
	Balasore		Sergarh-Nilgiri-Jharanaghati (From Km 0.00 to 31.5)	SH19	31.46	
11	Mayurbhanj	Seragada-Kaptipada-Udala-Baripada-W.B. Border	Kaladahi Near Kaptipada to Udala (From Km 31.458 to 44.305)	SH19	12.85	
	Mayurbhanj		Udala to Chakoliapada (Medinpur Border) (From Km 44.305 to 112.095)	SH19	67.79	
12	Bhanjanagar	Balipadar-Karsing (SH-21 Jn.) Road		SH33	32.75	
13	Anugul	Anugul-Chendipada-Sarpal Road		SH63	51.06	
14	Ganjam-II	Huma-Bairani Road (Previously MDR-66)	Huma- Gudiali Chhaka	SH31	39.42	
15	Kalahandi	Chhatkuda-Narla-Rampur Road		SH6A	38.53	
	Sambalpur		Kiakata-Rairakhol (From Km 9.00 to 36.00)	MDR	25.35	
	Sambalpur		Rairakhol-Naktideol (From Km 36.00 to 65.62)	SH24	29.63	
16	Sambalpur	Kiakata-Deogarh-Kuchinda-Bamara-Talsara-Lulukidih and MDR 30 Talsara Lulukidih Roads	Kuchinda-Bamra (From Km 154.20 to 196.76)	SH24	42.56	
	Sundargarh		Gariamal-Bamra	SH31	13.83	
	Sundargarh		Karamdih - Talsara - Lulukidih	SH31	52.53	
	Sundargarh		Talsara-Luhakera Road	MDR30	12.80	
17	Rayagada	Kamatlapeta-Kalyansinghpur Road		SH45	38.31	
18	Charbatia	Raj Athagada-Narsinghpur Road		SH65	80.50	
	Charbatia		Raj Athagada Railway Station Road	SH65	2.32	
19	Baragarh	Godhaga-Turum Road		MDR	39.92	
	Ganjam-II		Badasankha to Tarini (From Km 0.000 to 24)	MDR	23.75	
	Ganjam-II		Tarini to Nandiko (From Km 24.000 to 32.062)	MDR	8.06	
20	Ganjam-I	Badasankha (NH-5 Jn) Tarini-Nandiko-Hinjili-Seragada (Extension up to Soroda)	Nandiko-Hinjili (From Km 32.061 to 40.722)	SH36	8.66	
	Ganjam-I		NH-217-Sheragada (From 40.722 to 54.784)	SH36	14.06	
	Bhanjanagar		Sheragada-Badagada-Sorada (From Km 54.784 to 96.788)	MDR	42.00	
22	Rairangpur	Rairangpur-Jashipur-Karanja-Dhenkikot Road	Rairangpur-Jashipur (From Km 0.000 to 35.752)	SH49	35.75	
23	Keonjhar	Suakati-Dubuna Road	Suakati to Kadakala	ODR	44.06	
	Keonjhar		Basantapur to Dubuna	ODR	3.81	
24	Keonjhar	Kuanra-Bansapal Road		MDR12	14.12	
25	Keonjhar	Barbil-Kiriburu Road		ODR	14.82	
26	Keonjhar	Champua - Chamakpur Road		ODR	16.46	
27	Keonjhar	Satkutunia- Patna Road		ODR	67.60	
28	Keonjhar	Kanjasola - Turumunga Road		ODR	28.28	
29	Keonjhar	Jhumpura - Ukhunda Road		ODR	14.29	
30	Keonjhar	Pipili Patna Road		ODR	16.79	
31	Keonjhar	Chhenapadi - Hadgarh Road		ODR	15.53	
32	Bhadrak	Jhamhodi-Dhamara Road Via Basudevpur	Bishnubindha - Dhamra (From Km 7.000 to 60.455)	MDR85	53.46	
					Grand Total (km)	1568.34

Note:
 Road at Sl. No. 21 (Barkot - Lahunipada Road) is duplicate with Sl. No 3, hence it is excluded from the list.
 * Road section from Konark to Puri (35 km) is declared as NH, hence excluded. Road section, Gop to Konark is added to Sl.No. 5.

Legend

	Journey Speed (kmph) < 20		Road Start/End		NH
	20 - 30		Major Towns		Expressway
	30 - 40		Other Towns		SH
	40 - 50		District Boundary (for reference)		MDR
	> 50				ODR

VEHICLE SPEED PROFILE ON THE CORE ROAD NETWORK OF ODISHA WORKS DEPARTMENT

Odisha Road Asset Management System (O-RAMS)

Consultant
 LEA Associate South Asia Pvt. Ltd. (LASA), India
 in joint venture with
 LEA International Ltd. (LEA), Canada
 in association with
 Geo InfoSpace Pvt. Ltd.(GIPL), India

Annexure: Survey Formats



Odisha Road Asset Management System (O-RAMS)
 Works Department, Government of Odisha



SPEED AND DELAY SURVEY

Name of the Road/Section:

Division:

Date:

RID:

Division ID-

Trip No	Distance	Control Points		First Stop Watch		Second Stop Watch		Cause of Delay
		From	To	Journey Time (hh:mm:ss)		Delay Time (hh:mm:ss)		
				Start	End	Start	End	
Trip-1								
Trip-2								
Trip-3								
Trip-4								

Name of Enumerators:

Cause of Delay: 1. Congestion 2. Signal 3. Accident 4. Any Other (pl. specify)





Odisha Road Asset Management System (O-RAMS)
 Works Department, Government of Odisha
SPEED AND DELAY SURVEY
 (Vehicle from Opposite Direction)



Name of the Road/Section:

Division:

Date:

RID:

Division ID-

Trip No	Control Points		Passenger Vehicles				Goods Vehicles			Other (Tractor / Construction Vehicles, any other motorised vehicles)
	From	To	SC / MC	3 Wheeler	Cars / Jeep / Van / Taxi	Mini Bus/Bus	Tempo/LCV (3-tonne)	2/3-Axle Truck	M-Axle Trucks	
Trip-1										
Trip-2										
Trip-3										
Trip-4										

Note: use tally marks for counting
 Name and Signature of Enumerators:

Name and Signature of Supervisors:





Odisha Road Asset Management System (O-RAMS)
 Works Department, Government of Odisha
SPEED AND DELAY SURVEY
 (Vehicle OVERTAKEN by Test Car)



Name of the Road/Section:

Division:

Date:

RID:

Division ID-

Trip No	Control Points		Passenger Vehicles				Goods Vehicles			Other (Tractor / Construction Vehicles, any other motorised vehicles)
	From	To	SC / MC	3 Wheeler	Cars / Jeep / Van / Taxi	Mini Bus/Bus	Tempo/LCV (3-tonne)	2/3-Axle Truck	M-Axle Trucks	
Trip-1										
Trip-2										
Trip-3										
Trip-4										

Note: use tally marks for counting
 Name and Signature of Enumerators:

Name and Signature of Supervisors:





Odisha Road Asset Management System (O-RAMS)
 Works Department, Government of Odisha
SPEED AND DELAY SURVEY
 (Vehicle OVERTAKING Test Car)



Name of the Road/Section:

Division:

Date:

RID:

Division ID-

Trip No	Control Points		Passenger Vehicles				Goods Vehicles			Other (Tractor / Construction Vehicles, any other motorised vehicles)
	From	To	SC / MC	3 Wheeler	Cars / Jeep / Van / Taxi	Mini Bus/Bus	Tempo/LCV (3-tonne)	2/3-Axle Truck	M-Axle Trucks	
Trip-1										
Trip-2										
Trip-3										
Trip-4										

Note: use tally marks for counting
 Name and Signature of Enumerators:

Name and Signature of Supervisors:

