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## 202.04

### No. RW/NH-33044/23/2004-S&R(R)

Dated, the 23rd June, 2006

То

The Engineer-in-Chief and Chief Engineers of State PWDs and UTs (Dealing with National Highways); The Chairman, National Highways Authority of India; The Director General (Border Roads)

## Subject : Development of GIS based National Highways Information System

The Ministry has sanctioned the scheme for development of GIS based National Highways Information System (excluding the stretches covered under NHDP Phase-I & Phase-II) in August 2005 through CRRI as the implementation organization. The implementation is to be carried out by CRRI under 4 modules, viz.:-

- (i) Module-I: Preparation of a digital GIS map in 1:1 million scale based on SOI toposheets showing all National Highways network.
- (ii) Module-II: Inventorization of National Highway network (excluding NHDP Phase-I & II).
- (iii) Module-III: Conduction of Traffic Volume Survey for about 50 representative locations taken continuously for 7 days using permanent traffic classifiers; remaining traffic data is to be arranged by Ministry through PWDs and to be made available to CRRI for integrating with GIS.
- (iv) Module-IV: Long term maintenance and rehabilitation strategies for NHs based on HDM-IV tool.

The work is scheduled to be completed in February, 2009 strictly in a time bound manner.

2. Under Module-II mentioned above, CRRI would collect the primary data as a part of inventorization. These include parameters like curvature, gradient, roughness, distance measurement, junction type, pavement width type (single lane, intermediate lane, 2 lane, 4 lane, single/dual carriageway etc.), pavement surface type (cement concrete bituminous etc.). Primary data is to be collected by instrumented vehicle. An addition vehicle, following the instrumented vehicle, is to be employed for collecting data and information from secondary sources. For these, a team of 2 persons in a vehicle would move all over the NH road network and collect data on visual surface condition, details of bridges and culverts (type, length, number of spans, span length, details of piers/abutments, hume pipe/ concrete pipe culverts, no. of rows etc.), details of the roadway width (formation width), height of embankment, carriageway width, pavement cross section (crust details), type and condition of shoulders, rainfall data, depth of water table, flood data etc. All these secondary data are to be collected with the help of concerned field engineers of the concerned executive agencies associated with the specific stretches of NHs including concerned ROs/ELOs of the Ministry.

3. CRRI has now forwarded the formats for collection of secondary data, mentioned above, which are enclosed herewith (Secondary data Format-I to Format-III, and list of codes for filling secondary data).

4. In view of the above, all concerned executive agencies are requested to extend the necessary help and support in providing the desired secondary data to CRRI as per the formats enclosed herewith for the NH network in the country (excluding NH stretches covered under NHDP Phase-I & II).

(Enclosure of Ministry's of Shipping, Road Transport & Highways, (Deptt. of Road Transport & Highways) letter No. RW/NH-33044/23/2004-S&R (R) dated the 23<sup>rd</sup> June, 2006) 202/11

Secondary Data Format - I

**Pavement Inventory and History** 

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			Remarks	23													
	م م	Type and Year of Preventive Treatment if any		22													
	Pavement History	Yest of Last Resurtscing and Specification		21													
: .	Paven	Year of Last Strengthening and Specification		. 20			. <b>1</b>										
		uo	Year of Construction														
sion:		Subgrade	Type CBR	18													
Divi		Sub		. 17													
PWD Division: State:	Pavement Crust Details	Subbase	Thickness (mm)	16													
	tent Cru	Sul	Type	15													
	Pavem		Thickness (mm)	14													~
		Base	jype	13									_				
		ace	Type Thickness Type Thickness (mm)	12													
-		Surface	Type	Ξ													
	Depth of Cutting (Range in (m))			10					•.								
	Height of Embankment (Range in (m))			6										•			
_	Shoulder		Width (m)	· •0													
km	Sho		Type	7						: :							
	ment	geway -	Type Width Type (m)	ġ						•				-			
ţ	Pave	Pavement Carriageway Type Width (m)		~											•		
Name and C <sub>at</sub> egory of Road: Section: Fr <sub>om</sub> Krn			Formation Width (m)	4													
t <i>e</i> gory Km			Right of Way Width (m)	~ m			ļ										
nd Ca From	$\vdash$		د <u>ج</u>	~	1		1	Γ	T	1	Γ	1		_	] [		
Name and C <sub>at</sub> egol Section: F <sub>rom</sub> Km			From Km	- ·												[	
										•	•		·				

Secondary Data Format - II

Inventory on Cross Drainage Structures and Details of Environmental Conditions

Remarks 23. h Average Builtup Forest Agri. Indus. Rain er fall per (mm) 22 Road side development 21 20 19 PWD Division: State: 18 Ave. of water Temp Table (m) 17 16 Temp. During the Last Year Max. Temp 15 Min. Temp 14 of High Submergence logging Flood (if any Problems Level incidence) (Yes/No) 13 12 11 No. of Diameter Length No. of No. of Foun- River/ Rows Pipes in Structure Spans dation Drain (m) 10 6 Cross Drainage Structure Details 00 Ŋ 5 9 \$ Name and Category of Road: Section: From Km ŝ Type of Pipes 4 Type of CD ŝ ₽ <sup>M</sup> 2 From Km -

# Secondary Data Format - III

Classified Traffic Volume Data

PWD Division:

Name and Category of Road:

		Toal Non- Motorised Vehicles	17 18					-											-				
		Total Motorised Vehicles	16					_							_								
		Animal Carts	15			-																	
State:		Cycle Rickshaws	14				•	*															
		Cycles	13																				
		5 axles Truck	12																				
	Traffic Volume (AADT)	4 axles Truck	11																				
		3 axles Truck	10																				
		2 axles Truck	6																				
		LCV5	80																				
		Tractor- Trailor	7						•									•					
km		Bus	6							• •													
		Cars/ Jeeps	5											2									
to		Two Three Wheelers Wheelers	. 4																				
		Two Wheelers	3								,												
Section: From Km		Period (Year)	2	2005	2004	2003	2002	2005	2004	2003	2002	2005	2004	2003	2002	2005	2004	2003	2002	2005	2004	2003	
Section:		Census Location/ Chainage	-				•							<u> </u>				1					L

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# List of codes to be used for Filling Secondary Data

## Types of CDs and Structures

Slab Culvert	SC
Box Culvert	BOC
Pipe Culvert (Concrete Pipe)	СР
Pipe Culvert (Hume Pipe)	HP
Major Bridge	Maj B
Minor Bridge	Min B
Others (please specify)	

Others (please specify)	
Types of Foundation	
Wall Foundation	WF
Pile Foundation	PF
Others (please specify)	OF
Pavement Types	
Bituminous Surface	BT
Concrete Surface	CC
Unpaved Surface	UP
Others (please specify)	OP
Shoulder Types	
Hard Shoulder	HS
Gravel Shoulder	GS
Bricks Shoulder	BS
Earthen Shoulder	ES
Bituminous Shoulder	BTS
Others (please specify)	OS
Surface Types	
Bituminous Concrete	BC
Semi Dense Bituminous Concrete	SDBC
Mix Seal Surfacing	MSS
Premix Carpet	PMC
Surface Dressing	SD
Plain Cement Concrete	PCC
Reinforced Cement Concrete	RCC
Continuously Reinforced Concrete Pavement	CRCP

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]	Roller Compacted Concrete Pavement	RCCP
	Water Bound Macadam	WBM
	Gravel	GL
	Others (please specify)	OST
	Base Type	
	Dense Bituminous Concrete	DBM
	Bituminous Mecadam	BM
	Wet Mix Mecadam	WMM
	Cement Treated Base	СТВ
	Dry Lean Concrete	DLC
	Water Bound Macadam	WBM
	Brick Soling	BS
	Others (please specify)	OSB
	Sub Grade Soil Types	
	Sandy Soil	S
	Block Cotton Soil	BS
	Gravel Soil	GS
	Moorum Soil	М
	Clayey Soil	CS
	Silty Soil	SS