

## Safety Action Plan – Civil Engineering

Item No	Item Details	Quantity	Funds Required	Plan Head-Allocation	Time Frame
1	<b>Track Renewals (SRSF)</b> : Track due renewal as of 1.4.01 : 16538 Km, costing Rs 7670 Cr (Net) incl inflation. Work done up to 31.3.03, 5833 Km costing Rs 2776 Cr (Net).	Overdue track renewals: Track due renewal as of 1.4.01. Balance 10705 Km as of 1.4.03.	Rs 4894 Cr (Net). Under SRSF	Track Renewals-SRSF	2006-07.
2	Mechanisation of track maintenance and relaying activity on BG routes only.	Approx. 62000 Km. as of 1.4.2002.	Rs.350 crore under SRSF	RSP SRSF	2006-07
3	Reliable Ultrasonic Rail detection – SPURT Car.	5 Spurt Cars	Rs. 95 cr.( 2 Cars Rs 35 Cr Under DF-3, 3 Cars Rs 60 Cr under SRSF)	RSP-DF3 and SRSF	2006-07
4	Technology to improve the quality of Alumino thermit welds to improve life of track.	Sanctioned in 02-03.	Rs. 30 cr under SRSF	SRSF	2006-07
5	<b>Level-Crossings</b> : Manning, provision of lifting barrier, standard road width, retro-reflective boards.	Manning of 1500 Nos, Standardisation of 6750 Nos, Provision of lifting Barrier at 2530 Nos, Retro reflective Boards at 5000 Nos. of LXings.	Rs. 300 cr. under RSF wef 1.4.03 and onwards	Road Safety Works(LC)-RSF	2008-09
6	<b>Level Crossings - Replacements of LCs</b> where TVU > 1.0 lac by ROB/RUBs on cost sharing basis.	417 LCs already sanctioned (Railway's share Rs. 2000 Cr.) 1252 LCs balance as on 01.04.03. (Railway's share Rs. 6000 Cr.).	Rs. 8000 Cr. (RSF)	Road Safety Works (ROBs/RUBs)-RSF	2012-13
7	<b>Rehabilitation /Rebuilding of railway bridges (SRSF)</b> : Total as of 1.4.01 : 2700 Nos, costing Rs 1722 Cr incl inflation. Work done up to 31.3.03, 776 Nos costing Rs 195 Cr.	Balance 1924 Nos Bridges as of 1.4.03, costing Rs 1527 Cr.	Rs. 1527 cr. under SRSF	Bridge Works-SRSF	2006-07

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8	Bridge Testing Laboratories as part of Bridge Management and inspection System.	One on each Zonal Railway i.e. 16 total.	Rs. 30 cr. under DRF	Machinery & Plant-DRF	2007-08
9	Mobile Bridge Inspection Units	One on each Zonal Railway i.e. 16 total.	Rs. 90 cr. under CAP	RSP-CAP	2008-09
10	In-situ measurement of locked up thermal stresses in rail (LWRs). Service to be obtained as a works contract.	1500 Km of track on ALD Division of NCR.	Rs. 1.0 Cr. under REV	REV	2004-05
11	Mobile Mechanised Units on all Group A routes.	Approx 13816 Km of Group A route on BG. 150 Nos units.	Rs. 150 cr. under CAP.	RSP-CAP	2008-09
12	Track monitoring by state of the art track recording car.	1 New + 5 Old to be upgraded.	Rs. 8.5 cr.Under CAP	RSP-CAP	2005-06
13	<b>Communication</b> : Engg Control circuit between Field Supervisor & DIV, Zonal HQrs to DIV.	To be done progressively along with laying of OFC.	Rs. 40 cr. under CAP	Other Specified Works-CAP	2008-09
14	Bridge Management System, Pilot Projects which includes under water testing and NDT equipments.	Lump Sum	Rs. 2.5 cr. under DRF + Rs. 10 cr. under REV	Bridge Works-DRF and REV	2006-07
15	Research and development in Safety related issues of Bridges : LWR on bridges, Scour monitoring etc.	Lump Sum	Rs 10 cr under DF	Railway Research-DF	2013-14
16	Preventive rail grinding	1 Machine to start with.	Rs. 50 cr. under CAP	RSP-CAP	2005-06
17	Lubrication of gauge face and friction modifier.	15 Nos. for Trial.	Rs. 2 cr. under DF2	Railway Research-DF2	2005-06
<b>Fund Requirement</b>					
<b>Source</b>		<b>Requirement in Rs Crs.</b>			
Capital		338.50			
DRF		32.50			
DF		47.00			
RSF		8300			

**Note** : The requirement shown under the allocation SRSF, will be met through the sanctioned Special Railway Safety Fund.

**Safety Action Plan – Mechanical (Traction)**

Item No.	Item Details	Qty	Funds Required (Rs.in crores)	Plan Head and Allocation	Time Frame By
1	Upgradation of electro-mechanical speed recorders in diesel locos to Micro processor based speed recorders with electronic memory	2500	0.165 9.835	RSP(21) Capital SRSF	2005-06
2	More prominent Xenon based flasher lights as against existing for diesel locos	3000	4	RSP(21) D R F	2005-06
3	High intensity Twin-beam headlights for diesel locos (4900 in RSP)	2500	4	RSP(21) SRSF	2004-05
4	Provision of air-dryers for compressed air system of diesel locos (2000 in RSP)	2150	64.5	RSP(21) SRSF	2005-06
5	Microprocessor based electronic brake system with resetting VCD, Event recorder and passenger alarm system for diesel locomotives	1100	275.00	RSP(21) Capital	2012-13
6	Sealed bearing for loco axle	3000	108.00	RSP(21) Capital	2007-08
7	Improvement in crew working conditions				
	i) Crew friendly cab for diesel locomotives	3000	120.00	41 Capital	2011-12
	ii) Upgradation of running rooms as per requirement	--	48.00	42 D F	2005-06
	iii) Upgradation of crew lobbies as per requirement	--	16.00	42 D F	2005-06
8	Replacement of overaged Diesel locomotives	95	500.10	RSP SRSF	2006-07

**Fund Requirement**

<u>Source</u>	<u>Requirement (Rs. in crores)</u>
Capital	503.17
D.R.F.	4.00
D.F.	64

Note : The requirement shown under the allocation “SRSF” will be met through the sanctioned Special Railway Safety Fund

### Safety Action Plan – Mechanical (Coaching)

S. No.	Item Details	Quantity	Funds required (Rs. in Crores)	Plan head and Allocation	Time Frame By
1	M&P tools and gadgets for Personnel safety	300 depots	30	M & P DF	2007-08
2	Development of design of Crashworthy coaches (Shell)	One time expenditure	14	Revenue	2004-05
3	Crashworthiness of coaches (Internal)	3000 coaches/year	510	Revenue	2012-13
4	CBC retro-fitment into existing coaches with anti-climbing design	2000 coaches/year	1000	RSP Capital	2012-13
5	Provision of Emergency Exits in coaches	5000 coaches/year	125	RSP D F	2005-06
6	Fire-detection system (For AC coaches)	500 coaches/year	75	RSP D F	2008-09
7	High capacity buffer packs	5000 coaches/year	25	Revenue	2008-09
8	Fire proofing of coaches	1000 coaches/year	200	RSP D F	2012-13
9	Replacement of overaged coaching stock	590 coaches (approx.)	276.26	RSP SRSF	2006-07

#### Fund Requirement

<u>Source</u>	<u>Requirement (Rs. in cr.)</u>
Capital	1000.00
D.F.	430.00

Note : The requirement shown under the allocation “SRSF” will be met through the sanctioned Special Railway Safety Fund.

**Safety Action Plan – Mechanical (Wagons)**

S.No.	Item Details	Quantity	Funds Required (Rs.in crores)	Plan Head of Allocation	Time Frame By
1	Replacement of underaged four wheeler tank wagons with Bogie tank wagon @ Rs.3.5 lacs per FWU.	18628 FWUs	651.98	RSP DRF	2006-07
2	Replacement of overage arisings of 8041 wagons other than Tanks (equivalent to 20103 FWUs) as per recommendations of RSRC @ Rs. 6 lacs per FWU	8041 VUs equivalent to 20103 FWUs	1206.19	SRSF	2006-07
3	Introduction of Bogie Mounted brake system as per RSRC recommendation -retrofitment on existing Air Brake wagons @ Rs.0.4 lac per wagon	120000	480.00	RSP Capital	2007-08
4	Introduction of Self Steering Bogies as per RSRC recommendation - retrofitment on existing Air Brake wagons @ Rs.60000 per wagon	120000	720.00	RSP Capital	2007-08
5	Provision of Hot Box detectors - on existing fleet of wagons @ Rs.4000/2000 per wagons	37338 FW wagons and 168421 Eight-Wheeler wagons	75.00	RSP Capital	2005-06
6	Provision of Wheel Flat Detectors at various train examination points of IR for early detection of wheel flat cases for safety of track as well as rolling stock as per RSRC recommendations. @ Rs. 70 lacs per point.	260 points	182.00	M & P Capital	2012-13

### Safety Action Plan – Mechanical (Wagons)

S.No.	Item Details	Quantity	Funds Required (Rs.in crores)	Plan Head of Allocation	Time Frame By
7	Additional funds for providing safety features for making existing brake vans Guard friendly @ 2.5 lac per brake van	5000	125.00	RSP Capital	2007-08

#### Fund Requirement

<u>Source</u>	<u>Requirement (Rs. in crores)</u>
Capital	1582.00
D.R.F.	651.98

Note : The requirement shown under the allocation “SRSF” will be through the sanctioned Special Railway Safety Fund

### Safety Action Plan – Mechanical (Workshop)

S.No.	Item Details	Quantity	Funds Required (Rs. in crores.)	Planhead and Allocation	Time Frame By
1	Conversion of ICF coaches to ART/ARME vans	225	22.5	RSP DF	2005-06
2	Replacement of tyred wheels by solid wheels in EMU/MEMU and DMUs with residual life above 5 years	4000	113.6	RSP DF	2007-08

#### Fund Requirement

<u>Source</u>	<u>Requirement (Rs. in cr.)</u>
D.F.	136.1

### Safety Action Plan - Electrical

S No	Item Details	Qty. Reqd. (Nos.)	Funds Required (Rs. in crores)	Plan head & Allocation (Rs.in crores)	Time Frame By
1	Dynamic Braking Resistance	1098	82.35	RSP SRSF (20) Capital(62.35)	2006-07
2	Air Driers for electric locos	3800	114.00	RSP SRSF (75) Capital (39)	2006-07
3	Twin Beam Headlights	7600	9.88	RSP SRSF (6.74) Capital (3.14)	2006-07
4	Microprocessor based Speed Recorders	3800	76.00	RSP SRSF (9.83) DRF (66.17)	2006-07
5	Automatic switching ON of Flasher lights	3800	15.20	RSP SRSF (7.5) Capital (7.1) DRF (0.6)	2004-05
6	High prominence LED Flasher lights	3800	7.60	RSP Capital	2005-06
7	Crew friendly cab : Modification on electric locos	2800	280.00	RSP Capital	2011-12
8	OHE Inspection Car - Replacement	159	71.00	RSP SRSF (71)	2006-07
9	EMU AC/DC Motor Coaches - Replacement	349	440	RSP SRSF (440)	2006-07
10	EMU AC/DC Trailer Coaches - Replacement	608	157.00	RSP SRSF (157)	2006-07
11	EMU Motor Coaches BG AC - Replacement	233	96.00	RSP SRSF (96)	2006-07
12	EMU Trailer Coaches BG AC - Replacement	495	28.00	RSP SRSF (28)	2006-07
13	Vigilance Control Device & Emergency stop	2800	39.2	RSP Capital	2006-07
14	Electrical Safety Works in Kolkata Metro Railway		9.00	RSP SRSF	2006-07

### Safety Action Plan - Electrical

S No	Item Details	Qty. Reqd. (Nos.)	Funds Required (Rs. in crores)	Plan head & Allocation (Rs.in crores)	Time Frame By
15	Electric Loco Simulator	5	43.75	M & P SRSF	2005-06
16	Addl. Simulators for 5 nos. for Locos & 6 nos. for EMUs	11	96.25	M & P Capital	2009-10
17	Bi-plate panel Brake Systems (Air Brake locos only) for ACDs/VCDs	1200	48.00	RSP Capital	2009-10
18	Event Recorders on electric locos	2800	28.00	RSP Capital	2007-08
19	Breathalyser Machines	1000	1.00	RSP Capital	2004-05
20	Upgradation of running rooms	28	56.00	Other Specified Works Capital	2012-13
21	Upgradation of crew booking lobbies	28	14.00	Other Specified Works Capital	2012-13

#### Fund Requirement

<u>Source</u>	<u>Requirement (Rs. in cr.)</u>
Capital	681.64
D.R.F.	66.77

Note : The requirement shown under the allocation "SRSF" will be met with through the sanctioned Special Railway Safety Fund



### Safety Action Plan - Signalling

SNo.	Item Details	Quantity	Funds Required (Rs. in crores)	Planhead and Allocation	Time frame By
1	a) Replacement of arrears of overaged signalling asset	1494 stns.	<b>2671</b>	S & T SRSF	2006-07
	b) Track circuiting at stations	5307 Locations	<b>473</b>	S & T SRSF	2006-07
2	a) Interlocking of LC gates	887 gates	<b>133</b>	Manning of Level Xings RSF	2005-06
	b) Provision of telephone at LC gates	695 gates	<b>35</b>	Manning of Level Xings RSF	2004-05
	c) TAWD	90 gates	<b>8</b>	<b>Manning of Level Xings</b> RSF	2004-05
3.1	<b><u>Items already sanctioned:</u></b> a) Track circuiting at balance stations (In addition to SRSF)	930 Locations	<b>94</b>	S & T DF	2008-09
	b) ACD works	3419 RKms	<b>235</b>	S & T DF	2007-08
	c) Continuous Track Circuiting works	2000 RKms	<b>425</b>	S & T DF	2008-09
	d) TPWS works	280 T Kms	<b>62</b>	S & T DF	2006-07
	e) Other works : BPAC, Data logger, IPS etc	.	<b>150</b>	S & T DF	2006-07
3.2	<b><u>Items yet to be sanctioned:</u></b> a) Track circuiting at balance stations (In addition to SRSF) including 'E' & MG	596 on MG & 439 on 'E', 37 on 'D' & 'D Spl'	<b>275</b>	S & T DF	2013-14
	b) Road Safety – (LC gates)				
	i) Interlocking	2000 gates	<b>300</b>	<b>Manning of Level Xings</b> RSF	2013-14
	ii) Gate phones	1800 gates	<b>135</b>	<b>Manning of Level Xings</b> RSF	2013-14
	c) ACD	52600 RKms ACD	<b>1580</b>	S & T DF	2013-14

### Safety Action Plan - Signalling

SNo.	Item Details	Quantity	Funds Required (Rs. in crores)	Planhead and Allocation	Time frame By
	d) Continuous Track circuiting works	2000 RKms	425	S & T DF	2013-14
	e) Misc. Works : Block Proving Axle Counter, Second Distant Signal etc	Lumpsum	300	S & T DF	2013-14

#### Fund Requirement

<u>Source</u>	<u>Requirement</u> (Rs. in cr.)
D.F.	3546
S.F.	611

Note : The requirement shown under the allocation "SRSF" will be met with through the sanctioned Special Railway Safety Fund

### Safety Action Plan - Telecommunication

S No.	Item Details	Quantity	Funds Required (Rs.in Crores)	Plan head/ allocation	Time Frame By
1	Provision of Mobile Train Radio Communication (MTRC) on A, B & C routes of Indian Railways	2415 (Rkm)	182.5	DF-3	2007-08
2	Provision of Voice recorders in control offices.	84 Nos	8.4	DF-3	2004-05

#### Fund Requirement

<u>Source</u>	<u>Requirement</u> (Rs. in crores)
D.F.	191

**Safety Action Plan : Training and Disaster Management.**

<b>S.No.</b>	<b>Item Details</b>	<b>Funds required (Rs. in crores)</b>	<b>Allocation and Plan Head</b>	<b>Time Frame By</b>
1	Modernisation of Training Centres	<b>220</b>	SRSF (Rs. 73 cr) DF (Rs. 147 cr)	2009-10
2	Implementation of the recommendations of the Disaster Management Review Committee.	<b>400</b>	DRF (Rs. 200 cr.) DF (Rs 100 cr.) Capital (Rs. 100 cr)	2005-06

## Summary of requirement of Funds

<b>(Rs. in Crores)</b>	
<b>Allocation</b>	<b>Requirment</b>
Capital	4205.31
Depreciation Reserve Fund (DRF)	955.25
Development Fund (DF)	4660.75
Railway Safety Fund (RSF)	8911
Special Railway Safety Fund (SRSF)	13102.70
<b>Total</b>	<b>31835.01</b>