



Indian Railways

Train Protection & Warning System

Roll Out Plan

Enhancing Safety in Train
Operations
Aid to Loco Pilots

December 2011, New Delhi

Train Protection & Warning System (TPWS)

----- Roll Out Plan for Indian Railways (IR) -----

Objective	Provision of cost effective Train Protection & Warning System to mitigate the risk of Signal Passing At Danger (SPAD) by Motormen/Loco Pilots of trains leading to accidents.
Solution to be deployed	Train Protection and Warning System conforming to Open Specifications, Interoperable, Upgradeable, Multiple Vendor with indigenized manufacturing for long term sustained support
Migration/ Roll Out Plan	<p>Indian Railways plan to deploy Train Protection & Warning System first on its Automatic Block Signalling Sections followed by other High Density Routes, as per following Roll Out plan (indicative).</p> <p>Segment 1 : To cover all dense Automatic Block Signaling sections of IR spread over eight Zonal Railways covering approx. 3300 Route Kilometers in two phases, with provision of approx. 2300 On Board equipment on EMUs, MEMUs, Locomotives & other vehicles, running on these sections.</p> <p>Phase I: approx. 1500 RKMs Phase II: approx. 1800 RKMs</p> <p>Time Period: 2012-2015</p> <p>Segment 2: Cover entire A route of IR approx. 5024 RKMs (balance) with approx. 3400 On board equipment on EMUs, MEMUs, Locomotives & other vehicles running on the sections</p> <p>Time Period : 2012-2016</p> <p>Segment 3 : Cover entire 'B' route of IR approx. 10,800 RKMs with approx. 1100 On board equipment on EMUs, MEMUs, Locomotives & other vehicles running on the sections</p> <p>Time Period : 2013-2020</p> <p><u>Note:</u></p> <ol style="list-style-type: none">1. The above figures/timelines are indicative.2. For ensuring economy in costs and sustained long term maintenance support, while initial part quantity may be imported to commence the projects, major quantities shall be manufactured in the country with suitable transfer-of-technology.3. Onboard equipment fitment on new Locos/EMUs/MEMUs shall be carried out in IR's Production Units along with their manufacturing.4. A central dedicated organization Central Organisation for Railway Safety Systems (CORSS) created for expeditious roll out of TPWS and other Safety Projects.

TPWS Roll Out Plan: Route & Section Details

Phase 1 of Segment 1

Railways/ Sections	Railway	Section	Route KMs	Onboard equipment
	WR	Mumbai Central-Virar-Vadodara-Ahmedabad	500	60
	ER	Sealdah-Howrah-Khana & Automatic Signalling sections on Howrah/Sealdah Divisions	326	125
	SER	Howrah-Kharagpur-Tatanagar	250	250
	NCR	Ghaziabad-Tundla-Kanpur	414	100
	Total		1490	535

Draft Broad Technical Specifications

For 'A' & 'C' Routes of IR

A cost effective, inter-operable, upgradable TPWS solution generally conforming to RDSO's Specification no. RDSO/SPN/183/2011 Version2, as under:

ETCS Level 1 (SIL 4) with following reduced functionalities

- a. Simplified User friendly IR DMI
- b. Shunt Signals not to be covered (shunt speed regulation to be enforced from Onboard)
- c. A broad ceiling speed limit for Turnouts
- d. Temporary Speed Restrictions not covered