

## Improving the Reliability of Infrastructure Facilities

“Railway transport helps to condense large distances, integrate domestic markets and provide necessary links with international markets. Developed railway infrastructure promotes trade, particularly export, and has a positive effect on economic growth. Integration processes that have been developing in recent years in the “1520 area” and the European Union need a smoothly operating international transport system, and railways are an integral part.”

**V. I. Yakunin**  
 President of JSC “Russian Railways”

The monitoring of capital construction, the repair of infrastructure facilities (315 th. different facilities) and the operation of JSC “Russian Railways” own rolling stock are the responsibility of the Infrastructure Directorate of JSC “Russian Railways”. This is the largest division of the Holding Company (more than 360 th. people).

The length of railway tracks

**85,248**  
 km

5,680 km, or 6.7%, of them are registered as defective

Man-made structures are used in the railway network of JSC “Russian Railways”

**82,837**

8,132, or 9.8%, of them are defective

### Track Infrastructure Fixed Assets

In 2012, the total length of repaired railway track amounted to 10.4 th. km, with major repair and modernization carried out on 7.3 th. km of railway track, which reduced the length of sections with excessive tonnage and expired serviceable life by more than 426 km to 20.54 th. km (or 16.5% of the total length of main tracks).

Nonetheless, the results of the inventory of track infrastructure fixed assets raise cause for concern: the number of defective structures is growing, with many facilities still in operation after their serviceable life has expired.

As of 1 January 2013:

- ▶ 82,837 man-made structures (e.g. bridges, etc.) are used in the railway network of JSC “Russian Railways”, 9.8% of them are defective;
- ▶ 6.7% of 85,248 km of the registered railway tracks are defective.

In the pre-crisis year of 2008 the number of defective engineering structures was lower: 8.3% for man-made structures and 6.1% for the roadbed.

The increase in the number of defective engineering structures is largely associated with the aging of the facilities: 28% of bridges have been in service for more than 100 years. Another reason is the lack of funding for repair work.

The inability to replace deteriorating engineering structures with like-for-like replacements is also high — on average 76.2%; About 31% (25.4 th. items) of all currently operated engineering structures were built before 1913.

If current trends continue, by the year 2015 the serviceable life of 38% of the structures (31.3 th. items) will have expired (for supports the serviceable life is 80-100 years, for pipe culverts 100 years, and for metal spans 60 years).

Insufficient carrying capacity of railway hauls is often a reason for the limited capacity of the whole track. In 2012, the following sections had limited capacity hauls:

- ▶ 3 sections of the Far Eastern Railway;
- ▶ 2 sections of the East Siberian Railway;
- ▶ 1 section of the Krasnoyarsk Railway;
- ▶ 2 sections of the West Siberian Railway;
- ▶ 6 sections of the Sverdlovsk Railway;
- ▶ 1 section of the Gorkovskaya Railway;
- ▶ 1 section of the Kuybyshevskaya Railway;
- ▶ 1 section of the Privolzhskaya Railway;
- ▶ 6 sections of the North Caucasus Railway;

- ▶ 2 sections of the Moscow Railway;
- ▶ 3 sections of the Oktyabrskaya Railway.

The total length of such sections of the railway network is 4,065.5 km, and 2,728.5 km of them are single-track hauls. Compared with the previous year, the growth in length is 514 km, with all of them being single-track sections.

The second most important reason for the limited carrying capacity of the railways is insufficient capacity of traction power supply devices. In 2012, the length of sections with insufficient traction power supply capacity increased against the previous year by 1,067 km and made up 2,876.1 km, or 37.9% of the total length of all "bottlenecks".

Insufficient capacity of the traction power supply system restricts the carrying capacity of the following sections:

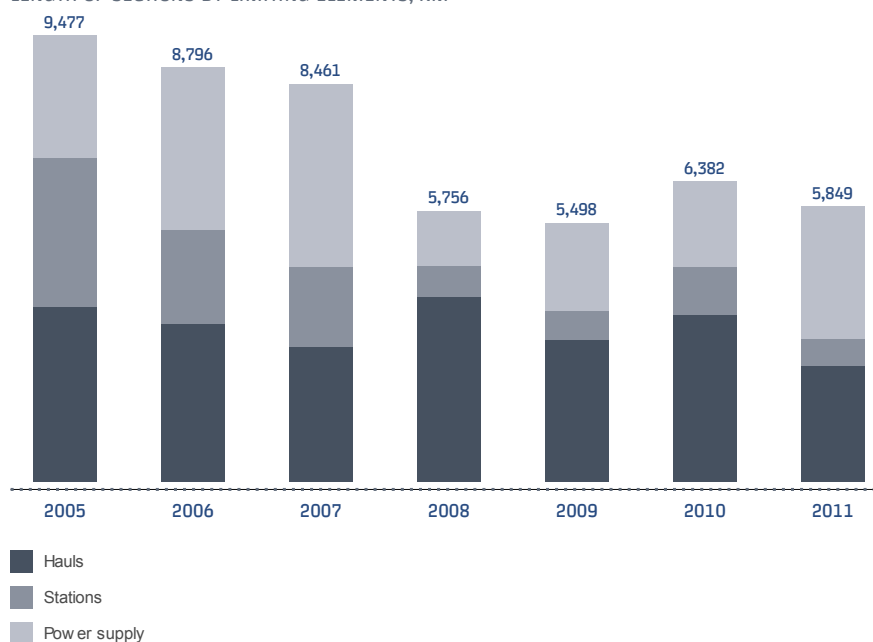
- ▶ 5 sections of the Trans-Baikal Railway;
- ▶ 2 sections of the West Siberian Railway;
- ▶ 4 sections of the Sverdlovsk Railway;
- ▶ 1 section of the Kuybyshevskaya Railway;
- ▶ 1 section of the Privolzhskaya Railway;
- ▶ 1 sections of the North Caucasus Railway;
- ▶ 4 sections of the Moscow Railway;
- ▶ 3 sections of the Northern Railway.

Service stations restrict the carrying capacity of adjacent sections totaling a length of 1,058 km, which is 14% of the length of all "bottlenecks". The estimated carrying and processing capacity was exceeded on the following sections:

- ▶ 3 sections of the North Caucasus Railway;
- ▶ 1 section of the South Eastern Railway;
- ▶ 1 section of the Privolzhskaya Railway;
- ▶ 2 sections of the South Urals Railway;
- ▶ 1 section of the Krasnoyarsk Railway;
- ▶ 3 sections of the East Siberian Railway;
- ▶ 1 sections of the Far Eastern Railway.

The estimated length of "bottlenecks" in the network of JSC "Russian Railways" is more than 8,100 km as of 1 January 2013.

LENGTH OF SECTIONS BY LIMITING ELEMENTS, KM



Infrastructure development projects:

**The following major projects should be implemented before 2020:**

- ▶ Comprehensive reconstruction of the Mga — Gatchina — Vaimarn — Ivangorod section and railway approaches to the southern coast of the Gulf of Finland;
- ▶ increase in the carrying capacity of the Volkhovstroy — Murmansk route;
- ▶ development of the Konosha — Labytnangi section (with construction of the Nadim — Salekhard line);
- ▶ comprehensive reconstruction of the Trubnaya — V.Baskunchak — Aksaraiskaya section;
- ▶ comprehensive reconstruction of the Gorkogo — Kotelnikovo — Tikhoretskaya — Korenovsk — Timashevskaya — Krymskaya section, bypassing the Krasnodar hub;
- ▶ development of the railway infrastructure of the Baikal-Amur Mainline with a section of the Trans-Siberian Railway;
- ▶ development of the Tayshtet — Mezhdurechensk section;
- ▶ comprehensive reconstruction of the Karymskaya — Zabaikalsk section;
- ▶ reconstruction of the Tobolsk — Korotchaevo section.

Moreover, plans are in place to build additional main tracks, electrify some sections, equip some sections with an automatic block signaling system, construct bypasses of the Krasnodar, Saratov, Omsk and Prm railway hubs and lay new lines, including Salekhard — Nadym, Kyzyl — Kuragino, Biysk — Gornoaltaysk, Shimanovskaya — Gar, Khani — Tarynnakhskiye deposit, Mogzõn — Ozernoye, Pravaya Lena — Yakutsk and others.