In 2014, Russian Railways continued implementing infrastructure projects, including projects with government participation. Substantial work was carried out to rebuild tracks and facilities, repair locomotives and improve the reliability of infrastructure in order to enhance train safety and ensure the timely and proficient movement of train traffic.

### The investment budget of the Central Infrastructure Directorate in 2014 totalled

**RUB 104 bln**

Budget executed in full

### The investment budget of the Central Traffic Control Directorate in 2014 totalled

**RUB 7.4 bln**

Budget executed in full

### The investment budget of the Traction Directorate in 2014 totalled

**RUB 85.97 bln**

99.8% of budget plan executed

#### Key performance indicators of the Railway Transportation and Infrastructure Business Unit

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Meas. unit.</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Change as %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average deadweight load</td>
<td>t/railcar</td>
<td>60.20</td>
<td>60.42</td>
<td>60.77</td>
<td>60.98</td>
<td>61.21</td>
<td>0.4</td>
</tr>
<tr>
<td>Average freight train service speed</td>
<td>km/h</td>
<td>41.2</td>
<td>37.1</td>
<td>36.0</td>
<td>36.8</td>
<td>37.7</td>
<td>2.4</td>
</tr>
<tr>
<td>Average freight car technical speed</td>
<td>km/h</td>
<td>49.3</td>
<td>46.5</td>
<td>45.2</td>
<td>45.6</td>
<td>45.6</td>
<td>0</td>
</tr>
<tr>
<td>Average daily productivity of operating locomotive fleet</td>
<td>1000 tkm gross</td>
<td>—</td>
<td>1,812</td>
<td>1,791</td>
<td>1,820</td>
<td>1,965</td>
<td>—</td>
</tr>
<tr>
<td>Average daily run of operating locomotive fleet</td>
<td>km</td>
<td>—</td>
<td>593.6</td>
<td>585.6</td>
<td>591.3</td>
<td>632.6</td>
<td>—</td>
</tr>
<tr>
<td>Average gross weight of freight train</td>
<td>tonnes</td>
<td>3,867</td>
<td>3,868</td>
<td>3,891</td>
<td>3,911</td>
<td>3,929</td>
<td>0.5</td>
</tr>
<tr>
<td>Average turnaround time of freight car</td>
<td>daily</td>
<td>13.44</td>
<td>14.40</td>
<td>15.49</td>
<td>16.92</td>
<td>17</td>
<td>–0.5</td>
</tr>
<tr>
<td>Average freight shipment delivery speed</td>
<td>km/day</td>
<td>274</td>
<td>247</td>
<td>219</td>
<td>222</td>
<td>299</td>
<td>—</td>
</tr>
</tbody>
</table>

Results of the Business Unit’s investment programme in 2014
Spending on the track reconstruction and modernisation programme totalled **RUB 84 bln**

The Central Infrastructure Directorate fully utilised its budget of RUB 104 bln in 2014. The bulk of the funds (RUB 84 bln) were spent on the track reconstruction (modernisation) programme.

As part of the investment programme, work valued at approximately RUB 50 bln was performed for the federal programme to develop the Eastern operating domain. The amount of fixed assets put into operation as part of projects of the Central Infrastructure Directorate totalled RUB 101.6 bln in 2014, a 3.1% increase versus the target.

Spending by the Central Traffic Control Directorate totalled RUB 7.4 bln in 2014. The main project was the ‘Construction of secondary tracks, extension of station tracks and the development of railway hubs and border stations’, including RUB 6 bln on the project ‘Development of border stations and approaches thereto’. The Directorate’s investment programmes above all aimed to eliminate so-called ‘barrier’ areas in order to increase the network’s carrying capacity and improve the reliability of operations by branches.

Spending of investment funds by the Traction Directorate totalled RUB 85.0 bln in 2014, or 0.2% less than the target.

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**Measures to improve the efficiency of the business unit**

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In 2014, there was increased intensity in the use of railway infrastructure for the transportation process on the railway network.
Fixed assets of Russian Railways by sectoral business, (2014, RUB bln)

<table>
<thead>
<tr>
<th>Business</th>
<th>Total</th>
<th>Share of all Russian Railways businesses, %</th>
<th>including:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>buildings</td>
</tr>
<tr>
<td>Tracks</td>
<td>1,935.8</td>
<td>55.1</td>
<td>26.0</td>
</tr>
<tr>
<td>Locomotives</td>
<td>594.8</td>
<td>16.9</td>
<td>54.5</td>
</tr>
<tr>
<td>Electrification and power supply</td>
<td>369.6</td>
<td>10.5</td>
<td>16.7</td>
</tr>
<tr>
<td>Automation and telemechanics</td>
<td>129.7</td>
<td>3.7</td>
<td>2.1</td>
</tr>
<tr>
<td>Communications</td>
<td>51.5</td>
<td>1.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Railcars</td>
<td>17.1</td>
<td>0.5</td>
<td>6.9</td>
</tr>
<tr>
<td>Transportation</td>
<td>1.8</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Other</td>
<td>415.1</td>
<td>11.8</td>
<td>270.1</td>
</tr>
<tr>
<td>TOTAL</td>
<td>3,515.4</td>
<td>100.0</td>
<td>379.4</td>
</tr>
</tbody>
</table>

Loaded freight turnover exceeded the 2013 level by 4.7% in 2014, while handling at Russian ports increased 11%.

The route speed of loaded traffic routes was 545 km/day, which exceeds the 2013 result by 20 km/day (+3.8%). The route speed of container trains was 886 km/day, an increase of 25 km/day, while route speed as part of the ‘Trans-Siberian Mainline in 7 Days’ project totalled 1,073 km/day (+22 km/day).

Substantial work was carried out to increase the freight delivery speed as the most comprehensive indicator of transportation quality.

As a result of improvements to all the components of the transportation process, the freight delivery speed totalled 327 km/day in 2014, an increase of 79 km/day compared with 2013. Positive trends were seen on all railways in this regard.

Increasing weight standards has been identified as one of the priorities for handling the growing transportation volume according to the Russian Railways Group’s Development Strategy until 2030. Trains weighing 8,000 and 9,000 tonnes are already running on the routes Kuzbass-Northwest ports and Kuzbass-Centre.

There were more than 4,700 trains weighing 8,000 tonnes in operation in 2014, an increase of 75% from the previous year, and more than 28,000 coupled trains, up 29% from 2013, and this number is increasing each year.
In 2014, the idle time of transit railcars excluding processing fell by 8% compared with 2013.

As of 31 December 2014, the Russian Railways Group fleet was comprised of 13,990 units:
- in freight traffic — 7,331 units;
- in passenger traffic — 1,531 units;
- in utility traffic — 1,765 units;
- in special shunting and other shunting operations — 3,325 units;
- in other operations — 38 units.

In 2014, Russian Railways purchased 660 new locomotives.

A special meeting of the Russian Railways Scientific Technical Council was devoted to the development of heavy haul transportation in 2014. The council issued resolutions that provide specific measures for expanding the practice of operating heavy haul trains.

The company continued work in 2014 to implement a programme that aims to develop marshalling yards and automate shifting systems at the most important stations on the network. The Orekhovo-Zuyevo, Bekasovo-Marshalling, Altai, Kinel, Chelyabinsk-Main and Yekaterinburg-Marshalling stations have introduced an integrated automated transportation process control system (IATPCS), which allows for increasing labour productivity and switching to minimally staffed operations at marshalling yards along with a simultaneous increase in train traffic safety and an improvement in employee working conditions.

The idle time of transit railcars excluding processing decreased 8% in 2014 compared with 2013, while the idle time of transit railcars including processing fell 9.2%.
Russian Railways purchased 660 locomotives in 2014 (over its entire existence Russian Railways has purchased 4,574 locomotives), including:

- 411 electric locomotives, including:
  - passenger — 71;
  - freight — 340;

- 249 diesel locomotives, including:
  - passenger — 32;
  - freight — 88;
  - shunting — 129.

Sixty-nine of the 660 new locomotives are innovative.

The increase in the purchase of locomotives is already producing positive results in terms of the reduced wear of the locomotive fleet. Overall, the physical wear of the locomotive fleet has been cut to 72.5% on average.

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Measures to improve the utilisation efficiency of locomotives

Significant changes have been made to the traction management and maintenance system. A transition to cross-cutting technologies for the network-wide operation of the locomotive fleet has been completed with the establishment of Traction Resource Management Centres on the Moscow and Oktyabrskaya Railways. Organising heavy haul traffic along with improving the management quality of the locomotive fleet on the basis of operating domain technologies has made it possible to operate a smaller amount of traction rolling stock (almost 950 fewer locomotives compared with last year).

However, the new locomotive fleet management technologies will only produce significant results in terms of improving the utilisation efficiency of traction rolling stock if the fleet is operated in a reliable manner. In this regard, traction rolling stock has fully transitioned to after-sales service as of 1 July.

As part of the Russian Railways Development Strategy and the Framework for the Development of Locomotive After-sales Service, the Company concluded contracts in April 2014 for the complete after-sales service of the Russian Railways locomotive fleet with STM-Service (for 4,500 locomotives) as well as TMH-Service (for 14,500 locomotives).

As a result of switching to complete after-sales service, the overall technical availability level by locomotive series exceeded the technical availability level specified in the contract by 5.8%.

In order to improve the utilisation efficiency of the locomotive fleet, the following work was performed in 2014:

- passenger — 71;
- freight — 340;
- passenger — 32;
- freight — 88;
- shunting — 129.
The Company exceeded its plan for repairs at locomotive repair depots by 0.1% in 2014 (4,770 units repaired instead of the planned 4,769 units) while fully implementing the repair programme for locomotives with extended service lives (243 units repaired of the planned 243 units).

The Zeldorremmash and Michurinsk Locomotive Repair Plants repaired a total of 2,953 locomotive units in 2014 instead of the planned 2,956 units, including 1,960 electric locomotives and 993 diesel locomotives.

Innovative projects are actively being implemented, in particular:

- the unification of 3TE10 diesel locomotives with D49 diesel trains was fully completed on the Baikal-Amur Mainline;
- the operation of 2TE25A Vityaz diesel locomotives was optimised through the establishment of new technologies to operate trains weighing 9,000 tonnes on the Taksimo-Tynda section;
- the ability to operate freight trains weighing 9,000 tonnes on the Yekaterinburg-Balezino restricted section using three-unit 2ES10 Granit electric locomotives was confirmed. Three such electric locomotives with continuous booster sections were purchased for regular operations on the Kuzbass-Northwest operating domain;
- large-scale traction and energy efficiency tests were organised for freight trains weighing 7,100 tonnes made up of innovative railcars with an increased axle load;
- the first 2ES5 Skif mainline electric locomotives with asynchronous traction motors arrived on the electrified operation domain of the Baikal-Amur Mainline. These electric locomotives are expected to have an operating domain from Mezhdurechensk to Taksimo, which will eliminate the operation of pusher locomotives throughout the operating domain.

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Innovative projects are actively being implemented, in particular:

- ‘System for the accounting and analysis of violations of train traffic safety based on the results of the automated deciphering of locomotive safety device recording tapes’;
- ‘Electronic locomotive driver’s route’;
- ‘Locomotive driver’s information system’;
- ‘Resource, risk and reliability management during the life cycle stages of railway transportation infrastructure’.

Results of the introduction of the Single Network Operating Procedure for railway freight transportation

Russian Railways works consistently to implement the provisions of the Single Network Operating Procedure (SNOP) insofar as it does not require changes to the regulatory legal framework when organising the transportation process.

At present, the SNOP is used when solving problems involving effective interaction between the Company’s functional branches, including the technical regulation of the transportation process, train traffic control technologies, the work of locomotives and locomotive crews and the provision of information on production activities.

This work has resulted in positive trends in key rolling stock utilisation indicators. In 2014, service speed increased by 0.9 km/h, or 2.4% compared with 2013, and reached 37.7 km/h. The average train weight, which increased by 0.5% primarily due to growth in shipments by coupled trains, grew to 3,929 tonnes. A total of 28,600 extended trains were dispatched on the railway network in 2014, a 28.9% increase from 2013.

Utilising the technological tools specified in the SNOP improved the freight train schedule execution level, including by 7.8 percentage points for dispatches and 13.5 percentage points for passage.

The SNOP is also used when implementing the ‘Integrated programme for the phased transition to the organisation of scheduled freight train traffic’. As of December 2014, there were 1,013 specialised schedules in the existing train traffic schedule.
A total of 6,300 km of tracks were renovated in 2014 (100% of the annual plan), including the reconstruction (modernisation) of 3,950 km of railway tracks.

<table>
<thead>
<tr>
<th>Renovated railway tracks in 2014</th>
<th>Length of continuous welded rail tracks in 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3 thousand km</td>
<td>89.2 thousand km</td>
</tr>
</tbody>
</table>

In 2013, almost 10,000 km of railway tracks were renovated. An increase of 3,300 km compared with 2013.

Major track repair work funded by the federal budget was fully completed, including:

- major repairs on used materials — 1,130 km;
- average repairs — 1,230 km;
- major repairs of turnouts — 1,046 units;
- continuous replacement with new rails — 500 km.

Length of continuous welded rail tracks, including with resilient fastenings, '000 km
Repairs of electrification and power supply facilities in 2014 resulted in the replacement of:

- 7,238 overhead contact line supports;
- 447 km of worn overhead contact lines;
- 1,056 km of overhead conductors of the automatic block system and axial power supply;
- 10,300 overhead contact line supports of the automatic block system and axial power supply;
- 188,000 high voltage insulators on all types of overhead contact networks.

In automation and telemechanics, major repairs were conducted on 2,680.7 km of the automatic block system and 8,735 electric interlocking switches in 2014.

As a result, the number of failures by first and second category technical equipment at electrification and power supply facilities totalled 1,275 in 2014, down 6.9% from 1,370 in 2013. In addition, the number of events involving train traffic safety totalled 137 in 2014, a 2% decrease from 140 in 2013.