Iraqi Republic Railways
Iraq Republic Railways Co. (IRR).
It is a state-owned company Affiliated to the Iraqi Ministry of transport, a network composed of 2000 Km, and 115 stations its Location is in Baghdad and 9 provinces, connected to the Syrian Railway network and from there to Europe and Turkey.
IRR is a member of the International Union of Railways (UIC) and works in accordance with UIC specifications and standards, a member of the International Rail Transport Committee (CIT) and Arab Union of Railways.
History

- In **1914** the first train was operated between Baghdad – Dijeyl (north Baghdad).
- In **1920** the first train was operated between Baghdad and Basrah.
- In **1925** the first train was operated between Baghdad and Kirkuk.
- In **1940** the first train was operated between Baghdad and Mosil.
- In 15th July **1940** the first train was run between Baghdad and Hayder Basha (Istanbul Turkey).
- The construction of the IRR headquarter building (Baghdad main station) was completed in **1952**.
The table shows the volume of passengers and goods transported by IRR over the past 15 years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Passengers (x1000)</th>
<th>Goods (x1000) tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>1984</td>
<td>2349</td>
</tr>
<tr>
<td>1999</td>
<td>1274</td>
<td>2647</td>
</tr>
<tr>
<td>2000</td>
<td>1006</td>
<td>2742</td>
</tr>
<tr>
<td>2001</td>
<td>1003</td>
<td>3626</td>
</tr>
<tr>
<td>2002</td>
<td>1248</td>
<td>5405</td>
</tr>
<tr>
<td>2003</td>
<td>343</td>
<td>1287</td>
</tr>
<tr>
<td>2004</td>
<td>63</td>
<td>468</td>
</tr>
<tr>
<td>2005</td>
<td>6</td>
<td>241</td>
</tr>
<tr>
<td>2006</td>
<td>18</td>
<td>267</td>
</tr>
<tr>
<td>2007</td>
<td>4</td>
<td>167</td>
</tr>
<tr>
<td>2008</td>
<td>107</td>
<td>439</td>
</tr>
<tr>
<td>2009</td>
<td>220</td>
<td>653</td>
</tr>
<tr>
<td>2010</td>
<td>212</td>
<td>1004</td>
</tr>
<tr>
<td>2011</td>
<td>272</td>
<td>669</td>
</tr>
<tr>
<td>2012</td>
<td>702</td>
<td>869</td>
</tr>
</tbody>
</table>
The Chart shows the volume of passengers and goods transported by IRR over the past 15 years.
<table>
<thead>
<tr>
<th>Type</th>
<th>Total number</th>
<th>Number In service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main line locomotives</td>
<td>143</td>
<td>90</td>
</tr>
<tr>
<td>Shunting locomotives</td>
<td>82</td>
<td>45</td>
</tr>
<tr>
<td>Passenger coaches</td>
<td>186</td>
<td>45</td>
</tr>
<tr>
<td>Freight wagons</td>
<td>7500</td>
<td>2460</td>
</tr>
<tr>
<td>DMU set</td>
<td>12</td>
<td>12</td>
</tr>
</tbody>
</table>
The network of IRR is composed of 4 main lines (standard gauge) have been named by their locations.
1. The north line consists of a track that runs between Baghdad, Baiji, Mosil and Rabia'a, it is 524 km in the length, the technical specifications of the line are as follows:

<table>
<thead>
<tr>
<th>Details</th>
<th>Baghdad-Mosil</th>
<th>Mosil-Rabia’a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stations</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>Length (km)</td>
<td>412</td>
<td>112</td>
</tr>
<tr>
<td>Speed (km/h)</td>
<td>60 – 70</td>
<td>40</td>
</tr>
<tr>
<td>Rail</td>
<td>BS 90</td>
<td>BS 75</td>
</tr>
<tr>
<td>Joints</td>
<td>Jointed</td>
<td>Jointed</td>
</tr>
<tr>
<td>Axel load (ton)</td>
<td>20</td>
<td>18</td>
</tr>
</tbody>
</table>
2- The south line consists of a track that runs between Baghdad, Hilla, Diwaniya, Samawah, Nasiriyah, Basrah, Um Qasir, it is 609 km in length, the technical specification of the line are as follows:

<table>
<thead>
<tr>
<th>Details</th>
<th>Baghdad-Basrah</th>
<th>Sheaba-UmQasir</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stations</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>Length (km)</td>
<td>553</td>
<td>56</td>
</tr>
<tr>
<td>Speed (km/h)</td>
<td>80-100</td>
<td>80</td>
</tr>
<tr>
<td>Rail</td>
<td>UIC 60</td>
<td>UIC 60</td>
</tr>
<tr>
<td>Joint</td>
<td>Welded</td>
<td>Jointed</td>
</tr>
<tr>
<td>Axel load (ton)</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>
3- The west line runs from Baghdad to Ramadi, Haqlaniya, Qaim and Akashat, it is 520 km in length, the technical specifications of the line are as follows:

<table>
<thead>
<tr>
<th>Details</th>
<th>Baghdad-Husaba</th>
<th>Qaim - Akashat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stations</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Length (km)</td>
<td>376</td>
<td>144</td>
</tr>
<tr>
<td>Speed (km/h)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Rail</td>
<td>UIC 60</td>
<td>UIC 60</td>
</tr>
<tr>
<td>Joints</td>
<td>Welded</td>
<td>Welded</td>
</tr>
<tr>
<td>Axel load (ton)</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>
4- The transverse line from Haqlaniyah, to Baiji, Kirkuk and is 252 km in length.

The technical specification of the line are as follows:

<table>
<thead>
<tr>
<th>Details</th>
<th>Haqlaniya-Baji</th>
<th>Baji-Karkuk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stations</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Length (km)</td>
<td>146</td>
<td>106</td>
</tr>
<tr>
<td>Speed (km/h)</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Rail</td>
<td>UIC 60</td>
<td>UIC 60</td>
</tr>
<tr>
<td>Joint</td>
<td>Welded</td>
<td>Welded</td>
</tr>
<tr>
<td>Axel load (ton)</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>
Factories and Workshops

★ The IRR owns 4 main factories for heavy maintenance of rolling stocks (locos, wagons, and trucks). These factories are located at Baghdad, Baji, Samawa, AlQaim.

◆ There are also 8 workshops for light maintenance at Baghdad, Falluja, Ramadi, Haqlaniya, Akashat, Karkuk, Mousel and Basrah.
Signaling and communications

1. Signaling

• The north line is semiautomatic block (relay system). It was installed in 1975.
• The south line is semiautomatic block (relay system). It was installed in 1975.
• The west line is full automatic (relay system). It was installed in 1986.
• The transverse line is full automatic CTC (electronic system) it was installed in 1987.
2. Communications

The railway communications primarily depend on sound cables running along railway lines. It is to ensure the communication among railway stations and between railway stations and the dispatch to control the movement of the trains and safety.

The above system is out of service for being damaged.

The VHF communications system has been provided for communication between locos and the stations and between the neighboring stations.
Projects

Under Construction Projects

The objective of these projects is to establish new (double track) railway lines that have good specifications replacing the old lines, south and north lines (old lines) and all the Engineering work was done by IRR.

The south line between Baghdad and Basra has Completed in 2014 (single track)

The work includes new embankment, bridges and culverts, the new lines specifications are as follows:
The technical specifications of these projects are shown below:

- Designed speed = 120 km/hr.
- Operation speed = 100 km/hr.
- Axle load = 25 ton.
- Joints = Welded.
- Type of rail = UIC 60.
- Sleepers = Concrete.
Future projects

The future IRR plan is to expand the existing network from 2000Km to 5000Km. The plan will include all Iraqi provinces. The future lines will have very modern specifications taking into consideration the latest world developments. The design of these projects was made in accordance with the transportation forecast inside Iraq and also with the neighboring countries.
The specifications of future projects are as follows:

- Designed speed = 200-250 km/hr for passenger trains.
- Operation speed = 100-140 km/hr for goods trains.
- Axel load = 25 ton.
- Gauge = Standard (1435 mm)
- Steel type = UIC 60.
- Sleepers = Concrete 310 kgs.
- Clips = fast clip

All these lines could be electrified.
1- BAGHDAD LOOP LINE RAILWAY PROJECT

Length: 112 km (double line)
- Design Speed: 200 km/h (for passenger)
  140 km/h (for goods)

Axel Load: 25 tons
Max. capacity: 23 million passenger/year
  46 million ton/year

- The elaborate design was prepared in 1982 which needs to be updated.
- This project could be constructed in two sections (east side 67 Km, west side 55 Km.)
2- MUSSAYEB – KARBALA – NAJAF – SAMAWA

- **Length:** 228 km (double line)
- **Design Speed:**
  - 250 km/h (for passenger)
  - 140 km/h (for goods)
- **Axel Load:** 25 tons
- **Stations:** 14 (105 km length of tracks)
- **Max. capacity:**
  - 6 million passenger/year
  - 2 million ton/year

Updating of design completed in 2007, it’s expected to modify the route between Karbala and Najaf.
3- BAGHDAD – BAQUBA – KIRKUK – ERBIL – MOSUL

- Length: 555 km (double line)
- Design Speed: 250 km/h (for passenger)
  140 km/h (for goods)
- Axel Load: 25 tons
- Stations: 44
- Max. capacity: 6 million passenger/year
  20 million ton/year

The updating of design is underway, 85% was completed.
4- BAGHDAD – KUT - BASRAH - UM QASER

- Length: 910 km (double line)
- Design Speed: 250 km/h (for passenger)
  140 km/h (for goods)
- Axel Load: 25 tons
- Stations: 46
- Max. capacity: 14 million passenger/year
  35 million ton/year

The elaborate design was prepared in 1982 which needs to be updated.

This project could be constructed in 3 sections:
1- east line 504 Km
2- west line 233 Km.
3- Transverse line 173 Km.
5- MOSUL – DUHOK – ZAKHO – TURKEY

• Length: 168 km (double line)
• Design Speed: 200 km/h (for passenger)
  140 km/h (for goods)
• Axel Load: 25 tons
• Stations: 8
• Max. capacity: 0.34 million passenger/year
  55 million ton/year

The updating of design is underway, 65% was completed.
6- BASRAH – FAO

- Length: 101 km (double line)
- Design Speed: 140 km/h (for passenger) 100 km/h (for goods)
- Axel Load: 25 tons
- Stations: 4
- Max. capacity: 1 million passenger/year 70 million ton/year

The detailed design completed
7- RAMADI – KERBALA

- Length: 133 km (double line)
- Design Speed: 250 km/h (for passenger)
  140 km/h (for goods)
- Axel Load: 25 tons
- Stations: 4
- Max. capacity: 2.4 million passenger/year
  22 million ton/year

The detailed design completed
8- KIRKUK – SULAIMANIYA

- **Length:** 120 km (single capable to be double line)
- **Design Speed:**
  - 200 km/h (for passenger)
  - 140 km/h (for goods)
- **Axel Load:** 25 tons
- **Stations:** 5
- **Max. capacity:**
  - 1.25 million passenger/year
  - 6 million ton/year

The detailed design completed
9- BASRAH – SHALAMJA

- Length: 32.5 km (single capable to be double line)
Standard gauge of track = 1435 mm
The axle Load = 25 Tone
Rail type 60 E1
Continuous Welded Track
Design speed :
  = 120 km/hr for passenger trains
  = 100 km/hr for freight
Operational speed = 100 km/hr for passenger trains = 80 km/hr for freight
- Load : 25 tons
- Stations : 3
### 10- KARBLA- NAJAF

#### Elevated train

<table>
<thead>
<tr>
<th>Distance</th>
<th>70Km(Karbala-Najaf)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design speed</td>
<td>160Km/h</td>
</tr>
<tr>
<td>Operation speed</td>
<td>140Km/h</td>
</tr>
<tr>
<td>Annual traffic flow (passenger)</td>
<td>To be confirmed by Client</td>
</tr>
<tr>
<td>(20,000) passenger/day</td>
<td></td>
</tr>
<tr>
<td>7 million /year</td>
<td></td>
</tr>
<tr>
<td>Maximum traffic flow per day</td>
<td>To be confirmed by Client</td>
</tr>
<tr>
<td>(30,000) passenger/day</td>
<td></td>
</tr>
<tr>
<td>Rolling stock</td>
<td>EMU</td>
</tr>
<tr>
<td>Gauge</td>
<td>1435mm</td>
</tr>
<tr>
<td>No. of track</td>
<td>Double track</td>
</tr>
<tr>
<td>No. of stations</td>
<td>≥5</td>
</tr>
<tr>
<td>Civil work</td>
<td>Elevated viaduct 70 km</td>
</tr>
<tr>
<td></td>
<td>Or Elevated viaduct 6 km + 64 km normal with (small bridges for crossing and fence)</td>
</tr>
<tr>
<td>Headway</td>
<td>15 min</td>
</tr>
<tr>
<td>No. of Depot</td>
<td>1</td>
</tr>
<tr>
<td>No. of Parking</td>
<td>2</td>
</tr>
</tbody>
</table>
Future Projects

1- The Current Lines
2- The Eastern Axis
3- The Western Axis
4- The Loop Line
5- The Main Cities
The future projects inside Iraq could be divided into 2 main axis viz:

- West Axis:- includes
  - The west side of BAGHDAD loop line project.
  - The route extending from loop line to MUSSAYEB.
  - The MUSSAYEB – KARBALA – NAJAF – SAMAWA project.
  - The route extending from SAMAWA to NASIRYA
  - The west side of NASIRYA - BASRAH - UM QASER project.
  - Total length is 680 Km

- East Axis:- includes
  - The MOSUL – DUHOK – ZAKHO project.
  - The east side of BAGHDAD loop line project.
  - The east side of BAGHDAD – KUT - BASRAH project.
  - The BASRAH – FAO project.
  - Total length is 1600 Km
Connecting Iraq with neighboring countries:

This project is to make studies to contact railway lines connecting Iraq with the following countries.

**Iran**

- From Khanakin to Munthiria single line, 72 km, under final study. **It’s Agreed with Iranian side to determine the connection point in April, 2015.**

- From Basra to Shalamch single line, 32.5 km. **It’s Agreed with Iranian side to jointly start the construction of the line soon, it’s expected to complete it by the end of 2016.**

**Kuwait**

From Marbid station to Safwan. Single line, 17 km, the in detail final study was done. **the coordinates of the connection point, drawings and specifications of the line was handed over to the Kuwaiti side.**
Turkey
From Zakho to Khabour, single line, 17 km, under in detail final study. The coordinates of the connection point, drawings and specifications of the line was handed over to the Turkish side.

Jordan
From Rutba road Station (in Ramadi) to Trabel. single line, 420 km. initial study completed. It’s agreed with the Jordanian side to unify the specifications and the feasibility study.
Map shows the future railway project (in black color)
THANK YOU