

Czechia

Since 2016, the Czech Republic (in Czech 'Česká republika', often abbreviated as ČR) has also officially been called 'Czechia' in English. The country includes the historical regions of Bohemia, Moravia and that part of Silesia which, like the other two regions, belonged to the Austrian part of the Austro-Hungarian Empire until World War I. After the disintegration of the multi-ethnic state, the aforementioned regions together with Slovakia were united to form the state of Czechoslovakia, with its capital being Prague. During the Nazi period, the area known as a "Protectorate of Bohemia and Moravia" was de facto part of the German Reich, since mainly northern Bohemia was predominantly German-speaking (so-called Sudetenland). After regaining its independence, Czechoslovakia (ČSSR) became part of the Eastern bloc ruled by Communist regimes. After the political changes in 1989/90, the country split peacefully and the present Czech Republic was founded in 1993. Together with its neighbours, it joined the EU in 2004, but has retained its own currency, the Czech Crown (CZK). Today some 10.5 million people live in an area of 78,866 km² (similar to Scotland).

The country is divided into 14 administrative regions ('kraj' - one of them the capital city of Prague), each of which is responsible for local transport. Regional fare systems like those found in neighbouring Germany have already been implemented in several regions. Fares are usually well below those of Western Europe, with 24-hour tickets costing between € 3 and € 4 [2016: CZK 100 = € 3.70 or GBP 3.10].

For the transport enthusiast, Czechia not only offers the Metro in Prague and the trams in the larger cities, but also numerous trolleybus systems, which in Western Europe are only comparable to those in Switzerland. Both tram and trolleybus systems are generally in good shape; many high-floor vehicles are still in use, but all the cities have started renewing their fleets.

BRNO

Brno is the second-largest city in the Czech Republic and the historical capital of Moravia (Czech 'Morava'), which no longer is an administrative entity. Brno is located about 185 km southeast of Prague and some 120 km north of Vienna and Bratislava.

In Brno, the introduction of electric tramways was preceded by a long history of both horse and steam trams. In as early as 1869/70, a standard-gauge horse tramway was opened on a route which largely corresponded to the present line 1 between Semilasso in the north and Pisárky in the west. There was also a branch along Cejl (only until 1875) and the northwestern city ring. The unsuccessful tramway operation, however, ceased in 1881. Two years later, service resumed with steam locomotives, but the route on the eastern edge of the inner city was relocated from Koliště to today's Rooseveltova. In 1884, a southern branch was opened to the Central Cemetery (Ústřední hřbitov). The steam trams were replaced by electric trams on all the existing routes in 1900.

In the following years until World War I several branches were built in the inner city, and the main square (now Náměstí Svobody) was connected from all sides. During the 1920s and 1930s, Řečkovice was reached in the north, Rosického náměstí in the northwest, Obřany in the northeast and Juliánov in the east. At the beginning of the 1940s, the interurban railway to Líšeň was integrated into the tram network; the section to Stránská skála is still in use today, while the rest was abandoned in 1964. In 1942, the city ring was completed with a link along Husova on the western side of the old town.

After World War II, the first major network expansion took place in 1947/48 with the extension via Komin to Bystrc (Zoolog. Zahrada) in the northwest. In 1961, the route along Kounicova to Královo Pole (Červinkova) opened, and in 1972 it was extended to the Technical Museum.

From the 1970s, several lines were built to serve new residential areas, mostly with a proper light rail or rapid tram alignment (rychlodrážní tramvaj). Such a route led to Lesná in the north in 1973; from 1976/77, trams ran almost non-stop from Pisárky towards Komin; in 1977, the light rail route was completed in the middle strip of urban motorway 52 south to Modřice; the branch to Bohunice with the terminus at Starý Liskovec followed in 1980/82; in 1983/84, the northwestern route was first extended to the loop at Rakovecká, then to Ečerova; and in 1986/89 also the large housing estate in Líšeň was linked via a light rail route terminating at Kotlanova. Finally in 1994, a direct connection from Bohunice to the city centre along Renneská třída opened, followed in 1998 by a short extension in Líšeň to Brno's only underground station, Jirova; in 2004 this line was further extended to Mifkova, the only terminus in Brno without a loop. The last addition to the network was an approximately 500 m long route in May 2008 from the Technical Museum to Technologický Park in the north, from where a second access to the Medlánky depot was created.

Brno's tram fleet is extremely diverse. The classic Tatra T3s are still the largest group, but with the Škoda Astra and 13T trams as well as the numerous Vario LF vehicles a large number of low-floor cars is already available in service. Historical vehicles, from Brno and elsewhere, can be found at the Technical Museum's depot at Líšeň.

Since 1949 the tram network has been supplemented by a **trolleybus network**, the largest in Czechia. The first line ran from the main railway station to Slatina, the second from today's Moravské náměstí to Královo Pole (in 1961 it was relocated east to Chodská to allow for a tram extension), and a third from Komárov to Tuřany in the southeast of the city, which was dismantled in 1968. In 1954, the eastern route was extended from Slatina to the neighbouring town of Šlapanice (7000 inhabitants).

A major expansion of the trolleybus network started in the 1970s: in 1971 via Zborovská to Žabovřesky; in 1974 along Řípská in Slatina; in 1976/79 along Libušina třída in Kohoutovice; in 1976-77 to the Komin district; from 1979 in various stages along Pisárecká and via the hospital (Nemocnice) in Bohunice to Osová, and through Nový Liskovec to Kamenný Vrch; in 1981 from Mendlovo náměstí via Úvoz and Údolní to Komenského náměstí, as well as a branch line up to the Masarykova čtvrť along Barvičova; in 1981 to Bystrc, Černého; in 1982 a second route along Preslova through the Masarykova čtvrť; 1987/88 from Stará Osada via Vínohrady (Pálavské náměstí) to Novolíšeňská. In 1994, the semicircular route from Úvoz via Provoznicova and Tomkovo náměstí to Stará osada was implemented. Lastly, the connection between Jirovcova and Kamenný Vrch was completed in 2001. While the network once consisted of

up to five subnetworks, today there are only two, which are connected by lengthy non-revenue overhead wires. In connection with the commissioning of the new trolleybus depot in Komin in 1997, the 3.2 km long link along Veslařská was finished two years later, but it was only briefly used in passenger service.

As of 2016, a total of 147 Škoda vehicles are available for the Brno trolleybus operation: 31 high-floor buses of type 14 Tr and five of type 15 Tr (articulated vehicles). Most traffic, however, is handled by the 64 low-floor buses of type 21 Tr, as well as eight of type 22 Tr (articulated vehicles), nine of type 25 Tr (articulated vehicles) from Škoda/Irisbus and 30 of type 31 Tr (articulated vehicles) from Škoda/SOR. The articulated buses can primarily be seen on the tangential lines 25 and 26 as well as on line 37.

Within the South-Moravian fare system IDS-JMK, the city of Brno represents zones 100+101, for which a 24-hour ticket is offered for CZK 90 (excluding the outer sections of tram line 2 in Modřice and of trolleybus line 31 in Šlapanice). A 24-hour ticket for the entire region costs CZK 190.

LIBEREC & JABLONEC NAD NISOU

The town of Liberec is situated on the upper Neiße River, about 90 km northeast of Prague and just 20 km from the point where Czechia, Poland and Germany meet. Until 1945, Liberec was predominantly a German-speaking town (Reichenberg).

The electric tram age began in Liberec in 1897 when a first line opened from the railway station to Lidové sady passing through the old town. In 1899, a southern route to Rochlice and in 1904, a first section of a northwestern route from the town hall towards Růžodol (Rosenthal) were added. The original route to Horní Hanychov (Ober-Hanichen), opened in 1912, used to run directly from Viadukt via Františkovská and Barvířská into the town centre.

Jablonec nad Nisou, 10 km to the southeast, opened its own tram system in 1900, reaching a total length of more than 20 km by 1904. Rural routes extended as far as Janov in the north and Rychnov in the south. The urban western line (Brandl) eventually became part of the interurban line built between Jablonec and Liberec from 1953, which initially ran as far as Proseč, but with through operation to Liberec starting in 1955 as line 11. From 1959, however, the routes in Jablonec were abandoned, and by 1970 only line 11 had survived. In the course of a line upgrade, the Jablonec terminus was cut back by several hundred meters in 1975. In the meantime in Liberec, the routes to Rochlice and Růžodol had also been shut down in 1960.

It was only in 1984 that the tramway was withdrawn from the narrow streets Pražská and Moskevská in the Old Town and moved to the parallel Rumunská. In 1990, the regauging of the network from metre gauge to standard gauge began, with three-rail tracks being laid along the route to Lidové sady. In 1994, reconstruction of the section from the town centre via the railway station to a new loop at Viadukt was carried out, with the first standard-gauge trams finally running in 1998. In 1995, the public transport hub at Fügnerova was completed, replacing the traditional interchange point at Soukenné náměstí. By 2005, the route to Horní Hanychov had also been modernised, but this time just only standard-gauge tracks were laid on this on-street alignment.

In view of a planned 1.6 km branch from U Lomu to Rochlice, the section Fügnerova – U Lomu has already been equipped with three-rail tracks. The new route was, however, postponed as an upgrade of line 11 (2018-2020, including regauging) was given priority instead. In the southwest, an extension from Horní Hanychov to the lower station of the cable car to Ještěd has been suggested.

A 24-hour ticket just for Liberec (valid as far as Vratislavice) costs CZK 80, while a day pass for CZK 100 also includes Jablonec.

The Tatra T3 trams still dominate the scene in Liberec, although they have all been modernised over the years, with most of them now offering a low-floor centre access. A prototype of the low-floor EVO2 tram from Aliance TW Team (Pragoimex, VKV Praha and KOS) was delivered in 2012, but an order for serial cars was not signed.

MOST & LITVÍNOV

The towns of Most and Litvínov are located in the industrial area of Northern Bohemia. Besides large-scale open-pit coal mining, the chemical industry also has a strong presence between the two towns. Prague lies some 75 km away, the capital of the region, Ústí nad Labem, 35 km.

The first electric tramway operated between Most and Litvínov in as early as 1901, but this meter-gauge line ran about 1-2 km to the east of today's route. It started at Most's old railway station, which again lay some 2 km north of the present one, in the original centre of the once German-speaking town of Brüx (in the area of the southern shore of the newly created lake Jezero Most). The original tram route continued from Litvínov further west to Janov. In 1917, a 3 km southern route to Čepirožská výšina in the western part of today's town was added. After a short branch from the latter to the Zdař Bůh neighbourhood was opened in 1949, the construction of the standard-gauge rapid tram to create a new interurban line between Most and Litvínov began in 1951. While the metre-gauge line between Litvínov and Janov was abandoned in 1955, rapid trams started to serve the new line between Litvínov and the chemical plant in Záluší (5 km) in July 1957. The southern section leading to the old town centre of Most (4.3 km) followed in December 1957. At the same time, the old interurban line was abandoned in stages. In Litvínov, the new route had been extended to the present terminus at Citadela by 1959, while by 1961, metre-gauge operation had finished completely. That same year, however, the new tram was extended 5 km south to Nový Most, where a new town centre was being built; beginning in the mid-1960s, the old town centre was gradually abandoned to make way for the expansion of the open-pit coal mines. In 1978, the tram route between Sídliště ČD and Zimní stadion was realigned some 700 m further south; the ČD railway tracks were also moved, and a new railway station was built on the northeastern edge of the new town and linked by a 1.1 km tram branch. The last network expansion took place in 1981 when a 1.5 km extension from the Most depot to the new terminus at Velebudická was completed.

A three-zone fare applies for the tram network. There are no unlimited-ride day passes. A 90-minute ticket from the ticket machine inside the trams costs CZK 28 for three zones and allows unlimited travel within that period.

The Tatra T3 vehicles in all their variants still dominate the tram fleet. Low-floor cars remain rather scarce, according to the timetable about every third tram on line 2 and every sixth on line 4.

Between 1946 and 1959, also trolleybuses ran between the Most and Litvínov. However, since the route was rather similar to the new rapid tramway opened in 1957, trolleybus operation ceased in 1959.

OLOMOUC

Olomouc is located in northern Moravia, 210 km east of Prague and 65 km northeast of Brno.

The first electric **tramway** line was opened in 1899 from the central Horní náměstí to the railway station lying 2.2 km to the east, together with a southern route to Nová Ulice and a western one to the barracks (Šibeník). The latter branch was extended to the cemetery (Hřbitov) in the Neředín district in 1914, and to the small airport in 1932; this route was cut back to the present terminus at the crematorium in 1956. In 1947, trams also reached Hodolany, the district to the east of the railway station. In 1954, the tracks were removed from Horní náměstí and relocated along the street called 8. května and via a new intersection at Náměstí Hrdinů. In 1955, a short branch along Třída Svobody to Tržnice on the southern edge of the town centre was added. In 1957, the eastern route was completed with an extension from Bělidla and a block loop in Pavlovičky. A year later, a short extension followed along I.P. Pavlova to Hraniční, but the original route through Nová Ulice was eventually replaced in 1981 in conjunction with an expansion of the road network, when the tracks were put on a rapid tram-like alignment along Brněnská. In 1997, an alternative route to the railway station via Třída Kosmonautů was brought into service. The last expansion of the network took place in December 2013 with the branch from Tržnice to Trnkova (1.4 km) in the district of Nové Sady. In the absence of a loop at the terminus, special vehicles of type VarioLF plus/o with doors on both sides were purchased for this route. However, since these cars are only equipped with a single driver's cab, they operate always coupled rear-to-rear. The planned extension of this new route to Schweitzerova has been postponed. The entire Olomouc region is now part of the IDSOK fare system, with Olomouc proper representing zone 71, for which a 24-hour ticket is available for just CZK 46.00.

OSTRAVA

The industrial city of Ostrava lies some 270 km east of Prague, 140 km from Brno but only about 15 km from the Polish border.

Local transport in the Moravian-Silesian Region, which also includes Opava, is integrated into the ODIS fare system. The region is subdivided into numerous fare zones, and from 2017, the city of Ostrava represents zone 77 (formerly 1-4). However, the 24-hour ticket (80 CZK) is valid for the Ostrava XXL area and thus covers the entire tram line 5. Like in Prague, the regional trains operated by ČD are labelled "Esko" and run approximately once an hour.

The Ostrava tram links the main railway station in the north with the city centre, from where one route heads for the Nová Hut' steelworks, while the heavy industry sites in Vítkovice as well as residential areas such as Dubina or Zábřeh are served via a number of different routes. From there, just like from the city centre, various direct lines run to the residential area of Poruba to the west of the Odra River. The 8.7 km line 5 is different from the rest, as on its single-track interurban route it connects villages outside the city limits. Having started operating as a local railway between 1925 and 1927, it was electrified after World War II and then integrated into the tram network. Until 1970, it ran directly from Poruba (Vřesinská) to Svinov railway station.

The urban tram started in 1894 with a steam tramway opened from today's main railway station to Vítkovice, and was followed by a route to Hulváky in 1899, with both lines being electrified in 1901. A major network expansion took place in the 1950s (Nová Hut') and 1960s (Poruba). In the 1980s, the southern residential areas were connected by new routes, some of which feature a rapid tram alignment. The most recent addition was the almost grade-separated section from Vítkovice vys. Pece to Kolonie Jeremenko along the Místecká corridor in 1999. A 3.3 km branch in the northwest is currently being planned.

The bulk of the tram fleet continues to belong to the classic Tatra cars, many of which have been rebuilt into Vario LF cars with a low-floor centre access.

While the tram primarily serves the south and west of the city, the **trolleybus network** mainly covers the hilly districts east of the city centre. After the implementation of the first line from Náměstí Republiky to Nová Radnice (New City Hall) the network grew steadily, with trolleybuses replacing narrow-gauge trams (760 mm) on some routes. Since 1979, several lines have also reached the large housing estate of Fifejdy to the north of the primary east-west tram corridor. In 2013, line 105 was added to serve a new shopping centre at Nová Karolina. In 2015, a short extension opened to a new loop at Hulváky, and finally in February 2016, the 2.5 km route to the reconfigured hub at Hranečník completed the current network.

The 64-car trolleybus fleet mainly consists of modern buses from Škoda/Solaris (26 Tr, 27 Tr) and Solaris (Trollino 12, 15, 18), as well as three SOR buses plus a few older vehicles from Škoda (14 Tr, 15 Tr).

PLZEŇ

The western Bohemian city of Pilsen (90 km southwest of Prague) has gained worldwide fame mainly for its beer breweries. For the urban transport enthusiast, however, it is also well known as a traditional site for the manufacturing of Škoda trolleybuses and, more recently, also Škoda trams.

In 1899, a **tram system** with a total length of 10 km was put into operation, with routes starting from the main square (now Nám. Republiky) north to Lochotín (zoo), southeast to around Liliová, south to Bory and west to around Přední Skvrňany. There was yet another southern branch going to the cattle market (Dobytčí trh) in the area of today's Zimní stadion, where the depot was built.

In conjunction with the double-tracking of most sections, the northern connection at the main square (now westbound track) was opened, as well as an extension to Doudlevice of the no longer existing southern route. At the beginning of the 1930s short extensions followed, while the Bory branch was cut back by some 400 m to its current terminus.

After trolleybuses had been introduced in 1941, tram operation ceased in 1949 on the north-south line from Lochotín to Doudlevice to be partially replaced by trolleybuses, with just the access to the old depot remaining in place until 1994. In 1962, the network was expanded with a route to Světovar along Koterovská. In 1973, a new neighbourhood at the present Skvrňany terminus in the west was linked by trams, too. Still in 1973, trams returned to the northern districts via a new bridge across the Mže River to serve large residential areas under construction: the branch to Košutka was completed in 1980, the one to Bolevec in 1990. In 1992 at the main railway station, the tram was relocated from Nádražní to the wider newly laid-out Sirková, resulting, however, in a longer walk from

the tram stop to the trains. For a long time, a new route from Bory to the university campus in Borská pole has been planned.

Besides the clearly structured tram network, Pilsen also boasts an extensive **trolleybus system**. In 1941, the first routes to Doubravka and to the Central Cemetery (Ústřední hřbitov) were opened. In 1948, an east-west route from Božkov (originally via Koterovská) to Skvrňany followed, and in 1949 the tram line Bolevec – Doudlevec switched to trolleybus operation. In 1950, a second northern branch was added going to Košutka. In 1953, the electric buses started to run to Černice in the south and in 1955, to Nová Hospoda in the west. In the middle of the 1970s there were still smaller extensions, but at the same time the northern routes were discontinued to be replaced by trams. An important addition came in 1988 with the route to Sídliště Bory. Since 2010, the commercial and industrial estate Borská pole has been served by trolleybuses via Borská and Folmavská. The bus depot moved to a location along this route in 2014.

While only a small number of tram vehicles were produced locally, Škoda, like everywhere in the Czech Republic, dominates the trolleybus fleet. Of a total of 87 vehicles in the 2016 roster, there were still four high-floor 14 Tr buses, which are gradually being replaced by low-floor buses of type 26 Tr (the first with a battery auxiliary drive). The rest of the fleet consists of 15 Škoda 21 Tr buses; 23 of type 24 Tr and five of type 25 Tr (articulated) from Škoda/Irisbus; as well as 24 of type 26 Tr and 16 of type 27 Tr (articulated) from Škoda/Solaris.

In the Pilsen regional fare system (IDP), the city of Pilsen represents zone 001 (entire DPMP network, except the non-electrified section of line 12), for which a 24-hour ticket is available for CZK 70.

Slovakia

At the beginning of the tramway era, the territory of today's Slovak Republic (in Slovak 'Slovenská republika' or simply 'Slovensko') belonged to the Kingdom of Hungary, which in turn was part of the Habsburg monarchy of Austria-Hungary. After World War I, Slovakia together with Bohemia and Moravia formed the state of Czechoslovakia, which, apart from an interruption during the Nazi period, when Slovakia was formally independent, existed until the peaceful division of the state in 1993. Like the neighboring countries, Slovakia joined the EU in 2004 and in 2009 adopted the Euro as its currency. The country now has a population of approximately 5.5 million in an area of 49,000 km².

Similar to the Czech Republic, the country is divided into eight administrative regions ('kraj'), which are also responsible for the organisation of local transport. A regional fare system based on the German or Austrian models has already been implemented in the Bratislavský Kraj, while in the Košice region it is being worked on. Despite the Euro, urban transport fares are still significantly below those in Western Europe, with 24-hour tickets costing a maximum of €3.50. While most transport companies have a good web presence with up-to-date information, printed network maps or other information materials are rather scarce in situ. While the two largest cities of the country, Bratislava and Košice, have been operating trams for more than 100 years, they also have trolleybuses, as do Prešov, Žilina and Banská Bystrica, the next three towns in terms of population.

BRATISLAVA

The capital of Slovakia, Bratislava, is located in the far west of the country, the city borders directly with Austria in the west (distance to Vienna about 50 km) and with Hungary in the south.

In 1895, when the first electric tramway (without a preceding horse trams) was put into operation in this city, it was rather known under its German name 'Pressburg' and its Hungarian name 'Pozsony'. Even in Slovak, it was then called 'Prešporok', while the present name only came into use after World War I. For better orientation, however, only current place names are used in this atlas.

The first metre-gauge route went from the railway station along Štefánikova to Župné námestie and along Jesenského straight on to a terminus slightly west of today's Most SNP. In early 1896, a branch along Špitálska to the former railway station Filiálka as well as a branch along Štúra to the former railway station Nové Mesto in the area of today's bus station were added. In 1899 followed the route along Obchodná to Račianske mýto, which was extended to the dynamite factory at today's railway station Vinohrady in 1911. That same time, the two northeastern routes were linked at Americké námestie.

In 1914, a standard-gauge local railway was opened between Vienna and Bratislava, which after crossing the Danube on Starý Most [Old Bridge] used to terminate in a long loop which corresponded to today's loop Šafárikovo nám./Nám. L. Štúra, where interlaced tracks for both gauges had been laid on some sections.

After the foundation of Czechoslovakia, the first sections were closed in the late 1920s, like the route along the central Obchodná or the branch to former Nové Mesto railway station. At the same time, however, the route along the north bank of the Danube was extended to Karlova Ves (Molecova) in 1929, and the branch along Špitálska to Nová Doba in 1933. In 1935/36, the local railway to Vienna was regauged to 1000 mm up to the national border and integrated into the tram network, but operation on the southside of the Danube ceased in as early as 1938, when this area became part of the German Reich in the course of the 'Anschluss' of Austria. On the other hand, the northeastern route was extended from Nová Doba to Zátisje in 1944 and to the Jurajov dvor depot in 1956. From 1951 to 1961, tram service across the Danube was resumed, but only to the southern bridgehead. In 1966 the northern route reached Rača (~ Detvianska), and in 1971 the eastern route Ružinov. The western route was extended in 1975 to today's loop at Karlova Ves (formerly Kútiky). In 1980, a new route along Štefanovičova replaced the original route along Štefánikova between the railway station and the city centre. At the same time, the route along Obchodná was reopened after more than 50 years. Major network restructuring resulted in 1983 with the conversion of the road tunnel built under Castle Hill in 1949 into a tram tunnel, along with an extension to the large residential district of Dúbravka. In 1988, lines 3 and 5 arrived at their current terminus Rača, Komisárky, while line 4 reached Zlaté Piesky one year later. After that, the network remained largely unchanged for several decades, until the first section of a new cross-Danube route to the Petržalka district (about 100,000 inhabitants) on the south bank was finally opened on 9 July 2016. This route starts at Šafárikovo námestie and runs over the completely replaced Starý Most to a provisional terminus at Jungmannova (2 km).

In view of a possible future tram-train, the new section was equipped with 4-rail tracks. In the absence of a loop, only new double-ended tram of type 30T are used on lines 1 and 3. The second, 3.8 km long section to Janíkov Dvor is scheduled for completion in 2020.

The Škoda ForCity trams delivered since 2014 have fundamentally changed the image of the Bratislava tram, but numerous high-floor Tatra trams of various types are still in daily use, many of them now in the new full red livery, some also covered in full adverts.

In the 1980s, there were concrete plans in Bratislava to build a metro system. Initially, a Soviet-style metro was to connect the city centre with the residential areas on the south bank of the Danube. Construction began in 1985 in the area of the planned depot in Janíkov Dvor on the southern edge of the built-up area as well as in the area of a metro station in the heart of Petržalka. While the route through Petržalka was to be built by cut-and-cover, the Danube crossing as well as the route through the city centre to the main railway station was to be excavated using tunnelling machines with a planned completion in the year 2000. In the area of Kamenné námestie/Nám. SNP even the station box for a second intersecting line was to be built at that time. But the political changes at the end of that decade buried this project.

In the 1990s, there were still plans for the construction of a VAL-type metro, later the project was down-scaled in favour of a grade-separated light rail line; through Petržalka, the route once reserved for the metro could have been used. In the end, however, a modern tram route with its own right-of-way and with priority at road intersections is currently being built.

The trolleybus service, which was reintroduced in 1941 (a first-generation trolleybus existed between 1909 and 1914 running from the centre to Patrónka), complements the tram network mainly in the hilly areas to the west and north of the city centre as well as in the eastern residential districts. The first route connected the railway station with the National Theatre in the Old Town in 1941, followed by routes via Kramáre to Patrónka in the west, up via Castle Hill to Červený Križ as well as from the city centre (150 m a.s.l.) up to Koliba (295 m a.s.l.). In 1953, the route to Trnávka (Rádiová) was opened, in 1958 the one along Prievozska and in 1960, one leading to the district Ružová Dolina. After a long gap, the trolleybus service was extended to Vrakuňa in the east of the city in 1988, along Šancová, Trnavská and Miletičova in 1991, and the short but steep routes up to NUSCH (Cardiac surgery centre) and Národný onkologický ústav (Cancer Institute) in 1998. Since 2006, Line 33 has been operating on an isolated trolleybus route from the Molecova tram stop in Karlova Ves up to Dlhé Diely, for which buses equipped with a diesel engine had to be purchased. In 2012, the connection Pražská – Vozovňa Hroboňova was electrified for line 64, and in 2013 a short extension from Patrónka to Vojenská nemocnica (now ŽST Železná studienka) was added. Eventually in 2014, a 400 m extension along Trenčianska was opened for lines 208 and 209. Line 210 links the railway station with the new National Theatre (Nové SND) in a redevelopment area on the north bank of the Danube; at the bus station it switches from electric to diesel mode.

At the end of 2016, the trolleybus roster listed a total of 143 vehicles, including eight high-floor type 14 Tr and nine type 15 Tr from Škoda. From Škoda/Irisbus are six 25 Tr buses with diesel engines. Most journeys, however, are currently operated with 50 vehicles of type 30 Tr (15 of them with a diesel engine) and 70 articulated buses of type 31 Tr from Škoda/SOR.

In the administrative region of Bratislava, full transport integration has been available since 2013 (Integrovaný dopravný systém v Bratislavskom kraji - IDS BK), with the city of Bratislava, which includes the entire tram and trolleybus network, represents zones 100 + 101. A 24-hour ticket for these zones costs € 3.50, for the total network €6.90. A 72-hour ticket for the city area is available for €8.00. All the tickets are also valid for suburban trains (prímestské vlaky) operated by national rail company ŽSR which are marked as 'S-Bahn' lines (S20, S50, S60), but mostly just run hourly [www.slovakrail.sk].

KOŠICE

Košice, the second largest city in Slovakia, is located in the east of the country, some 320 km (as the crow flies) from the capital Bratislava and only about 20 km from the Hungarian border.

Like Bratislava, Košice has both a tram and a trolleybus system; the latter, however, has been operated with diesel buses since 2015 and its future is currently uncertain. A 24-hour ticket for €3.20 is available for the municipal area of Košice, which includes the route to the steelworks (U.S. Steel) in the south.

The tramway age began in Košice in 1891 with a horse-drawn tram line from the railway station via the Old Town north along Komenského, reaching Čermel' (since 1955 starting point of the children's railway to Alpinka) by 1892. In 1893, the section from the railway station to the Old Town was converted to steam operation. Both horse and steam operation, however, ended in 1909 due to bad track condition, but the approximately 5 km long route was soon upgraded for the start of electric operation. At the same time, a southern route along Južná trieda leading to the cemetery (Cintorin) as well as a route along Kuzmányho on the western side of the inner city were built, so that in 1914 the electric tramway was launched on a considerable network. Ten years later, a branch from today's northern terminus Havlíčkova to the former municipal baths was added, but after a short extension in 1960, this branch was abandoned in 1965.

After World War II, the municipal area was enlarged and the southern branch of the 'Električka' extended to Barca in 1951. In 1959, the branch from Nám. Maratónu mieru to the botanical gardens (Botanická záhrada) followed.

Major expansion started in the early 1960s to connect the steelworks located some 12 km south of Košice. The rapid tram to the industrial site was opened in 1964 together with the route along Trieda SNP through the western districts of Luník I-VII. Still today, a number of R-prefixed lines link the steelworks directly with several residential areas at the end of work shifts. Just line R1 runs all day.

In 1971 the outer section from the loop at Havlíčkova to Čermel' was abandoned. In 1983, the new housing estate at Krásna (Nad jazerom) in the southeast was also connected to the city centre via a light rail-type alignment. In 1986, trams were withdrawn from the Old Town, even though the tracks along Hlavná are still visible today. Finally, the connection along Alejová completed the current network in 1989.

In addition to older T3 and T6A5 cars, a large number of new Vario LF2 plus trams with centre low-floor access are already available, as well as some KT8D5 trams equipped with a low-floor centre section. Car no. 503 of this type was sold to the 'Strausberger Eisenbahn' in Germany in 1995; now no. 22, it has only recently been rebuilt accordingly.

The housing estates built in the 1980s, Sídliisko KVP in the far west of the city as well as the Dargovských hrdinův (Furča) on the eastern hills, were not connected by trams but instead, trolleybuses started to serve these areas in the early 1990s. From 1993 they ran from Mlynská bašta up to Lingov; in 1995 they reached the central interchange point at Námestie Osloboditeľov and from 1998/99 the western termini became KVP, kláštor and Grunt in the village of Myslava. Since the end of January 2015, however, all trolleybuses have been retired and low-floor articulated diesel buses have been used on lines 71 and 72 instead.

In 2016, the trolleybus roster still listed a total of 18 high-floor vehicles, including four 14 Tr solo buses and 14 articulated 15 Tr buses from Škoda. If funding for new low-floor trolleybuses can be secured, trolleybus operation may be resumed.

Hungary

When the first electric tramways were put into operation towards the end of the 19th century, the territory of what is today Hungary (Hungarian 'Magyarország') represented the central part of the Kingdom of Hungary within the Habsburg Monarchy of Austria-Hungary. Hungary then also included the entire territory of today's Slovakia, as well as northern Serbia and parts of Croatia, Romania and Western Ukraine. The present borders date back to 1921. Like the Czech Republic and Slovakia, Hungary has been a member of the EU since 2004, but has retained its own currency Forint (HUF) to this day. Some 10 million people now live on an area of 93,000 km² (in comparison, England covers 130,000 km²).

Administratively, the country is divided into 19 counties (megye), while the capital Budapest has a special status and is surrounded by Pest megye. In the three smaller cities with urban rail systems, the counties have no influence on urban transport as of now and there are no integrated regional fares; urban fares apply up to the city boundaries or the terminus of each line if operated by the municipal transport company. Just in Budapest, a common ticket is available for all operators (including HÉV and MÁV trains). For journeys into the surrounding region, add-on tickets with distance-based fares are offered.

In general, electric urban transport is in good shape in the four cities with trams or trolleybuses, as there has been significant investment into track renovation and the acquisition of new rolling stock. With Budapest, Hungary also boasts one of the most diverse cities in the world as far as urban transport modes is concerned. At the same time, with Pécs, Győr, Nyíregyháza and Kecskemét, there are several cities counting more than 100,000 inhabitants but without any kind of electric transport.

Regarding provision of customer information, Hungary is similar to Slovakia: the websites of individual transport companies are quite informative and up-to-date, but printed network maps or other info materials in situ are rather sparse. For Western Europeans, fares in Hungary remain relatively cheap, with day tickets costing between 1,000 HUF in Debrecen and 1,650 HUF in Budapest. [2016: 1,000 HUF = 3.20 €]

DEBRECEN

Debrecen is situated in the east of Hungary, some 200 km east of the capital Budapest and about 30 km from the Romanian border.

Hungary's second largest city boasts a rather modest tram and trolleybus network. In particular, the large residential district of Tócskert, only a few hundred metres to the west of the trolleybus terminal at Segner tér, is only served by diesel buses.

The tram era began in Debrecen in 1884 with a steam tramway from the railway station to the spa in the 'Big Forest'. Four years later, the first horse-drawn tramcars operated from Kossuth tér via Segner tér and north along Böszörményi út to the cattle market. In 1896 horse tramways also started to run along Kossuth utca and via Attila tér east to the tobacco factory. From 1906 an interurban tram travelled from Segner tér to Hajdúsámson, about 15 km northeast of Debrecen, the tracks of which were shared by the horse trams north of Bem tér until 1910.

In 1911, finally electric trams (Hungarian 'villamos') were introduced in Debrecen, initially from Kossuth tér via Csapó utca to Tüzérlaktanya (Kassai/ Sámsoni út). Subsequently, the existing horsetram routes were electrified and the eastern branch (line 4) was extended along Vagóhid utca to the slaughterhouse.

From 1924, electric trams continued on the interurban route from the Big Forest terminus about 5 km north to Pallag, while the still existing loop in the Big Forest was finished 1927 to serve the University. By 1939, line 6 had been extended in various stages along Kassai út to reach the Central Cemetery (Köztemető), while line 5 was extended in 1943 from the cattle market to Nyulas (in the area of today's line 2 loop).

After line 4 had been relocated from Kossuth utca to Szent Anna utca in 1962, the decline of the tramway began in 1970, starting with the closure of the outer section to Pallag, followed in 1971 by the cemetery line, in 1973 by the Nyulas line and finally in 1975, by the slaughterhouse line, leaving only today's line 1.

On 26 February 2014, the tram network finally saw some significant expansion with the 4.3 km branch for line 2. This line is now served by modern vehicles delivered by CAF, while on line 1 some older high-floor vehicles of Hungarian design are still in operation.

The approximately 10 km long trolleybus network was created from 1985. The first line was line 5, which after 14 years reestablished an electrical link to the cemetery. Line 3 via Kossuth utca followed in 1988 and line 4 in 1995. A once-planned western route from Segner tér to Vincellér utca on the southern edge of the residential area of Tócskert has not materialised.

The trolleybus fleet list still includes some older vehicles of type ZIU-9 built in the Soviet Union (nos. 9-301...337) as well as four domestically produced Ikarus 280 (nos. 401-404), but trolleybus operation is now almost exclusively carried out with 21 low-floor solo buses of type Trollino 12 and 12D from Ganz/Solaris or Ganz/Škoda (nos. 341-345, 371-386), plus a single Ganz-MAZ 103T-2 (no. 346).

A day ticket for the entire network is available from ticket machines for HUF 1000, a 3-day ticket for HUF 2400, but in 2016 ticket machines only existed on the new section of line 2!

MISKOLC

Miskolc lies in the northeast of Hungary, about 150 km from the capital Budapest and about 80 km from Košice in Slovakia.

The Miskolc tramway (Hungarian 'villamos') is now one of the most modern in Eastern Central Europe. Even though older Tatra vehicles are still kept as a reserve, everyday operation is handled by new low-floor vehicles. All the tram stops have adequate platforms (some built as island platforms) with attractive shelters, and a dense headway is operated. The Miskolc tram is thus more like a modern French tramway than a typical tram of the former Eastern Bloc. Just the loop to the steelworks (Vasgyár) maintains the flair of the old times. The E₁+c₃ sets, taken over from Vienna at the beginning of the 2000s, have not been in use since 2015.

Line 1 perfectly serves the east-west corridor from the residential area in the far west of Diósgyőr via the city centre to the railway station in the east. At the LAÉV (kisvasút) stop, transfer is provided to 'Lillafüredi Állami Erdei Vasút', a narrow-gauge railway featuring 760 mm gauge. However, this railway has no importance for local transport and is mainly used by tourists. However, the Avas housing estate, situated some 100 m higher than the city centre, as well as the university (Egyetemváros), both to the south of the city centre, are not connected by the tram, as initially planned, but by numerous bus lines. A 24-hour ticket for the entire city of Miskolc (including the resort town of Miskolctapolca) costs HUF 1600.

The electric tram era began in Miskolc in as early as 1897, when a line was opened to provide a link to the main railway station (Tiszai pályaudvar), which lies almost 2 km from the city centre. The terminus in the west was at initially at Szent Anna tér. That same year, a north-south line was opened from Búza tér (today's bus station) to Népkert (City Park), which in 1910 was extended southwards to Hejőcsaba. In 1906, a second east-west route was added running from Szent Anna tér to Diósgyőr with a loop to the steelworks (Vasgyár), but some months later the two separate lines were connected. From 1951 to 1976, there was also a 1.4 km long branch from Bulgárföld to Tatárdomb, while the north-south route was shut down in 1960.

While the existing east-west route was completely upgraded between 2010 and 2011, a 1.5 km extension was built from Diósgyőr városközpont to the present terminal loop at Felső-Majláth, opened on 16 January 2012.

SZEGED

Szeged is located in the south of Hungary, about 160 km southeast of the capital Budapest and not far from the Serbian and Romanian borders.

The electric tramway (Hungarian 'villamos') of Szeged dates back to a horse tramway commissioned in 1884. After the network had gradually grown, electrification began in 1908 with the route from the main railway station via the city centre (until 1927 via Kárász utca) to Rókus railway station, a route which largely corresponded to today's line 1. Soon after, the northern route to today's Deák Ferenc Gimnázium as well as the southwestern branch to Szalámigyár were added. Still in 1908, electric trams also travelled along Kálvária sugárút and reached the cemetery (Belvárosi temető) in the west. From 1909 to 1919 the trams crossed the Tisza River to serve the Újszeged district.

From 1927 an eastern tram route was also available along the bank of the Tisza River (Felső Tisza-part up to Etelka sor), but this was abandoned in 1977 to allow for the construction of the second Tisza bridge (Bertalan hid).

In 1948/49 the tram returned from Széchenyi tér to Újszeged, now labelled line 5, but it was once again discontinued in 1969, although in 1979 trolleybuses took over traffic across Belvárosi hid.

From 1950, a 4 km long route led westwards from today's terminus of line 3F to the village of Kiskundorozsma, operated by line 7 from Marx tér until 1977. Between 1950 and 1966, there was also a line 6 going to the eastern side of the main railway station, to the terminus Szeged-Átrakó of the lcoal railway to Pusztamérges and Ásotthalom, which had been cut back from its original terminal next to Belvárosi hid.

After the southwestern leg had been extended to the Kecskés terminus in 1953 and northern had reached Tarján in 1941, no network expansion took place for several decades, and instead a trolleybus system was implemented. Since the oldest sections were upgraded in 2009-2011, there have been proposals for a tram-train taking line 1 from Rókus to Hódmezővásárhely on railway tracks, with an urban extension in that town. A significant increase in route length finally came with the 1.85 km branch along Rókusi körút for the new line 2, which was opened on 3 March 2012. The Szeged tram is now a mostly modernised system, with line 2 being served by new low-floor vehicles from Pesa, while the other lines are operated by Tatra cars. Track renewal on the mostly single-track branch to Kecskés is still pending. Three termini feature track triangles, which were only added in recent years to allow the use of the second-hand single-ended Tatra trams.

Trolleybus service started in Szeged in 1979 between Bartok tér and the Children's Hospital (Gyermekkórház) in Újszeged. Gradually, the residential areas in the north and east of the city were connected to the city centre (1981 Vértoi út, 1983 Makkosház and 1985 Lugas utca). In 1998 a branch to the bus depot at Körtöltés utca followed. In 2004, regular trolleybus service returned to Bakay Nándor utca, while the University Hospital area (Klinikák) was connected in 2010 via a loop. Most recently, the network was expanded in 2011 from Csillag tér to Viztorony tér and in 2013 from Berliini körút to Csillag tér.

The trolleybus fleet is rather varied. It includes nine buses of type 14Tr (T-7xx), 25 of type 15 Tr (T-6xx), six of type 21 Tr (T-8xx) and one of type 22 Tr (T-650) from Škoda; one B7 TR12/TV.EU (T-850) from Volvo; six Citaro O-530 TR12 from Mercedes (T-860-865); one SZKT-ARC Tr187/TV.EU (T-660) as well as 13 Ikarus/Škoda buses of type Tr-187.2 (T-450-462).

A day ticket is available for HUF 1040, while a 3-day ticket cost HUF 2600.