= A4 (Croatia) =

The A4 motorway (Croatian : Autocesta A4) is a motorway in Croatia spanning 97 @.@ 0 kilometres (60 @.@ 3 mi) . It connects the nation 's capital , Zagreb , to the city of Vara?din and to Budapest , Hungary via the Gori?an border crossing . The motorway represents a major north ? south transportation corridor in Croatia and is a part of European routes E65 and E71 . The A4 motorway route also follows Pan @-@ European corridor Vb .

Apart from Zagreb and Vara?din , the A4 motorway runs near a number of Croatian cities , and connects to the rest of the Croatian motorway network east of Zagreb . The motorway route was completed in 2008 . The motorway 's national significance is reflected in the positive economic impact on the cities and towns it connects , as well as its importance to tourism in Croatia . The genuine importance of the motorway as a transit route will be demonstrated upon completion of proposed expansion of Port of Rijeka and Rijeka transport node , since the A4 represents an integral part of the Rijeka ? Zagreb ? Budapest transport route .

As the route traverses hilly terrain , it requires a substantial number of viaducts and tunnels , as well as two major bridges to span the Drava and Mura rivers . The motorway consists of two traffic lanes and an emergency lane in each driving direction separated by a central reservation . There are no emergency lanes in the tunnels . All intersections of the A4 motorway are grade separated . As of October 2010 , there are 12 exits and 3 rest areas operating along the route . As the motorway is tolled using a ticket system , each exit includes a toll plaza . Exits south of the Sveta Helena mainline toll plaza have no toll plazas , as that part of the A4 route is not tolled . The same applies to the northernmost section between the Gori?an exit and the Hungarian border .

A motorway connecting Zagreb to Vara?din and Budapest was proposed in the early 1970s , but unlike the Zagreb ? Rijeka or Zagreb ? Belgrade motorways , no construction was actually carried out . The first section of the road , later designated as the A4 motorway , was developed as a 6 @-@ kilometre (3 @.@ 7 mi) two @-@ lane road to serve as an interchange ramp in Ivanja Reka . The majority of the entire motorway was built between 1997 and 2003 , leaving only a 1 @.@ 6 @-@ kilometre (0 @.@ 99 mi) section between the Gori?an interchange and the Gori?an ? Letenye border crossing left to build . The section was fully completed on October 22 , 2008 . In 1998 , construction costs were estimated at 850 million German marks (? 434 @.@ 5 million) . Although a 32 @-@ year concession for development of the motorway was awarded to Transeuropska Autocesta d.d. (TEA) in 1997 , Hrvatske autoceste took over development , maintenance and management of the route in 2000 when the concession was cancelled , leading to a dispute with Astaldi , the majority owner of TEA .

= = Route description = =

The A4 motorway is a significant north ? south motorway in the northern Croatia connecting the nation 's capital , Zagreb , to the Hungarian M7 motorway at the Gori?an border crossing . The southern terminus of the A4 motorway at the interchange in Ivanja Reka represents its junction with the rest of the Croatian motorway network via the A3 motorway . As a part of the road network of Croatia , the motorway is a part of European route E65 and European route E71 . The motorway is of major importance to Croatia in terms of the development of its economy , notably tourism , as it represents the shortest and the most comfortable route between Budapest , Hungary and the Adriatic Sea . This particularly applies to tourist resorts on the Istria and Kvarner Gulf islands and to the Port of Rijeka , but it is also true for resorts in the Dalmatia region , served via the A1 motorway . The genuine importance of the motorway as a transit route will be demonstrated upon completion of the proposed expansion of the Port of Rijeka and Rijeka transport node . This expansion is planned to encompass the growth of the Port of Rijeka 's cargo handling capacity , improved railroad links and a new Rijeka bypass motorway linking the A6 , via a new interchange , to the present routes of the A7 and A8 motorways . The project is , among other goals , aimed to increase traffic along the Croatian part of Pan @-@ European corridor Vb , of which the A4 motorway is a part .

The motorway spans 97 @.@ 0 kilometres (60 @.@ 3 mi) between the Gori?an border crossing

to Hungary and Zagreb ? Ivanja Reka interchange on the A3 motorway . Among other cities and towns , it connects to ?akovec via the D20 , Ludbreg and Koprivnica via the D530 and D2 , Vara?din via the D528 , Novi Marof via the D22 , Vrbovec via the D10 state roads and Dugo Selo via the ?3034 county road . Future development of the motorway will include additional rest areas and a possible expansion of interchanges . The A4 motorway consists of two traffic lanes and an emergency lane in each driving direction along its entire length , except in tunnels where there are emergency bays instead . All existing interchanges are trumpet interchanges , except in Ivanja Reka , which is a modified cloverleaf . There is a number of rest areas along the motorway , providing various types of services ranging from parking spaces and restrooms to filling stations and restaurants . As of October 2010 , the motorway has 12 interchanges , providing access to numerous towns and cities and the Croatian state road network . The A4 motorway is concurrent with the D3 state road between the Komin and Ivanja Reka interchanges , although the D3 is not signposted along that section . The motorway is operated by Hrvatske autoceste .

An automatic traffic monitoring and guidance system is in place along the motorway . It consists of measuring , control and signaling devices , located in zones where driving conditions may vary ? at interchanges , near viaducts , bridges , tunnels and in zones where fog and strong winds are known to occur . The system consists of variable traffic signs used to communicate changing driving conditions , possible restrictions and other information to motorway users .

The A4 motorway runs through hills and plains crossed by a number of watercourses , requiring a number of bridges , viaducts and tunnels along the route . Particular attention to the environment is also required , due to the several water supply and natural heritage zones .

= = Toll = =

The A4 is a tolled motorway based on the vehicle classification in Croatia using a closed toll system . As of October 2010 , toll charged along the A4 route between the Sveta Helena and Gori?an mainline toll plazas varies depending on the length of route travelled and ranges from 7 @.@ 00 kuna (? 0 @.@ 96) to 36 @.@ 00 kuna (? 4 @.@ 93) for passenger cars and 22 @.@ 00 kuna (? 3 @.@ 01) to 120 @.@ 00 kuna (? 16 @.@ 44) for semi @-@ trailer trucks . The toll is payable in either Croatian kuna or euros using major credit cards , debit cards and a number of prepaid toll collection systems . The latter includes various types of smart cards issued by the motorway operator and ENC , an electronic toll collection (ETC) system which is shared at most motorways in Croatia and provides drivers with discounted toll rates for dedicated lanes at toll plazas . The northernmost section of the motorway , between the border and Gori?an interchange (inclusive) is not tolled . Similarly , the southernmost part of the A4 motorway route , located between Sveta Helena and Ivanja Reka interchanges (inclusive) is also toll @-@ free , as it is a part of the Zagreb bypass , which services a significant volume of traffic .

= = Notable structures = =

The A4 motorway Vara?din ? Brezni?ki Hum section route runs through hilly landscape requiring a number of viaducts and tunnels , especially along the Brezni?ki Hum ? Novi Marof section and around the Vara?dinske Toplice exit . Each comprises four traffic lanes , while the viaducts have emergency lanes . Two most notable structures are the Hrastovec and Vrtlinovec tunnels , located to the south and north of the exit , respectively . Both of the tunnels consist of two tubes each , and each of them carry two traffic lanes . The Hrastovec Tunnel tubes are unequal in length , as the southbound tube is 498 metres (1 @,@ 634 ft) long , while the northbound tube is 523 metres (1 @,@ 716 ft) long . The Vrtlinovec Tunnel southbound tube is 628 metres (2 @,@ 060 ft) long and its northbound tube is 522 metres (1 @,@ 713 ft) long , earning the distinction of being the longest tunnel on the A4 route . There are two major bridges on the A4 motorway , both of them located north of Vara?din . The longest one is the Drava Bridge , carrying the motorway across the Drava River , measuring 507 @.@ 7 metres (1 @,@ 666 ft) long . There is also the Zrinski Bridge , carrying the A4 motorway across Mur River and across the Croatia ? Hungary border , thus

representing the northern terminus of the motorway , where northbound A4 traffic defaults to the Hungarian M7 motorway towards Nagykanizsa and Budapest . The 216 @-@ metre (709 ft) Zrinski Bridge was the final structure completed on the route . Both the Drava and Mura bridges carry six motorway lanes .

= = History = =

A motorway connecting Zagreb to Vara?din and Budapest was proposed in the early 1970s , but unlike the Zagreb ? Rijeka and Zagreb ? Belgrade motorways , no construction was carried out . Although the first section of the route , now designated as the A4 motorway , was completed in 1980 , development for the motorway was proposed once again in 1991 to facilitate links between the Vara?din area , Zagreb and the remainder of the Croatian motorway network . The route was added to the network of Pan @-@ European transport corridors in June 1997 , during the third Pan @-@ European Transport Conference in Helsinki , and on August 7 , 1997 , the government of the Republic of Croatia decided to establish the Autocesta Rijeka ? Zagreb ? Gori?an company and award it a 28 @-@ year concession to develop , operate and maintain the route as a six @-@ lane motorway . The route consisted of the entire Croatian section of the Pan @-@ European corridor Vb except for 20 @.@ 8 @-@ kilometre (12 @.@ 9 mi) of the Lu?ko ? Ivanja Reka section of the A3 motorway , which was already in use as a part of Zagreb bypass .

Later that same year , on May 14 , 1998 , the government signed an agreement with Astaldi , regulating construction of the Zagreb Gori?an motorway by 2000 . On December 11 , 1997 , pursuant to the agreement , the government established the Autocesta Rijeka ? Zagreb company to take the place of the Autocesta Rijeka ? Zagreb ? Gori?an company , and awarded it the 28 @-@ year concession to develop , maintain and operate the Zagreb ? Rijeka motorway , effectively excluding the Zagreb ? Gori?an motorway from the original concession . At the same time , the Transeuropska autocesta d.o.o. (TEA) company was established by the government and awarded concession for development , operation and maintenance of the Zagreb ? Gori?an motorway . Astaldi owned 51 % of TEA , with the remainder owned by the Republic of Croatia . TEA was to secure financing of the project in 1998 . Construction began as scheduled ; however , financial and legal problems ensued , and by 1999 , the press speculated that Astaldi had given up the project , but Astaldi repeatedly denied these claims . Ultimately , the government cancelled the contract and ceded the motorway to Croatian Roads Administration (ancestor of Hrvatske autoceste and Hrvatske ceste) , leading Astaldi to turn to the commercial arbitration court in Vienna , which ruled in its favour . The Republic of Croatia was subsequently required to pay Astaldi 44 @.@ 3 million euro in damages .

In 1980 , the 6 @-@ kilometre (3 @.@ 7 mi) Popovec ? Ivanja Reka section was the first part of the A4 motorway to be built , as a semi @-@ motorway , for the new Ivanja Reka interchange on the motorway , later designated A3 . The first section completed was the 16 @-@ kilometre (9 @.@ 9 mi) Gori?an ? ?akovec section , opened to traffic in 1997 , followed by the 22 @.@ 4 @-@ kilometre (13 @.@ 9 mi) Komin ? Popovec and the 15 @.@ 58 @-@ kilometre (9 @.@ 68 mi) ?akovec ? Vara?din sections , completed in 1998 . In 2000 , the 12 @.@ 3 @-@ kilometre (7 @.@ 6 mi) Brezni?ki Hum ? Komin section was finished , and in 2003 , the motorway route was nearly completed as the 23 @.@ 25 @-@ kilometre (14 @.@ 45 mi) Vara?din ? Brezni?ki Hum section and the second carriageway in the Popovec ? Ivanja Reka section were built . The final 1 @.@ 6 @-@ kilometre (0 @.@ 99 mi) section between the Gori?an exit and the Hungarian border opened on October 22 , 2008 , the same day the final section of the A6 motorway was finalised , marking completion of the Budapest ? Zagreb ? Rijeka motorway .

= = Traffic volume = =

Traffic is regularly counted and reported by Hrvatske autoceste , operator of the motorway , and results are published by Hrvatske ceste . The largest annual average daily traffic (AADT) volume is often recorded in the Sveta Helena ? Komin section , although all sections between Sveta Helena

and Vara?din display similar AADT . AADT data for sections north of Vara?din show considerable drops in traffic volume . As the motorway traffic volume is measured through analysis of toll ticket sales , the southernmost section of the motorway , Ivanja Reka ? Sveta Helena , is not included in the report . However , since the section is a part of the Zagreb bypass , it carries significantly heavier traffic than any other sections of the A4 motorway ? in 2004 , traffic volume along the toll @-@ free section of the A4 motorway was approximately 24 @,@ 000 vehicles per day (AADT) between the Kraljeve?ki Novaki and Sveta Helena interchanges and nearly 41 @,@ 000 vehicles per day between the Kraljeve?ki Novaki and Ivanja Reka interchanges . Traffic volume measured on the Ivanja Reka ? Ivani? Grad section of the A3 motorway increased by 30 % , hinting at a similar increase in traffic volume on the A4 route south of Sveta Helena .

Variations between AADT and average summer daily traffic (ASDT) traffic volumes are attributed to the fact that the motorway carries substantial tourist traffic to the Adriatic Sea resorts .

= = Rest areas = =

As of October 2010 , there are three rest areas along the A4 motorway . Legislation identifies four types of rest areas designated as types A through D : A @-@ type rest areas comprise a full range of amenities , including a filling station , a restaurant and a hotel or motel ; B @-@ type rest areas have no lodging ; C @-@ type rest areas are very common and include a filling station and a café , but no restaurants or accommodations ; D @-@ type rest areas only offer parking spaces , possibly picnicking tables and benches , and restrooms . Even though rest areas found along the A4 motorway generally follow this ranking system , there are considerable variations , as some of them offer extra services . The filling stations regularly have small convenience stores , and some of them may offer LPG fuel .

The primary motorway operator , Hrvatske autoceste (HAC) , leases the A , B and C type rest areas to various operators through public tenders . As of October 2010 , there are two such rest area operators on the A4 motorway : INA and Crodux . The rest area operators are not permitted to sub @-@ lease the fuel operations . The A4 motorway rest areas are accessible from both directions of the motorway and operate 24 hours a day , 7 days a week .

= = Exit list = =