



**Integrating Danube Region into Smart & Sustainable
Multi-modal & Intermodal Transport Chains**

Danube Ports Investment Needs - Summary Report

National reports - Summary

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3 Abbreviations

Abbreviation	Explanation
IWT	Inland water transport
DR	Danube region
EIA	Environmental impact assessment
ERDF	European Regional Development Fund
ERTMS	European Rail Traffic Management System
GSM-R	Global System for Mobile Communications-Railway
ITS	Integrated Transport Strategy for the period until 2030
IWT	Inland water transport
NRRP	National Recovery and Resilience Plan
SCADA	Supervisory control and data acquisition
TCP	Transport Connectivity programme 2021 – 2027
SB	State border
PS	Parking space
NLW	Navigational Low Water
MÁV	Hungarian State Railways
INEA	Innovation and Networks Executive Agency
PGA	Port Governance Agency
IWT	Inland Water Transport
EU	European Union
TEN-T	Trans-European Transport Network
WB6	Western Balkans Six
VPAS	Verejné prístavy, a.s. / Public ports, JSC

ÚNS	Central Freight Station
SVP	Slovenský vodohospodársky podnik / Slovak Water Management Enterprise
SEA	Strategic Environmental Assessment

4 Scope of document

This report aims to provide an insight and an analysis of the investment needs in ports on the river Danube. Provided research and reporting related to the investment needs are important and necessary for providing a general direction in which the ports need to be headed.

Based on the existing rail/road/maritime port access infrastructure and corresponding services as well with the existing bottlenecks, proper measures and investment plans need to be adequately addressed.

Investment needs revolve around a 3-pillar connectivity assesment followed by a rational suggestion resulting in a well-thought solution addressing the development strategy necessary for ensuring an optimized approach in the longer-term timeframe.

The identification of the needs and the corresponding investments required should be done in a close cooperation with the industry's stakeholders, as well as with the waterway and port administrations responsible for the most optimised and uninterrupted everyday business conduct in the ports.

Feasible and high performing hinterland connections are vital for enhancing port activities and connectivity with the mainland corridors and main production and/or consumption areas of interest.

This report should be able to summarize the needs for investments in infrastructure and superstructure of identified IWT/Road/Rail/Maritime connections.

This document should be able to summarize the existing state of the infrastructure and superstructure elements in the Danube's ports. The scope of the chapter should be able to provide a concise general overview of the existing port connection as well as the content of the current state of the port superstructure.

Are the transport connections coming in and out of the port sufficient to withhold the existing volume requirements, is the equipment modernized, or is it outdated?

General context of the port's business conduct regarding the current state of the affairs should be provided.

The document is structured in a way that each country from the DIONYSUS project described their status-quo of ports through the approach of listing all of the finished, ongoing, and future port investments revolved around the 3-pillar connectivity assesment (rail connectivity, road connectivity and inland waterways/maritime connectivity)

5 Port investment needs

Following the description of current state of the port's infrastructure and superstructure and identification of points of congestion in traffic flows connected to ports, partners were required to provide solutions in terms of investment needs for the subject ports.

The chapter envisages description of the past and ongoing investments in the sphere of road/rail/IWT port connections, as well as identification of any kind of planned/proposed investments.

5.1 Road-related port investment needs

5.1.1 AUSTRIA

5.1.1.1 Already finished port investments

No special projects in the last years.

5.1.1.2 Currently ongoing projects/investments

Road infrastructure and services Ennshafen Port / Port of Vienna

The infrastructure and their surroundings of the two investigated ports in Austria are well developed now. Nevertheless, an interesting list of planned projects are in the pipeline to further improve the status-quo. Most of these projects deal with investments regarding future demands regarding alternative fuelling of cargo business, fulfilment of Green Deal approaches by modernisation of infrastructure and optimization of existing status both for railway and waterway transport. This project list is not finished, some projects are in detailed investigation now and will be developed or changed to upcoming new demands of decarbonizing and market developments. For both ports Ennshafen and Port of Vienna so far are no real gaps known, which are not covered by the project lists „on-going“ or „planned“ (DIONYSUS D.T1.1.3). May be that there will come out some interesting topics during elaboration of the Port Development Plan (work package within DIONYSUS) or during the next years when dealing with items like CO₂-neutrality or other energy related aspects of new developments regarding greening of transport (EU-targets for 2030 / 2040 / 2050).

So far, no real additional „gaps“ are known for both port sides Enns and Vienna. One topic which has been described in project DAPhNE is „the connection of the Danube region in or near Austria“ with the developments of BRI (belt and road initiative / broad gauge railway....) – some discussions are under development.

The following description does not refer to the roads which are physically connecting the port gate with the rest of the road network as they are assessed in deliverable

D.T2.2.1, but to the major and important road sections of different corridors passing close enough to the ports analysed in previous section to have an impact to those ports.

Project: S1 Vienna Outer Ring Expressway part 1 (I187)

- Road section: Großenzersdorf - Süßenbrunn
- Section length (km): 10km
- Project category: Connectivity and Integration
- Duration: 01/2003 – 12/2024

Description (below)

The project refers to the 1st part of the new construction of the Vienna outer ring (motorway between Süßenbrunn and Schwechat) for the section Süßenbrunn – Großenzersdorf. The aim of the project is to route traffic around the city instead of through the middle of it (bypass function).

Project: S1 Vienna Outer Ring Expressway part 2 (I188)

- Road section: Schwechat - Großenzersdorf
- Section length (km): 8,2km
- Project category: Connectivity and Integration
- Duration: 01/2003 – 12/2027

Description (below)

The project refers to the 2nd part of the new construction of the Vienna outer ring (motorway between Süßenbrunn and Schwechat) for the section Großenzersdorf – Schwechat incl. a road tunnel. The aim of the project is to route traffic around the city instead of through the middle of it (bypass function).

5.1.1.3 Planned investments (near or distant future)

The infrastructure and their surroundings of the two investigated ports in Austria are well developed now. Nevertheless, an interesting list of planned projects are in the pipeline to further improve the status-quo. Most of these projects deal with investments regarding future demands regarding alternative fuelling of cargo business, fulfilment of Green Deal approaches by modernisation of infrastructure and optimization of existing status both for railway and waterway transport. Road-related projects are not part of these plannings

5.1.2 BULGARIA

5.1.2.1 Already finished port investments

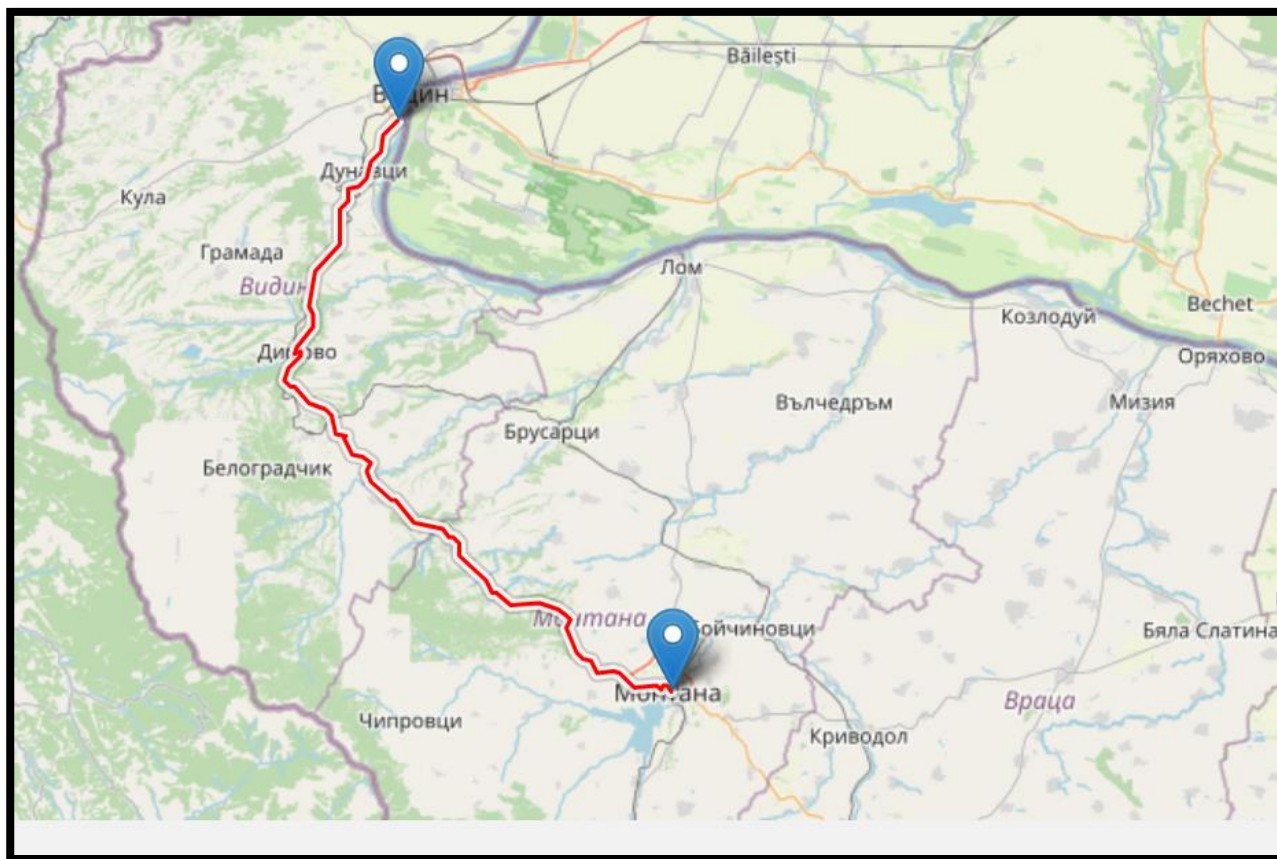
Investments in the area of road infrastructure development in Bulgaria during the last decade have been intensive but a major share of them took place almost entirely in the southern regions of the country where the economic situation is developing significantly faster in comparison to that in the North. Almost no projects of substantial importance for port activities were carried out. The greatest deal of investments was targeted at the gradual completion of the Maritza and Struma motorways (connecting respectively the Trakia motorway with the border crossing with Turkey at the village of Kapitan Andreevo, and the capital Sofia with the border crossing with Greece at the village of Kulata). Nevertheless, an implemented measure with certain benefits for connectivity in port areas is the construction of a detour at the city of Montana, which is on the routes for transportation of goods from port cities of Vidin and Lom to Sofia. The project was carried out in the period between 2014 and 2015 and was worth approximately 23.812 million euro.

5.1.2.2 Currently ongoing projects/investments

Currently in Bulgaria there are several ongoing projects aimed at improving road infrastructure which potentially have significant meaning for port activities in the Danube Region. They are mostly focused on modernisation of existing routes in the country's Northwest. The road network in this area possesses average levels of density but is in a very poor condition and in urgent need of maintenance. Two of Bulgaria's main Danube ports are situated in the Northwest Region – the ones in Vidin and Lom. Their activities would certainly benefit from any improvements in local road connectivity.

One of these projects is the initiative for the modernisation of the Vidin - Montana express road. The route in question follows the existing detour of Vidin, which is planned to be reconstructed and expanded to the connection with road section Makresh, where it will have two lanes in one direction, a green stripe, and road shoulders. Further the road is planned to pass on new terrain. The new section will have two lanes for traffic in one direction, emergency lanes and road shoulders. The length of this section is 29.6 km. The next one is from Makresh to Montana with the length of 65.8 km, where the current road will be reconstructed with improved technical parameters, and safety and speed conditions. The total length of the section within the project scope is 95.4 km. and the project's implementation period is from October 2019 to December 2023.

Figure 1 Vidin - Montana express road

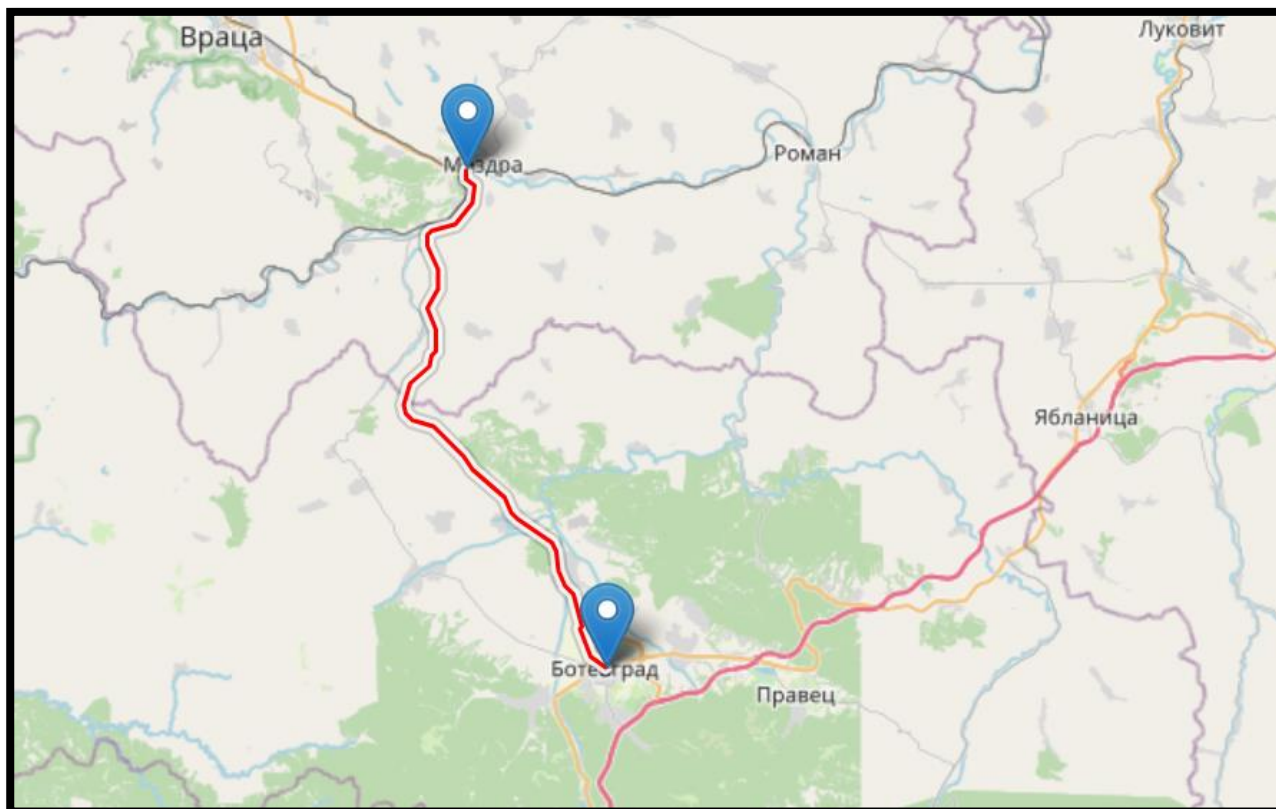


Source 1 Provided by external partner

Another initiative aimed at road infrastructure improvement in the country's Northwest Region is the project for the modernisation of the Mezdra - Botevgrad express road, with a total length of 32,8 km. The road is part of the bigger project for the reconstruction of the Vidin – Botevgrad road. It will provide quick access to the Danube Region and will connect the traffic with the highway system in Bulgaria (Botevgrad is connected to the Hemus Motorway). The route will have two lanes in one direction with a gauge of 20 m. The project also includes the construction of a bypass road in the village of Lyutidol, which will take the heavy traffic out of town. Two tunnels with 2 pipes of 160 m and 260 m length will be built along the bypass.

The project was initially planned with a deadline for implementation by the end of 2023 but due to unforeseen circumstances the duration of signed contracts for implementation was increased with 1,5 years, as well as the budget was increased because of changes in the technical design.

Figure 2 Mezdra - Botevgrad express road



Source 2 Provided by external partner

An ongoing project for investments in road infrastructure with substantial strategic importance for the connectivity both on regional and national levels is the construction of the Hemus motorway (designated A2). It is planned for the route to connect the capital Sofia with the third-largest city of Varna, at the Black Sea coast, partially duplicating several European routes, including E70, E772 and E83. The construction of the highway started in 1974 and is still to be completed, with only 178,6 km being operational at the moment, from a total of 418 km. In addition, the project is currently at a halt due to some legal complications involving its transparency.

The completion of the Hemus motorway would be of significant benefit for mobility in North Bulgaria, providing means for fast road transportation along the West-East axis. Additionally, this would certainly be of value for port activities along the Danube and in the Northern parts of the country's Black Sea coast since the motorway would greatly increase the capacity for the movement of cargo from and to port facilities.

Figure 3 Hemus motorway (only the sections in yellow are operational)

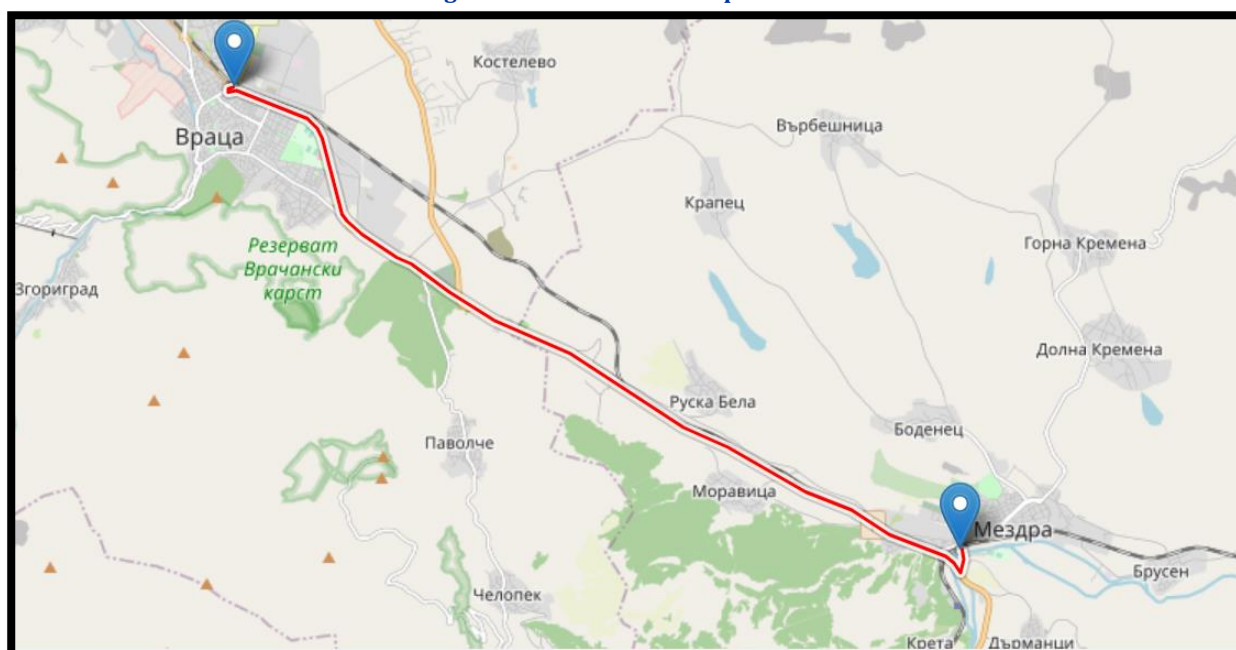


Source 3 Wikipedia

5.1.2.3 Planned investments (near or distant future)

Some of the planned investments in road infrastructure in Bulgaria's Danube Region in the near or distant future focus on improving the network of first- and second-class roads in the Northwest area. One of those is the plan for the reconstruction of the Vratsa - Mezdra express road with a total length of 8.9 km. The route is part of the main transport road Vidin – Sofia and the project's expected results include the reconstruction of the existing two-lane road I-1/E 79 as express road (20 m of width) as well as improvement of the safety conditions and average travel time. The implementation period is from June 2022 to June 2024.

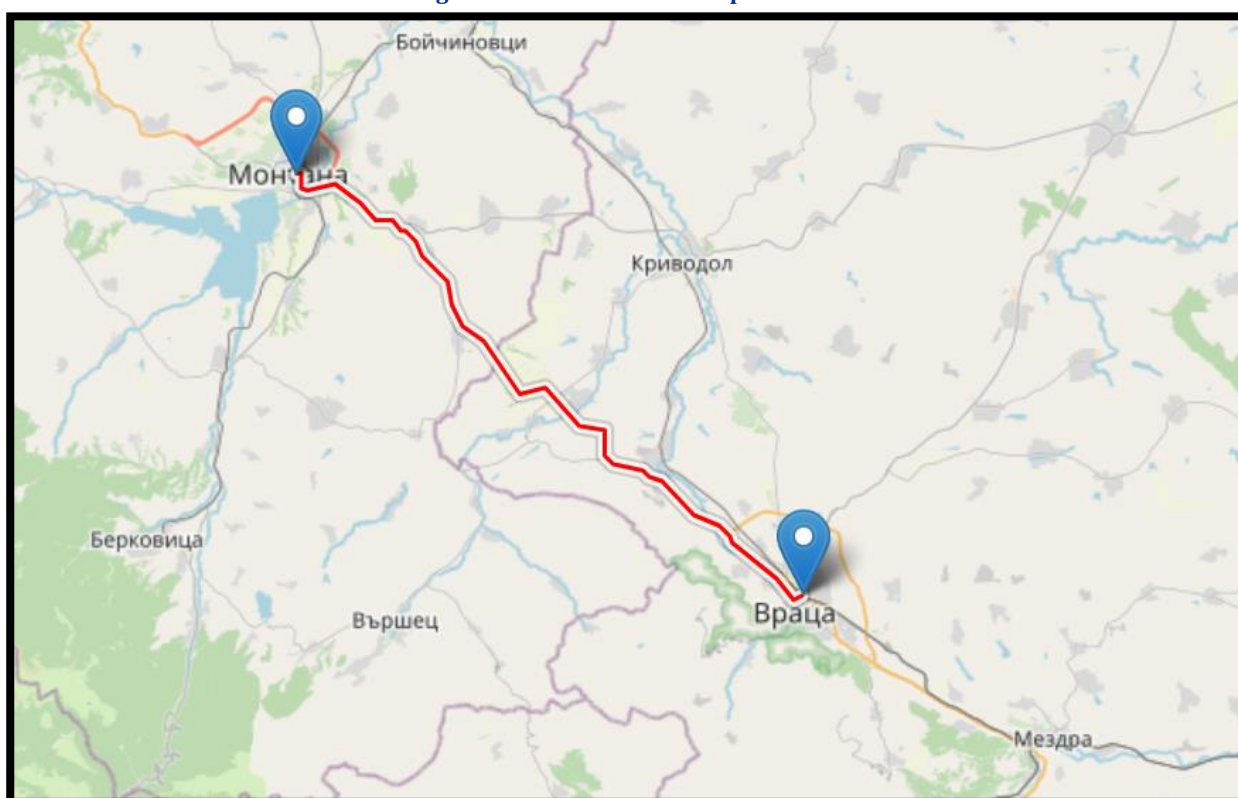
Figure 4 Vratsa - Mezdra express road



Source 4 Provided by external partner

A similar project is the one for the modernisation of the Montana - Vratsa express road, with a total length of 28.7 km. It is included in the bigger initiative for the modernisation of the Vidin – Botevgrad road which is part of the main Trans-European transport network on the territory of the country, providing connection with the Rhine-Danube Trans-European transport corridor in the North-South direction. Implementation is planned to start in December 2023 and conclude by the end of 2027.

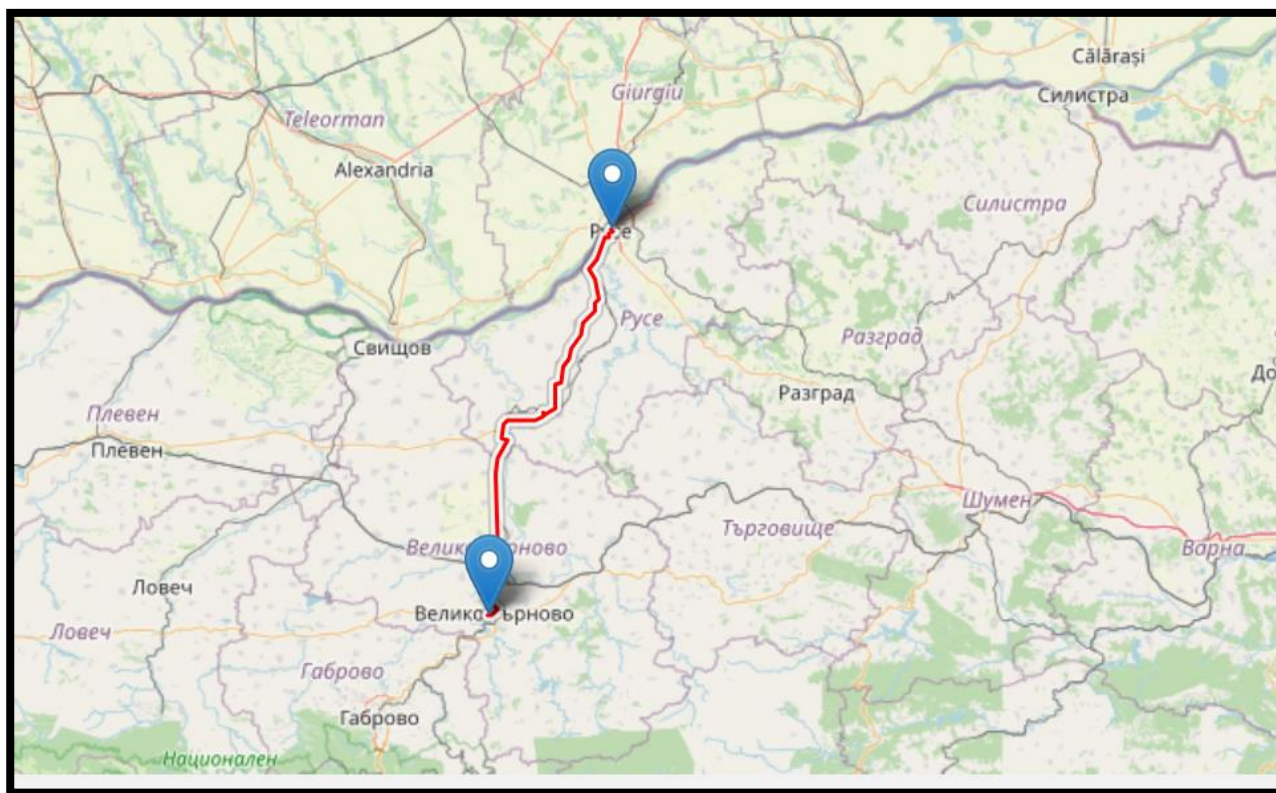
Figure 5 Montana - Vratsa express road



Source 5 Provided by external partner

A planned project for investment in road connectivity with significant strategic importance is the construction of a motorway connecting the cities of Ruse and Veliko Tarnovo. It includes the implementation of the following main activities: 1. Preparation of a technical project; 2. Execution of construction and installation works; 3. Implementation of consulting services and construction supervision. With the implementation of the project, a highway with an approximate length of 133 km. will be built. The route is divided into 3 sections: Ruse-Byala; bypass of Byala; Byala - Veliko Tarnovo. The project is planned for implementation between December 2023 and December 2027. The technical design of the motorway is already elaborated, the next step are the acquisition procedures.

Figure 6 Veliko Tarnovo motorway



Source 6 Provided by external partner

Another strategically important project is the construction of a detour of the town of Gabrovo, including a tunnel under the Shipka Peak (Stara Planina Mountain). It is a continuation of the plan for the Ruse – Veliko Tarnovo motorway. The section for the detour has an approximate length of 10.5 km and gauge G10.50. The project also includes the construction of a tunnel under the Shipka Peak with an approximate length of 3.2 km and four additional tunnels of shorter length, as well as six bridges. It will facilitate the traffic and will provide a direct, substantially faster connection of the Danube Region with the central and southern parts of Bulgaria, with options for links to other motorways. The project was initially planned for implementation throughout the period December 2021 – December 2025 but after some significant delays, the construction and supervision contracts were only signed in June 2022.

Figure 7 Detour of Gabrovo



Source 7 Provided by external partner

In addition, there are some other initiatives in the field of road connectivity which do not necessarily represent separate project cases but are still worth mentioning. Such is the case with the Integrated Territorial Development strategies for the Northwest and North Central Regions (NUTS 2). They include measures for modernisation of the road networks in the areas of Vidin, Vratsa, Montana, Lovech, Pleven, Lukovit, Botevgrad, Ruse, Byala, Veliko Tarnovo, Levski, Gabrovo, Svishtov, Silistra, Dulovo and others. In addition, in the Integrated Transport Strategy for the period until 2030 there are incentives focused on the construction of bridges over the Danube River at Silistra, Ruse, Nikopol and Oryahovo which will also significantly improve the accessibility of Bulgarian river ports by road from the perspective of transnational transport.

operations performing on public road networks.¹ Corridor X has well-built highways. In addition, connections to corridor X are well-built federal roads, so along with Corridor X, one can speak of a good transport network. Corridor Vc is also a motorway, so a high standard and quality are ensured here as well. The Port of Vukovar is located near the intersection of Corridor X and Corridor Vc and thus benefits from well-built road infrastructure.

There are good transport connections with the neighboring countries of Bosnia and Herzegovina, Hungary, and Serbia. Vukovar is 16 km away from the town of Vinkovci which is the largest railway hub in Croatia. It is well connected by the state road D55 via Vinkovci with the 39 km distant junction Županja on highway A3 Zagreb-Lipovac. It is connected to Osijek, 33 km away, by the state road D2, via which Vukovar is connected to the Vc corridor (A6 motorway).

The position of Vukovar will become even more favorable with the implementation of regional spatial plans that include investments in regional transport infrastructure. Construction of a four-lane Vukovar bypass as part of a multimodal junction (railway-road-river), construction of expressways that will connect Vukovar with corridors X and Vc on the one hand, and with border crossings on these corridors on the other.

The city's location is extremely favorable for access to other markets within Central and South-Eastern Europe because it is located on or near the following trans-European corridors:

- Pan-European Transport Corridor VII - Danube River (Vukovar Port)
- Osijek International Airport → 16 km away
- Pan-European Transport Corridor X - railway → 14 km from Vinkovci junction (largest regional railway junction)
- A3 motorway (Croatia) → 42 km away
- European route E73 - railway and motorway A5 → 31 km away

The project “Istočna obilaznica grada Vinkovaca” or Eastern bypass of the town of Vinkovci is a project not strictly linked to Vukovar and its port, at least yet in its full capacity, but will be in the near future. The eastern Vinkovci bypass, more than seven kilometers long, in the construction of which Croatian Roads invested 120 million kunas, was put into operation after two years of construction which began in 2017.

The eastern Vinkovci bypass connects the A3 motorway with the port of Vukovar and is part of the future expressway that will run from Osijek and will be part of the

¹ Institute for International Relations, Razvojna strategija Vukovarsko-srijemske županije, Hrast d.o.o., 2013.

"Slavonian Y" which will fork in Nuštar, where one branch separates towards Vukovar and Ilok and the other towards Vinkovci and Županja.

Figure 9 Eastern bypass of the town of Vinkovci



The bypass has already proved to be a justified investment because not only truck but also car traffic has been reduced because all vehicles going from, for example, Vukovar, Ilok, Osijek to Županja and the Zagreb - Lipovac highway turn onto the bypass and bypass the city thus saving themselves time and going out near the economic zone Zalužje on the road D55 Vinkovci - Županja. Vehicles entering Croatia from Serbia at the Tovarnik border crossing no longer have to pass through the city to reach the road to Županja and the motorway, but in Mirkovci they join the eastern bypass that will take them to the road to Županja.

Vukovar - New overpass and roundabout

The state road D2 passes through the city of Vukovar and is one of the main city roads. The construction of the new overpass and roundabout enabled traffic in four lanes, unlike in the period before construction when traffic took place in two lanes. It also enabled the smooth turning of trucks in the Port of Vukovar, which was an extremely big problem in the previous period, and the problem of pedestrians and cyclists at this frequent intersection was solved safely.

The mentioned construction and reconstruction were performed based on the Agreement of Hrvatske ceste d.o.o. and the company Strabag d.o.o., which performed works on the installation of the load-bearing structure of the new overpass, rehabilitation of the existing one, and performed works on the new pavement structure with a closed road drainage system.

Figure 10 New overpass and roundabout in Vukovar

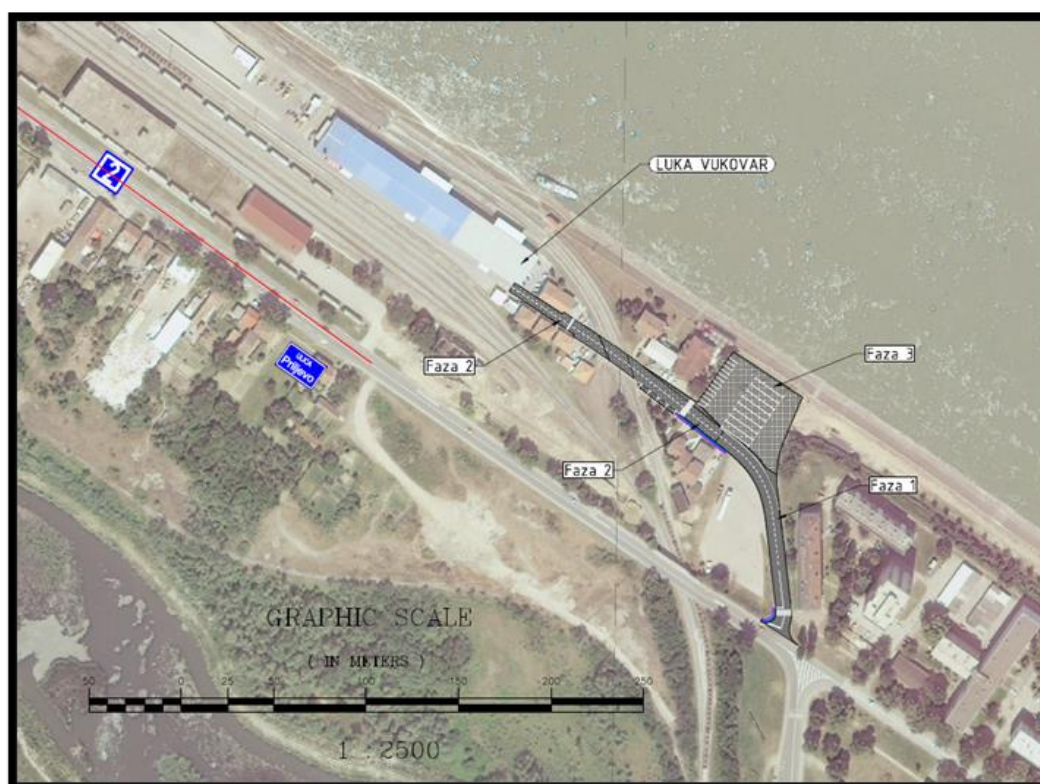


In the final phase of the reconstruction of the road, new public lighting, new vertical and marked horizontal signalization was installed, and protective fences for cyclists and pedestrians were installed. The total length of the section covered by the reconstruction is approximately 515 m towards Gundulićeva Street or approximately 490 m towards Županijska Street. The building is connected to the existing roads and the existing sewerage network and the existing public lighting of traffic areas. The value of the performed works is 23.457.907,35 HRK.

Rehabilitation of the port access road

The subject of this project is the rehabilitation of the existing access road to the port of Vukovar or to be more specific, Dunavski prilaz which is in nature the entrance to the Port of Vukovar. The total length of the access road is 256 m. Rehabilitation of the parking lot for trucks and cars is also included. The works on rehabilitation of the access road were divided into three phases:

Figure 11 Rehabilitation of port access road in Vukovar port



Phase 1 - access road from km 0 + 000.00 to km 0 + 117.67

Phase 2 - access road from km 0 + 117.67 to km 0 + 256.00 with a pedestrian path and longitudinal parking for four cars (4PS²)

Phase 3 - Parking with service road for trucks (9PS) and cars (12 PS)

5.1.3.2 Currently ongoing projects/investments

Vukovar bypass

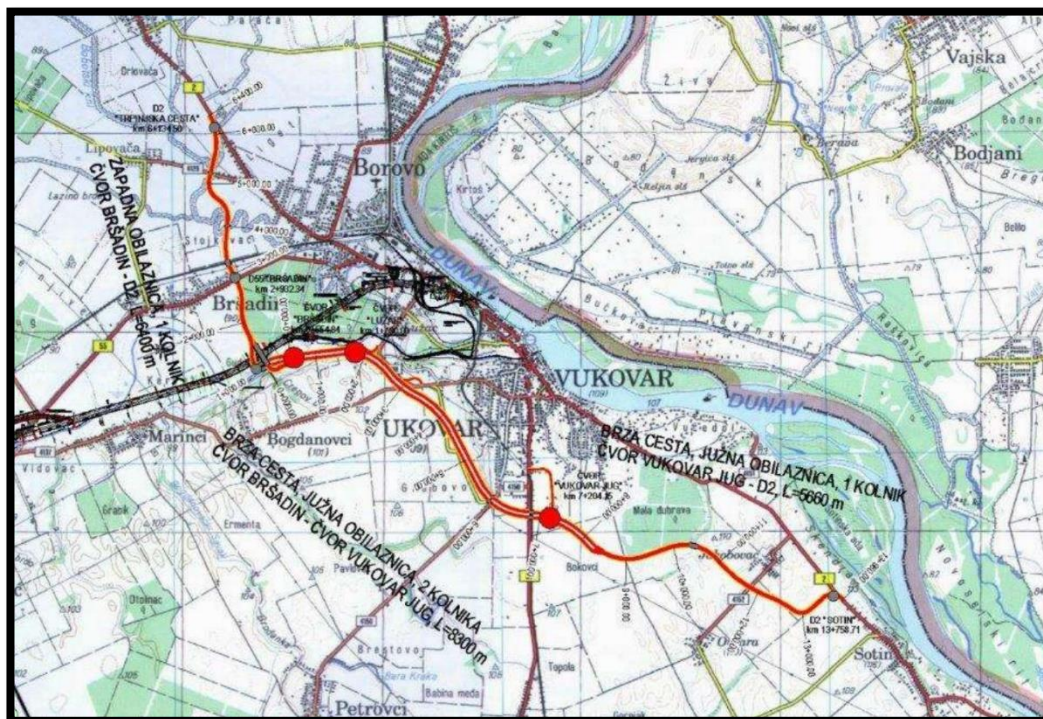
Two years after announcing the public procurement for the construction of the Vukovar bypass, which is the burning traffic problem of Vukovar, Hrvatske ceste made a decision to cancel the public procurement procedure, thus suspending this project until further notice.

Vukovar is the only city in 2022. on the state road D2, which connects the far north and east of Croatia, which does not have a bypass so that thousands of trucks still have to travel through the city polluting and endangering city streets.

² PS – Parking spots (spaces)

According to earlier plans, the Vukovar bypass project was divided into three phases, for which over 400 million kunas had to be provided. The value of the first phase of the project was around 165 million kunas. The explanation for the suspension of the public procurement procedure states that the contracting authority couldn't provide the necessary funds for this project.

Figure 12 The route of the future Vukovar bypass



5.1.3.3 Planned investments (near or distant future)

Vukovar bypass

The city of Vukovar as a major traffic and port hub demands a necessary solution that already exists under the proposal "Road bypass system of the City of Vukovar". This would represent the future Bypass of the City of Vukovar. The priority of the bypass is the relocation of the transit traffic from the city center and the functioning of the city as a complex system. By optimizing connecting roads and hubs, the roads through the city center would be significantly relieved that is, circulation and general use would be greatly improved.

5.1.4 HUNGARY

5.1.4.1 Already finished port investments

Development of the Győr-Gönyű Public Port

Port: Győr-Gönyű Public Port

25,3 million EUR

Duration: 2015-2017

The complex development project included construction of five new berths, relocation and construction of rail tracks.

The road network built within the framework of the project provides road access to the new berths and the industrial development area beyond the wharf. The rail tracks constructed alongside the newly built berths are also paved for convenience's sake.

5.1.4.2 Currently ongoing projects/investments

The intermodal development of the Port of Baja

Port: Port of Baja

12,2 million EUR

Duration: 08/2017-unknown

The complex development will include rail, road and hydraulic engineering works as well. Road related works are:

- Construction of "IV. Károly" quay, associated road, and parking lot.
- New road construction on former furniture factory site.
- Construction of heavy load quay.

Upgrading Mohács Border Port to National Public Port

Port: Mohács border port

15,8 million EUR

Duration: 2016-unknown

The aim of the project is to build a new National Public Port on the Danube section belonging to Mohács (between sections 1448 + 660 km - 1449 + 000 km). The new port's quay (three berths) will be the extension of the already operating border port.

Road construction works includes:

- Construction of concrete pavement (outdoor storage site): 19 241 m²
- Construction of paving stone cover: 62 m²

- Construction of asphalt pavement: approx. 3 289 m²

5.1.4.3 Planned investments (near or distant future)

Conversion of the Corvin-node³

The Corvin-node, which is crossed by a railway line to the Csepel Freeport is a significant car traffic junction. During rail traffic, the road is closed, and this leads to significant congestion. Many projects aim to reinforce the rail traffic at the freeport, which can cause even greater congestion and making life impossible for a populous district of Budapest. In order to reduce road congestion, car and rail traffic in the area must be spatially separated. The construction of a road overpass eliminates congestion and allows rail traffic to operate undisturbed.

Csepel backbone infrastructure – Phase II..⁴

The entire section of the backbone road will be designed by BKK Zrt. and the construction is expected to be carried out by NIF Zrt. The primary design criterion is that 40-tonne trucks should not approach the industrial and logistics areas of Csepel and the M0 ring road via the II. Rákóczi Ferenc Road, but via an unpopulated route. Preparatory work is currently underway, with the plan expected to be completed by 2023 and construction to start in 2024. The aim is to make transport more liveable for Csepel residents, and some 12 transport interchanges and an intelligent transport system will be developed. BKK Zrt. has requested the Ministry of Innovation and Technology to include the development of the Csepel Spine Road among the national economic priority projects.⁵

³ DT1.1.3. Chapter 7.3.3.

⁴ DT2.2.1. Chapter 8.1.2.2.

⁵ Folytatódik a Csepeli Gerincút tervezése

5.1.5 ROMANIA

5.1.5.1 Already finished port investments

Port of Constanța

Road Bridge at km 0+540 of the Danube–Black Sea Canal and the works related to the road and access infrastructure for the Port of Constanta. The bridge was constructed during 2010 – 2016. The total budget was 49.43M EURO and it was financed with European Funds, through the Sectoral Operational Programme 2007-2013, and from state budget funds.

The bridge has a total length of 360 meters, a central opening of 200 metres and a width of 17.4 meters, having four lanes. The bridge provides a direct connection of the port of Constanta to the Bucharest – Constanța highway (A2) and establish a direct link between the Northern and the Southern part of the Constanta Port.



The road bridge is open for the traffic since 2015.

5.1.5.2 Currently ongoing projects/investments

Port of Constanța

Extension to 4 lanes of the existing road between Gate no. 10 bis and Gate no. 10

The general objective of the project is the modernization of the port infrastructure in order to handle an increased volume of goods, in competitive conditions, modernization and streamlining of the existing road between Gate 10 bis and Gate 10 to reduce the transit time of vehicles to the access gates of Constanta port, in safe conditions. A 4-lane road will be built, with a length of 982 meters, inside the port, a roundabout adapted to a significant traffic of long vehicles with trailers or semi-trailers and two access straps that will be the connection point on each direction of entry or exit access traffic at Gate 10 bis. Works include as well diversion of the main utility networks, which are located on the site of the future road.

The investment will help increase the efficiency of loading-unloading operations of goods arriving or leaving Constanta port by road and will increase the capacity of the infrastructure by being able to operate a larger volume of goods in a shorter time.

The total budget is 12.69M EUO and the financing is assured from the Large Infrastructure Operational Program 2014 – 2020. The contract for technical design and execution was signed on 15.07.2021.

Extension to 4 lanes of the road between Gate 7 and the junction with the objective “Road Bridge at km 0+540 of the Danube Black Sea Canal” (CDMN Bridge) with the road connecting Gate 9 and Gate 8 to the North area of Constanta Port.

At present, in the Northern area of Constanta Port, Gate 7 is the only access point for heavy goods traffic. In times of high freight traffic in Port of Constanta, the traffic registered at Gate 7 is experiencing considerable increases, while congestion of port access routes as well as traffic jams are recorded. Thus, in identifying the best solution for the prevention of these problems was taken into consideration the variant that Gate 9 should take over part of the traffic related to Gate 7. Gate 9 is available for entry and exit of persons and is transited by freight vehicles, with or without freight.

During the 2017 agricultural campaign, access points in the port area for freight transport vehicles with or without freight were the following:

- Gate 9 - entry for all grain transport vehicles;
- Gate 7 - entry for all vehicles, with or without cargo, other than grain transport;
- Gate 7 - exit for all vehicles with or without cargo.

Considering that Constanta Port is the main transit gate for freight transport and taking into account the congestion of access routes and traffic jams, in the summer the decision was taken to implement an access procedure for freight transport vehicles, with or without cargo, applicable to Gates 7 and 9. The procedure was made available to operators of grain terminals, carriers and drivers of heavy goods vehicles. Yearly, the agricultural campaign and traffic determined by commercial operations make a significant contribution to the increase in the total number of accesses registered at Gates 7 and 9, so that during the summer season there are more than 100,000 units recorded through the two gates compared to the previous 3-month interval.

As for the individual traffic fluctuations for both Gate 7 and Gate 9, summer traffic and the introduction of the truck access procedure have led to substantial changes in the number of vehicles crossing the two gates. For Gate 7, the values recorded in the May-August period to entry sense in the port, respect the seasonal growth trend, while much higher values on the exit sense are due to the indication that all vehicles, with or without cargo, use this gate as a way out during the agricultural campaign.

Proposed works within the project:

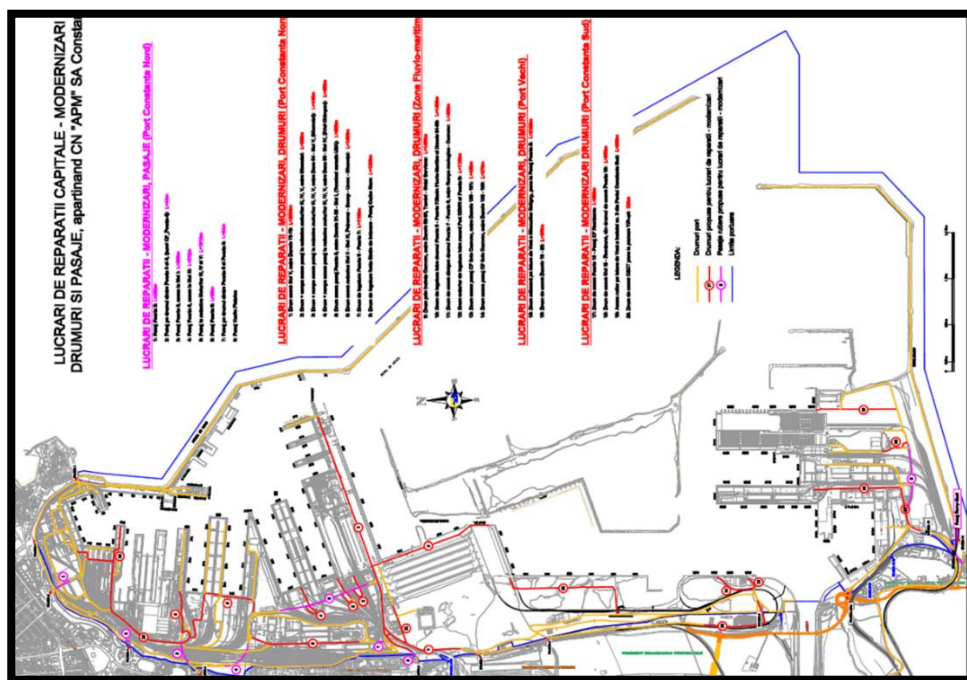
- Construction of an under path roadway separated from the existing roundabout, crossing the railways and the existing road, having in the terminus point a new roundabout (“roundabout no. 1”), where the “sorting” of cars will be made to Gates 7 and 9.
- Rehabilitation of the existing two-lane road outside the port between Gates 7 and 9 and the creation of an additional lane in the port entry direction to the Gate 8 area.
- Making a two-lane road inside the port, between Gate 9 and Gate 7, generally using the existing roadways of the technological roads.
- Making a roundabout called “roundabout no. 3” after crossing through Gate 9, and at the intersection of this road with the existing road in the port of the Gate 7 area, the location of a new roundabout called “roundabout no. 2”.
- Rehabilitation of existing access/exit roads through Gate 7 and Gate 9.
- Parking inside the port, at Gate 7 entrance.
- Relocation of the port fence;
- Two electric information panels with variable messages at major road points of interest, respectively the area of the Gate 7 and the junction of the objective “Road Bridge at km 0+540 of the Danube-Black Sea Canal” with the road that connects between Gate 9 and Gate 8, having as main objectives the streamlining of the car traffic inside the port and the increase of traffic safety.

The cost of the investment is 36.39 MEURO and the financing is assured through the large infrastructure Operational Programme 2014 – 2020 and Operation Programme for Transport 2021 – 2027



Review and update of the Master Plan for road and access infrastructure in the port of Constanța (MP infrastructure). The project consists in expertise, analyses and studies for identification and sizing of road works, including the elaboration of traffic studies, as well as the staging of rehabilitation, modernization and extension of road and access infrastructure will be correlated with the implementation of projects for the development of both port infrastructure and private investment to increase the capacity of existing terminals or build new ones.

The estimated cost of the project is 630,000 euros and the financing is assured from the own sources of the Constanța port administration.



Port of Galați

Multimodal Terminal in the Port of Galați

The project has a component related to road infrastructure. The works on road infrastructure for the access to the terminal consists in 2,284 m of road, a roundabout and an overpass over the railway. The access road to the terminal is in the public domain of Galați local administration (UAT Galați) and in the public domain of the state under the administration of the Ministry of Transport and Infrastructure and the concession of the National Road Infrastructure Administration Company SA (CNAIR SA). During the implementation of the project, the works on these goods will be the responsibility of the Maritime Danube Ports Administration and after the completion of the works, the resulting / modernized roads will be handed over to UAT Galați, respectively CNAIR SA, who will proceed to increase the value of the corresponding public domain.

5.1.5.3 Planned investments (near or distant future)

Port of Constanța

Implementation of the Master Plan for road and access infrastructure in the port of Constanța (rehabilitation, modernization, extension), including road bridge to the artificial island. The projects resulted from the Master Plan for road access infrastructure will be correlated with the implementation of projects for the

development of both port infrastructure and private investment to increase the capacity of existing terminals or the construction of new ones.



The actual estimation of the costs of the investments is 70 – 100M EUO and the financing will be requested from the Operational Program for Transport 2021-2027.

5.1.6 SERBIA

Port of Bačka Palanka

The port covers surface area of approximately 74 ha. Port of Bačka Palanka is a basin-type port with minimum available draft of 2,5 m. Total quay length is 400 m, out of which vertical quay is approximately 65 m and semi-vertical quay is 335 m. Four vessels can be simultaneously accommodated and serviced. Anchorage has the capacity for 30 vessels.

There is already a built infrastructure in the port, which ensures the functioning of port activities. The port uses a portal crane, a port mobile crane, a floating crane and a port tugboat to provide transshipment services. The port provides transshipment services for all types of bulk and general cargo: cereals, mineral fertilizers, scrap iron, gravel, wood and other cargo, in bulk, in bags, jumbo bags, reels, crates, barrels, on pallets and more.

Figure 13 Port of Bačka Palanka



Storage facilities consist of open spaces that cover area of 14,138 m² and closed spaces of 658.8 m². The types of cargo handled in the port are bulk commodities including construction materials, metallurgy products, heavy loads and general cargo.

The port owns the tugboat Kapetan Vinarev, which provides manoeuvring services to its clients. The Agroport Center which belongs to Port of Bačka Palanka also houses storage capacities for receiving and storing 50,000 tons of mineral fertilizers and 30,000 tons for packaged goods, as well as 30,000 tons of storage capacity for mercantile goods. The center has a line for packing mineral fertilizers with a daily packing capacity of 450 tons and a line for packing in a "big bag" with a daily capacity of 500 tons. The daily shipping capacity of packaged mineral fertilizer is 2.000 tons.

Main rail corridors

The port of Bačka Palanka is not connected to the national railway network.

Main road corridors

The port of Bačka Palanka is 30 km away from the E70 highway, direction Belgrade-Zagreb, and 45 km from the E75 highway, direction Belgrade-Budapest.

There are two state roads of class IB, near the Port of Bačka Palanka which extend to the borders of Bosnia and Herzegovina and Romania:

- state road 19 connecting Port Bačka Palanka with Bosnia and Herzegovina at Sremska Rača (Neštin-Erdevik-Kuzmin-Sremska Rača)
- state road 12 connecting Port Bačka Palanka with Romania (Subotica - Sombor - Odzaci - Bačka Palanka - Novi Sad - Zrenjanin - Zitiste - Nova Crnja - state border with Romania –border crossing Srpska Crnja).

There is also one state road of class IIA, near the port of Bačka Palanka enabling the connection with Croatia. (Total length of road No. 108 is 74 km).

Allowed axle load for trucks does not change based on road category but based on the number of axles on truck. For trucks with one axle the allowed load is 10 t, for trucks with 2 axles the allowed load is 9 t, due to that the allowed axle load is the same on roads IIA and IB.

Development strategy

According to the Strategy on Development of Waterborne Transport of the Republic of Serbia, for the period 2015-2025 ("Strategy"), the development plans for Port of Bačka Palanka are strategically oriented towards building a container terminal, a liquid cargo terminal and a grain handling and storage terminal. To do this, it is essential to build an embankment and a vertical quay in the length of 480 m, as well as a grains silo with a capacity of 60,000 t.

New handling equipment that would increase the capacities and operational railway tracks connecting the port to the national railway network would also be an asset. The implementation of these plans depends primarily on the levels of economic activity in the region and on port area expansion in accordance with the Law. A larger port area

is highly important for the growth of port industry in Bačka Palanka and the overall economy in this municipality.

According to the Strategy, the required investment in the port infrastructure is estimated at 5.1 mill. euros, and in the port superstructure at 5.6 mill. euros. The precise amount to be invested in the expansion of Port of Bačka Palanka area will be known after the relevant documentation has been made and adopted.

To increase the capacity of Bačka Palanka port it is necessary to obtain corresponding technical documentation in accordance with the Law on planning and construction: New Detailed regulation plan, Draft disposition plan for obtaining location preconditions, Feasibility study with conceptual design, Technical documentation for obtaining construction permit with all accompanying elaborates defined by the Law for the level of draft master plan (elaborate on fire protection, elaborate on geotechnical preconditions for construction).

Port of Bogojevo

The port covers surface of approximately 9 ha. Port of Bogojevo is an open-type port with maximum available draft maintained at 4 m. Total quay length is 276 m, out of which vertical quay is approximately 98 m. Two vessels can be simultaneously accommodated and serviced. Anchorage has the capacity for 17 vessels.

There is already a built infrastructure in the port, which ensures the functioning of port activities. On the filled plateau behind the operational shore, a grain silo, a dryer, closed and open warehouses, a truck scale weighing system, an administrative building and gates were built. The face of the operational shore towards the open flow is represented by a vertical quay construction on piles 89 m long, while the operational shore is about 12 m wide at an approximate elevation of 86.56 m above sea level. A gantry crane is used for cargo handling, while the grain is loaded from the silo with a belt conveyor. From the communal infrastructure, there is a water supply and sewerage network, electric power infrastructure with a transformer station, gas supply infrastructure and electronic communication network.

Figure 14 Port of Bogojewo



The port has silo of 30,000 tons for cereals and 15,000 tons for fertilizer; closed space place of 14,200 m² and open space place of 10,200 m² available for port users.

Storage capacity for liquid cargos covers oil and derivatives with 20 m³ and natural LPG gas with 27 m³.

The main types of cargo handled in port are grains, chemical fertilizers, gravels and sand with annual reported volumes between 200,000 and 300,000 tonnes.

The port's superstructure includes two roads and one railroad filling hoppers with a total capacity of 700 t/h, a drying plant with a capacity of 40 t/h, a portal crane with a capacity of 20 t, a belt conveyor with an operating capacity of 400 t/h and the required handling and internal transport machinery.

The port does not have facilities for the collection of oily and greasy ship waste.

The access infrastructure in the area of the port of Bogojewo consists of an access road connected to the number 17 public road of class IB.

The micro-location of the existing port of Bogojewo is defined by the exit to the water body of the international waterway of the Danube River, with the existing infrastructure and suprastructural capacities on the mainland part of the port.

Main rail corridors

Port Bogojewo is not connected to the national railway network.

However, the port of Bogojevo is 300 m away from the main railway line, and 2520 m from the railway yard (shunting station).

Within the planned capacities of the traffic infrastructure in the port area, there is also a manipulative railway no. 403, “Bogojevo-Dunavska Obala”, with 3 industrial tracks.

Railway section from Bogojevo to state border Erdut connects Port of Bogojevo directly with Croatia and indirectly with Hungary over other railway sections. It is a local railway section and is not electrified. The importance of this section is reflected in possibility to connect Port of Bogojevo with Port of Vukovar and further with Port of Budapest over the following railway sections which are part of the Mediterranean corridor: Osijek – Beli Manastir, Beli Manastir (border) / Magyarbóly - Pécs, Pécs – Dombóvár, Dombóvár – Pútzaszabolcs, Pútzaszabolcs - Budapest Kelenfold (part 1) and Pútzaszabolcs - Budapest Kelenfold (part 2). This section is mainly used for transport of bulk cargo.

Railway section from Bogojevo to Subotica-state border Kelebija is consisted of one regional section (Bogojevo-Sombor-Subotica) and one conventional section (Subotica-Kelebija) 183 km of length. It is important for the Port of Bogojevo because it connects it with Budapest over Hungarian railway sections Kiskunhalas – Kelebia, Kunszentmiklós-Tass – Kiskunhalas and Budapest Ferencváros. This section is mainly used for transport of bulk cargo.

Main road corridors

The port is 40 km away from the E75 highway, in the direction Belgrade-Budapest.

Across the road bridge, the Port of Bogojevo is connected to the section of road No. 3 Erdut-Dalj-Osijek in Croatia. Total length of the bridge connecting Bogojevo and Erdut is 670 meters.

The main corridor is the main road that turns from the bridge from Croatia to the narrower city zone of Bogojevo, enters the center as a city road and then exits again as a main road in the northeast direction towards Odzaci.

Port of Bogojevo is also connected with Kelebija border crossing with Hungary. Section “Bogojevo-Srpski Miletić” is road No. 17, section “Srpski Miletić-Subotica” is road No. 12, and section “Subotica-Kelebija” is road No. 11 of the class IB.

On the northeast side, port is limited by the existing state road no. 107 of a class IIA, Sombor - Apatin – Bogojevo. State road no. 107 is located on the embankment and the defensive line from the flood waters of the Danube. Right next to the road bridge is the border crossing Bogojevo, with minimal capacities and facilities for control and transfer of passenger and freight vehicles. The northwest side of the site of the port of Bogojevo is limited by an uncategorized road and the border of the municipality of Odzaci with the municipality of Apatin (KO Sonta).

Development strategy

According to the Strategy, the development plans for Port of Bogojewo towards a full port logistics centre should take advantage of the favourable geographic/traffic position of the port and make it a specialized handling and storage terminal for grains and mineral fertilizers, with an intermodal terminal. The plans are primarily concerned with the repair and re-design of the ruined part of the quay, 55 m long, with the construction of the 2.5 km operational railway tracks and their connection to the national railway network. The Bogojewo Municipality town plans and the regional spatial plan of AP Vojvodina include provisions for an intermodal terminal development, which is to be within the port area and treated as a port terminal. A need for new storage facilities and the pertaining port infrastructure has also been recognized (construction of operational railway tracks, connection to the national railway network in a length of 2.5 km, building one more vertical quay, storage facilities up to 100,000 t – the current capacity is 50,000 t).

According to the Strategy, the required investment in the port infrastructure is estimated at 3.2 million euros, and for the port superstructure at 2.4 mill. euros. The precise level of investment in the expansion of Port of Bogojewo area will be defined after the relevant documentation has been made and adopted. The projection of costs, together with the proposals for financing building designs and port development, will make an integral part of this documentation.

Annex 5 of Strategy on Development of Waterborne Transport of the Republic of Serbia (The Official Gazette of RS, No. 66/2020-10) assessed the construction of new port capacities of the Port of Bogojewo as a priority project.

To increase the capacity of Bogojewo port it is necessary to obtain corresponding technical documentation in accordance with the Law on planning and construction: Draft disposition plan for obtaining location preconditions, Feasibility study with conceptual design, Technical documentation for obtaining construction permit with all accompanying elaborates defined by the Law for the level of draft master plan (elaborate on fire protection, elaborate on geotechnical preconditions for construction).

The authority in charge of implementation and successful realization of the project for construction of the new Bogojewo port capacities is the Ministry of construction, transport and infrastructure of the Republic of Serbia, which, by the Serbian legislative, is the Investor.

The Ministry of Construction, Transport and Infrastructure of the Republic of Serbia prepared the Preliminary feasibility study with conceptual design, and a Project for a construction permit for the expansion of port capacities of the Port of Bogojewo. A construction permit was issued for the construction of the port infrastructure.

The estimated value of the investment in infrastructure is EUR 48 million. Source of financing: 50% from the RS budget and 50% from the framework loan for the development of port infrastructure of the European Investment Bank.

The next steps are the execution of infrastructure construction works, selection of a concessionaire and construction of the port superstructure.

The expansion of the existing port by construction of a new port capacities is determined by the Detailed regulation plan of the Bogojevo port („Official gazette of Odžaci municipality“ no.4/21). The existing facilities within the port (management building, silos, warehouses as well as auxiliary and infrastructure facilities) will keep functioning, with possible reconstruction, upgrading, remediation and adaptation. In the unbuilt part of the port area, within planned expansion, the construction of new facilities is foreseen for an increased port functioning.

The existing territory of the port occupies 2.40 ha, while according to the new Plan of detailed regulation it will expand to 21.00 ha, of which 19.20 ha will be intended for the surface of the port territory, and 1.80 ha for the new basin.

Port of Prahovo

The port covers area of approximately 5.5 ha. Port of Prahovo is an open type port with minimum available depth of 1.8 m and maximum available depth of 4 m. Berths 3,4 and 5 have minimum available depths of 1.8 m, while berths 1 and 2 have minimum available depths of 2.5 m. Total quay length is 577m, out of which vertical quay is approximately 322m. Berths 1, 2, 3 and 4 are placed on vertical quay, while berths 5, 6 and 7 are on sloped quay. Consequently, there are 7 berths in total and seven vessels can be processed in quay at once. Anchorage has the capacity to moor 75 vessels.

Figure 15 Port of Prahovo



Storage facilities consist of 6500 m² of open spaces. Port of Prahovo has the following facilities and devices: conveyor belt, pneumatic equipment, one crane of 5 t lifting capacity and 6 gantry cranes of 40 tons lifting capacity per each. Of storage facilities there are open storage area, silo storage and customs warehouse. The loading equipment of the port consists of 2 fork lifters with the maximum lifting capacity of 3 t, 3 fork lifters with the lifting capacity of 3 to 5 t and 4-wheel loaders. There is also one port tugboat for pilotage services. Maintenance and disposal facilities comprises bunkering facilities, fresh water supply and onshore power supply.

Port area encompasses loading/unloading equipment and devices (crane tracks, conveyor belts, etc.), warehouses (silos, covered and open warehouses), roads, railway tracks, power transformer stations, installations such as water supply, sewerage, electrical network, etc., other port facilities and free areas.

Quay area in the port of Prahovo varies over different berths. Berth widths are the following: 18 m for 1 and 2, 12 m for 3 and 4, 13 m for 5, 6 and 7. Total quay area is about 10,000 to 11,000 m².

Port internal roads consist of the main port road and several internal roads that are interconnected into one road network. The main port road starts from the entrance to the port, i.e., the port gate and the registration office, and it serves as a lane for road traffic distribution inside the port.

Internal port railway tracks are 971 m long and connected to the public railway outside of the port area. Railway track which enters the port splits in two directions: one direction is towards the operational quay and other is towards the interior of the port. Railway track from the first direction splits into next two railway tracks upstream from the berth 4 and one of them splits again into two railway tracks. Railway tracks on the operational quay make an obstacle for the movement of road vehicles (trucks, dump trucks, etc.) and other port equipment (forklifts, loaders, mobile cranes, etc.).

There are no railway tracks on the quay area, along Berths 1, 2 and 3. The other railway track which is placed inside the port and out of operational quay passes behind the silo and the covered warehouse. Along this railway track there is a rail scale for train weighing. This railway track serves for manoeuvring of train compositions which are coming and leaving from the port.

There is no specially designed parking lot for any visitors or employers that arrive at the port. Concrete floor grounds in front of the silos and on the plateau behind Berths 4, 5 and 6 can serve as parking lots for trucks waiting for loading or unloading of cargo and for other road vehicles.

The Port of Prahovo is connected to the public water supply network, the electricity network from the IHP Prahovo complex with two built transformer stations in the port, fire water supply with connection to the distributive water supply network of IHP Prahovo, while sanitary and rain sewerage installations are only partially installed and do not cover the entire port.

Access to and docking of vessels along the sloping quay is difficult, especially at medium and lower navigation water levels. The port area is not separated by a fence, except a part of the port which is the closest to the state railway.

On the vertical quay the following handling equipment is installed:

Berth 1: Portal crane PD 055 "MIN", with a load capacity of 10 t, was used for unloading bulk materials for IHP PRAHOVO. Now it is out of operation.

Berth 2: Portal crane PD 056 "MIN", with a load capacity of 10 t, is used for unloading bulk materials for IHP PRAHOVO. Port crane and belt conveyor are coupled for unloading cargo.

Berth 3: Portal loading crane Comentri Oisel, with a productivity of 100 t/h, is used for loading bulk materials for IHP PRAHOVO. For transport of cargo on the route IHP PRAHOVO - Port "KRAJINA" Prahovo, special belt conveyors that are connected to the port conveyor belts are used.

Berth 4: Overhead crane PD 080 „MIN“, with a capacity of 40 t. Cargo for loading is delivered by trucks and left in an open storage area behind the quay area. The same operation is performed for cargo from vessels.

On the slope quay the following handling equipment is installed:

Berth 5: Portal crane "VEB KRANBAU", with a capacity of 10 t, is used for reloading bulk cargo and general cargo of lower weight.

Berth 6: Portal crane "GANZ", with a capacity of 5 to 6 t, is used for reloading bulk cargo.

Behind berths 5 and 6 there is an open temporary storage of reloaded cargo. Depending on the type of cargo, a loader or a forklift is engaged for loading. For loading/unloading of bulk cargo, mobile belt conveyor with a buffer is used, so that these cargoes can be reloaded directly into road vehicles.

Berth 7: This berth is in the action field of the portal crane "GANZ", with a capacity of 5 t. The crane is out of operation.

Rail main corridors

Port of Prahovo has a connection with two railway sections: "Crveni Krst-Zaječar-Prahovo pristanište" section and "Bor teretna-Prahovo pristanište" section. "Crveni Krst-Zaječar-Prahovo pristanište" section connects port with Bulgaria, while "Bor teretna-Prahovo pristanište" section connects port with Belgrade and further with Hungary.

"Crveni Krst-Zaječar-Prahovo pristanište" is a regional single-track non-electrified railway section connected to the main electrified railway section "Belgrade - Mladenovac - Lapovo - Niš – Preševo" - state border - "Tabanovce") and a regional single-track railway section whose part from "Mala Krsna to Požarevac" is electrified while "Bor – Rasputnica 2 - (Vražogrnac)" is non-electrified single track. The main advantage of this connection is that cargo from the Port of Prahovo can be transported to Bulgaria.

Cargo transported by this section include: sulfuric acid with more than 51% acid, phosphoric acid, sodium hydroxide, solid, sodium hydroxide, fluorosilic acid, ammonia, anhydrous, ammonate-based fertilizers and petroleum and petroleum products.

Road main corridors

This section refers to the major and important road section passing close enough to port of Prahovo to have enough impact on it. State road of class IIb No. 400 connects Port of Prahovo with the State Road 35 - Dušanovac - Border with Romania near Kusjak. Its total length is 25 km.

Development strategy

According to the Strategy, the development plans for Port of Prahovo give attention to building and expansion of the quay, purchase of additional portal cranes and enlargement of storage facilities. Bearing in mind the volume of the commodities gravitating towards the Prahovo port hinterland, the need for expanding the port area was also recognized together with the need for construction of a dangerous goods terminal and a container terminal and putting in operation of the existing or building a new grains silo.

According to the Strategy, the estimated investment for the port infrastructure is 3 million euros, and for the port superstructure 9.8 million euros. The precise funds for investment in the port area expansion will be known after the relevant documentation for Port of Prahovo has been made and adopted. Annex 5 of the Strategy assessed the construction of new port capacities of the Port of Prahovo as a priority project.

The expansion of the existing port by construction of a new port capacities is determined by the Plan of detailed regulation of the "Port of Prahovo" (Official Gazette of the Municipality of Negotin, No. 7/20), ie Amendments to the Plan of detailed regulation of the „Port of Prahovo“ („Official Gazette of the Municipality of Negotin“, No. 20/220 and 1/221 - correction).

The Expansion of the port of Prahovo will include the revitalization of existing and construction of new port infrastructure, as well as the construction of additional storage capacity and the improvement of railway and road infrastructure.

To increase the capacity of the port of Prahovo it is necessary to obtain corresponding technical documentation in accordance with the Law on planning and construction: Draft disposition plan for obtaining location preconditions, Feasibility study with conceptual design, Technical documentation for obtaining construction permit with all accompanying elaborates defined by the Law for the level of draft master plan (elaborate on fire protection, elaborate on geotechnical preconditions for construction).

The authority in charge of implementation and successful realization of the project for construction of the new Prahovo port capacities is the Ministry of construction,

transport and infrastructure of the Republic of Serbia, which, by the Serbian legislative, is the Investor.

The Ministry of Construction, Transport and Infrastructure of the Republic of Serbia prepared the Preliminary feasibility study with conceptual design, and a Project for a construction permit for the expansion of port capacities of the Port of Prahovo. A construction permit was issued for the construction of the port infrastructure.

The estimated value of the investment is EUR 62,1 million. Source of financing: 50% from the RS budget and 50% from the framework loan for the development of port infrastructure of the European Investment Bank.

The next steps are the execution of infrastructure construction works, selection of a concessionaire and construction of the port superstructure.

5.1.6.1 Already finished port investments

Port of Bačka Palanka

- There were no road related port investments in recent period.

Port of Bogojevo

- Data not available.

Port of Prahovo

- Data not available.

5.1.6.2 Currently ongoing projects/investments

Port of Bačka Palanka

- There are no road related ongoing port projects/investments.
- However, ongoing project of the reconstruction of the state road from Bačka Palanka to Novi Sad is of great importance for the port of Bačka Palanka as it connects the port with the highway E-75. End of works are planned for spring 2022.

Port of Bogojevo

- Ongoing project “Expansion of the existing port by construction of a new port capacities” includes the construction of internal roads, port manipulative area for transport and parking lots. This will provide adequate traffic access of port terminals (container, liquid cargo terminal, general cargo terminal, grain

terminal, as well as storage subsystem) to the categorized road network-state road IIa row no. 107, “Sombor - Apatin – Bogojevo”.

Port of Prahovo

The concept of traffic separation at the location of the Port of Prahovo is based on the permanent route of the State Road IIB-400, Negotin - Radujevac - Prahovo - Samarinovac.

Project „Expansion of port capacities of the Port of Prahovo“ includes two connections of the port roads to the state road. In accordance with the plans, the existing main access road will represent one connection, while the other connection is planned at the beginning of the second access road, at km 16 + 689.00 (on the right side in the direction of stationary growth) of the state road IIB order number 400.

The planned concept of road and network in the port area is based on the following principles:

- reconstruction along the existing routes of roads and street routes on the primary network, which will enable greater functionality of the primary network;
- fitting the traffic matrix into the spatial development of urban zones and wholes, i.e. the planned purpose of the areas;

5.1.6.3 Planned investments (near or distant future)

Port of Bačka Palanka

- The port of Bačka Palanka has a favorable spatial microlocation because it is directly connected to Corridor 10, i.e. with relevant traffic corridors in the vicinity of the E-75 highway (30-40km) and the E-70 highway (35km).
- The port of Bačka Palanka is located in the southeastern working zone within block 106 and it is currently connected to the environment via an access road - a collection road in the industrial zone. This traffic capacity connects port area with the state road of 2 rows - the main road Bačka Palanka - Novi Sad, which enables spatial connections with the environment and connects the port to network of roads of different hierarchical levels in Vojvodina. This access road, with its constant construction, enables accessibility to all road transport structures, and in the future, it will be in the same function of accumulating its internal traffic in this area.

Port of Bogojevo

- According to the development plans the existing route of the state road is retained and the new intersection is formed. New intersection means that the

port connection and the service traffic network (with parking space) will be located directly next to the state road.

- The new intersection (stationing km 37 + 251) is planned as a classic surface intersection with the intersection of traffic flows (type 3A - connection), with geometric design of the intersection in accordance with applicable standards and regulations governing the subject matter. The existing intersection (stationing km 37 + 559) is retained / redefined as a crossroads - surface intersection with intersection of traffic flows (type 3A - connection) as an entrance / exit, with the possibility of changing the type of intersection during the implementation of phase II - final planning solution), and the realization of which is conditioned by the changes in the planning documentation, which defines the traffic solution of Master Plan Bogojovo, in accordance with the valid technical regulations and standards.

Port of Prahovo

- Data not available.

5.1.7 SLOVAKIA

5.1.7.1 Already finished port investments

Port of Bratislava

In the Zimný Prístav (Winter port), asphalt and concrete road communications were built in 1965-1973. In Pálenisko basin, road communications were continuously built between 1983-1984 and 1990-1993. The current shape of road traffic is inadequate, since premise did not generate sufficient funds for the owner and maintenance was performed only in necessary / emergency cases.

Port of Komárno

There are three entrances to the port area, two to the eastern and one to the western pool, all of which are directly connected only to urban roads and via the above-mentioned roads of class I.

As stated above, the disadvantage of the current road connection, capacity-wise as well as socially and hygiene-wise, is the location of the routes through the city close to its centre. It is necessary to search for a new road connection, which would minimise the impacts on the city's inhabitants.

5.1.7.2 Currently ongoing projects/investments

Road network inside both port areas, port of Bratislava and Port of Komárno is owned by private port operator. Currently there are no ongoing projects related in terms of physical realisation.

Since VPAS is not the owner of infrastructure (road and railways, overhead lines, notification and security system, water-energy infrastructure, information and telecommunication infrastructure) and superstructure (warehouses, unloading, transshipment mechanisms, manufacturing, assistance and service premises, buildings for container terminal, PHL service stations, etc.), it is not possible to carry out the development activities as it is usual in other inland ports in the Danube Region.

VPAS as the owner and port authority at the same time cannot be developed due to the amount of long-term lease contracts that were agreed in the past. Current business relations represent a major brake on the development of public ports. The problem is the non-standard division of ownership between VPAS, and port operator which owns the infrastructure and superstructure on long-term leased property of VPAS.

5.1.7.3 Planned investments (near or distant future)

Port of Bratislava

Future development of port of Bratislava will be defined by “Strategy for development of public port of Bratislava” (Masterplan II). This strategical document defines a long-

term concept of the port development by respecting the specifications that result from the current situation in the port.

The whole concept of the development of public ports is based on the constraints that arise from the current situation, the assumptions and estimates of further developments.

Recommendations from Master Plan II will be based on:

- survey and identification of missing services in existing public port areas, investigation of possibilities for modernizing and improving the quality of services that are provided in the passenger and cargo port of Bratislava,
- survey focused on the utilization of existing port facilities and a demand analysis of missing port services,
- definition and quantification of social demand for other (currently missing) services,
- demand analysis of port services in the cargo area of Bratislava,
- definition and quantification of environmental, safety and technological needs for the modernization of existing port operations and their coherence with current EU standards.

This Masterplan II is currently subject to the SEA procedure.

Port of Komárno

Currently in progress there is Master Plan and the Feasibility Study of the Public Port of Komárno in the following step that are financed from the Connecting Europe Facility (CEF) funds. This is part of a global project that aims to develop an integrated network of inland multimodal ports along the Danube to promote sustainable transport and regional development.

The project's main objective is

- To draft a Master Plan, which defines the broader relations under which the efficient Public Port of Komárno is expected to operate, whilst respecting national and European legislation.
- To draft a Feasibility Study for the development of the port in Komárno, which shall follow up on the Master Plan and assess the different alternatives of modernization possibilities of the VP Komárno.

All future projects will be defined by and in compliance with results of Master Plan and the Feasibility Study of the Public Port of Komárno that are being elaborated.

This Masterplan is currently, as well as Masterplan for port of Bratislava, subject to the SEA procedure.

5.1.8 UKRAINE

Izmail seaport has facilities for cargo operations (liquid, dry bulk and tare and piece), fumigation, passenger embarkation and disembarkation, replenishment of food, fuel, fresh water, reception of sewage and oily water, all categories of garbage, as well as equipment repair and diving inspection of vessels.

Total area of multipurpose storages: 201.1 thousand m² of open storages, 19.7 thousand m² of covered ones. Handling facilities and lifting equipment: 33 gantry cranes with lifting capacity up to 40 t, truck loaders with lifting capacity up to 25 t, floating cranes with lifting capacity up to 16 t. Auxiliary works: tractors, bulldozers and other equipment. The container terminal is located at berth No.14 and is equipped with 3 ship-to-shore cranes (with a lifting capacity of 40 t), 1 reachstacker (with a lifting capacity of 25 t).

Table 1 Characteristics of road and rail infrastructure in Izmail seaport

Name of the road	Purpose	Surface area, m ²
Road in the area of the sea terminal	general	3500,0
The road along the street Portovaya	general	6557,3
Motorway between MIC-1 and MIC-2	general	6666,75
Access road to MIC -3	general	14581,2
The road to the seaport	general	4904,4
The road to the cargo area is 85 km	general	4368,0
Road from mechanical departments to amenity premises	in-port	1305,3
Road from the checkpoint MIC -2,3 to berth 16	in-port	3595,0
Road from the checkpoint to incinerator berth	in-port	1400,0

Railway track No. 4. Length of track - 215 running meters. Year of construction - 2003. It is located on MIC-1.

Reni seaport specializes in transshipment of bulk, tare and liquid cargoes. It provides services to ship owners (towage, drinking water bunkering, reception of ships' impurities, etc.).

The seaport of Reni has 37 berths with a total length of 3927 m. Depths at the port berths reach from 2 to 7.5 m and allow to handle all vessels, whose draft allows to pass the Sulina channel. Taking into account fluctuations of the Danube River, the actual depths at the berths reach 7 - 11 m.

The seaport of Reni is equipped with an extensive network of roads and railroads. Movement of goods and vehicles across the Sea Port of Reni checkpoint is carried out through four checkpoints for the passage of citizens and vehicles, with a capacity of 200 trucks. The total length of roads in the port is 6,172 m. Railway track facilities consist of 36 tracks and 39 switches with the length of 13 261 running meters. Of all the tracks: running - 5; loading and unloading - 31. The daily handling capacity of the railway unloading fronts is 200 railcars, and the loading capacity is 100 railcars per day. There are 4 railway weighing complexes on the territory of the port. On the territory of the seaport of Reni there are 19 technological passages, equipped with road signs and signals.

The closure of 90% of Ukraine's ports due to the war with Russia allowed the development of ports in the Danube region, which previously had difficulty competing with ports in the Black Sea region. Ports on the Danube were not prepared for such volumes of cargo transshipment, so the region is experiencing transport collapse. Every day around Reni accumulates up to 2 thousand trucks. Firms that deliver cargo to the port are not always ready to accumulate the necessary consignment in time and load the vessel. The trucks stand for a week, two weeks. It is decided to create parking lots of 2-5 hectares. At the moment design and estimate documentation is being done, most likely financing will come from the regional budget.

Another problem with handling increased freight traffic is the lack of infrastructure and administrative capacity. The ports have limited capacity because there are not enough barges, berths and terminals. This is a significant challenge that still requires coordination and optimization of existing logistics chains, establishing new routes that guarantee, as much as possible, and minimization of delays.

The PJSC “Ukrainian Danube Shipping Company” (UDSC)’s fleet is aged, the pusher tugs are 50 years old, and the barges constantly require repairs between voyages, as the metal stock is worn out. The fleet has not been modernized or overhauled in decades. There has always been a shortage of money. In the first half of 2022, 35 barges were repaired. These are barges that were standing undocumented, not in demand. PJSC “UDSC” launched a repair program, trying to strike a balance between quality and pace, as there was an acute shortage of fleet on the Danube. During the six months, more than 140 intervals of repairs were made. Currently, PJSC “UDSC” operates 200 barges. But having increased the fleet quantitatively by 20%, PJSC “UDSC” doubled the

volume of shipments. In February and March, they started with 100 thousand tons, and in June PJSC “UDSC” transported 200 thousand tons of cargo.

Today the demand for transshipment facilities in the Danube region greatly exceeds the supply, and any place by the waterside, equipped with everything necessary for transshipment, is in demand. There is a huge unused area on the territory of PJSC “UDSC” plant, where it is possible to organize our own stevedoring complex. PJSC “UDSC” aimed to be not only a transporter on the Danube, but also a stevedoring company.

The plan is to install shiploading equipment, which will be loaded from the berth to the vessel. It will be a direct option, and in this way, it will reach a turnover of 30-40 thousand tons per month. Payback period - up to 5 months.

5.1.8.1 Already finished port investments

There were no port road investments in recent years.

5.1.8.2 Currently ongoing projects/investments

No current investments.

5.1.8.3 Planned investments (near or distant future)

This year in Izmail seaport it is planned to carry out only maintenance repair of public roads in the amount of 81 thousand euros.

5.2 Rail related port investment needs

5.2.1 AUSTRIA

5.2.1.1 Already finished port investments

No special projects in the last years.

5.2.1.2 Currently ongoing projects/investments

Rail infrastructure and services Ennshafen Port / Port of Vienna

The infrastructure and their surroundings of the two investigated ports in Austria are well developed now. Nevertheless, an interesting list of planned projects are in the pipeline to further improve the status-quo. Most of these projects deal with investments regarding future demands regarding alternative fuelling of cargobusiness, fulfillment of Green Deal approaches by modernisation of infrastructure and optimization of existing status both for railway and waterway transport. This project list is not finished, some projects are in detailed investigation now and will be developed or changed to upcoming new demands of decarbonizing and market developments. For both ports Ennshafen and Port of Vienna so far are no real gaps known, which are not covered by the project lists „on-going“ or „planned“ (DIONYSUS D.T1.1.3). May be that there will come out some interesting topics during elaboration of the Port Development Plan (work package within DIONYSUS) or during the next years when dealing with items like CO₂-neutrality or other energy related aspects of new developments regarding greening of transport (EU-targets for 2030 / 2040 / 2050).

So far, no real additional „gaps“ are known for both port sides Enns and Vienna. One topic which has been described in project DAPhNE is „the connection of the Danube region in or near Austria“ with the developments of BRI (belt and road initiative / broad gauge railway) – some discussions are under development.

Project: Upgrade Asten-Linz (9047)

- Railway section: Linz Ebelsberg - Amstetten; Linz - Linz Ebelsberg
- Section length (km): 58
- Project category: Connectivity and integration
- Duration: 01/2014 – 12/2030

Description

Main objectives:

- Build a part of the 4-track railway line Wien - Salzburg "Westbahn" to extend capacity for passenger and freight trains on this 300 km stretch of the TEN-T Rhine-Danube corridor.
- Measures included:
- Design, planning and works of the high-speed line between Asten and Linz
- Extension to 4 tracks
- Incl. retrofitting Linz Vbf marshalling yard

Project: Upgrade Parndorf – Kittsee (border AT/SK) (9095)

- Railway section: Parndorf - Kittsee
- Section length (km): 16,9
- Project category: Connectivity and integration
- Duration: 01/2019 – 12/2024

Description (below)

Two track upgrades between Parndorf and Kittsee (border AT/SK) incl. electrification (Total costs: € 207 mln) and therefore an improvement of the rail connection from Vienna to Slovakia.

Project: Link between Vienna Airport-Bruck/Leitha (9448)

- Railway section: Airport Vienna - Bruck/Leitha
- Section length (km): 20
- Project category: Connectivity and integration
- Duration: 01/2021 – 01/2034

Description (below)

New construction of the railway line between Vienna Airport and Bruck a.d. Leitha (Airport link) for a better connection towards the east of Austria and the rail connection with Hungary and Slovakia.

5.2.1.3 Planned investments (near or distant future)

No special planned investments

5.2.2 BULGARIA

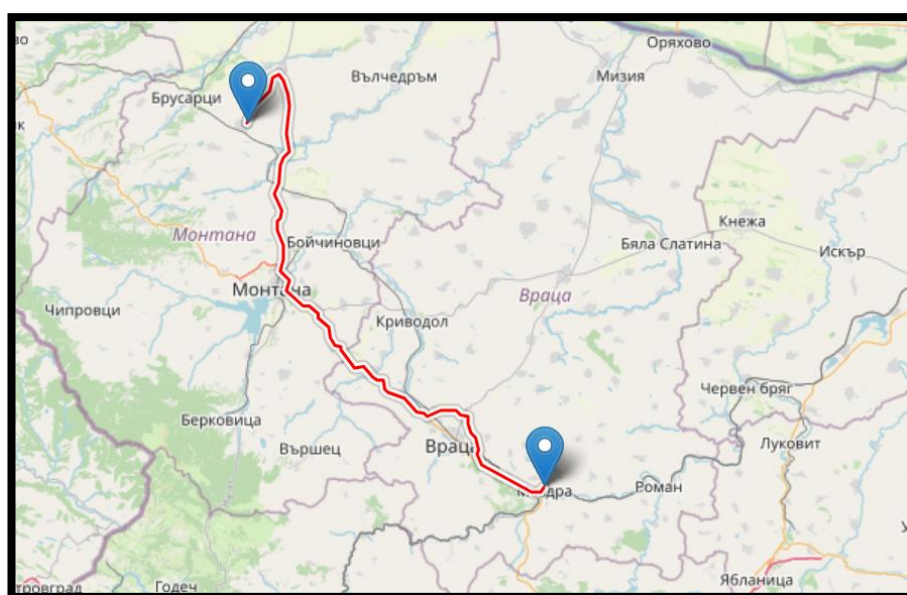
5.2.2.1 Already finished port investments

An already implemented initiative in rail infrastructure with substantial importance for port activities is the completion of the initiative for the rehabilitation of sections from the railroad connecting Plovdiv and Burgas, with the latter being a major port city on the Black Sea. The project was implemented in the period between 2014 and 2016 and was worth approximately 183.371 million euro. In the last decade there were no other significant measures to improve railroad networks in port areas, while the greatest share of investments was aimed at the region of Plovdiv, including the construction of an intermodal terminal and modernisation of the lines connecting the city of Plovdiv with the towns of Septemvri and Svilengrad.

5.2.2.2 Currently ongoing projects/investments

The network of railways in Bulgaria has a rather good level of density but is in poor condition and in urgent need of investments. A particular ongoing initiative in this field, which could have a positive impact on railway connectivity in the area of ports is the project for the preparation for modernisation of the Medkovets - Mezdra track. This railway section is part of the VII main line Mezdra - Vidin. Its total length is 85,568 km, according to the conceptual design for the section Ruska Byala - Medkovets and the existing route in the section Mezdra - Ruska Byala. This is a preparatory project for the development of the planned investment project. The final goal is to elaborate the documentation required for the implementation including technical design, EIA, etc. The project's duration is from February 2020 to July 2023.

Figure 16 Medkovets - Mezdra railway section



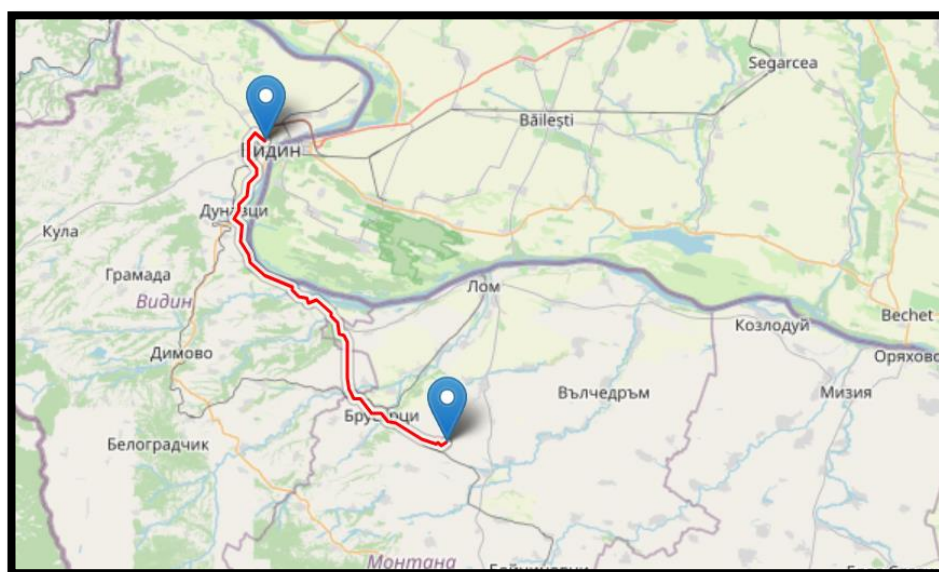
Source 8 Provided by external partner

5.2.2.3 Planned investments (near or distant future)

There are several initiatives planning investments in railroad infrastructure in the mid- to long-term. One of these is the project for the modernisation of the Medkovets - Mezdra section (a project for the preparation of the activities is currently ongoing and is described in the previous chapter of the document). Expected results from the project are: improved speed capacity of the track, construction of noise protection facilities, installation of fences that prevent unauthorised passage through the areas of the stations, modernisation of signalling and telecommunications systems, introduction of passenger information systems, construction of a network of video surveillance systems at critical places and areas of the railway infrastructure. The project is planned for implementation in the period from January 2024 to December 2027.

Another initiative in the same field is the project for the modernisation of Vidin - Medkovets line, with a total length of 61.9 km. The section is part of Corridor 4 of the TEN-T network on the territory of the Republic of Bulgaria, which connects the European Union through Bulgaria with other countries in the Balkans and Turkey. The project is part of a bigger initiative (modernisation of the Vidin – Sofia line, which is divided into 3 lots) Other activities included in the incentive are the rehabilitation of the existing reception buildings and construction of new ones, introduction of the SCADA system, modernisation of the security equipment and the telecommunication systems in the stations through Implementation of ERTMS and GSM-R Voice. The project's implementation will last from October 2022 to October 2025.

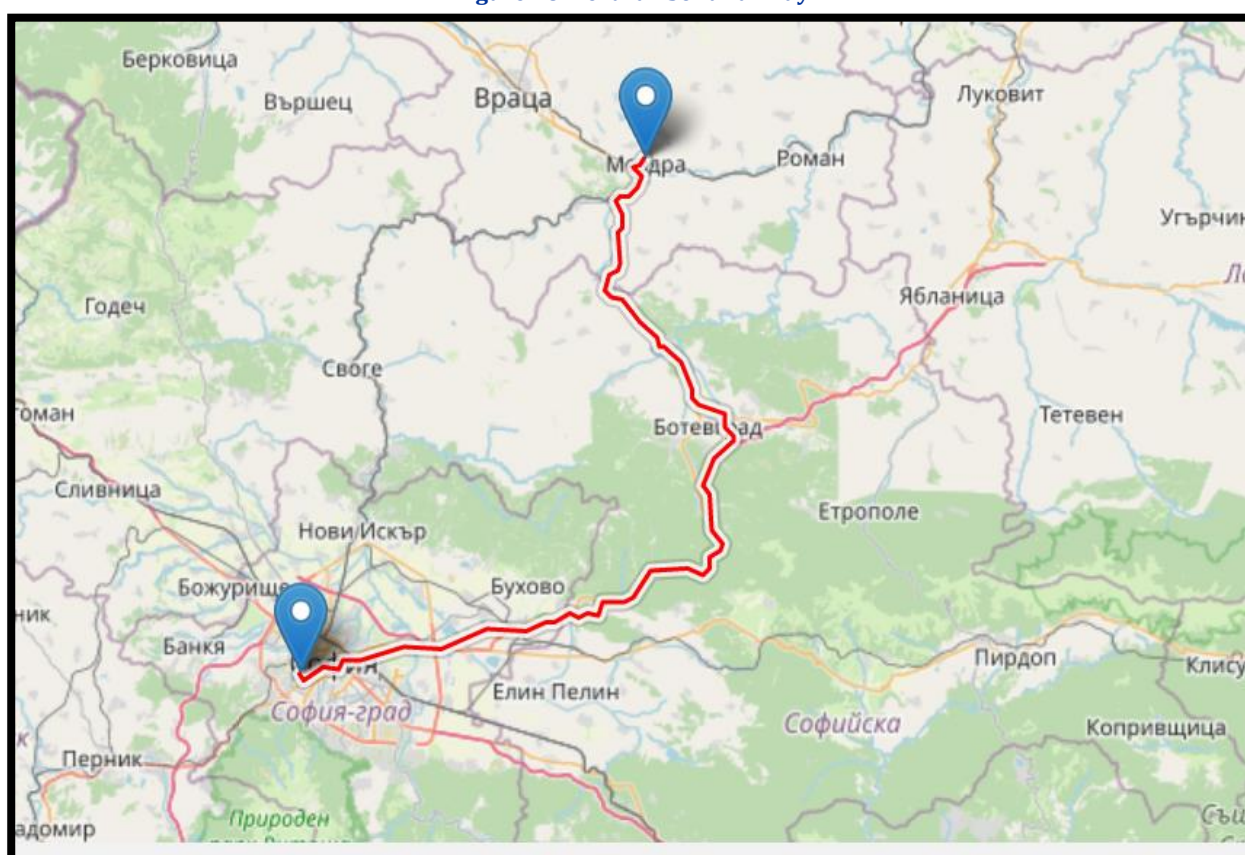
Figure 17 Vidin – Medkovets railway section



Source 9 Provided by external partner

The modernisation of the Mezdra - Sofia railway is another planned project of importance for the Danube Region. The section with a total length of 76,3 km. is part of the main railway line Sofia – Mezdra – Vidin. The expected results from the project coincide with those for the modernisation of the Medkovets – Mezdra section, including increase of the line's speed capacity, construction of noise protection facilities, improvements in the security and surveillance systems, introduction of modern passenger information systems, etc. The budget is a subject to further detailing. The project will be implemented from January 2028 to December 2033.

Figure 18 Mezdra - Sofia railway

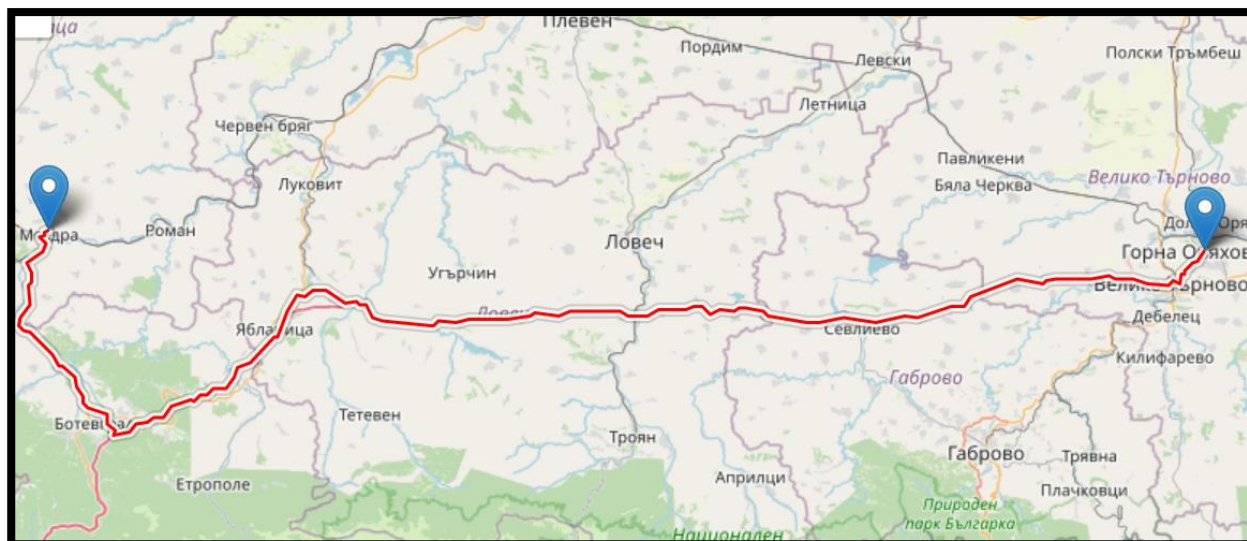


Source 10 Provided by external partner

Another future initiative in the field of traffic management and digitalisation which could have positive impact on port activities is the Deployment of ERTMS along the Sofia – Mezdra railway. The project's implementation will last from January 2028 to December 2033.

Another initiative with similar focus is the project for the construction of ERTMS level 1 on the Mezdra – Gorna Oryahovitsa railway. The section is 210 km. long and all the activities are planned for implementation in the period between December 2023 and December 2027.

Figure 19 Mezdra – Gorna Oryahovitsa railway



Source 11 Provided by external partner

A planned incentive with potentially significant importance for railroad connectivity of ports is the project for the construction of an intermodal terminal in the North central planning region of Bulgaria. It is part of Bulgaria's National Recovery and Resilience Plan, and its main goal is to provide fast and competitive transport connection in the country's North by building an intermodal terminal for freight transport in the region of Ruse.

The terminal will be constructed on an area of 124 acres and will include the construction of one loading and unloading track, three receiving and departure tracks, electrification of the tracks, signaling and telecommunications, electricity supply, plumbing, administrative building, residential building for the staff, checkpoint, access road, storage areas for containers of various types, parking lots for trucks and cars, customs control point, site for maintenance and repair of mobile equipment, including gas station and car wash, container repair point, truck scale, scanning frame for railway trains and trucks, fences and other elements typically included in a container handling terminal.

The rest of the loading and unloading and other equipment will be at the expense of the future operator of the terminal and will not be financed under the project. The total planned resource is 26.56 million euro, of which 22.57 million are at the expense of the

NRRP, and the remaining approximately 4 million euro will be nationally financed. The implementation is planned to last from 2022 to 2026.

Figure 20 Planned construction of an intermodal terminal in Ruse



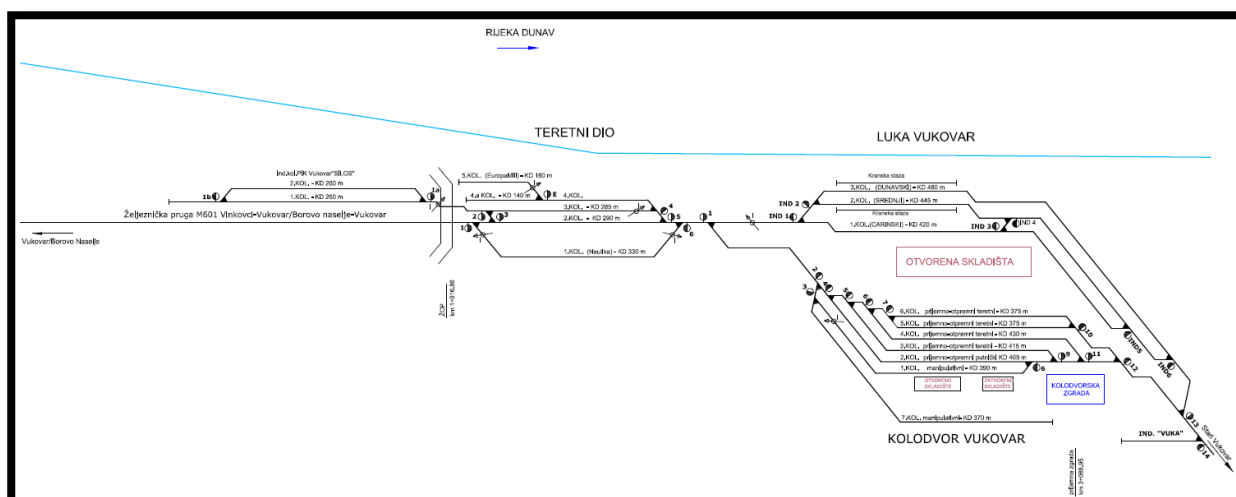
Source 12 [Rousse.info](https://rousse.info) (link)

5.2.3 CROATIA

Existing railroad infrastructure enables the port's everyday business to flow smoothly but with certain limiting factors. These factors include lack of railroad infrastructure as well as lack of modernization incentives.

Approximately 60% of cargo transshipped in the port of Vukovar is being transported via railroad connections. That amount of transportation by rail corresponds to a quantity of nearly 13,000 heavy trucks per year less on the roads around the city of Vukovar. Port has three of its own tracks of 420, 445, and 483 meters long. They are located beneath the cranes and allow direct transshipment from ships to train and vice versa. For the purpose of manipulation on its own tracks, the Port of Vukovar has its own shunting locomotive and own trained machine and maneuvering staff. It can be seen from the above that the railway infrastructure is crucial for the work of the Port of Vukovar.

Figure 21 Existing state of the railway network in Vukovar port



5.2.3.1 Already finished port investments

No significant work has been done on the railway infrastructure and superstructure in the recent past except for the phase advancements done on the upgrade and electrification of the route M601 described in details in following paragraphs.

5.2.3.2 Currently ongoing projects/investments

Upgrading and electrification of the existing railway line of importance for international traffic M601 Vinkovci - Vukovar

On December 20th 2021., HŽ Infrastruktura signed a contract with the community of Spanish companies Comsa S.a. in Vukovar and Comsa Instalaciones Y Sistemas

Industriales S.a. for the execution of works on the modernization of the Vinkovci - Vukovar railway.

The project's total eligible costs for "Upgrading and electrification of the existing railway line of importance for international traffic M601 Vinkovci - Vukovar" amount to 516.3 million kunas, of which the European Union from the Operational Program Competitiveness and Cohesion 2014-2020 co-finances 85 percent from the Cohesion Fund.

Figure 22 Scheme of railway modernization and electrification project



The goal of modernizing this 18.7-kilometer-long railway is to increase the scope of rail freight transport and transshipment of goods in the port of Vukovar and better connect the railway passenger transport of Vukovar-Srijem County with the main transport corridors. The modernization of the Vinkovci - Vukovar line will improve the train speed to 120 km / h, which will further shorten the travel time.

Reconstruction of the Vinkovci - Vukovar railway will create preconditions for better connections and further economic development of eastern Croatia because without quality transport connections there is no development of economic activities. This project is part of the program for the renovation of communal and electricity infrastructure of the city of Vukovar, worth almost a billion and a half kunas, which are planned to invest in Vukovar over the course of following years. All these investments are an indicator of the commitment of the Government of the Republic of Croatia,

which seeks to direct all available funds to those projects that are of the utmost importance for Vukovar and its further development and reconstruction.

The single-track railway M601 Vinkovci - Vukovar is separated from the railway at the Vinkovci station line M104 Novska - Tovarnik - SB - (Šid), and at the station Vukovar it is connected with the industrial track with Vukovar port on the Danube River. In this way, the railway M601 Vinkovci - Vukovar connects the railway traffic direction of Corridor RH1 (former X. Pan-European Corridor) and VII. Pan-European transport corridor (waterway Danube) in the territory of the Republic of Croatia.

At the Vukovar-Borovo naselje station on the M601 line, continues the railway line of importance for the regional traffic R104 - Vukovar-Borovo Naselje - Dalj - Erdut - SB. At the exit from Vukovar station, it continued on railway of importance for local traffic Vukovar - Stari Vukovar (out of traffic since 1991). From Vukovar station, the industrial track leads to the Port of Vukovar on the Danube River.

On the railway line M601, the maximum permitted speed (according to the Technical Conditions of the Construction Infrastructure timetable 2013/14) is 50 km/h, with occasional restrictions of 20 km/h and 40 km/h. The railroad is not electrified. Signal security and telecommunication devices were destroyed during the war and have not been rebuilt. During the war, some buildings in the railway belt were destroyed and damaged, which were recorded in the cadastral operatives, but in nature, they do not exist today.

The traffic takes place at the station's distance. The railway stopping line is 700 m. The M601 line at Vukovar station passes through the area of the port facilities of the Port of Vukovar. It is necessary to delimit the track capacities and land between the Port of Vukovar and Vukovar Station.

The single-track railway M601 Vinkovci - Vukovar has the status of another railway for international traffic and connects the railway Corridor RH1 (SB - Savski Marof - Zagreb - Dugo Selo - Novska - Vinkovci - Tovarnik - SB) and VII. pan-European transport corridor (waterway on the Danube) on the territory of the Croatian Republic. The railway will be electrified by an electric traction system of 25 kV, 50 Hz. All railway crossings with roads (except for two decommissioned LCPs) will remain level and will be provided with light and sound signals. The railway will be capable of $V_{max} = 120$ km/h (with existing restrictions at the exit from Vinkovci station (speed 50 km/h) and Vukovar Borovo Naselje (speed 95 km/h) and in the area of Vukovar station (speed 40-80 km/h).

By the beginning of 2022, more than 20 kilometers of tracks and all switches in various stages of readiness had been laid. All culverts and the span structure of the Bobotski kanal bridge have been built. Work is nearing completion on all three underpasses (pedestrian-bicycle at the Nuštar stop, pedestrian at the Vukovar-Borovo Naselje station, and at the Bršadin-Lipovača stop). Works on laying concrete drainage channels, construction works on railway-road crossings as well as works on the installation of

noise protection walls are progressing. The buildings for the accommodation of signaling and safety devices in Đergaj and Vukovar, the building of the plant for sectioning the contact network in Vinkovci, and the building for reactive energy compensation within the EVP Jankovci are in a high degree of readiness.

Works on the foundation and installation of poles and portals of the contact network, as well as the construction of the foundations of switches for turnout heating poles in stations and in the Đergaj dispatch center, are nearing completion. Work on lighting and other power plants is continuing. Design and preparation of software for traffic control and signaling and safety subsystem is carried out.

Figure 23 Work in progress on upgrading and electrification of the M601 route



5.2.3.3 Planned investments (near or distant future)

No investments are currently planned regarding the future investments, use, and facilitation in general of port transportation modes, especially railway-wise. The whole project of upgrade and electrification of the M601 route is a very complex and demanding undertaking so the focus won't be shifted to other projects until this one is finalized and foundations for others are laid.

5.2.4 HUNGARY

5.2.4.1 Already finished port investments

Development of the Győr-Gönyű Public Port

Port: Győr-Gönyű Public Port

25,3 million EUR

Duration: 2015-2017

The complex development project included among others construction of five new berths, relocation and construction of rail tracks. There are two new tracks constructed alongside of the newly built berths, which makes the port trimodal at last.

5.2.4.2 Currently ongoing projects/investments

The intermodal development of the Port of Baja

Port: Port of Baja

12,2 million EUR

Duration: 08/2017-unknown

Besides road and IWT related port infrastructure developments the project includes railway building as well. MÁV and port owned railway tracks will be constructed and reconstructed on the territory of the national public port. New rail loading equipment will be installed.

Upgrading Mohács Border Port to National Public Port

Port: Mohács border port

15,8 million EUR

Duration: 2016-unknown

The aim of the project is to build a new National Public Port on the Danube section belonging to Mohács (between sections 1448 + 660 km - 1449 + 000 km). The new port's quay will be the extension of the already operating border port. The development includes various construction works, including roads, hydraulic engineering facilities, loading equipment, etc. Railway building works are as follows:

- Reconstruction of existing railway tracks.
- Construction of two loading tracks alongside the newly built quay, making the port trimodal.

- Railway for loading equipment (one container-, and one gantry crane).

5.2.4.3 Planned investments (near or distant future)

Construction of Soroksári út - Soroksár 2. track⁶

Freeport of Budapest Logistics located on Csepel island, in the southern part of Budapest, is currently only partially accessible by a single-track railway line. The expected increase of combined transport requires the (re-)construction of the second track in Soroksár station to serve the freeport.

Gubacsi railway bridge⁷

The Freeport and Csepel Island are linked into the national railway networks by the Gubacsi bridge located on the north-eastern part of the island.

A new single-track railway bridge will be built 15 metres north of the existing bridge. The new bridge will be without piers and will be an arched bridge to accommodate the needs of the planned rowing course project. (Remote electrification have to be provided). In this case, it is not possible to use or modify existing plans and permits. A new environmental impact assessment and new permitting process will be required.

⁶ DT1.1.3. Chapter 7.3.2.

⁷ DT2.2.1. Chapter 8.1.2.1.

5.2.5 ROMANIA

5.2.5.1 Already finished port investments

Port of Constanta.

Modernization of the port infrastructure by deepening the channels and port basins for increasing the safety of navigation within the Port of Constanța

Measurements and studies carried out in the Port of Constanța revealed that the existing depths of the channels and basins were lower than the designed one, due to the fact that at the time of the execution of the works, the existing technology did not allow the continuation of the works on the hard, rocky terrain. The differences in the depths of the basins do not ensure the efficient use of the port infrastructure. The project consisted in:

- the execution of capital dredging works for the deepening some areas of the harbour basins and the access channels to the levels required by navigation safety and the initial project of Constanța Port;
- ensuring the stability of the quays in the *Working Port*, as a result of the deepening of at the -7m to -9 m elevation, the creation of a new mooring front;
- purchase of a measurement vessel.

The dredging works started in May 2019 and were completed in October 2020. Works related to the quays in the Working Port and were completed in August 2021. The hydrograph vessel was received in August 2020.

The value of the investment was 50.4 MEURO and the financing was provided by Large Infrastructure Operational Programme 2014 – 2020.

Modernization of the Berth no. 80 in the Port of Constanța. The works consisted in the modernization of the berth on a length of 305 m, but also railway infrastructure works on a length of 4114 m. The railway line connects the port railway infrastructure with a terminal for cereals and it was design to took over around 1.2 million of tonnes per year, cargo that was transported on trucks causing congestion in the port.

The total budget of the project was 5.74M EURO and the financing was assured from the Large Infrastructure Operational Programme. The works were finalized in 2021.

Port of Galați

Port of Galați is the only port in Romania that has wide - gauge railway lines and can operate trains coming from Moldova or Ukraine. The wide-gauge line connects the Port of Galați with the Giurgiulesti border crossing point in the Republic of Moldova. In 2022 the national railway company conducted important maintenance works on this line, on a length of 4.7 km. It is under planning the extension of this line within the port of Galați.

5.2.5.2 Currently ongoing projects/investments

Port of Constanta

In 2022 will start repair and maintenance works of the public railway infrastructure in the Port of Constanța. The investment aim to replace the component elements of the superstructure of the track in areas A, B, MOL V, on 64 lines (with a total length of 29.795 km), the replacement of 51 track devices, the installation of special sleepers on 15 track devices and elastic slabs at 7 level crossings with the railway.

Feasibility study for the modernization of the railway lines in the port of Constanta. The contract was signed on 17.09.2019 and will end in 2022. The value of the contract for the feasibility study is 2.13 MEURO and the financing is assured from Connecting Europe Facility. The rail network within the port of Constanta has a length of 326 km and consists of yards and railway lines that run along the berths, allowing loading directly from ships to wagons and vice versa, as well as behind the berths, allowing goods to be transferred from wagons in warehouses or platforms and vice versa. The feasibility study will provide the necessary investments for the next years, according to the actual configuration of terminals, actual traffic and the forecasts for the traffic.

Port of Galați

Multimodal Terminal in the Port of Galați. The project has a component related to rail infrastructure. The works at the railway connection consist of the dismantling of 3,198 m of railway and the construction of 2,228 m of new railway. The investment will be carried out by the port administration and then transferred to the National Railway Company "CFR" SA.

5.2.5.3 Planned investments (near or distant future)

Port of Constanta

Future investments in railway infrastructure will be defined by the feasibility study for the modernization of the railway lines in the port of Constanta.

Some projects already identified by the port administration are:

Doubling the railway in the Agigea Lock - Constanta Ferry Boat and systemizing the connection point in Agigea Lock. Estimated value of the investment: 13 million Euro, with a period of execution of 36 months. The objectives of the investment are to reduce waiting times of the trains. Doubling of the access railway line at the Constanta Ferry-Boat station has been analysed within the Feasibility Study "Development of the railway capacity in Constanta South Agigea Port" (Object I.c.2"). However, in the above-mentioned study the works were not included in Phase I of the works but being proposed to be implemented "as soon as all the financing conditions will be met".

Development of rail capacity in the C.F. Constanta Port Ferry-boat Terminal. Estimated value of the investment: EUR 9,64 million Euro and the period of execution is 36 months. The investment will lead to a reduction in waiting times for train sets, the optimum take-up of freight traffic in the area and the elimination of operating, reception and handling malfunctions. It will be considered that in the feasibility study, “The development of railway capacity at C.F. Constanța Port Ferry-boat Terminal” is to be analysed the separation of the manoeuvring areas for the LFI Kronospan device and the future line device of JETFLY for direct access of trains to the lines of the C.F. station, construction of a manoeuvre group (the group of lines that will be formed as a C.F. triage for the future Pier IIIS) between the Kronospan line and the drawing line of the C.F. station for the accumulation of wagons for the purpose of the introduction to the front and the construction of 3 delivery receipt lines.

The specifications for the elaboration of the feasibility study are being prepared, the financing of about 400.000 Euro being provided from own sources of the N.C. M.P.A. S.A. (BVC 2021-2022) to ensure the maturity of the project at the time of approval of POT 2021-2027.

Development of rail capacity in the river-sea sector of the Port of Constanta - phase II. Estimated value of the investment: 9 MEURO and the project execution time is 36 months. The specification for the elaboration of the feasibility study is being prepared, the financing of about 300.000 Euro is provided from the own sources of the N.C. M.P.A. S.A. (BVC 2021-2022) to ensure the maturity of the project at the time of approval of POT 2021-2027.

5.2.6 SERBIA

5.2.6.1 Already finished port investments

Port of Bačka Palanka

- There were no rail related port investments in recent period.

Port of Bogojevo

- Data not available.

Port of Prahovo

- Data not available.

5.2.6.2 Currently ongoing projects/investments

Port of Bačka Palanka

- There is no rail related ongoing port projects/investments.

Port of Bogojevo

- Construction of railway tracks within the port territory are also included in ongoing project, expansion of the existing port by construction of a new port capacities. Railway tracks are planned in line with the disposition of existing and new terminals, in order to enable multimodality of all terminals

Port of Prahovo

- Since the condition of the railway tracks within the port area is not satisfactory, overhaul and modernization are planned, which will significantly increase the transport capacity.
- In addition to this, the ongoing project of the reconstruction and expansion of the port capacities envisions the introduction of a new track that will serve warehouses in the hinterland of the port area.
- If possible, the necessary safety distances between industrial tracks, plot boundaries and other infrastructure corridors must be observed. In addition to the tracks behind the silo, it is possible to envisage another track, so that the existing one would be used for loading and would not disrupt the transport of other cargo.

5.2.6.3 Planned investments (near or distant future)

Port of Bačka Palanka

The port is not connected to the national railway network but is distanced about 5 km from the regional railway Bačka Palanka – Gajdobra which is connected with the Belgrade-Subotica railway and further with the Budapest.

According to the port development plans, it is planned that the industrial track for the port of Bačka Palanka starts from the open track of the railway Gajdobra – Bačka Palanka, in front of the level crossing with the main road (before the overpass from the direction of Gajdobra). The industrial track is brought to the port via a marshalling yard, which is located before the protective embankment of the port complex in Bačka Palanka.

The main track for connection to the port will be built with the use of TYPE 49 rails and with the basic spatial elements - (track radius of min 180m) and safety systems for breaking and turning.

The railway within the port of Bačka Palanka is spatially configured in the form of one access to two peripheral (connected) industrial tracks, i.e., with only one main track that serves all planned facilities.

Port of Bogojevo

- In the port of Bogojevo there is no connection to the national railway network.
- It is planned that the industrial tracks that will be pulled out of the Bogojevo station, which is located on the main line no. 110, Subotica - Bogojevo - state border - (Erdut) and regional railway no. 207, Novi Sad - Odzaci - Bogojevo, across the manipulative railway no. 403, Bogojevo - Danube bank, provide access by rail to port terminals and facilities on the waterway.
- Existing manipulative railway no. 403, "Bogoejevo - Danube bank", remains within the existing railway corridor, but with the reconstruction of the railway tracks, in order to increase the carrying capacity and speed.

Port of Prahovo

- According to the development plans of "Serbian Railway Infrastructure" a.d. and in accordance with the Spatial Plan of the Republic of Serbia ("Official Gazette of RS", No. 88/10), revitalization, modernization and electrification of the existing single-track railway (Nis) - Red Cross - Zaječar - Prahovo port is planned. This regional railway is very important for faster development of Prahovo as an industrial center.
- At km 0 + 355.70, where the new road intersects with the railway tracks, the construction of a leveled intersection is planned, which will be done by the construction of a new AB bridge - overpass. A free profile which is 5.8 m high is provided under the bridge. The width of the free profile perpendicular to the tracks is 14.1m.

5.2.7 SLOVAKIA

5.2.7.1 Already finished port investments

Port of Bratislava

Railway track, which is located in the port, is also owned by port operator. It is connected to ŽSR railway at railway station Bratislava ÚNS (Central Freight Station). The construction length of all siding tracks is 28 828,6 meters, including 69 turnouts. The siding is predominantly electrified, with the siding and track no. 101, 102, 103, 104 and 105 are under the traction line. The total length of traction line is 5 500 m, the other part of siding is not electrified.

The railway infrastructure of the Port can be divided into the following integral parts:

- connecting rail between the Port area and Bratislava ÚNS,
- a track group 100, which represents an entry / exit group to / from the port,
- railroad groups in Zimný Prístav (Winter port): the main flow of the Danube, the North and South basin,
- railroad groups in the Zimný Prístav (Winter port).

Port infrastructure coverage of the port is good, but in many segments, it is required to modernize it. The connection to the public railway transport network as well as the connection to roads outside the Port Bratislava is shown in the following figure.

Port of Komárno

The total length of the rails at the VP Komárno area is 13.85 km. The railway line at the Komárno railway station is of class D with maximum unit train load of 2,200 tonnes. It follows that the unit train can contain a maximum of 55 carriages at carrying capacity of 40–50 tonnes/carriage. The siding in the area is maintained by the port operator, while the siding is operated and unit trains outfitted by the Cargo Slovakia, a. s. company. For operational reasons, there is no restriction on transshipment due to the capacity of the railway connection. The railway connection is of good quality and operationally satisfactory. No information about recent projects is available.

5.2.7.2 Currently ongoing projects/investments

Currently there are no ongoing projects related in terms of physical realisation. Ref. to paragraph with currently ongoing projects/investments.

5.2.7.3 Planned investments (near or distant future)

Reference to previous chapters.

5.2.8 UKRAINE

5.2.8.1 Already finished port investments

Recently the Berezyne (Ukraine) – Basarabyaska (Moldova) railway section which wasn't in operation since 1999 y., has been restored now, with the participation of the Minister of Infrastructure of Ukraine and the Minister of Infrastructure and Regional Development of Moldova. Restoration of this route has become essential against the backdrop of constant attacks by Russian invaders on the bridges over the Dniester estuary. The main railway lines between Odessa and the Danube ports "Reni" and "Izmail" will be connected with railway connections. The section Berezyne – Basarabyaska is single-track, and its length is 22 kilometers.

5.2.8.2 Currently ongoing projects/investments

No current investments.

5.2.8.3 Planned investments (near or distant future)

1. Reconstruction of railroad track No. 36 on the territory of production and transshipment complex No. 2 SE "Izmail Sea Commercial Port"

- Reconstruction of the existing railroad track with the formation of a straight section of track with a length of 72.16 meters and a horizontal platform.
- Attraction of investments in the amount of 30 thousand euros.
- Implementation entity - SE "Izmail Sea Commercial Port"

2. Reconstruction of railway track #31 of the MIC – 3

- Implementation entity - SE "Izmail Sea Commercial Port".
- Type of construction - renovation
- Stage of design - working draft
- Construction phases: in two phases:

Track reconstruction site No. 31 is located on the territory of the MIC-3 of SE "Izmail Sea Commercial Port".

The total number of tracks included in the SE "Izmail "Sea Commercial Port" MIC-3 on Izmail station is 7 tracks. 4 sets of switches.

Reconstruction of railway track is envisaged in two stages: first - connection of railroad track № 30 and № 31 with the P50 left railroad switch device and continuation of track

Nº 31 to track Nº 38 on rails P50 with the P 50 right railroad switch device; second - continuation of track Nº 38 on 114 m on rails P50.

Investor's cost estimated documentation - 161 thousand euros, project implementation period - 2020-2021, sources of financing - own funds of SE " Izmail Sea Commercial Port».

5.3 IWT/Maritime related port investment needs

5.3.1 AUSTRIA

5.3.1.1 Already finished port investments

No special projects in the last years; please see all the descriptions of existing status in previous deliverables of WPT1 and WPT2

5.3.1.2 Currently ongoing projects/investments

Ongoing projects in Austria regarding the two ports Ennshafen and Port of Vienna, including their surroundings, mostly deal with capacity improvement within ports, as well as determined optimization works in the railway, road and waterway sections around these two cities. In general, the infrastructure is well developed, so actually only a few port projects are listed in this section.

The infrastructure and their surroundings of the two investigated ports in Austria are well developed now. Nevertheless, an interesting list of planned projects are in the pipeline to further improve the status-quo. Most of these projects deal with investments regarding future demands regarding alternative fuelling of cargo business, fulfilment of Green Deal approaches by modernisation of infrastructure and optimization of existing status both for railway and waterway transport. This project list is not finished, some projects are in detailed investigation now and will be developed or changed to upcoming new demands of decarbonizing and market developments.

Project: Provision of Good Navigation Status on the Danube in Austria (9769)

- IWW section: Danube in Austria, rkm 2,223.15 - rkm 1,872.70
- Section length (km): 350km
- Project category: Connectivity and Integration
- Duration: unknown

Description:

Provision of Good Navigation Status on the Austrian Danube, e.g., mooring places and associated equipment, shore-side electricity, provision of alternative fuel etc.

Project: FAIRway Danube – Follow-up activities (9768)

- IWW section: Danube: rkm 2.223.15 - rkm 1,295.5 and rkm 1.075.00 - rkm 0, Danube-Black Sea Canal, Váh until rkm 113.4
- Section length (km): ~2200km

- Project category: Connectivity and Integration
- Duration: unknown

Description:

Follow-up of previous FAIRway Danube related activities.

Accelerate the removal of bottlenecks by studies, investigations and pilot actions to collect the necessary information allowing the detailed analysis of physical bottlenecks to be removed at a later stage.

Cross-border harmonisation of activities towards Good Navigation Status

Port: Ennshafen

- Project: Modernisation of transshipment facilities (9535)
- Project category: Capacity improvement
- Duration: 01/2020 – 07/2024

Description:

Danubia Speicherei GmbH, one of the port operators, is well aware of the necessity for an existing and well working inland waterway system along the river Danube in extension of the Rhine-Main-Danube canal. To make inland waterways a working system, inland ports development is a must. Within those inland ports we strongly need independent handling and transshipment facilities. Since 1995 we are absolutely believing in this idea and have so far created a spot along the river Danube where anybody can load/unload their goods on vessels, trucks and/or train wagons, absolutely independent and neutral. On average we handle about 850,000 tons a year between the three main ways of transport with a main focus on Danube vessels. To extend our range and to become an even more flexible and faster handling spot along the river Danube we need to take further investments, mainly in the areas of a faster, more efficient crane and two new transshipment facilities. All of those investments will make it easier for existing and future clients to use different ways of transport in a mix, suitable for their goods and products. We strongly believe that this is what it takes for a cleaner and environmentally more friendly future. Handling centers in inland ports will have a big eligibility in future logistics and can be part of a solution to relieve traffic on roads through Europe. Transport on river Danube has been fighting and still fights with the bottleneck in Straubing/Vilshofen. As a consequence, the port of Enns and especially our company can and will be a major player when it comes to lighterage of vessels. Therefore, investments into the infrastructure are needed.

Port: Vienna

Project: Construction of a port gate at Port of Vienna (9534)

- Project category: Capacity improvement
- Duration: 01/2020 – 10/2023

Description:

The Hafen Wien GmbH is the operator of the three Vienna Danube ports Freudenu, Albern and Lobau. The port of Vienna-Albern has no comparable flood protection facilities and therefore had to be taken out of service during the last two flood events in August 2002 and in June 2013 because the port site was under water by 1.20 m. After the last flood event in June 2013, the Hafen Wien GmbH, the region of Vienna and the responsible national Ministry for Transport decided to implement an effective flood protection due to the flood damage and the shutdown that had occurred at the port of Albern. In the event of non-implementation, the logistics companies at port of Albern had indicated long-term emigration from the insufficiently protected port of Albern.

The project activities consist of:

- project management
- local construction supervision
- the construction of the flood protection port gate
- a pumping station
- and the connection to the existing flood protection systems.

The construction measures for the flood protection port gate are based on the results of a planning process that had already been completed. The previous phases of the feasibility study, basic determination, preliminary planning up to preliminary design planning were completed. The technical designs for the individual structures are available.

5.3.1.3 Planned investments (near or distant future)

Maritime not relevant as Ennschaf port and Port of Vienna are inland ports; no further waterside plannings

5.3.2 BULGARIA

5.3.2.1 Already finished port investments

During the last decade no significant investments for the development of port infrastructure were made in Bulgaria. An initiative worth mentioning was the planned construction of an intermodal terminal in Varna (largest port city in the northern section of the country's Black Sea coast), which was included as a project in the ITS with a worth of almost 266 million euro. The initiative was supposed to be concluded by the end of 2020 but the implementation never actually started.

5.3.2.2 Currently ongoing projects/investments

A currently ongoing initiative for investments in port infrastructure in Bulgaria is the provision of technical assistance for the preparation and implementation of the project for the delivery, Installation and Implementation of port reception facilities in the Bulgarian public transport ports of national importance. It is in its essence a consultancy service called „Strategic Adviser”, which aims to update and expand the scope of the available waste reception and handling plans in ports of national importance (including facilities in the areas of Vidin, Lom, Svishtov, Ruse, Varna and Burgas, 16 of which are on the Danube). The project involves an assessment of the need to implement facilities for prevention and response to operational or accidental pollution in indoor waters and in the coastal area of ports. It includes an assessment of the need to implement and develop an integrated information system, and to integrate and present in an appropriate way the results and data gathered from the deployed information system. In general, the project's main objective is to provide highly qualified and specific consultancy assistance for the preparation and implementation of an investment project through which the management of the environment in the field of water transport will be improved. It is to be implemented from February 2018 to August 2023.

5.3.2.3 Planned investments (near or distant future)

There are several projects in the area of port infrastructure planned for implementation in the long term, which could bring significant value to transport activities in the Danube Region.

One of these is the project for the development and expansion of the ports of Lom and Varna to create conditions for the construction of a multimodal terminal. It is part of the Transport Connectivity Programme (2021 – 2027), funded by ERDF. Main activities are related to reconstruction, modernisation, and development of the ports of Lom and Varna with the purpose to create conditions for the construction of multimodal

terminals. The project is planned for implementation between December 2023 and December 2027.

Another incentive from the TCP is the project for the reconstruction and modernisation of the port of national importance in Ruse, which has as its main objective the construction of facilities against flooding at Ruse-West terminal. It is also planned for implementation from December 2023 to December 2027.

5.3.3 CROATIA

5.3.3.1 Already finished port investments

Marina Vukovar

The contract for conducting works on the construction of communal port „Marina“ was concluded in June 2018 between Port Authority Vukovar and Marinetek Adriatic, Hidrogradnja from Osijek and Grasa from Zagreb. The project of construction of a communal port is foreseen to construct a pier on the main stream of the Danube River, directly downstream from the river Vuka, where the moorings for 140 vessels of up to 12 meters length is formed.

Figure 24 Communal port Marina opened in Vukovar



The mooring of the vessel is provided along both sides of the main pontoon gate located parallel to a coastline of 265 meters, divided into 4 segments and connected by associated gangways. At the 70 ° point on the longitudinal axis, the ‘fingers’ have been installed on the longitudinal axis, with transverse structures with floats, for the mooring of boats on both sides.

The second pontoon gate, which is 60 meters long, is set up as a protection from the debris and iceberg, and also serves as a base for a 27.5-meter-long bridge.

5.3.3.2 Currently ongoing projects/investments

Danube dock – Vertical quay

On December 15, 2021, a contract was signed on the preparation of project documentation for the vertical coast in the Port of Vukovar

A contract for the preparation of project documentation for the construction of a vertical coast in the port of Vukovar, worth 1.67m euros, was signed in Vukovar on Wednesday between the Port Authority and the IGH Institute.

The project is co-financed through grants from EU funds in the amount of 85 percent, while the rest is financed from the state budget. It should be completed by March 31, 2024.

The idea is to build 300 meters of new vertical shore in the Port of Vukovar, which would be connected to the railway infrastructure via the construction of new industrial tracks and road infrastructure (construction of access roads), new handling areas, and warehouses. This would make the Port of Vukovar more efficient and with much faster work dynamics, and ships would be able to dock regardless of the depth of the Danube.

The port of Vukovar is the only river port in Croatia, located on the right bank of the Danube, which with its navigability class VIc in this part of Europe allows the availability of navigation 365 days a year.

The total area of the port area is approximately 19 hectares, of which 2.68 hectares are used by the company in the concession, and the length of the operational shore, which includes four connections, is 450 meters. Current capacities allow for the annual transshipment of goods of about 1,200,000 - 1,500,000 tons, depending on the type of cargo.

5.3.3.3 Planned investments (near or distant future)

- Construction of a vertical coast in the port of Vukovar
- Construction of a terminal for waste disposal from vessels
- Construction of the port of Vučedol
- Expansion of the port for passenger ships in Vukovar
- Construction of a communal and passenger port on the Island of Sports in Vukovar
- Construction of smaller docks for local and tourist ships
- Construction of a communal port in Batina
- Construction of a utility connection for the supply of alternative fuels
- Multipurpose Danube – Sava channel

The most important project related to the use of the potential of the Danube and Sava is the Multipurpose “Danube-Sava channel”, which would better connect the rivers Danube and Sava, shortened the waterway from Europe to the Mediterranean Sea, and enabled the development of ports and harbors in the interior counties along the route of the canal which would enable the development of the economy and other activities

related to waterways and urban development, provision of water for irrigation in agriculture, forestry, environmental protection, etc. In addition, the project of arranging the Sava waterway and raising the class seaworthiness to category IV would re-establish international traffic to Sisak.

5.3.4 HUNGARY

5.3.4.1 Already finished port investments

Development of the Győr-Gönyű Public Port

Port: Győr-Gönyű Public Port

25,3 million EUR

Duration: 2015-2017

General objectives of the project are

- Better integration of the country into the European economic circulation and the more efficient utilization of the potentials of emerging markets through the development of the transport infrastructure
- Improving the intermodality of transport to improve the competitiveness of businesses and the alternative accessibility of regions.

Work

- Construction of a vertical quay wall (five berths, one of those is a service berth (green terminal)).
- Development of direct railway loading (track relocation, and construction alongside the newly constructed quay wall (berths)).
- Public utility infrastructure development on areas behind the quay walls (industrial park area).
- Construction of a two-story office- and service building.

Parallel to the port infrastructure development works were constructed the newest and most modern Wuppermann site for (steel) flat products, which started its production in 2016. A high-tech combined pickling and hot-dip galvanizing line with a processing capacity of 500,000 tonnes of steel per year is the heart of the site. Wuppermann Hungary employs over 180 people.

Implementation of intermodal capacity improving developments in Komárom port

Port: Komárom

- 2,5 million EUR
- Duration: 2015-2017

The general aim of the project is to interconnect different transport modes, transport infrastructure and intermodal development of economical nodes. Komárom port has favourable geographical capabilities, giving an opportunity to become decisive logistic player of the wider region by means of conscious developments.

The capacities created by the entirety of the international waterway (appropriate water depth), railway, highway, and state border offering exceptional possibilities. Port of Komárom is Danube's last such reserve which is suited for distribution, transshipment, or entirely new purpose on the grounds of the size of its territory.

Modernisation of the cargo port, and modernization of ship's transshipment system via construction of a vertical quay wall. Implementation of open storage site for goods and containers.

Acquisition of equipment expanding the service offer of Port Danube Kft

- Port: Komárom
- 82.000 EUR
- Duration: 2015

One of the equipment is a unique belt conveyor system adapted to local special needs, which is primarily used for bulk goods - e.g., cereals, fertilizers, pellets, etc. – and has a capacity of at least 150 tonnes per hour for cereals. The other equipment is a Bobcat S570 loader with bucket.

Establishment of mobile flood protection wall in Csepel Freeport

- Port: Csepel Freeport
- 4,5 million EUR
- Duration: 09/2017-11/2019

The object of the project is to construct mobile flood protection wall for the protection of the whole territory of port, and the ambient inhabited area.

Specific objectives are:

- Building new flood defense embankment.
- Covering existing flood defense embankment crest.
- Acquisition of mobile flood protection wall.
- Building warehouse for the elements of the mobile flood protection wall.

Thanks to the mobile dam, high water levels and increasingly frequent flood situations will not result in intermittent shutdowns in the future.

Development of a logistics service center in Port of Adony

- Port: Port of Adony

- 1,25 million EUR
- Duration: 2018-7/2021

Among the logistics services the handling of bulk fertilizers, such as: intermodal transshipment and storage, is playing an increasingly important role. In response to the growing demand, Adony Logistics Center Ltd. is developing its services related to the loading, storage and handling of fertilizers, which include non-licensed infrastructure investments and equipment purchases as follows:

- Insulation of drainage ditches, covering with concrete slabs.
- Construction of rainwater drainage (ditches) in the fertilizer warehouses.
- Modernization and expansion of the electrical systems of the warehouses.
- Increasing the area of paved car and truck parking areas.
- Acquisition of a comprehensive IT system.
- Acquisition of a big-bag bagging line.
- Acquisition of two high-performance fertilizer bucket loaders
- Development of the energy network by procuring a solar cell system.

Machine and software investment at Adony Logistics Center Ltd.

- Port: Port of Adony
- 0,225 million EUR
- Duration: 2020-12/2021

The project will include the purchase of two front loaders and one commercial software. The front loaders to be procured will increase the overall capacity of the warehouses, which allows increasing the number of executed loading orders, customer order turnaround time is reduced, resulting in greater customer satisfaction, ultimately will result in more orders. The shortening truck and ship loading times also mean savings for the customers, which increases competitiveness and thus significantly improves the ability of the company to retain manpower.

The commercial software to be purchased supports the commercial activity by which administration becomes more efficient, thanks to real-time decision supporting tools it will also be possible to carry out a larger trade volume.

PAN-LNG-4-DANUBE⁸

The Action would have been implemented in Hungary in Csepel Freeport in the southern part of Budapest, which is part of the inland waterway (IWW) Core Network Corridor Rhine - Danube. The objective of the Action was to accelerate LNG availability for Danube IWW transport at this tri-modal core port by deploying a fixed LNG refuelling station. This station would have served not only LNG propelled vessels but also LNG trucks and possibly trains as well. The application originally contained also the retrofit of a passenger ship and a bunkering ship, however, as the commission retained these activities not strongly linked to the CEF goals, furthermore, considered them more linked to truistical purposes (and revenue generating activities), the CEF grant was reduced.

However, as the non-eligible project component form an important part of the pilot concept, Hungary was committed to realize the passenger ship retrofits from national financing.

The Action studied the design of the innovative LNG related infrastructure and disseminated appropriate related results. Building plans were finalized, regrettably implementation was cancelled, because grant agreement request was not approved by INEA, and national administration did not cover financial gap.

Development of the Csepel Freeport regarding expansion of capacity II. - preparation⁹

- Port: Budapest, Csepel
- 1,05 million EUR
- Duration: 07/2018 – 03/2021

Preparation of a complex development aims the development of the port infrastructure and the increasement of intermodal capacities.

The project will include preparatory work for the development, including a feasibility study and design work. During the project, IWT related, railway, road, and public utility infrastructure developments will be prepared. The physical completion of the project is expected on March 31, 2021.

Water-side developments

- The development of the south-east corner of the commercial basin no II.

⁸ DT1.1.3. Chapter 7.1.1.

⁹ DT1.1.3. Chapter 7.1.1.

- Reinforcement and dredging of the entrance and north side of the Petroleum Basin.
- Renovating, strengthening of vertical quay walls to the required degree, construction of accident-free barriers.
- Rehabilitation of sloping riverbank on the riverside.

Railway network developments

- Renovation of marshalling tracks and harbour backbone rail track.
- Installation of railway bridge scale.

Road network developments

- Wireless road and Mirelite road reconstruction.
- Construction of road for the accessibility of development site.
- Grain warehouse road reconstruction.
- Petroleum road reconstruction.

Public utility infrastructure developments

- GIS system for traffic management and trimodality.
- Expansion of the port fiber backbone network.
- License plate recognition, access control, and traffic information and/or control system.
- Modernization of the public utility network in the already built-up areas of the port.
- Port area lighting: illumination of berths at all three basins.
- Construction of water and electricity supply facilities in the south-east corner of the basin no II.
- Renovation of fire water network in the vicinity of existing properties.
- Construction of water, firewater, and electrical connection to the Petroleum Basin.
- Public utility infrastructure development on the development area.

5.3.4.2 Currently ongoing projects/investments

The intermodal development of the Port of Baja

- Port: Port of Baja
- 12,2 million EUR
- Duration: 08/2017-unknown

The following project elements will be implemented within the framework of the planned development:

- Construction of new quay, associated road and parking lot.
- Rehabilitation of the vertical quay wall at a length of 292.5 m
- Heavy load quay implementation.
- Development of the waste acceptance point (Green Terminal)
- Construction and reconstruction of railway tracks.
- Installation of rail loading equipment.

The implementation of the planned investment will promote the increase of the existing service level of the port of Baja, the development of the port infrastructure and the intermodal logistics center, and the increase of capacity. The infrastructural development of the current port has been partially implemented in recent decades, but the condition of the existing infrastructure needs to be further developed in terms of roads, railways hydraulic engineering facilities, and existing public infrastructure utilities. In the interest of increasing the port's intermodal capacity, and raising the amount of water transported freight, it is inevitable to develop infrastructure.

Upgrading Mohács Border Port to National Public Port

- Port: Mohács border port
- 15,8 million EUR
- Duration: 2016-unknown

The aim of the project is to build a new National Public Port on the Danube section belonging to Mohács (between sections 1448 + 660 km - 1449 + 000 km). Brief description of the planned port:

- 330 m vertical quay wall, three berths (as the extension of the border port's vertical quay wall)
- Container outdoor storage area: 25900m²,
- Connecting road construction.
- Reconstruction of existing railway tracks, construction of two loading tracks.
- One bridge crane.
- One container crane.
- Warehouse in the logistics center.
- Utility facilities, environmental ancillary facilities, gates, property protection.

Status of implementation:

The Grant Agreement was concluded, construction contract was signed on 22/06/2020.

5.3.4.3 Planned investments (near or distant future)

Establishment of a new trimodal logistics centre in or close to the capital¹⁰

To meet the continuously growing demand for freight transport and its transfer to rail, the modal shift must be as close as possible to the city. By doing so, given Budapest's central location, to be a centre where rail-road, rail-rail and possibly air-rail and ship-rail transfers can be made.

Improving the navigability of the Danube between Szob and the southern border¹¹

As a result of the water level of the Danube and the draft of vessels, the number of navigable days decreased to less than 250. Therefore, the idea contains the improvement of navigability at 31 locations over 52 km but also aims to improve the number of navigable days on the Danube for more than 250 days. (With 25 decimetres draught)

¹⁰ DT1.1.3. Chapter 7.3.1.

¹¹ DT1.1.3. Chapter 7.3.4.

5.3.5 ROMANIA

5.3.5.1 Already finished port investments

Port of Constanta

Modernization of the port infrastructure by deepening the channels and port basins for the safety of navigation in the Port of Constanța

During some studies carried out in the Port of Constanța, it was found that the existing depth of the channels (entrances) and port basins is lower than the designed one, due to the fact that at the time of the execution of the works, the existing technology did not allow the continuation of the works on the hard, rocky terrain. The differences in the depths of the basins do not ensure the efficient use of the port infrastructure. The project consisted in:

- the execution of investment dredging works for the deepening of some areas of the harbour basins and the access channels to the levels required by navigation safety and the initial project of the port;
- insurance of the stability of the quays in the *Working Port* (area situated near the entrance on the Danube – Black Sea Canal), as a result of the deepening from -7m to -9m;
- construction of a new mooring front
- purchase of a measurement vessel.

The dredging works started in May 2019 and were completed in October 2020. Works related to the quays in the Working Port were completed in August 2021. The hydrograph vessel was received in August 2020, and the training program for the navigational staff and operation of the hydrographic system was completed.

The cost of the investment was 50.4 MEURO and the financing was provided by the Operational Programme for Large Infrastructure 2014 - 2020.

Modernisation of the berth no. 80 in the port of Constanta

The infrastructure addressed in the projects was necessary for the cereal operation activities carried out at berth no. 80 of Constanța Port. The modernization of Berth 80 consisted in the preparation of a mooring front with a total length of ~490 m, which allows the simultaneous mooring of a large-capacity maritime vessel, as well as barges of max. 3000 t arranged in "double row". As part of the investment objective, a new railway line with a length of 4,114 m was built. The investment started in 2018 and was completed in 2021.

The total budget of the project was 5.74 MEURO and the financing was assured from the Large Infrastructure Operational Programme.

5.3.5.2 Currently ongoing projects/investments

Port of Constanta

Modernization of the network for electricity distribution infrastructure in Constanța Port.

The project consists of the construction of: a 110/20kV station, the modernization of 7 transformer stations, the construction of 2 new transformer stations, the construction of LES (underground electric lines) over a length of 21 km and the construction of a dispatch centre, these elements being managed by The Administration of Maritime Ports SA Constanța. Infrastructure elements managed by E-Distribuție Dobrogea that will be created are: 110kV connection station, 110kV LES on a length of 3.5 km. The contract for the design and execution of works is ongoing.

The value of the investment is 23.44 million Euro and the financing is provided by Large Infrastructure Operational Programme 2014 - 2020.

Extension of the berths 10 and 12 in Midia area, including reinforcement behind the quays

The project "Extension of berths 10 and 12 in Midia area, including reinforcements behind the quays" is promoted as part of a complex and staged project to modernize the infrastructure in Midia area of Constanta Port and align it to European standards. The development of the mooring infrastructure has a practical utility and an added value to the functionality of the area, generally for the development of a hub for the transportation of petroleum products and liquid goods as well as a cluster for related services and the providers of services for oil equipment maintenance.

Within the project, berth 10 will be expanded with a block quay, over a length of 53.90 m, perpendicular to the existing quay and will be completed up to the pier of berth 9 with a slope protected with blocks of the same type as the protection of the pier of berth 9. Thus, new territories will be created for the exploitation of the Midia area. In order to ensure the access of ships to the wharf, dredging works are necessary to ensure the depths of - 6 m dMN both along the quay and on the access channel with a sufficient width for the manoeuvring of ships. Extension of berth no. 12 involves the creation of a quay founded from prefabricated concrete blocks, over a length of 306 m, as well as dredging works to ensure the depths of - 8 m dMN both along the quay and on the access channel with a sufficient width for the manoeuvring of ships. The dredged material will be used for the fillings behind the discharge prism of the quay, to create the structure of the future platform. As part of the investment objective, works will also be carried out to connect and provide utilities for ships (water supply and electricity). The contract for the design and execution of works is ongoing.

The value of the investment is 16.93 million Euros and the financing is assured from Large Infrastructure Operational Programme 2014 – 2020 and own sources of the port administration.

Port of Galati

Multimodal Platform Galati – removing major bottlenecks by modernizing the existing infrastructure and ensuring the missing connections for the network of the central corridor Rhine-Danube/Alps

The purpose of the project is to create an intermodal terminal with a capacity of 150,000 TEU in the Port of Galati. The project has four implementation stages:

- the modernization of the quay related to berths 42-46 in the Galați Port (stage I), with a length of 868 m;
- the modernization of the road infrastructure in the area of the multimodal platform (2,286 m) and the relocation of a railway segment (stage II);
- the development of the storage and handling platform with an area of 115,480 sqm (stage III)
- set up the entry/exit area in the terminal - the access area on 33,682 sqm (stage IV).

For the first two stages described above, the execution of works is ongoing. The project is implemented by a Consortium made by the National Company Maritime Danube Ports Administration (APDM), SC Port Bazinul Nou Galati and Metaltrade In & Out Gate SRL. The amount of the investment is 157.95 MEURO. The financing is done through:

- CEF Transport
- Large Infrastructure Operational Program (POIM 2014-2020),
- Own sources of the port administration and of the private partners.

Vertical quay on berth 32 in Portul Bazin Docuri Galati

Berth 32 is located in the Docuri Galati Basin, at Mm 80, on the right side of the basin and offers a mooring front of 70 m. The quay was built between 1886 and 1900, and the alignment of the quay is further back by 7 m, compared to berth 31, which was in the process of being modernized with funding secured from the state budget. Due to the long-term exploitation, the quay of berth 32 has suffered numerous damages that could endanger, under the action of loads on the platform, the general stability of the harbour front of operation and the existing constructions behind it. Berths 31 and 32 are used for handling cereals. The works are ongoing.

The value of the investment is 5.46 MEURO and the financing is assured from Large Infrastructure Operational Programme 2014 – 2020.

Port of Brăila

Port of Braila - Port infrastructure works in the Dock Basin area

The main works that will be carried out are:

- modernization and rehabilitation of berths 31, 32, 33, 34, 35, 36, 37, 38 with a total length of 915 m and the consolidation of the pier basin on a length of 90 m;
- rehabilitation of public utility roads within the port area DUP 3, DUP 5, DUP 6, on a total length of 2,811 m
- the development and modernization of the utility infrastructure of the port, such as: the construction of a new transformer station for the electricity supply to berths 31-38; lighting on the berths and on the public utility roads that will be modernized; the construction of drinking water supply networks for the supply of drinking water to ships and to port consumers; the construction of sewage water networks.

The value of the investment is 26.24 MEURO and the financing is ensured from Large Infrastructure Operational Programme 2014 – 2020. The works are ongoing.

Port of Tulcea

The Development of Tulcea Port – stage I

The Port of Tulcea is one of the main ports on the Danube maritime sector and is included in the transport network of European interest (TEN-T), comprehensive network. The Port of Tulcea is located on the Danube between Mm 42 and Mm 34 and has 4 locations managed by National Company Maritime Danube Ports Administration: the industrial port, the commercial port, the AMIC ballast berth and the Marina port. In 2020, the Government approved the investment for the modernization of the infrastructure in the commercial port and the industrial port. The works consist in:

- the modernization of berths on a length of 230 m;
- construction of vertical quays with a length of 423 m;
- new port territories with an area of 4,000 sqm;
- modernization of road infrastructure on a length 125m;
- modernization and reconfiguration of utility networks;
- capital dredging.

The value of the investment is 13.57 MEURO and the financing is assured from Large Infrastructure Operational Programme 2014 – 2020.

5.3.5.3 Planned investments (near or distant future)

Port of Constanta

Barge terminal - Stage II

The investment consists in the extension of the barge terminal to avoid congestion of the port basin and to cover the traffic demand. The barge terminal is located in the basin of the Port of Constanta, close to the entrance of the ships on the Danube – Black Sea Canal and its purpose is to accommodate the barges and pushers waiting for operations (charge / discharge) in the port of Constanta. The barge terminal will be equipped for providing port facilities to the pushers, like electricity and water.

The estimated cost of the investment is 37.2 MEURO. The financing is foreseen from Operational Program for Transport 2021-2027.

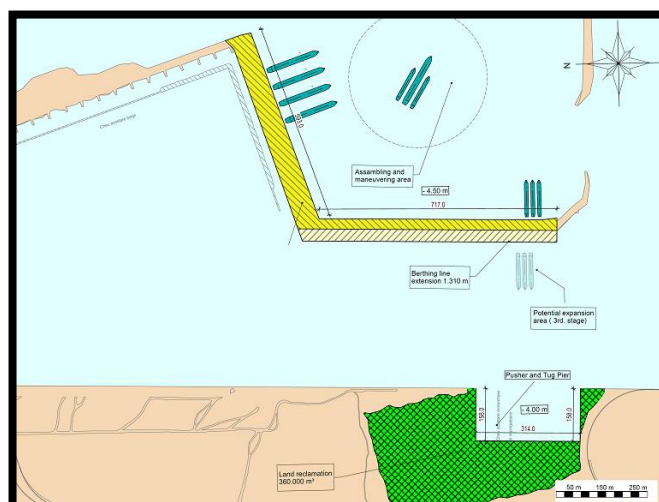
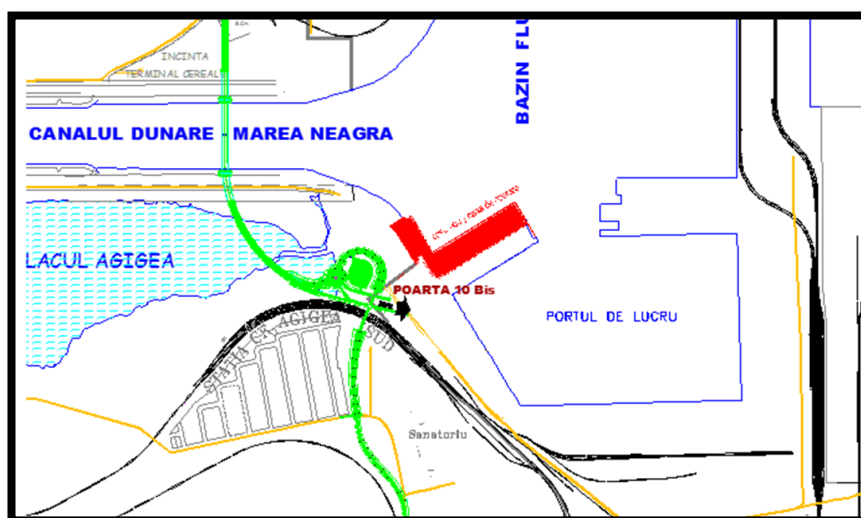


Figure 25 Quay near the entrance of the Danube-Black Sea Canal (towards the working port)



By creating the new access to the Port of Constanța Sud - Agigea through Gate 10 bis, close to berths DPL2 and DPL1, the development of new port areas, including new berths in this area can become attractive and arouse the interest of new investors to carry out activities and operation of goods near the entrance to the Danube-Black Sea Canal. The works consist in: extension of the quay in the NE direction, towards the entrance of the Danube - Black Sea Canal, by building a new quay; construction of work platforms and storage spaces behind the quay; providing exclusive access routes from the road bridge to the new terminal.

The estimated cost of the investment is 17 MEURO. The financing is foreseen from Operational Program for Transport 2021-2027.

Rehabilitation of the deep-water breakwaters in the port of Constanța

Capital repairs are necessary to Northern, as well to Southern breakwaters of the port of Constanta. The breakwaters need capital repairs in order to prevent future damages caused by strong storms in the Black Sea. The investments will maintain safe navigation and operations conditions in the port basins. The estimated value of the works is 25 MEURO for the North breakwater and 23.6 MEURO for the Southern breakwater. The financing could arise from Operational Program for Transport 2021-2027.

Figure 26 Dredging in the Port of Constanța, the Midia area and the Port of Mangalia (including the widening of the access mouth)



Increasing the water depths in the port basins it is a request of port operators and shipping companies and increase the attractiveness of the port. Studies made by the National Company Maritime Ports Administration Constanta have estimated that the

investment is about 100 MEURO. The financing could arise from Operational Program for Transport 2021-2027.

Figure 27 Piers III S and IV S - Completion of infrastructure works, access roads and utilities, for the development of specialized terminals in the port of Constanta South



The investment consists in creating new port territories in the Southern area of the Port of Constanța, in order to extend the activities in the port with dedicated terminals. From studies developed until now resulted that there can be created 12 deep depth berths (-16.5 m) + 5 deep depth berths (-19 m), an operational platform of 155 ha and a logistic area of 36 ha.

Estimated cost: 2.5 MEURO for Feasibility study and 500 M EURO for works

Funding source: European Funds

Port of Galati

Modernisation of RO-RO - Port Bazinul Nou Galati

In the port area *Port Bazinul Nou Galati*, along the berths 42 - 44, the investment Galati Multimodal Platform is ongoing. The purpose of project the Modernisation of RO-RO -

Port Bazinul Nou Galati is to continue the works in this port area, by modernising the mooring front related to berths 39 – 41, with a total length of 455 m (300 m vertical quays, 109 walled quays, 46 m RO-RO ramp). A RO-RO ramp will be set up at berth 41 for loading/unloading vehicles. The port platforms will be modernized on an area of 13,300 sqm. The road in the port area will be rehabilitated on a length of 418 ml. Utilities networks will be modernized.

The estimated cost of the investment is 35.13M EURO. The financing is ensured from Large Infrastructure Operational Programme 2014 - 2020.

Development of Mineralier Port

Portul Mineralier is one of the four locations / areas of the Port of Galați. The area was design to serve mainly the steel plant of Galati, situated near close, by handling cargo for providing row materials to the steel plant and for forwarding world wide it is products. There are foreseen modernisation works to the quays (berths 1 – 4 with a length of 400 m, berths 5 – 8 with a length of 800 m and berths no. 9-16 with a length of 800 m) and to the port platforms.

The estimated cost of the investment is 47.15 MEURO. The financing will be ensured from Large Infrastructure Operational Programme 2014 – 2020 and Operational Program for Transport 2021-2027.

Port of Brăila

Brăila Port - port infrastructure works on the port sector situated along the Danube River.

In the port of Braila loading / unloading operations are carried out at berths situated on the a port basins as well as on berths situated directly along to the Danube River. The mooring places along the Danube River are aged (80-100 years) and intensively used, so their modernisation was necessary for the effective and safety of operations. As part of the investment, the quay related to berths 26 and 27, with a total length of 350 m, will be modernized, the road transport infrastructure will be modernized – road DUP4, within port area, on a length of 312 m and the utility networks will be modernized (electrical installations, water supply, rainwater drainage, drinking water supply).

The estimated cost of the investment is 25.83M EURO. The financing is ensured from Large Infrastructure Operational Programme 2014 - 2020.

Port of Giurgiu

D.A.N.U.B.E. – Access network to the Danube – Unblocking the traffic in Europe through the development in Romania of a high-quality TEN-T port infrastructure in optimal economic conditions – Port Giurgiu

Works to be executed within the project are the following:

- Ramadan port area. The quays at berths 1 and 2 will be rehabilitated in the version with a vertical quay, L = 400 m, and three berths will be created, each with a length of approx. 133 m. Berths no. 5 and 6 will be rehabilitated, sloped quays, L = 240 m.
- Veriga basin area. One of the important problems faced by the port authority and economic operators that carry out activities in the Veriga Basin is the access of ships/barges in this basin, which does not ensure safe entry and ships maneuvering. Access conditions for ships/barges in the basin will be improved, by ensuring a width of the entrance channel of 60 m. The entrance will be signaled by 2 lighthouses. In addition to the works planned for the recalibration of the entrance in Veriga basin, the following types of works will also be carried out: vertical quays on a length of 220 m; ramp for launching / lifting intervention boats from the water, over a length of approx. 50 m; rehabilitation of the platform at berth 6 and the access road to berth 6;
- The Smârda arm and the downstream area of the Plants Basin. In order to be able to ensure access conditions on the Smârda arm and for wintering in the Plants basin (in the area downstream from the Smârda arm), it is necessary to dredge the alluvial material accumulated over time.

The estimated cost of the investment is 28.47M EURO. The financing is ensured from Large Infrastructure Operational Programme 2014 - 2020.

Port of Calafat

Expansion of Calafat port infrastructure (km 795) and systematization of the port's railway system - stage I

Calafat Port is located on the left bank of the Danube between km D 796 – km D 793 and is included in the central TEN-T network. The following works will be carried out:

- Modernization of the existing RO - RO ramp ~ 60 m;
- Modernization of berths 2 and 3 on a length of 200 m;
- Restoration of the vertical quay from berth 4 with a length of 100 m;
- Extension of the vertical quay at berth 4 with 30 m;
- Construction of berth 5 with a length of 130 m;
- External and internal networks for utilities (electricity, water, sewage);
- Installations for firefighting;
- Secure the perimeter and area lighting;
- Dredging in the access area to the operating berths;
- Road rehabilitation in the port area.

The estimated cost of the investment is 14.39M EURO. The financing is ensured from Large Infrastructure Operational Programme 2014 - 2020.

Port of Drobeta Turnu Severin

Development of the TEN-T Core port Drobeta Turnu – Severin by building a trimodal terminal (feasibility study)

The feasibility study is financed from CEF and will be finalized at the end of 2022. Within the feasibility study, the following works shall be considered, for the creation of modern facilities for handling containers:

- New vertical channel on the length of approximately L 150 ml;
- The port platform approximately 5,000 sqm;
- RO-RO ramp;
- Storage facilities,
- Sorting warehouse;
- Road and rail access;
- Equipment for the terminal (portainer cranes, container handling crane);
- Utilities networks.

Additionally, a feasibility study is ongoing for the modernization of port infrastructure in the port of Drobeta Turnu Severin. This feasibility study is financed from the state budget and its result are expected at the end of 2022.

5.3.6 SERBIA

5.3.6.1 Already finished port investments

Port of Bačka Palanka

- Data not available.

Port of Bogojevo

- Data not available.

Port of Prahovo

- Data not available.

5.3.6.2 Currently ongoing projects/investments

Port of Bačka Palanka

- There are no IWT related ongoing port investments.

Port of Bogojevo

- Ongoing project of the expansion of the capacities of the Port of Bogojevo include building a port basin with operational quay. In that way port will be partly a port with the open operational quay and partly a port of basin type for transshipment of various types of cereals, oilseeds, fertilizers, sand, gravel, various cargoes and a smaller number of containers which could develop container transport on the Danube. In addition, a terminal for storage and transfer of oil and oil derivatives is anticipated in the basin part of the port and it will be territorially separated from the rest of the port. Also, there will be a possibility of supplying vessels with a fuel.

The planned facilities and areas are:

- vertical quay
- semi-vertical quay
- internal road network
- railway tracks (connection with all terminals)
- open storages and temporary storages for gravel and sand
- open storage for containers
- open storage for general cargo
- fuel storage terminal
- new silos with auxiliary equipment
- new closed storages
- new transformer stations

- parking lot for trucks
- administrative building
- new truck scales
- new water supply system
- wastewater treatment plant with shaft pumping station
- oil and gasoline separators for atmospheric sewage

Also, a new, special fire water supply system with a pumping station next to the port basin is missing, as well as new sewage and atmospheric water sewage systems with auxiliary devices.

Within the port area, the following infrastructure objects are planned: terminal for liquid cargo, terminal for bulk cargo, terminal for general cargo and containers.

Liquid cargo terminal - Infrastructure and superstructure objects of the liquid cargo terminal (transfer station, operational shore, reservoirs, command building, etc.) in the area of 6.0 ha are planned within the basin of the port.

Terminal for bulk cargo - For the needs of transshipment and storage of general cargo and bulk cargo (primarily gravel and sand), an area of about 1.0 ha is planned. The length of the operational quay of this terminal is 110 m. Gravel and sand separation equipment can be installed within the area of terminal.

Terminal for general cargo and containers - For the purpose of forming a container terminal, an area of 1.0 ha with appropriate infrastructure and superstructure is planned within the port. The length of the operational quay (vertical quay) of this terminal is 120 m.

The total investment for the realization of the Project for the construction of new port capacities of the Port of Bogojewo amounts to about €64.5 million for the period 2022-2027.

Total investments consist of investments in infrastructure worth about €42.5 million and investments in superstructure of about €22.0 million.

Port infrastructure consists of:

- Quay construction of the pool;
- Open flow quay construction;
- Open warehouses;
- Administrative building, laboratory and external arrangement (vehicle entrance control with scale, railway entrance control, fence, gate, landscaping);
- Internal traffic roads and traffic connection (preparatory works, earthworks, pavement construction);
- Port railway tracks and reconstruction of the existing railway (preparatory work, work on the lower machine, procurement of material for the upper machine, work on the upper machine);
- Hydro-construction works (formation of the territory and water area of the port);

- Hydrotechnical installations (water supply network, well, sewage network, waste water separator, etc.);
- Electrical installations (power supply, power installations in buildings, telecommunications and signal installations);
- The infrastructure of the oil derivatives terminal (dock-pontoon for barges, tank area, external pipe distribution, fuel pumping station, truck transfer station, unit for receiving volatile gasoline vapors, pumping fire station, mixed fire station, oily water separator, automatic control and monitoring system, construction facilities, power section, roads, complex security, diesel generator, compressor station, transformer station);
- Fire alarm and extinguishing system;
- Track with accompanying equipment and railway transfer station.

The port superstructure consists of:

- Closed warehouses;
- Silos (mechanical technological equipment, mechanical assembly, construction materials and works, electrical equipment);
- Fire protection pumping station;
- Superstructure of the oil derivatives terminal;
- Mechanical equipment for bulk cargo (technological equipment for gravel and sand, procurement, mobilization and installation of a pontoon pier, production, delivery and installation of two truck scales);
- Mechanical equipment for containers and general cargo (procurement and delivery of machinery for container terminal and terminal for general cargo);
- Tugboat.

As part of the feasibility study, the bunker station was also analysed as an option available to the potential concessionaire.

The bunker station is not an integral part of the conceptual project, because in the analysed version, no construction permit is required for the installation of the bunker station. Estimated investments in the bunker station amount to EUR 1,500,000.

The apron area is the most important part of the port terminal (length app. 630 m, width app. 15,5 m) and it is planned to consist of several segments which will in time enable an increase of cargo traffic volume to more than 600.00 t. By that increase, the Bogojevo port can be classified into the higher rank of EU Core TEN-T network of the port terminals.

Port of Prahovo

Expansion of port capacities of the Port of Prahovo, includes:

- rehabilitation, reconstruction and extension of the operational shore, including one covered berth;
- increasing the territory of the Port by filling in the winter shelter area;
- construction of closed storage areas on the enlarged territory of the Port, with a packing room for bulk cargo, other bulk cargo in transport and delivery, general cargoes predominantly but not exclusively related to the chemical industry;
- reconstruction and construction of open floor warehouses for general cargo, containers and other packaged goods;
- rehabilitation and reconstruction of silos for cereals and other granular goods;
- modernization of port machinery and other equipment and devices;
- reconstruction and construction of port roads, truck parking lots, car parks;
- reconstruction of the existing and construction of a new access road to the Port;
- reconstruction and construction of industrial tracks of the port railway;
- reconstruction and construction of port infrastructure (installation of water supply, sewerage, electricity and signal network, outdoor lighting);
- construction of an administrative building, workshops with storage of tools and spare parts, control facilities for car entrances and car scales, fences, gates.

The planned expansion of the port area refers also to the construction of a terminal for dangerous goods and the terminal for the reception of used oils and wastewater from ships (Green Terminal).

Downstream from the border of the winter shelter, an embankment is planned, partly in the bed of the Danube and partly on the coastal part of the right bank, to the border defined in the PDR. It is planned that the area of the winter shelter and the downstream part of the right bank of the Danube, by embankment at the level of the territory of the Port, will be transferred from the water to the land surface and thus the new territory of the Port will be realized.

- The following types of the terminals are planned in the Port Territory Zone:
- dry bulk goods terminal;
- liquid cargo terminal;
- container terminal;
- hazardous goods terminal;
- general cargo terminal.

The total investments for the realization of the Project for the construction of new port capacities of the Port of Prahovo amount to about €62.1 million.

The total investment consists of investments in infrastructure worth around €30.7 million and investments in superstructure of around €31.5 million.

Port infrastructure consists of:

- • Hydro construction works;

- • Quay construction and operational shore (vertical quay at berth 8, new berths, reconstructions, extensions, external crane path, etc.);
- • Internal traffic roads and traffic areas, access roads, bridge, port tracks, etc.;
- • Hydrotechnical installations (water supply network, sewage system, waste water separator, etc.);
- • Electrical installations and communications (transformer station TS-2, cable drainage, external cable network, external lighting, application forms, vehicle scales);
- • Infrastructure of the Green Terminal (technological and mechanical equipment, electrical and hydraulic installations, construction facilities).

The port superstructure consists of:

- • Closed warehouses;
- • Open warehouses and manipulative surfaces;
- • Halls and workshops;
- • Machine handling equipment and mechanization (packing line and fertilizer storage in "BIG BAG" bags and fertilizer delivery line to the packing house and warehouse, disassembly and assembly of new crane rails, superstructure on berths);
- • Railway tracks (reconstruction and extension of coastal tracks);
- • Port electrical installations in facilities (including transformer station);
- • Telecommunications and signaling installations;
- • New access road (with overpass);
- • Tugboat;
- • Excavator;
- • Fence, gates and landscaping;
- • Project of horticultural arrangement of green areas;
- • Navigation signaling.

Reconstruction and construction of the missing primary infrastructure in the Port will significantly improve the operation of the port and its transshipment and operational performance. The construction of a new green terminal for the disposal of ship waste will significantly improve the level of environmental protection.

Capacity expansion of the Prahovo Port through construction of new storage capacities for bulk and general cargo (predominantly, but not exclusively related to the chemical industry) as well as modernization of port equipment, will create additional value for the economy operating in port's hinterland of the Bor district, but also for the companies that operate in eastern Bulgaria and iron industry of North Macedonia.

Further development and construction of new capacities in the Port of Prahovo is expected to enable the port to become qualified for inclusion in the core of the TEN-T river port network.

5.3.6.3 Planned investments (near or distant future)

Port of Bačka Palanka

According to the Strategy for the Development of Waterborne Transport of the Republic of Serbia 2015-2025¹² (hereinafter: the Strategy), the port development plans in Bačka Palanka are strategically oriented towards the construction of a container terminal, a liquid cargo terminal, as well as a grain transshipment and storage terminal. In order to enable the construction of these terminals, it is necessary to build a coastal fortification and a vertical quay in the length of 480 m, a grain silo with a capacity of 60,000 tons, procurement of new handling equipment to increase capacity, and construction of industrial tracks to connect this port with the national railway network.

It is necessary to construct industrial railway trucks in order to connect this port with the national railway network.

The General regulation plan with elements of the Detailed regulation of block number 106 in Bačka Palanka ("Official gazette of the municipality Bačka Palanka ", no 18/2007) and the General Regulation Plan of the settlement of Bačka Palanka ("Official gazette of the municipality Bačka Palanka ", no, 16/11 and 22/12) foresee a construction of new port capacities and expansion of the current port.

According to the port development plans, the industrial track for the port of Bačka Palanka will start from the open track of the railway Gajdobra – Bačka Palanka, in front of the level crossing with the main road (before the overpass from the direction of Gajdobra). The industrial track is brought to the port via a marshalling yard, which is located before the protective embankment of the port complex in Bačka Palanka.

According to the Strategy, the required investment in the port infrastructure is estimated at 5.1 mill. euros, and in the port superstructure at 5.6 mill. euros. The precise amount to be invested in the expansion of Port of Bačka Palanka area will be known after the relevant documentation has been made and adopted.

The implementation of these plans depends primarily on the levels of economic activity in the region and on port area expansion in accordance with the Law on Navigation and Ports on Inland Waters. A prerequisite for the expansion is an agreement between

¹²Official Gazette of the Republic of Serbia, no. 3 of 14 January 2014.

the Bačka Palanka Municipality, the Port Governance Agency and the current port operator regarding the property status of the land which could be used to fan out the port area. The rights of use are currently vested in “Port Bačka Palanka” d.o.o. A larger port area is highly important for the growth of port industry in Bačka Palanka and the overall economy in this municipality.

Port of Bogojevo

- Data not available.

Port of Prahovo

- Data not available

5.3.7 SLOVAKIA

5.3.7.1 Already finished port investments

Port of Bratislava

Historically and functionally, the cargo port area consists of three parts. From the original older, built at the turn of the 19th and 20th centuries (beginning of construction in 1897) - the so-called Zimný prístav (Winter port), consisting of two basins (North basin and South basin) and a new part Pálenisko built in the early 80s of the 20th century (1975 - 1983), whose water part is one basin (Pálenisko basin) with approximately equivalent spatial capacity and aquarium area to both basins of the Winter port. The third part of the port of Bratislava is the NOL basin (also called Lodenica / Shipyard) located east of the Pálenisko basin.

Building Pálenisko basin with relevant infrastructure and superstructure was the last major investment in the current port area.

Port of Komárno

In the cargo-freight port, there are un-mooring elements, stairways to transshipment positions on the slanted bank, and service walkways. These are, however, mostly in poor technical and operational condition, as can be seen in the photographs. Some are in the ownership of the waterway administrator (SVP, some in the ownership of the port operator.

The current technical condition of the infrastructure and superstructure in the area of the Port of Komárno is largely unsatisfactory – this infrastructure and superstructure is greatly outdated and maintained only to the extent necessary. Mainly the revitalisation of the equipment (stairways, bank walkways, un-mooring elements, vertical transshipment edges, etc.) of the public port is necessary, which is used by the crew members of ships or other persons in the framework of the public port, to the level of European standards.

There is no available information about recent projects since infrastructure and superstructure is owned by private port operator.

5.3.7.2 Currently ongoing projects/investments

Currently there are no ongoing projects related in terms of physical realisation. Ref. to the chapter with currently ongoing projects/investments in terms of physical realization.

5.3.7.3 Planned investments (near or distant future)

Ref. to 5.1.7.3 Port of Bratislava

Ref. to 5.1.7.3 Port of Komárno

5.3.8 UKRAINE

5.3.8.1 Already finished port investments

Izmail sea port

1. Construction of the object "Part of the complex for storage and transshipment of energy carriers on the territory of SE "Izmail Sea Commercial Port " (production area of 85 km of Danube)".

The investor is Econovatica LLC.

The operation of the facility as a marine terminal is carried out by the port operator LLC "Ville Forte Ukraine".

2. Renovation (modernization) of energy supply systems, introduction of energy-efficient technologies.

In order to improve the efficiency of the seaport operation and reduce operating costs, measures were taken to install equipment for combustion boilers.

The amount of spent funds is 29 thousand euros.

Reni sea port

1. Construction of grain cargo transshipment complex on the territory of warehouse No. 6.

Investor - "Agro Reni" Ltd.

The project envisages reconstruction of the emergency warehouse with the area of 7500 m². Placement of eight storage tanks of 3 thousand tons of grain each on the territory between the warehouse and berth #9. Installation of a mobile grain-loading machine, creation of capacities to receive grain from the wagons and vehicles. OOO "Agro Reni" received the status of the subject of the Free Economic Zone "Reni".

The number of investments is 479 thousand euros.

2. Construction of the complex for transshipment and processing of organic products of LLC "Bio-Line-Reni".

Construction of the transshipment complex of grain cargo of "Bio-Line-Reni" LLC is registered as a subject of the FEZ "Reni".

Investment in the project through an affiliated company LLC "DSL Ukraine" is 59 thousand euros for the purchase of production technological equipment.

9 new workplaces were provided.

The investor is Econovatica LLC. Construction is completed, the object is working in test mode.

5.3.8.2 Currently ongoing projects/investments

Izmail sea port

1. Construction of a modern anchorage place for small vessels (marina)

The construction of a modern marina is an infrastructure project funded by the European Union in the framework of the Joint Operational Program (2014-2020).

Main partner: Isaccea City Hall (Romania)

Term of realization: 24 months

Total amount of investments approx: 580 thousand euro.

A part of this project is construction of a small fleet parking space (marina) for 12 places adjacent to the seafront of SE "USPA" (Izmail sea port Authority).

Implementation of this measure will contribute to creating a competitive tourist product, creating conditions for attracting foreign investment. The project provides for the yacht and boat activities in the amount of 104 units.

This will generate 1337 euros in port dues and 1841 euros as a fee for services provided by the SE "USPA" (Izmail sea port Authority).

Implementation of the project will noticeably contribute to the development of trade in goods and services in Izmail in connection with the development of tourism business.

2. Placement of mineral fertilizers processing complex on berth No.8 and in the area zone on the territory of production and transshipment complex No.1 of SE "Izmail Sea Commercial Port".

Creation of a complex for transshipment, packing and temporary storage of chemical cargoes with the use of energy- and resource-saving technologies and high-efficiency equipment. Increase of throughput capacity by 0.3 million tons.

Attraction of investments in the amount of 270 thousand euros.

Implementation entity - "EKONOVATIKA" LLC.

Implementation of the plan of development of a transshipment complex in full will allow to create from 15 up to 30 new working places.

Currently, the investor is developing a feasibility study.

Additional incomes of SE "USPA" (Izmail sea port Authority) under the project implementation in the form of port charges, use of berths and infrastructure is about 48 thousand euros.

Reni sea port

1. "Grain and tare cargo transshipment complex" LLC "Agro-Reni";

Amount of investments - 1.87 mln. euros (0,92 mln. euros is already used);

Terminal development plan: implementation of the investment project is provided for within the framework of the current Law of Ukraine "On the special economic zone of Reni".

Reconstruction of the emergency floor storage of 7500 m² area, construction of two floor storages at the area of berth 9 for storage and transshipment of grain cargo. Installation of a mobile grain loading machine, reconstruction of railroad tracks leading to the floor storage, creation of capacities to receive grain from the wagons and vehicles.

Project is under construction.

Creation of 90 additional working places.

Investor - "Agro-Reni" Ltd.

Expected results: Increasing of cargo processing capacities up to 0,5 million tons.

Prospects: To date, the investor has repaired the roof of the warehouse, reinforced walls, replaced windows and doors, repaired communications. Automobile and railway scales have been installed. A forklift, a gantry crane Albatros, a diesel locomotive TGM-23b and transporters for loading ships were purchased.

For the storage of grain cargo in the complex №6 was additionally built warehouse № 7a with area of 1200 m², hangar for storage and repair of automotive equipment, warehouse of commodities and supplies.

Construction of floor storage warehouse with the area of 1900 m² was implemented.

Perspective: short-term

2. Construction of bank protection between berths 9 and 15.

Implementation of the measure in the short term is not foreseen, as the available in operating condition capacities do not provide full load and there is no land allotment (no property rights).

Implementing entity: State Enterprise "USPA".

Terminal development plan: The shoreline should contain the Danube riverbed, along which runs the border between Ukraine and Romania. The situation in the area

between berths 9 and 15 of the port is marked by a significant level of erosion processes. Due to the lack of shoreline reinforcement measures, shoreline erosion proceeds, resulting in a significant loss of land area.

Total amount of investments: 9.7 million euros.

The Contractor has strengthened the 148m section of the slope, performed dumping of rock fill covered with metal mesh and concrete poured.

In the section of 138m the retaining wall reinforcement along the whole length and concreting of 80m length is performed.

Expected results: Preservation of production areas of the port, formation of new capacities for cargo handling. Stopping destruction of the coast and loss of not just a land site, but part of the territory of the Ukrainian state. In the future it is planned to build modern oil piers, allowing to increase the capacity of oil products processing up to 0.5 million tons per year.

Perspective: long term. The year of the project completion is 2038.

3. Construction of a complex of temporary storage facilities

Implementation entity: PE "Trans-Expo".

The total amount of investment is 5.7 million euros.

Implementation status: Implementation of the first stage of construction is ongoing - floor storage warehouses of prefabricated type for accumulation and temporary storage of grains have been built. 50% of the project has been implemented. Investments of almost 3,0 mln. euros.

Expected results: Increasing of capacities for handling and processing of grain crops. The implementation of the project involves annual transshipment of up to 0.65 million tons of cargo, depending on the stage (phase) of the project. This will give additional 100 port calls to the sea port of Reni. Revenues of the port for the port calls, the use of berths and port area will be at least 67 thousand euros per year. In three years after the complex reaches the planned production, annual budget payments will amount to 65 thousand euros. Technological equipment worth 162 thousand euros has been purchased at the machine-building plants of Ukraine to implement the project.

Additional 60 working places will be created. Already in the first accounting year it is planned to spend 97 thousand euros for the labor remuneration and to transfer taxes and fees to the budget about 32.5 thousand euros.

Perspective of implementation: short-term. Project end year - 2025.

4. Construction of a grain transshipment complex

Implementation entity: LLC "Reni-Line".

Total amount of investments: 3.1 mln euros.

State of Execution: On-going construction of powerful grain transshipment complex, which includes four independent production facilities. All production facilities are erected in a single technological chain (direct method of transshipment, accumulation, storage, finishing up to necessary conditions). Eight silo storages for 20 thousand tons, complexes for unloading of grain cargoes from vehicles and railway cars, 1500 tons per day each are constructed. Railroad, road and bunker scales are installed. Grain complex is equipped with a system of conveyor belts and ship loading equipment, the capacity of 200 tons per hour.

Expected results: increase in processing capacity up to 0.3 million tons per year, installation of 4 silos (total capacity of 10 thousand tons).

Annual production output will be about 300 thousand tons, of which at least 100 thousand tons will be exported.

Perspective of implementation: short-term

End of project - 2025. Additional jobs for 35 people will be created.

5. Construction of transport and logistics infrastructure facilities for container handling and intermodal transportation in the area of berths #36,37

Implementation entity: "Ukrainian Expeditionary Group" LLC.

Investor - Ukrainian Forwarding Group LLC.

Total amount of investments is 804 thousand euros.

State of Execution: Approval of the investment project.

Expected results: Increased capacity for transshipment and temporary storage of goods, cargo transportation, container handling, intermodal transportation, warehousing.

The implementation of the project involves the annual transshipment of up to 0.1 million tons of cargo. This will give additional 40 port calls to the sea port of Reni. Revenues of the port for the ship calls, the use of berths and port territory will be not less than 108 thousand euros a year.

At least 21 new jobs for residents of Reni will be created.

Perspective of implementation: medium term.

The project will be completed in 2028.

6. Reconstruction of the "Ukrchem" LLC tank farm in order to install a unit for obtaining petroleum products

Implementing entity: LLC "Ukrchem".

Investor - "Ukrchem" LLC.

Total amount of investments: 5.4 mln euros.

State of Execution: continuation of the reconstruction of the petroleum storage depot of "Ukrchem" LLC in order to install the unit for obtaining petroleum products.

Expected results: increase of capacities for transshipment and temporary storage of oil products, organization of cargo transportation.

Project realization supposes annual transshipment of up to 0,1 million tons of cargo. It will give additional 20 port calls to the sea port of Reni.

Additional 100 jobs will be created.

The year of the project completion - 2022.

5.3.8.3 Planned investments (near or distant future)

Izmail sea port

1. Construction of a transshipment complex for bulk mineral fertilizers in the area of berth No. 26

The works were not executed due to the absence of an investor and financing. According to the Development Plan, the implementation of the measure is envisaged in the long term (until 2038 y.).

2. Construction of a transshipment complex for bulk cargoes in the southern part of the bucket (two berths No. 27-28).

The works were not executed due to the absence of an investor and financing. According to the Development Plan, the implementation of the measure is envisaged in the long term (until 2038 y.).

3. Construction of a specialized transshipment complex for bulk cargoes, equipped with a wagon tipper, on the territory of the production and transshipment complex No. 3 (MIC-3) of the State Enterprise "Izmail Sea Commercial Port".

Goal: Increase of iron ore concentrate and pellets handling capacity up to 2.8 million tons per year. Attracting investments of 5.5 mln. euros.

Implementation entity - SE "Izmail Sea Commercial Port"

4. Reconstruction of the storage area in the deep behind the berths No. 12 and 13 on the territory of the production and transshipment complex No. 2 (MIC-2) of SE "Izmail Sea Commercial Port" for container storage.

Goal: Ensuring the possibility of handling and storage of containers by the port. Increasing throughput capacity to 0.5 million tons.

Attracting investment of 3.7 million euros.

Implementation entity - SE "Izmail Sea Commercial Port"

5. Construction of grain elevator section in the rear of berth No. 26 of production-loading complex No. 3 (MIC-3) of SE "Izmail Sea Commercial Port".

Goal: Development of a wagon unloading station, a hipped-type covered train equipped with a belt conveyor and 3 receiving bunkers of a total capacity of 73 m³, 2 floating berths with a ship-loading machine and a trestle for a belt conveyor. Increase of throughput capacity by 0.8 mln. tons.

Attraction of investments in the amount of 12 million. euros.

Implementation entity - SE "Izmail Sea Commercial Port"

6. Installation of mooring walls for bank protection No. 4 and No. 5 including dredging at the berths on the 85th km. of the Danube.

Goal: Increase of the throughput capacity by 2 mln. tons.

The tentative cost of the works is 4 mln euros, the tentative volume of the withdrawn soil will be 315 thous. m³. The preliminary cost of dredging works is 1.5 mln euros.

Implementation entity - SE "USPA".

7. Development of the terminal on the territory between the production and transshipment complex No. 2 and complex No. 3 of the SE "Izmail Sea Commercial Port".

Goal: Installation of equipment (conveyor racks and storage bunkers) on the territory located in the backwater of 90 km. of Danube city to ensure the possibility of loading ships by the direct option - vehicle-vessel. Increasing the throughput capacity by 0.5 million tons.

Attraction of 5 mln. euros.

Implementation entity - SE "Izmail Sea Commercial Port".

8. Equipping of warehouse No. 9 of the State Enterprise "Izmail Sea Commercial Port" for subsequent storage of grain cargoes.

Goal: Reconstruction of the warehouse №9, after which the warehouse will be able to accept not less than 15 thousand tons of grain cargo. Increase of throughput capacity by 0.3 million tons.

Attraction of investments of 0,3 mln. euros.

Implementation entity - SE "Izmail Sea Commercial Port".

9. Creation of a full-fledged grain harbor on the territory of the State Enterprise "Izmail Sea Commercial Port".

Goal: Development of piers of pile type with placement of ship-loading machines and conveyors on them. In addition - the construction of silos, as well as non-capital outdoor storage on the existing unused outdoor storage sites of the production and transshipment complex conveyor gallery. Increasing the throughput capacity by 2 million tons.

Attracting investment of 10 million euros.

Implementation entity - SE "Izmail Sea Commercial Port".

10. Development of terminals on the territory between cargo areas 1 and 2 (in particular, on the territory of PJSC "Ukrainian Danube Shipping Company", fish factory and industrial complex).

Goal: Increase of throughput capacity by 0.5 mln. tons.

Attraction of investments in the amount of 30 mln. euros.

Implementation entity - Potential investor.

Reni sea port

11. Renovation of Berth No. 7.

Implementation of the measure in the short term is not envisaged, as there is no allotment of land plot (no property rights).

Goal: Increase of cargo handling capacities up to 0,2 million tons per year and attraction of investments in the amount of 0,5 million dollars.

Implementation entity - SE "USPA".

Terminal development plan: In order to create new capacities, it is necessary to modernize berth No. 7, which is currently in unsatisfactory condition, due to which it has been put out of service.

Investor: SE "USPA".

Year of the project realization end: 2038

Total investment amount: 812 thousand euros.

12. Construction of an oil pier in the area of mile 66.8 of the Danube.

Implementation of the measure in the short term is not expected, as the planned investor is not willing to invest money at this time.

13. Construction of the Ro-Ro Sea berth.

Implementation of the project in the short term is not expected, as there is no demand for such transportation.

14. Renovation of warehouse 5 or its demolition to build a new warehouse for grain cargo.

The aim is to increase capacity for processing and temporary storage of cargo up to 0.1 million tons per year and to attract investment of 0.5 million euros.

Implementation entity - Potential investor.

15. Reconstruction of berth No. 29 to provide rail freight traffic on berths 23-29.

The aim is to increase in capacity for processing up to 0.1 million tons per year and attraction of investment of 0.3 mln euros.

Implementation entity - SE "USPA".

16. Construction of terminals on the territory in the berths 31-35

The aim is to increase the capacity for processing and temporary storage of goods up to 2 million tons per year and attracting investments of 15 million euros.

Implementation entity - Potential investor.

17. Reconstruction of berth 31.

The aim is to increase the capacity for processing up to 0.3 million tons per year and attracting investments in the amount of 2 million euros.

Implementation entity - SE "USPA".

18. «Organization of processing of mineral fertilizers and transshipment of liquefied gases".

Implementation entity - PE "ReniLis".

Investments amounted to 3.64 mln euros

19. "Grain complex for grain transshipment and production of combined fodder".

Implementation entity - LLC "Reni-Line".

The investment amount is 0.68 million euros.

20. «Liquid cargo transshipment complex (sunflower oil, rapeseed, molasses, etc.)".

Implementation entity - LLC "Reni - Terminal".

The number of investments - 7,44 mln euros.

21. «Reconstruction of the existing transshipment complex of coal tar in the Reni seaport.

Implementation entity - LLC "Ukrchem".

The number of investments - 0.29 mln. euros.

22. «Consumable composition of oil products in the port of Reni to ensure bunkering operations of "Terminal Danube" LLC.

The number of investments is 4.55 million euros.

23. «Construction of an oilseeds processing plant

Implementation entity - LLC "Danube Prom Agro".

Size of investments - 5.8 mln euros.

24. «Complex for loading, storage and discharge of liquefied hydrocarbon gases in the port of Reni

Implementation entity - LLC "Laguna-Reni".

Number of investments - 2,8 mln. euros (deprived of the status of the subject of FEZ "Reni»).

6 Conclusion

6.1 Port investment needs – Road

6.1.1 AUSTRIA

No special needs, some projects outside the ports are ongoing

6.1.2 BULGARIA

In conclusion, road infrastructure in Bulgaria has a relatively high level of density, which is of utmost importance for overall connectivity. However, a great deal of the country's roads is undermaintained and in need of modernisation. The situation is even more severe in the northern regions, where the majority of first-, second- and third-class roads is in poor technical condition. A significant problem in the area is the lack of highways. These circumstances present a substantial hindrance for port activities in the Danube Region and for the movement of goods and people in general. Nevertheless, the existence of a large number of planned projects for investments in road infrastructure presents great potential for improvement. In this regard, the building of motorways to connect Sofia and Varna, and Ruse and Veliko Tarnovo, as well as the construction of a tunnel under the Stara Planina Mountain would certainly provide major benefits for transport in the area of ports and in Northern Bulgaria in general. A certain obstacle to such developments could be the currently unstable financial and economic situation in the country, which might cause delays in projects' implementation.

6.1.3 CROATIA

Despite investments in the network of county and local roads in the past period, the quality of roads is still worse than in other more developed parts of Croatia, and it is necessary to build the remaining sections of the county and local roads to increase the share, i.e., the percentage of paved roads in the total length road networks in the County, and at the same time provide funds for investment in sections of paved roads that require reconstruction and modernization.

State roads also require the reconstruction and extraordinary maintenance of certain sections. The problem of the passage of state road corridors through city centers was previously emphasized, which led to an increase in the traffic of trucks, so due to the faster flow of vehicles in transit and increased safety traffic it is necessary to relocate the route of state roads through the construction of bypasses of the cities of Vinkovci and Vukovar. Some sections of the bypass have already been built (mostly the Southern bypass of the city of Vinkovci), some are ready for construction, and certain sections are in the phase of designing or obtaining the necessary documentation, that is, a building permit.

The problem is also the poor traffic connection of the peripheral parts of the County (especially the city of Ilok) with county centers and the highway, so the construction of expressways is needed (Srijem border transversals), which would reduce travel time, and at the same time represent bypasses of settlements in municipalities through which they pass.

In accordance with the condition of the road infrastructure in the area of VSC and the expressed need, it can be defined that there are priority projects in road transport construction of the following state roads:

- Srijem border transversal Ilok - Šarengrad - Bapska - Tovarnik - Nijemci - Lipovac - Strošinci,
- Podravska expressway Virovitica - Osijek - Ilok with determined connection route Osijek - Vukovar - Vinkovci - Županja and the section Nuštar - Vukovar,
- Vukovar bypass,
- relocation of the route of the state road D55 - Eastern bypass of the city of Vinkovci
- construction and reconstruction of the state road D537, section Slakovci - Otok.

Road connection in Vukovar suffices the port's needs for now, but if the development trend continues, and by all announcements, it will, the roads will also have to follow. The potential is immense, but the port's capacity doesn't mean much if the adjacent infrastructure doesn't support the growth trends. A lot of work has been done recently, a two-way, two-lane road along the whole Priljevo area, the access road to Vukovar port with parking places... As long as the trend continues, Vukovar port will continue to have a bright future.

6.1.4 HUNGARY

In most cases port related road infrastructure developments are part of complex infrastructure development projects. All ongoing project includes the necessary road construction works; no independent investment need, no points of traffic congestion were identified.

6.1.5 ROMANIA

The port of Constanta is the largest maritime port in Romania and has a strategic importance for Romania and for the landlocked countries situated in its hinterland (ex. Serbia, Hungary, Austria). The lengths of the roads within the port are around 100 km. The access into the port is done through 14 gates. Given these huge dimensions of the port, the investments in road infrastructure are done through specific projects (just for

the roads) in order to improve connectivity, to avoid congestions to the gates and within the port area and to properly maintain the road infrastructure.

To improve the connectivity of the port of Constanta, the Government allocated funds (from the state budget and from European funds) in order to finalise the highway A2 (Constanta – Bucharest), A 4 (ring of Constanta) and for the bridge on the km 0+540 of the Danube Black Sea Canal, bridge that connects A2 and A4 directly with the port of Constanta. Currently large investments in road infrastructure are ongoing, like the extension at 4 lanes of the road between gates 10 and 10 bis, extension of 4 lanes of the roads between gates 7, 8 and 9. Future investments in road infrastructure will be determined by the Master Plan for road and access infrastructure in the port of Constanța.

The port of Galați is the second strategic port of Romania, as well in terms of dimensions (4 port areas, 56 berths), being situated on the Danube River, maritime sector of the river. A large investment consisting in the construction of a multimodal terminal is ongoing in Galați, investment that has a road infrastructure component. In order to provide the road access to the terminal, works will be carried out on the roads administrated by the state, by the local authorities and by the port administration (within the port area).

For the rest of the ports situated on the Danube River (Drobeta Turnu Severin, Calafat, Giurgiu, Oltenita, Brăila, Tulcea, etc.) modernization of the road infrastructure is part of the port modernization infrastructure and there are not dedicated projects dealing only with road infrastructure.

6.1.6 SERBIA

Port of Bačka Palanka

The port of Bačka Palanka has a favorable spatial micro location because it is directly connected to Corridor 10, i.e., with relevant traffic corridors in the vicinity of the E-75 highway (30-40km) and the E-70 highway (35km).

The port of Bačka Palanka is located in the southeastern working zone within block 106 and it is currently connected to the environment via an access road - a collection road in the industrial zone. This traffic capacity connects port area with the state road of 2 rows - the main road Bačka Palanka - Novi Sad, which enables spatial connections with the environment and connects the port to network of roads of different hierarchical levels in Vojvodina. This access road, with its constant construction, enables accessibility to all road transport structures, and in the future, it will be in the same function of accumulating its internal traffic in this area.

Port of Bogojevo

Ongoing project “Expansion of the existing port by construction of a new port capacities “, includes the construction of internal roads, port manipulative area for transport and parking lots. This will provide adequate traffic access of port terminals (container, liquid cargo terminal, general cargo terminal, grain terminal, as well as storage subsystem) to the categorized road network-state road IIa row no. 107, “Sombor - Apatin – Bogojevo”.

According to the development plans the existing route of the state road is retained and the new intersection is formed. New intersection means that the port connection and the service traffic network (with parking space) will be located directly next to the state road.

The new intersection (stationing km 37 + 251) is planned as a classic surface intersection with the intersection of traffic flows (type 3A - connection), with geometric design of the intersection in accordance with applicable standards and regulations governing the subject matter. The existing intersection (stationing km 37 + 559) is retained / redefined as a crossroads - surface intersection with intersection of traffic flows (type 3A - connection) as an entrance / exit, with the possibility of changing the type of intersection during the implementation of phase II - final planning solution.

Port of Prahovo

The concept of traffic separation at the location of the Port of Prahovo is based on the permanent route of the State Road IIB-400, Negotin - Radujevac - Prahovo - Samarinovac.

Two connections of the port road to the state road are planned. In accordance with the plans, the existing main access road will represent one connection, while the other connection is planned at the beginning of the second access road, at km 16 + 689.00 (on the right side in the direction of stationary growth) of the state road IIB order number 400.

The planned concept of road and network in the port area is based on the following principles:

- reconstruction along the existing routes of roads and street routes on the primary network, which will enable greater functionality of the primary network;
- fitting the traffic matrix into the spatial development of urban zones and wholes, i.e., the planned purpose of the areas;

6.1.7 SLOVAKIA

Port investment need for all three transport modes may be divided into three categories / actions

1. Necessity to implement full Landlord operation model where owner of the port – port authority owns land, infrastructure and superstructure. This would

eliminate hindering point for direct investment and co-financing from public (state/EU) funds.

Status VPAS: in progress

2. Necessity to ensure high-quality pre-project preparation (strategical masterplans, feasibility studies) to allow co-financing from public (state/EU) funds

Status VPAS: in progress

3. Necessity to identify proper co-financing possibilities (state / EU / PPP / strategic partner)

Status VPAS: in progress

6.1.8 UKRAINE

Starting from a low level of road infrastructure development contributes to strengthening the positive economic contribution from road construction. Also, infrastructure projects precisely during a recession are one of the most effective ways of fiscal stimulus.

President Vladimir Zelenski recently signed a law to attract private investments "On Amendments to the Budget Code," which provides for the expansion of state obligations under concession contracts, including road construction. It involves the introduction of long-term commitments of the state under concession contracts with private companies, which are planned to be concluded for up to 50 years. In particular, it allows to allocate the State Road Fund resources for the implementation of payments for the operational readiness of public roads of state importance.

According to the introduced amendments, payments to private companies-concessionaires for the operational readiness of roads and other payments provided by the contract will be up to 30% of the sources of formation of the State Road Fund or 30% of local budget revenues.

Ministry of Infrastructure has stated that the law will regulate the payments from the Road Fund to the private companies, which will be granted the concession of a number of highways.

The law regulates the procedure for financing expenses in favor of the private partner/concessionaire, carried out under the contract concluded within the framework of public-private partnership.

6.2 Port investment needs – Rail

6.2.1 AUSTRIA

No special needs identified in detail so far – maybe there will come out some projects in near future; some projects outside the ports are ongoing

6.2.2 BULGARIA

In regard to railroad lines in Bulgaria the situation is slightly worse when compared to the network of roads. The existing railway infrastructure has sufficient density but lacks behind the average European quality standards. A great share of the tracks is in need of modernisation and some of them are yet to go through the process of electrification. In the area of activity of river ports, a substantial hindrance for transportation is the lower share of double tracks. Enhancements in the area of railroad connectivity would require significant investments and the perspective of a short-term improvement is quite slim, considering that the few planned projects are mostly targeted at incentives for the modernisation of tracks solely in the Northwest Region. An exception in this regard is the project for the construction of an intermodal terminal in the area of Ruse, which would greatly benefit port operations and transport activities in general.

6.2.3 CROATIA

The favorable geographical position of the County enabled the rapid development of railway traffic and the development of the City Vinkovci as a passenger and cargo-shunting hub. However, Vinkovci has not yet reached pre-war levels importance despite progress and investment in infrastructure reconstruction. An international pass through the County railway corridor, and it is estimated that in 2015, around 311,000 passengers were dispatched from the station to Counties. Considering that significant investments are being made and planned in the reconstruction of the railway on the route of the corridor, further increase in traffic and strengthening of the County as a railway and logistics center is to be expected. This should also contribute to the stronger integration of railways and the use of the Danube for the transport of goods, i.e., intermodal forms of transport. It should also be aware of the existence of an RO-LA terminal (truck transport terminal tractors on railway wagons) in Spačva, which was opened by the Croatian Railways in 2007.

The following railways were built throughout the County, which are buildings of importance for the Republic of Croatia and are classified, in accordance with the Decision on the Classification of Railways (Official Gazette, No. 3/14):

- Railway Corridor RH1 (former X. Pan-European Corridor) DG-Savski Marof-Zagreb-Dugo Selo-Novska Vinkovci-Tovarnik-DG (state border with Serbia), line mark M104 (Novska - Vinkovci - Tovarnik - State border - (Šid));

- Railway Vinkovci - Vukovar-Borovo naselje - Vukovar, line code M601, belongs to other railways for international traffic
- Railway Vukovar-Borovo Naselje - Dalj - Erdut - State border - (Bogojevo), mark line R104, belongs to railway lines of importance for regional traffic;
- Railway line Vinkovci - Drenovci - State border - (Brčko), line code R105, belongs to railways of importance for regional traffic;
- Railway line Vinkovci - (Gaboš) - Osijek, line code L208, belongs to the railway lines from importance for local traffic;
- Railway line Vinkovci - Županja, line code L209, belongs to the railways of importance for local traffic.

The opening of the renovated Vinkovci - Osijek railway in 2008 further improved the quality of railway transportation. Currently, railway traffic in the County takes place in seven directions (Vinkovci Zagreb, Osijek, Vukovar, Tovarnik, Drenovci, Županja, Slavonski Šamac). Since there is no data on the share of railways in public transport at the county level, it is difficult to assess the actual role of railways in total transport in the area. The reconstruction of the main railway line Zagreb - Tovarnik on the section Vinkovci-Tovarnik-state border with Serbia in the length of 33.4 kilometers has been completed, in the reconstruction where HRK 442 million were invested.

In the period from 2012 to 2015, investments in the reconstruction of railway infrastructure were made (HRK 80.5 million), which is HRK 362 million less than in the period from 2009 to 2012. In the plans of HŽ infrastructure by 2020 it was planned to invest 558 million kuna for modernization, reconstruction and electrification of the Vinkovci-Vukovar railway, as well as modernization and reconstruction of the Okučani-Vinkovci railway section.

The priorities in the County in terms of railway traffic are the reconstruction and electrification of the railway Vinkovci - Vukovar, reconstruction of Vinkovci station (revitalization of the former freight station), improving the level of rail passenger transport service both in the urban-suburban segment and regional traffic, modernization and renewal of local and regional railways with a special program with the aim of creating preconditions primarily for the development of integrated public transport, modernization of railway road and pedestrian crossings over the railway, construction of LDC (logistics-distribution center) Vinkovci-Vukovar, construction of Cargo center Vinkovci-Vukovar, research of possibilities and spatial conditions for refurbishment and expansion of the existing Vukovar station in the function of freight transport, introduction of new ones, combined transport technology on the built and reconstructed railway network in the existing corridors in accordance with the National Railway Infrastructure Program for the period from 2016 to 2020. year (OG 103/15) and its operational objectives.

Estimated travel time Vinkovci - Vukovar is 23 minutes, Vinkovci - Županja 26 minutes, Vinkovci - Ilok 59 minutes, Vinkovci - Otok 22 minutes, Vukovar - Županja 47 minutes, Vukovar - Ilok 38 minutes, Vukovar – Otok 35 minutes, Županja - Ilok 1 hour and 22 minutes, Županja – Otok 29 minutes and Ilok - Otok about 1 hour

6.2.4 HUNGARY

Short- and medium-term inner port rail infrastructure needs seems to be satisfied with finished and ongoing developments. However, Csepel Freeport is a special case, as the railway track between Soroksár station and the border of the port serves for port traffic exclusively. This railway section has two shortcomings, which are becoming more and more painful as port traffic increases. On one hand it is a single-track railway line, on the other hand it has a level crossing with Csepel island's main road, which is the only way out from the island to the north. Lengthening periods of blockage due to train crossings will be not honoured by local community and municipality for sure. These investments are fundamental requisites of flowless port operation, yet all efforts remained unsuccessful in terms of implementation.

6.2.5 ROMANIA

For rail infrastructure the situation is the same like it was described above, on the road infrastructure. The rail network within the port of Constanta has a length of 326 km and belongs and it is administrated by the National Railway Company CFR SA, port administration and in some cases by the port operators (along the berths). Given this huge network, the project of rail infrastructure is usually done in specific projects, dedicated to rail infrastructure.

In the port of Galați, the investment in the multimodal terminal has a specific component dedicated to the rail infrastructure. Also, some works were done in 2022 to the railway line with large gauge, which is specific only for the port of Galați. Port of Galați can receive cargo on trains coming from Moldova and Ukraine railway networks.

For the other ports on the Danube River, no investments in the railway infrastructure were done in the last decades. It is in the planning phase an investment for the arrangement of the railway lines in the port of Calafat (TEN-T core port), justified and necessary to link the railway port infrastructure with the railway infrastructure of Calafat – Vidin the bridge.

6.2.6 SERBIA

Port of Bačka Palanka

The port is not connected to the national railway network but is distanced about 5 km from the regional railway Bačka Palanka – Gajdobra which is connected with the Belgrade-Subotica railway and further with the Budapest.

Industrial track for the port of Bačka Palanka are planned to start from the open track of the railway Gajdobra – Bačka Palanka, in front of the level crossing with the main road (before the overpass from the direction of Gajdobra). The industrial track should be brought to the port via a marshalling yard, which is located before the protective embankment of the port complex in Bačka Palanka.

The railway within the port of Bačka Palanka is spatially configured in the form of one access to two peripheral (connected) industrial tracks, i.e., with only one main track that serves all planned facilities.

Port of Bogojevo

In the port of Bogojevo there is no connection to the national railway network. Within the built capacities of the traffic infrastructure in the port zone, there is a manipulative railway no. 403, Bogojevo - Danube bank, with 3 industrial tracks in the port area.

It is planned that the industrial tracks that are being pulled out of the Bogojevo station, which is located on the main line no. 110, Subotica - Bogojevo - state border - (Erdut) and regional railway no. 207, Novi Sad - Odzaci - Bogojevo, across the manipulative railway no. 403, Bogojevo - Danube bank, provide access by rail to port terminals and facilities on the waterway.

It is necessary to reconstruct the manipulative railway from Bogojevo station to the entrance to the port area and construction of new tracks in line with the disposition of old and new terminals (silo, tracks to container terminal, general and liquid cargo terminals).

Port of Prahovo

According to the development plans of "Serbian Railway Infrastructure" a.d. and in accordance with the Spatial Plan of the Republic of Serbia ("Official Gazette of RS", No. 88/10), revitalization, modernization and electrification of the existing single-track railway (Nis) - Red Cross - Zaječar - Prahovo port is planned. This regional railway is very important for faster development of Prahovo as an industrial center.

At km 0 + 355.70, where the new road intersects with the railway tracks, the construction of a leveled intersection is planned, which will be done by the construction of a new AB bridge - overpass. A free profile which is 5.8 m high is provided under the bridge. The width of the free profile perpendicular to the tracks is 14.1m.

Since the condition of the railway tracks within the port area is not satisfactory, overhaul and modernization are planned through the ongoing project „Expansion of port capacities of the Port of Prahovo“, which will significantly increase the transport capacity.

The plan envisions the introduction of a new track that will serve warehouses in the hinterland of the port area.

If possible, the necessary safety distances between industrial tracks, plot boundaries and other infrastructure corridors must be observed. In addition to the tracks behind the silo, it is possible to envisage another track, so that the existing one would be used for loading and would not disrupt the transport of other cargo.

6.2.7 SLOVAKIA

Ref. to 6.1.7. Port investment needs – Road

6.2.8 UKRAINE

The most important transport during Russia's full-scale war against Ukraine should apparently be considered the railroad. railroads are now trying to compensate for the blockade of the ports. The figures are maximum throughput capacity - 1.5-2 million tons per month.

In the long term, the transport system of the Danube region needs a significant adjustment. It requires improvement of infrastructural prerequisites, including re-routing of the central railroad, improvement of road connections, enhancement of efficiency of border crossings, and promotion of modern logistics solutions.

In addition to modernizing the wagons themselves, changes must also address track widths. Ukrainian trains move along the "wide" gauge of 1520 mm, and at the border meet the "narrow" European gauge of 1435 mm. This creates obstacles at the western borders and slows down the speed at which Ukrainian goods can be exported abroad and imported products can be brought into the country.

However, Ukraine will not be able to completely change the Ukrainian track to the European standard. Because the replacement of the gauge will lead to many fundamental changes, including the modernization of rolling stock etc.

The cost of complete 20 thousand kilometers of tracks width replacement to the European and the modernization of the accompanying infrastructure in the country requires 3.2-4 billion euros, and will require 30-40 years. Depending on the state of the railway infrastructure and the topography of the area the cost of laying one kilometer of euro-track will range from 162 to 594 thousand euros. Therefore a logical approach to the sustainable transition and modernization of infrastructure through a coherent and rational projects for the transition to the Euro-tracks is needed.

6.3 Port investment needs – IWT/Maritime

6.3.1 AUSTRIA

No special needs identified so far, some projects are ongoing

6.3.2 BULGARIA

Both inland and maritime waterway transport in Bulgaria is struggling due to the lack of infrastructure capacity and the low levels of modernisation of existing facilities. In this regard an indicative circumstance is the fact that no large-scale investment projects in the field of IWT were carried out throughout the last decade. The projects for implementation of preparational activities for the construction of intermodal terminals in Lom and Varna could potentially have significant positive impact on ports in the long term but direct investments in port infrastructure and superstructure facilities are also greatly needed.

6.3.3 CROATIA

Inland ports located on European waterways have a special meaning given the uniqueness of the transport and the overall economic market in which they operate. There are two international waterways in the County - the Danube and the Sava. The Danube is navigable all over the length through Croatia and according to the European Agreement on Main Inland Waterways of International Importance (AGN) is classified as seaworthiness class VIc.

The Danube is of great importance for international, regional, and local traffic. The Sava is conditionally navigable, i.e., with great restrictions and it is connected with unregulated waterway (insufficient draft in certain sections, critical points, etc.). Existing traffic depends on seasonal water level conditions and is mainly suitable for local and regional sailing.

The most important project related to the use of the potential of the Danube and Sava is the strategic project of the Republic of Croatia, Multipurpose Danube-Sava canal. The realization of this project could be of great importance for development of agriculture, drainage, irrigation, water management, flood defense, river and combined traffic. Furthermore, it would shorten the waterway from Europe to the Mediterranean Sea and make it possible for the development of ports, harbors, and piers in the interior of the County along the route of the canal, which would have an impact on the overall development of the economy.

6.3.4 HUNGARY

Overview and perspective of the existing port connection

Fairway maintenance in Hungary is a task delegated by law to the water directorates with territorial jurisdiction. The task includes obligation to maintain appropriate water depth (2,7m at NLW (Navigational Low Water) in the fairway. Water directorates are belonged to state administration and financed out of national budget.

However, the waters belonging to ports without basin - situated right on the bank of the river – are part of the fairway. Therefore, water directorates are obliged to execute

these maintenance works in these riverside ports. As for ports within artificial basins, maintenance dredging is the port operator's duty.

Győr-Gönyű National Public Port - situated in the mouth of Mosoni-Duna – experienced heavy sedimentation during high water levels. This sedimentation caused severe problems, it reduced maximum draught significantly, and made turnaround manoeuvres impossible during low water periods. Navigation could be maintained only with regular dredging. The situation changed for the good with the construction of a dam near to the port. The Mosoni-Duna outlet was moved upstream, and the riverbed was blocked upstream to the port, downstream river section became a basin.

The other ports situated in basins (Csepel Freeport, Dunaújváros) has not reported connection-, or connection related financial issues.

The Hungarian Danube stretch has severe navigability problems, therefore satisfactory connection to the fairway on one hand is not equal with prescribed water depth (because fairway is usually worse by means of water depth), on the other hand it does not solve accessibility problems between ports.

Ongoing project: „*Improving navigability on the Hungarian section of the Danube: extended study to prepare implementation*”¹³ is a precondition for the implementation of any physical interventions aimed at improving the navigability and at eliminating the IWW bottlenecks on the Hungarian section of the Rhine-Danube Corridor. The elaboration of the technical assessment study already started.

The main goal of this Action is promoting the development and upgrading of the Rhine-Danube Corridor to reach stable navigation conditions throughout the year in all riparian countries.

The specific objective of the Action is to study the elimination of bottlenecks hindering navigation along the Hungarian stretch of the river Danube between the Northern and Southern State borders of Hungary to meet the requirements of the EU rules and the corresponding Hungarian legislation.

The scope of the Action includes preparatory studies, from the review and completion of the Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA) and building permits documentation to the drafting of the tender designs for the removal of 31 bottlenecks along the Hungarian section of the Danube.

Duration of the grant contract was elongated, yet elaboration of the implementation plans has been suspended in early 2022. Any further delay jeopardizes the goals of the Action, and the actual implementation of the planned works.

¹³ DT1.1.3. Chapter 7.1.4.

For the evaluation of this possible failure, it is necessary to investigate the *Kvassay Jenő Masterplan (National Water Strategy)*. Since it was released in 2015 no major river regulation work was executed on the Danube. It contains a very important statement which sheds light on what to expect in terms of river regulation even if the plans of the project won't be implemented:

“Danube riverbed deepens constantly; low water levels and related ground water levels are lowering. This process already caused significant ecological damages; therefore, the mitigation of these damages will enforce technical interventions regardless of the goals of navigation.”

And to top it all, climate change impact on Danube's water discharge and water regime will worsen navigation hindrances caused by riverbed degradation. The interim result of the above-mentioned project and Kvassay Jenő Masterplan also predicts decreasing discharge and more and more extreme water regime.

These processes will enforce river regulation works regardless of navigation demands. On the other hand, this work will improve navigation conditions surely as Hungary is obligated to ensure fairway by the *Convention regarding the regime of navigation on the Danube (Belgrade, 1948)*.

However, until no technical interventions will be made in favour of navigation the explained ongoing natural processes will affect navigation, and thus port cargo traffic. Annual turnover correlates with water levels as it can be seen in fig. 1. Although annual average water level is a rough approximation to describe the water regime throughout the year, it still shows relatively strong correlation to annual turnover of the Hungarian Danube section. In the foreseeable future hydrological conditions will worsen in the lack of adequate river regulation, causing decline of goods traffic, and modal shift to other means of transport in Hungarian ports.

Tisza

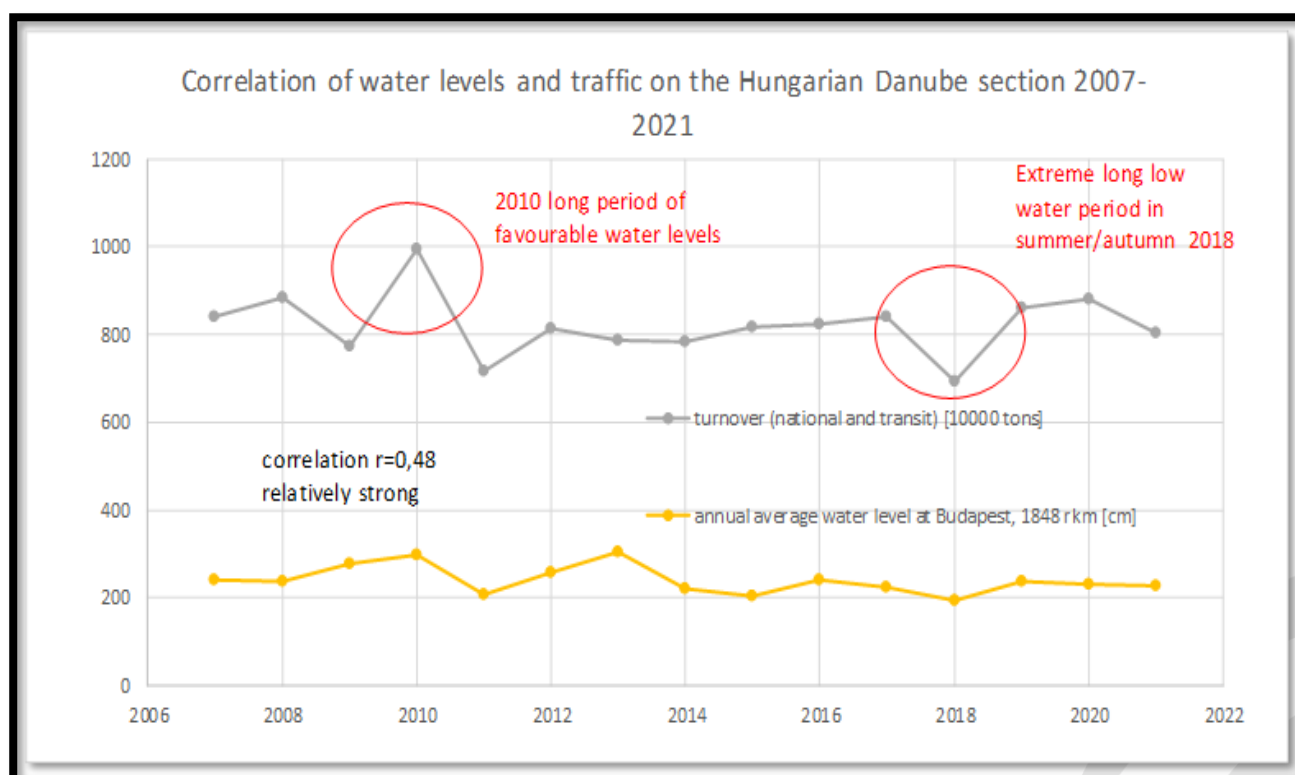
Tisza is a tributary river of the Danube with the biggest unexploited shipping potential; due to several reasons this potential has not been utilised by recreational and merchant shipping up to the present day. Hungary is committed to interconnect the Hungarian section of Tisza River with the Danube; with this object Hungary and Serbia signed the Tisza Agreement in 2016, which pronounces Tisza international waterway between Tokaj and its confluence. According to the Agreement navigation is free and open for vessels of all countries, regardless of the vessel's flag. The elimination of administrative barriers will assuredly contribute to integrate Tisza River into the Ten-T network, which is an objective supported by Serbia and Hungary as well.

Navigating upstream starting at the border the first hundred kilometers is already class IV, water depth is secured by the dam at Törökbecse, Serbia.

Between Csongrád and Kisköre shallows and curves with low radius hinder navigation. Class IV fairway parameters cannot be secured without interventions on this section. The interventions must be in line with the EU rules and the corresponding Hungarian legislation, including water protection and management as well as nature preservation requirements. Modernization/reconstruction of the locks of Kisköre and Tiszalök ended in 2021.

The short river section between the south border of Hungary and Szeged is already part of the Rhine-Danube corridor, recently significant import freight traffic (considering earlier traffic volumes) monitored with Szeged destination, which is the only port of the TEN-T section.

Figure 28 Correlation of water levels and traffic on the Hungarian Danube section 2007. - 2021.



Source 13 Hungarian Central Statistical Office, General Directorate of Water Management

6.3.5 ROMANIA

Port investments are necessary in all Romanian ports and currently there are ongoing or in advanced phase of preparation projects in the following ports: Galati, Tulcea, Braila, Giurgiu, Oltenita, Calafat, Drobeta Turnu Severin, Ovidiu, Luminita, Medgidia. The projects aim to improve port infrastructure (especially modernisation of berths, utilities networks – electricity, drinkable water, sewage water -, tracks for quay cranes, platforms

and road connections to the berths, improved security) in order to improve the efficiency and the safety of the port operations.

In the port of Constanta large investments are planned to be done in providing new port areas (Piers IIIs and IV S) and some other investments are ongoing like the extension of the berths no. 10 and 12 in Midia area. In the ports situated on the maritime sector of the Danube, investments are effectively ongoing in the ports of Tulcea, Galați and Braila. The investments are financed from European funds (Cohesion fund and European regional development fund) provided by the dedicated programs for transport in Romania. Starting with the last semester of 2021 and continuing in 2022, the prices of material construction increased a lot. This situation affected the ongoing projects, as well as the planned projects. For the planned for planned projects, the worse cases are when no offer is submitted to the tenders organized for the design and execution of works, which leads to delays and losses of already allocated budgets.

6.3.6 SERBIA

Port of Bačka Palanka

The port development plans in Bačka Palanka are strategically oriented towards the construction of a container terminal, a liquid cargo terminal, as well as a grain transshipment and storage terminal. In order to enable the construction of these terminals, it is necessary to build a coastal fortification and a vertical quay in the length of 480 m, a grain silo with a capacity of 60,000 tons, procurement of new handling equipment to increase capacity, and construction of industrial tracks to connect this port with the national railway network.

Port of Bogojevo

Ongoing project of the expansion of the capacities of the Port of Bogojevo include building a port basin with operational quay. In that way port will be partly a port with the open operational quay and partly a port of basin type for transshipment of various types of cereals, oilseeds, fertilizers, sand, gravel, various cargoes and a smaller number of containers which could develop container transport on the Danube. In addition, a terminal for storage and transfer of oil and oil derivatives is anticipated in the basin part of the port and it will be territorially separated from the rest of the port. Also, there will be a possibility of supplying vessels with a fuel.

By expanding the capacity of the port in Bogojevo, it is planned to build new silos for grain and oilseeds, warehouses for mineral fertilizers and open and closed storage space for bulk cargo (gravel and sand) and piece goods. Due to the growing trend of container transport in international transport (primarily grain), it is planned to build a container terminal of smaller capacity.

By extension and construction of the new port capacities, connected with the railway infrastructure and by upgrading access road infrastructure, the port itself will enable

efficient network connection of waterway, road and railway transport. Thus, it will promote better conditions for combined and intermodal transport, which is one of the preconditions for further service development in the sphere of waterway transport as the cheapest mean of mass loading transport both in internal and international transport, and, by that, the increased turnover in the ports on the internal waterways.

Further development and construction of new capacities in the Port of Bogojovo enables the port to become qualified for inclusion in the core of the TEN-T river port network.

Port of Prahovo

Expansion of port capacities of the Port of Prahovo, includes:

- rehabilitation, reconstruction and extension of the operational shore, including one covered berth;
- increasing the territory of the Port by filling in the winter shelter;
- construction of closed storage areas on the enlarged territory of the Port, with a packing room for bulk cargo, other bulk cargo in transport and delivery, general cargoes predominantly but not exclusively related to the chemical industry;
- reconstruction and construction of open floor warehouses for general cargo, containers
- and other packaged goods;
- rehabilitation and reconstruction of silos for cereals and other granular goods;
- modernization of port machinery and other equipment and devices;
- reconstruction and construction of port roads, truck parking lots, car parks;
- reconstruction of the existing and construction of a new access road to the Port;
- reconstruction and construction of industrial tracks of the port railway;
- reconstruction and construction of port infrastructure (installation of water supply, sewerage, electricity and signal network, outdoor lighting);
- construction of an administrative building, workshops with storage of tools and spare parts, control facilities for car entrances and car scales, fences, gates.

The planned expansion of the port area refers also to the construction of a terminal for dangerous goods and the terminal for the reception of used oils and wastewater from ships (Green Terminal).

6.3.7 SLOVAKIA

Ref. to 6.1.7. Port investment needs – Road

6.3.8 UKRAINE

Investment climate in Ukrainian seaports today is quite risky, however, port infrastructure continues to be an attractive area for investment by existing customers and potential investors. This is evidenced by the ongoing implementation of large-scale investment projects in the port industry, commissioning of new transshipment facilities. There are plans to build a container terminal in the Reni seaport. One of the potential partners is Maersk, which, in addition to traffic duties, will bring the equipment necessary for its operation (cranes, reach stackers etc.). The location is planned at the berth 17.

In addition, SPVs are formed, plus private maritime terminals create their own berth lines, develop port railway stations and accumulation sites. And, finally, private investors monitor and promptly respond to market trends, demand for products, changes in the nomenclature of cargo flows through seaports.

At present, the Romanian direction is very much in demand. At the ICC Izmail for transshipment of grain to the Danube there are constant queues of about 40 km in length.

This is part of the possible guaranteed investments. If the prospect of a complete unfreezing of Ukrainian ports will soon become real, then the investment should be adjusted to temporary infrastructure or measures. For example, not necessarily the construction of a new terminal, but the launch of transshipment in the roadstead. This would allow loading Panamax and Capesize right near Romanian ports without any additional dredging and infrastructure development, and most importantly, several times faster.

This mechanism is not new for Ukraine, because in the pre-war period more than 6 million tons of agricultural products passed through the roadstead in a year. With this mechanism it is excluded double transshipment, mooring, queues and a number of other activities from the chain of actions, getting significant savings in time and money.

Much has changed during the six months of Russia's invasion in Ukraine. Forecasts, estimates in the economy, have significantly changed the picture of Ukrainian industry.

As it is often the case in the economy, without investment the problem cannot be solved. But, according to forecasts of the World Bank, the fall of Ukraine's GDP in 2022 will be more than 45%. And this is according to the optimistic scenario, and on the pessimistic plan - up to 75%.

The way out of the situation lies in investments. Not only donor or charitable investments, but real, profitable and interesting ones for entrepreneurs from all over

the world. It is foreign business that can increase its capital, playing on instability and laying the foundation for an accelerated recovery after Ukraine's victory.

Steps to stabilize the fragile military atmosphere and provide some foundation for investors.

1. At the level of legislation – it's important to finalize and adopt the draft law № 7451 "On privatization of state and municipal property" and other legislative acts of Ukraine to promote the processes of relocation. Privatization can give investors the assets that will increase interest in Ukrainian market. Therefore, Ukraine will accomplish 2 goals at once - to give old production facilities a second life, and the State Treasury will receive these funds immediately.

2. At the level of secondary legislation - the Cabinet of Ministers of Ukraine should develop a list of areas most favorable for investment and relocation (such as proposals for areas where there are no active battlefields in accordance with the decision of the Cabinet of Ministers of April 29, 2022 № 495). This will give a certain regulatory document for both investors and foreign officials to raise funds or assistance.

3. At the departmental level The Ministry of Economy and the State Property Fund of Ukraine are responsible here. Adaptation of law is great, but to prepare lots, hold bidding and determine the policy of selecting objects - the question is up to them.