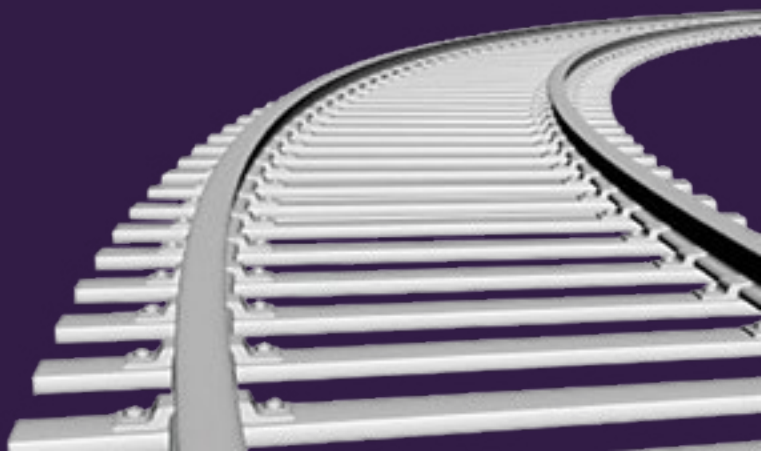
# THE BUSINESS PLAN

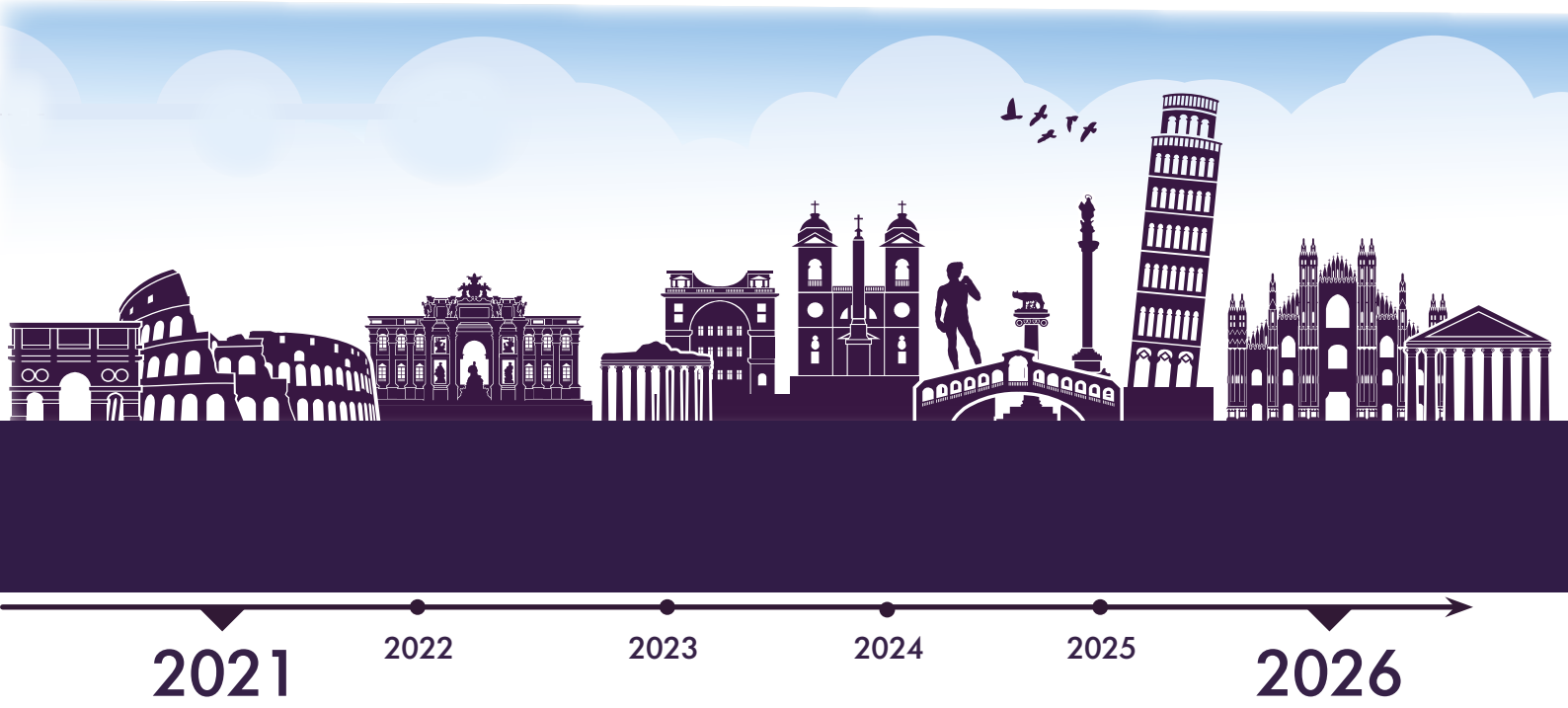
## SPECIAL NRRP EDITION - AUGUST 2021

Revision 30.11

2021 2022 2023 2024 2025 2026



RFI
RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO ITALIANE



2021 2022 2023 2024 2025 2026

RFI
RETE FERROVIARIA ITALIANA
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# SUMMARY

# SUMMARY

# INTRODUCTION

# Introduction: Next generation EU*

The Covid-19 pandemic came at a historical moment when the need to adapt the current economic model towards greater environmental and social sustainability was already evident and shared.
The pandemic, and the consequent economic crisis, have prompted the EU to formulate a coordinated response at both the cyclical level, with the suspension of the Stability Pact and huge economic support packages adopted by individual Member States, and structurally, in particular with the launch of the Next Generation EU (NGEU) program at the end of May 2020.
The NGEU marks a colossal change for the EU. The amount of resources deployed to relaunch growth, investments and reforms amounts to 750 billion Euro, of which more than half, 390 billion, is made up of grants. The resources allocated to the Recovery and Resilience Facility (RRF), the most important component of the program, are found through the issuance of EU bonds, leveraging the raised Own Resources ceiling. These issues join those already in progress since September 2020 to finance the "temporary support to mitigate the risks of unemployment in an emergency" program. The NGEU program includes two support tools for Member States. REACT-EU was conceived with a shorter term perspective (2021-2022) to help them in the initial phase of reviving their economies. RRF, on the other hand, has a duration of six years, from 2021 to 2026. Its total size is 672.5 billion Euro, of which 312.5 billion are grants and 360 billion low-interest loans. The NGEU initiative channels considerable resources to countries such as Italy which, despite having per capita income levels in line with the EU average, have recently suffered from low economic growth and high unemployment. In fact, the allocation mechanism between Member States reflects not only structural variables such as population, but also contingent variables such as the loss of gross domestic product linked to the pandemic. NGEU funds can allow our country to relaunch investments and increase employment, also to resume the convergence process towards richer EU countries.
NGEU intends to promote a robust recovery of the European economy in the name of ecological transition, digitalisation, competitiveness, training and social, territorial and gender inclusion. The RRF Regulation sets out the six major areas of intervention (pillars) on which the NRRPs will have to focus:

- Green transition
- Digital transformation
- Smart, sustainable and inclusive growth
- Social and territorial cohesion
- Health and economic, social and institutional resilience
- Policies for the new generations, children and young people

The green transition pillar derives directly from the European Green Deal and the EU's dual goal of achieving climate neutrality by 2050 and reducing greenhouse gas emissions by 55 percent compared to the 1990 scenario by 2030. The NGEU regulation stipulates that a minimum of 37 percent of planned investment and reform spending in the NRRPs must support climate goals. Furthermore, all investments and reforms provided by these plans must respect the principle of "Do no significant harm" to the environment.
Member States must illustrate how their plans contribute to the achievement of the climate, environmental and energy objectives adopted by the Union. They must also specify the impact of reforms and investments on the reduction of greenhouse gas emissions, the share of energy obtained from renewable sources, energy efficiency, energy system integration, new clean energy technologies and electrical interconnection. The Plan must contribute to the achievement of the environmental objectives set at EU level also through the use of the most advanced digital technologies, the protection of water and marine resources, the transition to a circular economy, the reduction and recycling of waste, the prevention of pollution and the protection and restoration of healthy ecosystems. The latter include forests, wetlands, bogs and coastal areas, and tree planting and landscaping of urban areas.

As far as the digital transition is concerned, the Plans must dedicate at least 20 percent of total spending on investments and reforms to it. The aim is to improve the digital performance summarised by the Digital Economy and Society Index (DESI) and the objectives outlined in the Commission Communication "Designing the digital future of Europe".

The digital pillar of the NRRP must include the rationalisation and digitisation of the public administration and the development of digital public services. Connectivity also needs to be improved, including through the widespread use of very high-capacity telecommunication networks (TLC). Costs for users must be sustainable and the speed of network implementation must be increased. The Plans must also support research and development (R&D) in TLC and the adoption of digital technologies by businesses, especially small and medium-sized ones. The digital skills of citizens and workers must improve, as well as their ability to access digital tools and services, particularly for vulnerable social groups. Digital investments need to be aligned with the Commission's communications on the subject. The synergies between green and digital investments must be highlighted and enhanced.

With regards to smart, sustainable and inclusive growth, the Plans must respond to the economic and social consequences of the pandemic crisis through economic strategies that lead to a rapid, solid and inclusive recovery and that improve potential growth. They must therefore contribute to improving productivity, competitiveness and macroeconomic stability, in line with the priorities outlined in the Annual Strategy for Sustainable Growth. The plans must contribute to the implementation of the European Pillar of Social Rights in relation to its dimensions of equal opportunities and access to the labour market; fair working conditions; access to health care; social protection and inclusion. The plans must promote a change in labour policies, also to facilitate and accelerate structural changes such as green and digital transitions.

The fourth pillar is social and territorial cohesion. The Plans strengthen cohesion and reduce disparities between local, regional and urban centres and rural areas. They also face general challenges such as those related to gender and income inequalities and demographic trends. Member States must describe the trends and changes that have occurred in recent years, including as a result of the COVID-19 epidemic, and explain how their respective Plans alleviate the crisis and promote cohesion and the resolution of territorial imbalances in line with the principles of the European pillar of social rights.

Regarding health and economic, social and institutional resilience, Member States need to strengthen their capacity to respond to economic, social and environmental shocks and structural changes in a fair, sustainable and inclusive way. The pandemic highlighted the vulnerability of health systems to high contagion rates and other structural weaknesses. The economic crisis has reduced Member States' ability to grow, and has exacerbated territorial imbalances and disparities. The aim must therefore be to strengthen supply chains and industrial and health infrastructures. Finally, it is necessary to safeguard value chains and critical infrastructures, as well as guarantee access to raw materials of strategic importance and protect communication systems.
Finally, with regards to the policies for the new generations, children and young people, the National Plans must improve early childhood education and care systems, as well as the skills of the entire population, including digital ones. New generations of Europeans must not suffer permanent damage from the COVID-19 crisis. In line with the principles of the European Pillar of Social Rights, Member States must aim to bridge generation gaps and strengthen active labour policies and the integration of the unemployed. Additional resources need to be invested in improving access and opportunities for children and young people and to education, health, food and housing.

* Source: National Recovery and Resilience Plan

# Introduction: National Recovery and Resilience Plan*

The effort to relaunch Italy outlined in the Plan is developed around three strategic axes shared at European level: digitisation and innovation, ecological transition, social inclusion.
The digitisation and innovation of processes, products and services represent a determining factor in the transformation of the country and must characterise each Plan reform policy. Italy has accumulated a considerable delay in this field, both in the skills of citizens and in the adoption of digital technologies in the production system and public services. Bridging this gap and promoting investments in technologies, infrastructures and digital processes is essential to improve Italian and European competitiveness, promote the emergence of production diversification strategies and improve adaptability to market changes.

The ecological transition, as indicated by the UN 2030 Agenda and the new European objectives for 2030, is the basis of the new Italian and European development model. Taking action to reduce polluting emissions, preventing and combating land instability, minimising the impact of production activities on the environment is necessary to improve the quality of life and environmental safety, as well as to leave a greener country and a more sustainable economy for future generations. The ecological transition can also be an important factor in increasing the competitiveness of our production system, encouraging the start-up of new and high value-added entrepreneurial activities and promoting the creation of stable employment.

The third strategic axis is social inclusion. Ensuring full social inclusion is essential to improving territorial cohesion, helping economic growth and overcoming profound inequalities often accentuated by the pandemic. The three main priorities are gender equality, the protection and enhancement of young people and overcoming territorial gaps. Female empowerment and the fight against gender discrimination, the improvement of skills, capacity and employment prospects of young people, territorial rebalancing and the development of the South are not solely entrusted to single interventions, but pursued as transversal objectives in all the components of the NRRP.

The Plan is divided into sixteen Components, grouped into six Missions. The latter are organised in line with the six Pillars mentioned in the RRF Regulation and illustrated above, although the formulation follows a slightly different sequence and aggregation.

### MISSION 1: Digitalisation, innovation, competitiveness and culture

It supports the country's digital transition in the modernisation of the public administration, communication infrastructures and production system. It aims to ensure coverage of the entire territory with ultra-broadband networks, improving the competitiveness of industrial chains and facilitating the business globalisation. It also invests in the relaunch of two sectors that characterise Italy: tourism and culture.

### MISSION 2: Green revolution and ecological transition

It is aimed at achieving the green and ecological transition of society and the economy to make the system sustainable and ensure its competitiveness. It includes interventions for sustainable agriculture and to improve waste management capacity, investment and research programs for renewable energy sources, investments for the development of the main ecological transition industrial chains and sustainable mobility. It also provides for actions to improve the efficiency of public and private real estate assets and initiatives to combat hydro-geological instability to safeguard and promote the biodiversity of the territory and to guarantee the security of supply and the sustainable and efficient management of water resources.

### MISSION 3: Infrastructures for sustainable mobility

It aims to strengthen and extend the national high-speed railway and upgrade the regional railway network, with particular attention to the South. It enhances freight transport services according to an intermodal logic in relation to the airport system. It promotes the optimisation and digitisation of air traffic. It aims to ensure the interoperability of the national logistics platform (NLP) for the port network.

### MISSION 4: Education and research

It aims to fill the structural, quantitative and qualitative gaps in the supply of education services in our country, throughout the educational cycle. It provides for an increase in the supply of places in kindergartens, promotes access to university, strengthens guidance tools and reforms teacher recruitment and training. It also includes a significant improvement of basic and applied research systems and new tools for technology transfer to raise growth potential.

### MISSION 5: Cohesion and inclusion

It invests in the social infrastructure, strengthens active labour policies and supports the dual system and female entrepreneurship. It improves the protection system for situations of social and economic fragility, for families and for parenting. It also promotes the role of sport as an inclusion factor. Specific attention is paid to territorial cohesion, with the strengthening of the Special Economic Zones and the national strategy of inland areas. It enhances the Universal Civil Service and promotes the role of the third sector in public policies.

### MISSION 6: Health

It is focused on two objectives: the strengthening of prevention and assistance in the area, with the integration of health and social services, and the modernisation of the technological equipment of the National Health Service (NHS). The enhancement of the Electronic Health Record and the development of remote medical assistance. It supports the technical, digital and managerial skills of health system personnel, as well as promoting scientific research in the biomedical and health sectors.*

* Source: National Recovery and Resilience Plan

# Introduction: Mission 3 - Infrastructures for sustainable mobility

The National Railway Infrastructure Manager has been called upon to play a fundamental role in the definition and implementation of the NRRP with reference, in particular, to the investments provided in Mission 3 "Infrastructure for sustainable mobility", 80% of which is destined for interventions for the development and strengthening of the national and regional railway network (Component 1 "Investments in the railway network") for a total of approximately 25.4 billion Euro, of which 23.86 dedicated to RFI investments. This is consistent with the role attributed to rail transport within the framework of the objectives defined by the 'Sustainable and Smart Mobility Strategy' (SSMS) proposed by the EC in 2020 to contribute to the 90% reduction of CO2 emissions by 2050, and to complete the single European transport area outlined with the 2011 White Paper also in order to promote cohesion, reduce regional disparities, improve connectivity and access to the internal market for all regions.
By adding resources to existing projects and accelerating them, as well as introducing new ones linked to the country's infrastructure strategy (#Italia Veloce), the railway investments included in Mission 3 of the NRRP - integrated with those provided for by the related Complementary Fund pursuant to art. 4 Legal Decree 59/2021 - aim at creating and completing works that are part of European infrastructure projects or that bridge penalising gaps for the country's economic development and, in particular, of the South and Islands.

Aimed at developing the main railway axes, linking and integrating them to the HS/HC network, to speed up and modernise the entire network including regional lines, to strengthening long haul freight transport and to improve last mile connections, the Mission 3 NRRP investments assigned to RFI are divided into eight areas, presented in as many chapters in the following pages. In particular:

1. High-speed rail links to the south for passengers and freight
2. High Speed Lines in the North that connect to Europe
3. Diagonal links
4. Strengthening of the European Rail Transport Management System (ERTMS)
5. Strengthening of metropolitan railway hubs and key national links
6. Strengthening of regional lines
7. Upgrade, electrification and increase the resilience of railways in the south
8. Improvement of railway stations in the south

The expected benefits include:
• greater integration between the national railway infrastructure and the regional railways
• expansion and integration of rail/road services
• homogenisation of safety standards
• new passenger and freight connections with airports, ports and terminals
• optimisation of the capacity with integration between High Speed services and local public transport
The planned investments aim to complete a significant step towards the creation of a modern, digitised and sustainable infrastructure system by 2026, capable of responding to the challenge of decarbonisation indicated by the European Union with the strategies related to the European Green Deal and of contributing to the achievement of the Sustainable Development Goals (SDGs) identified by the United Nations 2030 Agenda, and in particular to some of them.

| NRRP | | Contribution to the objectives of the 2030 Agenda |
|---|---|---|
| Mission | Component | |
| M3: Infrastructures for sustainable mobility | C1: Investments in the railway network |  |

The significance in terms of sustainability of RFI investments concerns both the purposes of the works to be carried out, once activated, as well as the choices and methods of design and construction. As required by the RFF for all the measures included in the National Recovery and Resilience Plans, compliance with the "Do No Significant Harm" (DNSH) principle defined by EU Regulation 2020/852 was verified for the first time (so-called 'Taxonomy' Regulation) according to which an economic activity is sustainable if it contributes to at least one of the six environmental objectives provided by the same Regulation without causing damage to the remaining environmental objectives.
The "new" interpretation connected to the respect of the DNSH principle railway investments must meet has made it possible to substantially explain how the sustainability of the RFI infrastructure is not only a characteristic intrinsically connected to the mode of transport for which it is achieved (iron contributes less than 0.5% to the CO2 emissions of the transport sector in Europe, overall responsible for 25% of total emissions), but also a quality to be built operationally alongside compliance with consolidated regulatory and procedural constraints and the voluntary adoption of the best practices both in infrastructure design and construction phases to create shared value for the territories and for all stakeholders.
The objective of this extraordinary edition of the Business Plan is to highlight all the stakeholders of the main investments that RFI, thanks to the resources allocated under the NRRP, will implement in the near future (five-year period 2022-2026), financed at least for a functional phase and intended to produce appreciable business benefits for railway companies and for end customers. Therefore, investments made by RFI included in the NRRP and strictly linked to the maintenance of the infrastructure or lines on which normal railway operation is suspended are excluded from the discussion. The projects that are already described in the current Business Plan and included under NRRP funding area also listed.
Finally, for some projects that will not be fully completed by 2026, financial coverage is provided under the 2020/2021 update of the Program Agreement - Investments. The alignment with the Program Agreement - Investments refers to this latest update in the project description sheets. To complete the picture of the planned investments, the last chapter also describes the new projects that do not fall within the scope of the NRRP, but are financed in the 2020/2021 update of the CdP-I.

# ACTION PLAN SHEET LEGEND

**1. PROJECT TITLE**

XXXXXXXXXXX

**5. YEAR OF ACTIVATION**

20XX

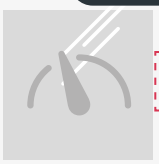
(XXX: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx)

XXXXXXXXXXXXXXX

**3. PROJECT DESCRIPTION**

**2. CDP 2017 - 2021 REFERENCE**

**4. TYPE OF BUSINESS BENEFIT**



SPEED

CAPACITY

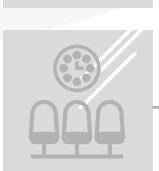
ACCESSIBILITY

REGULARITY

PERFORMANCE

ROLLING STOCK MANAGEMENT

i.e. increase of tracks for parking, reduction of shunting times



STATION SPACE MANAGEMENT

i.e. new passenger platforms

INTERMODALITY

INTERMODALITY

NETWORK INTEGRATION

UPGRADE AND SAFETY

SAVINGS


## LEGEND

1. The title uniquely identifies a specific project.
2. Indicates the line of the 2017-2021 Program Agreement to which the funding of the action refers.
3. Brief explanation of the project also aimed at providing, in the opinion of the Operator, all the functional information to the Railway Companies in order to assess their direct and indirect impacts on their activities.
4. Qualitatively indicates the type of business benefits associated with the action.
5. Represents the expected year of operation start with Compartmental Circular. If the projects provide for several activation phases that have repercussions in terms of benefits for the RUs, evidence will be given of the aforementioned various phases.

## EXPLANATORY NOTES

NB1: the benefit linked to *speed/travel times* refers to an increase in speed and/or recovery of travel and/or reduction of travel times. The real benefit can only be consolidated in relation to the actual operating model.
NB2: the benefit linked to the increase in *capacity* refers to the maximum number of trains that can be marketed on the upgraded section. The real business benefit can only be consolidated in relation to the actual operating model. The number of trains/h refers to the direction of travel unless otherwise stated.
NB3: the benefit linked to improving *accessibility* is associated with interventions that increase or facilitate the access points to the network and/or allow the activation of new services.
NB4: the benefit linked to *regularity* is associated with interventions that reduce delays deriving from:
- traffic conflicts;
- failures and degradation of the infrastructural system.

NB5: the benefit linked to the increase in *performance* is associated with interventions for the freight business that allow to increase the track length and/or the loading gauge and/or axle load of the line and/or upgrade terminals.
NB6: the benefit linked to *rolling stock management* is associated with interventions that vary system capacity.
NB7: the benefit linked to *station space management* is associated with interventions that vary the surfaces intended for passenger waiting rooms, the business activity of the railway companies, and other business activities.

# INVESTMENT 1.1: HIGH-SPEED RAIL LINKS TO THE SOUTH FOR PASSENGERS AND FREIGHT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# Investment 1.1: High-speed rail links to the south for passengers and freight

## Project list

| |
|---|
| Napoli-Bari |
| Palermo-Catania-Messina |
| Salerno-Reggio Calabria |

**NRRP target:** 69 km of new High Speed Lines by June 2024 and 274 km of new High Speed Lines by June 2026

## Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)

## Napoli-Bari

**2026** phase
after **2026** completion

*Ref. CdP-I: 0279A, 0284, 0279B, 0281, 0099A, 0099B, 0099C - route Napoli - Bari*

### Project description

The construction program of the new Napoli-Bari High Capacity line is divided into several sub-projects:

- construction of a variant to the current Napoli-Cancello line for a total length of 15.5 km passing through the Napoli Afragola HS station;
- doubling and speeding up of the old line between Cancello and Frasso Telesino and Frasso Telesino - Vitulano for a length of approximately 46 km (Frasso Telesino-Telese in 2025, Telese-Vitulano in 2026). In addition, 25 level crossings will be eliminated.
- doubling in a variant of approximately 47 km of the Apice-Orsara line section, of which 80% in the tunnel, with the construction of the new Hirpinia station;
- doubling in variant of the Orsara-Bovino section.

In addition to the interventions on the railway lines, there are also plans to upgrade the Napoli and Bari stations, which involve the adoption of the most modern technologies for traffic management: Computerised Control Equipment (ACC) and Multi-station Computerized Control Equipment (ACCM).
Completion of the variant doubling of the Apice-Orsara section is expected after 2026.

### Business benefits by 2026

| | |
|---|---|
| ACCESSIBILITY | Greater accessibility of the provinces of Caserta and Benevento to the Milano-Roma-Napoli high-speed route through the interchange in Napoli Afragola |
| SPEED | For the Bari-Napoli connections, the travel time is estimated to be reduced by 45 minutes |
| CAPACITY | On the Napoli-Benevento-Apice section the theoretical capacity passes from the current 4 trains/h in both directions of travel and 10 trains/h in each direction of travel |
| ACCESSIBILITY | In relation to the reallocation of existing service locations (Acerra station, Casalnuovo stop, Valle Maddaloni stop, Dugenta/Frasso Telesino stop) and new service locations under construction, such as the new shopping centre stop |
| ACCESSIBILITY | Four new stops and a new station will be activated on the Frasso Telesino-Vitulano section |
| PERFORMANCE | It will be possible to circulate trains with semi-trailers, with a load per axle up to 22.5 tons and 750 metres long on the Napoli-Benevento-Apice section |

## Business benefits reaped after 2026

**SPEED**

For the Bari-Napoli connections, a travel time of about 2 hours is expected, while for the Roma-Bari connections a travel time of 3 hours is expected.

**ACCESSIBILITY**

A new Hirpinia station will be activated on the Apice-Orsara section. 5 level crossings will be suppressed

**CAPACITY**

On the Napoli-Foggia section the theoretical capacity passes from the current 4 trains/h in both directions of travel and 10 trains/h in each direction of travel

**PERFORMANCE**

It will be possible to circulate trains with semi-trailers, with a load per axle up to 22.5 tons and 750 metres long on the Napoli-Foggia section

The main project figures

| | |
|---|---|
| **250** Km | Line length |
| **13** Km | Link length |
| **12.5** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

# Palermo-Catania-Messina (Palermo-Catania) 2026

*Ref. CdP-I: 0275A - New Palermo-Catania link 1st phase*

**Project description**

The Palermo-Catania railway link is an infrastructure with double-track sections and single-track sections, alongside which the old line will be maintained. All the stations served by both the old line and the fast line will perform the function of exchange between the various services offered. The entire line falls on the Palermo-Catania-Messina railway axis which is part of the Scandinavia - Mediterranean Corridor.

The Palermo-Catania link project is divided into two macro-phases. The goal of the first is to construct a new infrastructure consisting of double-track sections (Fiumetorto-Lercara Diramazione And Catenanuova-Bicocca) interspersed with single-track sections with performance characteristics that allow for the development of speeds higher than 160 for the most part of the route.

The second macro-phase is aimed at adapting, in terms of interoperability, the sections of the old line between the two aforementioned double-track sections, as well as the construction of further doubling sections coinciding with the long tunnels built in the first macro-phase.

The link between the old line and the fast line is ensured at some stations.

Specifically, the project (whose scope of intervention consists of the Fiumetorto-Bicocca section) can be divided as follows:

- Fiumetorto-Lercara Diramazione section: construction in the first macro-phase of a double track as a variant to replace the current single-track route. The new Valle del Torto stop will be built on the new double-track section, which develops mainly in the tunnel;
- Lercara Diramazione-Vallelunga section: construction of a single track section as a variant with respect to the old line, in the second macro-phase the section is to be doubled and the corresponding section of the old line to be decommissioned at the same time;
- Vallelunga-Caltanissetta Xirbi section: a new single fast track will be built in the first macro-phase as a variant with respect to the old line. In the second macro-phase, the adaptation of the remaining stretch of the old line to the Technical Specifications of Interoperability (TSI) is provided;
- Caltanissetta Xirbi-Nuova Enna section: a section of the fast line with single track will be built in the first macro-phase as a variant to the old line;
- New Enna-Catenanuova section: the construction of the new fast section with single track is planned in the first macro-phase as a variant to the old line. the adjustment of the remaining old line is foreseen in the second macro-phase;
- Catenanuova-Bicocca section: construction of the doubling of the current single-track line in the first macro-phase.

## Business benefits by 2026

SPEED

**Reduction of travel times between Palermo-Catania up to 2 h 15' compared to the current 3h**

CAPACITY

**Development of a new capacity model that provides for fast connections between the major towns and capillary connections between the provinces of Agrigento, Caltanissetta, Enna and Catania**

## Business benefits reaped after 2026

**SPEED**

The new Palermo-Catania link will make it possible to reduce current travel times by about 60', connecting the two metropolitan cities in 2 hours, compared to the current 3 hours. The new infrastructure will make it possible to review the regional service model that provides for the speeding up of connections between the main Sicilian cities

**PERFORMANCE**

The performance adaptation of the entire Palermo-Catania infrastructure in terms of axle load track length and loading gauge will allow the development of freight train traffic within the island

**ACCESSIBILITY**

Improvement of accessibility to railway services thanks to the construction of the new service areas of Valle del Torto, Nuova Enna and the adaptation of the main stations on the new line and on the sections of the old line that will remain in operation

| | |
|---|---|
| **70** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C45 Hight Cube** | loading gauge |
| **600** m | track length |

The main project figures*

* in doubled sections

## Palermo-Catania-Messina (Catania-Messina)

**after 2026**

*Ref. CdP-I: 0249 - Messina-Catania line: Giampilieri-Fiumefreddo doubled*

**Project description**

The doubling project of the Giampilieri-Fiumefreddo section, as a variant with respect to the current line for an extension of approximately 42 km, will make it possible to complete the doubling of the Messina-Catania line, maintaining a short connection section with the current Letojanni station.

Compared to the single-track line currently in operation, parallel to the coast, the new route develops upstream of the current one with the simultaneous construction of new service locations: Fiumefreddo – Calatabiano, Alcantara-Giardini Naxos, Taormina, S. Alessio-S. Teresa, Nizza-Alì and Scaletta Zanclea.

The intervention is divided into two functional lots. The first relates to the doubling of the Fiumefreddo-Taormina section, with the simultaneous decommissioning of the current line between the Fiumefreddo railway station and the connection of the Letojanni interconnection on the old line. In this phase, the town of Taormina temporarily assumes the function of a transition station from double to single track from which a single-track interconnection branches off to Letojanni station. The second lot relates to the completion of the doubling to Giampilieri and the decommissioning of the current line between the Letojanni and Giampilieri railway stations. The interconnection for Letojanni will remain operational and will assume the function of branch line. The Letojanni station in particular, will assume the function of head station for the metropolitan services of the Catania area.

**Technical characteristics**

The entire line falls on the Palermo-Catania-Messina railway axis which is part of the Scandinavian Mediterranean Core Corridor of the TEN-T network. This section will be characterised by a loading gauge suitable for High Cube coded transport, track length 600 metres, axle load D4. The line will be managed via ACC-M/SCC-M/ERTMS L2.

## Business benefits reaped after 2026

| | |
|---|---|
|  SPEED | Reduce travel times between Catania and Messina by about 20 minutes |
|  CAPACITY | Line doubling will make it possible to program up to 10 trains/h per direction of travel |
|  REGULARITY | Line doubling will make it possible to eliminate traffic interference in the stations passing from double to single track and in the stations where intersections are made |
|  PERFORMANCE | The performance adaptation of the entire Palermo-Catania-Messina infrastructure in terms of axle load track length and loading gauge will allow the development of freight train traffic within the island |
|  ACCESSIBILITY | Development of fast connection services between the major inhabited centres and metropolitan services towards the Catania junction, with the construction of the new service locations Fiumefreddo-Calatabiano, Alcantara-Giardini Naxos, Taormina, S. Alessio-S. Teresa, Nizza-Alì and Scaletta Zanclea |

## Salerno-Reggio Calabria

**2026** phase
after **2026**
completion

*Ref. CdP-I: 1107 - HS-HC Salerno-Reggio Calabria*

**Project description**
The construction of the new high-speed connection between Salerno and Reggio Calabria, in a new route with respect to the existing alignments, is divided into the following priority functional lots:
- lot 1a: Battipaglia-Romagnano, which also allows benefits to be obtained on the Battipaglia - Potenza connection
- lot 1b: Romagnano-Praja, with interconnection with the Tyrrhenian alignment
- lot 2: Praja-Tarsia, with interconnection with the Metaponto - Sibari line
- lot 3: Tarsia-Montalto (CS);
- lot 4: Montalto-Lamezia Terme.

The following lots involve the following connections:
Lamezia Terme-Gioia Tauro;
Gioia Tauro-Villa San Giovanni/Reggio Calabria

In addition, the doubling of the existing Paola-Cosenza line (through the new Santomarco tunnel) is aimed at strengthening the connection between the Tirrenica line and Cosenza, both for passenger and freight transport.

### Business benefits by 2026

SPEED

**The completion of the first functional lot by 2026 allows for the reduction of travel times of about 20 minutes in the Battipaglia-Potenza connection**

## Business benefits reaped after 2026

**SPEED**

Lot 2 Praja-Tarsia creates a new connection between the Tyrrhenian-Ionian lines, contributes to the recovery of the route towards Sibari/Crotone and Cosenza (up to 90 minutes)

**SPEED**

Upon completion of the entire work, the travel time between Roma and Reggio Calabria will be 3 hours and 40 minutes

**NETWORK INTEGRATION**

The new infrastructure will therefore allow the development of new passenger traffic along the north-south axis of the peninsula, also benefiting the connections to and from Sicily.

**INTERMODALITY**

The infrastructure will allow for the increase of freight traffic in supply to the port of Gioia Tauro

| | |
|---|---|
| **18** ‰ | **Maximum line gradient** |
| **300** Km/h | **Maximum speed** |
| **25** Kv A.C. | **Electrification** |
| **D4** | **Axle load** |
| **P/C80** | **loading gauge** |
| **750** m | **track length** |

The main project figures

# INVESTMENT 1.2: HIGH SPEED LINES IN THE NORTH THAT CONNECT TO EUROPE


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## Investment 1.2: High Speed Lines in the North that connect to Europe

### Project list

Brescia-Verona-Vicenza

Liguria-Alps

Trento bypass

**NRRP target:** 53 km of new HS/HC lines by December 2025 and 180 km by June 2026.

### Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)

## Brescia-Verona-Vicenza: Brescia-Verona section

**2026**

*Ref. CdP-I: 0361 – Milano-Verona HS/HC line: Brescia-Verona section*

**Project description**

The project is aimed at extending the HS/HC system along the Torino-Venezia horizontal axis and developing the Mediterranean TEN-T trans-European corridor that connects the Iberian Peninsula to the Ukrainian border and is structured as follows:

- 2026 – 1st Functional Lot: Brescia East-Verona (excluding the Verona West junction);
- After 2026 – 2nd Functional Lot: infrastructure upgrading to four tracks in the East exit from Brescia;

The first lot involves the construction of a new 47.6 km long line with HS/HC characteristics in the Lombardy and Veneto regions.
The second lot involves infrastructure upgrading to four tracks from the Brescia station to the Brescia east interconnection for an extension of approximately 10.7 km in the municipalities of Brescia, Rezzato and Mazzano.
With CIPE Resolution no. 42/2017, it was requested to carry out the feasibility study for the junction of a railway stop for the tourist area of Lower Lake Garda, located near the Sirmione motorway exit. Two alternatives (West and East solution) were presented to MIMS.

### Business benefits by 2026

| | |
|---|---|
| SPEED | The new HS/HC Brescia-Verona section will upgrade the current infrastructure to four tracks allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 10' |
| ACCESSIBILITY | Furthermore, with the activation of the Basso Garda HS/HC stop, the level of service of the important tourist area of Lake Garda will increase. |
| REGULARITY | Increase in traffic capacity and regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow) |
| PERFORMANCE | Increase in the transit of freight trains, since it will be implemented according to the interoperability standards of the TEN-T Core Freight networks |

## Business benefits reaped after 2026

CAPACITY

The infrastructure upgrading to four tracks of Brescia-East Brescia will solve the bottleneck out of Brescia by increasing the capacitive level of the entire section. As a result, the overall capacity of the section will be doubled and there will be an increase in traffic regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow). The freed capacity on the old line will allow a global improvement of the regional transport system which can be strengthened with further connections

### Quadrupled Brescia-East Brescia route

| | |
|---|---|
| **10.7** Km | Line length |
| **5- 3.8** ‰ | Maximum line gradient |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

### Quadrupled Brescia East-Verona

| | |
|---|---|
| **47.6** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

## Brescia-Verona-Vicenza: West Verona Node

after **2026**

*Ref. CdP-I: 0361 – Milano-Verona HS/HC line: Brescia-Verona section*

**Project description**
The interventions of the Verona Node of the West entrance project include the construction of 3.6 km of the new HS/HC line, 4.2 km of the new Old Line and 3.3 km of independent freight line, in addition to the upgrade of the General Regulatory Plan of Verona Porta Nuova for the entry of the HS/HC from Milano.

### Business benefits reaped after 2026

SPEED

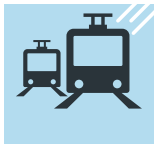
The new HS/HC Brescia-Verona section will quadruple the current infrastructure allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 10'.

CAPACITY

The overall capacity of the section will be doubled and there will be an increase in traffic regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow). The freed capacity on the old line will allow a global improvement of the regional transport system which can be strengthened with further connections

PERFORMANCE

Increase in the transit of freight trains, thanks to the construction according to the interoperability standards of the TEN-T Core Freight networks



CAPACITY

The construction of the Independent Freight line will also make it possible to partially free the Verona node from the flows to/from the Brenner line. The new infrastructure will also enhance connections with the Verona Quadrante Europa freight yard

Verona west node route - HS/HC line

| | |
|---|---|
| **3.6** Km | Line length |
| **12.17** ‰ | Maximum line gradient |
| **160** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

Verona west node route - Independent freight line

| | |
|---|---|
| **3.3** Km | Line length |
| **12.25** ‰ | Maximum line gradient |
| **100** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Brescia-Verona-Vicenza: East Verona Node

after **2026**

*Ref. CdP-I: 0362A – Verona-Padova HS/HC line: Verona-Vicenza junction (first functional lot)*

**Project description**

The interventions of the Verona node of the East entrance project concern functional interventions at the entrance to Verona of the Verona-Padova section with the construction of approximately 6.6 km of the new HS/HC line, a new elementary station in Verona Porta Nuova and tracks dedicated to the HS in Verona Porta Vescovo, connected by the new bridge over the Adige. In addition, a new Rail Freight Yard of three tracks is planned, Cason stop, with a 750-metre track length, located adjacent to the freight line built in the West node.

## Business benefits reaped after 2026

**SPEED**

The new HS/HC Verona-Padova section will upgrade the current infrastructure to four tracks allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 10'

**CAPACITY**

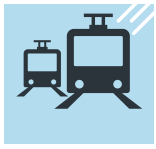
The overall capacity of the section will be doubled and there will be an increase in traffic regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow). The freed capacity on the old line will allow a global improvement of the regional transport system which can be strengthened with further connections

**ACCESSIBILITY**

New AV elementary station in Verona Porta Nuova

**PERFORMANCE**

The section will increase the transit of freight trains, since it will be implemented according to the interoperability standards of the TEN-T Core Freight networks



**CAPACITY**

The new "Cason" freight station will be able to receive freight trains bound for Verona Quadrante Europa from Milano and to support the traffic management of the Verona node

| | |
|---|---|
| **6.6** Km | **Line length** |
| **12** ‰ | **Maximum line gradient** |
| **115** Km/h | **Maximum speed** |
| **3** Kv | **Electrification** |
| **ERTMS L2** | **Technologies** |
| **D4** | **Axle load** |
| **P/C80** | **loading gauge** |
| **750** m | **track length** |

The main project figures

## Brescia-Verona-Vicenza: Verona-Vicenza junction section and Vicenza crossing

**2026 phase after 2026 completion**

*Ref. CdP-I: 0362A – Verona-Padova HS/HC line: Verona-Vicenza junction (first functional lot)*

**Project description**

The Verona-Vicenza Junction project is aimed at extending the HS/HC system along the Torino-Venezia horizontal axis and developing the Mediterranean TEN-T trans-European corridor that connects the Iberian Peninsula to the Ukrainian border and constitutes the 1st functional lot of the Verona-Padova HS/HC line, with a total length of 83 km, divided into 3 lots.

The HS/HC Verona-Vicenza Junction section is divided into two construction lots and involves the construction, between the Verona Porta Vescovo station and the municipality of Altavilla Vicentina, of approximately 44.25 km of the new HS/HC line, in addition to reconstruction of about 7 km of old line. The new high-speed line, except for short sections in an artificial tunnel with a total length of 2.3 km, develops on the surface mainly in embankments or trenches.

The Vicenza crossing aims to extend the HS/HC system along the Torino-Venezia horizontal axis and develop the Mediterranean TEN-T trans-European corridor that connects the Iberian Peninsula to the Ukrainian border and constitutes the 2nd functional lot of the Verona-Padova HS/HC line, with a total length of 83 km, divided into 3 lots.

The project includes the construction of the new HS/HC line for an extension of approximately 6.2 km, with a surface route alongside the existing line, between km 43 + 650 and km 49 + 827, the relocation of 2,7 km of the existing Milano-Venezia line, the reorganisation of the Vicenza new track layout, including the construction of a new elementary HS/HC station (4 tracks), as well as the inclusion of the new Fiera stop at km 46 + 400, serving both of the old line and of the high-speed line.

### Business benefits by 2026

| | |
|---|---|
| SPEED | The new HS/HC Verona-Vicenza section will quadruple the current infrastructure allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 5' |
| CAPACITY | Traffic capacity will increase, also resulting from the specialisation of services (separation between traditional flow and high-speed flow) |
| REGULARITY | Traffic regularity will increase, also resulting from the specialisation of services (separation between traditional flow and high-speed flow) |
| PERFORMANCE | The new Verona-Vicenza HS/HC section will quadruple the current infrastructure and allow the transit of freight trains to increase since it will be implemented according to the interoperability standards of the TEN-T Core Freight networks |

## Business benefits reaped after 2026

ACCESSIBILITY

The activation of the "Fiera" stop west of Vicenza will also make it possible to serve a strategic area of the city by rail, even with long-distance services. New elementary HS / HC station under construction in Vicenza, within the scope of the interventions by PRG

PERFORMANCE

The Rail Freight Yard of the Vicenza station will be adapted to the 750m track length and centralised, enhancing its functions to support traffic along the Mediterranean Corridor

### Verona-Vicenza Junction section

| | |
|---|---|
| **44.25** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

### Vicenza crossing section

| | |
|---|---|
| **6.2** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **160** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

## Liguria-Alps: Gallarate-Rho line upgrade

**2026 phase**

*Ref. CdP-I: 0294– Gallarate-Rho line upgrade*

**Project description**
The Gallarate-Rho line upgrade foresees the infrastructure upgrading to four tracks of the Rho-Parabiago section (8 km) in the first phase, with the adaptation of the Vanzago Pogliano stop, the construction of the new Nerviano stop and the refurbishment of the Parabiago station with the construction of new side tracks. As part of the project, a first phase is planned with new track layout interventions in the Rho station to allow the insertion of the new infrastructure upgrading to four tracks. Two new tracks will be built, respectively one alongside the existing even track and one alongside the existing odd track. In this way there will be a specialisation of the central tracks for suburban services while the external tracks will be specialised for fast connections. The construction of the Y connection between the RFI line and the FerrovieNord line, south of the Busto Arsizio station, is planned to reinforce connections between Milano and Malpensa airport. The new section will have a maximum speed of 150 km/h, will be permitted for use in both directions and equipped with ERTMS/ETCS L2 and will comply with interoperability standards, with axle load D4 and loading gauge P / C80. A 4' train headway will be provided on the section; traffic management on the section will take place from the Central Post of Milano Greco Pirelli.

### Business benefits by 2026

| | |
|---|---|
| CAPACITY | Increase in the capacity of the Rho-Parabiago line from 10 tr/h to 24 tr/h |
| REGULARITY | Increase in regularity indices, with separation between suburban, regional, long-distance and freight traffic |
| ACCESSIBILITY | Increased accessibility thanks to the construction of the new Nerviano stop |

### Business benefits reaped after 2026

| | |
|---|---|
| REGULARITY | The new track layout project of the Rho station, as part of the infrastructure upgrading to four tracks of the Rho-Parabiago section, will provide for the rationalisation of the traffic flows in the station through the construction of an overpass and the acceleration up to 100 km/h of the main station routes |

## Liguria-Alps: Milano Rogoredo-Pavia infrastructure upgrading to four tracks

**2026 phase**

*Ref. CdP-I: 0335 – Pavia-Milano Rogoredo infrastructure upgrading to four tracks*

**Project description**

The infrastructure upgrading to four tracks project of the Milano Rogoredo-Pavia section foresees in the first phase the increase to four tracks of the tracks in the Milano Rogoredo-Pieve Emanuele section (11 km), with the adaptation of the Locate Triulzi and Pieve Emanuele stations, including the construction of a new siding. infrastructure upgrading to four tracks will be achieved through a new pair of tracks alongside the existing one. This will result in the separation between slow traffic and fast long-distance traffic, with the specialisation of the two lines. At the same time, the renewal of the technological systems in the Milano Rogoredo-Pavia section is planned, with the centralisation of traffic management at the Central Post of Milano Greco Pirelli. The section in question will have a maximum speed of 180 km/h, will be permitted for travel in both directions and equipped with overlapping ERTMS/ETCS L2 and will comply with interoperability standards, with axle load D4 and loading gauge P/C80. A 5' train headway will be provided on the section.

### Business benefits by 2026

| | |
|---|---|
| CAPACITY | Increase in the capacity of the Milano Rogoredo - Pieve Emanuele line from 10 tr/h to 20 tr/h |
| REGULARITY | Increase in regularity indices, with separation between suburban, regional, long-distance and freight traffic |

# Liguria-Alps: Third Giovi Pass

**2025**

*Ref. CdP-I: P234 - Genoa hub and Third Giovi Pass*

**Project description**
The Third Giovi pass project involves the construction of 53 km of new line (in addition to the interconnections), of which 37 km in tunnels. A main element is the new twin tube Pass tunnel for a total extension of 27 km, with by-pass every 500 meters and four intermediate access windows.
An interconnection is planned in Novi Ligure for the connections to Torino/France and an interconnection near the southern outlet called Principe-Porti for the direct connection of the line with the Voltri junction. The construction of the new PM Libarna is planned between the Pass tunnel and the Serravalle tunnel, with a 750-metre track length. The project also provides for the implementation of the Rivalta Scrivia station new track layout , with the construction of a new overtaking track to service the 750-metre track length and four new tracks to service the connected 750-metre track length systems. North side, the intervention ends at the current Tortona station where the project, approved to date, provides for a flush graft on the Alessandria - Tortona line.
The new line has a dual value for freight and passengers. For freight traffic, it will make it possible to reduce the gradient up to standard values, it will allow for the transport of semi-trailers and the rolling highway as well as trains up to 740 metres long. For passenger traffic, it will allow for a reduction in travel time between Torino/Milano and Genoa thanks to a maximum speed of up to 250 km/h. The line will be powered at 3 kV dc, will be equipped with ERTMS/ ETCS L2, and will respect the interoperability standards, with axle load D4 and loading gauge P/C80.

## Business benefits by 2026

**SPEED**

Travel time reduction: Genoa-Milano in about 1h and Genoa-Torino in about 1h15', upon completion of all the planned interventions on the routes

**REGULARITY**

Improvement of traffic management with the implementation of new technologies and full interoperability thanks to the adoption of ERTMS L2

**PERFORMANCE**

Adaptation of the connections between the port system of Genoa and the Po Valley to the Technical Specifications for Interoperability (TSI): the new Giovi line, together with the planned interventions on the route, will allow for the elimination of the slope constraints and the transit of Freight trains up to 740 m in length, capable of transporting high-cube containers and semi-trailers (combined transport code P / C80) without axle load restrictions (code D4)

| | |
|---|---|
| **53** Km | Line length |
| **37** Km | Tunnel length |
| **13** Km | Link length |
| **12.5** ‰ | Maximum line gradient |
| **12.5** ‰ | Maximum link gradient |
| **200-250** Km/h | Maximum speed |
| **100-160** Km/h | Maximum link speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **GABARIT C PMO5** interoperable | Clearance gauge |
| **750** m | track length |

The main project figures

# Liguria-Alps: Genoa hub

**2024** phase
after **2026** completion

*Ref. CdP-I: P234 - Genoa hub and Third Giovi Pass*

**Project description**

The upgrading of the Genoa railway junction includes:

- Voltri-Sampierdarena infrastructure upgrading to four tracks, with the extension of the Voltri junction on the east side, which will be connected to the east to the Giovi line near the Polcevera junction, and with the connection to the Third Giovi Pass at the Principe-Porti junction; this intervention will make it possible to allocate the current line to the metropolitan service. The new line, managed by the Genova Teglia Central Post, will have a maximum speed of 160 km/h, will be powered at 3 kV cc and will comply with interoperability standards, with axle load D4 and loading gauge P/C80;
- the construction of the new ACC equipment in the Genova Sampierdarena and Genova Brignole stations, with the infrastructure upgrading to six tracks of the Genova Principe-Genova Brignole section, in order to eliminate the current level interference generated at the couplings, within the Genova Brignole station, of the underground line in the Traversata Nuova and Traversata Vecchia tunnels of the surface line;
- the final new track layout of the Genova Voltri station, which provides for the enhancement of the siding functions for the LPT services and the modification of the Rail Freight Yard serving the Port of Prà, which will reach a configuration with a 7-track 750 m track length; within the scope of the NRRP, the release of a first functional phase is provided, subject to the demolition of the motorway access viaduct to the port whose pillars interfere with the project grounds;
- the upgrade of the Genova Campasso rail freight yard and the adaptation/reactivation of the section between the northern part of the Campasso station and Fegino junction. The adaptation and completion interventions of the Campasso junction include the construction of 8 new centralised tracks with a 750-metre track length and managed by the new station ACC. The interventions for the construction of the railway body involve an area of approximately 48,500 square metres of the total area of 136,900 square metres of Parco Campasso. The rout between the port terminals of Calata Sanità-Bettolo and the Third Giovi pass via Campasso will allow the transit of HIGH-CUBE containers (coded P / C45) without limitations.

## Business benefits by 2026

CAPACITY

**Elimination of bottlenecks in the hub, thanks to the separation of long-distance passenger and freight traffic flows from metropolitan-regional ones and to the increase in the transport capacity and frequency of regional and metropolitan trains (from 10 to 12 trains/h on the Voltri-Brignole connection)**

PERFORMANCE

**Upgrading of the rear port facility of Genova Campasso, with the possibility of managing complete 740 m standard trains directly from/to the stations of origin/destination**

# Trento bypass

**2026**

*Ref. CdP-I: 0337 - Access to Brenner lot 3: Trento and Rovereto bypass*

**Project description**
The Brenner access project is aimed at strengthening the European TEN-T Scandinavian-Mediterranean Core Corridor, connecting Helsinki and Valletta.
The project consists in the construction of additional priority lots to strengthen the Fortezza-Verona line for access from the south to the new Brenner base tunnel, whose works are already in progress.
The Trento bypass, which is part of lot 3 of the investment described, originates in Roncafort, near the Trento interport, proceeding closely alongside the old line for about 2.5 km, and then moving close to the seat of the former Filzi junction, from which the Trento tunnel originates, which ends in the locality of Acquaviva, extending approximately 12 km with twin tube tunnel.
The aim of the intervention is to quadruple the section with shunt in the town of Trento, for the transit of freight trains.
In 2018, an RFI-PAT-Municipality of Trento Memorandum of Understanding was signed for the identification of inputs for the Project Review and the possible compatibility with other local mobility interventions under study.
In 2019 the Supplementary Deed to the Memorandum of Understanding was signed, in which RFI undertook to develop the revision of the PFTE of the Trento bypass.

## Business benefits by 2026

CAPACITY

There will be a diversion of freight traffic on the Trento bypass with better performance and a consequent release of capacity on the historic section in the urban area for the benefit of a possible increase in regional type services

PERFORMANCE

The bypass will quadruple the current infrastructure and will be built according to the interoperability standards of the TEN-T Core Freight networks, thus allowing the transit of both fast and freight trains

## Business benefits reaped after 2026

REGULARITY

There will be an improvement in servicein terms of regularity and a reduction in travel times, thanks also to the specialisation of the lines in the quadrupled sections and to the by-pass of the urban centres of Trento, Bolzano and Rovereto

REGULARITY

There will be a rationalisation of the flows from the north entering the Verona node, with the specialisation of lines for freight flows servicing the Quadrante Europa terminal and for passenger flows to the node

CAPACITY

The goal is an increase in capacity with 400 trains per day passing through the Brenner Pass upon completion of the entire Fortezza-Verona infrastructure upgrading to four tracks project

| | |
|---|---|
| **15** KM | Line length |
| **12** ‰ | Maximum line gradient |
| **200** KM/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# INVESTMENT 1.3: DIAGONAL LINKS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## Investment 1.3: Diagonal links

### Project list

Roma-Pescara

Orte-Falconara

Taranto-Battipaglia

**NRRP target:** 87 km of new lines or doubling by June 2026.

### Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)

## Roma-Pescara

**2026** phase
after **2026** completion

*Ref. CdP-I: P240A - Roma-Pescara*

**Project description**
The upgrade of the Roma-Pescara railway connection is divided into various interventions. The priority ones have been identified, which constitute the first phase of the project:

- Scafa – Manoppello: Doubling mainly in a variant of about 7 km, with a maximum speed of 160 km/h;
- Manoppello – Interport: doubling on site of about 5 km, with a maximum speed of 160 km/h;
- Sulmona - Pratola Peligna: doubling on rectified site of about 5 km, with a maximum speed of 160 km/h;
- Tagliacozzo - Avezzano: doubling on site for about 15 km for a speed of 200 km/h and a maximum gradient of 23‰.

The following interventions are also planned to complete the project:

- Pratola Peligna – Scafa: doubling mainly in a variant of about 25 km, for a maximum speed of 160 km/h. The transfer of the Torre de' Passeri station is planned;
- Roma (Corcolle) –Tagliacozzo: new line of about 53 km, of which about 40 km in tunnels, for a maximum speed of 200 km/h and a maximum gradient of 21‰;
- Avezzano - Sulmona: new single-track line of about 33 km, of which about 18 are in tunnels, for a maximum speed of 200 km/h.

In addition, on another investment project, the doubling of the Pescara-Chieti-Interporto section is under way.

### Business benefits by 2026

SPEED

**Sulmona-Pratola Peligna, Tagliacozzo-Avezzano and Scafa-Manoppello-Interport sections: reduction of travel time up to 5 minutes for some services**

REGULARITY

**Sulmona-Pratola Peligna, Tagliacozzo-Avezzano and Scafa-Manoppello-Interport sections: regularity improved for some services**

## Business benefits reaped after 2026

SPEED

Travel time reduction: Roma-Pescara in about 2h compared to the current 3h 20', with a shorter travel time up to 80' (upon completion of the entire project)

CAPACITY

Capacity increase: from 4 to 10 trains/h on the sections being doubled, with the possibility of establishing metropolitan services between Chieti and Pescara

SPEED

Acceleration and adjustment of the connections between Pescara and L'Aquila, thanks also to other ongoing and scheduled interventions on the L'Aquila-Sulmona line (Sulmona junction, New Sulmona S.Rufina stop, Sulmona-L'Aquila electrification)

PERFORMANCE

Performance adjustment to allow the development of freight traffic

The main project figures*

| | |
|---|---|
| **32** Km | Line length |
| **200** Km/h | Maximum speed |
| **23** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |
| **SCC-M/ACCM** | Command and Control system |
| **I&C** | Public information |

* in doubled sections

# Orte-Falconara

- **2026** phase
- after **2026** completion

*Ref. CdP-I: 0298 - Doubling Orte-Falconara: PM 228-Castelplanio section; I175-Doubling PM228-Albacina*

**Project description**

The interventions consist in the selective doubling of sections of the Orte-Falconara Apennine crossing line. The project is divided into the following macro-interventions identified in the medium term:

- new connection between Castelplanio and PM228 in variant with Albacina shunt, for a length of 24 km;
- doubling alongside the PM228 - Albacina section, for a length of 5 km;
- technological upgrade to speed up the Falconara-Castelplanio, Fabriano-Foligno, Foligno-Spoleto and Terni-Orte sections;
- Spoleto-Terni doubling, for a length of 29 km. (Not funded)

## Business benefits by 2026

| | |
|---|---|
| SPEED | About 20' reduction in travel time (after checking works), for some Roma-Ancona services thanks to an initial phase of infrastructural and technological interventions |
| REGULARITY | Improvement of the levels of regularity thanks to the doubled routes |
| ACCESSIBILITY | PM 228-Albacina doubling: increase in the levels of regularity and improvement of the accessibility of the Albacina station |

## Business benefits reaped after 2026

| | |
|---|---|
| SPEED | At the end of the interventions it will be possible to achieve a reduction in travel times between Roma and Ancona for some services up to about 30' and between Roma and Perugia up to about 15' in relation to the operating model and the completion of the Spoleto-Terni doubling. |
| REGULARITY | Improvement of the levels of regularity thanks to the revision of the operating model that derives from the new infrastructural configuration and the different programming of services, also in relation to the completion of the Spoleto-Terni doubling |
| CAPACITY | Capacity increase: from 4 to 10 trains/h on the entire line |
| ACCESSIBILITY | Improvement of the conditions of accessibility to the service |
| PERFORMANCE | Performance adjustment to allow the transit of freight trains |

The main project figures

| | |
|---|---|
| **200** KM/h | Maximum speed |
| **12** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

# Taranto-Battipaglia

**2026** phase
after **2026** completion

*Ref. CdP-I: P238 - Battipaglia - Potenza - Metaponto - Taranto*

**Project description**
As part of the project, the interventions foreseen in PNRR realize a line with HS/HC characteristics from Battipaglia to Potenza. The interventions consist of widespread acceleration, through track adjustments for an extension of about 30% of the entire line, over-elevations in curves and the establishment of speed ranges C and P from Potenza to Metaponto. Acceleration of station entrances, through the construction of underpasses and deviated routes at 60 km/h and restoration of landslide sections (Campomaggiore and Brindisi M.)
The installation of a new headway system with emulated block in place of the current ACB and the establishment of new crossing points (Ginosa, Pisticci, Salandra, Brindisi di Montagna), in order to allow new timed LPT services the increase of freight traffic.
Improvement of passenger accessibility, thanks to the construction of new platforms with Technical Specifications for Interoperability (TSI) and People with reduced mobility (PRM) in each service location; a new stop will also be built in correspondence with the town of Castellaneta Marina.
Adjustment to freight traffic standards, by increasing track length to 750 metres on the Taranto-Metaponto (new track layout of the Castellaneta M. station, for the new traffic planned on the Bari-Taranto-Gioia Tauro connection) and 575 metres on the Metaponto-Potenza section (new track layout interventions planned in Pisticci, Salandra, Trivigno and Potenza Centrale.
P/C 80 loading gauge for the Taranto-Metaponto-Grassano section and P/C 25 loading gauge for Grassano – Potenza.
D4 axle load for the Taranto-Metaponto-Grassano section and C3 axle load for Grassano – Potenza.
The abolition of some level crossings is also provided.

## Business benefits by 2026

SPEED

Reduction of travel times on the Taranto-Napoli itinerary of about 30', also thanks to the HS Salerno-Reggio Calabria project

REGULARITY

Improvement of the levels of regularity thanks to the new intersection points

PERFORMANCE

Performance adjustment to allow for the start of freight traffic and the transit of 575-metre long trains

## Business benefits reaped after 2026

**PERFORMANCE**

Performance adjustment to allow the transit of 750 m trains on the Taranto-Metaponto section and 575 metres on the Metaponto-Potenza section

**ACCESSIBILITY**

Accessibility to service areas equipped with new platforms and underpasses and the new Marina di Castellaneta stop

| | |
|---|---|
| **250** KM | Line length |
| **SITE** | Single track |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **15** ‰ | Maximum line gradient |
| **D4** | Axle load |
| **P/C80*** | Loading gauge |
| **575/ 750** m | track length |
| **ACC-M** | Command and Control system |

The main project figures

* Taranto-Metaponto-Grassano section

# INVESTMENT 1.4: STRENGTHENING OF THE EUROPEAN RAIL TRANSPORT MANAGEMENT SYSTEM (ERTMS)


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# Investment 1.4: Strengthening of the European Rail Transport Management System (ERTMS)

## Project list

National ERTMS program

**NRRP target:** 1377 km of line equipped with ERTMS by December 2024. 3400 km by June 2026.

## Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)


# National ERTMS program

*Ref. CdP-I: A2011- National ERTMS program*

The ERTMS program stems from the desire, shared with the European Union, to connect the various member states without limitations, applying the same technology on board the trains and on the ground.
For some years now Italy has been involved in the implementation of the so-called "Breakthrough Program", which will allow the ERTMS technology to be extended to the main northern corridors by 2023 overlapping the current SCMT system.
The implementation of the ERTMS L2 Stand Alone system is expected from 2022, with the decommissioning of the national system (SCMT) and the progressive upgrading of vehicles with ERTMS (around 5,000 currently circulating with SCMT).
The NRRP foresees the outfitting of approximately 3,400 km with ERTMS, of which 1377 km in the years 2022-2024 and a further 2023 km in the years 2025-2026.

## Business benefits by 2026

UPGRADE AND SAFETY

Increased safety in rail transport, through the introduction of the shunting protection function, the increase of the level crossing protection, the availability of the axle load protection function, the on-board calculation of the release speed and the progressive replacement mechanical couplings with electrical couplings which, due to technological limitations, cannot be developed on the systems in use on the national network (Class B SCMT and SSC)

SPEED

Increase in speed, through improved performance in relation to the speeds supported, which allows for operations at a maximum speed of 500 km/h and an increase in speed on the ACB lines (Axle Counter Block) currently limited to 150 km/h, if the infrastructure allows it

NETWORK INTEGRATION

Development of interoperability, the advantages of which are mainly related to a reduction in border crossing time and which constitute a significant factor in improving the interconnection between national and regional networks

UPGRADE AND SAFETY

Increased flexibility and efficiency in the implementation of changes to the station layout during the technological upgrade phase with ACC, thanks to the technological and regulatory simplification brought about by the ERTMS system

UPGRADE AND SAFETY

Openness to the use of new technologies that can be integrated with ERTMS provided by the Shift2Rail research program. For example, satellite positioning applications (GNSS) through the European constellation Galileo, where Italy is currently the leader

SAVINGS

Reduction of maintenance costs thanks to savings in installation costs of light signals and cables - not necessary with ERTMS level 2/3 and to the better performance of the electronic equipment used

SUSTAINABILITY

Increased energy efficiency through the use of the ATO, which in operation together with the ERTMS guarantee an average energy saving contained in the range of 10%

## Lines 2022-2024 (1.377 km)

| |
|---|
| Roccasecca-Avezzano |
| Canicattì-Siracusa |
| Decimomannu-Carbonia Stato |
| Villamassargia-Domusnovas-Iglesias |
| Cagliari-Oristano |
| Caltanissetta Xirbi-Aragona-Caldare |
| Lercara diramazione-Agrigento Centrale |
| Agrigento Bassa-Porto Empedocle |
| Alcamo diramazione-Trapani |
| Merano-Dev. Estremo Bolzano |
| Ciampino-Frascati |
| Ciampino-Albano Laziale |
| Ciampino-Velletri |
| Campoleone-Nettuno |
| Monza-Molteno |
| Lecco -Molteno |
| Mercato San Severino-Salerno |
| San Candido-Fortezza |
| Terni-Sulmona |
| Santhià-Biella San Paolo |
| Biella San Paolo-Novara |
| Oristano-Chilivani |
| Lamezia terme Centrale-Catanzaro Lido |

# INVESTMENT 1.5: STRENGTHENING OF METROPOLITAN RAILWAY HUBS AND KEY NATIONAL LINKS


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# Investment 1.5: Strengthening of metropolitan railway hubs and key national links

## Project list

Ivrea-Aosta electrification

Palermo-Trapani via Milo electrification

Ovada line upgrading

Como-Molteno-Lecco electrification

New track layout and gauges on the Adriatic line

Brescia scalo new track layout

Bastardo Tunnel Variant

Bergamo station new track layout

New Torino SFM stops: Dora and Zappata

Verona-Bernnero technological upgrading

ACC Milano Centrale

Upgrade of the TO Porta Nuova-TO Porta Susa link

Firenze Belfiore accessibility-Phase I

Bergamo station. New urban hub link and sustainable mobility

**NRRP target:** 700 km of line upgraded by December 2024. 1,280 km by June 2026.

## Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)

## Ivrea-Aosta electrification

**2026**

*Ref. CdP-I: P257- Ivrea-Aosta electrification*

**Project description**
The project provides for the 3 kV DC electrification of the Ivrea-Aosta railway line which extends for 66.2 km and is included in the Framework Agreement that RFI has stipulated with the Valle d'Aosta Region.
The project includes:

- the construction of new electrical substations powered at 15 kV medium voltage;
- the installation of the contact line with simultaneous adaptation of the works and galleries to house it;
- the adaptation of the stations along the section by electrification of all the runningtracks and the construction of the end station portals for cut-off with respect to the line;
- the creation of remote control devices for the remote operational management of Electric Traction (DOTE).

### Business benefits by 2026

NETWORK INTEGRATION

Eligibility for railway companies to use fully electric rolling stock, as an alternative/ replacement of the current diesel and bimodal trains circulating on the Aosta-Torino route, characterised by greater availability in terms of capacity and higher general performances

SUSTAINABILITY

Reduction of environmental pollution and emissions

# Palermo-Trapani via Milo electrification

• 2026

*Ref. CdP-I: P236 - Electrification of the Cinisi-Alcamo dir.-Trapani section of the Palermo-Trapani "via Milo" line*

**Project description**
The project makes it possible to complete the electrification of the Palermo Centrale-Trapani via Milo line by intervening in the Trapani-Cinisi single-track section for a total extension of approximately 87 km.
The electrification project involves the construction of four new electrical substations located in the localities of Partinico, Alcamo D.ne, Bruca and Milo, as well as a transformer substation at Piraineto. Railway service is currently suspended on the line. On another investment project, also funded and in progress, the line will be restored through interventions at the railway site with infrastructural upgrading aimed at promptly increasing line performance.

## Business benefits by 2026

NETWORK INTEGRATION

The project allows the service to be improved in terms of comfort and performance avoiding train change in Piraineto from/to Palermo Centrale, due to the difference between the traction systems

SUSTAINABILITY

The abandonment of thermal traction increases the environmental and acoustic sustainability of the railway service, deriving from the replacement of fuel-powered rolling stock in favour of electric ones

SPEED

Electrification, together with the restoration of the line, makes it possible to reduce travel times between the Palermo junction and the city of Trapani

## Business benefits reaped after 2026

NETWORK INTEGRATION

The completion of the doubling of the Palermo bypass will allow for the development of a direct service, entirely with electric traction, between Palermo and Trapani

# Acqui Terme/Alessandria-Ovada-Genoa line upgrade

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Acqui T./Alessandria-Ovada-Genova line upgrading project provides for a series of infrastructural interventions distributed on the sections and on the railway stations, aimed at increasing the regularity and reliability indexes, and at the widespread improvement of accessibility in the stations.

The refurbishment of the Mele station is also foreseen, affected in 2001 by a landslide event whose safety had in any case determined a configuration of the rail surface which partially modified the original conditions.

With a view to the aforementioned widespread improvement in accessibility conditions, action will also be taken on the Acqui Terme station.

In detail, the planned interventions are:

- widespread maintenance interventions across the board;
- definitive renovation of the Mele landslide with construction of an artificial tunnel and widespread interventions for the Mele station new track layout;
- widespread interventions to improve accessibility conditions in the railway stations of Acqui Terme, Prasco Cremolino, Masone and Rossiglione and the railway stop of Genova Costa di Sestri Ponente;
- station building restyling in Genova Costa di Sestri, Campoligure Masone, Rossiglione, Prasco Cremolino.

As for the renovation of the Mele landslide, the restoration of the original configuration of the railway station is foreseen, with a second track.

## Business benefits by 2026

REGULARITY

New routes in the Mele station and increase in the number of simultaneous movements allowed in the station, reducing delays deriving from conflicts between station routes

ACCESSIBILITY

Improved accessibility conditions in the railway station of Acqui Terme, Prasco Cremolino, Campoligure Masone and Rossiglione and in the railway stop of Genova Costa di Sestri Ponente

## Business benefits reaped after 2026

REGULARITY

The technological renewal intervention provided as part of the ERTMS Development Plan, with a view to complete interoperability of the lines at European level, will allow greater flexibility in the management of traffic, guaranteeing an increase in the regularity of the line

## Como-Molteno-Lecco electrification

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**
The project provides for 3 kV DC electrification of the single-track Como-Lecco line in the Albate-Lecco section, currently with thermal traction. The project will be divided into two functional phases, Albate-Molteno and Molteno-Lecco.
First phase: Albate-Molteno section electrification.
The first functional phase foresees the electrification of the Albate-Molteno section, extended by 22 km, with maintenance of the current loading gauge in the Albate-Merone section and adaptation to P.MO.2 of the Merone-Molteno section.
Second phase: Molteno-Lecco section electrification.
In the second functional phase, the electrification of the Molteno-Lecco section is provided, extending to 14 km, with simultaneous adaptation of the same to P.MO. 2.

### Business benefits by 2026

| | |
|---|---|
| NETWORK INTEGRATION | Redesign and optimisation of services and greater interoperability between lines with junction of the Como-Lecco line in the Lombardy-Ticino cross-border network. Possibility of diversion of services between RFI lines and Ferrovie Nord (FNM) |
| NETWORK INTEGRATION | Establishment of a cross-border foothill service connecting the three provincial capitals Varese, Como and Lecco, putting them in direct connection with the Canton of Ticino |
| SUSTAINABILITY | Reduction of environmental pollution and emissions |
| NETWORK INTEGRATION | Possibility of routing freight services on the Chiasso-Lecco route |

### Business benefits reaped after 2026

| | |
|---|---|
| REGULARITY | The electrification of the Como-Molteno-Lecco line and the technological and infrastructural upgrading of the crossing points will make it possible to increase the regularity and reliability indexes of the line, as well as to implement the expected capacity model |

## Brescia scalo new track layout

• **2024** phase
• **2026** completion

*Ref. CdP-I: P060 - Port and terminal infrastructural works*

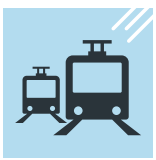
**Project description**

The project for setting up the Brescia Scalo new track layout (also called Brescia Rail Freight Yard) provides for the adaptation of the current tracks I and II FM to 750-metre track length, which will be intended for the arrival/departure of trains on both the Milano and Verona/San Zeno side and the construction of 6 new circulation tracks, of which 3 with 750-metre track length intended for the arrival/departure trains only on the Milano side.
The project for the development of the Brescia junction (also called Brescia Rail Freight Yard) provides for the following interventions:

- the adaptation of the I-II FM tracks connected both on the Milano side and on the Verona/San Zeno side to 750-metre track length;
- the construction of 3 new running tracks within the Rail Freight Yard connected both on the Milano side and on the Verona/San Zeno side;
- the construction of 3 new running tracks of the Rail Freight Yard with 750-metre track length connected only on the Milano side; the new superstructure device will allow the arrival at 60 km/h on these tracks both from the HS/HC line and from the old line, through the ready 750-metre track length accumulation track;
- the construction of new electrified tracks for locomotive parking/shelter.

The project provides for the construction of a new 750-metre track length shunting track on the Milano side connected to all the arrival/departure tracks of the Rail Freight Yard, as well as to the connections present in the railway station. In the first phase, the adaptation of tracks I and II of the Rail Freight Yard to a 750-metre track length is foreseen.
The Brescia junction will be adapted to the TSIs for freight traffic, which provide for the circulation of freight trains with a length of up to 740 metres, loading gauge P/C80 and category D4 axle load.

### Business benefits by 2026

| | |
|---|---|
|  CAPACITY | Increase in the number of arrival/departure tracks |
|  PERFORMANCE | Increase of the track length, with the possibility of managing both arrivals/departures and overtaking tracks for the train line up to 740m |
|  PERFORMANCE | Possibility of movement with a complete train between the arrival/departure tracks and the links thanks to the construction of the new 750M shunting track and increase in the possibility of stops in the railway station |
|  CAPACITY | Increase of the possibilities of stops at the railway station and speeding up of some station routes |

# Bastardo Tunnel Variant

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Bastardo tunnel is located along the Pontremoli line between the service towns of Ostia Parmense and Berceto and has an extension of 478 metres. To date, the work has structural issues as it is located on an unstable slope with multiple landslide fronts and characterised by landslides. Therefore, since 1980, consolidation interventions, geognostic surveys and continuous surveys and monitoring have been carried out. In the period 2009-2014, consolidation interventions were carried out through the installation of metal ribs; today the gallery is arched for its entire length and monitored 24 hours a day. In consideration of these issues, the construction of a new tunnel in a variant route with adjoining adaptation of the existing railway line is foreseen in the section between km 51+208 and km 51+685 on the Parma-Vezzano Ligure line between the towns of Ostia Parmense and Berceto. In addition, in order to guarantee the operation of the line at the same time, the design of the safety measures and the renovation/consolidation of the existing tunnel have been planned, in consideration of the current limitations to train traffic.

The section in the tunnel, for a total of about 400 metres, will be single track, with 3KV electrification. As far as performance is concerned, it will have the characteristics suitable for competitive freight traffic, i.e. D4 for the axle load, P/C 80 for the loading gauge.

## Business benefits by 2026

REGULARITY

**The realisation of the variant of the route will allow the current limitations to train traffic to be eliminated, with consequent improvement of the regularity by reducing the minutes of delay deriving from the existing speed restrictions in the section (up to v = 10 km/h)**

## Bergamo station new track layout

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Bergamo station new track layout project foresees the rearrangement of the configuration of the yard, with the junction of the two tracks coming from Ponte S. Pietro in the west root and the junction in the east root of the station and the new connection to double track with Orio al Serio airport that of the future doubling of the line coming from Montello. Both station roots will be subject to interventions, with the creation of new lines that can be travelled at 60 km/h in order to allow complete passage between the lines associated with the station. At the same time, work will be carried out to adapt the station platforms to standards. The project involves the rearrangement of the configuration of the yard and the subdivision of the railway station into two elementary stations:

- tracks I-II, on which the Ponte S. Pietro-Bergamo-Montello line is set, with track III acting as a priority and the newly built I EST and I WEST root tracks intended for siding services originating/ending in Bergamo station;
- tracks V-VI, on which the Treviglio-Bergamo-Orio Airport line is set up, with tracks IV and VII acting as a priority.

Tracks VIII and IX will not be equipped with a platform and therefore will be dedicated to the arrival/departure of freight trains and / or to the parking/shelter of rolling stock. There will also be additional shelter tracks for rolling stock, prepared for the possible construction of washing platforms, and maintenance vehicles.

The superstructure interventions in the station roots will be aimed at creating new links viable at 60 km/h which will allow the complete passage between the lines associated with the station, accelerating routes compared to the current state. At the same time, there will be the adaptation of the station platforms to standards, with the enlargement of the same to enhance accessibility, and the extension of some of them to the 400-metre track length, according to the interoperability standards for long-distance services, and height equal to 55 centimetres. These interventions will involve changes to the layout of the station tracks with respect to the current configuration.

### Business benefits by 2026

CAPACITY

Re-development of the system to increase the potential and reduce interference between station routes by speeding up the station routes, with complete passage between lines, and increasing the number of system contemporaneities

ACCESSIBILITY

Increased accessibility thanks to the adaptation of the platforms

ROLLING STOCK MANAGEMENT

Usability of new train parking/shelter tracks in the station to meet the needs of railway companies

## Business benefits reaped after 2026

**STATION SPACE MANAGEMENT**

The completion of the interventions provided for in the projects related to the Bergamo station new track layout will lead to a complete redevelopment of the station spaces, with a significant increase in accessibility to the plant also aimed at developing the intermodality provided for by the Bergamo Porta Sud Masterplan

**CAPACITY**

The completion of the projects to double the lines relating to the Bergamo station and the new railway connection with the airport will lead to an increase in capacity and an enhancement of the commercial capacity with the development of new regional and suburban connections.

**INTERMODALITY**

increase in the airport's catchment area thanks to new connections between Milano and Orio

## New Torino SFM stops: Dora and Zappata

**2026**

*Ref. CdP-I: P216 - Completion of SFM Torino stops*

**Project description**
As part of the infrastructural upgrading of the Torino railway junction, the completion of the SFM Torino Dora and Torino Zappata stops, respectively located near Piazza Baldissera and in the Crocetta area (corso Pascoli/Galileo Ferraris) of Torino, is expected. The project involves the functional and architectural completion of the Torino Dora and Zappata stops.
The Torino Dora stop is located between Porta Susa and Rebaudengo Fossata near Corso Grosseto.
The Zappata stop is included in the section of the Torino Lingotto-Porta Susa line, between the progressive mileage 3 + 033 and 3 + 283 and would constitute a new interchange hub with the future M2 underground line.
The stops in question will be served by standard metropolitan pavements (length 250 metres and height 55 centimetres).

### Business benefits by 2026

| | |
|---|---|
| ACCESSIBILITY | Connection with city transport of large areas with strong urbanisation, with the urban fabric and with the services present therein |
| ACCESSIBILITY | Redevelopment and enhancement of large areas thanks to the approach and mending of the metropolitan hub |
| ACCESSIBILITY | Increase in capillarity and accessibility to the railway service and exploitation of the rail/road synergy |

### Business benefits reaped after 2026

| | |
|---|---|
| ACCESSIBILITY | The completion of the stops is part of the broader redevelopment objective of the Torino railway junction which includes the construction of the direct connection Torino Porta Nuova-Torino Porta Susa and the new stops of Torino S.Paolo, Borgata Quaglia-Le Gru and Torino Orbassano |
| NETWORK INTEGRATION | The new organisation of the Torino Rebaudengo station for interconnection with the GTT Torino-Ceres line |
| CAPACITY | 4' headway between Torino Porta Susa-Torino Rebaudengo and the technological upgrading with new HC with innovative technology of the Torino Porta Susa and Torino Stura stations. The set of interventions will guarantee the development of SFM services according to the QA with the Piedmont Region |

# Verona-Bernnero technological upgrading

**2023**

*CdP-I reference: P224 - Infrastructural and technological upgrading and completion of performance adaptation for the Central and Northern Tyrrhenian routes (TEN-T Scandinavia-Mediterranean Tyrrhenian ports corridor)*

**Project description**

The Verona Brenner line is part of the Scandinavian-Mediterranean interoperable corridor of the TEN-T Core Network and its technological upgrade represents a preparatory intervention for the implementation of the ERTMS program. The objective of creating a single ACCM with Central Post in Verona that interfaces with the RBC of the future ERTMS of Verona-Brenner requires the technological upgrade of the existing station and line equipment and a simultaneous renewal of the traditional block sections with electronic locking system.
21 new traffic management devices will be built. A simultaneous renewal of the traditional block sections will also be carried out with an electronic block system always distributed with Bacc 3/3 logic and four codes, replacing the previous relay block. The interventions are preparatory to the implementation of the ERTMS level 2, Baseline 3 system, superimposed on the SCMT system. A new SCC-M supervision and maintenance and diagnostics system will also be created.

## Business benefits reaped after 2026

REGULARITY

The intervention will allow the increase of the standards of regularity, punctuality and quality of railway traffic by installing the most advanced technologies, and at the same time eliminating situations of obsolescence

NETWORK INTEGRATION

From a business point of view, this upgrade is necessary, together with the subsequent activation of the ERTMS L2 system, to achieve the interoperability of the Brenner line, inserted in the TEN-T network, also complying with Community obligations in this regard.

REGULARITY

Once completed, the project will make it possible to make the most of the network's potential in terms of capacity and speed, while improving safety levels.

# ACC Milano Centrale

**2026**

*Ref. CdP-I: P054 - Infrastructural and technological upgrade of the Milano hub*

**Project description**

The Milano Centrale infrastructural and technological upgrade project provides for a series of interventions aimed at increasing the capacity and the indexes of station regularity and punctuality. The technological upgrade of the Milano Centrale station involves the construction of a new ACC system, replacing the current ACEIT system, which allows:

- the increase in the reliability indexes of the station;
- centralisation of traffic management at the Milano Greco Pirelli Central Post;
- rapid identification of abnormalities and effective resolution of equipment unavailability.

The new ACC of Milano Centrale will be interfaced with the ACC-M/SCC-M track length and with the RBC (Radio Block Center) of the Milano Hub.

The new track layout interventions include changes to the railway plan, with the creation of new station links that will allow the creation of new arrival and departure routes for trains. In addition, new communications will be placed in order to increase the number of routes that can be travelled at 60 km/h. Interventions will also be provided to upgrade the movements between the Milano Centrale station and the bundles of secondary tracks, as well as connected systems, intended for the parking and shelter of rolling stock.

Simultaneously with the aforementioned interventions, the "Chiasso" and "Circolazione Locomotive" lines are provided for travel in both directions.

The accessibility of the station will be enhanced, which already today has platforms at a standard height of 55 centimetres, increasing the number of tracks served by 400-metre long platforms, in accordance with the Technical Specifications for Interoperability for stations intended for long-distance services.

## Business benefits by 2026

| | |
|---|---|
| ACCESSIBILITY | Increase in accessibility and enhancement of long-distance services following the increase in the number of 400-metre platforms |
| CAPACITY | Creation of new routes and increase in the number of simultaneous movements allowed in the station, reducing delays deriving from conflicts between station routes as well as accelerate some station routes |
| REGULARITY | Increase in regularity, with a decrease in the minutes of delay deriving from unavailability of the interlocking that manages traffic. Greater flexibility in the management of traffic on the "Chiasso" and "Circolazione locomotive" lines following interventions to permit travel in both directions, in particular in cases of abnormality |
| ROLLING STOCK MANAGEMENT | Renovation of the station side yards for rolling stock parking/shelter |

# Upgrade of the Torino Porta Nuova-Torino Porta Susa link

after 2026

*Ref. CdP-I: P217 - Enhancement of the Porta Nuova-Porta Susa fast line connection*

**Project description**

The intervention consists in the construction of a new stretch of double-track line of about 4.5 km (of which about 3 km in an artificial single-tube double-track tunnel), constituting the continuation of the old Line route from tracks 1 and 2 of Torino Porta Susa towards Torino Porta Nuova, with an independent route from the Crocetta junction and the Zappata junction. For most of the length in the tunnel, the seat of the new line has already been built during works on the Porta Susa-Lingotto bypass project, which is superimposed and alongside.

For entry into the Torino Porta Nuova station, the extension works of the artificial tunnel in the Largo Turati area for about 120 metres and the entrance to the station in correspondence with the current Rialzo Team as well as all the railway outfitting (superstructure, TE, IS, TLC) of the entire section of the line with the necessary modifications in the Torino Porta Susa and Torino Porta Nuova stations are required. Torino Porta Nuova and Torino Porta Susa are currently connected to each other by a stretch of electrified double-track line, about 5 km long, along which the Zappata and Crocetta junctions are located. The intervention allows the separation of traffic flows through the construction of the new connection for the Torino-Milano services, dedicating the current infrastructure to services to/from Modane. The new direct connection between Torino Porta Nuova and Torino Porta Susa will have performance characteristics that ensure the axle load D4 and track speed of 100 km/h.

## Business benefits reaped after 2026

CAPACITY

Increase in capacity, with the consequent possibility of introducing new SFM services thanks to the elimination of the interference between suburban connections and freight directed to Orbassano/Modane with Torino - Milano long-distance ones and Torino-Milano/Aosta regional traffic

REGULARITY

The specialisation of the new section will allow for a reduction in travel times between the two stations to the benefit of the regularity of the services concerned

## Firenze Belfiore accessibility-Phase I

**2026**

*Ref. CdP-I: P255 - Accessibility to the new Belfiore HS station and new Belfiore - Firenze Santa Maria Novella connection*

**Project description**
The project involves the construction of the new Circondaria stop, which is part of the works connected with the upgrading of the Firenze high-speed hub.
The stop will guarantee the interchange of the regional railway system with the new high-speed station, as well as intermodal integration with the other urban and extra-urban public transport systems.
In fact, the project also includes all the external arrangements necessary to guarantee accessibility to the new stop as well as the exchange of flows with the high-speed station, which will take place through a system of horizontal/vertical connections and overhead walkways. Furthermore, in line with the municipal SUMP scenarios, a parking area for tourist buses will be created. Moreover, the airport line 2 tram stop is already in operation. The Circondaria stop will intercept all the railway lines between the Rifredi and SMN/Statuto stations (and therefore the Pisa, Pistoia, Lucca, Prato, Montevarchi line services).
It will therefore consist of 8 passing tracks and 5 standard metropolitan platforms.

### Business benefits by 2026

ACCESSIBILITY

The new Circondaria stop will guarantee the train-train interchange towards the Belfiore station, with considerable time savings for co-modal passengers; Circondaria is also part of a densely urbanised area, facilitating accessibility to the railway system by local users.

### Business benefits reaped after 2026

ACCESSIBILITY

The analysed regime scenario provides for the presence of the Firenze railway underpass, the new Belfiore HS station, the People Mover connecting the Firenze SMN station with the new Circondaria stop.

SUSTAINABILITY

The People Mover will improve the functional integration between the different modes of transport, reducing the need for private cars and ensuring optimal accessibility to the intermodal hub by users, in line with the fundamental assumption of the Urban Mobility Plan Sustainable (PUMS) to assign to public transport (railways, tramways, buses) the privileged role for penetration towards the centre and bipolar connection between the historic centre and the city and metropolitan areas with the greatest demand for travel

# Bergamo station.
# New urban hub link and sustainable mobility

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Bergamo station is at the centre of a system of infrastructural upgrading interventions both by rail, such as the new railway connection with Orio al Serio Airport and the doubling of Ponte San Pietro-Bergamo-Montello, as well as by other LPT.

The area around the station is also the subject of an urban regeneration operation, which affects the areas of the Bergamo Porta Sud railway yard.

In this context, the forecast for the upgrade of the railway station is inserted, through interventions and works that have the dual function of improving and increasing railway accessibility and allowing an urban mending of the two areas separated from the railway, in line with the development forecasts of the new southern district and with the adaptation forecasts of the railway new track layout.

In particular, work is planned to cross the track bundle with connections to the station and access platforms on the north and south sides; integrated into the overpass structure and alongside the station space, a new urban connection path and connection between the various transport systems is included.

## Business benefits by 2026

ACCESSIBILITY

**Upgrade of the station with the construction of a new elevated crossing integrated into the new urban transformation area, as well as the inclusion of a new urban connection path of the two areas separated by the railway**

## New track layout and gauges on the Adriatic line

**2026** phase
after **2026** completion

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**

One of the strategies for the development of freight traffic at European level is the implementation of stations with priority tracks with a capacity of 750 metres.

A set of railway stations on the Adriatic line and the Bari-Taranto line, both belonging to the Scandinavian-Mediterranean freight corridor, are the subject of these interventions.

The adaptation of stations that are no more than 100 km away from each other to 750 metres and of railway stations where trains of 750 metres length start/end travel are connected are foreseen (last mile interventions). The hypothesised locations subject to intervention are: Falconara Marittima, Porto d'Ascoli, Roseto degli Abruzzi, Campomarino, Foggia, Incoronata, S. Nicola di Melfi, Cerignola, Trinitapoli, Giovinazzo, Bari Lamasinata, Ostuni, Brindisi Intermodale, Grottalupara. Five of these fourteen stations are already the subject of a specific project (Falconara Marittima, Campomarino, Foggia, Bari Lamasinata and Brindisi Intermodal).

The adaptation of other stations to 650 metres is also provided, in order to guarantee a distance normally not exceeding 40 km between the railway stations with this track length. These are Fano, Chieuti (funding is already foreseen for this intervention), Bari P. Nord, Sannicandro di Bari. Other locations are already adapted to the 650/750 metre track length.

The stations of Fano, Senigallia, Incoronata, Cerignola, Trinitapoli, Giovinazzo, Bari P. Nord, Ostuni, Sannicandro di Bari, PM Grottalupara will be adapted by 2026.

The stations of Varano, Porto d'Ascoli, Roseto, S. Nicola di Melfi will be adapted after 2026.

### Business benefits by 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km, except for the Pescara-Ancona section where distance extends to 70 km

PERFORMANCE

Distance between 750-metre track length railway stations: max 100 km, except for the Pescara-Ancona section where distance extends to 160 km

### Business benefits reaped after 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km

Distance between 750-metre track length railway stations: max 100 km

## PROJECTS ALREADY PRESENT IN THE FEBRUARY 2021 BUSINESS PLAN EDITION AND FUNDED FOR FUNCTIONAL PHASES OR COMPLETION

| |
|---|
| Restoration of the Caltagirone-Gela line |
| Civitanova-Macerata-Albacina electrification |
| Adriatic line acceleration |
| Technological renewal of the Roma-Napoli HS/HC line |
| Bologna-Padova technological upgrade |
| Brindisi intermodal hub |
| Palermo-Trapani via Milo electrification |
| Vado Ligure station upgrade |
| Trieste-Divaca old line upgrade |
| Lunghezza-Guidonia doubling |
| Udine hub |
| Foggia new track layout and ACC |
| Riga variant |
| DDma Roma-Firenze line adaptation to the HS/HC standard |
| Ogliastrillo-Castelbuono doubling |
| Bari south hub |
| Railway connection with the Venezia airport |
| Pistoia-Lucca line upgrade |
| Ponte S.Pietro-Bergamo-Montello line upgrade |
| Railway connection with the Bergamo airport |
| Railway connection with the Genoa airport |

| |
|---|
| Adriatic doubling: Ripalta-Lesina |
| Bolzano hub: Virgolo tunnel |
| ACC-M Bologna-Rimini completion |
| Roma hub technological enhancement |
| Roma Tuscolana new track layout |
| Pigneto hub |
| Campoleone-Aprilia doubling |
| Gallarate station infrastructure and technological upgrade |
| Milano Porta Garibaldi technological upgrade and acceleration |
| ACC Milano Centrale |
| Belluno ring electrification |
| Veneto line electrification |
| Genoa-Torino acceleration |
| Milano-Genoa acceleration |
| Torino stop completion (Orbassano, S.Paolo, Borgata Quaglia) |
| New Ferriera-Buttigliera stop |
| Technological upgrade of the Torino hub and related lines |
| Fossano-Cuneo line upgrade |
| Falconara variant |
| Montemarciano stop |
| Adaptation and improvement of the Chivasso - Ivrea - Aosta railway line |
| Works for the elimination of interference with the Chivasso - Ivrea - Quincinetto line traffic |
| Modernisation of the Sardinian network - technological upgrade of the sections south of Oristano, upgrade and safety interventions |
| Port of Trieste: railway works to upgrade the Trieste Campo Marzio station |
| Port of Ravenna |

| |
|---|
| Technological upgrade of the Firenze hub |
| Technological upgrade  Venezia Mestre – Venezia S. Lucia |
| Technological upgrade  Roma – Napolo via Formia 1° e 2° phase |
| Upgrading block system and command and control system on the line Bologna – Verona |
| Technological completion Torino – Padova |
| Line performance upgrade Bologna – Prato 1° phase |
| Upgrading clearance gauge on the lines Civitavecchia-Roma and Roma-Cassino |
| Infrastructure upgrading to four tracks Tortona – Voghera priority works |
| ACC di Torino Orbassano |
| New stop of  Catania Fontanarossa |
| Terni – Rieti – L'Aquila – Sulmona connection |
| New freight terminal at Milano Smistamento |
| Technological and infrastructural upgrade Genova - Ventimiglia |
| Technological upgrade  Genova – La Spezia |
| Technological upgrade Venezia – Trieste |
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# INVESTMENT 1.6: STRENGTHENING OF REGIONAL LINES


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## Investment 1.6: Strengthening of regional lines

### Project list

Rosarno and San Ferdinando new track layout

Bari-Bitritto infrastructural upgrade

**NRRP target:** upgrade of 680 km of regional lines by June 2026

### Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)


05/08/2016

## Rosarno and San Ferdinando new track layout

**2026**

*Ref. CdP-I: P258 - Rosarno-San Ferdinando line: adaptation of the Rosarno and San Ferdinando new track layout*

**Project description**

The San Ferdinando station, not currently part of the RFI asset area, constitutes a support system for the terminal connections serving the port of Gioia Tauro. It is connected, via an electrified single-track link of about 5 km, to the Rosarno station which insists on the Calabria Tyrrhenian alignment. The stations are an integral part of the TEN-T Core Scandinavian-Mediterranean corridor.

The work involves:

- the doubling of the link between San Ferdinando and Rosarno;
- the review of the San Ferdinando new track layout, with the construction of 4 tracks with a capacity of 750 metres, in line with the specifications of the TEN-T corridor;
- technological upgrade of the San Ferdinando station interlocking.

The intervention will make it possible to make connections with the links to the San Ferdinando station more efficient. Similarly, in the Rosarno station the reconfiguration of the new track layout is foreseen in function of the doubling of the aforementioned link with San Ferdinando and for the construction of a track with a capacity of 750 metres.

### Business benefits by 2026

CAPACITY

The adaptation to the standards required by the Core TEN-T network will allow for the development of new freight traffic on the TEN-T Scandinavia-Mediterranean corridor

INTERMODALITY

The benefits in terms of new freight traffic are also linked to the development of stops connected to the San Ferdinando station, which promote ship-rail intermodality.

### Business benefits reaped after 2026

PERFORMANCE

The development of freight traffic along the TEN-T corridor is related to the completion of the interventions to adapt the loading gauge to PC80 and to further interventions on the new track layout of some railway stations aimed at obtaining a track length equal to 750 metres on the TEN corridor

## Bari-Bitritto infrastructural upgrade

**2026**

*Ref. CdP-I: P259 - Bari - Bitritto line: infrastructural upgrading*

**Project description**

The infrastructure, consisting of a single-track line, connects Bitritto, Loseto and Carbonara to Bari Centrale with the interconnection to the national network with the Bari-Taranto line at the current Bari Parco Nord station.

The completion program of the Bari-Bitritto line was assigned by the Ministry of Sustainable Infrastructure and Mobility (MIMS) to RFI as Infrastructure Manager at the request of the Puglia Region. As per the 2016-2021 Framework Agreement signed between RFI and the Puglia Region and reconfirmed in the current 2021-2026 in force, the interoperability of the regional lines and, in the fully operational scenario, a series of services involving multiple infrastructure managers are included.

Activation of the line for commercial operation involves the following upgrades strictly necessary for commissioning:

- infrastructure subsystem (maintenance of viaducts and underpasses, maintenance of support devices, seismic improvement of viaducts, superstructure works, ballast containment in embankment);
- SSC subsystem of the line (insertion of the Carbonara and Bitritto peripheral posts in the Bari-Taranto Evolved CTC, located in the Bari Lamasinata Central Post; adaptation and completion of the CCS subsystem or SCMT, ACEI, ACB, TLC, SCC, IeC interventions) to reach the minimum RFI standards essential for the operation of the line;
- Energy subsystem whose main characteristics must meet the TE standards according to RFI Tech. Spec. ed. 2008.

The following enhancement interventions are also planned:

- Carbonara station: ACEI I0/19 facility equipped with two tracks, one 112 metres long and the other 120 metres, two 55 cm high platforms, both 120 metres long. The station will be equipped with fixed and variable station signs, routes and tactile maps for the blind, shelters, functional furniture for passengers on both platforms and IeC public information system;
- Loseto stop: a town equipped with a 120-metre H55 platform and shelters. The stop will be equipped with fixed and variable station signs, routes and tactile maps for the blind, shelters, functional furniture for passengers on both platforms and IeC public information system;
- Bitritto station: ACEI I0/19 facility equipped with two tracks, one 77 metres long and the other 81 metres, two 55 cm high platforms, both 120 metres long. The station will be equipped with fixed and variable station signs, routes and tactile maps for the blind, shelters, functional furniture for passengers on both platforms and IeC public information.

### Business benefits by 2026

CAPACITY

**The expected capacity will be 17 pairs/day with Bitritto-Bari/Adelfia (FSE) connections. The continuation on Adelfia (FSE) will be possible with the completion of the variant south of Bari**

| | |
|---|---|
| **10** KM | **Line length** |
| **SITE** | **Single track** |
| **85 Km/h** | **Maximum speed** |
| **3** Kv without SSE | **Electrification** |
| **ACB and SCMT** | **Block system** |
| **SCC: CTC** advanced | **Command and Control system** |

The main project figures

# INVESTMENT 1.7: UPGRADE, ELECTRIFICATION AND INCREASE THE RESILIENCE OF RAILWAYS IN THE SOUTH


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## Investment 1.7: Upgrade, electrification and increase the resilience of railways in the south

### Project list

| |
|---|
| Adaptation and acceleration of the Ionian railway line |
| Venafro-Campobasso-Termoli upgrade |
| Palermo-Agrigento-Porto Empedocle upgrade |
| Connection with Trapani Birgi airport |
| Decimomannu-Villamassargia (First Phase) doubling |
| Connection with Olbia airport |
| Bari Lamasinata |
| Augusta bypass |
| Albairate-Abbiategrasso doubling |

**NRRP target:** Upgrade of 573 km of lines by June 2026.

### Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)

## Adaptation and acceleration of the Ionian railway line

**2026**

*Ref. CdP-I: P245 - Adaptation and acceleration of the Ionian railway line: Sibari-Melito Porto Salvo section and Lamezia Terme-Catanzaro Lido cross-section*

**Project description**

The Ionian line, between the Sibari and Catanzaro Lido stations, is affected by interventions aimed at increasing the reliability of the infrastructure, speeding up the crossing points and accessibility to the service, resolving some interference with ordinary roads through the elimination of some level crossings.

The Sibari-Catanzaro Lido section is also affected by an electrification project which also extends to the cross-section Catanzaro Lido-Lamezia Terme Centrale line, where infrastructural upgrading and acceleration interventions are under way.

Finally, both the aforementioned lines are affected by a technological upgrade aimed at improving the reliability and management of the signalling systems.

In addition to the aforementioned interventions and design/construction already in progress, the following further interventions are planned:

- adaptation of works on sections of line to increase maximum speeds;
- extension of the technological upgrade to further sections of the line south of Catanzaro Lido;
- design of a first phase of electrification between Catanzaro Lido and Melito Porto Salvo;
- adaptation of the Cutro tunnel , as part of the electrification intervention between Sibari and Catanzaro Lido.

The interventions make it possible to raise the maximum speed up to 150 km/h in some sections and to remove the limitations on the axle load in order to extend the C3 axial load category to the entire Sibari-Catanzaro Lido-Lamezia Terme section.

### Business benefits by 2026

SPEED

Reduce travel times due to the increase in speed along the line and the reduction of train running time in the intersection locations as well as thanks to the establishment of Rango C

ACCESSIBILITY

Improve accessibility to the railway service by raising platforms and building pedestrian underpasses in the main stations

### Business benefits reaped after 2026

NETWORK INTEGRATION

The completion of the interventions will make it possible to enhance the connections between the Ionian and Tyrrhenian lines and improve accessibility with Lamezia Terme

NETWORK INTEGRATION

Line electrification makes it possible to extend the long-distance north-south connections to the Ionian side without the need to change traction in the Sibari station

# Venafro-Campobasso-Termoli upgrade

**2026**

*Ref. CdP-I: P246 - Venafro-Campobasso-Termoli upgrade*

**Project description**

The Venafro-Termoli line has a total length of 171 km, with a single non-electrified track.
The Roccaravindola-Isernia-Campobasso section is affected by electrification and acceleration interventions.
The new interventions include:

- technological upgrade (ACC-M) of the Venafro-Matrice-Termoli line;
- electrification of the Termoli-Matrice section and reclassification of the section (adaptation to axle load cat. C3);
- targeted changes to the new track layouts of the stations along the entire Venafro-Termoli route, additional to those already planned, to speed up travel and create contemporary movements.

## Business benefits by 2026

REGULARITY

Improvement of the levels of infrastructural reliability, with repercussions on the levels of regularity of services

# Palermo-Agrigento-Porto Empedocle upgrade

**2026**

*Ref. CdP-I: P247 - Palermo-Agrigento Bassa-Porto Empedocle upgrade*

**Project description**
The intervention involves increasing the performance of the section of line between Lercara Dirammmazione and Agrigento Centrale (59 km) of the Palermo-Agrigento Centrale line, which includes the Agrigento Bassa station, branch for the Agrigento Bassa-Porto Empedocle section (10 km).
The Lercara Diramazione-Agrigento Centrale section will be subject to interventions aimed at increasing the axle load characteristics of the line, in order to allow the circulation of new types of rolling stock.
Interventions will also be carried out in the Aragona Caldare station to allow simultaneous entrances and obtain benefits in terms of travel times.
The Agrigento Bassa-Porto Empedocle section will be the subject of interventions to protect the road body, technological upgrades and redevelopment interventions in the locality of Tempio di Vulcano in order to improve accessibility to the neighbouring archaeological area. The intervention on the Lercara Diramazione-Agrigento Centrale infrastructure will allow to obtain a C3 type axle load coding, consistent with the remaining Lercara Diramazione-Palermo Centrale section. A spot intervention is foreseen in the Aragona Caldare station regarding the signalling system in order to allow simultaneous entrances.
The redevelopment of the Tempio di Vulcano stop makes it possible to obtain a platform with a length of no less than 125 metres and 55h and improve accessibility to the service area.
Both sections will be managed through the new ACC-M/SCC-M/ERTMS L2 system in line with the equipping of the Palermo-Agrigento line.

## Business benefits by 2026

CAPACITY

**The infrastructural intervention able to improve the characteristics of the line in terms of axle load coding will allow the circulation of new types of rolling stock, to the benefit of comfort and transport capacity**

## Business benefits reaped after 2026

NETWORK INTEGRATION

**The increase in performance of the Lercara Diramazione and Agrigento section is consistent with the doubling of the Fiumetorto-Lercara Diramazione section as part of the project for the construction of the new Palermo-Catania fast line, which allows to increase the capacity of the infrastructure with a significant decrease in travel times**

ACCESSIBILITY

**Another investment area between Aragona Caldare and Agrigento Bassa, the two new S. Michele and Fontanelle stops will be built in order to improve accessibility to railway services**

# Connection with Trapani Birgi airport

**2026**

*Ref. CdP-I: P250 - Intermodality and accessibility Trapani Birgi*

**Project description**

Trapani-Birgi airport is involved in the rail link project. In this context, the possibility of creating two branches will be assessed which, branching off from the current Palermo-Trapani line (via Castelvetrano), will converge in a siding station located close to the airport terminal.

The aforementioned configuration will ensure the connection of the airport terminal both in the direction of Trapani and in the direction of Castelvetrano. The new infrastructure will therefore consist of a new head station equipped with two trunk tracks and two branches in line, managed by central computerized systems (ACC) inserted, when fully operational, in the command and control system of the Palermo-Trapani line (ACCM). The functional hypothesis provides for a new head station equipped with two non-electrified sidings served by a h55 platform with a useful length of between 150 and 200 metres. The arrival/departure routes to/from the airport station must be passable at speeds of 60 km/h, with the connection branches to the Castelvetrano-Trapani line that can be travelled at the maximum speed allowed by the route.

The new interlocking, for the management of the station and of the sidings, will be included in the new ACC-M/SCC-M/ERTMS L2 system in line with the equipping of the Palermo-Trapani line.

## Business benefits by 2026

INTERMODALITY

The connection improves accessibility to Trapani-Birgi airport and the intermodality between airport and rail services

CAPACITY

The construction of the new infrastructure creates the conditions for a reinterpretation of the current service model on the Palermo-Trapani line (via Castelvetrano), currently affected by a traffic of 24 trains/day. The new service model may provide for the forwarding of a part of the trains to the airport, with the possibility of diversifying the capacity offer between services from/to the airport and pass-through services.

## Business benefits reaped after 2026

SPEED

When fully operational, it is possible to reduce the overall travel times on the Castelvetrano - Trapani Airport/Trapani connection of services in relation to other investment projects (to be financed) for the acceleration provided for in the Framework Agreement

# Decimomannu-Villamassargia (First Phase) doubling

**2026**

*Ref. CdP-I: P248- Decimomannu-Villamassargia (First Phase) doubling*

**Project description**
Doubling of the Decimomannu-Villamassargia section on which the Cagliari-Iglesias and Cagliari-Carbonia services converge. The intervention, also provided for as part of the LPT Framework Agreement between RFI and the Sardinia Region, extends for about 30 km and involves the construction of the doubling of the track between the two service locations and the elimination of existing level crossings. The line will feature a remote command and control system with innovative SCC-M/ACCM technology and I&C public information system. A first phase of doubling is planned from Decimomannu to Siliqua.

## Business benefits by 2026

CAPACITY

The interventions will make it possible to increase the capacity of the infrastructure by creating the conditions for the strengthening of the railway service on the Cagliari-Carbonia/Iglesias connections, in line with the provisions of the Framework Agreement for LPT services with the Sardinia Region.

SUSTAINABILITY

The work allows for the consolidation and increase of the modal shift and of systematic movements, taking into account the high character of commuting on the connection (catchment area equal to about 200,000 people), of travel of a tourist nature, also considering the high territorial importance of the coast (around 850,000 visitors in 2019) and of other attraction poles (e.g. local industrial archaeology) with high unexpressed tourist potential

REGULARITY

The project creates the conditions for increasing service quality and regularity levels, also in relation to the elimination of all level crossings on the line

## Business benefits reaped after 2026

CAPACITY

The completion of the doubling creates the infrastructural conditions for an increase in the frequency of services to/from Sulcis, with the objective of a 30' frequency along the Cagliari-Iglesias/Carbonia connection and a frequency of 15' in the Villamassargia station

REGULARITY

The project also creates the conditions for increasing service quality and regularity levels, also in relation to the elimination of all level crossings on the line

# Connection with Olbia airport

**2026**

*Ref. CdP-I: P249 - Railway connection to the port of Olbia*

**Project description**
The intervention, also provided for as part of the LPT Framework Agreement between RFI and the Sardinia Region, consists in the construction of a new section of line for the connection between the National Railway Infrastructure and Olbia Airport. The new line starts from Olbia, intercepts the new John Paul II hospital complex and then continues towards the airport, partly skirting the existing state road to reduce the impact on the territory. The connection also includes a direct connection link to the line existing between Olbia and Ozieri Chilivani. Single-track line of about 7 km equipped with ERTMS L2 technology. The line will also feature a remote command and control system with innovative SCC-M/ACCM technology and I&C public information system. The new hospital service stop will have a 200-metre platform to allow accessibility for passenger service. The airport service station will be equipped with two platforms for train siding serviced by passenger access.

## Business benefits by 2026

INTERMODALITY

The intervention, in addition to intercepting purely seasonal flows from/to the airport (3 million passengers in 2018 and third airport nationally with a +12% growth rate), also allows for intercepting systematic movements thanks to the new Hospital stop, as well as the potential mobility linked to the construction of a new shopping centre in the airport area

ACCESSIBILITY

Service integration with Olbia airport and increased accessibility to the railway service thanks to the construction of the new Olbia Hospital stop

## Bari Lamasinata

**2026**
**Phase 1**

*Ref. CdP-I: P184 - Bari Lamasinata freight yard*

**Project description**
The scope of interventions will concern: construction of a new station (so-called "Bari Lamasinata nuova") with arrival/departure and collection/delivery function with a 750-metre track length for direct connection to the national network passing on the Adriatic line. Complete refurbishment of the loading-unloading terminals in the areas of Bari Ferruccio. The entire project is divided into 2 functional phases of which only phase 1 is involved in funding under the NRRP:

**PHASE 1**: (configuration with 7, 750-metre long pass-through tracks)
- construction of the Lama Balice overpass;
- construction of the first 5 centralised 750-metre long pass-through tracks, in addition to the 2 Bari-Foggia line tracks, at the new railway station;
- construction of the PP/ACC inserted in the ACC-M of the Bari hub for traffic management at the new station;
- redevelopment and management under the new ACC of the tracks (I-IV and the 2 tracks X, XI sections) of the current system for locomotive parking.

**PHASE 2:** (final configuration with 8, 750-metre long pass-through tracks and of further 4, 750-metre sidings)
- Construction of an additional pass-through track (track VIII) with 750-metre track length;
- Construction of 4 sidings with 750-track lengthetre to park materials and locomotives connected to the new track VIII.

### Business benefits by 2026

| | |
|---|---|
| PERFORMANCE | Reduction of time and costs of shunting operations and simplifications in the operational management of traffic flows |
| CAPACITY | Increase in railway station capacity to expand the capacity offer in the time slots most requested by the RU (even train departures in the evening; odd train arrivals in the morning) |
| PERFORMANCE | Construction of 750-metre long tracks, optimal for freight transport on the TEN-T network and partial streamlining of shunting |

### Business benefits reaped after 2026

| | |
|---|---|
| PERFORMANCE | Increase in the capacity of the new railway station compared to phase 1, to promote the development of freight traffic and further No.4 750-metre long tracks used to park materials and locomotives with the possibility of locomotive inversion |

# Augusta bypass

**2026**

*Ref. CdP-I: P253 - Augusta bypass*

**Project description**

The intervention for the variant of the route between the Brucoli and Priolo stations, on which a new railway station will stand, will make it possible to eliminate interference between the railway infrastructure and the urban fabric of the city of Augusta.

The new railway station and the connection with the port will be managed through specific Central Computerized Equipment (ACC) interfaced with the command and control system in use on the Catania-Syracuse line.

The line section will be characterised by the following performances:

- D4 for axle load;
- P/C 45 for loading gauge;
- 600-Metre track length.

The variant of the single electrified track will make it possible to reduce the length of the route between the Brucoli and Priolo stations by approximately 4 km. The construction of the new Augusta station is planned on this variant, about 2.5 km from the city centre.

For the new station, an intersection track with a capacity of more than 250 metres is assumed, connected by means of communications that can be travelled in deviated at 60 km/h with respect to the straight track layout, with independent branches. The tracks, serviced by platforms no less than 250 metres long and 55 centimetres high, connected to each other by an underpass, will guarantee simultaneous entrances for trains coming from opposite directions.

## Business benefits by 2026

REGULARITY

**The Augusta variant eliminates the interference between the NFI and the urban fabric of the city of the same name. In this context, given the relocation of the station, appropriate equipment must be provided for the purposes of intermodality**

## Albairate-Abbiategrasso doubling

**2026**

*Ref. CdP-I: 0049B - Milano - Mortara doubling: 2nd phase*

**Project description**

The doubling of the Albairate Vermezzo-Abbiategrasso section is part of the Milano-Mortara line doubling project, to be achieved in several functional phases. This phase involves the construction of a new track in close proximity to the current one between the stations of Albairate Vermezzo and Abbiategrasso, for a total extension of approximately 5 km. The project also provides for the elimination of the line and station level crossings currently present and the construction of new siding in the Abbiategrasso station, in order to allow the enhancement of the suburban service on the line.

In this phase, doubling includes:

- the construction of a new track alongside the current one, for a total of 5 km, of the Albairate-Abbiategrasso section, with the elimination of line and station level crossings;
- the construction of a new headway system between the Albairate and Abbiategrasso stations;
- The Albairate Vermezzo station new track layout for the junction of two new tracks; the interventions will also provide for the adaptation of the station protection and departure signalling as well as adaptation interventions to the TE infrastructure;
- The Abbiategrasso station new track layout, with the construction of the station underpass, of the lift/ramp systems and of a new platform, with a 250-metre track length and a standard height of 55 centimetres, to serve the new doubling track; at the same time, the existing platform will be adapted to standard track length and height. Two new tracks will also be built for the storage of rolling stock, in order to allow the siding of suburban connections. At the same time as the doubling of the station area, work will be carried out on the signalling systems and on the station TE infrastructure;
- the technological renewal of the Abbiategrasso station, with the creation of a new ACC system for the management of traffic from the Central Post of Milano Greco Pirelli.

## Business benefits by 2026

CAPACITY

Increase in the capacity and potential of the line and usability of new train parking/ shelter tracks in the station to meet the service objectives of the Lombardy Region

REGULARITY

Increase in reliability and regularity indices thanks to the construction of the new ACC in Abbiategrasso and decrease in delays associated with the existence of line and station level crossings

REGULARITY

Greater flexibility in traffic management thanks to the extension to Abbiategrasso of the double-track section in both directions

STATION SPACE MANAGEMENT

Improvement of station space management and accessibility, with the construction of the new underpass and platforms with standard track length and height

## Business benefits reaped after 2026

CAPACITY

The completion of the Milano-Mortara doubling will allow an increase in capacity, from 4 tr/h in total to 10 tr h per direction, guaranteeing the quantitative increase of regional services in the reference basin and their reliability and regularity index

ACCESSIBILITY

Thanks to the doubling, all stations will be equipped with underpasses and platforms at standard height, increasing accessibility for passengers

REGULARITY

All level crossings on the route will be eliminated, allowing for the elimination of delays connected in the event of abnormalities and an increase in the regularity of the line

# PROJECTS ALREADY IN B.P. AND FUNDED FOR COMPLETION

| |
|---|
| Catania hub |
| Barletta - Canosa electrification |
| Potenza - Foggia line modernisation |
| Upgrade of links with the Brindisi airport |
| Upgrade of links with the port of Taranto |
| Ferrandina - Matera completion |
| Roccavindola - Isernia - Campobasso electrification |
| Salerno Arechi - Airport link completion |
| Codogno - Cremona - Mantova first phase completion |

# INVESTMENT 1.8: IMPROVEMENT OF RAILWAY STATIONS IN THE SOUTH


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# Investment 1.8: Improvement of railway stations in the south

## Project list

| |
|---|
| Functional upgrade, improvement of accessibility and intermodality of southern stations |
| Intermodal hubs and metro lines for the development of sustainable mobility |

**NRRP target:** 10 stations by December 2024 54 stations by June 2026.

### Contribution to the objectives of the 2030 Agenda (Sustainable Development Goals, SDGs)

## Functional upgrade, improvement of accessibility and intermodality of southern stations

**2026**

The program involves 45 stations of strategic importance from a transport and/or tourist point of view, described as stations in the Easy & Smart circuit (including Pescara, Potenza, Barletta, Lamezia Terme, Cosenza, Crotone, Reggio Calabria Lido, Sapri, Oristano and Palermo Notarbartolo, Milazzo, Marsala and Siracusa), rethought with the aim of fully expressing the potential as a transport hub and service hub, integrated with the reference territory.
The interventions affect the passenger building, the platforms, shelters, underpasses and the relative access areas (ramps, stairs, lifts, etc.), but also the squares in front of the station and the surrounding areas, in RFI assets, which constitute access and are aimed at:

- improving accessibility, in particular for people with reduced mobility (lifts, ramps, escalators, PRM routes, lighting, raising platforms, etc.);
- upgrading public information and passenger assistance systems;
- improving of comfort and architectural quality (transit and waiting spaces, toilets, etc.);
- functional redevelopment, with the identification of new spaces and services;
- improvement of the safety and usability conditions of internal and external areas.

All interventions are aimed at achieving objectives of environmental sustainability and energy efficiency, through the adoption of international protocols for the assessment of the energy and environmental performance of buildings and more generally of the territories, the monitoring and management of energy consumption, therefore performance optimisation.

### Objectives and benefits

These are interventions aimed at enhancing the accessibility and attractiveness of the station, as well as its energy efficiency, to meet the mobility needs of people in everyday travel and increase connectivity and integration of the public transport network on the territory, thus contributing to sustainable and inclusive development.

Redevelopment and refurbishment of passenger buildings and ancillary buildings with a view to integrated conservation

Return of unity with the squares in front of the stations, through the logical redistribution of spaces and the extension of pedestrian accessibility areas

Improvement of the safety and usability conditions of the station and neighbouring areas in assets

Increased decorum and quality of spaces, also thanks to the appropriate use of greenery

Recovery of the areas behind the track bundle with the possible opening of a second access front to the station, to ensure full accessibility by all potential users and urban reconnection

Integration of mobility systems in favour of public transport and soft mobility

# Intermodal hubs and metro lines for the development of sustainable mobility

**2026**

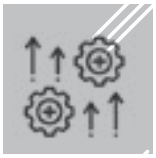
Investment projects are planned aimed at large-scale interventions for the enhancement and development and/or functional redevelopment of particularly important stations (including Villa S. Giovanni, Messina Centrale and Messina Marittima, Benevento, Caserta, Bari, Taranto, Lecce, the stations of the L2 line of the Napoli underground and the new stop of S. Maria di Settimo-Montalto Uffugo): these are strategic interventions to improve accessibility to rail transport and with repercussions on the territory, often integrated in a context broader urban regeneration and mobility system.
The program is aimed at the development, redevelopment, accessibility and energy efficiency of individual stations, railway hubs that perform the function of mobility hubs or subway lines to be upgraded/redeveloped to ensure their renewed centrality as a transport hub and service hub, with a homogeneous project that guarantees coherence and recognisability, integrated in the reference urban context.

### Objectives and benefits

The overall program of interventions aims to combine the programmatic objectives of RFI with those of the local administrations (Municipalities and Regions) involved in the management of the territory, as well as with the objectives and strategic plans of other Group companies that may be interested in the redevelopment and enhancement of the context of integration, promoting a more balanced and sustainable development of the territory and enhancing the station as an integrated intermodal hub within urban mobility planning.

## Objectives

Meet the mobility needs of people in daily commuting



Contribute to sustainable development and the attractiveness of the territory

Increase connectivity and network integration

## Areas of intervention

Stations

- Upgrade of the hub function for modal integration
- Enhancement of the service hub function
- Upgrading

Railway transport

- Space redesigned for maximum linearity of the paths
- Integration of the range for direct connections with ports and airports

LPT: Local Public Transport

- Coordination of LPT capacity offer with the railway system
- Redesign of spaces aimed at facilitating modal exchange

Sustainability

- Promotion of public transport modes and soft mobility
- Improvement of water and energy consumption efficiency
- Choice of materials according to the LCA
- Social use of non-instrumental assets
- Stakeholder involvement

## RAILWAY STATION

**NRRP stations**

| | | |
|---|---|---|
| Vasto-S.Salvo | Nocera Superiore | Brindisi |
| Pescara | Santa Maria Capua Vetere | Foggia |
| Giulianova | Falciano-Mondragone-Carinola | Acquaviva delle Fonti |
| Chieti | Maddaloni Inferiore | Gioia del Colle |
| Teramo | Sarno | Trinitapoli |
| Potenza Centrale | Pozzuoli Solfatara | Monopoli |
| Potenza Superiore | Scafati | Macomer |
| Lamezia Terme Centrale | Sessa Aurunca-Roccamonfina | Oristano |
| Cosenza | Torre del Greco | Marsala |
| Scalea-S.Domenica Talao | Termoli | Siracusa |
| Vibo Valentia-Pizzo | Campobasso | Acireale |
| Reggio di Calabria Lido | Isernia | Palermo Notarbartolo |
| Catanzaro Lido | Barletta | Milazzo |
| Crotone | Giovinazzo | |
| Sibari | Polignano a Mare | |
| Sapri | S.Severo | |


Livorno
Ancona
Mar Ligure
TOSCANA
MARCHE
Perugia
UMBRIA
ITALIA
Bastia
Terni
Pescara
L'Aquila
ABRUZZO
CORSICA
Ajaccio
LAZIO
Roma
Mare Adriatico
Latina
Campobasso
Foggia
Bari
CAMPANIA
PUGLIA
Napoli
Salerno
Sassari
Potenza
BASILICATA
Taranto
SARDEGNA
Golfo di Taranto
Mar Tirreno
Cagliari
CALABRIA
Catanzaro
Palermo
Reggio di Calabria
SICILIA
Catania
Siracusa
Canale di Sicilia
Tunisi
Esri, HERE, Garmin, FAO, NOAA, USG

## RAILWAY STATION

| NRRP hubs |
| --- |
| Bari |
| Taranto |
| Lecce |
| Villa San Giovanni |
| Messina Centrale and Messina Marittima |
| Caserta |
| Benevento |
| Napoli L2 line |
| S. Maria di Settimo-Montalto Uffugo |


Livorno
Ancona
Mostar
Perugia
ITALIA
Pescara
L'Aquila
Roma
Mare
Adriatico
Campobasso
Foggia
Bari
Napoli
Salerno
Potenza
Taranto
Golfo
di
Taranto
Mar
Tirreno
Cagliari
Catanzaro
Palermo
Reggio di
Calabria
Catania
Siracusa
Tunisi
Esri, HERE, Garmin, FAO, NOAA, USGS

# M5C3: SPECIAL INTERVENTIONS FOR TERRITORIAL COHESION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# M5C3: special interventions for territorial cohesion

## Project list

Ionian line performance adjustment

## Ionian line performance adjustment

**2026**

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**
The Ionian line, in particular the Taranto-Metaponto-Sibari section, which then continues to Paola on the Tyrrhenian line, constitutes the connecting corridor between the port of Gioia Tauro and the Adriatic route.
This project is intended to improve the performance of the section with the adaptation of some railway stations to a 750-metre track length.
The railway stations concerned are Nocera Tirinese, S. Pietro a Maida, Sibari and Rosarno.

### Business benefits by 2026

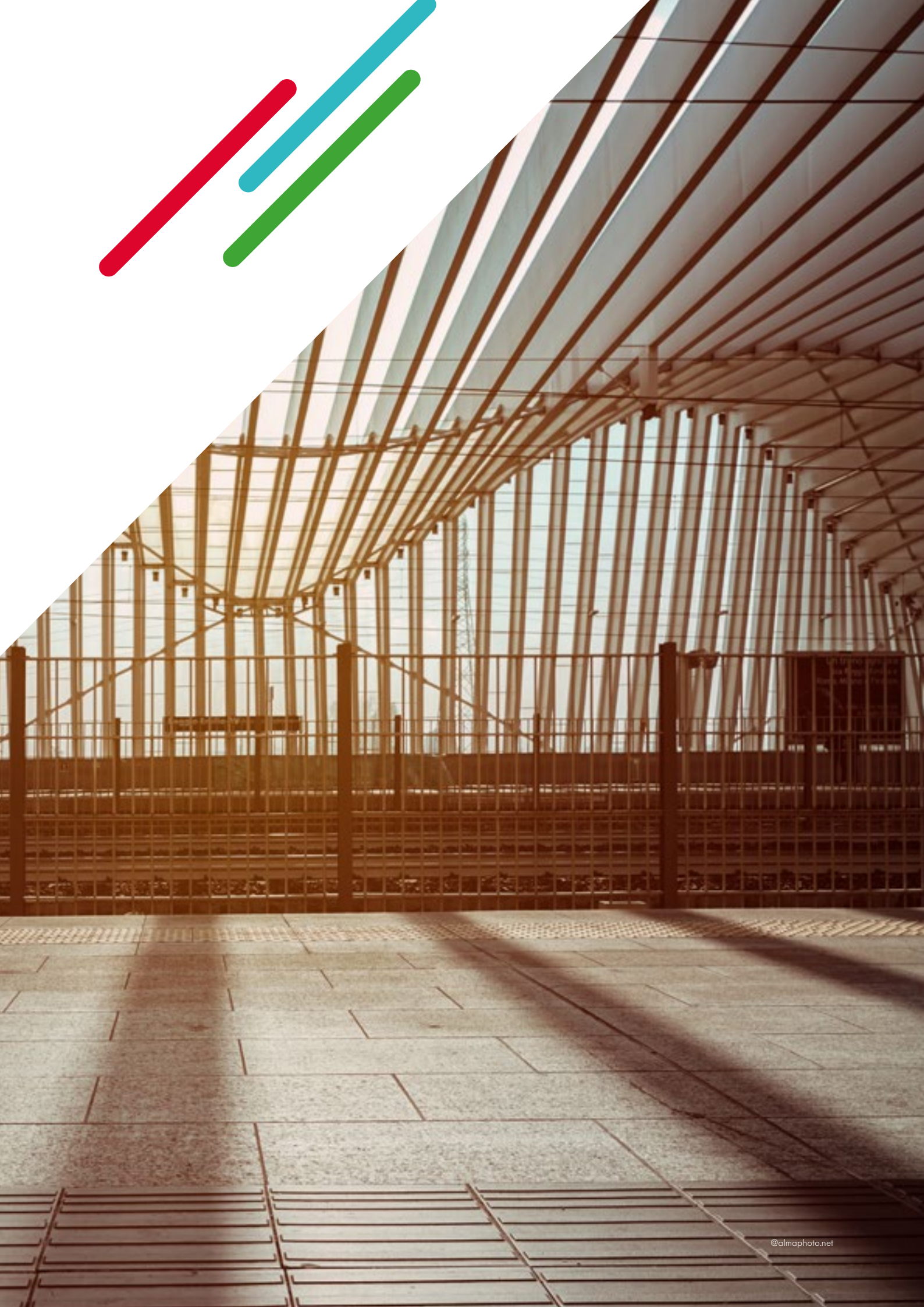
REGULARITY

The interventions will allow for more efficient traffic management, improving its regularity

PERFORMANCE

The Taranto-Gioia Tauro corridor will be adapted to a 750-metre track length

# NON-NRRP PROJECTS FUNDED WITH THE 2020/2021 UPDATE OF THE CDP-I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# Non-NRRP projects funded with the 2020/2021 update of the CdP-I

## Project list

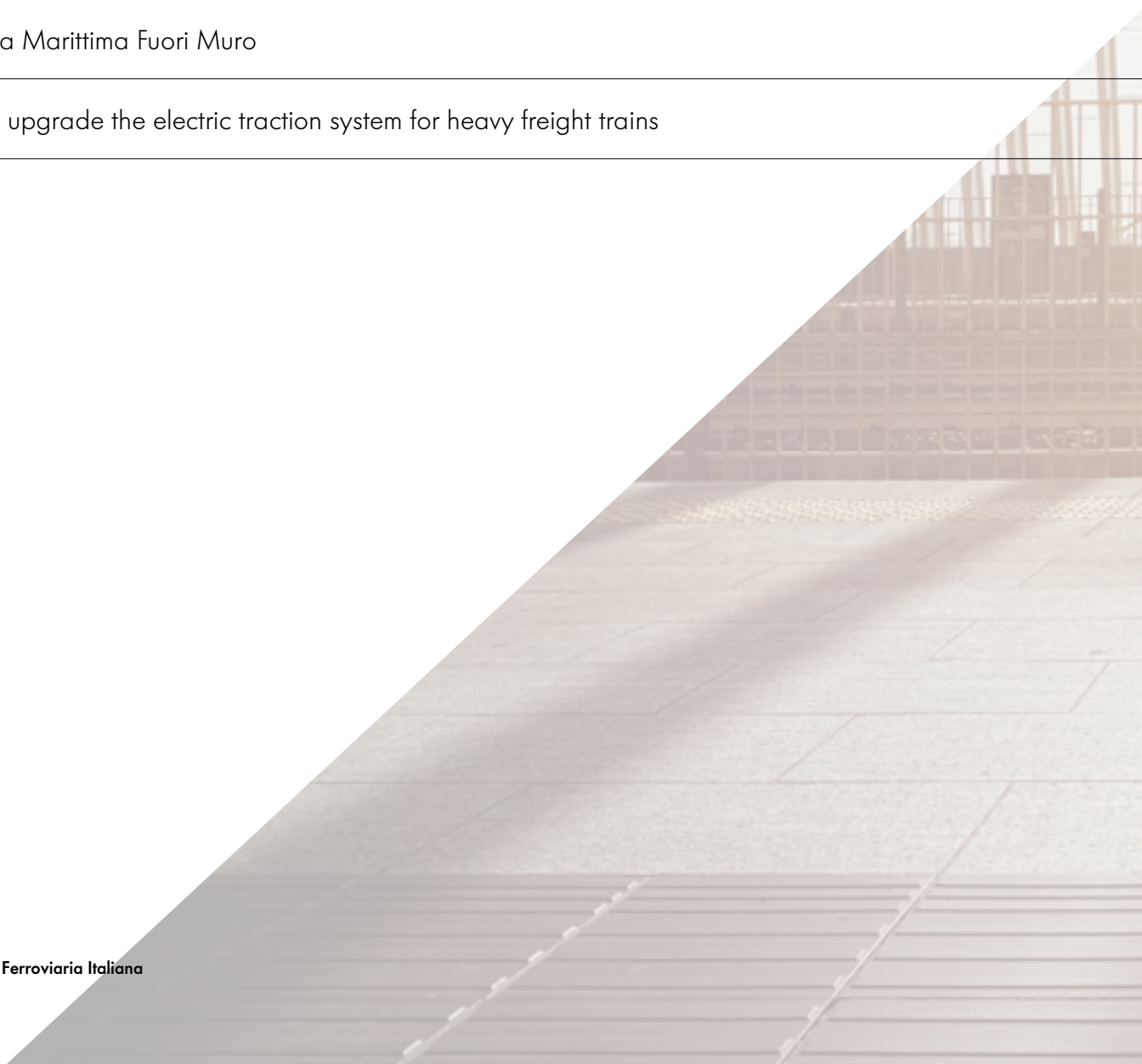
Roma railway ring

Parma-Vicofertile doubling

Milano-Lecco-Tirano upgrade

Genova Marittima Fuori Muro

Plan to upgrade the electric traction system for heavy freight trains



## Roma railway ring

**after 2026**

*Ref. CdP-I: 0258_A - Completion of the Roma railway ring (north belt)*

**Project description**

The project *for the closure of the Roma railway ring* includes:

- the doubling of the San Pietro-Vigna Clara section, which continues with the route to the new Tor di Quinto station (interchange with the Roma-Viterbo ATAC line) to close again in the direction of Roma Tiburtina at the Val D'Ala stop, on the PC Nuovo Salario-Roma Tiburtina line Junction;
- the branch between Tor di Quinto-Roma Smistamento;
- interconnection with the Roma-Pisa line.

Double-track line of about 10 km, with 3Kv electrification and ERTMS L2 technology, 250 metre 55-centimetre-high platforms and I&C public information system. The line will also be equipped with an operating system for remote control management with innovative ACCM/SSCM technology. Rail/rail interchange in the stations of Tor di Quinto and Val D'Ala.

### Business benefits reaped after 2026

NETWORK INTEGRATION

Create new interchange functions with the Val d'Ala stop, subject to future extension of the FL2 Roma-Avezzano-Sulmona services in relation to the completion of the Roma Tiburtina new track layout

NETWORK INTEGRATION

Upgrade of connections for better integration of the network in both urban and railway areas, ensuring interchange with the rail services of the Roma-Viterbo line managed by ATAC at Tor di Quinto

NETWORK INTEGRATION

Possibility of activating a "ring" type metropolitan service, to integrate the services already included in the Roma hub

ACCESSIBILITY

Allow direct access to rail services for some urban municipalities not currently served by this mode

## Parma-Vicofertile doubling

after **2026**

*Ref. CdP-I: 0276A - completion of the doubling of the Pontremoli railway axis - 1st phase*

**Project description**

The project concerns the construction of the doubling section between Parma and Vicofertile of the Parma-Vezzano Ligure line which will be developed for the first 5 km in a variant of the route and for the remaining 3 km side by side up to the entrance to the Vicofertile station.

The Parma Tunnel will be built, covering a total of 1,950.40 metres, which runs alongside the Bologna-Piacenza line and then under it and flanks the ring road until the Parma exit.

2 level crossings will be eliminated on the Parma - Vicofertile section. The new route will guarantee goods performance according to the comprehensive network standard, i.e. PC 80 loading gauge and D4 axle load.

In addition to the interventions on the line, adaptation interventions of the Parma station are planned, with the junction of the new route and the adoption of the most modern technologies for traffic management. The construction of the underpass, the raising of the two platforms with a height of 55 centimetres, with the adaptation to 250-metre track length are foreseen in the Vicofertile station. The final project is currently under review by RFI in relation to the functional inputs.

### Business benefits reaped after 2026

REGULARITY

The doubling between Parma and Vicofertile, as the first doubling section of the entire line, will make it possible to achieve rail benefits thanks to the increase in traffic regularity

PERFORMANCE

Improvement of the performance characteristics of the line and resolution of interference with ordinary roads

| | |
|---|---|
| **8** Km | Line length |
| **160** Km/h | Maximum speed |
| **13.5** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **D4** | Axle load |
| **P/C80** | loading gauge |

The main project figures

## Milano-Lecco-Tirano upgrade

**2025**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**
The Milano-Lecco-Tirano line upgrade project provides for widespread interventions to improve the efficiency of the intersection locations, with admission of contemporary movements and acceleration of the routes to 60 km/h where possible. new track layout interventions to improve the efficiency of the cross links at the Mandello, Lierna, Ardenno Masino and S.Pietro Berbenno railway stations.
Construction of underpasses where contemporary movements are foreseen.
Widespread elimination of level crossings.
Widespread accessibility interventions in the main attraction poles for the 2026 Olympics.
Widespread interventions for the upgrading of information systems to the public with centralised management by the CCC of Milano Greco Pirelli.

### Business benefits by 2026

CAPACITY

Achievement of the service objectives included for the Olympic period and according to QA with the Lombardy Region

ACCESSIBILITY

Improved station accessibility

REGULARITY

Increase in line reliability and regularity with the reduction of delays due to line and station level crossings

# Plan to upgrade the electric traction system for heavy freight trains

**2026 phase**

*Rif. CdP-I: A2001B – Technology for the operation*

**Project description**
Before November 2019, only trains with towed mass up to 1600 tonn could run on Italian Railway Network.
If the total towed mass exceeded this value, the Railway Undertakings have to ask a special authorization to RFI.
After changes in national regulation "disposizioni di esercizio 21 del 15.11.2019 e 9 del 6.8.2020", trains can reach the total towed mass up to 2500 in some lines with restraints in electrical consumption and headway.
The plan aims to increase electrical capacity of some line to remove the actual limitations.
RFI has identified to upgrade 33 priority lines, including the main cross border lines for international freight traffic.

## Business benefits by 2026

CAPACITY

The upgrade will allow the circulation of freight trains up to 2,500 tons on the upgraded lines, guaranteeing greater service efficiency to the RUs

CAPACITY

The upgrade will allow for a greater number of heavy trains to be added to the upgraded lines

REGULARITY

The upgrading of the energy subsystem will have positive repercussions on the entire operation system thanks to the reduction of faults

# Genova Marittima Fuori Muro

**2026**

*Ref. CdP-I: P060 - Port and terminal infrastructural works*

**Project description**
The project involves the construction of a new station called "Genova Marittima Fuori Muro", which will be part of the National Railway Infrastructure, in correspondence with the current Fuori Muro park, in assets of the Western Ligurian Sea Port System Authority. The station will be equipped with a new interlocking, having jurisdiction over 7 electrified 750-metre track length tracks, some of which are equipped with spurs for locomotive coupling/parking.
The tracks will be suitable for the arrival/departure of complete trains, whose preparation and ending from/to the port docks will take place through special centralised shunt rods.

The project is completed by:
- the compliance of track cross-overs;
- the implementation of localized security controls through the installation of video surveillance systems, data networks and fire safety devices;
- the reconstruction of the TE with new pilings and new pylons;
- the refurbishment of the lighting system with the installation of new lighting towers, as well as the construction of new housings for the systems and for station and shunting personnel.

The railway station will be included in the ACCM/SCCM of the Genoa hub, while remaining present on site, and will be prepared for the future implementation of ERTMS L2.

## Business benefits by 2026

| | |
|---|---|
| CAPACITY | 7 centralized tracks for arrival and departure of trains up to 740 metres long |
| REGULARITY | Reduction of parasitic movements of isolated locomotives in the Genoa hub, by means of the creation of special parking spurs |
| INTERMODALITY | The railway station will allow for the increase of the freight traffic to assist the old Port of Genoa, also for P/C80 coded transport |

## Lines list

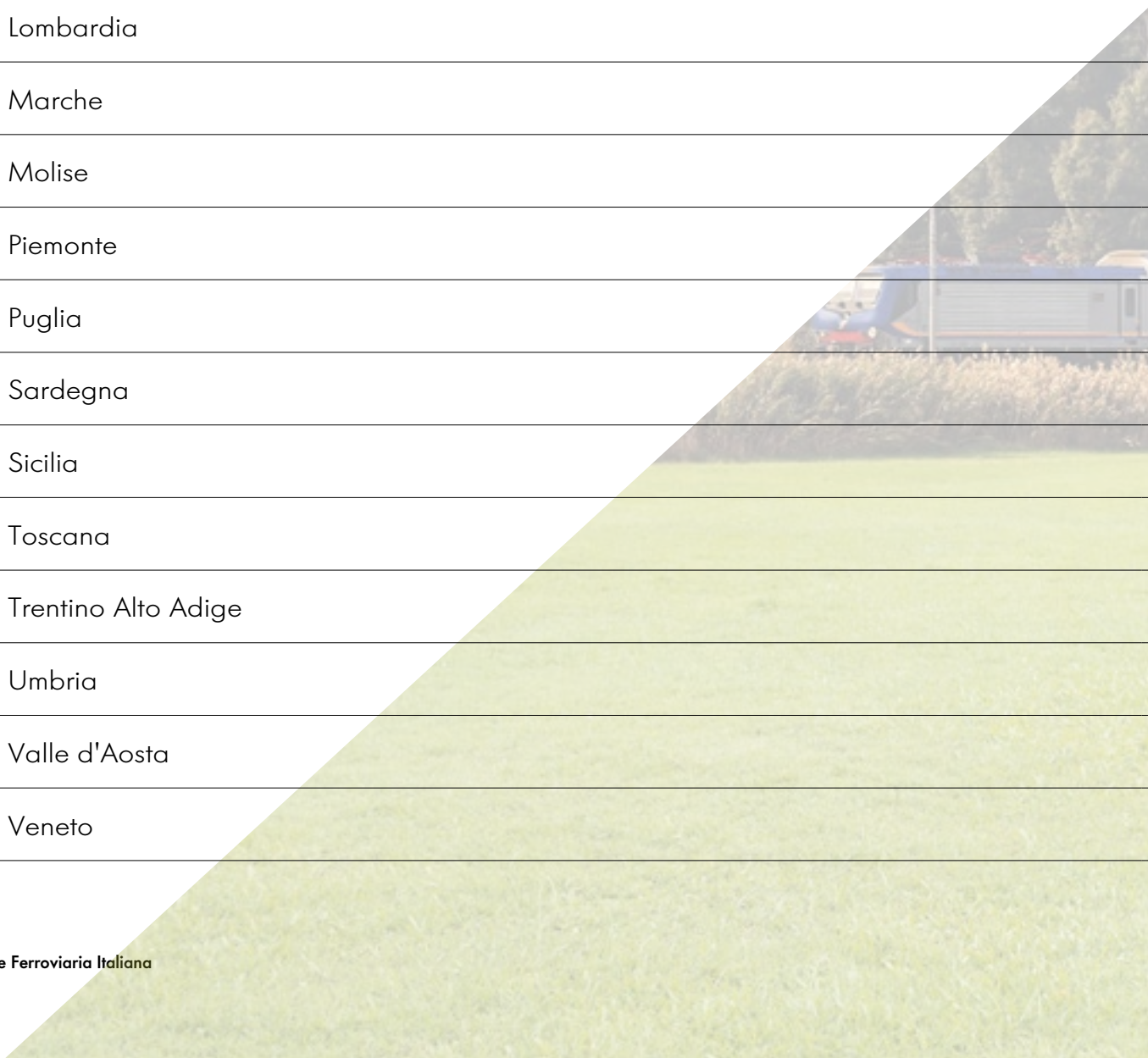
| | |
|---|---|
| Luino – Laveno – Gallarate* | Torino – Tortona |
| Laveno – Sesto Calende – Oleggio* | Novara – Alessandria |
| Sesto Calende – Gallarate | Milano – Genova (via diretta) |
| Arona - Oleggio* | Alessandria – Arquata Scrivia |
| Oleggio – Novara Boschetto* | Torino – Novara |
| Milano – Chiasso | Novara – Milano |
| Domodossola – Milano | Torino – Fossano – Cuneo |
| Domodossola – Novara* | Fossano – S.Giuseppe di Cairo – Savona Parco Doria |
| Venezia Mestre – Monfalcone* | Genova – Ventimiglia |
| Monfalcone – Villa Opicina* | Arquata Scrivia – Genova via Busalla |
| Milano – Bologna (historical line) | Torino Lingotto – Bussoleno – Modane |
| Udine – Tarvisio | La Spezia Migliarina – Parma/Fidenza |
| Monfalcone – Udine | Firenze Rifredi – Bivio/PC Nuovo Salario (Roma) linea LL |
| Verona – Bolzano | Roma – Cassino – Caserta – b. Madd. – Nola Interporto |
| Verona – Mantova | Roma – Formia – Maddaloni Marc. Sm. – Cancello |
| Treviso – Portogruaro | Roma – Livorno Calambrone |
| Mantova – Cavatigozzi | |
| Verona – Poggio Rusco | |
| Milano – Brescia | |
| Verona – Brescia | |
| Verona – Venezia | |
| Vicenza – Treviso | |

** funded interventions*

# REGIONAL EXTRACT ANNEXES

## Regional extract annexes





## Focus Abruzzo

| |
|---|
| Roma-Pescara |
| New track layout and gauges on the Adriatic line |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Adriatic line acceleration |

* Detailed charts in the February 2021 edition of the Business Plan

# Roma-Pescara

**2026** phase
after **2026** completion

*Ref. CdP-I: P240A - Roma-Pescara*

**Project description**
The upgrade of the Roma-Pescara railway connection is divided into various interventions. The priority ones have been identified, which constitute the first phase of the project:

- Scafa – Manoppello: Doubling mainly in a variant of about 7 km, with a maximum speed of 160 km/h;
- Manoppello – Interport: doubling on site of about 5 km, with a maximum speed of 160 km/h;
- Sulmona - Pratola Peligna: doubling on rectified site of about 5 km, with a maximum speed of 160 km/h;
- Tagliacozzo - Avezzano: doubling on site for about 15 km for a speed of 200 km/h and a maximum gradient of 23‰.

The following interventions are also planned to complete the project:

- Pratola Peligna – Scafa: doubling mainly in a variant of about 25 km, for a maximum speed of 160 km/h. The transfer of the Torre de' Passeri station is planned;
- Roma (Corcolle) –Tagliacozzo: new line of about 53 km, of which about 40 km in tunnels, for a maximum speed of 200 km/h and a maximum gradient of 21‰;
- Avezzano - Sulmona: new single-track line of about 33 km, of which about 18 are in tunnels, for a maximum speed of 200 km/h.

In addition, on another investment project, the doubling of the Pescara-Chieti-Interporto section is under way.

## Business benefits by 2026

SPEED

**Sulmona-Pratola Peligna, Tagliacozzo-Avezzano and Scafa-Manoppello-Interport sections: reduction of travel time up to 5 minutes for some services**

REGULARITY

**Sulmona-Pratola Peligna, Tagliacozzo-Avezzano and Scafa-Manoppello-Interport sections: regularity improved for some services**

## Business benefits reaped after 2026

SPEED

Travel time reduction: Roma-Pescara in about 2h compared to the current 3h 20', with a shorter travel time up to 80' (upon completion of the entire project)

CAPACITY

Capacity increase: from 4 to 10 trains/h on the sections being doubled, with the possibility of establishing metropolitan services between Chieti and Pescara

SPEED

Acceleration and adjustment of the connections between Pescara and L'Aquila, thanks also to other ongoing and scheduled interventions on the L'Aquila-Sulmona line (Sulmona junction, New Sulmona S.Rufina stop, Sulmona-L'Aquila electrification)

PERFORMANCE

Performance adjustment to allow the development of freight traffic

The main project figures*

| | |
|---|---|
| **32** Km | Line length |
| **200** Km/h | Maximum speed |
| **23** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |
| **SCC-M/ACCM** | Command and Control system |
| **I&C** | Public information |

* in doubled sections

# New track layout and gauges on the Adriatic line

**2026** phase
after **2026** completion

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**
One of the strategies for the development of freight traffic at European level is the implementation of stations with priority tracks with a capacity of 750 metres.
A set of railway stations on the Adriatic line and the Bari-Taranto line, both belonging to the Scandinavian-Mediterranean freight corridor, are the subject of these interventions.
The adaptation of stations that are no more than 100 km away from each other to 750 metres and of railway stations where trains of 750 metres length start/end travel are connected are foreseen (last mile interventions). The hypothesised locations subject to intervention are: Falconara Marittima, Porto d'Ascoli, Roseto degli Abruzzi, Campomarino, Foggia, Incoronata, S. Nicola di Melfi, Cerignola, Trinitapoli, Giovinazzo, Bari Lamasinata, Ostuni, Brindisi Intermodale, Grottalupara. Five of these fourteen stations are already the subject of a specific project (Falconara Marittima, Campomarino, Foggia, Bari Lamasinata and Brindisi Intermodal).
The adaptation of other stations to 650 metres is also provided, in order to guarantee a distance normally not exceeding 40 km between the railway stations with this track length. These are Fano, Chieuti (funding is already foreseen for this intervention), Bari P. Nord, Sannicandro di Bari. Other locations are already adapted to the 650/750 metre track length.
The stations of Fano, Senigallia, Incoronata, Cerignola, Trinitapoli, Giovinazzo, Bari P. Nord, Ostuni, Sannicandro di Bari, PM Grottalupara will be adapted by 2026.
The stations of Varano, Porto d'Ascoli, Roseto, S. Nicola di Melfi will be adapted after 2026.

## Business benefits by 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km, except for the Pescara-Ancona section where distance extends to 70 km

PERFORMANCE

Distance between 750-metre track length railway stations: max 100 km, except for the Pescara-Ancona section where distance extends to 160 km

## Business benefits reaped after 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km

Distance between 750-metre track length railway stations: max 100 km

## Focus Basilicata

| |
|---|
| Taranto-Battipaglia |
| Salerno-Reggio Calabria |
| Ionian line performance adjustment |
| |

# Taranto-Battipaglia

**2026** phase
after **2026** completion

*Ref. CdP-I: P238 - Battipaglia - Potenza - Metaponto - Taranto*

**Project description**
As part of the project, the interventions foreseen in PNRR realize a line with HS/HC characteristics from Battipaglia to Potenza. The interventions consist of widespread acceleration, through track adjustments for an extension of about 30% of the entire line, over-elevations in curves and the establishment of speed ranges C and P from Potenza to Metaponto. Acceleration of station entrances, through the construction of underpasses and deviated routes at 60 km/h and restoration of landslide sections (Campomaggiore and Brindisi M.)
The installation of a new headway system with emulated block in place of the current ACB and the establishment of new crossing points (Ginosa, Pisticci, Salandra, Brindisi di Montagna), in order to allow new timed LPT services the increase of freight traffic.
Improvement of passenger accessibility, thanks to the construction of new platforms with Technical Specifications for Interoperability (TSI) and People with reduced mobility (PRM) in each service location; a new stop will also be built in correspondence with the town of Castellaneta Marina.
Adjustment to freight traffic standards, by increasing track length to 750 metres on the Taranto-Metaponto (new track layout of the Castellaneta M. station, for the new traffic planned on the Bari-Taranto-Gioia Tauro connection) and 575 metres on the Metaponto-Potenza section (new track layout interventions planned in Pisticci, Salandra, Trivigno and Potenza Centrale.
P/C 80 loading gauge for the Taranto-Metaponto-Grassano section and P/C 25 loading gauge for Grassano – Potenza.
D4 axle load for the Taranto-Metaponto-Grassano section and C3 axle load for Grassano – Potenza.
The abolition of some level crossings is also provided.

## Business benefits by 2026

SPEED

Reduction of travel times on the Taranto-Napoli itinerary of about 30', also thanks to the HS Salerno-Reggio Calabria project

REGULARITY

Improvement of the levels of regularity thanks to the new intersection points

PERFORMANCE

Performance adjustment to allow for the start of freight traffic and the transit of 575-metre long trains

## Business benefits reaped after 2026

**PERFORMANCE**

Performance adjustment to allow the transit of 750 m trains on the Taranto-Metaponto section and 575 metres on the Metaponto-Potenza section

**ACCESSIBILITY**

Accessibility to service areas equipped with new platforms and underpasses and the new Marina di Castellaneta stop

| | |
|---|---|
| **250** KM | Line length |
| **SITE** | Single track |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **15** ‰ | Maximum line gradient |
| **D4** | Axle load |
| **P/C80*** | Loading gauge |
| **575/ 750** m | track length |
| **ACC-M** | Command and Control system |

The main project figures

* Taranto-Metaponto-Grassano section

# Salerno-Reggio Calabria

**2026** phase after **2026** completion

*Ref. CdP-I: 1107 - HS-HC Salerno-Reggio Calabria; P238-Battipaglia-Potenza-Metaponto-Taranto*

**Project description**
The construction of the new high-speed connection between Salerno and Reggio Calabria, in a new route with respect to the existing alignments, is divided into the following priority functional lots:

- lot 1a: Battipaglia-Romagnano, which also allows benefits to be obtained on the Battipaglia - Potenza connection
- lot 1b: Romagnano-Praja, with interconnection with the Tyrrhenian alignment
- lot 2: Praja-Tarsia, with interconnection with the Metaponto - Sibari line
- lot 3: Tarsia-Montalto (CS);
- lot 4: Montalto-Lamezia Terme.

The following lots involve the following connections:
Lamezia Terme-Gioia Tauro;
Gioia Tauro-Villa San Giovanni/Reggio Calabria

In addition, the doubling of the existing Paola-Cosenza line (through the new Santomarco tunnel) is aimed at strengthening the connection between the Tirrenica line and Cosenza, both for passenger and freight transport.

## Business benefits by 2026

SPEED

**The completion of the first functional lot by 2026 allows for the reduction of travel times of about 20 minutes in the Battipaglia-Potenza connection**

## Business benefits reaped after 2026

**SPEED**

Lot 2 Praja-Tarsia creates a new connection between the Tyrrhenian-Ionian lines, contributes to the recovery of the route towards Sibari/Crotone and Cosenza (up to 90 minutes)

**SPEED**

Upon completion of the entire work, the travel time between Roma and Reggio Calabria will be 3 hours and 40 minutes

**NETWORK INTEGRATION**

The new infrastructure will therefore allow the development of new passenger traffic along the north-south axis of the peninsula, also benefiting the connections to and from Sicily.

**INTERMODALITY**

The infrastructure will allow for the increase of freight traffic in supply to the port of Gioia Tauro

| | |
|---|---|
| **18** ‰ | **Maximum line gradient** |
| **300** Km/h | **Maximum speed** |
| **25** Kv A.C. | **Electrification** |
| **D4** | **Axle load** |
| **P/C80** | **loading gauge** |
| **750** m | **track length** |

The main project figures

# Ionian line performance adjustment

**2026**

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**
The Ionian line, in particular the Taranto-Metaponto-Sibari section, which then continues to Paola on the Tyrrhenian line, constitutes the connecting corridor between the port of Gioia Tauro and the Adriatic route.
This project is intended to improve the performance of the section with the adaptation of some railway stations to a 750-metre track length.
The railway stations concerned are Nocera Tirinese, S. Pietro a Maida, Sibari and Rosarno.

## Business benefits by 2026

REGULARITY

The interventions will allow for more efficient traffic management, improving its regularity

PERFORMANCE

The Taranto-Gioia Tauro corridor will be adapted to a 750-metre track length

## Focus Calabria

| |
|---|
| Salerno-Reggio Calabria |
| Ionian line performance adjustment |
| Rosarno and San Ferdinando new track layout |
| Adaptation and acceleration of the Ionian railway line |
| |

# Salerno-Reggio Calabria

**2026** phase after **2026** completion

*Ref. CdP-I: 1107 - HS-HC Salerno-Reggio Calabria; P238-Battipaglia-Potenza-Metaponto-Taranto*

**Project description**
The construction of the new high-speed connection between Salerno and Reggio Calabria, in a new route with respect to the existing alignments, is divided into the following priority functional lots:

- lot 1a: Battipaglia-Romagnano, which also allows benefits to be obtained on the Battipaglia - Potenza connection
- lot 1b: Romagnano-Praja, with interconnection with the Tyrrhenian alignment
- lot 2: Praja-Tarsia, with interconnection with the Metaponto - Sibari line
- lot 3: Tarsia-Montalto (CS);
- lot 4: Montalto-Lamezia Terme.

The following lots involve the following connections:
Lamezia Terme-Gioia Tauro;
Gioia Tauro-Villa San Giovanni/Reggio Calabria

In addition, the doubling of the existing Paola-Cosenza line (through the new Santomarco tunnel) is aimed at strengthening the connection between the Tirrenica line and Cosenza, both for passenger and freight transport.

## Business benefits by 2026

SPEED

**The completion of the first functional lot by 2026 allows for the reduction of travel times of about 20 minutes in the Battipaglia-Potenza connection**

## Business benefits reaped after 2026

SPEED

Lot 2 Praja-Tarsia creates a new connection between the Tyrrhenian-Ionian lines, contributes to the recovery of the route towards Sibari/Crotone and Cosenza (up to 90 minutes)

SPEED

Upon completion of the entire work, the travel time between Roma and Reggio Calabria will be 3 hours and 40 minutes

NETWORK INTEGRATION

The new infrastructure will therefore allow the development of new passenger traffic along the north-south axis of the peninsula, also benefiting the connections to and from Sicily.

INTERMODALITY

The infrastructure will allow for the increase of freight traffic in supply to the port of Gioia Tauro

| | |
|---|---|
| **18** ‰ | Maximum line gradient |
| **300** Km/h | Maximum speed |
| **25** Kv A.C. | Electrification |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Ionian line performance adjustment

**2026**

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**
The Ionian line, in particular the Taranto-Metaponto-Sibari section, which then continues to Paola on the Tyrrhenian line, constitutes the connecting corridor between the port of Gioia Tauro and the Adriatic route.
This project is intended to improve the performance of the section with the adaptation of some railway stations to a 750-metre track length.
The railway stations concerned are Nocera Tirinese, S. Pietro a Maida, Sibari and Rosarno.

## Business benefits by 2026

REGULARITY

The interventions will allow for more efficient traffic management, improving its regularity

PERFORMANCE

The Taranto-Gioia Tauro corridor will be adapted to a 750-metre track length

## Rosarno and San Ferdinando new track layout

**2026**

*Ref. CdP-I: P258 - Rosarno-San Ferdinando line: adaptation of the Rosarno and San Ferdinando new track layout*

**Project description**

The San Ferdinando station, not currently part of the RFI asset area, constitutes a support system for the terminal connections serving the port of Gioia Tauro. It is connected, via an electrified single-track link of about 5 km, to the Rosarno station which insists on the Calabria Tyrrhenian alignment. The stations are an integral part of the TEN-T Core Scandinavian-Mediterranean corridor.

The work involves:

- the doubling of the link between San Ferdinando and Rosarno;
- the review of the San Ferdinando new track layout, with the construction of 4 tracks with a capacity of 750 metres, in line with the specifications of the TEN-T corridor;
- technological upgrade of the San Ferdinando station interlocking.

The intervention will make it possible to make connections with the links to the San Ferdinando station more efficient. Similarly, in the Rosarno station the reconfiguration of the new track layout is foreseen in function of the doubling of the aforementioned link with San Ferdinando and for the construction of a track with a capacity of 750 metres.

### Business benefits by 2026

CAPACITY

The adaptation to the standards required by the Core TEN-T network will allow for the development of new freight traffic on the TEN-T Scandinavia-Mediterranean corridor

INTERMODALITY

The benefits in terms of new freight traffic are also linked to the development of stops connected to the San Ferdinando station, which promote ship-rail intermodality.

### Business benefits reaped after 2026

PERFORMANCE

The development of freight traffic along the TEN-T corridor is related to the completion of the interventions to adapt the loading gauge to PC80 and to further interventions on the new track layout of some railway stations aimed at obtaining a track length equal to 750 metres on the TEN corridor

# Adaptation and acceleration of the Ionian railway line

**2026**

*Ref. CdP-I: P245 - Adaptation and acceleration of the Ionian railway line: Sibari-Melito Porto Salvo section and Lamezia Terme-Catanzaro Lido cross-section*

**Project description**

The Ionian line, between the Sibari and Catanzaro Lido stations, is affected by interventions aimed at increasing the reliability of the infrastructure, speeding up the crossing points and accessibility to the service, resolving some interference with ordinary roads through the elimination of some level crossings.

The Sibari-Catanzaro Lido section is also affected by an electrification project which also extends to the cross-section Catanzaro Lido-Lamezia Terme Centrale line, where infrastructural upgrading and acceleration interventions are under way.

Finally, both the aforementioned lines are affected by a technological upgrade aimed at improving the reliability and management of the signalling systems.

In addition to the aforementioned interventions and design/construction already in progress, the following further interventions are planned:

- adaptation of works on sections of line to increase maximum speeds;
- extension of the technological upgrade to further sections of the line south of Catanzaro Lido;
- design of a first phase of electrification between Catanzaro Lido and Melito Porto Salvo;
- adaptation of the Cutro tunnel , as part of the electrification intervention between Sibari and Catanzaro Lido.

The interventions make it possible to raise the maximum speed up to 150 km/h in some sections and to remove the limitations on the axle load in order to extend the C3 axial load category to the entire Sibari-Catanzaro Lido-Lamezia Terme section.

## Business benefits by 2026

SPEED

Reduce travel times due to the increase in speed along the line and the reduction of train running time in the intersection locations as well as thanks to the establishment of Rango C

ACCESSIBILITY

Improve accessibility to the railway service by raising platforms and building pedestrian underpasses in the main stations

## Business benefits reaped after 2026

NETWORK INTEGRATION

The completion of the interventions will make it possible to enhance the connections between the Ionian and Tyrrhenian lines and improve accessibility with Lamezia Terme

NETWORK INTEGRATION

Line electrification makes it possible to extend the long-distance north-south connections to the Ionian side without the need to change traction in the Sibari station

## Focus Campania

| |
|---|
| Napoli-Bari |
| Salerno-Reggio Calabria |
| Taranto-Battipaglia |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Technological renewal of the Roma-Napoli HS/HC line* |

* Detailed charts in the February 2021 edition of the Business Plan

# Napoli-Bari

**2026** phase
after **2026** completion

*Ref. CdP-I: 0279A, 0284, 0279B, 0281, 0099A, 0099B, 0099C - route Napoli - Bari*

## Project description

The construction program of the new Napoli-Bari High Capacity line is divided into several sub-projects:

- construction of a variant to the current Napoli-Cancello line for a total length of 15.5 km passing through the Napoli Afragola HS station;
- doubling and speeding up of the old line between Cancello and Frasso Telesino and Frasso Telesino - Vitulano for a length of approximately 46 km (Frasso Telesino-Telese in 2025, Telese-Vitulano in 2026). In addition, 25 level crossings will be eliminated.
- doubling in a variant of approximately 47 km of the Apice-Orsara line section, of which 80% in the tunnel, with the construction of the new Hirpinia station;
- doubling in variant of the Orsara-Bovino section.

In addition to the interventions on the railway lines, there are also plans to upgrade the Napoli and Bari stations, which involve the adoption of the most modern technologies for traffic management: Computerised Control Equipment (ACC) and Multi-station Computerized Control Equipment (ACCM).
Completion of the variant doubling of the Apice-Orsara section is expected after 2026.

## Business benefits by 2026

ACCESSIBILITY

Greater accessibility of the provinces of Caserta and Benevento to the Milano-Roma-Napoli high-speed route through the interchange in Napoli Afragola

SPEED

For the Bari-Napoli connections, the travel time is estimated to be reduced by 45 minutes

CAPACITY

On the Napoli-Benevento-Apice section the theoretical capacity passes from the current 4 trains/h in both directions of travel and 10 trains/h in each direction of travel

ACCESSIBILITY

In relation to the reallocation of existing service locations (Acerra station, Casalnuovo stop, Valle Maddaloni stop, Dugenta/Frasso Telesino stop) and new service locations under construction, such as the new shopping centre stop

ACCESSIBILITY

Four new stops and a new station will be activated on the Frasso Telesino-Vitulano section

PERFORMANCE

It will be possible to circulate trains with semi-trailers, with a load per axle up to 22.5 tons and 750 metres long on the Napoli-Benevento-Apice section

## Business benefits reaped after 2026

**SPEED**

For the Bari-Napoli connections, a travel time of about 2 hours is expected, while for the Roma-Bari connections a travel time of 3 hours is expected.

**ACCESSIBILITY**

A new Hirpinia station will be activated on the Apice-Orsara section. 5 level crossings will be suppressed

**CAPACITY**

On the Napoli-Foggia section the theoretical capacity passes from the current 4 trains/h in both directions of travel and 10 trains/h in each direction of travel

**PERFORMANCE**

It will be possible to circulate trains with semi-trailers, with a load per axle up to 22.5 tons and 750 metres long on the Napoli-Foggia section

The main project figures

| | |
|---|---|
| **250** Km | Line length |
| **13** Km | Link length |
| **12.5** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

# Salerno-Reggio Calabria

**2026** phase after **2026** completion

*Ref. CdP-I: 1107 - HS-HC Salerno-Reggio Calabria; P238-Battipaglia-Potenza-Metaponto-Taranto*

**Project description**
The construction of the new high-speed connection between Salerno and Reggio Calabria, in a new route with respect to the existing alignments, is divided into the following priority functional lots:

- lot 1a: Battipaglia-Romagnano, which also allows benefits to be obtained on the Battipaglia - Potenza connection
- lot 1b: Romagnano-Praja, with interconnection with the Tyrrhenian alignment
- lot 2: Praja-Tarsia, with interconnection with the Metaponto - Sibari line
- lot 3: Tarsia-Montalto (CS);
- lot 4: Montalto-Lamezia Terme.

The following lots involve the following connections:
Lamezia Terme-Gioia Tauro;
Gioia Tauro-Villa San Giovanni/Reggio Calabria

In addition, the doubling of the existing Paola-Cosenza line (through the new Santomarco tunnel) is aimed at strengthening the connection between the Tirrenica line and Cosenza, both for passenger and freight transport.

## Business benefits by 2026

SPEED

**The completion of the first functional lot by 2026 allows for the reduction of travel times of about 20 minutes in the Battipaglia-Potenza connection**

## Business benefits reaped after 2026

**SPEED**

Lot 2 Praja-Tarsia creates a new connection between the Tyrrhenian-Ionian lines, contributes to the recovery of the route towards Sibari/Crotone and Cosenza (up to 90 minutes)

**SPEED**

Upon completion of the entire work, the travel time between Roma and Reggio Calabria will be 3 hours and 40 minutes

**NETWORK INTEGRATION**

The new infrastructure will therefore allow the development of new passenger traffic along the north-south axis of the peninsula, also benefiting the connections to and from Sicily.

**INTERMODALITY**

The infrastructure will allow for the increase of freight traffic in supply to the port of Gioia Tauro

| | |
|---|---|
| **18** ‰ | **Maximum line gradient** |
| **300** Km/h | **Maximum speed** |
| **25** Kv A.C. | **Electrification** |
| **D4** | **Axle load** |
| **P/C80** | **loading gauge** |
| **750** m | **track length** |

The main project figures

# Taranto-Battipaglia

**2026** phase
after **2026** completion

*Ref. CdP-I: P238 - Battipaglia - Potenza - Metaponto - Taranto*

**Project description**
As part of the project, the interventions foreseen in PNRR realize a line with HS/HC characteristics from Battipaglia to Potenza. The interventions consist of widespread acceleration, through track adjustments for an extension of about 30% of the entire line, over-elevations in curves and the establishment of speed ranges C and P from Potenza to Metaponto. Acceleration of station entrances, through the construction of underpasses and deviated routes at 60 km/h and restoration of landslide sections (Campomaggiore and Brindisi M.)
The installation of a new headway system with emulated block in place of the current ACB and the establishment of new crossing points (Ginosa, Pisticci, Salandra, Brindisi di Montagna), in order to allow new timed LPT services the increase of freight traffic.
Improvement of passenger accessibility, thanks to the construction of new platforms with Technical Specifications for Interoperability (TSI) and People with reduced mobility (PRM) in each service location; a new stop will also be built in correspondence with the town of Castellaneta Marina.
Adjustment to freight traffic standards, by increasing track length to 750 metres on the Taranto-Metaponto (new track layout of the Castellaneta M. station, for the new traffic planned on the Bari-Taranto-Gioia Tauro connection) and 575 metres on the Metaponto-Potenza section (new track layout interventions planned in Pisticci, Salandra, Trivigno and Potenza Centrale.
P/C 80 loading gauge for the Taranto-Metaponto-Grassano section and P/C 25 loading gauge for Grassano – Potenza.
D4 axle load for the Taranto-Metaponto-Grassano section and C3 axle load for Grassano – Potenza.
The abolition of some level crossings is also provided.

## Business benefits by 2026

SPEED

Reduction of travel times on the Taranto-Napoli itinerary of about 30', also thanks to the HS Salerno-Reggio Calabria project

REGULARITY

Improvement of the levels of regularity thanks to the new intersection points

PERFORMANCE

Performance adjustment to allow for the start of freight traffic and the transit of 575-metre long trains

## Business benefits reaped after 2026

**PERFORMANCE**

Performance adjustment to allow the transit of 750 m trains on the Taranto-Metaponto section and 575 metres on the Metaponto-Potenza section

**ACCESSIBILITY**

Accessibility to service areas equipped with new platforms and underpasses and the new Marina di Castellaneta stop

| | |
|---|---|
| **250** KM | Line length |
| **SITE** | Single track |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **15** ‰ | Maximum line gradient |
| **D4** | Axle load |
| **P/C80*** | Loading gauge |
| **575/ 750** m | track length |
| **ACC-M** | Command and Control system |

The main project figures

* Taranto-Metaponto-Grassano section

## Focus Emilia Romagna

| |
|---|
| Bastardo Tunnel Variant |
| Parma-Vicofertile doubling |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Adriatic line acceleration* |
| Bologna-Padova technological upgrade* |
| ACC-M Bologna-Rimini completion* |
| Port of Ravenna* |

* Detailed charts in the February 2021 edition of the Business Plan

# Bastardo Tunnel Variant

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**
The Bastardo tunnel is located along the Pontremoli line between the service towns of Ostia Parmense and Berceto and has an extension of 478 metres. To date, the work has structural issues as it is located on an unstable slope with multiple landslide fronts and characterised by landslides. Therefore, since 1980, consolidation interventions, geognostic surveys and continuous surveys and monitoring have been carried out. In the period 2009-2014, consolidation interventions were carried out through the installation of metal ribs; today the gallery is arched for its entire length and monitored 24 hours a day. In consideration of these issues, the construction of a new tunnel in a variant route with adjoining adaptation of the existing railway line is foreseen in the section between km 51+208 and km 51+685 on the Parma-Vezzano Ligure line between the towns of Ostia Parmense and Berceto. In addition, in order to guarantee the operation of the line at the same time, the design of the safety measures and the renovation/consolidation of the existing tunnel have been planned, in consideration of the current limitations to train traffic.
The section in the tunnel, for a total of about 400 metres, will be single track, with 3KV electrification. As far as performance is concerned, it will have the characteristics suitable for competitive freight traffic, i.e. D4 for the axle load, P/C 80 for the loading gauge.

## Business benefits by 2026

REGULARITY

**The realisation of the variant of the route will allow the current limitations to train traffic to be eliminated, with consequent improvement of the regularity by reducing the minutes of delay deriving from the existing speed restrictions in the section (up to v = 10 km/h)**

# Parma-Vicofertile doubling

**2026**

*Ref. CdP-I: 0276A - completion of the doubling of the Pontremoli railway axis - 1st phase*

**Project description**

The project concerns the construction of the doubling section between Parma and Vicofertile of the Parma-Vezzano Ligure line which will be developed for the first 5 km in a variant of the route and for the remaining 3 km side by side up to the entrance to the Vicofertile station.

The Parma Tunnel will be built, covering a total of 1,950.40 metres, which runs alongside the Bologna-Piacenza line and then under it and flanks the ring road until the Parma exit.

2 level crossings will be eliminated on the Parma - Vicofertile section. The new route will guarantee goods performance according to the comprehensive network standard, i.e. PC 80 loading gauge and D4 axle load.

In addition to the interventions on the line, adaptation interventions of the Parma station are planned, with the junction of the new route and the adoption of the most modern technologies for traffic management. The construction of the underpass, the raising of the two platforms with a height of 55 centimetres, with the adaptation to 250-metre track length are foreseen in the Vicofertile station. The final project is currently under review by RFI in relation to the functional inputs.

## Business benefits reaped after 2026

REGULARITY

The doubling between Parma and Vicofertile, as the first doubling section of the entire line, will make it possible to achieve rail benefits thanks to the increase in traffic regularity

PERFORMANCE

Improvement of the performance characteristics of the line and resolution of interference with ordinary roads

| | |
|---|---|
| **8** Km | Line length |
| **160** Km/h | Maximum speed |
| **13.5** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **D4** | Axle load |
| **P/C80** | loading gauge |

The main project figures

## Focus Friuli Venezia Giulia

| Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion |
|---|
| Trieste-Divaca old line upgrade* |
| Udine hub* |
| Port of Trieste: railway works to upgrade the Trieste Campo Marzio station* |

* Detailed charts in the February 2021 edition of the Business Plan

## Focus Lazio

| |
|---|
| Roma-Pescara |
| Orte-Falconara |
| Roma railway ring |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Technological renewal of the Roma-Napoli HS/HC line * |
| Lunghezza-Guidonia doubling* |
| ADDma Roma-Firenze line adaptation to the HS/HC standard * |
| Roma hub technological enhancement* |
| Roma Tuscolana new track layout * |
| Pigneto hub* |
| Campoleone-Aprilia doubling* |

* Detailed charts in the February 2021 edition of the Business Plan

# Roma-Pescara

**2026** phase
after **2026** completion

*Ref. CdP-I: P240A - Roma-Pescara*

**Project description**

The upgrade of the Roma-Pescara railway connection is divided into various interventions. The priority ones have been identified, which constitute the first phase of the project:

- Scafa – Manoppello: Doubling mainly in a variant of about 7 km, with a maximum speed of 160 km/h;
- Manoppello – Interport: doubling on site of about 5 km, with a maximum speed of 160 km/h;
- Sulmona - Pratola Peligna: doubling on rectified site of about 5 km, with a maximum speed of 160 km/h;
- Tagliacozzo - Avezzano: doubling on site for about 15 km for a speed of 200 km/h and a maximum gradient of 23‰.

The following interventions are also planned to complete the project:

- Pratola Peligna – Scafa: doubling mainly in a variant of about 25 km, for a maximum speed of 160 km/h. The transfer of the Torre de' Passeri station is planned;
- Roma (Corcolle) –Tagliacozzo: new line of about 53 km, of which about 40 km in tunnels, for a maximum speed of 200 km/h and a maximum gradient of 21‰;
- Avezzano - Sulmona: new single-track line of about 33 km, of which about 18 are in tunnels, for a maximum speed of 200 km/h.

In addition, on another investment project, the doubling of the Pescara-Chieti-Interporto section is under way.

## Business benefits by 2026

SPEED

**Sulmona-Pratola Peligna, Tagliacozzo-Avezzano and Scafa-Manoppello-Interport sections: reduction of travel time up to 5 minutes for some services**

REGULARITY

**Sulmona-Pratola Peligna, Tagliacozzo-Avezzano and Scafa-Manoppello-Interport sections: regularity improved for some services**

## Business benefits reaped after 2026

SPEED

Travel time reduction: Roma-Pescara in about 2h compared to the current 3h 20', with a shorter travel time up to 80' (upon completion of the entire project)

CAPACITY

Capacity increase: from 4 to 10 trains/h on the sections being doubled, with the possibility of establishing metropolitan services between Chieti and Pescara

SPEED

Acceleration and adjustment of the connections between Pescara and L'Aquila, thanks also to other ongoing and scheduled interventions on the L'Aquila-Sulmona line (Sulmona junction, New Sulmona S.Rufina stop, Sulmona-L'Aquila electrification)

PERFORMANCE

Performance adjustment to allow the development of freight traffic

The main project figures*

| | |
|---|---|
| **32** Km | Line length |
| **200** Km/h | Maximum speed |
| **23** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |
| **SCC-M/ACCM** | Command and Control system |
| **I&C** | Public information |

* in doubled sections

# Orte-Falconara

- **2026** phase
- after **2026** completion

*Ref. CdP-I: 0298 - Doubling Orte-Falconara: PM 228-Castelplanio section; I175-Doubling PM228-Albacina*

**Project description**

The interventions consist in the selective doubling of sections of the Orte-Falconara Apennine crossing line. The project is divided into the following macro-interventions identified in the medium term:

- new connection between Castelplanio and PM228 in variant with Albacina shunt, for a length of 24 km;
- doubling alongside the PM228 - Albacina section, for a length of 5 km;
- technological upgrade to speed up the Falconara-Castelplanio, Fabriano-Foligno, Foligno-Spoleto and Terni-Orte sections;
- Spoleto-Terni doubling, for a length of 29 km. (Not funded)

## Business benefits by 2026

SPEED

About 20' reduction in travel time (after checking works), for some Roma-Ancona services thanks to an initial phase of infrastructural and technological interventions

REGULARITY

Improvement of the levels of regularity thanks to the doubled routes

ACCESSIBILITY

PM 228-Albacina doubling: increase in the levels of regularity and improvement of the accessibility of the Albacina station

## Business benefits reaped after 2026

| | |
|---|---|
| SPEED | At the end of the interventions it will be possible to achieve a reduction in travel times between Roma and Ancona for some services up to about 30' and between Roma and Perugia up to about 15' in relation to the operating model and the completion of the Spoleto-Terni doubling. |
| REGULARITY | Improvement of the levels of regularity thanks to the revision of the operating model that derives from the new infrastructural configuration and the different programming of services, also in relation to the completion of the Spoleto-Terni doubling |
| CAPACITY | Capacity increase: from 4 to 10 trains/h on the entire line |
| ACCESSIBILITY | Improvement of the conditions of accessibility to the service |
| PERFORMANCE | Performance adjustment to allow the transit of freight trains |

The main project figures

| | |
|---|---|
| **200** KM/h | Maximum speed |
| **12** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

# Roma railway ring

**after 2026**

*Ref. CdP-I: 0258_A - Completion of the Roma railway ring (north belt)*

**Project description**

The project *for the closure of the Roma railway ring* includes:

- the doubling of the San Pietro-Vigna Clara section, which continues with the route to the new Tor di Quinto station (interchange with the Roma-Viterbo ATAC line) to close again in the direction of Roma Tiburtina at the Val D'Ala stop, on the PC Nuovo Salario-Roma Tiburtina line Junction;
- the branch between Tor di Quinto-Roma Smistamento;
- interconnection with the Roma-Pisa line.

Double-track line of about 10 km, with 3Kv electrification and ERTMS L2 technology, 250 metre 55-centimetre-high platforms and I&C public information system. The line will also be equipped with an operating system for remote control management with innovative ACCM/SSCM technology. Rail/rail interchange in the stations of Tor di Quinto and Val D'Ala.

## Business benefits reaped after 2026

| | |
|---|---|
| NETWORK INTEGRATION | Create new interchange functions with the Val d'Ala stop, subject to future extension of the FL2 Roma-Avezzano-Sulmona services in relation to the completion of the Roma Tiburtina new track layout |
| NETWORK INTEGRATION | Upgrade of connections for better integration of the network in both urban and railway areas, ensuring interchange with the rail services of the Roma-Viterbo line managed by ATAC at Tor di Quinto |
| NETWORK INTEGRATION | Possibility of activating a "ring" type metropolitan service, to integrate the services already included in the Roma hub |
| ACCESSIBILITY | Allow direct access to rail services for some urban municipalities not currently served by this mode |

## Focus Liguria

| |
|---|
| Third Giovi Pass |
| Genova hub |
| Acqui Terme/Alessandria-Ovada-Genoa line upgrade |
| Genova Marittima Fuori Muro |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Vado Ligure station upgrade * |
| Railway connection with the Genoa airport* |
| Genova-Torino acceleration* |
| Milano-Genoa acceleration* |

* Detailed charts in the February 2021 edition of the Business Plan

# Liguria-Alps: Third Giovi Pass

**2025**

*Ref. CdP-I: P234 - Genoa hub and Third Giovi Pass*

**Project description**

The Third Giovi pass project involves the construction of 53 km of new line (in addition to the interconnections), of which 37 km in tunnels. A main element is the new twin tube Pass tunnel for a total extension of 27 km, with by-pass every 500 meters and four intermediate access windows.

An interconnection is planned in Novi Ligure for the connections to Torino/France and an interconnection near the southern outlet called Principe-Porti for the direct connection of the line with the Voltri junction. The construction of the new PM Libarna is planned between the Pass tunnel and the Serravalle tunnel, with a 750-metre track length. The project also provides for the implementation of the Rivalta Scrivia station new track layout , with the construction of a new overtaking track to service the 750-metre track length and four new tracks to service the connected 750-metre track length systems. North side, the intervention ends at the current Tortona station where the project, approved to date, provides for a flush graft on the Alessandria - Tortona line.

The new line has a dual value for freight and passengers. For freight traffic, it will make it possible to reduce the gradient up to standard values, it will allow for the transport of semi-trailers and the rolling highway as well as trains up to 740 metres long. For passenger traffic, it will allow for a reduction in travel time between Torino/Milano and Genoa thanks to a maximum speed of up to 250 km/h. The line will be powered at 3 kV dc, will be equipped with ERTMS/ETCS L2, and will respect the interoperability standards, with axle load D4 and loading gauge P/C80.

## Business benefits by 2026

**SPEED**

Travel time reduction: Genoa-Milano in about 1h and Genoa-Torino in about 1h15', upon completion of all the planned interventions on the routes

**REGULARITY**

Improvement of traffic management with the implementation of new technologies and full interoperability thanks to the adoption of ERTMS L2

**PERFORMANCE**

Adaptation of the connections between the port system of Genoa and the Po Valley to the Technical Specifications for Interoperability (TSI): the new Giovi line, together with the planned interventions on the route, will allow for the elimination of the slope constraints and the transit of Freight trains up to 740 m in length, capable of transporting high-cube containers and semi-trailers (combined transport code P / C80) without axle load restrictions (code D4)

| | |
|---|---|
| **53** Km | Line length |
| **37** Km | Tunnel length |
| **13** Km | Link length |
| **12.5** ‰ | Maximum line gradient |
| **12.5** ‰ | Maximum link gradient |
| **200-250** Km/h | Maximum speed |
| **100-160** Km/h | Maximum link speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **GABARIT C PMO5** interoperable | Clearance gauge |
| **750** m | track length |

The main project figures

# Liguria-Alps: Genova hub

**2024** phase
after **2026** completion

*Ref. CdP-I: P234 - Genova hub and Third Giovi Pass*

**Project description**

The upgrading of the Genova railway junction includes:

- Voltri-Sampierdarena infrastructure upgrading to four tracks, with the extension of the Voltri junction on the east side, which will be connected to the east to the Giovi line near the Polcevera junction, and with the connection to the Third Giovi Pass at the Principe-Porti junction; this intervention will make it possible to allocate the current line to the metropolitan service. The new line, managed by the Genova Teglia Central Post, will have a maximum speed of 160 km/h, will be powered at 3 kV cc and will comply with interoperability standards, with axle load D4 and loading gauge P/C80;
- the construction of the new ACC equipment in the Genova Sampierdarena and Genova Brignole stations, with the infrastructure upgrading to six tracks of the Genova Principe-Genova Brignole section, in order to eliminate the current level interference generated at the couplings, within the Genova Brignole station, of the underground line in the Traversata Nuova and Traversata Vecchia tunnels of the surface line;
- the final new track layout of the Genova Voltri station, which provides for the enhancement of the siding functions for the LPT services and the modification of the Rail Freight Yard serving the Port of Prà, which will reach a configuration with a 7-track 750 m track length; within the scope of the NRRP, the release of a first functional phase is provided, subject to the demolition of the motorway access viaduct to the port whose pillars interfere with the project grounds;
- the upgrade of the Genova Campasso rail freight yard and the adaptation/reactivation of the section between the northern part of the Campasso station and Fegino junction. The adaptation and completion interventions of the Campasso junction include the construction of 8 new centralised tracks with a 750-metre track length and managed by the new station ACC. The interventions for the construction of the railway body involve an area of approximately 48,500 square metres of the total area of 136,900 square metres of Parco Campasso. The rout between the port terminals of Calata Sanità-Bettolo and the Third Giovi pass via Campasso will allow the transit of HIGH-CUBE containers (coded P / C45) without limitations.

## Business benefits by 2026

CAPACITY

**Elimination of bottlenecks in the hub, thanks to the separation of long-distance passenger and freight traffic flows from metropolitan-regional ones and to the increase in the transport capacity and frequency of regional and metropolitan trains (from 10 to 12 trains/h on the Voltri-Brignole connection)**

PERFORMANCE

**Upgrading of the rear port facility of Genova Campasso, with the possibility of managing complete 740 m standard trains directly from/to the stations of origin/destination**

# Acqui Terme/Alessandria-Ovada-Genova line upgrade

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Acqui T./Alessandria-Ovada-Genova line upgrading project provides for a series of infrastructural interventions distributed on the sections and on the railway stations, aimed at increasing the regularity and reliability indexes, and at the widespread improvement of accessibility in the stations.

The refurbishment of the Mele station is also foreseen, affected in 2001 by a landslide event whose safety had in any case determined a configuration of the rail surface which partially modified the original conditions.

With a view to the aforementioned widespread improvement in accessibility conditions, action will also be taken on the Acqui Terme station.

In detail, the planned interventions are:

- widespread maintenance interventions across the board;
- definitive renovation of the Mele landslide with construction of an artificial tunnel and widespread interventions for the Mele station new track layout;
- widespread interventions to improve accessibility conditions in the railway stations of Acqui Terme, Prasco Cremolino, Masone and Rossiglione and the railway stop of Genova Costa di Sestri Ponente;
- station building restyling in Genova Costa di Sestri, Campoligure Masone, Rossiglione, Prasco Cremolino.

As for the renovation of the Mele landslide, the restoration of the original configuration of the railway station is foreseen, with a second track.

## Business benefits by 2026

REGULARITY

New routes in the Mele station and increase in the number of simultaneous movements allowed in the station, reducing delays deriving from conflicts between station routes

ACCESSIBILITY

Improved accessibility conditions in the railway station of Acqui Terme, Prasco Cremolino, Campoligure Masone and Rossiglione and in the railway stop of Genova Costa di Sestri Ponente

## Business benefits reaped after 2026

REGULARITY

The technological renewal intervention provided as part of the ERTMS Development Plan, with a view to complete interoperability of the lines at European level, will allow greater flexibility in the management of traffic, guaranteeing an increase in the regularity of the line

# Genova Marittima Fuori Muro

**2026**

*Ref. CdP-I: P060 - Port and terminal infrastructural works*

**Project description**
The project involves the construction of a new station called "Genova Marittima Fuori Muro", which will be part of the National Railway Infrastructure, in correspondence with the current Fuori Muro park, in assets of the Western Ligurian Sea Port System Authority. The station will be equipped with a new interlocking, having jurisdiction over 7 electrified 750-metre track length tracks, some of which are equipped with spurs for locomotive coupling/parking.
The tracks will be suitable for the arrival/departure of complete trains, whose preparation and ending from/to the port docks will take place through special centralised shunt rods.

The project is completed by:
- the compliance of track cross-overs;
- the implementation of localized security controls through the installation of video surveillance systems, data networks and fire safety devices;
- the reconstruction of the TE with new pilings and new pylons;
- the refurbishment of the lighting system with the installation of new lighting towers, as well as the construction of new housings for the systems and for station and shunting personnel.

The railway station will be included in the ACCM/SCCM of the Genoa hub, while remaining present on site, and will be prepared for the future implementation of ERTMS L2.

## Business benefits by 2026

**CAPACITY**

7 centralized tracks for arrival and departure of trains up to 740 metres long

**REGULARITY**

Reduction of parasitic movements of isolated locomotives in the Genoa hub, by means of the creation of special parking spurs

**INTERMODALITY**

The railway station will allow for the increase of the freight traffic to assist the old Port of Genoa, also for P/C80 coded transport

## Focus Lombardia

| |
|---|
| Brescia-Verona section |
| Gallarate-Rho line upgrade |
| Milano Rogoredo-Pavia infrastructure upgrading to four tracks |
| Como-Molteno-Lecco electrification |
| Brescia scalo new track layout |
| Bergamo station new track layout |
| ACC Milano Centrale |
| Bergamo station.New urban hub link and sustainable mobility |
| Albairate-Abbiategrasso doubling |
| Milano-Lecco-Tirano upgrade |

| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
|---|
| Codogno - Cremona - Mantova first phase completion* |
| Ponte S.Pietro-Bergamo-Montello line upgrade * |
| Railway connection with the Bergamo airport* |
| Gallarate station infrastructure and technological upgrade* |

| |
|---|
| Milano Porta Garibaldi technological upgrade and acceleration* |
| ACC di Milano Certosa* |
| Milano-Genoa acceleration* |

* Detailed charts in the February 2021 edition of the Business Plan

# Brescia-Verona-Vicenza: Brescia-Verona section

**2026**

*Ref. CdP-I: 0361 – Milano-Verona HS/HC line: Brescia-Verona section*

**Project description**

The project is aimed at extending the HS/HC system along the Torino-Venezia horizontal axis and developing the Mediterranean TEN-T trans-European corridor that connects the Iberian Peninsula to the Ukrainian border and is structured as follows:

- 2026 – 1st Functional Lot: Brescia East-Verona (excluding the Verona West junction);
- After 2026 – 2nd Functional Lot: infrastructure upgrading to four tracks in the East exit from Brescia;

The first lot involves the construction of a new 47.6 km long line with HS/HC characteristics in the Lombardy and Veneto regions.
The second lot involves infrastructure upgrading to four tracks from the Brescia station to the Brescia east interconnection for an extension of approximately 10.7 km in the municipalities of Brescia, Rezzato and Mazzano.
With CIPE Resolution no. 42/2017, it was requested to carry out the feasibility study for the junction of a railway stop for the tourist area of Lower Lake Garda, located near the Sirmione motorway exit. Two alternatives (West and East solution) were presented to MIMS.

## Business benefits by 2026

| | |
|---|---|
| SPEED | The new HS/HC Brescia-Verona section will upgrade the current infrastructure to four tracks allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 10' |
| ACCESSIBILITY | Furthermore, with the activation of the Basso Garda HS/HC stop, the level of service of the important tourist area of Lake Garda will increase. |
| REGULARITY | Increase in traffic capacity and regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow) |
| PERFORMANCE | Increase in the transit of freight trains, since it will be implemented according to the interoperability standards of the TEN-T Core Freight networks |

## Business benefits reaped after 2026

CAPACITY

The infrastructure upgrading to four tracks of Brescia-East Brescia will solve the bottleneck out of Brescia by increasing the capacitive level of the entire section. As a result, the overall capacity of the section will be doubled and there will be an increase in traffic regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow). The freed capacity on the old line will allow a global improvement of the regional transport system which can be strengthened with further connections

### Quadrupled Brescia-East Brescia route

| | |
|---|---|
| **10.7** Km | Line length |
| **5- 3.8** ‰ | Maximum line gradient |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

### Quadrupled Brescia East-Verona

| | |
|---|---|
| **47.6** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Liguria-Alps: Gallarate-Rho line upgrade

**2026 phase**

*Ref. CdP-I: 0294– Gallarate-Rho line upgrade*

**Project description**
The Gallarate-Rho line upgrade foresees the infrastructure upgrading to four tracks of the Rho-Parabiago section (8 km) in the first phase, with the adaptation of the Vanzago Pogliano stop, the construction of the new Nerviano stop and the refurbishment of the Parabiago station with the construction of new side tracks. As part of the project, a first phase is planned with new track layout interventions in the Rho station to allow the insertion of the new infrastructure upgrading to four tracks. Two new tracks will be built, respectively one alongside the existing even track and one alongside the existing odd track. In this way there will be a specialisation of the central tracks for suburban services while the external tracks will be specialised for fast connections. The construction of the Y connection between the RFI line and the FerrovieNord line, south of the Busto Arsizio station, is planned to reinforce connections between Milano and Malpensa airport. The new section will have a maximum speed of 150 km/h, will be permitted for use in both directions and equipped with ERTMS/ETCS L2 and will comply with interoperability standards, with axle load D4 and loading gauge P / C80. A 4' train headway will be provided on the section; traffic management on the section will take place from the Central Post of Milano Greco Pirelli.

## Business benefits by 2026

**CAPACITY**

Increase in the capacity of the Rho-Parabiago line from 10 tr/h to 24 tr/h

**REGULARITY**

Increase in regularity indices, with separation between suburban, regional, long-distance and freight traffic

**ACCESSIBILITY**

Increased accessibility thanks to the construction of the new Nerviano stop

## Business benefits reaped after 2026

**REGULARITY**

The new track layout project of the Rho station, as part of the infrastructure upgrading to four tracks of the Rho-Parabiago section, will provide for the rationalisation of the traffic flows in the station through the construction of an overpass and the acceleration up to 100 km/h of the main station routes

# Liguria-Alps: Milano Rogoredo-Pavia infrastructure upgrading to four tracks

**2026 phase**

*Ref. CdP-I: 0335 – Pavia-Milano Rogoredo infrastructure upgrading to four tracks*

**Project description**

The infrastructure upgrading to four tracks project of the Milano Rogoredo-Pavia section foresees in the first phase the increase to four tracks of the tracks in the Milano Rogoredo-Pieve Emanuele section (11 km), with the adaptation of the Locate Triulzi and Pieve Emanuele stations, including the construction of a new siding. infrastructure upgrading to four tracks will be achieved through a new pair of tracks alongside the existing one. This will result in the separation between slow traffic and fast long-distance traffic, with the specialisation of the two lines. At the same time, the renewal of the technological systems in the Milano Rogoredo-Pavia section is planned, with the centralisation of traffic management at the Central Post of Milano Greco Pirelli. The section in question will have a maximum speed of 180 km/h, will be permitted for travel in both directions and equipped with overlapping ERTMS/ETCS L2 and will comply with interoperability standards, with axle load D4 and loading gauge P/C80. A 5' train headway will be provided on the section.

## Business benefits by 2026

| | |
|---|---|
| CAPACITY | Increase in the capacity of the Milano Rogoredo - Pieve Emanuele line from 10 tr/h to 20 tr/h |
| REGULARITY | Increase in regularity indices, with separation between suburban, regional, long-distance and freight traffic |

# Como-Molteno-Lecco electrification

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**
The project provides for 3 kV DC electrification of the single-track Como-Lecco line in the Albate-Lecco section, currently with thermal traction. The project will be divided into two functional phases, Albate-Molteno and Molteno-Lecco.
First phase: Albate-Molteno section electrification.
The first functional phase foresees the electrification of the Albate-Molteno section, extended by 22 km, with maintenance of the current loading gauge in the Albate-Merone section and adaptation to P.MO.2 of the Merone-Molteno section.
Second phase: Molteno-Lecco section electrification.
In the second functional phase, the electrification of the Molteno-Lecco section is provided, extending to 14 km, with simultaneous adaptation of the same to P.MO. 2.

## Business benefits by 2026

| | |
|---|---|
| NETWORK INTEGRATION | Redesign and optimisation of services and greater interoperability between lines with junction of the Como-Lecco line in the Lombardy-Ticino cross-border network. Possibility of diversion of services between RFI lines and Ferrovie Nord (FNM) |
| NETWORK INTEGRATION | Establishment of a cross-border foothill service connecting the three provincial capitals Varese, Como and Lecco, putting them in direct connection with the Canton of Ticino |
| SUSTAINABILITY | Reduction of environmental pollution and emissions |
| NETWORK INTEGRATION | Possibility of routing freight services on the Chiasso-Lecco route |

## Business benefits reaped after 2026

| | |
|---|---|
| REGULARITY | The electrification of the Como-Molteno-Lecco line and the technological and infrastructural upgrading of the crossing points will make it possible to increase the regularity and reliability indexes of the line, as well as to implement the expected capacity model |

## Brescia scalo new track layout

- **2024** phase
- **2026** completion

*Ref. CdP-I: P060 - Port and terminal infrastructural works*

**Project description**

The project for setting up the Brescia Scalo new track layout (also called Brescia Rail Freight Yard) provides for the adaptation of the current tracks I and II FM to 750-metre track length, which will be intended for the arrival/departure of trains on both the Milano and Verona/San Zeno side and the construction of 6 new circulation tracks, of which 3 with 750-metre track length intended for the arrival/departure trains only on the Milano side.

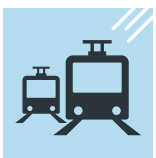
The project for the development of the Brescia junction (also called Brescia Rail Freight Yard) provides for the following interventions:

- the adaptation of the I-II FM tracks connected both on the Milano side and on the Verona/San Zeno side to 750-metre track length;
- the construction of 3 new running tracks within the Rail Freight Yard connected both on the Milano side and on the Verona/San Zeno side;
- the construction of 3 new running tracks of the Rail Freight Yard with 750-metre track length connected only on the Milano side; the new superstructure device will allow the arrival at 60 km/h on these tracks both from the HS/HC line and from the old line, through the ready 750-metre track length accumulation track;
- the construction of new electrified tracks for locomotive parking/shelter.

The project provides for the construction of a new 750-metre track length shunting track on the Milano side connected to all the arrival/departure tracks of the Rail Freight Yard, as well as to the connections present in the railway station. In the first phase, the adaptation of tracks I and II of the Rail Freight Yard to a 750-metre track length is foreseen.

The Brescia junction will be adapted to the TSIs for freight traffic, which provide for the circulation of freight trains with a length of up to 740 metres, loading gauge P/C80 and category D4 axle load.

### Business benefits by 2026

| | |
|---|---|
|  CAPACITY | Increase in the number of arrival/departure tracks |
|  PERFORMANCE | Increase of the track length, with the possibility of managing both arrivals/departures and overtaking tracks for the train line up to 740m |
|  PERFORMANCE | Possibility of movement with a complete train between the arrival/departure tracks and the links thanks to the construction of the new 750M shunting track and increase in the possibility of stops in the railway station |
|  CAPACITY | Increase of the possibilities of stops at the railway station and speeding up of some station routes |

# Bergamo station new track layout

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Bergamo station new track layout project foresees the rearrangement of the configuration of the yard, with the junction of the two tracks coming from Ponte S. Pietro in the west root and the junction in the east root of the station and the new connection to double track with Orio al Serio airport that of the future doubling of the line coming from Montello. Both station roots will be subject to interventions, with the creation of new lines that can be travelled at 60 km/h in order to allow complete passage between the lines associated with the station. At the same time, work will be carried out to adapt the station platforms to standards. The project involves the rearrangement of the configuration of the yard and the subdivision of the railway station into two elementary stations:

- tracks I-II, on which the Ponte S. Pietro-Bergamo-Montello line is set, with track III acting as a priority and the newly built I EST and I WEST root tracks intended for siding services originating/ending in Bergamo station;
- tracks V-VI, on which the Treviglio-Bergamo-Orio Airport line is set up, with tracks IV and VII acting as a priority.

Tracks VIII and IX will not be equipped with a platform and therefore will be dedicated to the arrival/departure of freight trains and / or to the parking/shelter of rolling stock. There will also be additional shelter tracks for rolling stock, prepared for the possible construction of washing platforms, and maintenance vehicles.

The superstructure interventions in the station roots will be aimed at creating new links viable at 60 km/h which will allow the complete passage between the lines associated with the station, accelerating routes compared to the current state. At the same time, there will be the adaptation of the station platforms to standards, with the enlargement of the same to enhance accessibility, and the extension of some of them to the 400-metre track length, according to the interoperability standards for long-distance services, and height equal to 55 centimetres. These interventions will involve changes to the layout of the station tracks with respect to the current configuration.

## Business benefits by 2026

CAPACITY

Re-development of the system to increase the potential and reduce interference between station routes by speeding up the station routes, with complete passage between lines, and increasing the number of system contemporaneities

ACCESSIBILITY

Increased accessibility thanks to the adaptation of the platforms

ROLLING STOCK MANAGEMENT

Usability of new train parking/shelter tracks in the station to meet the needs of railway companies

## Business benefits reaped after 2026

STATION SPACE MANAGEMENT

The completion of the interventions provided for in the projects related to the Bergamo station new track layout will lead to a complete redevelopment of the station spaces, with a significant increase in accessibility to the plant also aimed at developing the intermodality provided for by the Bergamo Porta Sud Masterplan

CAPACITY

The completion of the projects to double the lines relating to the Bergamo station and the new railway connection with the airport will lead to an increase in capacity and an enhancement of the commercial capacity with the development of new regional and suburban connections.

INTERMODALITY

increase in the airport's catchment area thanks to new connections between Milano and Orio

# ACC Milano Centrale

**2026**

*Ref. CdP-I: P054 - Infrastructural and technological upgrade of the Milano hub*

**Project description**

The Milano Centrale infrastructural and technological upgrade project provides for a series of interventions aimed at increasing the capacity and the indexes of station regularity and punctuality. The technological upgrade of the Milano Centrale station involves the construction of a new ACC system, replacing the current ACEIT system, which allows:

- the increase in the reliability indexes of the station;
- centralisation of traffic management at the Milano Greco Pirelli Central Post;
- rapid identification of abnormalities and effective resolution of equipment unavailability.

The new ACC of Milano Centrale will be interfaced with the ACC-M/SCC-M track length and with the RBC (Radio Block Center) of the Milano Hub.

The new track layout interventions include changes to the railway plan, with the creation of new station links that will allow the creation of new arrival and departure routes for trains. In addition, new communications will be placed in order to increase the number of routes that can be travelled at 60 km/h. Interventions will also be provided to upgrade the movements between the Milano Centrale station and the bundles of secondary tracks, as well as connected systems, intended for the parking and shelter of rolling stock.

Simultaneously with the aforementioned interventions, the "Chiasso" and "Circolazione Locomotive" lines are provided for travel in both directions.

The accessibility of the station will be enhanced, which already today has platforms at a standard height of 55 centimetres, increasing the number of tracks served by 400-metre long platforms, in accordance with the Technical Specifications for Interoperability for stations intended for long-distance services.

## Business benefits by 2026

| | |
|---|---|
|  ACCESSIBILITY | Increase in accessibility and enhancement of long-distance services following the increase in the number of 400-metre platforms |
|  CAPACITY | Creation of new routes and increase in the number of simultaneous movements allowed in the station, reducing delays deriving from conflicts between station routes as well as accelerate some station routes |
|  REGULARITY | Increase in regularity, with a decrease in the minutes of delay deriving from unavailability of the interlocking that manages traffic. Greater flexibility in the management of traffic on the "Chiasso" and "Circolazione locomotive" lines following interventions to permit travel in both directions, in particular in cases of abnormality |
|  ROLLING STOCK MANAGEMENT | Renovation of the station side yards for rolling stock parking/shelter |

# Bergamo station.
# New urban hub link and sustainable mobility

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Bergamo station is at the centre of a system of infrastructural upgrading interventions both by rail, such as the new railway connection with Orio al Serio Airport and the doubling of Ponte San Pietro-Bergamo-Montello, as well as by other LPT.

The area around the station is also the subject of an urban regeneration operation, which affects the areas of the Bergamo Porta Sud railway yard.

In this context, the forecast for the upgrade of the railway station is inserted, through interventions and works that have the dual function of improving and increasing railway accessibility and allowing an urban mending of the two areas separated from the railway, in line with the development forecasts of the new southern district and with the adaptation forecasts of the railway new track layout.

In particular, work is planned to cross the track bundle with connections to the station and access platforms on the north and south sides; integrated into the overpass structure and alongside the station space, a new urban connection path and connection between the various transport systems is included.

## Business benefits by 2026

ACCESSIBILITY

**Upgrade of the station with the construction of a new elevated crossing integrated into the new urban transformation area, as well as the inclusion of a new urban connection path of the two areas separated by the railway**

# Albairate-Abbiategrasso doubling

**2026**

*Ref. CdP-I: 0049B - Milano - Mortara doubling: 2nd phase*

**Project description**

The doubling of the Albairate Vermezzo-Abbiategrasso section is part of the Milano-Mortara line doubling project, to be achieved in several functional phases. This phase involves the construction of a new track in close proximity to the current one between the stations of Albairate Vermezzo and Abbiategrasso, for a total extension of approximately 5 km. The project also provides for the elimination of the line and station level crossings currently present and the construction of new siding in the Abbiategrasso station, in order to allow the enhancement of the suburban service on the line.

In this phase, doubling includes:

- the construction of a new track alongside the current one, for a total of 5 km, of the Albairate-Abbiategrasso section, with the elimination of line and station level crossings;
- the construction of a new headway system between the Albairate and Abbiategrasso stations;
- The Albairate Vermezzo station new track layout for the junction of two new tracks; the interventions will also provide for the adaptation of the station protection and departure signalling as well as adaptation interventions to the TE infrastructure;
- The Abbiategrasso station new track layout, with the construction of the station underpass, of the lift/ramp systems and of a new platform, with a 250-metre track length and a standard height of 55 centimetres, to serve the new doubling track; at the same time, the existing platform will be adapted to standard track length and height. Two new tracks will also be built for the storage of rolling stock, in order to allow the siding of suburban connections. At the same time as the doubling of the station area, work will be carried out on the signalling systems and on the station TE infrastructure;
- the technological renewal of the Abbiategrasso station, with the creation of a new ACC system for the management of traffic from the Central Post of Milano Greco Pirelli.

## Business benefits by 2026

CAPACITY

Increase in the capacity and potential of the line and usability of new train parking/ shelter tracks in the station to meet the service objectives of the Lombardy Region

REGULARITY

Increase in reliability and regularity indices thanks to the construction of the new ACC in Abbiategrasso and decrease in delays associated with the existence of line and station level crossings

REGULARITY

Greater flexibility in traffic management thanks to the extension to Abbiategrasso of the double-track section in both directions

STATION SPACE MANAGEMENT

Improvement of station space management and accessibility, with the construction of the new underpass and platforms with standard track length and height

## Business benefits reaped after 2026

CAPACITY

The completion of the Milano-Mortara doubling will allow an increase in capacity, from 4 tr/h in total to 10 tr h per direction, guaranteeing the quantitative increase of regional services in the reference basin and their reliability and regularity index

ACCESSIBILITY

Thanks to the doubling, all stations will be equipped with underpasses and platforms at standard height, increasing accessibility for passengers

REGULARITY

All level crossings on the route will be eliminated, allowing for the elimination of delays connected in the event of abnormalities and an increase in the regularity of the line

# Milano-Lecco-Tirano upgrade

**2025**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**
The Milano-Lecco-Tirano line upgrade project provides for widespread interventions to improve the efficiency of the intersection locations, with admission of contemporary movements and acceleration of the routes to 60 km/h where possible. new track layout interventions to improve the efficiency of the cross links at the Mandello, Lierna, Ardenno Masino and S.Pietro Berbenno railway stations.
Construction of underpasses where contemporary movements are foreseen.
Widespread elimination of level crossings.
Widespread accessibility interventions in the main attraction poles for the 2026 Olympics.
Widespread interventions for the upgrading of information systems to the public with centralised management by the CCC of Milano Greco Pirelli.

## Business benefits by 2026

CAPACITY

Achievement of the service objectives included for the Olympic period and according to QA with the Lombardy Region

ACCESSIBILITY

Improved station accessibility

REGULARITY

Increase in line reliability and regularity with the reduction of delays due to line and station level crossings

## Focus Marche

| |
|---|
| Orte-Falconara |
| New track layout and gauges on the Adriatic line |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Civitanova-Macerata-Albacina electrification* |
| Adriatic line acceleration* |
| Falconara variant* |
| Montemarciano stop* |

* Detailed charts in the February 2021 edition of the Business Plan

# Orte-Falconara

- **2026** phase
- after **2026** completion

*Ref. CdP-I: 0298 - Doubling Orte-Falconara: PM 228-Castelplanio section; I175-Doubling PM228-Albacina*

**Project description**

The interventions consist in the selective doubling of sections of the Orte-Falconara Apennine crossing line. The project is divided into the following macro-interventions identified in the medium term:

- new connection between Castelplanio and PM228 in variant with Albacina shunt, for a length of 24 km;
- doubling alongside the PM228 - Albacina section, for a length of 5 km;
- technological upgrade to speed up the Falconara-Castelplanio, Fabriano-Foligno, Foligno-Spoleto and Terni-Orte sections;
- Spoleto-Terni doubling, for a length of 29 km. (Not funded)

## Business benefits by 2026

SPEED

About 20' reduction in travel time (after checking works), for some Roma-Ancona services thanks to an initial phase of infrastructural and technological interventions

REGULARITY

Improvement of the levels of regularity thanks to the doubled routes

ACCESSIBILITY

PM 228-Albacina doubling: increase in the levels of regularity and improvement of the accessibility of the Albacina station

## Business benefits reaped after 2026

| | |
|---|---|
| SPEED | At the end of the interventions it will be possible to achieve a reduction in travel times between Roma and Ancona for some services up to about 30' and between Roma and Perugia up to about 15' in relation to the operating model and the completion of the Spoleto-Terni doubling. |
| REGULARITY | Improvement of the levels of regularity thanks to the revision of the operating model that derives from the new infrastructural configuration and the different programming of services, also in relation to the completion of the Spoleto-Terni doubling |
| CAPACITY | Capacity increase: from 4 to 10 trains/h on the entire line |
| ACCESSIBILITY | Improvement of the conditions of accessibility to the service |
| PERFORMANCE | Performance adjustment to allow the transit of freight trains |

The main project figures

| | |
|---|---|
| **200** KM/h | Maximum speed |
| **12** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

# New track layout and gauges on the Adriatic line

**2026** phase
after **2026** completion

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**

One of the strategies for the development of freight traffic at European level is the implementation of stations with priority tracks with a capacity of 750 metres.
A set of railway stations on the Adriatic line and the Bari-Taranto line, both belonging to the Scandinavian-Mediterranean freight corridor, are the subject of these interventions.
The adaptation of stations that are no more than 100 km away from each other to 750 metres and of railway stations where trains of 750 metres length start/end travel are connected are foreseen (last mile interventions). The hypothesised locations subject to intervention are: Falconara Marittima, Porto d'Ascoli, Roseto degli Abruzzi, Campomarino, Foggia, Incoronata, S. Nicola di Melfi, Cerignola, Trinitapoli, Giovinazzo, Bari Lamasinata, Ostuni, Brindisi Intermodale, Grottalupara. Five of these fourteen stations are already the subject of a specific project (Falconara Marittima, Campomarino, Foggia, Bari Lamasinata and Brindisi Intermodal).
The adaptation of other stations to 650 metres is also provided, in order to guarantee a distance normally not exceeding 40 km between the railway stations with this track length. These are Fano, Chieuti (funding is already foreseen for this intervention), Bari P. Nord, Sannicandro di Bari. Other locations are already adapted to the 650/750 metre track length.
The stations of Fano, Senigallia, Incoronata, Cerignola, Trinitapoli, Giovinazzo, Bari P. Nord, Ostuni, Sannicandro di Bari, PM Grottalupara will be adapted by 2026.
The stations of Varano, Porto d'Ascoli, Roseto, S. Nicola di Melfi will be adapted after 2026.

## Business benefits by 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km, except for the Pescara-Ancona section where distance extends to 70 km

PERFORMANCE

Distance between 750-metre track length railway stations: max 100 km, except for the Pescara-Ancona section where distance extends to 160 km

## Business benefits reaped after 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km

Distance between 750-metre track length railway stations: max 100 km

## Focus Molise

| |
|---|
| New track layout and gauges on the Adriatic line |
| Venafro-Campobasso-Termoli upgrade |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Adriatic line acceleration* |

* Detailed charts in the February 2021 edition of the Business Plan

# New track layout and gauges on the Adriatic line

**2026** phase
after **2026** completion

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**

One of the strategies for the development of freight traffic at European level is the implementation of stations with priority tracks with a capacity of 750 metres.
A set of railway stations on the Adriatic line and the Bari-Taranto line, both belonging to the Scandinavian-Mediterranean freight corridor, are the subject of these interventions.
The adaptation of stations that are no more than 100 km away from each other to 750 metres and of railway stations where trains of 750 metres length start/end travel are connected are foreseen (last mile interventions). The hypothesised locations subject to intervention are: Falconara Marittima, Porto d'Ascoli, Roseto degli Abruzzi, Campomarino, Foggia, Incoronata, S. Nicola di Melfi, Cerignola, Trinitapoli, Giovinazzo, Bari Lamasinata, Ostuni, Brindisi Intermodale, Grottalupara. Five of these fourteen stations are already the subject of a specific project (Falconara Marittima, Campomarino, Foggia, Bari Lamasinata and Brindisi Intermodal).
The adaptation of other stations to 650 metres is also provided, in order to guarantee a distance normally not exceeding 40 km between the railway stations with this track length. These are Fano, Chieuti (funding is already foreseen for this intervention), Bari P. Nord, Sannicandro di Bari. Other locations are already adapted to the 650/750 metre track length.
The stations of Fano, Senigallia, Incoronata, Cerignola, Trinitapoli, Giovinazzo, Bari P. Nord, Ostuni, Sannicandro di Bari, PM Grottalupara will be adapted by 2026.
The stations of Varano, Porto d'Ascoli, Roseto, S. Nicola di Melfi will be adapted after 2026.

## Business benefits by 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km, except for the Pescara-Ancona section where distance extends to 70 km

PERFORMANCE

Distance between 750-metre track length railway stations: max 100 km, except for the Pescara-Ancona section where distance extends to 160 km

## Business benefits reaped after 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km

Distance between 750-metre track length railway stations: max 100 km

# Venafro-Campobasso-Termoli upgrade

**2026**

*Ref. CdP-I: P246 - Venafro-Campobasso-Termoli upgrade*

**Project description**

The Venafro-Termoli line has a total length of 171 km, with a single non-electrified track.
The Roccaravindola-Isernia-Campobasso section is affected by electrification and acceleration interventions.
The new interventions include:

- technological upgrade (ACC-M) of the Venafro-Matrice-Termoli line;
- electrification of the Termoli-Matrice section and reclassification of the section (adaptation to axle load cat. C3);
- targeted changes to the new track layouts of the stations along the entire Venafro-Termoli route, additional to those already planned, to speed up travel and create contemporary movements.

## Business benefits by 2026

REGULARITY

Improvement of the levels of infrastructural reliability, with repercussions on the levels of regularity of services

## Focus Piemonte

| |
|---|
| Ivrea-Aosta electrification |
| Acqui Terme/Alessandria-Ovada-Genova line upgrade |
| New Torino SFM stops: Dora and Zappata |
| Upgrade of the Torino Porta Nuova-Torino Porta Susa link |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Genoa-Torino acceleration * |
| Torino stop completion (Orbassano, S.Paolo, Borgata Quaglia)* |
| New Ferriera-Buttigliera stop* |
| Technological upgrade of the Torino hub and related lines* |
| Fossano-Cuneo line upgrade* |
| Adaptation and improvement of the Chivasso - Ivrea - Aosta railway line* |
| Works for the elimination of interference with the Chivasso - Ivrea - Quincinetto line traffic* |

* Detailed charts in the February 2021 edition of the Business Plan

# Ivrea-Aosta electrification

**2026**

*Ref. CdP-I: P257- Ivrea-Aosta electrification*

**Project description**
The project provides for the 3 kV DC electrification of the Ivrea-Aosta railway line which extends for 66.2 km and is included in the Framework Agreement that RFI has stipulated with the Valle d'Aosta Region.
The project includes:

- the construction of new electrical substations powered at 15 kV medium voltage;
- the installation of the contact line with simultaneous adaptation of the works and galleries to house it;
- the adaptation of the stations along the section by electrification of all the runningtracks and the construction of the end station portals for cut-off with respect to the line;
- the creation of remote control devices for the remote operational management of Electric Traction (DOTE).

## Business benefits by 2026

NETWORK INTEGRATION

Eligibility for railway companies to use fully electric rolling stock, as an alternative/ replacement of the current diesel and bimodal trains circulating on the Aosta-Torino route, characterised by greater availability in terms of capacity and higher general performances

SUSTAINABILITY

Reduction of environmental pollution and emissions

# Acqui Terme/Alessandria-Ovada-Genova line upgrade

**2026**

*Ref. CdP-I: P198 - Infrastructural and technological upgrading of north-west basins*

**Project description**

The Acqui T./Alessandria-Ovada-Genova line upgrading project provides for a series of infrastructural interventions distributed on the sections and on the railway stations, aimed at increasing the regularity and reliability indexes, and at the widespread improvement of accessibility in the stations.

The refurbishment of the Mele station is also foreseen, affected in 2001 by a landslide event whose safety had in any case determined a configuration of the rail surface which partially modified the original conditions.

With a view to the aforementioned widespread improvement in accessibility conditions, action will also be taken on the Acqui Terme station.

In detail, the planned interventions are:

- widespread maintenance interventions across the board;
- definitive renovation of the Mele landslide with construction of an artificial tunnel and widespread interventions for the Mele station new track layout;
- widespread interventions to improve accessibility conditions in the railway stations of Acqui Terme, Prasco Cremolino, Masone and Rossiglione and the railway stop of Genova Costa di Sestri Ponente;
- station building restyling in Genova Costa di Sestri, Campoligure Masone, Rossiglione, Prasco Cremolino.

As for the renovation of the Mele landslide, the restoration of the original configuration of the railway station is foreseen, with a second track.

## Business benefits by 2026

REGULARITY

New routes in the Mele station and increase in the number of simultaneous movements allowed in the station, reducing delays deriving from conflicts between station routes

ACCESSIBILITY

Improved accessibility conditions in the railway station of Acqui Terme, Prasco Cremolino, Campoligure Masone and Rossiglione and in the railway stop of Genova Costa di Sestri Ponente

## Business benefits reaped after 2026

REGULARITY

The technological renewal intervention provided as part of the ERTMS Development Plan, with a view to complete interoperability of the lines at European level, will allow greater flexibility in the management of traffic, guaranteeing an increase in the regularity of the line

# New Torino SFM stops: Dora and Zappata

**2026**

*Ref. CdP-I: P216 - Completion of SFM Torino stops*

**Project description**
As part of the infrastructural upgrading of the Torino railway junction, the completion of the SFM Torino Dora and Torino Zappata stops, respectively located near Piazza Baldissera and in the Crocetta area (corso Pascoli/Galileo Ferraris) of Torino, is expected. The project involves the functional and architectural completion of the Torino Dora and Zappata stops.
The Torino Dora stop is located between Porta Susa and Rebaudengo Fossata near Corso Grosseto.
The Zappata stop is included in the section of the Torino Lingotto-Porta Susa line, between the progressive mileage 3 + 033 and 3 + 283 and would constitute a new interchange hub with the future M2 underground line.
The stops in question will be served by standard metropolitan pavements (length 250 metres and height 55 centimetres).

## Business benefits by 2026

| | |
|---|---|
| ACCESSIBILITY | Connection with city transport of large areas with strong urbanisation, with the urban fabric and with the services present therein |
| ACCESSIBILITY | Redevelopment and enhancement of large areas thanks to the approach and mending of the metropolitan hub |
| ACCESSIBILITY | Increase in capillarity and accessibility to the railway service and exploitation of the rail/road synergy |

## Business benefits reaped after 2026

| | |
|---|---|
| ACCESSIBILITY | The completion of the stops is part of the broader redevelopment objective of the Torino railway junction which includes the construction of the direct connection Torino Porta Nuova-Torino Porta Susa and the new stops of Torino S.Paolo, Borgata Quaglia-Le Gru and Torino Orbassano |
| NETWORK INTEGRATION | The new organisation of the Torino Rebaudengo station for interconnection with the GTT Torino-Ceres line |
| CAPACITY | 4' headway between Torino Porta Susa-Torino Rebaudengo and the technological upgrading with new HC with innovative technology of the Torino Porta Susa and Torino Stura stations. The set of interventions will guarantee the development of SFM services according to the QA with the Piedmont Region |

# Upgrade of the Torino Porta Nuova-Torino Porta Susa link

after 2026

*Ref. CdP-I: P217 - Enhancement of the Porta Nuova-Porta Susa fast line connection*

**Project description**

The intervention consists in the construction of a new stretch of double-track line of about 4.5 km (of which about 3 km in an artificial single-tube double-track tunnel), constituting the continuation of the old Line route from tracks 1 and 2 of Torino Porta Susa towards Torino Porta Nuova, with an independent route from the Crocetta junction and the Zappata junction. For most of the length in the tunnel, the seat of the new line has already been built during works on the Porta Susa-Lingotto bypass project, which is superimposed and alongside.

For entry into the Torino Porta Nuova station, the extension works of the artificial tunnel in the Largo Turati area for about 120 metres and the entrance to the station in correspondence with the current Rialzo Team as well as all the railway outfitting (superstructure, TE, IS, TLC) of the entire section of the line with the necessary modifications in the Torino Porta Susa and Torino Porta Nuova stations are required. Torino Porta Nuova and Torino Porta Susa are currently connected to each other by a stretch of electrified double-track line, about 5 km long, along which the Zappata and Crocetta junctions are located. The intervention allows the separation of traffic flows through the construction of the new connection for the Torino-Milano services, dedicating the current infrastructure to services to/from Modane. The new direct connection between Torino Porta Nuova and Torino Porta Susa will have performance characteristics that ensure the axle load D4 and track speed of 100 km/h.

## Business benefits reaped after 2026

CAPACITY

Increase in capacity, with the consequent possibility of introducing new SFM services thanks to the elimination of the interference between suburban connections and freight directed to Orbassano/Modane with Torino - Milano long-distance ones and Torino-Milano/Aosta regional traffic

REGULARITY

The specialisation of the new section will allow for a reduction in travel times between the two stations to the benefit of the regularity of the services concerned

## Focus Puglia

| |
|---|
| Napoli-Bari |
| Taranto-Battipaglia |
| New track layout and gauges on the Adriatic line |
| Ionian line performance adjustment |
| Bari-Bitritto infrastructural upgrade |
| Bari Lamasinata |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Adriatic line acceleration* |
| Brindisi intermodal hub * |
| Foggia new track layout and ACC* |
| Bari south hub* |
| Adriatic doubling: Ripalta-Lesina* |

* Detailed charts in the February 2021 edition of the Business Plan

# Napoli-Bari

**2026** phase
after **2026** completion

*Ref. CdP-I: 0279A, 0284, 0279B, 0281, 0099A, 0099B, 0099C - route Napoli - Bari*

## Project description

The construction program of the new Napoli-Bari High Capacity line is divided into several sub-projects:

- construction of a variant to the current Napoli-Cancello line for a total length of 15.5 km passing through the Napoli Afragola HS station;
- doubling and speeding up of the old line between Cancello and Frasso Telesino and Frasso Telesino - Vitulano for a length of approximately 46 km (Frasso Telesino-Telese in 2025, Telese-Vitulano in 2026). In addition, 25 level crossings will be eliminated.
- doubling in a variant of approximately 47 km of the Apice-Orsara line section, of which 80% in the tunnel, with the construction of the new Hirpinia station;
- doubling in variant of the Orsara-Bovino section.

In addition to the interventions on the railway lines, there are also plans to upgrade the Napoli and Bari stations, which involve the adoption of the most modern technologies for traffic management: Computerised Control Equipment (ACC) and Multi-station Computerized Control Equipment (ACCM).
Completion of the variant doubling of the Apice-Orsara section is expected after 2026.

## Business benefits by 2026

| | |
|---|---|
| ACCESSIBILITY | Greater accessibility of the provinces of Caserta and Benevento to the Milano-Roma-Napoli high-speed route through the interchange in Napoli Afragola |
| SPEED | For the Bari-Napoli connections, the travel time is estimated to be reduced by 45 minutes |
| CAPACITY | On the Napoli-Benevento-Apice section the theoretical capacity passes from the current 4 trains/h in both directions of travel and 10 trains/h in each direction of travel |
| ACCESSIBILITY | In relation to the reallocation of existing service locations (Acerra station, Casalnuovo stop, Valle Maddaloni stop, Dugenta/Frasso Telesino stop) and new service locations under construction, such as the new shopping centre stop |
| ACCESSIBILITY | Four new stops and a new station will be activated on the Frasso Telesino-Vitulano section |
| PERFORMANCE | It will be possible to circulate trains with semi-trailers, with a load per axle up to 22.5 tons and 750 metres long on the Napoli-Benevento-Apice section |

## Business benefits reaped after 2026

**SPEED**

For the Bari-Napoli connections, a travel time of about 2 hours is expected, while for the Roma-Bari connections a travel time of 3 hours is expected.

**ACCESSIBILITY**

A new Hirpinia station will be activated on the Apice-Orsara section. 5 level crossings will be suppressed

**CAPACITY**

On the Napoli-Foggia section the theoretical capacity passes from the current 4 trains/h in both directions of travel and 10 trains/h in each direction of travel

**PERFORMANCE**

It will be possible to circulate trains with semi-trailers, with a load per axle up to 22.5 tons and 750 metres long on the Napoli-Foggia section

The main project figures

| | |
|---|---|
| **250** Km | Line length |
| **13** Km | Link length |
| **12.5** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

# Taranto-Battipaglia

**2026** phase after **2026** completion

*Ref. CdP-I: P238 - Battipaglia - Potenza - Metaponto - Taranto*

**Project description**

As part of the project, the interventions foreseen in PNRR realize a line with HS/HC characteristics from Battipaglia to Potenza. The interventions consist of widespread acceleration, through track adjustments for an extension of about 30% of the entire line, over-elevations in curves and the establishment of speed ranges C and P from Potenza to Metaponto. Acceleration of station entrances, through the construction of underpasses and deviated routes at 60 km/h and restoration of landslide sections (Campomaggiore and Brindisi M.)

The installation of a new headway system with emulated block in place of the current ACB and the establishment of new crossing points (Ginosa, Pisticci, Salandra, Brindisi di Montagna), in order to allow new timed LPT services the increase of freight traffic.

Improvement of passenger accessibility, thanks to the construction of new platforms with Technical Specifications for Interoperability (TSI) and People with reduced mobility (PRM) in each service location; a new stop will also be built in correspondence with the town of Castellaneta Marina.

Adjustment to freight traffic standards, by increasing track length to 750 metres on the Taranto-Metaponto (new track layout of the Castellaneta M. station, for the new traffic planned on the Bari-Taranto-Gioia Tauro connection) and 575 metres on the Metaponto-Potenza section (new track layout interventions planned in Pisticci, Salandra, Trivigno and Potenza Centrale.

P/C 80 loading gauge for the Taranto-Metaponto-Grassano section and P/C 25 loading gauge for Grassano – Potenza.

D4 axle load for the Taranto-Metaponto-Grassano section and C3 axle load for Grassano – Potenza.

The abolition of some level crossings is also provided.

## Business benefits by 2026

SPEED

Reduction of travel times on the Taranto-Napoli itinerary of about 30', also thanks to the HS Salerno-Reggio Calabria project

REGULARITY

Improvement of the levels of regularity thanks to the new intersection points

PERFORMANCE

Performance adjustment to allow for the start of freight traffic and the transit of 575-metre long trains

## Business benefits reaped after 2026

**PERFORMANCE**

Performance adjustment to allow the transit of 750 m trains on the Taranto-Metaponto section and 575 metres on the Metaponto-Potenza section

**ACCESSIBILITY**

Accessibility to service areas equipped with new platforms and underpasses and the new Marina di Castellaneta stop

| | |
|---|---|
| **250** KM | Line length |
| **SITE** | Single track |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **15** ‰ | Maximum line gradient |
| **D4** | Axle load |
| **P/C80*** | Loading gauge |
| **575/ 750** m | track length |
| **ACC-M** | Command and Control system |

The main project figures

* Taranto-Metaponto-Grassano section

# New track layout and gauges on the Adriatic line

**2026** phase
after **2026** completion

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**

One of the strategies for the development of freight traffic at European level is the implementation of stations with priority tracks with a capacity of 750 metres.
A set of railway stations on the Adriatic line and the Bari-Taranto line, both belonging to the Scandinavian-Mediterranean freight corridor, are the subject of these interventions.
The adaptation of stations that are no more than 100 km away from each other to 750 metres and of railway stations where trains of 750 metres length start/end travel are connected are foreseen (last mile interventions). The hypothesised locations subject to intervention are: Falconara Marittima, Porto d'Ascoli, Roseto degli Abruzzi, Campomarino, Foggia, Incoronata, S. Nicola di Melfi, Cerignola, Trinitapoli, Giovinazzo, Bari Lamasinata, Ostuni, Brindisi Intermodale, Grottalupara. Five of these fourteen stations are already the subject of a specific project (Falconara Marittima, Campomarino, Foggia, Bari Lamasinata and Brindisi Intermodal).
The adaptation of other stations to 650 metres is also provided, in order to guarantee a distance normally not exceeding 40 km between the railway stations with this track length. These are Fano, Chieuti (funding is already foreseen for this intervention), Bari P. Nord, Sannicandro di Bari. Other locations are already adapted to the 650/750 metre track length.
The stations of Fano, Senigallia, Incoronata, Cerignola, Trinitapoli, Giovinazzo, Bari P. Nord, Ostuni, Sannicandro di Bari, PM Grottalupara will be adapted by 2026.
The stations of Varano, Porto d'Ascoli, Roseto, S. Nicola di Melfi will be adapted after 2026.

## Business benefits by 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km, except for the Pescara-Ancona section where distance extends to 70 km

PERFORMANCE

Distance between 750-metre track length railway stations: max 100 km, except for the Pescara-Ancona section where distance extends to 160 km

## Business benefits reaped after 2026

PERFORMANCE

Distance between 650-metre track length railway stations: max 45 km

Distance between 750-metre track length railway stations: max 100 km

## Ionian line performance adjustment

**2026**

*Ref. CdP-I: P225 - Performance adjustment and upgrading of the TEN-T Scandinavia - Mediterranean corridor, Adriatic and Southern ports and related lines*

**Project description**

The Ionian line, in particular the Taranto-Metaponto-Sibari section, which then continues to Paola on the Tyrrhenian line, constitutes the connecting corridor between the port of Gioia Tauro and the Adriatic route.
This project is intended to improve the performance of the section with the adaptation of some railway stations to a 750-metre track length.
The railway stations concerned are Nocera Tirinese, S. Pietro a Maida, Sibari and Rosarno.

### Business benefits by 2026

REGULARITY

The interventions will allow for more efficient traffic management, improving its regularity

PERFORMANCE

The Taranto-Gioia Tauro corridor will be adapted to a 750-metre track length

# Bari Lamasinata

**2026**
**Phase 1**

*Ref. CdP-I: P184 - Bari Lamasinata freight yard*

**Project description**
The scope of interventions will concern: construction of a new station (so-called "Bari Lamasinata nuova") with arrival/departure and collection/delivery function with a 750-metre track length for direct connection to the national network passing on the Adriatic line. Complete refurbishment of the loading-unloading terminals in the areas of Bari Ferruccio. The entire project is divided into 2 functional phases of which only phase 1 is involved in funding under the NRRP:

**PHASE 1**: (configuration with 7, 750-metre long pass-through tracks)
- construction of the Lama Balice overpass;
- construction of the first 5 centralised 750-metre long pass-through tracks, in addition to the 2 Bari-Foggia line tracks, at the new railway station;
- construction of the PP/ACC inserted in the ACC-M of the Bari hub for traffic management at the new station;
- redevelopment and management under the new ACC of the tracks (I-IV and the 2 tracks X, XI sections) of the current system for locomotive parking.

**PHASE 2:** (final configuration with 8, 750-metre long pass-through tracks and of further 4, 750-metre sidings)
- Construction of an additional pass-through track (track VIII) with 750-metre track length;
- Construction of 4 sidings with 750-track lengthetre to park materials and locomotives connected to the new track VIII.

## Business benefits by 2026

| | |
|---|---|
| PERFORMANCE | Reduction of time and costs of shunting operations and simplifications in the operational management of traffic flows |
| CAPACITY | Increase in railway station capacity to expand the capacity offer in the time slots most requested by the RU (even train departures in the evening; odd train arrivals in the morning) |
| PERFORMANCE | Construction of 750-metre long tracks, optimal for freight transport on the TEN-T network and partial streamlining of shunting |

## Business benefits reaped after 2026

| | |
|---|---|
| PERFORMANCE | Increase in the capacity of the new railway station compared to phase 1, to promote the development of freight traffic and further No.4 750-metre long tracks used to park materials and locomotives with the possibility of locomotive inversion |

## Bari-Bitritto infrastructural upgrade

**2026**

*Ref. CdP-I: P259 - Bari - Bitritto line: infrastructural upgrading*

**Project description**

The infrastructure, consisting of a single-track line, connects Bitritto, Loseto and Carbonara to Bari Centrale with the interconnection to the national network with the Bari-Taranto line at the current Bari Parco Nord station.

The completion program of the Bari-Bitritto line was assigned by the Ministry of Sustainable Infrastructure and Mobility (MIMS) to RFI as Infrastructure Manager at the request of the Puglia Region. As per the 2016-2021 Framework Agreement signed between RFI and the Puglia Region and reconfirmed in the current 2021-2026 in force, the interoperability of the regional lines and, in the fully operational scenario, a series of services involving multiple infrastructure managers are included.

Activation of the line for commercial operation involves the following upgrades strictly necessary for commissioning:

- infrastructure subsystem (maintenance of viaducts and underpasses, maintenance of support devices, seismic improvement of viaducts, superstructure works, ballast containment in embankment);
- SSC subsystem of the line (insertion of the Carbonara and Bitritto peripheral posts in the Bari-Taranto Evolved CTC, located in the Bari Lamasinata Central Post; adaptation and completion of the CCS subsystem or SCMT, ACEI, ACB, TLC, SCC, IeC interventions) to reach the minimum RFI standards essential for the operation of the line;
- Energy subsystem whose main characteristics must meet the TE standards according to RFI Tech. Spec. ed. 2008.

The following enhancement interventions are also planned:

- Carbonara station: ACEI I0/19 facility equipped with two tracks, one 112 metres long and the other 120 metres, two 55 cm high platforms, both 120 metres long. The station will be equipped with fixed and variable station signs, routes and tactile maps for the blind, shelters, functional furniture for passengers on both platforms and IeC public information system;
- Loseto stop: a town equipped with a 120-metre H55 platform and shelters. The stop will be equipped with fixed and variable station signs, routes and tactile maps for the blind, shelters, functional furniture for passengers on both platforms and IeC public information system;
- Bitritto station: ACEI I0/19 facility equipped with two tracks, one 77 metres long and the other 81 metres, two 55 cm high platforms, both 120 metres long. The station will be equipped with fixed and variable station signs, routes and tactile maps for the blind, shelters, functional furniture for passengers on both platforms and IeC public information.

### Business benefits by 2026

CAPACITY

**The expected capacity will be 17 pairs/day with Bitritto-Bari/Adelfia (FSE) connections. The continuation on Adelfia (FSE) will be possible with the completion of the variant south of Bari**

| | |
|---|---|
| **10** KM | **Line length** |
| **SITE** | **Single track** |
| **85 Km/h** | **Maximum speed** |
| **3** Kv without SSE | **Electrification** |
| **ACB and SCMT** | **Block system** |
| **SCC: CTC** advanced | **Command and Control system** |

The main project figures

## Focus Sardegna

| |
|---|
| Decimomannu-Villamassargia (First Phase) doubling |
| Connection with Olbia airport |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Modernisation of the Sardinian network - technological upgrade of the sections south of Oristano, upgrade and safety interventions* |

* Detailed charts in the February 2021 edition of the Business Plan

# Decimomannu-Villamassargia (First Phase) doubling

**2026**

*Ref. CdP-I: P248- Decimomannu-Villamassargia (First Phase) doubling*

**Project description**
Doubling of the Decimomannu-Villamassargia section on which the Cagliari-Iglesias and Cagliari-Carbonia services converge. The intervention, also provided for as part of the LPT Framework Agreement between RFI and the Sardinia Region, extends for about 30 km and involves the construction of the doubling of the track between the two service locations and the elimination of existing level crossings. The line will feature a remote command and control system with innovative SCC-M/ACCM technology and I&C public information system. A first phase of doubling is planned from Decimomannu to Siliqua.

## Business benefits by 2026

**CAPACITY**

The interventions will make it possible to increase the capacity of the infrastructure by creating the conditions for the strengthening of the railway service on the Cagliari-Carbonia/Iglesias connections, in line with the provisions of the Framework Agreement for LPT services with the Sardinia Region.

**SUSTAINABILITY**

The work allows for the consolidation and increase of the modal shift and of systematic movements, taking into account the high character of commuting on the connection (catchment area equal to about 200,000 people), of travel of a tourist nature, also considering the high territorial importance of the coast (around 850,000 visitors in 2019) and of other attraction poles (e.g. local industrial archaeology) with high unexpressed tourist potential

**REGULARITY**

The project creates the conditions for increasing service quality and regularity levels, also in relation to the elimination of all level crossings on the line

## Business benefits reaped after 2026

**CAPACITY**

The completion of the doubling creates the infrastructural conditions for an increase in the frequency of services to/from Sulcis, with the objective of a 30' frequency along the Cagliari-Iglesias/Carbonia connection and a frequency of 15' in the Villamassargia station

**REGULARITY**

The project also creates the conditions for increasing service quality and regularity levels, also in relation to the elimination of all level crossings on the line

# Connection with Olbia airport

**2026**

*Ref. CdP-I: P249 - Railway connection to the port of Olbia*

**Project description**
The intervention, also provided for as part of the LPT Framework Agreement between RFI and the Sardinia Region, consists in the construction of a new section of line for the connection between the National Railway Infrastructure and Olbia Airport. The new line starts from Olbia, intercepts the new John Paul II hospital complex and then continues towards the airport, partly skirting the existing state road to reduce the impact on the territory. The connection also includes a direct connection link to the line existing between Olbia and Ozieri Chilivani. Single-track line of about 7 km equipped with ERTMS L2 technology. The line will also feature a remote command and control system with innovative SCC-M/ACCM technology and I&C public information system. The new hospital service stop will have a 200-metre platform to allow accessibility for passenger service. The airport service station will be equipped with two platforms for train siding serviced by passenger access.

## Business benefits by 2026

INTERMODALITY

The intervention, in addition to intercepting purely seasonal flows from/to the airport (3 million passengers in 2018 and third airport nationally with a +12% growth rate), also allows for intercepting systematic movements thanks to the new Hospital stop, as well as the potential mobility linked to the construction of a new shopping centre in the airport area

ACCESSIBILITY

Service integration with Olbia airport and increased accessibility to the railway service thanks to the construction of the new Olbia Hospital stop

## Focus Sicilia

| |
|---|
| Palermo-Catania-Messina |
| Augusta bypass |
| Palermo-Trapani via Milo electrification |
| Palermo-Agrigento-Porto Empedocle upgrade |
| Connection with Trapani Birgi airport |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Restoration of the Caltagirone-Gela line* |
| Palermo-Trapani via Milo electrification * |
| Ogliastrillo-Castelbuono doubling* |

* Detailed charts in the February 2021 edition of the Business Plan

# Palermo-Catania-Messina (Palermo-Catania) 2026

*Ref. CdP-I: 0275A - New Palermo-Catania link 1st phase*

**Project description**

The Palermo-Catania railway link is an infrastructure with double-track sections and single-track sections, alongside which the old line will be maintained. All the stations served by both the old line and the fast line will perform the function of exchange between the various services offered. The entire line falls on the Palermo-Catania-Messina railway axis which is part of the Scandinavia - Mediterranean Corridor.

The Palermo-Catania link project is divided into two macro-phases. The goal of the first is to construct a new infrastructure consisting of double-track sections (Fiumetorto-Lercara Diramazione And Catenanuova-Bicocca) interspersed with single-track sections with performance characteristics that allow for the development of speeds higher than 160 for the most part of the route.

The second macro-phase is aimed at adapting, in terms of interoperability, the sections of the old line between the two aforementioned double-track sections, as well as the construction of further doubling sections coinciding with the long tunnels built in the first macro-phase.

The link between the old line and the fast line is ensured at some stations.

Specifically, the project (whose scope of intervention consists of the Fiumetorto-Bicocca section) can be divided as follows:

- Fiumetorto-Lercara Diramazione section: construction in the first macro-phase of a double track as a variant to replace the current single-track route. The new Valle del Torto stop will be built on the new double-track section, which develops mainly in the tunnel;
- Lercara Diramazione-Vallelunga section: construction of a single track section as a variant with respect to the old line, in the second macro-phase the section is to be doubled and the corresponding section of the old line to be decommissioned at the same time;
- Vallelunga-Caltanissetta Xirbi section: a new single fast track will be built in the first macro-phase as a variant with respect to the old line. In the second macro-phase, the adaptation of the remaining stretch of the old line to the Technical Specifications of Interoperability (TSI) is provided;
- Caltanissetta Xirbi-Nuova Enna section: a section of the fast line with single track will be built in the first macro-phase as a variant to the old line;
- New Enna-Catenanuova section: the construction of the new fast section with single track is planned in the first macro-phase as a variant to the old line. the adjustment of the remaining old line is foreseen in the second macro-phase;
- Catenanuova-Bicocca section: construction of the doubling of the current single-track line in the first macro-phase.

## Business benefits by 2026

SPEED

**Reduction of travel times between Palermo-Catania up to 2 h 15' compared to the current 3h**

CAPACITY

**Development of a new capacity model that provides for fast connections between the major towns and capillary connections between the provinces of Agrigento, Caltanissetta, Enna and Catania**

## Business benefits reaped after 2026

**SPEED**

The new Palermo-Catania link will make it possible to reduce current travel times by about 60', connecting the two metropolitan cities in 2 hours, compared to the current 3 hours. The new infrastructure will make it possible to review the regional service model that provides for the speeding up of connections between the main Sicilian cities

**PERFORMANCE**

The performance adaptation of the entire Palermo-Catania infrastructure in terms of axle load track length and loading gauge will allow the development of freight train traffic within the island

**ACCESSIBILITY**

Improvement of accessibility to railway services thanks to the construction of the new service areas of Valle del Torto, Nuova Enna and the adaptation of the main stations on the new line and on the sections of the old line that will remain in operation

| | |
|---|---|
| **70** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C45 Hight Cube** | loading gauge |
| **600** m | track length |

The main project figures*

* in doubled sections

# Palermo-Catania-Messina (Catania-Messina)

**after 2026**

*Ref. CdP-I: 0249 - Messina-Catania line: Giampilieri-Fiumefreddo doubled*

**Project description**

The doubling project of the Giampilieri-Fiumefreddo section, as a variant with respect to the current line for an extension of approximately 42 km, will make it possible to complete the doubling of the Messina-Catania line, maintaining a short connection section with the current Letojanni station.

Compared to the single-track line currently in operation, parallel to the coast, the new route develops upstream of the current one with the simultaneous construction of new service locations: Fiumefreddo – Calatabiano, Alcantara-Giardini Naxos, Taormina, S. Alessio-S. Teresa, Nizza-Alì and Scaletta Zanclea.

The intervention is divided into two functional lots. The first relates to the doubling of the Fiumefreddo-Taormina section, with the simultaneous decommissioning of the current line between the Fiumefreddo railway station and the connection of the Letojanni interconnection on the old line. In this phase, the town of Taormina temporarily assumes the function of a transition station from double to single track from which a single-track interconnection branches off to Letojanni station. The second lot relates to the completion of the doubling to Giampilieri and the decommissioning of the current line between the Letojanni and Giampilieri railway stations. The interconnection for Letojanni will remain operational and will assume the function of branch line. The Letojanni station in particular, will assume the function of head station for the metropolitan services of the Catania area.

**Technical characteristics**

The entire line falls on the Palermo-Catania-Messina railway axis which is part of the Scandinavian Mediterranean Core Corridor of the TEN-T network. This section will be characterised by a loading gauge suitable for High Cube coded transport, track length 600 metres, axle load D4. The line will be managed via ACC-M/SCC-M/ERTMS L2.

## Business benefits reaped after 2026

| | |
|---|---|
|  SPEED | Reduce travel times between Catania and Messina by about 20 minutes |
|  CAPACITY | Line doubling will make it possible to program up to 10 trains/h per direction of travel |
|  REGULARITY | Line doubling will make it possible to eliminate traffic interference in the stations passing from double to single track and in the stations where intersections are made |
|  PERFORMANCE | The performance adaptation of the entire Palermo-Catania-Messina infrastructure in terms of axle load track length and loading gauge will allow the development of freight train traffic within the island |
|  ACCESSIBILITY | Development of fast connection services between the major inhabited centres and metropolitan services towards the Catania junction, with the construction of the new service locations Fiumefreddo-Calatabiano, Alcantara-Giardini Naxos, Taormina, S. Alessio-S. Teresa, Nizza-Alì and Scaletta Zanclea |

# Augusta bypass

**2026**

*Ref. CdP-I: P253 - Augusta bypass*

**Project description**

The intervention for the variant of the route between the Brucoli and Priolo stations, on which a new railway station will stand, will make it possible to eliminate interference between the railway infrastructure and the urban fabric of the city of Augusta.

The new railway station and the connection with the port will be managed through specific Central Computerized Equipment (ACC) interfaced with the command and control system in use on the Catania-Syracuse line.

The line section will be characterised by the following performances:

- D4 for axle load;
- P/C 45 for loading gauge;
- 600-Metre track length.

The variant of the single electrified track will make it possible to reduce the length of the route between the Brucoli and Priolo stations by approximately 4 km. The construction of the new Augusta station is planned on this variant, about 2.5 km from the city centre.

For the new station, an intersection track with a capacity of more than 250 metres is assumed, connected by means of communications that can be travelled in deviated at 60 km/h with respect to the straight track layout, with independent branches. The tracks, serviced by platforms no less than 250 metres long and 55 centimetres high, connected to each other by an underpass, will guarantee simultaneous entrances for trains coming from opposite directions.

## Business benefits by 2026

REGULARITY

**The Augusta variant eliminates the interference between the NFI and the urban fabric of the city of the same name. In this context, given the relocation of the station, appropriate equipment must be provided for the purposes of intermodality**

# Palermo-Trapani via Milo electrification

• 2026

*Ref. CdP-I: P236 - Electrification of the Cinisi-Alcamo dir.-Trapani section of the Palermo-Trapani "via Milo" line*

**Project description**
The project makes it possible to complete the electrification of the Palermo Centrale-Trapani via Milo line by intervening in the Trapani-Cinisi single-track section for a total extension of approximately 87 km.
The electrification project involves the construction of four new electrical substations located in the localities of Partinico, Alcamo D.ne, Bruca and Milo, as well as a transformer substation at Piraineto. Railway service is currently suspended on the line. On another investment project, also funded and in progress, the line will be restored through interventions at the railway site with infrastructural upgrading aimed at promptly increasing line performance.

## Business benefits by 2026

NETWORK INTEGRATION

The project allows the service to be improved in terms of comfort and performance avoiding train change in Piraineto from/to Palermo Centrale, due to the difference between the traction systems

SUSTAINABILITY

The abandonment of thermal traction increases the environmental and acoustic sustainability of the railway service, deriving from the replacement of fuel-powered rolling stock in favour of electric ones

SPEED

Electrification, together with the restoration of the line, makes it possible to reduce travel times between the Palermo junction and the city of Trapani

## Business benefits reaped after 2026

NETWORK INTEGRATION

The completion of the doubling of the Palermo bypass will allow for the development of a direct service, entirely with electric traction, between Palermo and Trapani

# Palermo-Agrigento-Porto Empedocle upgrade

**2026**

*Ref. CdP-I: P247 - Palermo-Agrigento Bassa-Porto Empedocle upgrade*

**Project description**
The intervention involves increasing the performance of the section of line between Lercara Dirammmazione and Agrigento Centrale (59 km) of the Palermo-Agrigento Centrale line, which includes the Agrigento Bassa station, branch for the Agrigento Bassa-Porto Empedocle section (10 km).
The Lercara Diramazione-Agrigento Centrale section will be subject to interventions aimed at increasing the axle load characteristics of the line, in order to allow the circulation of new types of rolling stock.
Interventions will also be carried out in the Aragona Caldare station to allow simultaneous entrances and obtain benefits in terms of travel times.
The Agrigento Bassa-Porto Empedocle section will be the subject of interventions to protect the road body, technological upgrades and redevelopment interventions in the locality of Tempio di Vulcano in order to improve accessibility to the neighbouring archaeological area. The intervention on the Lercara Diramazione-Agrigento Centrale infrastructure will allow to obtain a C3 type axle load coding, consistent with the remaining Lercara Diramazione-Palermo Centrale section. A spot intervention is foreseen in the Aragona Caldare station regarding the signalling system in order to allow simultaneous entrances.
The redevelopment of the Tempio di Vulcano stop makes it possible to obtain a platform with a length of no less than 125 metres and 55h and improve accessibility to the service area.
Both sections will be managed through the new ACC-M/SCC-M/ERTMS L2 system in line with the equipping of the Palermo-Agrigento line.

## Business benefits by 2026

CAPACITY

**The infrastructural intervention able to improve the characteristics of the line in terms of axle load coding will allow the circulation of new types of rolling stock, to the benefit of comfort and transport capacity**

## Business benefits reaped after 2026

NETWORK INTEGRATION

**The increase in performance of the Lercara Diramazione and Agrigento section is consistent with the doubling of the Fiumetorto-Lercara Diramazione section as part of the project for the construction of the new Palermo-Catania fast line, which allows to increase the capacity of the infrastructure with a significant decrease in travel times**

ACCESSIBILITY

**Another investment area between Aragona Caldare and Agrigento Bassa, the two new S. Michele and Fontanelle stops will be built in order to improve accessibility to railway services**

# Connection with Trapani Birgi airport

**2026**

*Ref. CdP-I: P250 - Intermodality and accessibility Trapani Birgi*

**Project description**

Trapani-Birgi airport is involved in the rail link project. In this context, the possibility of creating two branches will be assessed which, branching off from the current Palermo-Trapani line (via Castelvetrano), will converge in a siding station located close to the airport terminal.

The aforementioned configuration will ensure the connection of the airport terminal both in the direction of Trapani and in the direction of Castelvetrano. The new infrastructure will therefore consist of a new head station equipped with two trunk tracks and two branches in line, managed by central computerized systems (ACC) inserted, when fully operational, in the command and control system of the Palermo-Trapani line (ACCM). The functional hypothesis provides for a new head station equipped with two non-electrified sidings served by a h55 platform with a useful length of between 150 and 200 metres. The arrival/departure routes to/from the airport station must be passable at speeds of 60 km/h, with the connection branches to the Castelvetrano-Trapani line that can be travelled at the maximum speed allowed by the route.

The new interlocking, for the management of the station and of the sidings, will be included in the new ACC-M/SCC-M/ ERTMS L2 system in line with the equipping of the Palermo-Trapani line.

## Business benefits by 2026

INTERMODALITY

The connection improves accessibility to Trapani-Birgi airport and the intermodality between airport and rail services

CAPACITY

The construction of the new infrastructure creates the conditions for a reinterpretation of the current service model on the Palermo-Trapani line (via Castelvetrano), currently affected by a traffic of 24 trains/day. The new service model may provide for the forwarding of a part of the trains to the airport, with the possibility of diversifying the capacity offer between services from/to the airport and pass-through services.

## Business benefits reaped after 2026

SPEED

When fully operational, it is possible to reduce the overall travel times on the Castelvetrano - Trapani Airport/Trapani connection of services in relation to other investment projects (to be financed) for the acceleration provided for in the Framework Agreement

## Focus Toscana

| |
|---|
| Firenze Belfiore accessibility-Phase I |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| DDma Roma-Firenze line adaptation to the HS/HC standard* |
| Pistoia-Lucca line upgrade* |

* Detailed charts in the February 2021 edition of the Business Plan

# Firenze Belfiore accessibility-Phase I

**2026**

*Ref. CdP-I: P255 - Accessibility to the new Belfiore HS station and new Belfiore - Firenze Santa Maria Novella connection*

**Project description**

The project involves the construction of the new Circondaria stop, which is part of the works connected with the upgrading of the Firenze high-speed hub.
The stop will guarantee the interchange of the regional railway system with the new high-speed station, as well as intermodal integration with the other urban and extra-urban public transport systems.
In fact, the project also includes all the external arrangements necessary to guarantee accessibility to the new stop as well as the exchange of flows with the high-speed station, which will take place through a system of horizontal/vertical connections and overhead walkways. Furthermore, in line with the municipal SUMP scenarios, a parking area for tourist buses will be created. Moreover, the airport line 2 tram stop is already in operation. The Circondaria stop will intercept all the railway lines between the Rifredi and SMN/Statuto stations (and therefore the Pisa, Pistoia, Lucca, Prato, Montevarchi line services).
It will therefore consist of 8 passing tracks and 5 standard metropolitan platforms.

## Business benefits by 2026

ACCESSIBILITY

The new Circondaria stop will guarantee the train-train interchange towards the Belfiore station, with considerable time savings for co-modal passengers; Circondaria is also part of a densely urbanised area, facilitating accessibility to the railway system by local users.

## Business benefits reaped after 2026

ACCESSIBILITY

The analysed regime scenario provides for the presence of the Firenze railway underpass, the new Belfiore HS station, the People Mover connecting the Firenze SMN station with the new Circondaria stop.

SUSTAINABILITY

The People Mover will improve the functional integration between the different modes of transport, reducing the need for private cars and ensuring optimal accessibility to the intermodal hub by users, in line with the fundamental assumption of the Urban Mobility Plan Sustainable (PUMS) to assign to public transport (railways, tramways, buses) the privileged role for penetration towards the centre and bipolar connection between the historic centre and the city and metropolitan areas with the greatest demand for travel

## Focus Trentino Alto Adige

| |
|---|
| Trento bypass |
| Verona-Bernnero technological upgrading |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Riga variant* |
| Bolzano hub: Virgolo tunnel* |

* Detailed charts in the February 2021 edition of the Business Plan

# Trento bypass

**2026**

*Ref. CdP-I: 0337 - Access to Brenner lot 3: Trento and Rovereto bypass*

**Project description**
The Brenner access project is aimed at strengthening the European TEN-T Scandinavian-Mediterranean Core Corridor, connecting Helsinki and Valletta.
The project consists in the construction of additional priority lots to strengthen the Fortezza-Verona line for access from the south to the new Brenner base tunnel, whose works are already in progress.
The Trento bypass, which is part of lot 3 of the investment described, originates in Roncafort, near the Trento interport, proceeding closely alongside the old line for about 2.5 km, and then moving close to the seat of the former Filzi junction, from which the Trento tunnel originates, which ends in the locality of Acquaviva, extending approximately 12 km with twin tube tunnel.
The aim of the intervention is to quadruple the section with shunt in the town of Trento, for the transit of freight trains.
In 2018, an RFI-PAT-Municipality of Trento Memorandum of Understanding was signed for the identification of inputs for the Project Review and the possible compatibility with other local mobility interventions under study.
In 2019 the Supplementary Deed to the Memorandum of Understanding was signed, in which RFI undertook to develop the revision of the PFTE of the Trento bypass.

## Business benefits by 2026

CAPACITY

There will be a diversion of freight traffic on the Trento bypass with better performance and a consequent release of capacity on the historic section in the urban area for the benefit of a possible increase in regional type services

PERFORMANCE

The bypass will quadruple the current infrastructure and will be built according to the interoperability standards of the TEN-T Core Freight networks, thus allowing the transit of both fast and freight trains

## Business benefits reaped after 2026

REGULARITY

There will be an improvement in servicein terms of regularity and a reduction in travel times, thanks also to the specialisation of the lines in the quadrupled sections and to the by-pass of the urban centres of Trento, Bolzano and Rovereto

REGULARITY

There will be a rationalisation of the flows from the north entering the Verona node, with the specialisation of lines for freight flows servicing the Quadrante Europa terminal and for passenger flows to the node

CAPACITY

The goal is an increase in capacity with 400 trains per day passing through the Brenner Pass upon completion of the entire Fortezza-Verona infrastructure upgrading to four tracks project

| | |
|---|---|
| **15** KM | Line length |
| **12** ‰ | Maximum line gradient |
| **200** KM/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Verona-Bernnero technological upgrading

**2023**

*CdP-I reference: P224 - Infrastructural and technological upgrading and completion of performance adaptation for the Central and Northern Tyrrhenian routes (TEN-T Scandinavia-Mediterranean Tyrrhenian ports corridor)*

**Project description**

The Verona Brenner line is part of the Scandinavian-Mediterranean interoperable corridor of the TEN-T Core Network and its technological upgrade represents a preparatory intervention for the implementation of the ERTMS program. The objective of creating a single ACCM with Central Post in Verona that interfaces with the RBC of the future ERTMS of Verona-Brenner requires the technological upgrade of the existing station and line equipment and a simultaneous renewal of the traditional block sections with electronic locking system.
21 new traffic management devices will be built. A simultaneous renewal of the traditional block sections will also be carried out with an electronic block system always distributed with Bacc 3/3 logic and four codes, replacing the previous relay block. The interventions are preparatory to the implementation of the ERTMS level 2, Baseline 3 system, superimposed on the SCMT system. A new SCC-M supervision and maintenance and diagnostics system will also be created.

## Business benefits reaped after 2026

REGULARITY

The intervention will allow the increase of the standards of regularity, punctuality and quality of railway traffic by installing the most advanced technologies, and at the same time eliminating situations of obsolescence

NETWORK INTEGRATION

From a business point of view, this upgrade is necessary, together with the subsequent activation of the ERTMS L2 system, to achieve the interoperability of the Brenner line, inserted in the TEN-T network, also complying with Community obligations in this regard.

REGULARITY

Once completed, the project will make it possible to make the most of the network's potential in terms of capacity and speed, while improving safety levels.

# Focus Umbria

Orte-Falconara

# Orte-Falconara

- **2026** phase
- after **2026** completion

*Ref. CdP-I: 0298 - Doubling Orte-Falconara: PM 228-Castelplanio section; I175-Doubling PM228-Albacina*

**Project description**

The interventions consist in the selective doubling of sections of the Orte-Falconara Apennine crossing line. The project is divided into the following macro-interventions identified in the medium term:

- new connection between Castelplanio and PM228 in variant with Albacina shunt, for a length of 24 km;
- doubling alongside the PM228 - Albacina section, for a length of 5 km;
- technological upgrade to speed up the Falconara-Castelplanio, Fabriano-Foligno, Foligno-Spoleto and Terni-Orte sections;
- Spoleto-Terni doubling, for a length of 29 km. (Not funded)

## Business benefits by 2026

SPEED

About 20' reduction in travel time (after checking works), for some Roma-Ancona services thanks to an initial phase of infrastructural and technological interventions

REGULARITY

Improvement of the levels of regularity thanks to the doubled routes

ACCESSIBILITY

PM 228-Albacina doubling: increase in the levels of regularity and improvement of the accessibility of the Albacina station

## Business benefits reaped after 2026

| | |
|---|---|
| SPEED | At the end of the interventions it will be possible to achieve a reduction in travel times between Roma and Ancona for some services up to about 30' and between Roma and Perugia up to about 15' in relation to the operating model and the completion of the Spoleto-Terni doubling. |
| REGULARITY | Improvement of the levels of regularity thanks to the revision of the operating model that derives from the new infrastructural configuration and the different programming of services, also in relation to the completion of the Spoleto-Terni doubling |
| CAPACITY | Capacity increase: from 4 to 10 trains/h on the entire line |
| ACCESSIBILITY | Improvement of the conditions of accessibility to the service |
| PERFORMANCE | Performance adjustment to allow the transit of freight trains |

The main project figures

| | |
|---|---|
| **200** KM/h | Maximum speed |
| **12** ‰ | Maximum line gradient |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

# Focus Valle d'Aosta

| |
|---|
| Ivrea-Aosta electrification |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Adeguamento e miglioramento linea ferroviaria Chivasso - Ivrea - Aosta* |

* Detailed charts in the February 2021 edition of the Business Plan

# Ivrea-Aosta electrification

**2026**

*Ref. CdP-I: P257- Ivrea-Aosta electrification*

**Project description**
The project provides for the 3 kV DC electrification of the Ivrea-Aosta railway line which extends for 66.2 km and is included in the Framework Agreement that RFI has stipulated with the Valle d'Aosta Region.
The project includes:

- the construction of new electrical substations powered at 15 kV medium voltage;
- the installation of the contact line with simultaneous adaptation of the works and galleries to house it;
- the adaptation of the stations along the section by electrification of all the runningtracks and the construction of the end station portals for cut-off with respect to the line;
- the creation of remote control devices for the remote operational management of Electric Traction (DOTE).

## Business benefits by 2026

NETWORK INTEGRATION

Eligibility for railway companies to use fully electric rolling stock, as an alternative/ replacement of the current diesel and bimodal trains circulating on the Aosta-Torino route, characterised by greater availability in terms of capacity and higher general performances

SUSTAINABILITY

Reduction of environmental pollution and emissions

## Focus Veneto

| |
|---|
| Brescia-Verona section |
| West Verona Node |
| East Verona Node |
| Verona-Vicenza junction section and Vicenza crossing |
| Verona-Bernnero technological upgrading |
| |
| **Projects already present in the February 2021 Business Plan edition and funded for functional phase or completion** |
| Bologna-Padova technological upgrade* |
| Railway connection with the Venezia airport* |
| Belluno ring electrification* |
| Veneto line electrification* |

* Detailed charts in the February 2021 edition of the Business Plan

# Brescia-Verona-Vicenza: Brescia-Verona section

**2026**

*Ref. CdP-I: 0361 – Milano-Verona HS/HC line: Brescia-Verona section*

**Project description**

The project is aimed at extending the HS/HC system along the Torino-Venezia horizontal axis and developing the Mediterranean TEN-T trans-European corridor that connects the Iberian Peninsula to the Ukrainian border and is structured as follows:

- 2026 – 1st Functional Lot: Brescia East-Verona (excluding the Verona West junction);
- After 2026 – 2nd Functional Lot: infrastructure upgrading to four tracks in the East exit from Brescia;

The first lot involves the construction of a new 47.6 km long line with HS/HC characteristics in the Lombardy and Veneto regions.
The second lot involves infrastructure upgrading to four tracks from the Brescia station to the Brescia east interconnection for an extension of approximately 10.7 km in the municipalities of Brescia, Rezzato and Mazzano.
With CIPE Resolution no. 42/2017, it was requested to carry out the feasibility study for the junction of a railway stop for the tourist area of Lower Lake Garda, located near the Sirmione motorway exit. Two alternatives (West and East solution) were presented to MIMS.

## Business benefits by 2026

| | |
|---|---|
| SPEED | The new HS/HC Brescia-Verona section will upgrade the current infrastructure to four tracks allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 10' |
| ACCESSIBILITY | Furthermore, with the activation of the Basso Garda HS/HC stop, the level of service of the important tourist area of Lake Garda will increase. |
| REGULARITY | Increase in traffic capacity and regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow) |
| PERFORMANCE | Increase in the transit of freight trains, since it will be implemented according to the interoperability standards of the TEN-T Core Freight networks |

## Business benefits reaped after 2026

CAPACITY

The infrastructure upgrading to four tracks of Brescia-East Brescia will solve the bottleneck out of Brescia by increasing the capacitive level of the entire section. As a result, the overall capacity of the section will be doubled and there will be an increase in traffic regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow). The freed capacity on the old line will allow a global improvement of the regional transport system which can be strengthened with further connections

### Quadrupled Brescia-East Brescia route

| | |
|---|---|
| **10.7** Km | Line length |
| **5- 3.8** ‰ | Maximum line gradient |
| **200** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

### Quadrupled Brescia East-Verona

| | |
|---|---|
| **47.6** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Brescia-Verona-Vicenza: West Verona Node

**after 2026**

*Ref. CdP-I: 0361 – Milano-Verona HS/HC line: Brescia-Verona section*

**Project description**
The interventions of the Verona Node of the West entrance project include the construction of 3.6 km of the new HS/HC line, 4.2 km of the new Old Line and 3.3 km of independent freight line, in addition to the upgrade of the General Regulatory Plan of Verona Porta Nuova for the entry of the HS/HC from Milano.

## Business benefits reaped after 2026

**SPEED**

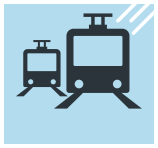
The new HS/HC Brescia-Verona section will quadruple the current infrastructure allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 10'.

**CAPACITY**

The overall capacity of the section will be doubled and there will be an increase in traffic regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow). The freed capacity on the old line will allow a global improvement of the regional transport system which can be strengthened with further connections

**PERFORMANCE**

Increase in the transit of freight trains, thanks to the construction according to the interoperability standards of the TEN-T Core Freight networks



**CAPACITY**

The construction of the Independent Freight line will also make it possible to partially free the Verona node from the flows to/from the Brenner line. The new infrastructure will also enhance connections with the Verona Quadrante Europa freight yard

Verona west node route - HS/HC line

| | |
|---|---|
| **3.6** Km | Line length |
| **12.17** ‰ | Maximum line gradient |
| **160** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

Verona west node route - Independent freight line

| | |
|---|---|
| **3.3** Km | Line length |
| **12.25** ‰ | Maximum line gradient |
| **100** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Brescia-Verona-Vicenza: East Verona Node

after **2026**

*Ref. CdP-I: 0362A – Verona-Padova HS/HC line: Verona-Vicenza junction (first functional lot)*

**Project description**

The interventions of the Verona node of the East entrance project concern functional interventions at the entrance to Verona of the Verona-Padova section with the construction of approximately 6.6 km of the new HS/HC line, a new elementary station in Verona Porta Nuova and tracks dedicated to the HS in Verona Porta Vescovo, connected by the new bridge over the Adige. In addition, a new Rail Freight Yard of three tracks is planned, Cason stop, with a 750-metre track length, located adjacent to the freight line built in the West node.

## Business benefits reaped after 2026

**SPEED**

The new HS/HC Verona-Padova section will upgrade the current infrastructure to four tracks allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 10'

**CAPACITY**

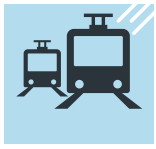
The overall capacity of the section will be doubled and there will be an increase in traffic regularity, also resulting from the specialisation of services (separation between traditional flow and high-speed flow). The freed capacity on the old line will allow a global improvement of the regional transport system which can be strengthened with further connections

**ACCESSIBILITY**

New AV elementary station in Verona Porta Nuova

**PERFORMANCE**

The section will increase the transit of freight trains, since it will be implemented according to the interoperability standards of the TEN-T Core Freight networks



**CAPACITY**

The new "Cason" freight station will be able to receive freight trains bound for Verona Quadrante Europa from Milano and to support the traffic management of the Verona node

| | |
|---|---|
| **6.6** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **115** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Brescia-Verona-Vicenza: Verona-Vicenza junction section and Vicenza crossing

**2026** phase after **2026** completion

*Ref. CdP-I: 0362A – Verona-Padova HS/HC line: Verona-Vicenza junction (first functional lot)*

**Project description**

The Verona-Vicenza Junction project is aimed at extending the HS/HC system along the Torino-Venezia horizontal axis and developing the Mediterranean TEN-T trans-European corridor that connects the Iberian Peninsula to the Ukrainian border and constitutes the 1st functional lot of the Verona-Padova HS/HC line, with a total length of 83 km, divided into 3 lots.

The HS/HC Verona-Vicenza Junction section is divided into two construction lots and involves the construction, between the Verona Porta Vescovo station and the municipality of Altavilla Vicentina, of approximately 44.25 km of the new HS/HC line, in addition to reconstruction of about 7 km of old line. The new high-speed line, except for short sections in an artificial tunnel with a total length of 2.3 km, develops on the surface mainly in embankments or trenches.

The Vicenza crossing aims to extend the HS/HC system along the Torino-Venezia horizontal axis and develop the Mediterranean TEN-T trans-European corridor that connects the Iberian Peninsula to the Ukrainian border and constitutes the 2nd functional lot of the Verona-Padova HS/HC line, with a total length of 83 km, divided into 3 lots.

The project includes the construction of the new HS/HC line for an extension of approximately 6.2 km, with a surface route alongside the existing line, between km 43 + 650 and km 49 + 827, the relocation of 2,7 km of the existing Milano-Venezia line, the reorganisation of the Vicenza new track layout, including the construction of a new elementary HS/HC station (4 tracks), as well as the inclusion of the new Fiera stop at km 46 + 400, serving both of the old line and of the high-speed line.

## Business benefits by 2026

| | |
|---|---|
| SPEED | The new HS/HC Verona-Vicenza section will quadruple the current infrastructure allowing the transit of fast trains with recovery of travel times between Milano and Venezia SL up to 5' |
| CAPACITY | Traffic capacity will increase, also resulting from the specialisation of services (separation between traditional flow and high-speed flow) |
| REGULARITY | Traffic regularity will increase, also resulting from the specialisation of services (separation between traditional flow and high-speed flow) |
| PERFORMANCE | The new Verona-Vicenza HS/HC section will quadruple the current infrastructure and allow the transit of freight trains to increase since it will be implemented according to the interoperability standards of the TEN-T Core Freight networks |

## Business benefits reaped after 2026

ACCESSIBILITY

The activation of the "Fiera" stop west of Vicenza will also make it possible to serve a strategic area of the city by rail, even with long-distance services. New elementary HS / HC station under construction in Vicenza, within the scope of the interventions by PRG

PERFORMANCE

The Rail Freight Yard of the Vicenza station will be adapted to the 750m track length and centralised, enhancing its functions to support traffic along the Mediterranean Corridor

### Verona-Vicenza Junction section

| | |
|---|---|
| **44.25** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **250** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

### Vicenza crossing section

| | |
|---|---|
| **6.2** Km | Line length |
| **12** ‰ | Maximum line gradient |
| **160** Km/h | Maximum speed |
| **3** Kv | Electrification |
| **ERTMS L2** | Technologies |
| **D4** | Axle load |
| **P/C80** | loading gauge |
| **750** m | track length |

The main project figures

# Verona-Bernnero technological upgrading

**2023**

*CdP-I reference: P224 - Infrastructural and technological upgrading and completion of performance adaptation for the Central and Northern Tyrrhenian routes (TEN-T Scandinavia-Mediterranean Tyrrhenian ports corridor)*

**Project description**

The Verona Brenner line is part of the Scandinavian-Mediterranean interoperable corridor of the TEN-T Core Network and its technological upgrade represents a preparatory intervention for the implementation of the ERTMS program. The objective of creating a single ACCM with Central Post in Verona that interfaces with the RBC of the future ERTMS of Verona-Brenner requires the technological upgrade of the existing station and line equipment and a simultaneous renewal of the traditional block sections with electronic locking system.
21 new traffic management devices will be built. A simultaneous renewal of the traditional block sections will also be carried out with an electronic block system always distributed with Bacc 3/3 logic and four codes, replacing the previous relay block. The interventions are preparatory to the implementation of the ERTMS level 2, Baseline 3 system, superimposed on the SCMT system. A new SCC-M supervision and maintenance and diagnostics system will also be created.

## Business benefits reaped after 2026

REGULARITY

The intervention will allow the increase of the standards of regularity, punctuality and quality of railway traffic by installing the most advanced technologies, and at the same time eliminating situations of obsolescence

NETWORK INTEGRATION

From a business point of view, this upgrade is necessary, together with the subsequent activation of the ERTMS L2 system, to achieve the interoperability of the Brenner line, inserted in the TEN-T network, also complying with Community obligations in this regard.

REGULARITY

Once completed, the project will make it possible to make the most of the network's potential in terms of capacity and speed, while improving safety levels.

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