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Capacity Strategy 2027

INDEX

| | |
|--|-----------|
| CHAPTER 0 – INTRODUCTION | 2 |
| 0.1.–Contact Details | 3 |
| 0.2.–Geographical Area | 3 |
| 0.3.–List of involved IMS. | 7 |
| 0.4.–List of service facilities | 7 |
| CHAPTER 1 – EXPECTED INFRASTRUCTURE CAPACITY FOR 2027 | 8 |
| 1.1.– Additional available capacity: | 8 |
| 1.2.– Reduced available capacity: | 14 |
| CHAPTER 2– TEMPORARY CAPACITY RESTRICTIONS (TCRs) | 14 |
| 2.1.–Principles for TCR planning. | 14 |
| 2.2.– Expected high and major impact TCRs | 15 |
| CHAPTER 3 – TRAFFIC PLANNING PRINCIPLES AND TRAFFIC FLOWS | 18 |
| 3.1.– Principles for traffic planning | 19 |
| 3.2.– Traffic Flows | 22 |
| REFERENCE DOCUMENTS | 28 |
| CHAPTER 4.– VALIDATION | 28 |



CHAPTER 0 – INTRODUCTION

One of the main objectives of the railways in the coming years is to take a greater share of the transport market, and to achieve this, they have to apply competitive and agile planning and production processes. In this sense, and within the improvement of these processes, RailNet Europe (RNE), in collaboration with Forum Train Europe (FTE) is developing the Timetabling and Capacity Redesign (TTR) project.

The creation of this document called "Capacity Strategy 2027" is part of the TTR project of which ADIF is a member to, in general terms, carry out the redesign of the timetable process in a harmonized way. This project will surely become more relevant in the coming years in light of the proposal presented by the European Commission COM (2023)443 in July 2023 on capacity management. This proposal, whose main objective is to establish a new regulation for the railway capacity framework in the EU, is currently under review.

The Capacity Strategy should be seen as the basis for more accurate timetable planning. In this respect, it should provide from an early-stage, information about the intentions of Infrastructure Managers (IM) and capacity applicants (Applicants) for the coming years, such as future new traffic flows, new available infrastructure or even information about Temporary Capacity Restrictions (TCR), among others.

The elements that influence the Capacity Strategy must be communicated with the level of detail available, even if it is no high, since this information is considered necessary, both for the preparation of the Infrastructure Manager's plan, and for its communication at European level with the intention of creating a common strategy. However, the level of detail of the Capacity Strategy is in line with what is currently established with respect to the figure of the capacity strategy at the European level. Likewise, it is necessary to bear in mind that its nature is fundamentally informative and non-binding.

Throughout the document, different data (infrastructure, projects, capacity, traffic flows, ...) are reflected to put the reader in context, however, due to the changing nature of these data they should not be considered as a reference and it is necessary to consult the official documents published by the IA, mainly the Network Statement.

To this end, and following the standardized template proposed by RNE in its document "Procedures for Capacity Strategy – Complementary document (handbook) to Description of the Timetabling and Capacity Redesign Process"– Version 3.0, it is structured in the following chapters:



0.1.-Contact Details

For questions regarding the Capacity Strategy please write to the following address:
gestion.capacidad@adif.es

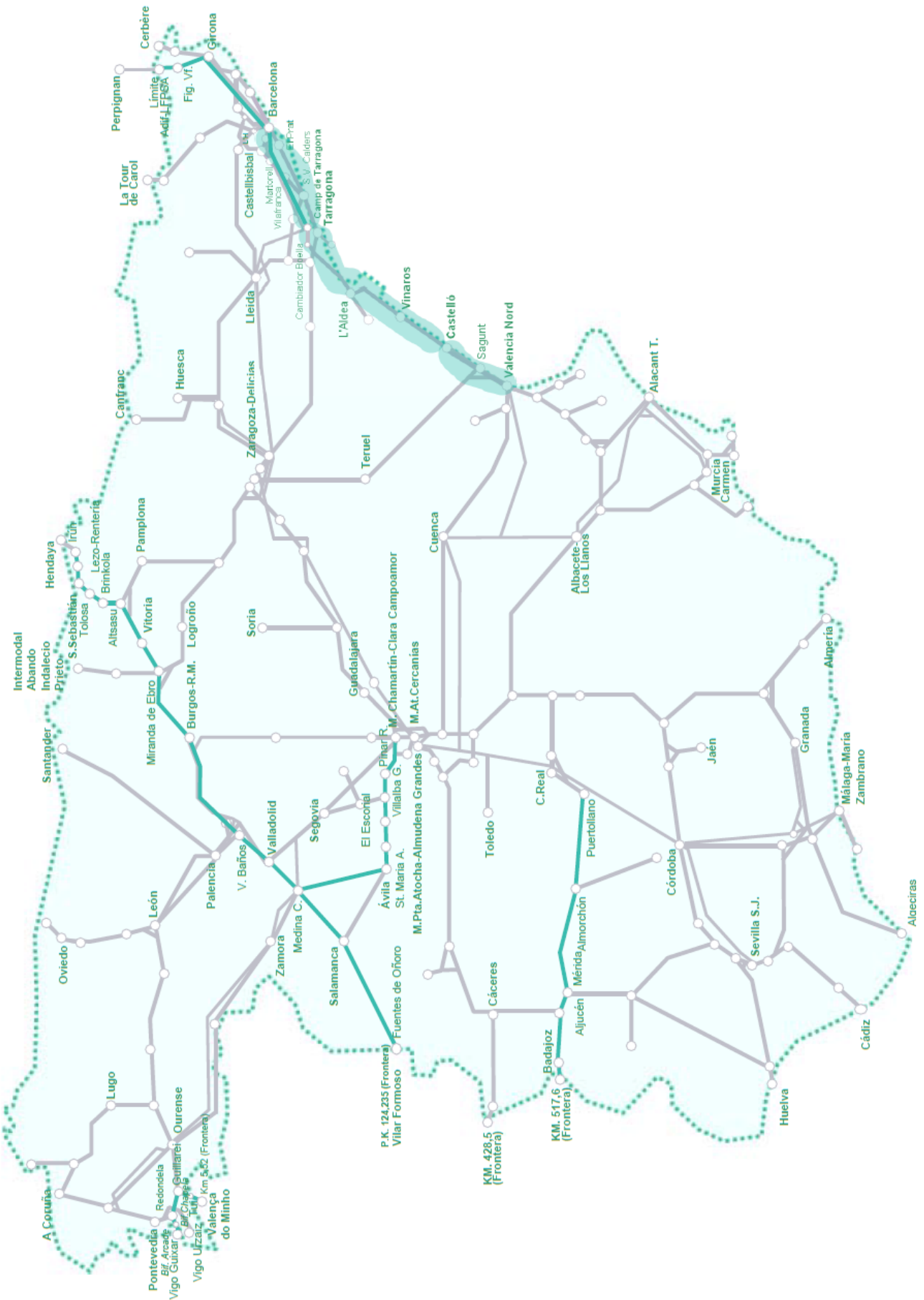
0.2.-Geographical Area

The 2027 Capacity Strategy continues to apply to the lines characterised by international traffic already indicated for the 2026 Capacity Strategy:

- **Line 050 – SECTION TARRAGONA – BARCELONA – FRENCH BORDER**
- **Line 100 MADRID CHAMARTÍN CLARA CAMPOAMOR – IRÚN**
- **Line 120 MEDINA DEL CAMPO – PORTUGUESE BORDER**
- **PORTUGUESE BORDER – BADAJOZ – MÉRIDA – PUERTOLLANO**
- **PORTUGUESE BORDER – TUI – VIGO**
- **MEDITERRANEAN CORRIDOR (BARCELONA TO VALENCIA)**

These lines are shown in greenish blue on the following map of the ADIF and ADIF-AV Rail Network. The Mediterranean corridor is represented with shading to emphasize that it is not a single line, there are several converging lines, especially around Barcelona.





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The six lines under study in this Capacity Strategy belong to the European Atlantic Corridor, the Mediterranean Corridor (TEN-T) and the European Core Rail Transport Network.

The main characteristics of these lines, at the time of preparation of this document, are detailed in the table below:



| Line | Electrification | Track Gauge | Type | Maximum Ramp | Control and Management Systems | Maximum Speed | Level crossings |
|--|---|--|---|---|---|---|-----------------|
| Tarragona BCN- French Border (L050) | 25kV AC | 1435mm | Double track | <ul style="list-style-type: none"> • passengers+freight: 18‰ between ADIF-LFPSA and Bif. Mollet • passengers 30‰ between Bif Mollet and Camp de Tarragona (viajeros) | Main: BCA + ERTMS N1 Exceptions: ----- | 300km/h | NO |
| Madrid Chamartín- Irún (L100) | 3kV DC | 1668mm | Double track (single track sections in Valladolid, Burgos e Irún-French Border) | <ul style="list-style-type: none"> • passengers+freight: 18‰ both directions | Main: BAB + CTC Exceptions: -Single track sections: BAU + CTC | 160km/h | YES |
| Medina del Campo- Portuguese Border (L120) | - 3 KV DC between Medina del Campo and P.K. 4,5 - 25 KV AC between P.K. 4,5 and Salamanca - Non electrified section: Fuentes de Oñoro - Salamanca. (planned for 2025) | 1668mm | Single track | <ul style="list-style-type: none"> • passengers+freight: 17 o 18‰ depending on the direction | Main: BLAU + CTC Exceptions: -Vilar Formoso- Fuentes de Oñoro: BAU + CTC without ASFA or radiotelephony. -Campillo-Bif Arroyo de la Golosa: BAU + CTC. | - Portuguese Border - Salamanca: 140 Km/h -Salamanca- Medina del Campo 155km/h | YES |
| Portuguese Border - Badajoz - Mérida - Puertollano (L508 y L520) | 25kV AC | 1668mm | Single track | <ul style="list-style-type: none"> • passengers+freight: 16-17‰ depending on the direction | Main : BAU and BLAU + CTC Exceptions: - Villanueva de la Serena and Brazatortas-Veredas: Telephone Blocking. - Badajoz-Border: Telephone Blocking | -Badajoz - Mérida: 200km/h -Mérida - Puertollano: 160km/h | YES in L520 |
| Portuguese Border- Tui - Vigo (L814, L810 y L812) | - L814 Non electrified. - L810 and L812 3 kV DC | 1668mm | Single track (double track section between Bif. Chapela and Redondela) | <ul style="list-style-type: none"> • passengers+freight: -15‰ direction Vigo -18‰ direction Border | Main: BAU + CTC Exceptions: - Redondela - Bif. Chapela: BAB + CTC - Tui - Portuguese Border: BLAU + CTC | 160km/h | YES in L810 |
| Mediterranean Corridor (L240, L200, L210, L600) | 3 kV DC | L200: 1668mm L210: 1668mm L240: 1668mm L600: 1668mm + mixed Valencia N-Castelló | Single | <ul style="list-style-type: none"> • passengers+freight: -L240: 14‰ -L200: 27‰ -L210: 6-9‰ -L600: 15-20‰ | Main: BAB + CTC Exceptions: - L240, Martorell Central - Castellbisbal: BAU + CTC | L200: 160 Km/h. L210: 160 Km/h. L240: 140 Km/h. L600: 200 km/h | YES in L240 |



- **Temporary speed limitations (TSL):** possible due to infrastructure (embankments and trenches), track superstructure (track, catenary and switches and crossings) as well as works and level crossing protection.
- **Operating incidents:** Those with the highest recurrence are those related to traffic control and management and telecommunications installations.

0.3.-List of involved IMs.

| Involved Infrastructure Managers |
|--|
| SNCF Réseau |
| Infraestruturas de Portugal, S.A. (IP) |
| Línea Figueres Perpignan, S.A. (LFP) |

0.4.-List of service facilities

The PISERVI service facilities portal facilitates access to information on the technical characteristics and allows access to the DESCRIPTION SHEETS of the service facilities: freight terminals, passenger stations, maintenance facilities, private loading bays, gauge changers, etc., through selective searches based on criteria such as: geographical location, type of facility, type of service, etc., which facilitates the planning of rail services by railway companies and other logistics operators.

It also has an interactive map of the General Interest Railway Network (RFIG) with the possibility to combine different search criteria. In this case, the facilities resulting from the searches will be shown on the map viewer and their Descriptive Sheet can be selected and displayed.

On the other hand, Adif makes available to railway companies and other applicants, the SYACIS application, through which it is possible to request and allocate capacity at Adif Service Facilities. The regulated process for such capacity request and allocation is included in section 7 of the Adif and Adif AV Network Statement.



CHAPTER 1 – EXPECTED INFRASTRUCTURE CAPACITY FOR 2027

1.1.- Additional available capacity:

Firstly, it should be noted that ADIF has a Draft Investment Needs Program for the Madrid-Basque Country and Madrid-Cantabria Conventional Network Lines as well as for the connections with France and Portugal, which contains a list of investment needs, specified in the actions shown in the table on the following page.

In this regard, on the one hand, those actions with a positive impact that will have an effect on the available capacity are shown and, on the other hand, those actions that, although not having a direct impact on capacity, result on a positive effect on the safety and reliability of the facilities, are indicated.

Likewise, according to the ERTMS National Implementation Plan 2017, ERTMS N1 is scheduled to be implemented in the following sections by 2030:

- L100 and L120, in almost all the area covered by this study.
- Portuguese Border – Badajoz – Mérida – Puertollano, including in the Plan the section between Portuguese Border – Aljucen. The rest of the section is not included.
- Portuguese Border – Tui – Vigo, including in the Plan the section Vigo-Guillarei. The Guillarei-Tui section is not included.
- Mediterranean Corridor, (Barcelona to Valencia), included in the Plan in its entirety.
- The L050 section already has ERTMS.

However, this action is not among the actions already budgeted by different areas of ADIF.

In addition, there is another set of actions which, although is not included in the prioritisation, must be taken into account to ensure the adequate functionality of the Conventional Network lines Madrid-Basque Country, Madrid-Cantabria and connections with France and Portugal. These actions consist mainly of the implementation of sidings for trains of 750 m in length.

These actions will result in TCRs during the execution of the works and, therefore, in changes in capacity during their development, which, however, will result in an improvement in performance in one way or another depending on the purpose of each action:

- Actions in rail terminals or logistics services: they will result in a better service offered for freight and, consequently, in a greater demand for them by railway undertakings.
- Actions to renovate and improve facilities: these will lead to higher reliability indices for the facilities and, therefore, to greater service availability.
- Actions to extend the network or number of tracks: these will have a direct impact on increasing capacity, as in the case of the Valladolid by-pass.



| SUBSYSTEM | ACTION | STATUS | Defined project proposal | Project approved by Adif management | Financing |
|---|---|--------------------------|--------------------------|-------------------------------------|-----------|
| TRACK | CONSTRUCTION PROJECT FOR THE CONDITIONING AND RENOVATION OF THE TRACK OF THE STATIONS OF BELALCÁZAR, ALMORCHÓN, CASTUERA AND CAMPANARIO OF THE LINE 520 CIUDAD REAL - BADAJOZ | CONSTRUCTION CONTRACTING | YES | YES | YES |
| ELECTRIFICATION | 25 KV AC ELECTRIFICATION AND ESSENTIAL SERVICES: PUERTOLLANO - MÉRIDA SECTION | DRAFTING | NO | YES | YES |
| INFRASTRUCTURE | SUPPRESSION OF LEVEL CROSSINGS ON THE MÉRIDA - ALJUCÉN SECTION | DRAFTING | NO | YES | YES |
| INFRASTRUCTURE | REMOVAL AND PROTECTION OF LEVEL CROSSINGS: PUERTOLLANO - MÉRIDA SECTION | PLANNING | NO | YES | YES |
| TRACK | CONSTRUCTION PROJECT FOR TRACK CONDITIONING AND RENOVATION OF THE ALMADENEJOS-ALMADÉN AND GUADALMEZ-LOS PEDROCHES STATIONS OF THE LINE 520 CIUDAD REAL - BADAJOZ. | CONSTRUCTION CONTRACTING | YES | YES | YES |
| NETWORK DEVELOPMENT | DUPLICATION OF MÉRIDA - ALJUCÉN TRACK (PLATFORM AND TRACK, IISS AND ELECTRIFICATION). | DRAFTING | NO | YES | YES (MRR) |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | ELABORATION OF THE CONSTRUCTION PROJECT AND EXECUTION OF THE WORKS FOR THE NEW INSTALLATION OF AUTOMATIC PROTECTION OF THE LEVEL CROSSINGS AT PP. KK 304/300, 315/578, 319/274, 322/968, 335/954 AND 338/063 AND RENOVATION OF LEVEL CROSSINGS CLASS A2 AND A3 OF THE GUADALMEZ - CASTUERA SECTION OF THE LINE 520 CIUDAD REAL - BADAJOZ. | CONSTRUCTION CONTRACTING | YES | YES | YES |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | SAFETY INSTALLATIONS AFFECTED BY THE ELECTRIFICATION OF THE GUILLAREI-TUI SECTION | EXECUTION | YES | YES | YES |
| ELECTRIFICATION | RENOVATION OF THE OVERHEAD CONTACT LINE OURENSE-VIGO AND TRANSFORMATION TO 25 KV A.C. | DRAFTING | NO | YES | YES |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | SAFETY INSTALLATIONS AFFECTED BY THE ELECTRIFICATION OF THE VIGO GUIXAR - REDONDELA SECTION AND THE NEW REDONDELA BYPASS. | PLANNING | NO | YES | YES |
| INFRASTRUCTURE | SUPPRESSION OF LEVEL CROSSINGS IN O PORRIÑO (PONTEVEDRA). MONFORTE DE LEMOS-REDONDELA | EDITORIAL | NO | YES | YES |
| ELECTRIFICATION | INSTALLATION OF A NEW FEEDER OUTLET AT THE GUILLAREI SUBSTATION AND COMPLEMENTARY ACTIONS. | EXECUTION | YES | YES | YES |
| STATIONS | IMPROVEMENT OF ACCESSIBILITY AT THE TUI STATION | CONSTRUCTION CONTRACTING | YES | YES | YES |
| INFRASTRUCTURE | LEVEL CROSSINGS. SECTION VIGO - OURENSE | PLANNING | NO | YES | YES |
| NETWORK DEVELOPMENT | REDONDELA BYPASS | PLANNING | NO | YES | YES |
| STATIONS | OVERHEAD CONTACT LINE CABECERA NORTE DE CHAMARTIN | EXECUTION | YES | YES | YES (MRR) |
| NETWORK DEVELOPMENT | OVERHEAD CONTACT LINE VALLADOLID-BURGOS-VITORIA | EXECUTION | YES | YES | YES (MRR) |
| NETWORK DEVELOPMENT | OVERHEAD CONTACT LINE ZARAGOZA-PAMPLONA-Y VASCA | EXECUTION | YES | YES | YES (MRR) |
| NETWORK DEVELOPMENT | OVERHEAD CONTACT LINE. VITORIA - BILBAO - SAN SEBASTIÁN | EXECUTION | YES | YES | YES (MRR) |



| SUBSYSTEM | ACTION | STATUS | Defined project proposal | Project approved by Adif management | Financing |
|---|--|--------------------------|--------------------------|-------------------------------------|-----------|
| NETWORK DEVELOPMENT | OVERHEAD CONTACT LINE MADRID - VALLADOLID | EXECUTION | YES | YES | YES |
| NETWORK DEVELOPMENT | VALLADOLID EASTERN RAILWAY BYPASS (ESSENTIAL SERVICES + TRACK + ELECTRIFICATION) | EXECUTION | YES | YES | YES (MRR) |
| NETWORK DEVELOPMENT | CONSTRUCTION PROJECT FOR THE FREIGHT YARD OF THE RAILWAY COMPLEX AND ITS CONNECTION WITH THE VALLADOLID ARTERIAL RAIL NETWORK | EXECUTION | YES | YES | YES (MRR) |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | SAFETY INSTALLATIONS AND TELECOMMUNICATIONS OF THE EASTERN RAILWAY BYPASS AND THE NEW VALLADOLID RAILWAY COMPLEX | EXECUTION | YES | YES | YES (MRR) |
| STATIONS | 2ND PHASE OF THE VALLADOLID RAILROAD COMPLEX | DRAFTING | NO | YES | YES (MRR) |
| NETWORK DEVELOPMENT | RAILROAD VALLADOLID CITY PERMEABILITY INTEGRATION ACTIONS (ADIF AV) | DRAFTING | NO | YES | YES |
| INFRASTRUCTURE | ADAPTATION OF GAUGES FOR THE ELECTRIFICATION OF THE L120.SECTION: SALAMANCA-FUENTES DE OÑORO | EXECUTION | YES | YES | YES |
| ELECTRIFICATION | ELECTRIFICATION OF THE L120. SALAMANCA-FUENTES DE OÑORO SECTION. | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | REMOVAL OF 4 LEVEL CROSSINGS IN THE MIRANDA-MAGAZ SECTION: 1 IN MAGAZ DE PISUERGA (294/510), 2 IN SANTA MARÍA DEL INVIERNO (399/365 AND 399/964) AND 1 IN MIRANDA DE EBRO (456/727). | EXECUTION | YES | YES | YES |
| ELECTRIFICATION | INSTALLATION OF REMOTE CONTROL AND POWER CONTROL SYSTEMS FOR RAILWAY ENVIRONMENT | EXECUTION | YES | YES | YES |
| ELECTRIFICATION | SUPPLY OF REMOTES FOR STE NORTH (ALSO INCLUDED IN THE CANTABRIAN-MEDITERRANEAN CORRIDOR) | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | REMOVAL OF 3 LEVEL CROSSINGS ON THE VENTA DE BAÑOS-MEDINA SECTION: 1 IN MATAPOZUELOS (225/066), 1 IN VALDESTILLAS (227/324) AND 1 IN MEDINA DEL CAMPO (202/459). | CONSTRUCTION CONTRACTING | YES | YES | YES |
| INFRASTRUCTURE | REMOVAL OF 2 LEVEL CROSSINGS ON L100: 1 AT LA DEHESA DE PEDROSILLO (127/617) AND 1 AT BRIVIESCA (414/012). | CONSTRUCTION CONTRACTING | YES | YES | YES |
| INFRASTRUCTURE | REMOVAL OF THE LEVEL CROSSING AT CARPIO (21/297) | CONSTRUCTION CONTRACTING | YES | YES | YES |
| TRACK | ENLARGEMENT OF TRACK 3 OF THE ORDUÑA EXTENSION TO 750 M. PLATFORM, TRACK AND ELECTRIFICATION. | EXECUTION | YES | YES | YES (MRR) |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | CMS ORDUÑA ENLARGEMENT (750M) | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | FLOOD ZONES IN THE MIRANDA - MAGAZ SECTION AT PK: 341, 344, 354, 392, 416. L100. | CONSTRUCTION CONTRACTING | YES | YES | YES |
| INFRASTRUCTURE | PRELIMINARY STUDY PN 439/478 PANCORBO | PLANNING | NO | YES | YES |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | EXTENSION OF THE USEFUL LENGTH OF THE TRACKS AT THE LEZO-RENTERÍA STATION (PASSAGES PORT). SAFETY INSTALLATIONS | EXECUTION | YES | YES | YES (MRR) |



| SUBSYSTEM | ACTION | STATUS | Defined project proposal | Project approved by Adif management | Financing |
|---|--|------------------|--------------------------|-------------------------------------|-----------|
| ELECTRIFICATION | NEW MARTUTENE SUBSTATION | EXECUTION | YES | YES | YES |
| ELECTRIFICATION | NEW ELECTRIC TRACTION SUBSTATION AT TOLOSA | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | OVERPASS AT K.P. 619/430 IN THE TM OF SAN SEBASTIÁN- MARTUTENE. L100 (REPLACEMENT OF THE CURRENT HORSE-RIDING ROAD AT 619/311) | DRAFTING | NO | YES | YES |
| TRACK | IMPLEMENTATION OF STANDARD GAUGE AT IRUN STATION: TRACK AND ELECTRIFICATION + SAFETY INSTALLATIONS | EXECUTION | YES | YES | YES |
| TRACK | IMPLEMENTATION OF STANDARD GAUGE ON THE ASTIGARRAGA-IRUN ROUTE. INFRASTRUCTURE AND TRACK + SAFETY INSTALLATIONS | EXECUTION | YES | YES | YES |
| STATIONS | NEW PASSENGER BUILDING AT IRÚN STATION | EXECUTION | YES | YES | YES (MRR) |
| STATIONS | NEW LEGORRETA STATION | EDITORIAL | NO | YES | YES |
| STATIONS | NEW INTERMODAL STATION OF RIBERAS DE LOIOLA | PLANNING | YES | YES | YES |
| INFRASTRUCTURE | SUPPRESSION OF LEVEL CROSSING PK 633/845 (CLASS F) AT GAINTXURIZKETA STATION. L100 (TM LEZO) | PROJECT APPROVED | YES | YES | YES |
| NETWORK DEVELOPMENT | RAILWAY ACCESS TO THE PORT OF PASAJES (LEZO) | PLANNING | NO | YES | YES |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | EXECUTION AND MAINTENANCE WORKS OF THE INSTALLATIONS DEFINED IN THE CONSTRUCTION PROJECT OF THE SIGNALING, FIXED TELECOMMUNICATIONS AND ASSOCIATED ELEMENTS FOR THE BARCELONA FIGUERES SECTION OF THE MADRID ZARAGOZA BARCELONA FRENCH BORDER HIGH SPEED LINE. | EXECUTION | YES | YES | YES |
| PLATFORM, TRACK AND ELECTRIFICATION | EXECUTION OF THE CONSTRUCTION PROJECT WORKS FOR THE STANDARD GAUGE CONNECTION TO THE MEDITERRANEAN CORRIDOR OF THE MULTIMODAL PLATFORM OF LA LLAGOSTA (BARCELONA). PLATFORM, TRACK AND ELECTRIFICATION | EXECUTION | YES | YES | YES (MRR) |
| SAFETY INSTALLATIONS | EXECUTION OF THE CONSTRUCTION PROJECT FOR THE SIGNALING OF THE NEW ACCESS TO THE MULTIMODAL PLATFORM OF LA LLAGOSTA. | EXECUTION | YES | YES | YES (MRR) |
| SAFETY INSTALLATIONS AND TELECOMMUNICATIONS | PROJECT AND EXECUTION OF WORKS FOR THE IMPLEMENTATION OF THE ERTMS LEVEL 2 AUTOMATIC PROTECTION SYSTEM ON LINES 238 AND 246 (MOLLET-CAN TUNIS JUNCTION). | EXECUTION | YES | YES | YES |
| PLATFORM, TRACK AND ELECTRIFICATION | WORKS FOR THE EXECUTION OF THE CONSTRUCTION PROJECT OF THE NECESSARY ACTIONS FOR THE COMMISSIONING OF THE ACCESS TO THE NEW TERMINAL OF BARCELONA AIRPORT | EXECUTION | YES | YES | YES (MRR) |
| SAFETY INSTALLATIONS | EXECUTION OF THE RAILWAY SECURITY AND TELECOMMUNICATIONS INSTALLATIONS FOR THE ACCESS TO THE NEW TERMINAL AT BARCELONA AIRPORT | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | CONSTRUCTION WORKS FOR THE RENOVATION OF THE RAILWAY INFRASTRUCTURE OF STREET 4 OF THE BARCELONA FREE ZONE INDUSTRIAL PARK | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | CONSTRUCTION WORKS FOR THE RENOVATION OF THE RAILWAY INFRASTRUCTURE OF STREET 4 OF THE BARCELONA FREE ZONE INDUSTRIAL PARK. | EXECUTION | YES | YES | YES (MRR) |
| STATIONS | EXECUTION OF THE CONSTRUCTION PROJECT FOR THE ADAPTATION OF THE CAN TUNIS STATION, PLATFORM, TRACK AND ELECTRIFICATION. | EXECUTION | YES | YES | YES (MRR) |



| SUBSYSTEM | ACTION | STATUS | Defined project proposal | Project approved by Adif management | Financing |
|----------------|--|-----------|--------------------------|-------------------------------------|-----------|
| STATIONS | ELABORATION OF THE CONSTRUCTION PROJECT AND EXECUTION OF THE WORKS FOR THE ADAPTATION OF THE SIGNALING FACILITIES OF THE BARCELONA - CAN TUNIS STATION. | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SUBSECTION: CASTELLBISBAL - MARTORELL | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: CASTELLBISBAL MURCIA. SUBSECTION: MARTORELL - SANT VICENÇ DE CALDERS. | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: CASTELLBISBAL - MURCIA. SUBSECTION: SANT VICENÇ DE CALDERS - TARRAGONA - VILASECA JUNCTION | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | IMPLEMENTATION OF STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR, SECTION: CASTELLBISBAL - MURCIA, SUBSECTION: CASTELLBISBAL - TARRAGONA - VILASECA JUNCTION. SAFETY AND COMMUNICATIONS INSTALLATIONS | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | EDITORIAL OF THE COMPLEMENTARY PROJECT OF THE CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF THE STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. CASTELLBISBAL-MURCIA SECTION. SUBSECTION : SANT VICENÇ DE CALDERS - TARRAGONA - VILASECA JUNCTION (RODA DE BARÀ TUNNEL) | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | SERVICES FOR THE EDITORIAL OF THE CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF A THIRD LANE AND IMPROVEMENT OF THE OPERATION OF THE MAIN ROAD OF THE SANT VICENÇ DE CASTELLBISBAL INDUSTRIAL PARK. | DRAFTING | NO | NO | YES |
| INFRASTRUCTURE | SERVICES FOR THE PUBLISHING OF THE CONSTRUCTION PROJECTS FOR THE RENOVATION OF RAILWAYS IN THE MARTORELL-SANT VICENÇ DE CALDERS AND SANT VICENÇ DE CALDERS-VILASECA SECTIONS AND THE REPLACEMENT OF TURNOUTS IN THE VILASECA JUNCTION | DRAFTING | NO | NO | YES |
| INFRASTRUCTURE | EXECUTION OF SIGNALING, FIXED TELECOMMUNICATIONS AND ERTMS N2 WORKS ON THE BARCELONA RAILWAY LINES. SECTION: HOSPITALET DE LLOBREGAT-PORT AVENTURA. | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | EXECUTION OF THE WORK AND MAINTENANCE OF THE CONSTRUCTION PROJECT FOR THE PROVISION OF DOUBLE LAYER GSM-R IN THE VICINITY OF BARCELONA SECTIONS: LHOSPITALET - PORT AVENTURA / MANRESA - SANTS- VILANOVA - SANT VICENÇ DE CALDERS | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | EXECUTION OF THE SIGNALING INSTALLATION WORKS IN THE L'AMETLLA DE MAR - CAMP DE TARRAGONA SECTION. | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | WORKS FOR THE EXECUTION OF THE CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF THE STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: CASTELLBISBAL-MURCIA. SUBSECTION: VANDELLÓS-CAMBIADOR DE LA BOELLA. TRACK AND ELECTRIFICATION | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | EXECUTION OF THE CONSTRUCTION PROJECT WORKS FOR THE IMPLEMENTATION OF THE STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: CASTELLBISBAL- MURCIA. SUBSECTION: VINARÓZ - VANDELLÓS. TRACK AND ELECTRIFICATION. | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | EXECUTION OF THE CONSTRUCTION PROJECT WORKS FOR THE IMPLEMENTATION OF THE STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: CASTELLBISBAL- MURCIA. SUBSECTION: CASTELLÓN - VINARÓZ. TRACK AND ELECTRIFICATION. | EXECUTION | YES | YES | YES |



| SUBSYSTEM | ACTION | STATUS | Defined project proposal | Project approved by Adif management | Financing |
|----------------|--|-----------|--------------------------|-------------------------------------|-----------|
| INFRASTRUCTURE | EXECUTION OF SIGNALING INSTALLATIONS ON THE CASTELLÓ DE LA PLANA-L'AMETLLA DE MAR SECTION AND ON THE TORTOSA- L'ALDEA-AMPOSTA BRANCH LINE | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF THE ERTMS SYSTEM IN THE MEDITERRANEAN CORRIDOR. SECTION: CASTELLBISBLA MURCIA. SUBSECTION VALENCIA VANDELLÓS | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | EXECUTION OF THE WORKS FOR THE CONSTRUCTION PROJECT OF THE PLATFORM OF THE NEW SOUTHERN RAILWAY ACCESS TO THE PORT OF CASTELLÓN. SECTION I (0+000 - 4+698) | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | REMAINING WORKS NECESSARY TO COMPLETE THE NEW SOUTHERN RAIL ACCESS TO THE PORT OF CASTELLÓN. | DRAFTING | NO | NO | YES |
| INFRASTRUCTURE | EXECUTION OF THE CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF THE STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: CASTELLBISBLAS- MURCIA. SUBSECTION: CASTELLÓN STATION. TRACK AND ELECTRIFICATION. | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | CONSTRUCTION PROJECT (TRACK AND ELECTRIFICATION) FOR THE IMPLEMENTATION OF STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: SAGUNTO-CASTELLÓN TRACK 1 AND SIDINGS OF THE VALENCIA-CASTELLÓN SECTION. | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | EXECUTION OF THE WORKS FOR THE CONSTRUCTION PROJECT OF THE RAILWAY ACCESS TO THE PORT OF SAGUNTOJ | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | SAFETY INSTALLATIONS RAILWAY ACCESS TO SAGUNTO PORT | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | EXECUTION OF THE CONSTRUCTION PROJECT FOR THE IMPLEMENTATION OF THE STANDARD GAUGE IN THE MEDITERRANEAN CORRIDOR. SECTION: VALENCIA NORD-JOAQUÍN SOROLLA. TRACK AND ELECTRIFICATION | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | CONSTRUCTION PROJECTS OF THE NEW ACCESS CHANNEL FOR THE INTEGRATION OF THE HIGH-SPEED RAILWAY IN THE CITY OF VALENCIA, THE EXPANSION AND REMODELING OF THE VALENCIA - JOAQUÍN SOROLLA STATION AND THE EXPANSION OF THE VALENCIA - JOAQUÍN SOROLLA PARKING LOT. | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | CONSTRUCTION WORKS FOR THE CONSTRUCTION PROJECT OF THE INTERMODAL AND LOGISTICS TERMINAL OF VALENCIA FUENTE SAN LUIS, 1ST PHASE | EXECUTION | YES | YES | YES (MRR) |
| INFRASTRUCTURE | EXECUTION OF THE CONSTRUCTION PROJECT WORKS (TRACK AND CATENARY) FOR THE NEW INTEGRAL REMODELING OF THE FUENTE DE SAN LUIS STATION (VALENCIA) FOR THE IMPLEMENTATION OF THE STANDARD GAUGE. | EXECUTION | YES | YES | YES |
| INFRASTRUCTURE | WORKS OF JÚNDIZ TERMINAL | EXECUTION | YES | YES | YES |



1.2.- Reduced available capacity:

There are no capacity reductions other than those considered in the TCRs chapter 2.

CHAPTER 2- TEMPORARY CAPACITY RESTRICTIONS (TCRs)

2.1.-Principles for TCR planning.

The continuous conservation and investment work that ADIF is entrusted with on all its managed lines, either through maintenance works on the infrastructures in service, or by carrying out improvement and expansion works on its network, may inevitably lead to capacity restrictions.

In this regard, and with respect to the general principles to be considered for the planning of these RTCs, the actions will involve, in most cases, works in the maintenance band, thus not affecting traffic. Those actions that require a cut in traffic will be carried out as far as possible on weekends when the effect on traffic is less. As a last option, they will involve traffic cuts on working days, preferably on one lane, so that the total cut of both lanes will only be carried out in strictly necessary cases.

Additionally, in accordance with the provisions of Delegated Decision 2017/2075 replacing Annex VII of Directive 2012/34/EU, and following the *"Guidelines for Coordination/Publication of Planned Temporary Capacity Restrictions for the European Railway Network"* published by RailNet Europe, ADIF makes the following classification of TCRs:

- **Minimal impact:** unspecified days – less than 10 % of traffic affected.
- **Minor impact:** 7 consecutive days or less – more than 10% of traffic affected.
- **Medium impact:** 7 consecutive days or less – more than 50% of traffic affected.
- **High Impact:** more than 7 consecutive days – more than 30% of traffic affected.
- **Major Impact:** more than 30 consecutive days – more than 50% of traffic affected.

In order to calculate the percentage of affected traffic that allows a homogeneous classification of the TCRs, the unit of reference measurement shall be a full day, as a general rule, a Thursday, which is representative, that is, with a high volume of traffic only on the entire section of the line on which the respective TCR is located, without taking into account the collateral effects of the TCR on other sections of the line.

For such purposes, the formula to be applied shall be the following:

$$\text{Impact of TCR on the traffic} = \frac{\text{Number of paths affected by TCR}}{\text{Number of paths on the representative day}} * 100$$

Likewise, in "intermediate" cases where a TCR does not meet both the criteria of number of consecutive days and % of traffic cancelled, diverted or substituted to be classified by impact as minimum – minor – medium – high – large, the RTC will be classified by its immediately lower impact.

The ADIF Capacity Manual includes, among other information, such as the characteristics and equipment of each line or the maintenance band interval, any traffic restrictions that may exist for accessing each of the lines comprising the ADIF and ADIF-AV network.



In addition, the ADIF and ADIF-AV Network Statement publishes an Annex document that includes a catalog of high and major impact RTCs on the General Interest Railway Network, which is available by clicking on the following link:

- [ADIF TCRs Catalogue](#)
- [ADIF-AV TCRs Catalogue](#)

The information contained in the catalogues is presented in a table that, together with the reason for the restriction, highlights the type of traffic impact (total cut, track availability restriction, speed restriction, weight... etc.), explaining the expected impact in as much detail as possible. In addition, maps are included to make it easier to identify the different actions, distinguishing them by geographical area. These catalogs and maps are periodically updated with information from the TOC Commissions, which are the ones that define and agree on the programming of actions and works on the infrastructure. They provide information on future capacity restrictions, agreed with the applicants to enable them to adapt their operations and transportation needs.

However, the coordination and communication process between ADIF and ADIF-AV and the Railway Undertakings when TCRs exist is not limited to the TOC Commissions, -with their central and territorial, ordinary and extraordinary sessions-, nor to the publication of the Catalogues in the Network Statement.

There are, in this sense, other instruments through which the communication of possible outages and their dates is carried out, such as specific or monographic meetings to discuss the works, the schedules of the affected trains, and even the alternative routes.

Finally, to specify the operation of a TCR that exceeds the capacity reserved for maintenance and conservation (known as Maintenance Bands), ADIF and ADIF-AV inform Railway Undertakings of the details in what are known as Extraordinary Work Files (TBP/TBA). In addition to general information and timetables, these files include aspects related to traffic safety. These files are usually sent as soon as they are available, and traceability is maintained in the notices and communications between ADIF and the Railway Undertakings.

2.2.- Expected high and major impact TCRs

Due to the significant impact they could have on the capacity allocated and for the Railway Undertakings' consideration for the planning of their transport plans, high and major impact TCRs are indicated below, i.e. those whose duration is greater than 7 consecutive days and which result in a cancellation, rerouting or substitution by other modes of transport of more than 30% of the estimated daily traffic volume on a railway line, for 2027 and exclusively for the selected geographical area.

Detailed information on these restrictions, as well as those of the rest of the rail network, is available in the ADIF and ADIF-AV Network Statement.



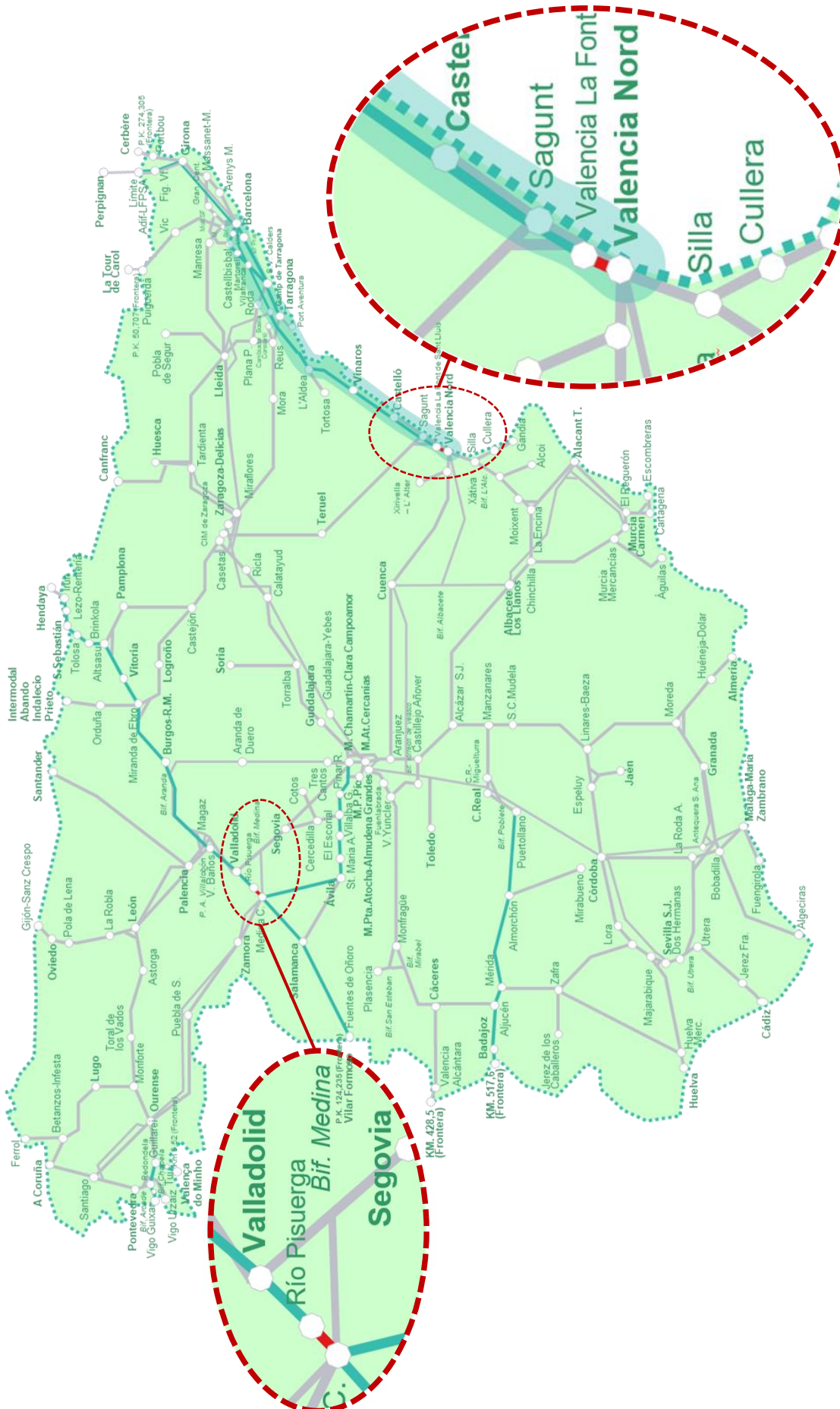
➤ **Line 100 MADRID CHAMARTÍN CLARA CAMPOAMOR – IRÚN:**

| TCR section | Direction | TCR Start | TCR End | Reason for Restriction | Expected Impact |
|-----------------------------|-----------|-----------|--------------------------|---|---|
| Valladolid – Pisuerga river | Both | End 2023 | 2026 (Start + 27 months) | Construction Project for the Duplication of Standard Gauge Track North of Valladolid Campo Grande Station to the North Junction of Valladolid-East Variant. In project drafting phase | <ul style="list-style-type: none"> • Total weekend shutdown from Saturday at 00:00 hours to Sunday at 16:00 hours (approximately) • 104-day shutdown of Tres Hermanos station. • In drafting • Affection: Infrastructure, Track and Electrification |

➤ **Line 600 VALENCIA (ESTACIÓ DEL NORD) – LA BOELLA CHANGER:**

| TCR section | Direction | TCR Start | TCR End | Reason for Restriction | Expected Impact |
|--|-----------|-----------|---------|---|--|
| Valencia Nord – Valencia La Font de Sant Lluís | Both | 2023 | 2028 | New access channel for the integration of high-speed rail in the city of Valencia | <ul style="list-style-type: none"> • 8-hour night-time closures on both tracks • Single-track traffic during various phases of construction work. • Occasional cuts in the continuity of the 1435mm gauge between Valencia Joaquín Sorolla and Castelló at maximum intervals of 4 consecutive days. • Temporary speed restrictions in the vicinity of the installed track devices. |





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Verificable en <https://sede.adif.gob.es/csv/valida.jsp>

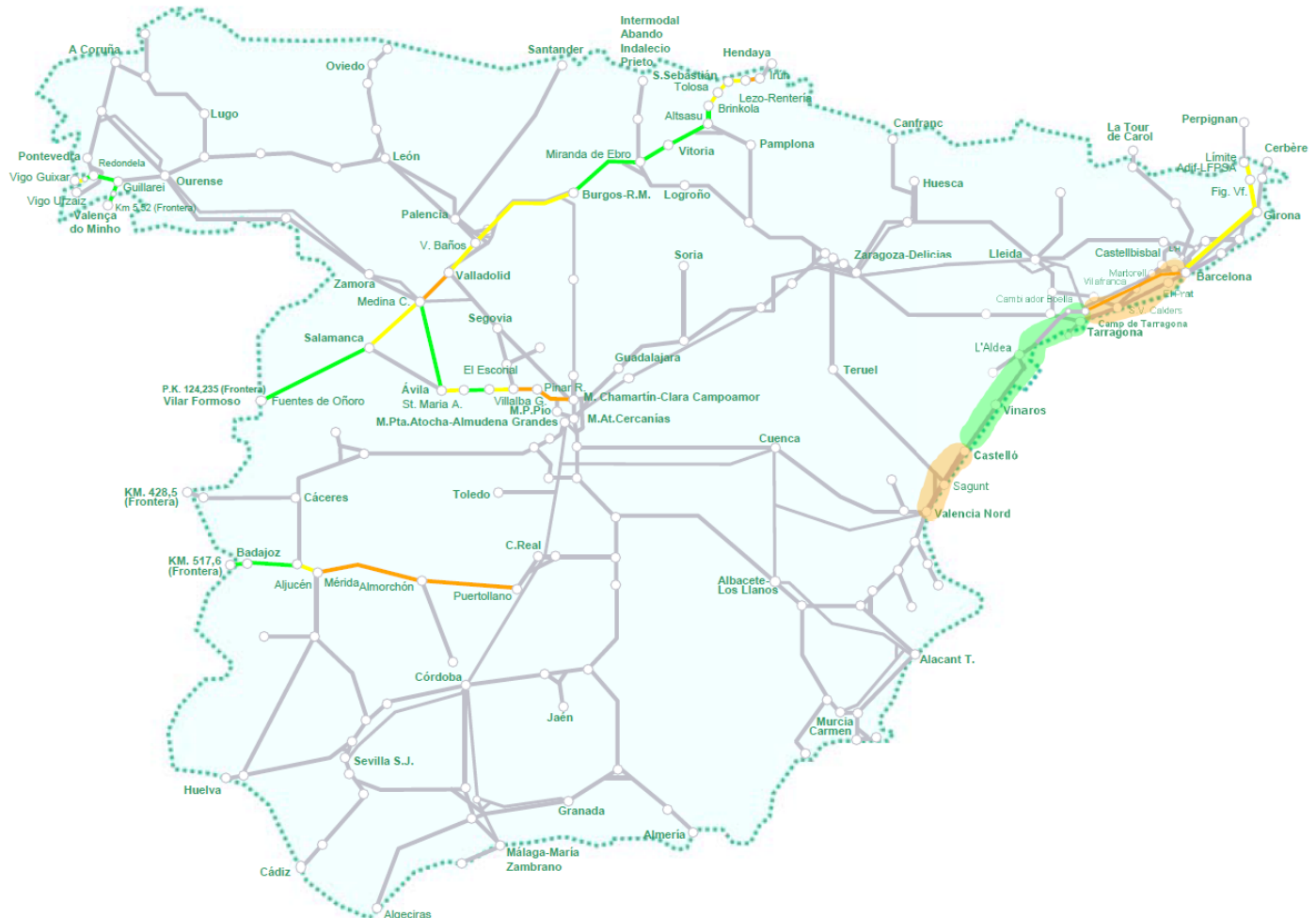


CHAPTER 3 – TRAFFIC PLANNING PRINCIPLES AND TRAFFIC FLOWS

As an introduction to this chapter, we present the saturation map of the network sections presented in this Capacity Strategy. Each of the significant sections has been coloured in such a way as to visualize its degree of saturation according to the following references:

- Green: Less than 25%. The section has a low amount of traffic. No saturation problems.
- Yellow: Between 25% and 50%. The section has a normal level of traffic. No saturation problems.
- Orange: Between 50% and 75%. The section has high traffic levels. Occasional saturation problems.
- Red: More than 75%. Traffic is around the maximum acceptable for the section. Systematic saturation problems, occasionally reaching congestion.

The details for calculating these saturation levels are described for each of the sections in the following subsections of this chapter.



3.1.- Principles for traffic planning

This section describes the main principles for traffic planning (hereinafter TPP) for each railway line, which will be used later in the planning of the elements of the Capacity Model and Capacity Allocation.

The data of train paths quotas offered are presented, being these figures an indicative data since the final capacity of the infrastructure is influenced by the technical characteristics of the traffic running on it: stops, loads, material, etc.

For this reason, the process of creating the grids itself, and the track occupancy graph (GOV) of the stations is the ultimate capacity determination in each exact situation, so that the effective capacity may differ slightly from the train path quotas foreseen as a result of the effective configuration in each specific situation.

Likewise, the train path quotas include maintenance bands, but not extraordinary works.

In this sense, the offer of train path quotas is made for three-hour periods and classified according to the following three types of services:

- **VLD: Long Distance passenger services**
- **VCR: Cercanías and Media Distancia passenger services**
- **Merc: Freight services**

3.1.1. PPT on Line 050 Section TARRAGONA – BARCELONA – FRENCH BORDER

This section includes the railway infrastructure belonging to line 050 between the Camp de Tarragona and the limit of ADIF-LFPSA stations.

ADIF-AV has estimated the capacity of the Barcelona-Sants – ADIF –LFPSA limit section, according to a Free Network model, and between Camp de Tarragona and Barcelona-Sants according to a Cadenced Integrated Network model, although in both cases it is conditioned by the parking capacity at Barcelona-Sants station, due to the high saturation rate of this station. The total number of spaces offered per day by ADIF-AV on the Barcelona Sants– ADIF-LFPSA limit section is 152 and 184 between Camp de Tarragona and Barcelona Sants.

The section has an interval of time reserved for maintenance (Maintenance Band, hereinafter MB) of 5 hours, namely between 0:00 and 5:00 from Monday to Friday between Tarragona and Barcelona, and from Tuesday to Saturday between Barcelona and the border. During this period no capacity is offered.

The maximum length for passenger trains running on this section is 400 metres. In the case of freight trains, the maximum permitted length, both basic and special, is 750 metres.

In this particular section, there are specific "Access Conditions": between Bif Mollet – Riells AV, where the maximum authorized running time for freight trains is 27 minutes (time simulated by ADIF), in order to maximize capacity.

In addition, Barcelona Sants (AV) station has been declared a "Congested Station" due to the future demand forecast by ADIF-AV in accordance with the framework agreements it has signed. This may entail additional capacity limitations in addition to those imposed by the capacity of the section.



3.1.2. PPT on Line 100 MADRID CHAMARTÍN CLARA CAMPOAMOR – IRÚN

This section describes the entire line 100 between Madrid Chamartín Clara Campoamor and Irún stations. As it is a very long line, neither its infrastructure nor its traffic is homogeneous throughout it, so its description will be made by sections.

ADIF has estimated the capacity of the line according to various models depending on the characteristics of the traffic on the line:

- In the Madrid area, a Cadenced Integral Mesh model has been used. In order to manage the large number of commuter trains running between Chamartín and El Escorial, the number of train paths offered by ADIF on this section ranges from 302 to 362, depending on the section considered, with the majority, approximately 65%, offered for VCR services.
- From El Escorial to Venta de Baños, a Free Mesh model is used, in which the number of train paths offered by ADIF ranges from 96 to 248, depending on the section considered, with the majority (50%–70%) offered for freight services. A smaller percentage is reserved for VCR services, and only 5% to 10% is reserved for VLD services, since, due to the similarity of the route on this section with High Speed Line 080, most VLD services run along this line.
- The Venta de Baños – Miranda de Ebro section has a Pre-Graphed Integral Mesh Model that allows between 88 and 200 train paths to be offered, depending on the section considered. Again, most of them (60–70% approximately) are offered for freight services and the rest are distributed between VCR and VLD services.
- From Miranda de Ebro to Brinkola, a Free Mesh model is used, with ADIF's train path quotas ranging from 138 to 234, depending on the section considered, with the majority (50%–70%) offered for freight services and the remainder divided between VCR and VLD services, with a slightly higher share for VLD services.
- On the Brinkola–Irún section, a Cadenced Integral Mesh model has been used to manage commuter trains. On this section, the train path quotas offered by ADIF range from 274 to 324, depending on the section considered, except on the Lezo–Rentería–Irún section, where capacity is greatly reduced due to the works being carried out to implement the third rail, specifically 49 train paths are offered. Most of the train paths offered are distributed between VCR services (45–50%) and Freight services (40–45%), leaving a small share for VLD services.

The line has a time interval reserved for maintenance (MB) of about 4–5 hours. Between Chamartín and Venta de Baños stations, the MB varies between 23:30h and 5:30h, with slight changes depending on the section. Between Venta de Baños and Altsasu, the MB changes to daytime and runs between 7:00h and 13.30h, with slight changes depending on the section. From Altsasu to Irún the MB returns to the night timetable from 0:00h to 5:00h.

Between Chamartín and Villalba de Guadarrama, freight traffic is restricted from 6:00 am to 9:00 am on weekdays, due to the high level of commuter traffic.

The maximum length for passenger trains running on this section is 420 metres between Chamartín and Miranda de Ebro and is reduced to 325 metres from that point to Irún. In the case of freight trains, the maximum basic length allowed is 480 metres from Madrid to Venta de Baños, between Venta de Baños and Altsasu it is increased to 520 metres and between Altsasu and Irún it is 450 metres. The special length is 550 metres along the whole line.





3.1.3. PPT on Line 120 MEDINA DEL CAMPO – PORTUGUESE BORDER

This section includes the railway infrastructure belonging to line 120 between the stations of Vilar Formoso and Medina del Campo.

ADIF has estimated capacity using a Free Mesh Model. On the Vilar Formoso–Salamanca section, the total number of train path quotas offered per day by ADIF is 33, while on the Salamanca–Medina del Campo section the number of train path quotas offered is 55.

The line has a time interval reserved for maintenance (BM) of 3 hours, specifically on the Vilar Formoso–Salamanca section the BM is from 16:10h to 19:10h in Salamanca and from 15:30h to 18:30h in Vilar Formoso, and on the Salamanca–Medina del Campo section the BM is from 1:15h to 4:15h in Salamanca and from 0:30h to 3:30h in Medina del Campo.

The maximum length for passenger trains running on this section is 300 metres. In the case of freight trains, the maximum permitted length is 550 metres for basic trains and 600 metres for special trains.

3.1.4. PPT on Section PORTUGUESE BORDER – BADAJOZ – MÉRIDA – PUERTOLLANO

This section includes the railway infrastructure belonging to line 520 between the stations of Badajoz and Puertollano.

ADIF has estimated capacity using a Free Mesh Model. On the Badajoz–Mérida section, the total number of train path quotas offered per day by ADIF is 106, while on the Mérida–Puertollano section, the total number of train path quotas offered per day by ADIF is 10–12.

The line has a time interval reserved for maintenance (MB) of 3 hours, specifically in the Badajoz–Mérida section the MB is from 23:00h to 2:00h, in the Mérida–Almorchón section from 2:00h to 5:00h, and in the Almorchón–Puertollano section the MB is from 1:00h to 4:00h.

The maximum length for passenger trains running on this section is 400 metres between Badajoz and Mérida and 420 metres between Mérida and Puertollano. In the case of freight trains, the maximum length allowed is 400 metres for basic trains and 460 metres for special trains.

3.1.5. PPT on Section PORTUGUESE BORDER – TUI – VIGO

This section includes the railway infrastructures belonging to lines 814, 810 and 812 between the stations of Tui and Vigo Guixar.

ADIF has estimated capacity using a Free Mesh model. The total number of train path quotas offered per day by ADIF on single track sections is 72–96, while on double track section (Redondela–Bif. Chapela) the number of train path quotas offered per day is 360.

The line has a time interval reserved for maintenance (MB) of 3 hours, specifically between 2:00h and 5:00h, except for the 2.8 kilometres between Guillarei and Tui, where the MB is between 2:30h and 5:30h.

The maximum length for passenger trains running on this section is 300 metres. In the case of freight trains, the maximum length allowed is 400 metres for basic trains and 465 metres for special trains.

3.1.6. PPT on the Mediterranean Corridor (BARCELONA to VALENCIA)

This section includes the railway infrastructure of the main lines connecting Barcelona and Tarragona and the continuation of the section from Tarragona to Valencia via line 600.

There are several options that connect the area around Barcelona with Tarragona, mainly:

- Line 240: between the stations of L'Hospitalet de Llobregat and Sant Vicenç de Calders, it is the preferred access channel for freight traffic to the terminals around Barcelona. Its MB is from 0:00h to 5:00h. ADIF has estimated the capacity of the section according to a Cadenced Integral Mesh model. The usual number of train path quotas offered per day by ADIF on this section is around 400, except on the single-track section between Martorell and Castellbisbal, where the offer is reduced to 136. Additionally, temporary capacity restrictions are being produced due to works to implement standard gauge for the Mediterranean Corridor.
- Line 200 (San Vicenç de Calders- Barcelona Sants section): section with preferential passenger traffic (commuter and MD), normally no freight traffic, except for works or exceptions. Its MB is from 23:30h to 4:30h. ADIF has estimated the capacity of the section according to a Cadenced Integral Mesh model. The number of train path quotas offered per day by ADIF on this section is approximately 450, varying between 602, in the case of traffic between El Prat de Llobregat and Barcelona, and 384, for traffic between San Vicenç de Calders and El Prat de Llobregat.
- Line 210 (Tarragona-San Vicenç de Calders section): section with mixed passenger and freight traffic. Its MB is from 0:00h to 5:00h. ADIF has estimated the capacity of the section according to a Free Mesh model, resulting in a daily quota offer of about 360. Temporary capacity restrictions may occur on this section due to the works for the implementation of standard gauge for the Mediterranean Corridor.

Line 600, between the stations of Cambiador de la Boella and Valencia Nord, is the main connection line between Tarragona and Valencia. From the area around Cambiador de la Boella there are links to connect with both the standard gauge lines and the Iberian gauge lines around Tarragona. The MB is 5 hours, ranging between 23:30h and 5:45h depending on the section. ADIF has estimated the capacity of the section according to a Free Mesh model. The usual number of train path quotas offered per day by ADIF is around 246-252 (depending on the section). However, there are temporary capacity restrictions due to works to implement standard gauge for the Mediterranean Corridor.

3.2.- Traffic Flows

3.2.1. Traffic on Line 050 - Section TARRAGONA - BARCELONA - FRENCH BORDER

This section analyses traffic flows on the Camp de Tarragona - Barcelona-Sants - ADIF-LFPSA limit section of Line 050. The scheduled train data for a specific day selected as representative are in the order of 20 trains per direction for passengers and 4 trains per direction for freight on the Barcelona Sants - ADIF - LFPSA limit section. For the Camp de Tarragona - Barcelona Sants section, passenger traffic increases considerably, being in the order of 64 trains per direction per day, and there are no freight trains running on this section.



On this section, all freight traffic is international traffic. This traffic does not travel the entire section, as it leaves or joins line 050 at the Bif Mollet station, and from there it goes to the Barna Can Tunis or Barcelona-Morrot terminals. Technical stops are usually scheduled for some of these trains at the Vilobi D'Onyar, Riells-A.V. and Llinars-A.V. stations to manage overtaking with passenger trains so as not to affect the travel times of the latter.

Regarding passenger traffic, the types of traffic are different depending on the section:

- Barcelona Sants- ADIF-LFPSA limit: there are 2 types of LD passenger services, domestic traffic to/from Figueres-Vilafant station and international traffic. On this section, all of them make a commercial stop at the intermediate station of Girona and the international trains also stop at Figueres-Vilafant station.
- Camp de Tarragona-Barcelona Sants: there is an MD distance service between Barcelona-Sants and Lleida with a stop in Camp de Tarragona, with about 4 trains per direction, per day. The rest of the traffic on the section is LD passengers, in the order of 60 trains per direction, per day, mostly domestic traffic, usually only 1 international LD train runs on this section per direction per day.

Comparing the quotas offered with the scheduled traffic, the level of saturation of the Barcelona-French border section is low, at around 26% (without considering the temporary single track capacity reduction discussed in 3.1.1). However, the saturation of the Tarragona-Barcelona section is higher with an average of 71% but exceeding 100% at peak hours.

3.2.2. Traffic on Line 100 MADRID CHAMARTÍN CLARA CAMPOAMOR – IRÚN

This section analyses the traffic flows of the entire line 100 between the stations of Madrid Chamartín Clara Campoamor (Chamartín) and Irún. As it is a very long line, its traffic is not homogeneous throughout it, so it will be described by sections:

- In the Madrid area, between Chamartín and Villalba de Guadarrama stations, the predominant type of traffic is commuter traffic, with around 84 trains per direction per day. The traffic is significantly reduced on the Villalba de Guadarrama-El Escorial section to around 26 trains per direction per day. The Long Distance (LD) passenger service is non-existent since they usually choose to circulate on line 050. Medium Distance (MD) and freight traffic is much lower than that of Local trains, varying between 3 and 14 circulations per direction and day, in the case of MD, and between 10 and 13 circulations per direction and day, in the case of freight. Average saturation is between 55 and 60%, being always higher in the sections closest to Madrid (65% compared to 35%).
- Between El Escorial and Venta de Baños, there is MD passenger traffic (8-18 trains per direction per day), mainly to Ávila or Salamanca, but there are also other more occasional MD trains to cities on the northern area (Valladolid, Palencia, León, Vitoria...). LD passenger traffic is very low, even non-existent between El Escorial - Medina del Campo, and is limited to one train per day in each direction between Medina del Campo and Venta de Baños. Freight traffic is fairly homogeneous throughout the section, with between 12 and 15 trains per direction per day. Finally, the average saturation is 25%, except for the single-track sections (some of those located between Medina del Campo and Venta de Baños), which reach between 60 and 65% saturation.
- On the Venta de Baños - Miranda de Ebro section, passenger MD traffic is reduced to 3-4 trains per day per direction. Traffic associated with the LD service is very low between Venta



de Baños and Burgos, being limited to one train per direction per day, since most of this type of traffic runs on the alternative HS line (L080), and increases to 6 or 7 trains per direction per day from Burgos to Miranda de Ebro, since there is no HS option. Regarding the freight service, the traffic is between 10 and 12 daily circulations per direction and day. The saturation of this section is 20–30%.

- From Miranda de Ebro to Brinkola there are around 16–18 trains per direction per day: 4–7 MD trains per direction, 4–5 LD trains per direction, and between 4 and 5 freight trains per direction. Saturation on this section is low, 13–27% depending on the section considered.
- On the Brinkola-Irun section, the predominant traffic is commuter traffic, approximately 52–70 trains per direction per day. MD Passenger train traffic is around 4 trains per direction per day on the Brinkola – Hernani section and is reduced to 1 train per direction per day on the Hernani – Irun section. Regarding LD Passenger traffic, the situation is analogous to the previous one, reaching 5 trains per direction per day on the Brinkola – Hernani section, and reducing to 1 train per direction per day on the Hernani – Irun section. Freight trains running on this section to Irun are about 5–8 trains per direction per day. The saturation of this section is 30–35%, except for the section under construction between Lezo–Rentería and Irún, which due to the reduction of capacity is congested, exceeding 100% saturation.

3.2.3. Traffic on Line 120 MEDINA DEL CAMPO – PORTUGUESE BORDER

This section analyses the traffic flows of Vilar Formoso–Medina del Campo on Line 120.

On this line there is passenger traffic only between Salamanca and Medina del Campo (not international). Specifically, Long Distance trains run from Madrid/Burgos to Salamanca and Medium Distance trains from Valladolid to Salamanca. For the rest of the section (Vilar Formoso–Salamanca), only freight trains run, corresponding to international traffic that runs along the entire section.

On the section with the most traffic (Salamanca–Medina del Campo), there are around 12 trains per direction per day, divided into 4 LD, 5 MD, and 3 freight trains; while on the section with the lowest volume of traffic (P.K. 124.235 (BORDER) – SALAMANCA), the number of trains per day is currently 1 or 2 freight trains per direction per day.

Comparing the quotas offered with the programmed traffic, the level of saturation of the section is low, around 6–12% for the section without passenger traffic and around 39–48% for the section with passenger traffic.

3.2.4. Traffic on Section PORTUGUESE BORDER – BADAJOZ – MÉRIDA – PUERTOLLANO

This section analyses the traffic flows of lines 520 between Puertollano and Badajoz stations and 508 between the Portuguese Border and Badajoz.

In general, in this line coexist:

- Long Distance (LD) traffic. Between Madrid and Badajoz it reaches a maximum of 4 trains per direction and day in the most frequented section, which corresponds to the one between Mérida and Aljucén, and is reduced to one train per direction and day in the



section that connects Badajoz and Aljucén. There is no LD traffic in the section between Mérida and Puertollano. There is no international LD traffic on this line.

- Medium Distance (MD) traffic North–South (from Madrid/Plasencia/Cáceres to Mérida/Sevilla and vice versa) and East–West (from Badajoz to Mérida/Puertollano/Alcázar San Juan and vice versa). The usual number of trains varies between 4 and 8 per day in the section with less MD traffic (Mérida–Puertollano), and 8 per direction and day in the section with more MD traffic (Aljucén–Mérida). Between the Portuguese Border and Badajoz there are also MD traffic at a rate of about 2 per direction per day.
- Usual freight traffic. The number of trains varies between 2 to 3 per direction and day. This traffic runs the Border/Badajoz routes to the area around Merida, southbound (Zafra/Huelva) and to Madrid. The international traffics from/to the Border have as destination/origin Badajoz and the surroundings of Merida, with a frequency between 1 and 2 per direction and day.

Comparing the quotas offered with the programmed traffic, it is observed that the saturation level is very different depending on the section, ranging from a low level: 11% in the Badajoz–Aljucén section, and a high level (83%) between Mérida–Almorchón due to the low available capacity.

3.2.5. Traffic on Section PORTUGUESE BORDER – TUI – VIGO

This section analyses the traffic flows on the Valença do Minho – Tui – Guillarei – Redondela – Vigo Guixar route, that include international traffic between Vigo and Portugal as well as domestic traffic from Vigo and other destinations.

The section with the highest traffic is Vigo Guixar – Redondela. In this section converge both national and international LD passenger traffic, MD passenger traffic and national freight. The usual routes for freight traffic departing from Vigo–Guixar are relatively short, staying in Galicia or arriving in the area around León. The MD passenger traffic departing from Vigo–Guixar passes through different Galician cities, with a frequency of between 9 and 10 trains per direction per day. The LD passenger traffic on this section is between 3 and 4 trains per direction per day, with most of the traffic being international, although there is also 1 national cross traffic to Barcelona.

Regarding the international traffic, the freight traffic coming from the Portuguese border of Valença do Minho has as destination several points of the Northwest of the peninsula: A Coruña, A Susana, Lugo, Meirama, Pontevedra, ... This traffic is usually between 3 and 4 trains per direction per day. LD passenger trains, arrive from Portugal, through Tui to Vigo–Guixar and vice versa, at a rate of 2 daily per direction.

Comparing the quotas offered with the programmed traffic, the saturation level of the section is low, it can be estimated that on average the saturation is around 25%.

3.2.6. Traffic on the Mediterranean Corridor (BARCELONA to VALENCIA)

This section analyses the traffic flows of the main lines connecting Barcelona and Tarragona and the continuation of the section from Tarragona to Valencia via line 600.



There are several options that connect the area around Barcelona with Tarragona, mainly:

- Line 240: between the stations of L'Hospitalet de Llobregat and Sant Vicenç de Calders. It is the preferred access/exit channel for freight traffic to the terminals around Barcelona for trains from a wide range of points in the rest of the peninsula. The section with the highest freight traffic is located between Martorell and Castellbisbal, with around 34 trains per direction per day. The R4 (Sant Vicenç de Calders–Manresa) commuter trains from Barcelona also run on this line, with the usual traffic on the line being around 35 trains per direction per day, reaching levels of around 75 trains per direction per day on the Molins de Rei – L'Hospitalet de Llobregat section, where the R4 and R1 (Molins de Rei–Maçanet–Massanes) converge. This line has no passenger traffic, neither long nor medium distance. Saturation on Line 240 is at an average level of 30–37%, except for the Martorell–Castellbisbal section, which is saturated due to time restrictions imposed for the implementation of standard gauge and exceeds 100% saturation.
- Line 200 (San Vicenç de Calders – Barcelona Sants section): on this section the usual traffic is commuter and MD, LD passenger and freight traffic is very low. Most of the traffic is commuter trains on the R2 (Sant Vicenç de Calders/Aeroport – Barcelona Estació de França/Granollers). The San Vicenç de Calders – El Prat de Llobregat section, which is the least busy section, has around 97 trains per direction per day, and the El Prat – Barcelona Sants section, which is the section with the most traffic, has around 134 trains per direction per day. There is also quite significant traffic of MD trains, around 56 trains per direction and day, between Barcelona and Reus, Lleida, Port Aventura and Tortosa. Saturation on Line 200 (San Vicenç de Calders–Barcelona Sants section) is quite high, between 65 and 72% on average, reaching 88% at peak hours.
- Line 210 (Tarragona–San Vicenç de Calders section): mixed passenger and freight traffic. There are around 26 freight trains per direction per day. Passenger traffic is mainly MD traffic, around 37 trains per direction per day, and residually LD traffic, is around 3 daily circulations. The saturation of Line 210 (Tarragona–San Vicenç de Calders section) is at a medium level, reaching between 35 and 38%.

All types of traffic circulate along Line 600: freight, commuter, LD and MD. Depending on the section, the proportions of these traffics are very different. The number of freight traffic is fairly homogeneous along the entire line, ranging between 3 and 4 per direction and day, except in the section between Valencia Nord and Sagunto, where 8 or 9 daily circulations are reached. The section with the highest number of LD passengers, which is approximately 12 daily circulations per direction, corresponds to Valencia–Nord – Castellón, since all the LD passengers of the Mediterranean corridor (Barcelona, Valencia, Alicante, Murcia, etc.) converge there with the high-speed traffic from Madrid, which takes advantage of the mixed gauge implemented in this section to reach Castellón. On the rest of the line, between Castellón and the Boella Changer (access to line 050), the number of LD trains running is 9 per direction per day. Additionally, the Valencia–Nord – Castellón section is the only one with commuter traffic, with around 40 trains running in each direction per day. As for MD traffic, there are several services running on different parts of this line, the main ones being: Valencia–Tortosa, Barcelona–Tortosa, Castellón–Vinaroz, and Valencia–Teruel–Zaragoza–Huesca, with circulations, depending on the section considered, between 4 and 12 per direction and day. The saturation of Line 600 is low (10–20%) except for the section where Cercanías Valencia–Nord – Castellón, runs, where saturation is higher, reaching around 49–55% on average, but reaching up to 79% at peak hours.



3.2.7. Cross-border Traffic Flows

➤ Spain – France

GENERAL CONSIDERATIONS

- For the calculation of number of trains per hour it has been considered a week of 7 days and 24 hours per day except in some cases that are specified.
- It should be considered that cross-border traffic flow may not be homogeneous throughout the day, particularly during maintenance periods when infrastructure capacity may be reduced.
- The analysis of traffic flow along the Portbou–Cerbère and Irún–Hendaye borders has been carried out separately, taking into account the two different gauge tracks (UIC and Iberian) that cross the border section.
- The data shown in the table below comes from the information available to the IA (essentially the number of circulations requested for HS 2024). Some Spanish freight EEFs have acquired or are in the process of acquiring locomotives to run on the Figueres – Perpignan International Section, so a potential increase in freight traffic on this border section is expected in the coming years.

| Border Point | Passenger train paths per hour | | Freight train paths per hour |
|--|--------------------------------|--------------------|------------------------------|
| | Long Distance | Regional | |
| Figueres V. - Perpignan BV | 0,6 ⁽¹⁾ | 0 | 0 |
| Figueres V. - Perpignan FI (Le Soler) | 0 | 0 | 0,6 ⁽¹⁾ |
| Cerbère-Portbou (UIC track) | 0 | 1,0 | 0,7 |
| Cerbère-Portbou (iberian track) | 0 | 0,9 ⁽²⁾ | 0,1 |
| Irún-Hendaya (UIC track) | 0 | 0 | 0,5 |
| Irún-Hendaya (iberian track) | 0 | 0 | 0,1 |
| Puigcerdá-La Tour de Carol (iberian track) | 0 | 0,8 | 0 |

(1) The maintenance band in the international section implies the total closure for 5 hours, so the number of hours per day considered is 19 hours.

(2) Traffic in both directions is counted, even if it has been requested in only one application (for both directions).

Cross-border traffic flow between Spain and France has been the subject of information exchange and coordination between ADIF and SNCF Réseau.

➤ Spain – Portugal

GENERAL CONSIDERATIONS

- For the calculation of number of trains per hour it has been considered a week of 7 days and 24 hours per day.
- It should be considered that cross-border traffic flow may not be homogeneous throughout the day, particularly during maintenance periods when infrastructure capacity may be reduced.
- The data shown in the table below are derived from information available to the IA (essentially the number of circulations requested for HS 2024).



| Border Point | Passenger train paths per hour | | Freight train paths per hour |
|----------------------------------|--------------------------------|----------|------------------------------|
| | Long Distance | Regional | |
| Badajoz - Elvas | 0 | 0,2 | 0,1 |
| Vilar Formoso – Fuentes de Oñoro | 0 | 0 | 0,2 |
| Valença do Minho - Tui | 0,2 | 0,2 | 0,4 |

The most important TCRs with international impact are shared with the collateral Infrastructure Managers (SNCF Réseau and Infraestruturas de Portugal) in two annual meetings held in May and November. At these meetings, the most important aspects of the TCRs and their impact on international traffic are presented.

Likewise, these meetings seek to coordinate the TCRs on both sides of the border so that the impact on traffic is as minimal as possible, as well as to present and agree on alternative routes when the TCRs entail the interruption of traffic.

REFERENCE DOCUMENTS

- ADIF TCRs Catalogue
- ADIF-AV TCRs Catalogue
- Annex H of the ADIF Network Statement
- Anexo H of the ADIF-AV Network Statement
- PISERVI

CHAPTER 4.- VALIDATION

| | Name and Position: | Signature and Date: |
|-----------------|---|---------------------|
| <i>Approve:</i> | Javier Achútegui Hernández Capacity Management Director – ADIF | |



