

Capacity Strategy 2025

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INTRODUCTION

One of the main objectives of the railroads in the coming years is to take a larger share of the transport market, and to achieve this, they must 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**" is part of the TTR project, in which ADIF takes part, in order to, in general, carry out the redesign of the timetabling process in a harmonized way.

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

The elements that influence the Capacity Strategy must be communicated with the level of detail available, even if this is low, 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. It is necessary to bear in mind that it is fundamentally informative and non-binding in nature.

To this end, and following the standardized template proposed by RNE, the "Capacity Strategy for 2025" is structured in the following chapters:

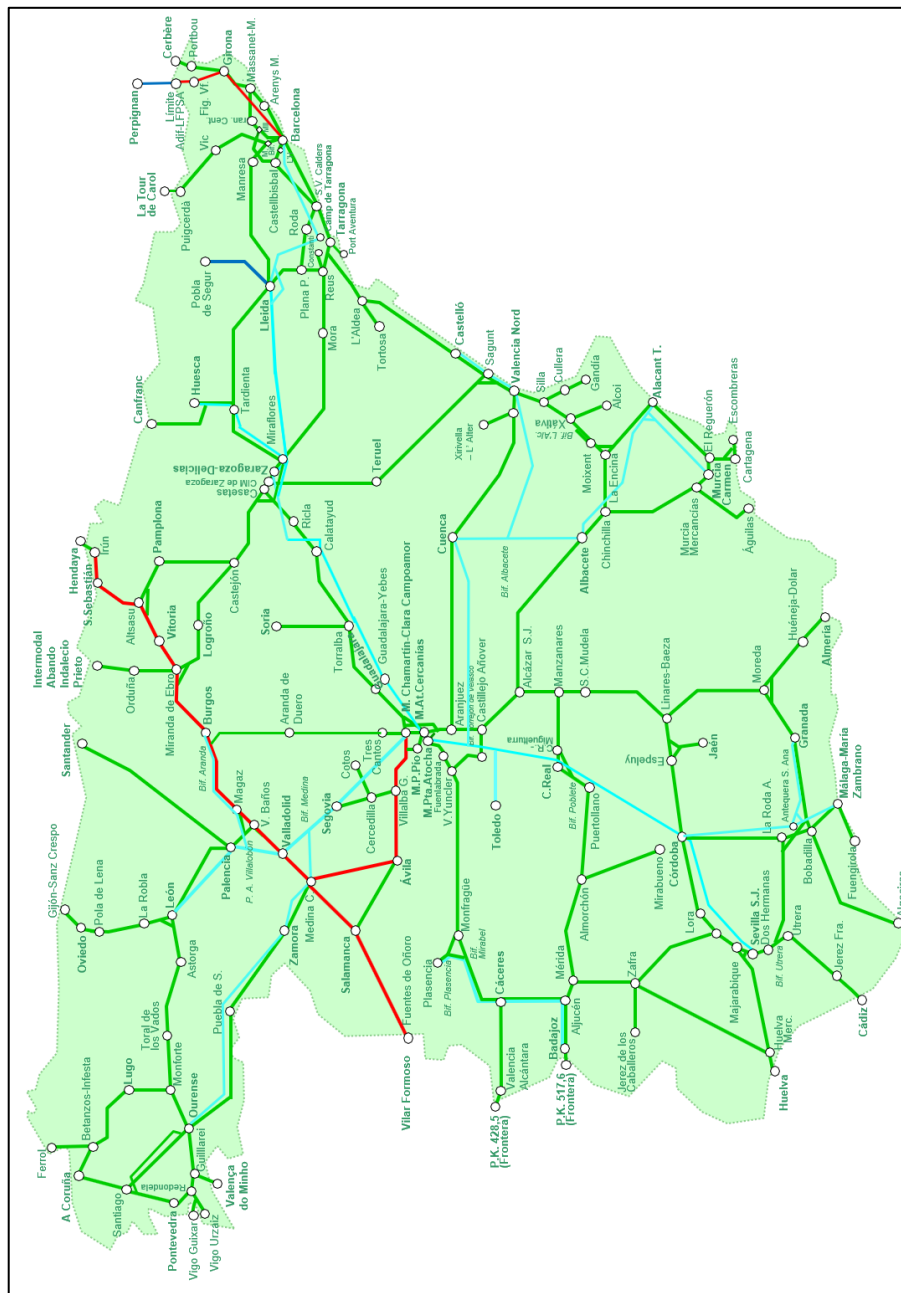
CHAPTER 0 – GEOGRAPHICAL AREA

The Capacity Strategy applies to the following three lines that are characterized by international traffic:

- **Line 050 BARCELONA – FRENCH BORDER Section.**
- **Line 100 MADRID CHAMARTÍN CLARA CAMPOAMOR – IRÚN**
- **Line 120 MEDINA DEL CAMPO – PORTUGUESE BORDER.**



These lines are shown in red on the following map of the ADIF and ADIF-AV Rail Network:



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

The main characteristics of these lines are the following:

- **Electrification, track type and gauge:**
 - L050 BARCELONA – FRENCH BORDER section: double track electrified at 25KV, standard gauge.
 - L100: double track, except for small single-track sections passing through Valladolid and Burgos. The line is electrified at 3KV and is of Iberian gauge.
 - L120 MEDINA DEL CAMPO – SALAMANCA section: electrified single track and Iberian gauge. FUENTES DE OÑORO – SALAMANCA section: non-electrified single track and Iberian gauge. The line is expected to be electrified by 2025.

- **Maximum ramps:** For the Barcelona – Frontera section of the L050, the maximum ramps are 30 thousandths located between Barcelona Sants and Bif Mollet in the odd direction, which is a section of passenger traffic only. On the L100 and on the L120 the maximum ramp is 17 or 18 thousandths. Except for these sections, the rest of the slopes range between 0 and 18 thousandths in practically the entire study area.

- **Traffic control and management facilities:**
 - The L050 BARCELONA – FRENCH BORDER section has BCA blocking equipped with ERTMS N1.
 - The L100 mainly has BAB blocking, except for the single-track sections.
 - The L120 MEDINA DEL CAMPO – PORTUGUESE BORDER with BLAU mainly, except for the Vilar Formoso – Fuentes de Oñoro section which has telephone blocking, and between Campillo and Bif. Arroyo de la golosa which has BAU.

- **Maximum speeds:**
 - The L050 BARCELONA – FRENCH BORDER section allows higher speeds as it is an AV line.
 - The L100, the section with the highest maximum speed in study is the section between Magaz and Miranda de Ebro, which in the vicinity of Burgos can reach up to 200km/h. Other sections with maximum speeds above 160 km/h are the Magaz–Medina del Campo sub-stretch.



➤ The L120 VILAR FORMOSO – SALAMANCA section has a maximum speed of 140 and the Salamanca– Medina del Campo section reaches 155.

- **Level crossings:** There are level crossings on L100 and L120, but not on L050.
- **Temporary Speed Limitations (TSLs):** The railway network in the study area may have TSLs mainly due to the infrastructure (embankments and trenches) and track superstructure (track, catenary and switches and crossings). In addition, other LTVs correspond to works, level crossing protections, or even technical conditions and braking distance. All this makes it necessary to reduce speed on some sections to maintain reliability.
- **Operating incidents:** The complete analysis of the incidents allows the evaluation of the different causes that originate them and, therefore, to determine the necessary actions to minimize the incidents and thus improve the quality of the service. The most recurrent incidents are those related to traffic control and management and telecommunications installations.

CHAPTER 1 – EXPECTED CAPACITY OF INFRASTRUCTURE IN 2025

➤ Capacity and current saturation level of these lines:

The saturation level serves to evaluate the use of the network and is calculated as the percentage of actual circulations produced with respect to the maximum assumable to guarantee the operation of the services while preserving their reliability. Traffic levels above 50% are considered to be high, which can lead to occasional saturation problems. With saturation above 75%, scheduled traffic is around the maximum acceptable level, and systematic saturation problems occur, occasionally reaching congestion.

In all of the railway lines in the scope of this Capacity Strategy document, sections with average saturation levels below 50% predominate. Only in some specific cases, in certain time slots, high levels of saturation are reached, above 75%, for example, in peak hours of the Madrid commuter trains, or in some bottlenecks such as the single tracks of Line 100 located in the section: Medina del Campo – Venta de Baños. Chapter 3 shows the average saturation level of all the sections in the scope of this document.



Data saturation levels are online published in Annex H of the ADIF and ADIF-AV Network Statement.

➤ **Additional available capacity:**

First, it should be noted that ADIF has a Draft Programme of Investment Needs on the Madrid-Basque Country, Madrid-Cantabria Conventional Network Lines and connections with France and Portugal, which contains a list of investment needs, to be specified in the actions shown in the two tables on the following page.

In this regard, on the one hand, the first table shows those actions that will have a positive impact on available capacity and, on the other hand, the second table indicates those actions which, although they do not have a direct impact on capacity, the result of these actions will have a positive effect on the safety and reliability of the facilities.

Furthermore, according to the ERTMS National Implementation Plan 2017, the implementation of ERTMS N1 is planned for almost the entire area covered by this study by 2030 (on L100 and L120, since the L050 section already has ERTMS). However, this action is not among the actions already budgeted for by the different areas of Adif.

In addition, there is another set of actions which, although 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, changes in capacity during the development of the same, which, however, will result in improved 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	STATE	DEFINED PROJECT PROPOSAL	PROJECT APPROVED BY ADIF MANAGEMENT	MRR FUNDS	POSITIVE EFFECT ON AVAILABLE CAPACITY
NETWORK DEVELOPMENT	EASTERN BYPASS RAILROAD OF VALLADOLID	REDACTION	YES	YES	RC0320	YES
INFRASTRUCTURE	CONSTRUCTION PROJECT OF OF REPLACEMENT OF SERVICES AFFECTED BY THE ELECTRIFICATION OF MEDINA DEL CAMPO-SALAMANCA-FUENTES DE OÑORO LINE. SECTION: SALAMANCA-FUENTES DE OÑORO	TENDER AND AWARD OF WORK	YES	YES		YES
INFRASTRUCTURE	WORKS EXECUTION OF THE "CONSTRUCTION PROJECT FOR THE ADAPTATION OF GAUGES FOR THE ELECTRIFICATION OF MEDINA DEL CAMPO-SALAMANCA-FUENTES DE OÑORO LINE. SECTION: SALAMANCA-FUENTES DE OÑORO"	EXECUTION	YES	CONSTRUCTION STARTED		YES
ELECTRIFICATION	EXECUTION OF THE "ELECTRIFICATION WORKS OF THE MEDINA DEL CAMPO-SALAMANCA-FUENTES DE OÑORO LINE. SALAMANCA-FUENTES DE OÑORO SECTION. OVERHEAD CONTACT LINE)"	EXECUTION	YES	CONSTRUCTION STARTED		YES
INFRASTRUCTURE	RIVER ARLANZÓN I AND II BRIDGES, PK 321/285 AND PK 356/393. L/100	TENDER AND AWARD OF WORK	YES	YES		YES
INFRASTRUCTURE	TUNNELS IN SUBTRAYECTO 1.3, INCLUDING ACTIONS IN THE FOLLOWING: Nº 18 LA BRUJULA 1 (PK 391/545), Nº 20 LA BRUJULA 3 (PK 393/818), Nº 21 LA BRUJULA 4 (PK 394/611), Nº22 PANCORBO 1 (PK 440/809), Nº25 AMEYUGO 2 (PK 444/894). L/100	PROJECT TENDER AND AWARD	YES	YES		YES
INFRASTRUCTURE	FLOOD AREAS IN SUBTRACK 1.3, INCLUDING ACTIONS IN THE FOLLOWING PK: 341, 344, 354, 392, 416. L/100	PROJECT TENDER AND AWARD	YES	YES		YES
INFRASTRUCTURE	TUNNEL Nº 17 BIS PINAR DE ANTEQUERA. PK 241/440 L/100	TENDER AND AWARD OF WORK	YES	YES		YES
ELECTRIFICATION	PROJ. FOR THE RENEWAL OF THE OVERHEAD CONTACT LINE AT THE CABEZÓN DE PISUERGA STATION	TENDER AND AWARD OF WORK	YES	YES		YES
INFRASTRUCTURE	TUNNEL Nº 26 CHINCHETRU. PK 510/080 L/100	PROJECT TENDER AND AWARD	YES	YES	RC0609	YES
INFRASTRUCTURE	FLOOD AREA. PK 483. L/100	PROJECT TENDER AND AWARD	YES	YES		YES
INFRASTRUCTURE	RÍO GAVILANES BRIDGE PK 75/450. L/120	PROJECT TENDER AND AWARD	YES	YES		YES
INFRASTRUCTURE	REGATO SECO BRIDGE PK 26/108. L/120	PLANNING	UNCERTAIN	NO		YES



TRACK	PROY. RENOVATION CONSTRUCTION MEDINA – SALAMANCA. TRAMOS 1 (PK1/000 AL 43/265) Y 2 (PK43/315 AL 76/900)	REDACTION	YES	YES		YES
INFRASTRUCTURE	TUNNELS IN THE SUBSECTION 1.6, INCLUDING ACTIONS IN THE FOLLOWINGS: Nº6 DE LA PALOMERA (PK 73/680), Nº10 ALIJAR, Nº 11 CONEJEROS, Nº12 DE LA CAÑADA, Nº 16 LAGARTERO 1 Y Nº 17 LAGARTERO 2. L/100	PROJECT TENDER AND AWARD	YES	YES		YES
INFRASTRUCTURE	BRIDGE OVER SAN GIRALDO STREAM PK 87/950. L/120	PROJECT TENDER AND AWARD	YES	YES		YES
TRACK	REDACTION OF CONSTRUCTION PROJECTS FOR THE REPLACEMENT OF RS RAIL AND SLEEPERS ON THE MEDINA DEL CAMPO-SALAMANCA LINE	EXECUTION	YES	CONSTRUCTION STARTED		YES
TRACK	REPLACEMENT OF SWITCHES TYPE A BY P AT THE TORQUEMADA STATION. MADRID-HENDAYE LINE. IISS	EXECUTION	YES	CONSTRUCTION STARTED		YES
INFRASTRUCTURE	TUNNEL OAZURZA, LÍNEA 100 MADRID- HENDAYA PPKK 552+082 A 555+030	TENDER AND AWARD OF WORK	YES	YES		YES



SUBSYSTEM	ACTION	STATE	DEFINED PROJECT PROPOSAL	PROJECT APPROVED BY ADIF MANAGEMENT	MRR FUNDS	POSTIVIDE EFFECT ON INSTALATIONS SAFETY AND RELIABILITY
SAFETY INSTALATIONS AND TELECOMMUNICATIONS	REPLACEMENT OF IP EQUIPMENT TO SUPPORT FIBER OPTIC INTERFACES TO MEET THE REQUIREMENTS OF CURRENT SERVICES AT THE BURGOS, VALLADOLID AND SALAMANCA STATIONS	PLANNING	UNCERTAIN	NO		YES
INFRASTRUCTURE	REMOVAL WORKS OF THE LEVEL CROSSINGS OF THE PP.KK. 63/912 AND 64/552 OF THE MEDINA DEL CAMPO-SALAMANCA LINE. MUNICIPALITY OF GOMECELLO (SALAMANCA)	EXECUTION	YES	CONSTRUCTION STARTED		YES
INFRASTRUCTURE	EMBANKMENTS IN SUBTRACK 1.3, INCLUDING ACTIONS IN THE FOLLOWING PK: 369, 370 AND 378. L/100	PROJECT TENDER AND AWARD	YES	YES		YES
TRACK	REDACTION OF 8 CONSTRUCTION PROJECTS FOR THE REPLACEMENT OF SLEEPERS AND RAIL IN THE FIELD OF THE NORTH OPERATIONS DEPARTMENT	EXECUTION	YES	CONSTRUCTION STARTED		YES
ELECTRIFICATION	REPLACEMENT OF FEEDERS OUTPUT PORTICOS IN SUBSTATIONS OF THE BURGOS MAINTENANCE AREA	REDACTION	YES	YES		YES
ELECTRIFICATION	CONSTRUCTION PROJECT FOR THE REPLACEMENT OF ANALYSIS PLATES AND CIRCUIT BREAKERS IN THE SSEE OF ESTEPAR, QUINTANAPALLA, TORQUEMADA AND VILLODRIGO, LINE 100. MADRID-HENDAYA	TENDER AND AWARD OF WORK	YES	YES		YES
ELECTRIFICATION	REPLACEMENT OF ANALYSIS PLATES AND CIRCUIT BREAKERS IN THE SSEE OF BUJEDO, MIRANDA DE EBRO, PANCORBO, BRIVIESCA, CALZADA DE BUREBA, CASTIL DE PEONES AND PIEDRAHITA, LINE 100. MADRID-HENDAYA	TENDER AND AWARD OF WORK	YES	YES		YES
SAFETY INSTALATIONS AND TELECOMMUNICATIONS	SUPPLY AND ASSEMBLY OF REVENGA EXPLOITATION TECHNOLOGY EQUIPMENT FOR THE NEEDS OF WORKS, REPAIRS AND SPARE PARTS OF THE HEAD OF THE BURGOS MAINTENANCE AREA	PLANNING	UNCERTAIN	NO		YES
ELECTRIFICATION	REPLACEMENT OF AUTOMATIC SWITCHES OF A.T.C. OF COMPRESSED AIR IN THE MAINTENANCE AREA OF VALLADOLID	REDACTION	YES	YES		YES
ELECTRIFICATION	REPLACEMENT OF TRACTION RECTIFIER GROUPS IN 2 MW IN SUBSTATIONS OF THE VALLADOLID MAINTENANCE AREA . ÁVILA - VENTA DE BAÑOS SECTION	REDACTION	YES	YES		YES



INFRASTRUCTURE	TRENCH PK 134. L/100	PROJECT TENDER AND AWARD	YES	YES		YES
INFRASTRUCTURE	UNDERPASS CTRA. N-I (CALZADA IRÚN-MADRID) PK 464/558. L/100	PROJECT TENDER AND AWARD	YES	YES	RC0042	YES
TELECOMUNICACIONES	RENOVATION NORTH NETWORK (Lote 4)	REDACTION	YES	YES		YES
STATIONS	REDACTION OF THE STUDY OF ALTERNATIVES AND CONSTRUCTION PROJECT OF STEPS BETWEEN PLATFORMS OF STATIONS. (1ST BIDDING) (AREVALO, MATAPOZUELOS AND CABEZÓN DEL PISUERGA STATIONS)	REDACTION	YES	YES		YES
STATIONS	REDACTION OF THE STUDY OF ALTERNATIVES AND CONSTRUCTION PROJECT OF STEPS BETWEEN PLATFORMS OF STATIONS. (1ST BIDDING) (STATIONS IN PUEBLA DE ARGANZÓN, DUEÑAS AND POZALDEZ)	REDACTION	YES	YES		YES
STATIONS	REVIEW AND ADAPTATION FOR COMPLIANCE WITH ACCESSIBILITY, ACTIONS IN THE MARQUEE AND NEW WORKSHOP OF THE CONSTRUCTION PROJECT FOR THE RATIONALIZATION OF THE MEDINA DEL CAMPO STATION	EXECUTION	YES	CONSTRUCTION STARTED		YES
STATIONS	EXECUTION OF STEPS BETWEEN STATION PLATFORMS. (1ST BIDDING) (AREVALO, MATAPOZUELOS AND CABEZÓN DEL PISUERGA STATIONS)	REDACTION	YES	YES		YES
STATIONS	EXECUTION STEPS BETWEEN STATION PLATFORMS. (1ST BIDDING) (STATIONS IN PUEBLA DE ARGANZÓN, DUEÑAS AND POZALDEZ)	REDACTION	YES	YES		YES
STATIONS	AVILA. PROJECT AND WORK REHABILITATION OR NEW PASSAGE BETWEEN PLATFORMS	PLANNING	UNCERTAIN	NO		YES
STATIONS	REDACTION OF THE STUDY OF ALTERNATIVES AND CONSTRUCTION PROJECT OF STEPS BETWEEN PLATFORMS OF STATIONS. (1ST BIDDING) (ARAIA, ALEGRIA-DULANTZI, NANCLARES-LANGRAIZ AND BRINKOLA STATIONS)	REDACTION	YES	YES		YES
STATIONS	EXECUTION OF STEPS BETWEEN STATION PLATFORMS. (1ST BIDDING) (ARAIA, ALEGRIA-DULANTZI, NANCLARES-LANGRAIZ AND BRINKOLA STATIONS)	REDACTION	YES	YES		YES
STATIONS	NAVALPERAL DE PINARES. WORK TO IMPROVE ACCESSIBILITY BETWEEN PLATFORMS	REDACTION	YES	YES		YES
INFRASTRUCTURE	CONSTRUCTION PROJECTS FOR THE SUPPRESSION OF LEVEL CROSSINGS IN THE SUBTRAYECT 1.4, INCLUDING ACTIONS IN THE FOLLOWING PK OF THE MADRID-CHAMARTÍN – HENDAYA LINE: 225/066 (MT OF MATAPOZUELOS, VALLADOLID) AND 227/324 (MT VALDESTILLAS, VALLADOLID)	EXECUTION	YES	CONSTRUCTION STARTED		YES
INFRASTRUCTURE	CONSTRUCTION PROJECTS FOR THE SUPPRESSION OF LEVEL CROSSINGS IN THE SUBJECT 1.5, INCLUDING ACTIONS AT THE FOLLOWING PK OF THE MADRID – HENDAYA LINE: 127/617 (LA DEHESA DE PEDROSILLO, MUNICIPALITY OF AVILA) AND 202/459 (MUNICH OF MEDINA DEL CAMPO ,	EXECUTION	YES	CONSTRUCTION STARTED		YES



INFRASTRUCTURE	PREVIOUS LEVEL CROSSING STUDY 439/478 PANCORBO	PLANNING	UNCERTAIN	NO		YES
INFRASTRUCTURE	CONSTRUCTION PROJECTS FOR THE SUPPRESSION OF LEVEL CROSSINGS IN THE SUBJECT 1.3, INCLUDING ACTIONS IN THE FOLLOWING PK OF THE MADRID-CHAMARTÍN – HENDAYA LINE: 294/510 (T.M. DE MAGAZ DE PISUERGA, PALENCIA), 399/365 AND 399/964 (SANTA MARÍA DEL INVIERNO	EXECUTION	YES	CONSTRUCTION STARTED	RC1160/RC1161/RC1162/RC0427	YES
TRACK	PLAN FOR INTERMODAL TERMINALS AND STRATEGIC LOGISTICS WORKS. REMODELING AND ADAPTATION TO EUROPEAN STANDARDS OF THE JÚNDIZ LOGISTICS CENTER	TENDER AND AWARD OF WORK	YES	YES		YES
INFRASTRUCTURE	CONSTRUCTION PROJECT SUPPRESSION OF THE LEVEL CROSSING OF THE P.K. 21/297 OF THE MEDINA DEL CAMPO – SALAMANCA LINE. MUNICIPAL TERM OF CARPIO (VALLADOLID).	TENDER AND AWARD OF WORK	YES	YES		YES
TRACK	SUPPLY OF PLASTIC AND SYNTHETIC SLEEPERS FOR A TEST SECTION IN THE QUINTANA STATION OF THE LINE 100 MADRID-HENDAYA BRIDGE	PLANNING	UNCERTAIN	NO		YES
SAFETY INSTALATIONS AND TELECOMMUNICATIONS	SDH STM-4. LOTE 1: SECTION ESCORIAL-ÁVILA-MEDINA-VENTA DE BAÑOS	EXECUTION	YES	CONSTRUCTION STARTED		YES
INFRASTRUCTURE	PRELIMINARY PROJECT FOR THE NEW INSTALLATION OF AUTOMATIC PROTECTION OF THE CLASS A2 LEVEL CROSSING AT P.K. 31/712 OF LINE 120 MEDINA DEL CAMPO - VILAR FORMOSO, IN THE MUNICIPALITY OF CANILLAS DE ABAJO (SALAMANCA)	TENDER AND AWARD OF WORK	YES	YES		YES
INFRASTRUCTURE	PRELIMINARY PROJECT FOR THE NEW INSTALLATION OF AUTOMATIC PROTECTION OF THE CLASS A2 LEVEL CROSSING AT P.K. 146/006 OF LINE 100 MADRID-CHAMARTÍN - HENDAYA, IN THE MUNICIPALITY OF VELAYOS (ÁVILA)	TENDER AND AWARD OF WORK	YES	YES		YES
INFRASTRUCTURE	PRELIMINARY PROJECT FOR THE RENEWAL OF THE AUTOMATIC PROTECTION OF THE CLASS A3 LEVEL CROSSING, AT P.K. 23/005 OF LINE 120 MEDINA DEL CAMPO - VILAR FORMOSO, IN THE MUNICIPALITY OF CALZADA DE DON DIEGO (SALAMANCA)	TENDER AND AWARD OF WORK	YES	YES		YES



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 the lines it manages, either through maintenance work 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. As for those actions that require a cut in traffic, they will try as far as possible to be carried out on weekends when the effect on traffic is less and, as a last resort, 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 indicated below:

- **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:

[Impact of TCR on traffic in %]= ([Number of paths affected by TCR]/ [Number of paths on the representative day]·100).

Likewise, in "intermediate" cases where an 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 access to each of the lines comprising the ADIF and ADIF-AV network.

Likewise, the ADIF and ADIF-AV Network Statement include the catalogue with the TCRs in the General Interest Railway Network, which is available by clicking on:

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

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. These catalogs 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.

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 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, it is indicated below high and major impact TCRs, 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 **2025** and exclusively for the selected geographical area.

Below is information on the main capacity restrictions on the network in the area under study. Detailed information on these restrictions, and those of the rest of the rail network, is available in the ADIF and ADI-AV Network Statement.

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➤ **Line 050 BARCELONA – FRENCH BORDER SECTION:**

Identificador	Section	Direction	Start year	End year	Cause	Restriction
2019-7-004	Figueres Vilafant station	both	-	-	Adaptation works at the Figueres Vilafant station at its final disposal.	It only affects the capacity of Figueres Vilafant station. Once completed, the Figueres-Vilafant the temporary speed limitation at 160 km/h will be eliminated.
2021-7-002	Barcelona-Sants-Bif Mollet	Vía 1 (lado mar)	2022	2023	Execution of Sagrera station: Infrastructure, track, overhead line contact, CMS	Total traffic cut track 1 between Sants and Bif Mollet. Possible adaptation of the crossings without affectations, but in some cases, increases in travel time up to 5 minutes.
		Vía 2 (lado montaña)	2023	2024		Total traffic cut via 2 between Sants and Bif Mollet. Possible increase to some specific trains.

➤ **Line 120 MEDINA DEL CAMPO – PORTUGUESE BORDER:**

Identificador	Section	Direction	Start year	End year	Cause	Restriction
2019-2-006	Salamanca - Ftes Oñoro	both	ene.-2020	feb.-23	Electrification and adaptation of 8 interlockings.	<p>Electrification works in progress</p> <p>Works in interlockings in execution, with commissioning starting forecast from Jan-2023, implying dividing into three sections and the section in which the interlocks are loaded will be left in telephone block. The condition will be that which corresponds to a three-station telephone block. The performances will start from December 2023 and the duration will be one week each way.</p> <p>Three phases, each phase four weeks (work would be done in BM)</p> <p>Each commissioning, 10 hours of cutting.</p>
2021-2-016	Salamanca - Ftes Oñoro	both	oct.-2021	Pte definir	Obra de gálibos Salamanca - Fuentes Oñoro. Construcción de pasos superiores. Quedan un total de 5 pasos entre Salamanca y Fuentes.	<p>Between Salamanca - Tejares, no cut is planned, only 60 km/h temporary speed limitation will be implemented to protect the works (demolition and reconstruction), maximum 2 limitations in the entire line. The pass works will be executed one at a time.</p> <p>NO ESTIMATED DATE.</p> <p>Demolition pass 28, (5 hours). Extraordinary cut 1 Saturday or Sunday, (12 hours). September or October 2022,</p>
2022-2-003	Espeja - Fuentes de Oñoro	both	nov.-22	may.-23	Protection with concrete wall (both sides) trench Km 114/500 to 114/900.	Temporary speed limitation a 60 Km/h.



➤ Line 100 MADRID CHAMARTÍN CLARA CAMPOAMOR – IRÚN:

Identificador	Section	Direction	Start year	End year	Cause	Restriction
2021-1-017	Pinar-Las Matas	both	1º trimestre 2023	4º trimestre de 2025	Construction of 4 tracks between Pinar and Las Matas, and remodeling of the Pinar track area, to increase the capacity of the Pinar-Las Matas section	<ul style="list-style-type: none"> Phase 1: quadruple construction via Pinar-Las Matas, duration 19 months. Total extraordinary cuts of 4 hours at night. Phase 2: remodeling of Pinar track area, duration 21 months. Successive permanent cut of track lanes with passage through alternative routes.
2021-1-022	Estación de Navalperal	both	4º trimestre 2022	1º trimestre 2024	underpass construction	<p>Construction phases:</p> <ul style="list-style-type: none"> Phase 1 (4.5 months): works affecting traffic at night (affecting freight traffic). Phase 2 (10.5 months): closure of tracks 1 and 2. A provisional passage for passengers is installed at the level of these tracks. Circulation on siding tracks, trains with a commercial stop on track 4.
2019-6-001	Hendaya - Alsasua	both	mar.-17	dic.-24	Implementation of mixed gauge on the Astigarraga - Irún section and Irún station.	<p>Between Rentería and Irún: Gauge expansion work in the Gaintxurizqueta tunnel. Track work stopped in a situation of total cut of track 2 between Lezo and Irún. IISS and LAC work continues in night cut. IISS work continues in night cut.</p> <p>Extraordinary weekend cuts according to project phases. In 2022 planned:</p> <p>Between Hernani and San Sebastián. Escape from Lolola Hernani Station 09/09 to 09/11. (77 hours)</p> <p>Between San Sebastián and Pasajes. Double escape from Ategorrieta. Between Hernani and Pasajes gauge expansion works in the Lolola tunnel. Planned complete closure of track 2. (2023)</p> <p>Extraordinary cut of 6 weeks duration to enlarge the gauge of the Capuchinos tunnel, new structures in Glorieta de Buenavista, new structure in Paso Inferior de Misericordia, and action on the Olartzun bridge. (2024)*</p>
2019-6-002	Hendaya - Alsasua	both	mar.-17	dic.-24	Replacement of the Irún station interlocking	Extraordinary weekend cuts according to project phases. They have put the Irún interlock into service.
2019-6-005	Hendaya - Alsasua	both	mar.-17	dic.-24	Adaptation of Safety and Communications Installations for implementation of the standard gauge on the Hernani - Irún section	Works at night. Extraordinary cuts
2019-6-010	Hendaya - Alsasua	both	mar.-18	ago.-22	Execution of underpass, lifts and raised platforms at the Umieta	Temporary speed limitation at 30/60 km/h. B
2019-6-012	Hendaya - Alsasua	both	oct.-18	dic.-22	Execution with raising of platforms and execution of Underpass at the Ordizia	Temporary speed limitation at 30/60 km/h.
2019-6-013	Hendaya - Alsasua	both	oct.-22	oct.-23	Rise of platforms with ripping of the track and installation of lifts at the Billabona-Zizurkil station	Temporary speed limitation at 30/60 km/h.
2019-6-016	Hendaya - Alsasua	both	ene.-23	jun.-23	Rehabilitation of track and improvement of track parameters in Osina tunnel PK 551/232 PK 551/939 T/Otzaurte-Brinkola	Expected impact: Works at night of 4 days (weekends). Temporary speed Limitations at 30 and 60 km/h.
2019-6-022	Miranda de Ebro - Venta de Baños	both	Jul.-22	oct.-22	Renovation of old SE track 8 at Pancorbo station	Cut of track 8 and power cut that will occasionally affect the station's even tracks.
2019-6-023	Miranda de Ebro - Venta de Baños	both	Jul.-22	oct.-22	Renovation of track 6 at Calzada de Bureba station	Cut of track 6 and power cut that will occasionally affect the station's even tracks.
2020-6-002	Miranda de Ebro - Venta de Baños	both	ene.-23	sep.-23	Trench treatment PK 444/300 to 444/650 between Pancorbo and Bujedo	Limitations to 30 km/h and 60 km/h on the two lanes while the works are in progress. Possible extraordinary cuts affecting travelers. Currently, an LTV has been established at 30km/h
2020-6-005	Hendaya - Alsasua	both	ene.-22	dic.-24	Connection of the N.R.F.P.V. with the ADIF conventional NETWORK in the T/Hernani -San Sebastian for implementation of the standard gauge.	Works at night.
2020-6-015	Venta de Baños - Ávila	both	ago.-20	nov.-22	Assembly track and electrification Valladolid Variation	Works at night. It only affects to Valladolid- La Carrera section
2020-6-016	Hendaya - Alsasua	both	ene.-23	jun.-23	Embankment treatment PK 568/475 between Zumarraga and Gabiria	Works at night and temporary speed limitation at 30 km/h. Power cuts if necessary.
2020-6-037	Hendaya - Alsasua	both	oct.-20	dic.-23	Remodeling of the Atocha station in San Sebastián, due to the works on the high-speed connection	Removal and modification of tracks in five construction phases. They have planned an extraordinary cut the first weekend of September. The following extraordinary weekend cuts will be from January 2023.
2021-6-013	San Sebastián - Hendaya	both	mar.-21	oct.-22	Rising of platforms and underpass in Apd Herrera	Temporary speed limitation at a 30/60 km/h.
2021-6-015	Andoain - San Sebastián	both	abr.-21	oct.-22	Rising of platforms and underpass in Apd Hernani Centro	Temporary speed limitation at 30/60 km/h.



2021-6-017	Zumarraga - Brinkola	both	mar.-22	may.-23	Rising of platforms and underpass in Legazpi PK 561/126	Temporary speed limitation at 30/60 km/h.
2021-6-024	Medina del Campo - Ávila	both	oct.-21	Jul.-22	Sleeper replacement R5 x PR01 via I y II del 173/000 al 173/944 Arévalo Ataquines (AMNR)	Temporary speed limitation at 30/60 Km/h.
2021-6-025	Medina del Campo - Ávila	both	oct.-22	dic.-22	Mechanized stripping for sections on tracks I and II in Arévalo	Temporary speed limitation at a 30/60 Km/h. Power cuts.
2021-6-038	Quintana del Puente	both	sep.-22	nov.-22	Replacement of AxC switches with synthetic sleepers at the south head and the north head at the Quintana del Puente station	Extraordinary weekend intervals to assemble the central bodies of the exhausts, requiring between 4 to 6 hours of cutting for both tracks. Limitations to 30 and 60 km/h depending on the progress of the work. On the contrary, always limitations to 30 km/h for work protection.
2021-6-046	Ávila - Venta de Baños	both	Jul.-22	oct.-23	Project for the construction of three Underpasses in Panaderos and Labradores streets at the Valladolid C.G. station.	Temporary speed limitation at 30 km/h with extraordinary track cuts on weekends.
2021-6-055	San Sebastián - Irun	both	oct.-21	Jun.-23	Project to extend the useful length of tracks 3,5,7 and 9 at the Lezo-Renteria station	In the 1st phase, it will affect secondary tracks, eliminating switch No. 12, with a power cut in the Maintenance Band. In the 2nd phase, switch No. 6 will be set back, and a weekend cut will be necessary. Tracks 7 and 9 are expected to be cut in August 2022, depending on how the work on the slope is carried out.
2022-6-007	Estación de Cabezón de Pisuerga	both	Jul.-22	Jul.-23	Renovation of the integral catenary in the Cabezón de Pisuerga station	Possible temporary speed limitation of 30/60 km/h in the construction phase. Conditioned by the single track Río Pisuerga-Valladolid as feeder 1 of the SSEE of Cabezón feeds the two tracks of the Cabezón-Río Pisuerga route. Need for 7h/day of maintenance band from Monday to Friday.
2022-6-008	Legorreta - Tolosa	both	oct.-23	mar.-23	Replacement of catenary posts between Legorreta and Tolosa	Extended Maintenance Band with possible speed limitation of 30/60 km/h in the works phase.
2022-6-011	Zumarraga - Gabiria	both	Jun.-22	dic.-22	Repair for the damage caused by the detachment and derailment on 12/9/2021 between P.K. 569/600 to 570/200 between Zumarraga and Gabiria	Extended Maintenance Band with speed limitation of 30 km/h for track stripping and sleeper replacement. Possible extraordinary weekend cuts. Extraordinary court in October for two weekends
2022-6-013	Estación de Quintanapalla	both	Jul.-22	nov.-22	Bridge treatment over the railway at p.k. 384/340 Quintanapalla station	Temporary speed limitation at 30/60 km/h. Extended maintenance band. Work on weekends with cut of both tracks.
2022-6-014	Estación de Calzada de Bureba	both	Jul.-22	nov.-22	Treatment of bridge over the railway at p.k. 428/660 Calzada de Bureba station	Temporary speed limitation at 30/60 km/h. Extended maintenance band. Work on weekends with cut of both tracks.
2022-6-025	Vitoria - Altsasu	both	Jun.-22	sep.-22	Replacement of sleepers and rail for sections between Vitoria and Altsasu	Temporary speed limitation of 30/60 km/h on one track and of 30 km/h on the other for works on the adjoining track, with Extended Maintenance Band with power cuts when necessary.
2022-6-031	Billabona - Andoain	both	Jul.-22	nov.-22	Rehabilitation of infrastructure, gables and drainage in the Andoain PK 608/909 tunnel	Extended maintenance band with intervals of both tracks at the same time to facilitate work. In principle, speed limitation is not necessary
2022-6-034	Quintana del Puente - Villodrigo	both	mar.-23	dic.-23	Repair of the bridge over the river Arlanzón I PK 321/285 between Quintana del Puente and Villodrigo	Extended maintenance band with temporary speed limitation of 30/60 km/h, depending on the progress of the work, which will require 3 weeks of cutting alternately on each of the tracks.
2022-6-037	Viana - Arcas Reales	both	ene.-23	Jun.-23	Improvement works in the Pinar de Antequera tunnel Pk 241/435 - 242/426 to correct the water leaks between Viana - Arcas Reales	Option 1: Cuts of 8 night hours during the week .- Option 2 continuous cut of track of 15 days.
2022-6-038	Bif. Aranda - Bif. Rubena	both	ene.-24	abr.-24	Embankment stabilization project between PP.KK 369/730 and 379/260 between Bif. Aranda and Bif. Reuben	Cut 1 month of each track alternately.
2022-6-040	BURGOS - MIRANDA DE EBRO	both	oct.-24	dic.-24	Tunnel project No. 3 of the Brújula of the PPKK 393/817 to 394/016 between Quintanapalla and Santa Olalla	Cut 1 month of each track alternately.

The lines under study are electrified (except for the Salamanca-Fuentes de Oñoro section, which is also due to be electrified in the near future) and generally have double track. Therefore, the main actions to be carried out on these lines, and which are caused by the aforementioned RTC, are the improvement of signalling/communications systems, and various specific infrastructure improvement actions to guarantee the reliability of the route.

Investments to improve the performance of existing lines and their orderly scheduling over the next few years are considered.

Therefore, the following blocks of actions are considered:

- Rehabilitation or renewal of the track, either due to the obsolescence of the assets or due to improved performance.
- Stabilisation of the infrastructure, which will make it possible to increase the reliability of the lines.



- Modernisation of traffic control and management facilities, improving the operation of the system.

The detailed description of the programming of the actions being carried out and planned on lines 100 and 120, according to the different subsystems, is described below:

- **Track subsystem:**

- Track renovation in the section between Medina del Campo and Salamanca.
- Drafting of construction projects for the replacement of sleepers and rails in the area of the Northern Operations Sub-directorate.
- Remodelling and adaptation to European standards of the Júndiz logistics centre.

- **Infrastructure Subsystem:**

- Adequacy of gauges due to the electrification of the Salamanca – Fuentes de Oñoro section.
- Replacement of services affected by the electrification of the Salamanca – Fuente de Oñoro section.
- Actions on bridges on the Brinkola – Miranda de Ebro, Miranda de Ebro – Magaz sections (bridges over the River Arlanzón), Medina del Campo – Salamanca and Salamanca – Fuentes de Oñoro.
- Tunnel works on sections Ávila – Santa María de la Alameda, Magaz – Medina del Campo, Miranda Ebro – Magaz y Brinkola – Miranda de Ebro.
- Treatment of flood zones on the Brinkola – Miranda de Ebro and Miranda de Ebro – Magaz sections.
- Actions on several embankments on the Miranda de Ebro – Magaz section.
- Removal of level crossings on the Brinkola – Miranda de Ebro, Miranda de Ebro – Magaz, Magaz – Medina del Campo, Medina del Campo – Salamanca.

- **Station Subsystem:**

- Adaptation to comply with accessibility requirements, work on the canopy and the workshop at Medina del Campo station.
- Improvement of accessibility between platforms at Ávila and Navalperal de Pinares stations.
- New crossings between platforms at the stations of Arévalo, Matapozuelos, Cabezón de Pisuerga, Dueñas, Pozaldez, La Puebla de Arganzón, Araia, Alegria-Dulantzi, Nanclares-Langraiz and Brinkola.

- **IISS and Telecommunications Subsystem:**

- Supply and installation of telecommunications equipment for IP and SDH/PDH networks for the CTC of Miranda de Ebro.
- Supply and installation of equipment for hot box detectors, DICOM, Tren-Tierra system, and voice switching networks for the Miranda de Ebro CTC.
- Installation of operating telephony equipment for the Miranda de Ebro CTC.
- Supply and installation of equipment for Revenga operating technology for the needs of works, repairs and for the works, of the Burgos Maintenance Area Head Office.



- Renovation of the Northern Network (adaptation of the fibre to transport all the services that are currently in currently on copper cables in poor condition). Lots 2, 3 and 4.
- Replacement of IP equipment to support fibre optic interfaces at Burgos, Valladolid and Salamanca stations.

- **Electrification subsystem:**

- Electrification of the Salamanca – Fuentes de Oñoro section.
- Renewal of the overhead contact line at Cabezón de Pisuerga station.
- Replacement of 2 MW of traction rectifier groups in substations of the Burgos Maintenance Area Headquarters.
- Replacement of feeders output gantries in substations of the Valladolid Maintenance Area Headquarters.
- Replacement of compressed air A.T.C.A. circuit breakers at the Valladolid Maintenance Area Headquarter.
- Refurbishment of the STE (Energy Remote Control System) in the North Area.
- Supply of protocol converters to ADIF 104 profile, STE North.
- Supply of remote controls for STE North.
- Installation of energy command and control remotes for the railway environment. This action includes the installation of the equipment supplied in the substations of the two previous actions "Supply of protocol converters to profile ADIF 104, STE Norte" and "Supply of remote controls for STE Norte".
- Replacement of analysis boards, relays and wiring in the substations between Torquemada and Bujedo.
- Replacement of analysis boards and circuit breakers in the substations of Estepar, Quintanapalla, Torquemada, Villodrigo, Piedrahita, Castil de Peones, Calzada de Bureba, Briviesca, Pancorbo, Bujedo and Miranda de Ebro.

- **Network development:**

- Valladolid Eastern Railway Bypass. The action includes the projects and works both for the construction of the Valladolid southern rail freight bypass and for the development of the new Valladolid railway complex, which will house a new freight terminal, the Redalsa facilities and the Conventional Network Track Technical Centre.

CHAPTER 3 – TRAFFIC PLANNING PRINCIPLES AND TRAFFIC FLOWS

3.1- TRAFFIC PLANNING PRINCIPLES:

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 very process of creating the grids and the track occupancy graph (GOV) of the stations is the ultimate determination of the capacity in each exact situation, so that the actual capacity may differ slightly from the train path quotas foreseen as a result of the actual 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. TPP on Line 050 Section BARCELONA – FRENCH BORDER:

This section includes the railway infrastructure belonging to line 050 between the stations of Barcelona-Sants and Límite ADIF-LFPSA.

The section comprises 131.4 km of double track with international gauge (1435 mm), electrified at 25 Kv and ASFA and ERTMS N1 protection system.

The characteristic ramp between Límite ADIF-LFPSA and Bif Mollet is 18‰ (passenger and freight traffic) and between Bif Mollet and Barcelona-Sants is 30‰ in the Barcelona direction and 28‰ in the Bif Mollet direction (passenger traffic only).

ADIF-AV has estimated the capacity of the Barcelona-Sants - Limit ADIF-LFPSA section, according to a free mesh model, although it is conditioned to the parking capacity at the Barcelona-Sants station, due to the high saturation rate of this station. The total number of paths offered per day by ADIF-AV on this section is 152.

The section has a time interval reserved for maintenance (Maintenance Band, hereinafter BM) of 5 hours, namely between 0:00 and 5:00 every day of the week, during which time no capacity is offered.

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

On this particular section, there are specific "Access Conditions": Between Bif Mollet - Riells AV, whereby the maximum permitted running time for freight trains is 27 minutes (time simulated by ADIF), in order to make maximum use of capacity.

In addition, Barcelona Sants (AV) station has been declared a "Congested Station" due to the future demand forecasted by ADIF-AV in accordance with the framework agreements it has signed. This may entail additional capacity limitations 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 (Chamartín) and Irún stations. As it is a very extensive line, neither its infrastructure nor its traffic is homogeneous throughout it, so it will be described in sections.

The line comprises 637 km of double track for the most part, except for the sections Arcas Reales–Río Pisuerga (15.9 km) and Quintanilleja–Burgos–R.M. (13.6 km), which are single track and represent the main bottleneck. The entire line is of Iberian gauge (1668 mm), electrified at 3 kv and with ASFA protection system.

The maximum characteristic ramp is 16–18‰ in several sections of the line.

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 Grid model has been used. In order to handle the large number of commuter trains running between Chamartín and El Escorial, the number of train paths offered by ADIF on this section varies between 302 and 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 train path quotas offered by ADIF range from 96 to 248, depending on the section considered, with the majority (50%–70%) being offered for freight services. A smaller percentage is reserved for VCR services and only between 5% and 10% is reserved for VLD services. 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 an Integral Pre–Graphed Mesh Model that allows to offer between 88 and 200 train paths, depending on the section considered. Again, most of these (approximately 60%) are offered for freight services and the rest are divided between VCR and VLD services, with a slightly higher share for VLD services. However, this situation is expected to change soon with the entry into service of the high–speed trains to Burgos that will run on line 080.
- From Miranda de Ebro to Brinkola a Free Mesh model is used, in which the train path quotas offered by ADIF range 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–Irun section, a Cadenced Integral Grid 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 under consideration, except on the Lezo–Rentería–Irún section, where capacity is greatly reduced due to the works being carried out to implement the third rail, with 49 train paths offered. Most of the train paths offered are distributed between VCR services (45–50%) and Freight services (40–45%), leaving a small quota for VLD services.



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

Between Chamartín and Villalba de Guadarrama, freight traffic is restricted from 6:00h to 9:00h on working days, 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 goods trains, the maximum permitted basic length 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 entire 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.

The section comprises 124,5201 km of single track with Iberian gauge (1668 mm). The Salamanca–Medina del Campo section is electrified at 25,000 V AC between Salamanca and Arroyo de la Golosa and at 3,000 V DC between Arroyo de la Golosa and Medina del Campo. The Vilar Formoso–Salamanca section is not electrified and the protection system is ASFA only between Fuentes de Oñoro and Salamanca–Medina del Campo, and with Telephone Blocking (TB) between Vilar Formoso and Fuentes de Oñoro there is Telephone Blocking (TB).

The maximum characteristic ramp of the section is 17‰ in the direction of Medina del Campo and 18‰ in the direction of Vilar Formoso.

ADIF has estimated the capacity of the Vilar Formoso–Salamanca section, using a Free Mesh model. On the Vilar Formoso–SalamancaE section, the total number of slots offered per day by ADIF on this section is 33, while on the Salamanca–Medina del Campo section the paths offered are 55.

Specifically, on the Vilar Formoso–Salamanca section the MB 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 MB 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 goods trains, the maximum permitted length is 550 metres for basic trains and 600 metres for special trains.



3.2.- TRAFFIC FLOWS:

3.2.1. Traffic on Line 050 Section BARCELONA – FRENCH BORDER:

This section analyses the traffic flows on the Barcelona-Sants – ADIF-LFPSA boundary section of Line 050. The data for trains scheduled on a specific day selected as representative are of the order of 8-11 trains per direction for passengers and 2-6 trains per direction for freight.

On this section, all freight traffic is international traffic. This traffic does not run along 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. depots in order to manage overtaking with passenger trains so as not to affect the latter's journey times.

With regard to VLD traffic, there are two types of 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 in Girona and the international trains also stop at Figueres-Vilafant station.

A comparison of the quotas offered with the scheduled traffic shows that the level of saturation of the section is low, at around 21-22%.

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

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

- In the Madrid area, the predominant traffic is commuter traffic. With some 140-180 trains per day between Chamartín and Villalba de Guadarrama stations, this type of traffic is significantly reduced on the Villalba de Guadarrama-El Escorial section to 35-55 trains per day. There are very few Larga Distancia (LD) passenger services, as most of them run on line 050. Medium Distance (MD) passenger and freight traffic is much lower than commuter traffic, which in both cases is approximately 20-25 trains per day. This section has an average saturation rate of 50-60%.
- Between El Escorial and Venta de Baños, MD passenger traffic continues (20-30 trains per day), mainly to Ávila or Salamanca, but also other more occasional MD trains to other cities on the northern coast (Valladolid, Palencia, León, Vitoria, etc.). From Medina del Campo to Venta de Baños there are approximately 6-8 daily LD passenger trains which are incorporated from the High-Speed lines. On this section, freight traffic remains fairly homogeneous (20-30 trains per day). Finally, the average saturation is 25%, except for single track sections which reach 50-55% saturation.
- On the Venta de Baños – Miranda de Ebro section, MD traffic is reduced to 6-8 trains per day. The LD service is maintained at 6-8 trains per day. And the freight service is slightly reduced, remaining at around 15-25 trains per day. Saturation on this section is 20-30%.
- From Miranda de Ebro to Brinkola there are around 25-30 trains per day: 6-8 MD trains, 6-8 LD trains, and between 7 and 15 goods trains per day. Saturation on this section is low, 10-20%.



- On the Brinkola-Irun section, the predominant traffic is commuter traffic, approximately 60–80 trains per day. Traffic of 6–8 trains per day of MD passengers and LD passengers reach San Sebastian. Freight trains running on this section to Irun are of the order of 10–15 trains per day. Saturation on this section is 30–35%, except for the section under construction between Lezo-Rentería and Irún, which is congested due to the reduction in capacity.

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

This section analyzes the traffic flows of Line 120 Vilar Formoso–Salamanca Medina del Campo.

On this line there is passenger traffic only between Salamanca and Medina del Campo (non-international), specifically Long Distances (Larga Distancia) from Madrid/Burgos to Salamanca and Half Distances (Media Distancia) from Valladolid to Salamanca. For the rest of this section (Vilar Formoso–Salamanca), only freight trains run, being these freight trains, only international traffic and they run along the entire section. In the section with the highest volume of traffic, 20 to 30 trains per day coexist, while in the part with the lowest volume of traffic, the number of trains per day is not constant, currently ranging from 3 to 7 trains per day.

Comparing the quotas offered with the programmed traffic, it is observed that the level of saturation of the section is low, around 13–18% for the section without passenger traffic and around 30–40% in the section with passenger traffic.

3.2.4. CROSS-BORDER TRANSPORT 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.
- Portbou–Cerbère and Irún–Hendaye borders need to be analyzed separately considering the 2 tracks with different gauges (UIC and Iberian) crossing the border section.
- Except for the border section Figueres V. – Perpignan, the number of trains per hour has been calculated for 24 hours, but it must be considered that during the maintenance bands the trains cannot circulate, so the real number of trains per hour may be higher than indicated in the table.
- The data registered in the previous table comes from the information available for the IM (essentially the number of train runs requested for TT-2022). Some Spanish freight RUs are in process of acquiring locomotives to run through the Figueres – Perpignan International Section, so a potential increase in freight traffic through this border section can be anticipated 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)
Irún–Hendaya (UIC track)	0	0	0,5
Irún–Hendaya (Iberian track)	0,2(2)	0	0,2

(1) Maintenance window in Figueres V. – Perpignan section is a total closure during 5 hours, so the number of hours per day considered is 19 hours.

(2) For TT-2023 no requests for passenger traffic via Irún–Hendaya border have been received.

➤ **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.
- The number of trains per hour has been calculated for 24 hours, but it must be considered that during the maintenance bands the trains cannot circulate, so the real number of trains per hour may be higher than indicated in the table.
- The data registered in the previous table comes from the information available for the IM (essentially the nº of train runs requested for TT-2022).

Border point	Passenger train paths per hour		Freight train paths per hour
	long distance	regional	
Medina del Campo – Frontera Portuguesa	0	0	0,23

CHAPTER 4.- VALIDATION

	Name and position	Signature and date
<i>Approve:</i>	Javier Achutegui Hernández Director de Gestión de Capacidad de ADIF	





La autenticidad de este documento puede ser comprobada mediante el código seguro de verificación: X5CDANNPSG7Q7ZCJWR30Y29B60
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