ROM_04 ‘To design the new high frequency and high-capacity PT infrastructure’

Description of the measure and main outcomes expected

As outlined in the SUMP approved in Rome in 2022, the improvement and enlargement of the Mass Rapid Transit (MRT) supply is a key element to rebalance the modal share in favour of the PT.

To this end, the SUMP expects by 2030 the implementation on 11 new tramway lines. Four of them are already financed (in sone cases with RFF funds, with a deadline in 2026) and are “in the pipeline”: TVA, Togliatti, TTV and Tiburtina, along with the implementation of new adequate depots. For two out of these four lines, the measure ROM_04 will deliver an **executive design of the lines and depots,** and a **requirements’ definition for the tendering process** (TVA line 1st branch and Togliatti line). For the two others, the measure will deliver **procurement activities** and the **launch of implementation** (TTV and Tiburtina). The remaining seven tramway lines have different schedules: they need to undergo a **process to be eligible for funding** by the Italian Ministry of Transport and Infrastructures (MIT). This process will be reported upon in this measure.

In addition, the MRT increase also expects the Metro C line extension (opening of 2 new stops in the central area, connection with B line in Colosseo) and the procurement of new carriages and vehicles to increase the PT capacity in Rome. Within the measure ROM_04, **40 new trams and 14 new metro trains will be procured**.

Currently, the urban tram network in the city of Rome consists of six lines, with an infrastructure of approximately 32 km and the rolling stock currently consists of 164 carriages. At present only two depots and workshops exist, located in Via Prenestina and Porta Maggiore facilities.

The main objective of the measure is empowering the sustainable and high-capacity transportation, with rationalization of several bus lines, reduction of pollutants and improvement of service standards to the public.

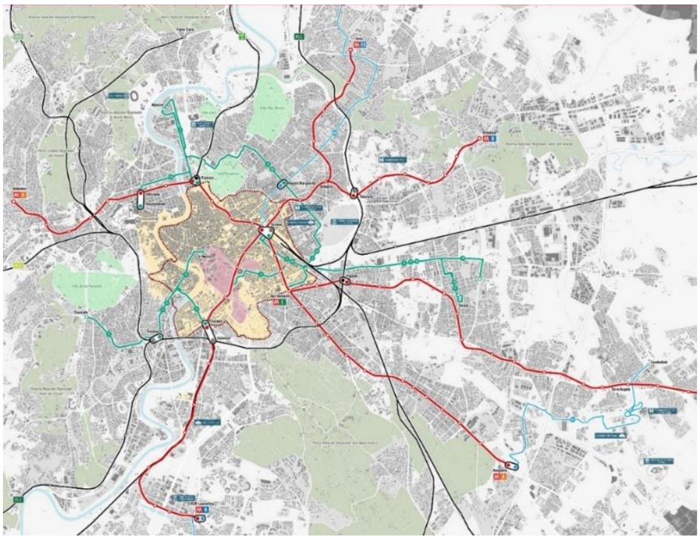

Figure 1 Current tram network - extension 32 km

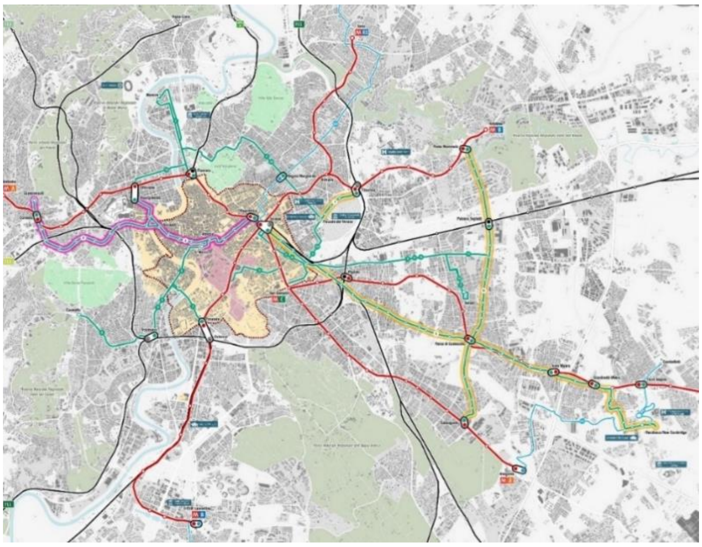

Figure 2 Tram network extension in the SUMP mid-term scenario: 63.7 km (4 lines)

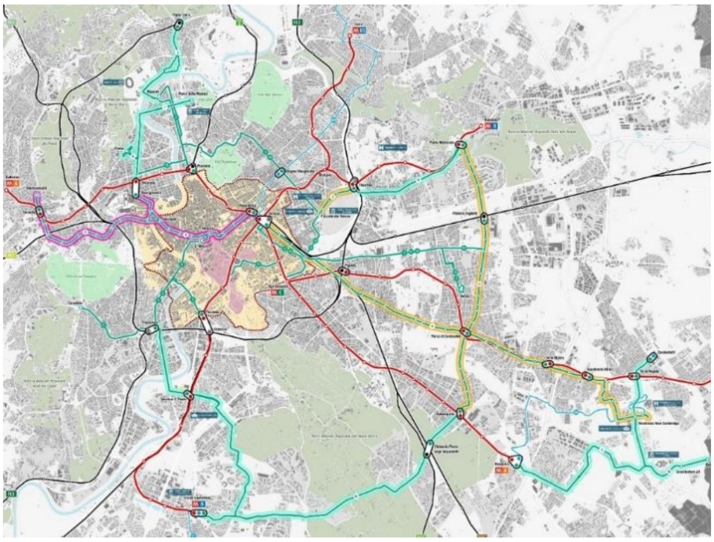

Figure 3 Tram network extension in the Long-term scenario 101.2 km, (+ 7 lines and a new depot)

Preparation of the measure

TRAMWAY LINES

<u>Termini-Vaticano-Aurelio tramway (TVA) -</u> The TVA new infrastructure will connect the renewed multi-modal hub of Termini with the western part of the city. The final terminus will be at Cornelia metro A station, while its branch at Piazza Risorgimento (Vatican) will connect with the city's main tourist and religious centers. The line design includes some sections without overhead contact line. Therefore, the new carriages will have to be equipped with on-board storage systems. It will have a length of 8.3 km, 20 stops.

In 2023 the technical and economic feasibility project, prepared by RSM, and the economic framework of the TVA line were approved. Following the participatory process held in early 2024, the final approval and the signature of the contract were issued in May 2024. Meanwhile, the documents for the publication of tenders related to the management of works and the safety coordination services were prepared. Tenders were published on May 14, 2024. Pending the finalisation of the contractual acts, the Director of Works ordered the RUP to urgently start the survey and investigation activities preparatory to the start of the design.

Figure 4 Map of TVA tram line

TOGLIATTI tramway - The tramway infrastructure is “transverse” and located in the eastern peripheral area of the city. It will cross the three metro lines, and the urban railway. The project also includes infrastructural road works. The new line will also cross the GRAB, a new cycling path under construction. The entire route is about 8 km long with 19 intermediate stops. The line includes some sections without overhead contact line. Therefore, the new carriages will also have to be equipped with on-board storage systems, which will be hosted and maintained in the Atac depot in Via Prenestina.

The final and executive design of the Togliatti line was finalized by RSM in 2023 and received by the Mobility Department. It was sent to Invitalia (the national contracting authority) to issue the tender. The tender notice for the integrated contract was published in September 2023, and awarded in late 2023.

Figure 5 Map of Togliatti tram line

Termini Tor Vergata tramway (TTV) – The line will connect the Termini Hub with the eastern periphery of the city. The line expects the integration, modernization (including gauge) and extension of an existing line. Because the new route of the line involves a short stretch the Appia Antica regional park, an Environmental Impact Assessment (EIA) was necessary. This assessment covers the “interference” in the regional park, as well as the compliance of the project with opinions expressed by the relevant bodies at the services conference.

In 2023, the preliminary phase for the construction of the new TTV tramway was completed with the Services Conference involving municipalities, Net, Italgas, Superintendence, and Atac.

At the end of November 2023, the projects were sent to the Lazio Region to start their own Environmental Impact Assessment and Services Conference. In February 2024, the procedure was initiated at the Lazio Region. It takes up to 180 days to accept or reject the application.

Tiburtina-Verano tramway - In June 2024, the final design and the economic framework of the Tiburtina Station-Verano tramway elaborated by RSM and the Rome Mobility Department were approved by the Lazio Region. This step came just after the approval of the final Project by the Lazio Region.

Design and approval of 7 new tramway lines for future funding by MIT – RSM was entrusted by the Mobility Department of Rome to carry out all the activities for the preparation of the *technical-economic feasibility* project of 7 new tram lines (according to the SUMP). Therefore, RSM carried out a tender procedure in five lots for the assignment of the design services related to technical and economic feasibility.

The activities were organized in two phases, an initial one involving the drafting of the feasibility document of the project alternatives (DOCFAP), and a second one following the Contracting Authority's approval of the DOCFAP, about the drafting of the technical and economic feasibility projects (PFTE-Phase 2). To carry out the activities, several meetings were organized to define the paths, possible route alternatives and design solutions. Possible roadway configurations were examined, including all mobility components (public transport, private transport, cycle paths, pedestrian mobility, etc.). Traffic patterns in the areas affected by the interventions were examined and transport assessments were carried out. Once the DOCFAP was approved, the technical and economic feasibility projects (PFTE) were drafted. The PFTE includes: topographical surveys of the areas affected by the intervention, phytosanitary surveys (trees), technical reports (urban framework, hydrological, hydraulic, geological, seismic, archaeological), transport studies, preliminary environmental studies, design drawings (chorographies, plans, sections, profiles, armament, , etc.), power supply system (report, sizing, substations), signalling system, construction site, census and interference resolution (sub-services), preliminary site plan, preparation of technical/economic documentation, and the documentation required for MIT funding. In addition, on the basis of the PFTE design documents, communication materials were developed for the dissemination phases.

The above PFTE were then shared with the Mobility Department to obtain approvals in the Conference of Preliminary Services. (*The purpose of the Conferences of Preliminary Services is to indicate to the applicant, prior to the submission of a final project, the conditions for obtaining the necessary opinions, understandings, concertations, authorisations, concessions or other acts of consent).* After obtaining the feedback from of all relevant offices, the PFTE were accordingly revised for the final version to be approved by the *Capitol Council*.

METRO STATIONS

2 new Metro C stations – The Rome Mobility Department together with the "Roma Metropolitane" company supervise on-going works in the Amba Aradam and the Colosseo Fori Imperiali stations.

METRO AND TRAM VEHICLES

New metro trains – In 2023, the framework agreement between Roma Capitale Mobility Department and Hitachi Rail was signed. The first application contract calls for the supply of 14 trains, of which 12 are destined for Metro B and 2 for Metro A. The delivery will start in December 2024 and will be completed within 12 months. A further Jubilee 2025-related financing for the purchase of a further 6 trains in the amount of 60 mln € is under way.

New Tramcars – The requirement for 121 new bidirectional trams (partly substituting the older ones) has been identified by the Mobility Department and Atac (the main PTO in Rome). The framework agreement was concluded with the supplier in 2023. During the UPPER project it is expected to have 12 tramcars delivered and commissioned.

Figure 6 Mock-up of the new tram

Challenges & Mitigations

TVA tramway

- Interference with the Jubilee and with other on-going works

The construction of the TVA line has been divided into 3 lots. After discussions and evaluations, since 2025 is the year of the Jubilee, the public administration decided to start the first lot of work (funded by RRF) from the external part of the line (Aurelio) rather than from Termini as initially planned, so as not to interfere with other ongoing construction sites. This first lot is the subject of the UPPER project.

- Integration into the historic landscape

In 2023, the Roma Capitale Mobility Department commissioned the Faculty of Architecture of La Sapienza University of Rome to study and research new design solutions for the enhancement of the central and historic Piazza della Repubblica - Ponte Vittorio.

- Interference with existing systems

All potential interferences were considered in the executive design phase:

- Water and sewage systems
- High, medium and low voltage lines
- Visual impact with monuments
- Possible relocation of bus stops
- Tree planting
- Urban planning compliance

TTV tramway

- Environmental issues: electromagnetic fields and micro-tremor investigation

Environmental investigation plan: definition of references to be contacted to speed up its approval time by involving the relevant agencies in the first instance.

- Archaeological issues: intersection with monuments and a protected historical park.

Involvement of the Soprintendenza (National heritage protection body) / EIA procedure, archaeological investigation plan: mode of activation and conduct.

- Technical issues: adaptation and integration with the Termini station square with the other infrastructures.

Design coordination on the proposals on Piazza dei Cinquecento (Termini station hub) and neighbouring areas in the different time scenarios with the engineering of the insertion of the tramway seat of the Termini-Tor Vergata LRT line.

7 new tramways design

The activity was delayed due to difficulties in acquiring underground utilities information, receiving needed feedback from the city boroughs, archaeological authorities, citizens and other stakeholders. For this reason, it was necessary to grant an extension to the activities in order to finish all required activities.

Next steps towards implementation

TVA tramway – Final and executive design, services conference, project verification, validation and approvals (Commissioner, Roma Capitale, Lazio Region, MIT) will be concluded by September 2024, and works will start in autumn 2024.

TOGLIATTI tramway – Final and executive design, services conference, project verification, validation and approvals (Commissioner, Roma Capitale, Lazio Region, MIT) by September 2024. Start of Works October 2024 - duration: 600 days.

TTV tramway – Conclusion of the EIA evaluation by Regione Lazio to proceed with the final design of the line.

Tiburtina-Verano tramway – The next step will be the call for tenders for the integrated project including the construction of infrastructure providing a rapid surface connection of Tiburtina Station and Metro B and a rapid surface connection with important streetcar routes in the semi-central districts of the city (Viale Regina Margherita, Prenestina-Porta Maggiore, and Aventino-San Giovanni-Porta Maggiore).

7 new tramways design – At present, all the Conferences of Services have been held and we are waiting for the approval of the feasibility projects by the Capitol Council to prepare all documentation needed for the consequent funding request at MIT.

2 new Metro C stations – Inauguration in early 2025.