

RAIL

2025-2050

CANTONAL STRATEGIC VISION

This document is an enhanced version of sub-chapters 5.1.5.1 and 5.1.5.2 and includes some updates compared to the December 2024 version.

TABLE OF CONTENTS

1. INTRODUCTION	4
2. SUMMARY	5
3. STATUS REPORT	6
3.1 Geneva and Greater Geneva	6
3.2 Travel density	9
3.3 Twenty years of intense development of public transport	10
3.4 Rail issues	13
4. LEGAL AND POLITICAL CONTEXT	15
4.1 Federal mobility funds: a faltering system that must evolve	15
4.2 Complementary, but not coordinated, funds	16
4.3 Financing of the RIF and IRUTF: uncertain sustainability	17
4.4 A legal framework unsuited to cross-border issues	17
4.5 CO ₂ act: what prospects?	18
4.6 Towards reforms?	20
5. RAIL STRATEGY	22
5.1 Strengthening the Léman Express	22
5.1.1 Improvements by 2026	22
5.1.2 New rolling stock with greater capacity by 2030	23
5.1.3 Geneva – La Plaine: quarter-hourly service	23
5.1.4 Vernier – Châtelaine station	23
5.1.5 Rail freight development	25
5.1.5.1 Status report/diagnosis	25
5.1.5.2 General objectives for rail freight	26
5.1.6 Development of the Léman Express in France	28
5.2 Development of international connections	28
5.3 Construction of a new underground link from the foot of the Jura to the foot of the Salève	31
5.3.1 Main challenges	32
5.3.2 Choice of transport system and operation	33
5.3.3 Route possibilities, main opportunities, and potential	34
5.3.4 On both sides of the border	36
5.3.5 Financial elements/phasing	37
5.3.6 Financial structure/phasing	37
5.4 National connections	38
6. CONCLUSION	40
GLOSSARY AND ABBREVIATIONS	41
LEGAL NOTICE	42

1. INTRODUCTION

This document presents the results of the studies and analyses conducted in recent months by the Canton of Geneva and its federal partners, primarily the Federal Office of Transport (FOT) and Swiss Federal Railways (SBB). Subsequently, Geneva has decided to adopt, for the first time, a long-term framework programme concerning the railway sector.

Now that the Grand Council and the State Council have approved the action plans for public transport, the road network, active mobility, parking, and professional passenger, freight and service transport for the current legislative term, it is up to the State Council to present the Canton's challenges, objectives and projects to ensure the effective development of the rail infrastructure in Geneva, its urban area and the cross-border Lake Geneva metropolitan area.

This programme comes at a time when important deadlines are determining the federal calendar: ongoing and upcoming federal consultations on the revision of the Spatial

Strategy for Switzerland, the Sectoral Rail Infrastructure Plan, the federal finance relief programme (Gaillard Report), but also, and above all, the review of the Fifth Generation Urban Area Projects' programmes of measures and the Federal Council's message on the next rail expansion step (Strategic Development Programme – STEP), now scheduled for 2027.

This strategic vision constitutes the political synthesis of a technical report to be published in spring 2025. It thereby sets the framework for operational railway studies, which will be conducted under the supervision of a strategic governance structure bringing together authorities, experts and civil society. In close coordination with Geneva's partners at the cross-border and federal levels, as well as within the *Conférence des transports de Suisse occidentale* [Western Switzerland Transport Conference CTSO] and the cross-border Lake Geneva metropolitan area, this governance structure will soon be implemented.

REFERENCE DOCUMENTS

- **Legislative Plan 2023-2028** (State of Geneva, 2023)
- **Grand Genève – Projets d'agglomération 1 à 4** (Greater Geneva – Urban Area Projects 1 to 4) (GLCT, 2007 to 2021)
- **Vision territoriale transfrontalière 2050** (Cross-Border Territorial Vision 2050) (GLCT, 2024)
- **Plan directeur cantonal 2030** (Cantonal Master Plan 2030) (State of Geneva, 2015-2024)
- **Plan climat cantonal – 2^e génération** (Cantonal Climate Plan – 2nd Generation) (State of Geneva, 2021)
- **Perspective RAIL 2050 – Rapport de synthèse – vision, objectifs et orientation** (RAIL 2050 Outlook – Summary Report – Vision, Objectives and Direction) (Federal Council (FC), 2023)
- **Perspective RAIL 2050 – Concrétisation territoriale** (Territorial Implementation) (FOT, 2024)
- **Programme du plan sectoriel des transports** (Sectoral Rail Infrastructure Plan) (DETEC, 2021)
- **Projet de territoire suisse** (Spatial Strategy for Switzerland) (FC, 2012)
- **Perspectives d'évolution du transport 2050** (Transport Development Outlook 2050) (ARE, 2022)
- **2035 Rail Expansion Step** (FOT, 2024)

2. SUMMARY

The system established nearly ten years ago by the Confederation to ensure the planning and financing of transport infrastructure is now facing major challenges that require reforms to the two dedicated funds, RIF (Rail Infrastructure Fund) and NRUTF (Fund for National Roads and Urban Traffic), both in terms of management, planning and their financial resources.

The RIF is currently saturated by a backlog of very costly projects worth several tens of billions of Swiss francs. The financial reassessment of the projects to be included in the next phase of railway planning, initially expected for 2026, has just established that an additional 14 billion Swiss francs would be required (bringing the total amount to 30 billion Swiss francs). The accumulation of projects and their increasing costs are restricting the Confederation's ability to complete them within a reasonable time frame.

As it stands today, it is no longer possible to hope that new projects will be commissioned for several decades. This situation has alerted the Geneva State Council, as the necessary railway infrastructure and developments for the canton and its urban area cannot wait, nor can their connection to national and international networks:

- improvements to the Léman Express network and commissioning of the Cornavin underground station;
- optimisation of the Geneva–Lyon international link;
- construction of a new underground urban axis from the foot of the Jura to the foot of the Salève;
- construction of a new line between Geneva and Lausanne.

Building on the success of the Léman Express and its positive impact on traffic, the State Council wants to strengthen the current service and prioritise rail development in Greater Geneva by building a new North–South axis from the foot of the Jura to the foot of the Salève. It intends to make a political and financial commitment to ensure, with its partners and the Confederation, the completion of this strategic project to reduce car traffic and address population growth in the region. Preliminary studies will begin immediately, in accordance with the 30 million Swiss franc appropriation act (L13176) passed by the Grand Council in 2023 for this purpose.

The optimisation of the link between Geneva and Lyon must also be the subject of particular attention in order, initially and in the very short term, to put in place a better quality service (journey time, rolling stock, connections with European high-speed lines). Swiss and French national authorities, as well as regional authorities, should immediately commit to the next steps, which will involve financing new infrastructure.

Finally, following the rejection of six motorway expansion projects during the federal vote on 24 November, followed by the Confederation's announcement that all motorway projects between Geneva and Lausanne would be frozen, a new railway line between the two hubs of the Lake Geneva metropolitan area is essential. It is imperative that the necessary studies be included among the priorities of the next federal planning process to ensure that this essential infrastructure becomes a reality¹.

¹ Since this report was written, the DETEC announced, on 28 January 2025, that it would conduct a review of all transport infrastructure projects financed by the RIF and NRUTF prior to drafting new rail and road action programmes.

3. STATUS REPORT

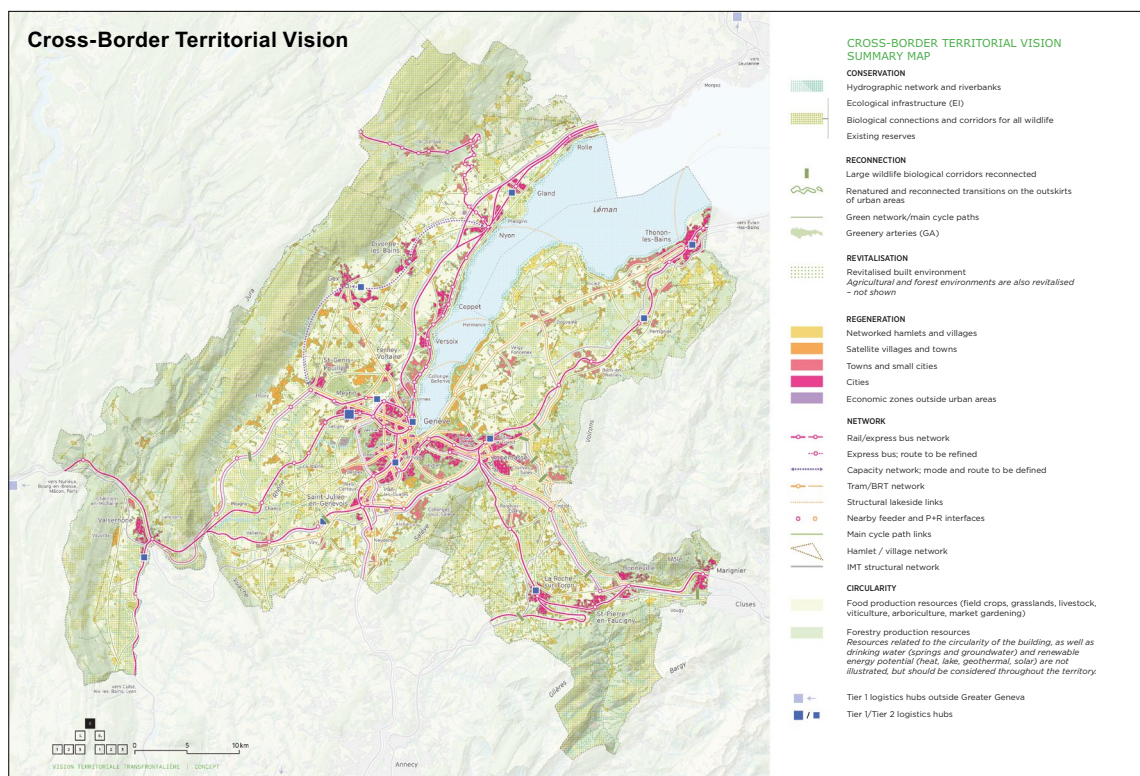
3.1 GENEVA AND GREATER GENEVA

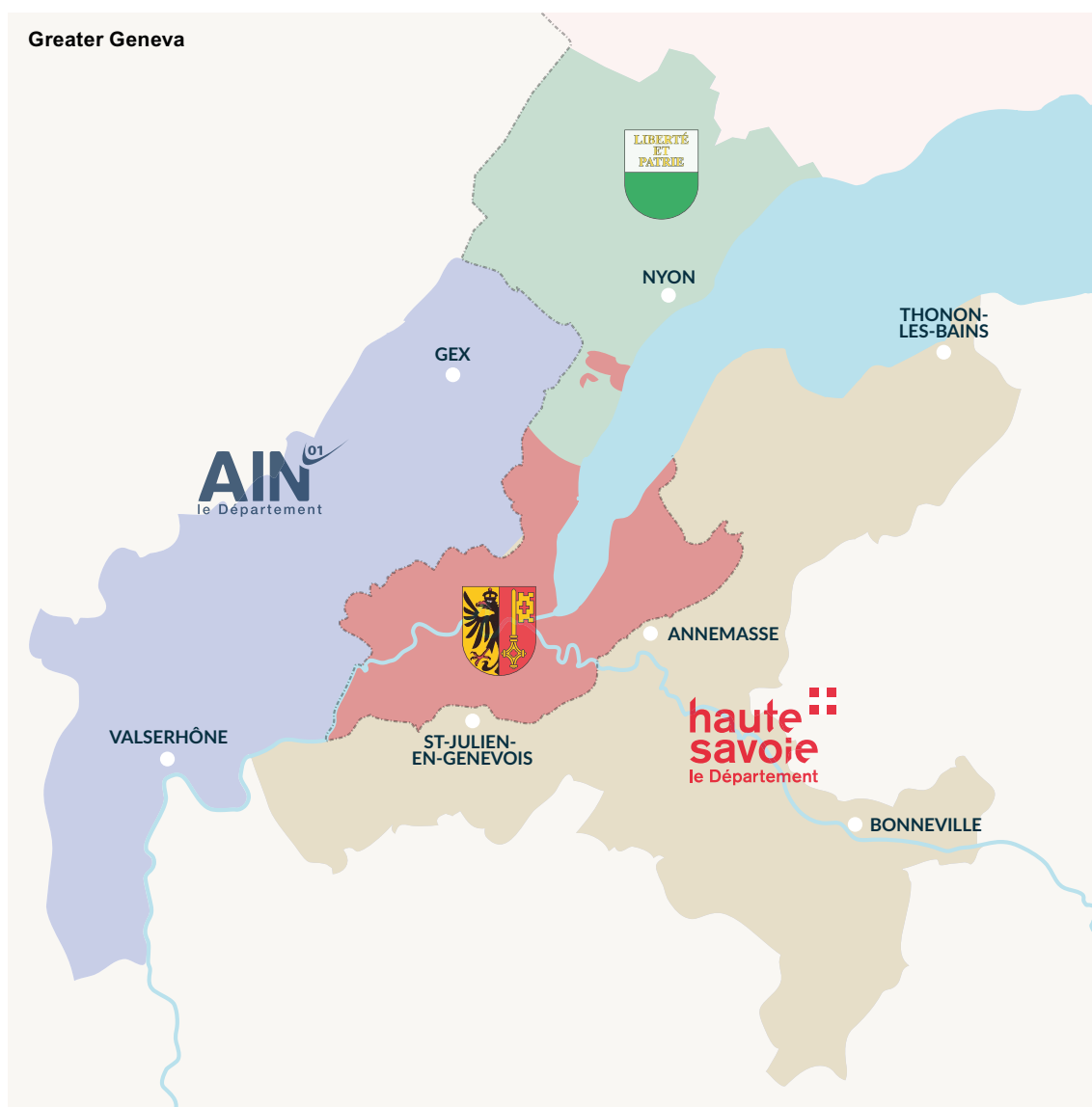
Geneva is the centre of a cross-border urban area of over one million inhabitants, the second largest in Switzerland, experiencing rapid demographic and economic growth, which generates ever-increasing mobility needs.

Greater Geneva (the Franco-Vaud-Geneva urban area) is characterised by a natural geographical reality integrating the basin formed by the topography (Salève, Jura, Voirons, Vuache) and the hydrographic network flowing into the Rhône, and by a rapidly expanding cross-border area. Residents regularly cross the border for travel, housing, work, leisure and shopping,

This area is fragmented by administrative boundaries, but its territories are connected by common interests. The economic dynamism of the canton of Geneva creates numerous jobs in high value-added sectors and therefore generates very strong demographic growth throughout the Franco-Vaud-Geneva urban area. Despite the significant developments carried out by the Canton and its partners over the past several years (notably the Léman Express regional express rail service (RER) and the gradual implementation of a six-line tram network, three of which are cross-border), this vitality has numerous impacts on the region, in terms of urbanisation, mobility, the environment and landscape. Authorities are faced with the challenge of “long-term infrastructure development”: implementing rail solutions requires massive investment and time. This complexity is compounded by the need to coordinate responsibilities between the Confederation, the Canton, the Geneva municipalities and the many French cross-border stakeholders (State, region, departments, municipalities). In this context, it is essential to find solutions that benefit everyone while meeting the specific needs of each one.

Greater Geneva aims to manage these induced effects of growth by coordinating public land-use planning policies (urbanisation, mobility, environment, etc.). The political will is to build a compact, multipolar and green urban area, ensuring a balanced and united functioning of the region.





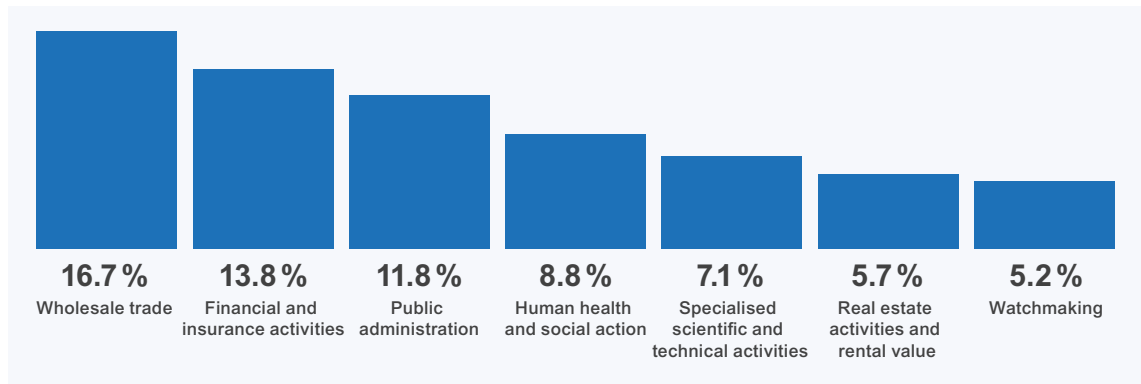
Greater Geneva has a population of one million, of which 525,000 (5.85% of the Swiss population) reside in the Canton of Geneva. Over the past twenty years, this urban area has experienced annual growth of 1.7% – a trend that is expected to continue – with a projected increase of 400,000 inhabitants by 2050..

This demographic growth is the most dynamic among the major Swiss and Rhône-Alpes urban areas (1.5% in Zurich, 0.90% in Basel, 1% in Lyon), generating more than 15,000 new residents each year in the urban area. To address this, the Canton plans to build nearly 20,000 new housing units by 2030.

With a total GDP of nearly CHF 62 billion in 2023 (4th in Switzerland), the Canton contributes more than CHF 2 billion in net surplus contributions to the federal budget (2nd in Switzerland) on average. The contribution of CHF 326 million paid by Geneva to the Confederation in 2023, as part of the national fiscal equalisation (3rd in Switzerland), represents only a portion of Geneva's contributions (direct federal tax, VAT, etc.).

3. STATUS REPORT

GDP distribution by sector of activity



In terms of exports, Geneva ranks second in Switzerland, with a value of over CHF 22 billion (2022).

Its international activity, based in particular on the presence on its territory of more than 2,200 multinationals, 500 international or non-governmental organisations and 180 diplomatic missions, represents 67% of the canton's added value.

In total, the canton boasts 425,000 jobs, or in other words, two-thirds of the jobs in the cross-border region. With 265,000 working residents in the canton, the Geneva economy relies on more than 130,000 cross-border commuters, a number that is continuously growing (+10,000 since 2019, i.e. +11%, and +50% since 2010).

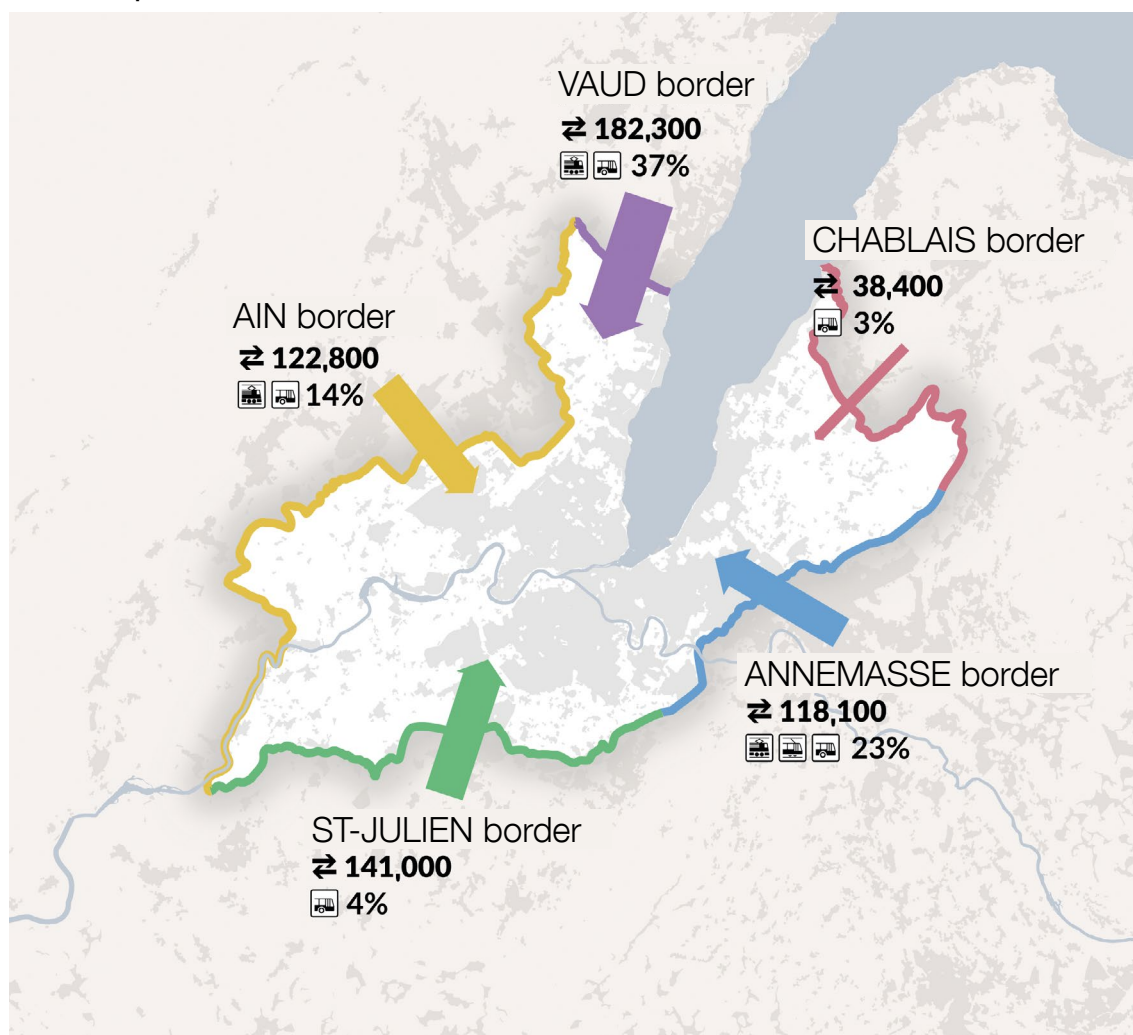
3.2 TRAVEL DENSITY

The region's population and jobs generate approximately 2.5 million journeys daily, across all modes of transport. It is important to note that 38% of these journeys cover less than 2 km, 60% less than 5 km and 75% less than 10 km; 62% are for leisure, shopping, or services and 38% are for work or training.

This volume of travel creates significant challenges in terms of mobility and infrastructure, particularly in the centre of the urban area.

Cross-border transport is also a key element of mobility in Geneva, with 70% of journeys made by car to neighbouring areas, including 40% to the Canton of Vaud/Switzerland, 23% to the Arve Valley and Chablais, 20% to Ain and 15% to the south of the Canton.

Public transport flows and modal shares at cantonal borders



Finally, at the international level, Geneva is the southwestern gateway to Switzerland, with significant passenger flows. Nearly 3 million passengers per year use the train for the Bellegarde-Lyon axis, while 19 million vehicles/year pass through the Bardonnex motorway border crossing in both directions (nearly 25 million passengers).

3.3 TWENTY YEARS OF INTENSE DEVELOPMENT OF PUBLIC TRANSPORT

It is essential that different modes of transport complement each other in order to make travel more efficient. This is why Greater Geneva and its partners are heavily investing in public transport to make it more attractive and therefore encourage a modal shift from individual motorised transport to public transport.

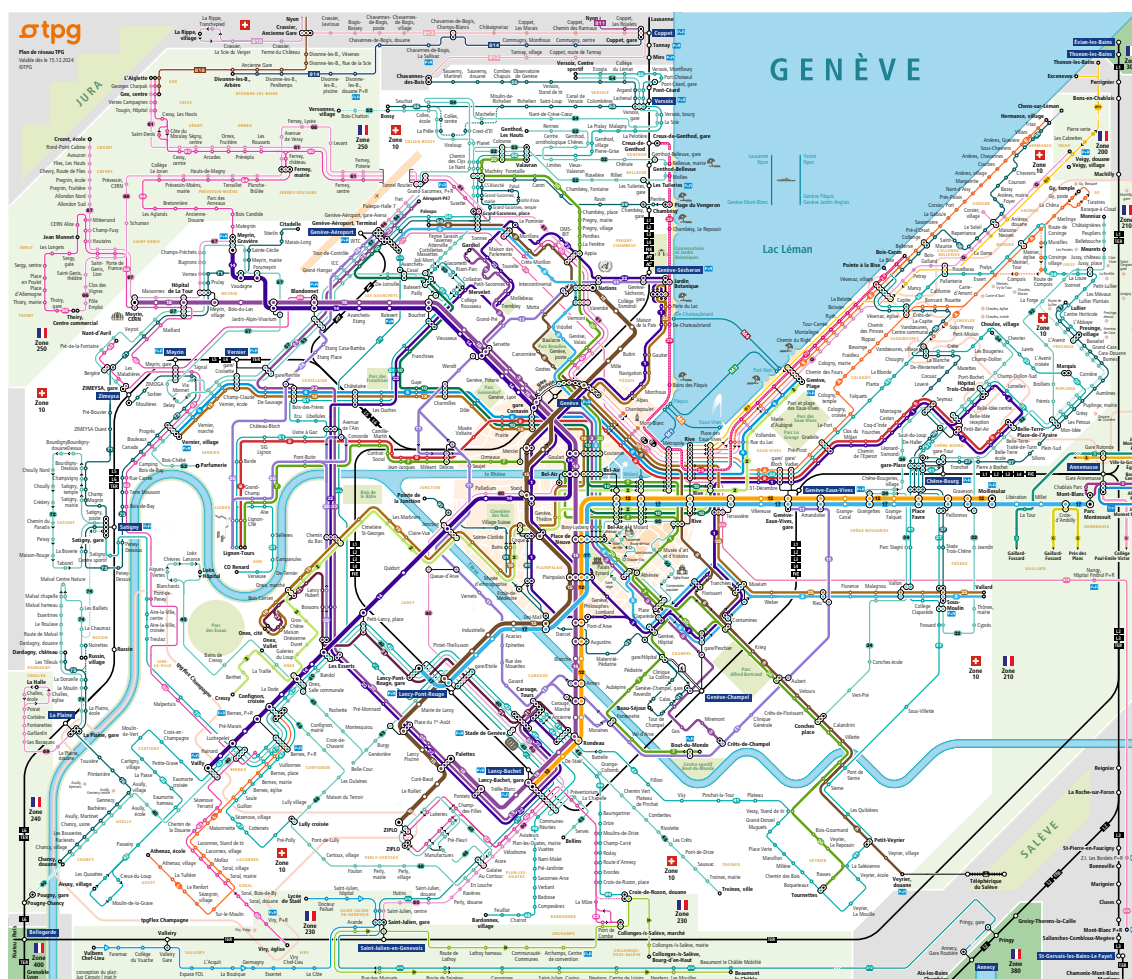
- The rail network is the backbone of Greater Geneva's travel organisation. The construction of the CEVA section and new stations (Pont-Rouge, Bachet, Champel, Eaux-Vives, Chêne-Bourg, Annemasse) enabled the Léman Express to enter service at the end of 2019, serving 45 stations along 230 km of track.
- Trams are being developed in the most densely populated areas of the central agglomeration and on the main access routes to provide a high-quality service (extended operating hours, high frequency and capacity, and reliability). While Geneva had the largest Swiss tram network in the 1920s, spanning nearly 170 km, this network was reduced significantly, reaching only 8 km in 1970. Since the 1990s, the tram network has been steadily redeployed. With recent extensions to Bernex, Annemasse, and between Lancy and Plan-les-Ouates, it now covers 40 km. Current and planned extensions are towards Annemasse (work is underway for the second extension), Grand-Saconnex and Ferney-Voltaire (work is scheduled to begin in 2025), and then to Saint-Julien-en-Genevois via Perly, for a total network of approximately 50 km.
- BRT (bus rapid transit) is being developed between various centres in Greater Geneva and in several parts of the urban area, notably Annemasse and the Pays de Gex (in operation), as well as from Geneva to Vernier, Veyrier and Frontenex (under construction).

Since 2006, the French, Geneva, and Vaud partners of Greater Geneva have supported the development of the multipolar cross-border urban area, notably through the various generations of Confederation Urban Area Projects, financed by the NRUTF:

- CHF 850 million as part of the emergency fund (CEVA, Cornavin–Onex–Bernex and Cornavin–Meyrin–CERN tramway lines);
- CHF 186 million for the 2007 urban area project: CEVA interfaces, improvement of the regional express rail service, key public transport routes, and key soft mobility links (greenway);
- CHF 204 million for the 2012 urban area project: continuation of key public transport routes, the Saint-Julien tram, and multimodal interfaces;
- CHF 119 million for the 2016 urban area project: further development of the previous Franco-Vaud-Geneva urban area projects of 2007 and 2012;
- CHF 143 million for the 2021 urban area project: 23 infrastructure projects, supplemented by three fixed-rate packages dedicated to soft mobility, road safety/enhancement, and traffic management.

The TPG network, structured around its approximately 50 km of commercial tramway lines and 65 urban bus lines, provides more than 800,000 journeys per day.

Transport Public Genevois (TPG) network map, December 2024

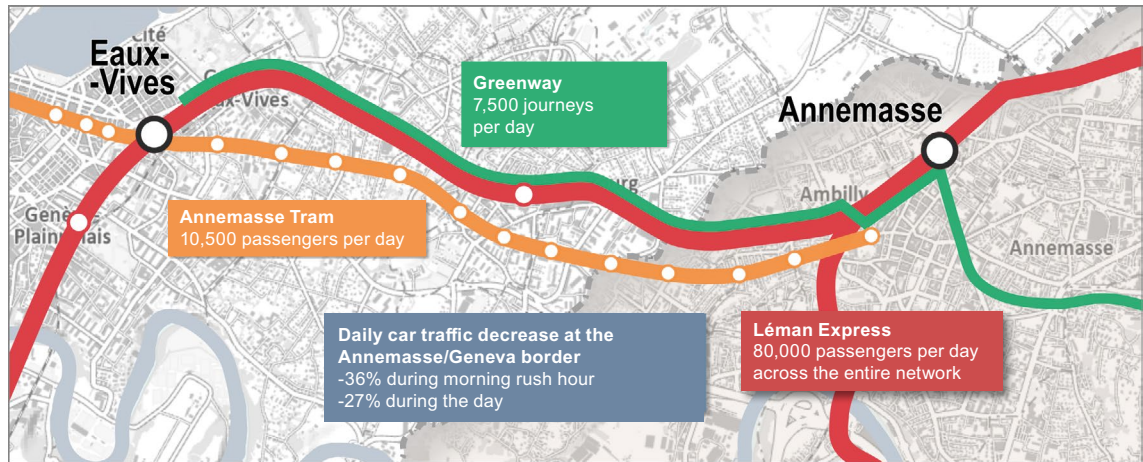


As for the Léman Express network – the first cross-border regional express rail service (RER) network in Europe –, it was jointly developed by the Confederation and the Canton on Swiss territory (54%/46% funding) and by the French government, the Auvergne-Rhône-Alpes region and local authorities, for a total of approximately CHF 2 billion. This network has been a resounding success since its launch, despite the health crisis caused by the COVID-19 pandemic. Over 80,000 passengers (63% of whom travel within the canton) now use this network on a daily basis.

At the cross-border level, this efficient rail infrastructure has gone hand in hand with the creation of a green cycle way and the extension of a tramway line to Annemasse in France (carried out with financial support from the Swiss Confederation as part of urban area projects). This infrastructure has enabled a significant modal shift, particularly at the Thonex-Vallard customs station, with a 36% reduction in individual motorised traffic during morning rush hour and a 27% reduction during the day. For all traffic entering Geneva from the Annemasse metropolitan area, the modal share of public transport now stands at 23%, with individual motorised traffic reducing by 19% between 2019 and 2023 (a reduction of 15,000 vehicles/day).

3. STATUS REPORT

Active mobility and public transport infrastructure



The project has been so successful that after only five years of operation, the central corridor of the Léman Express Gare Cornavin/Annemasse network, which operates 6 trains per hour in each direction, is already reaching its capacity limit during peak periods.

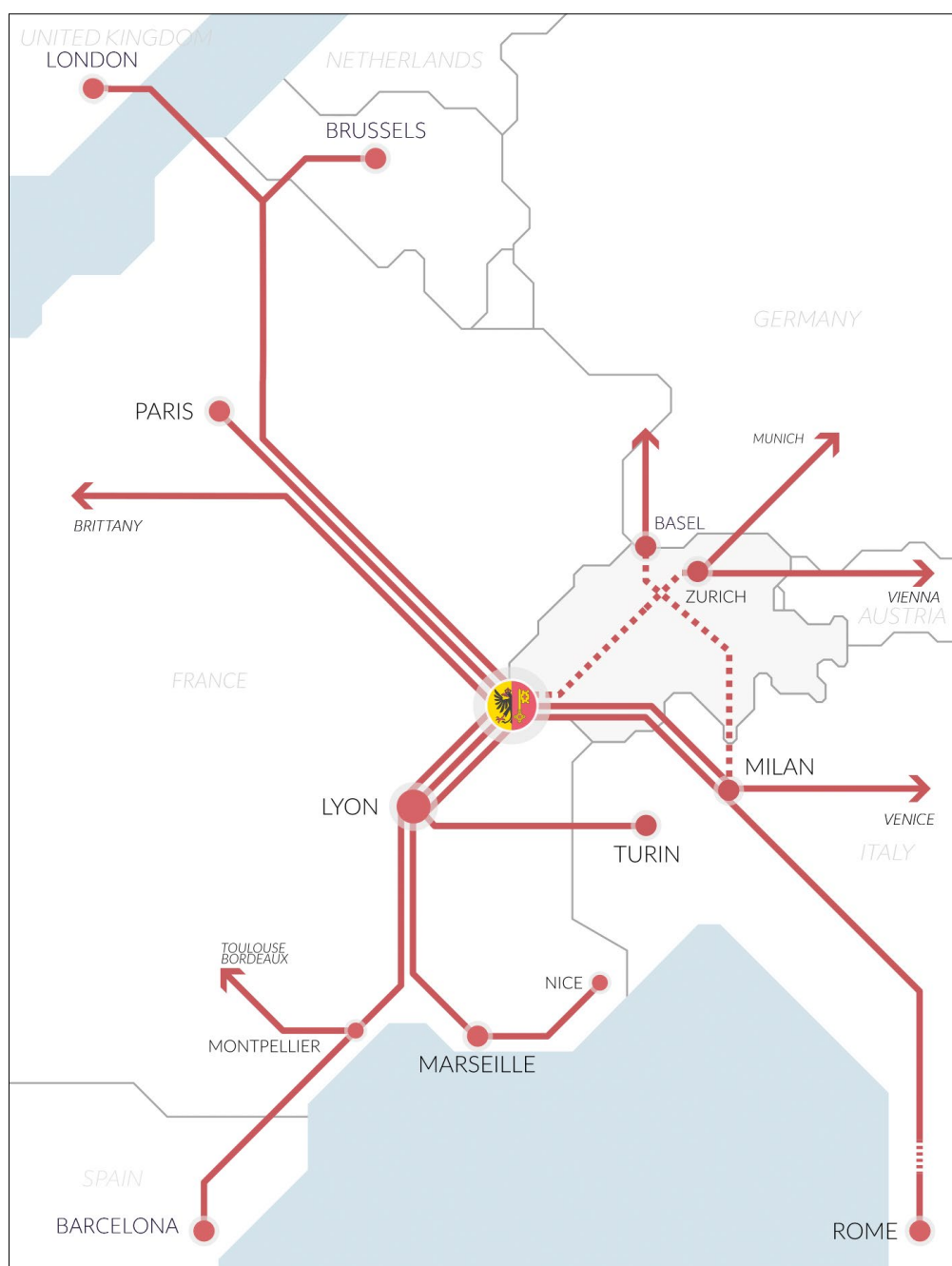
3.4 RAIL ISSUES

Rail services are more than ever one of the answers to all the challenges and issues related to mobility.

For the Canton of Geneva, these challenges are threefold:

- **At the international level**, Geneva, as the southwest gateway to Switzerland, must have reliable and efficient access to the European high-speed network (France, Southwest Europe, Northwest Europe-Benelux, etc.).

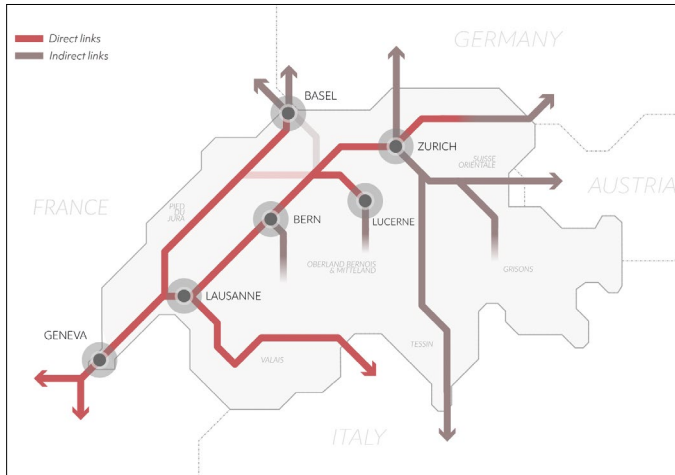
Potential for Geneva's rail connections with Europe



3. STATUS REPORT

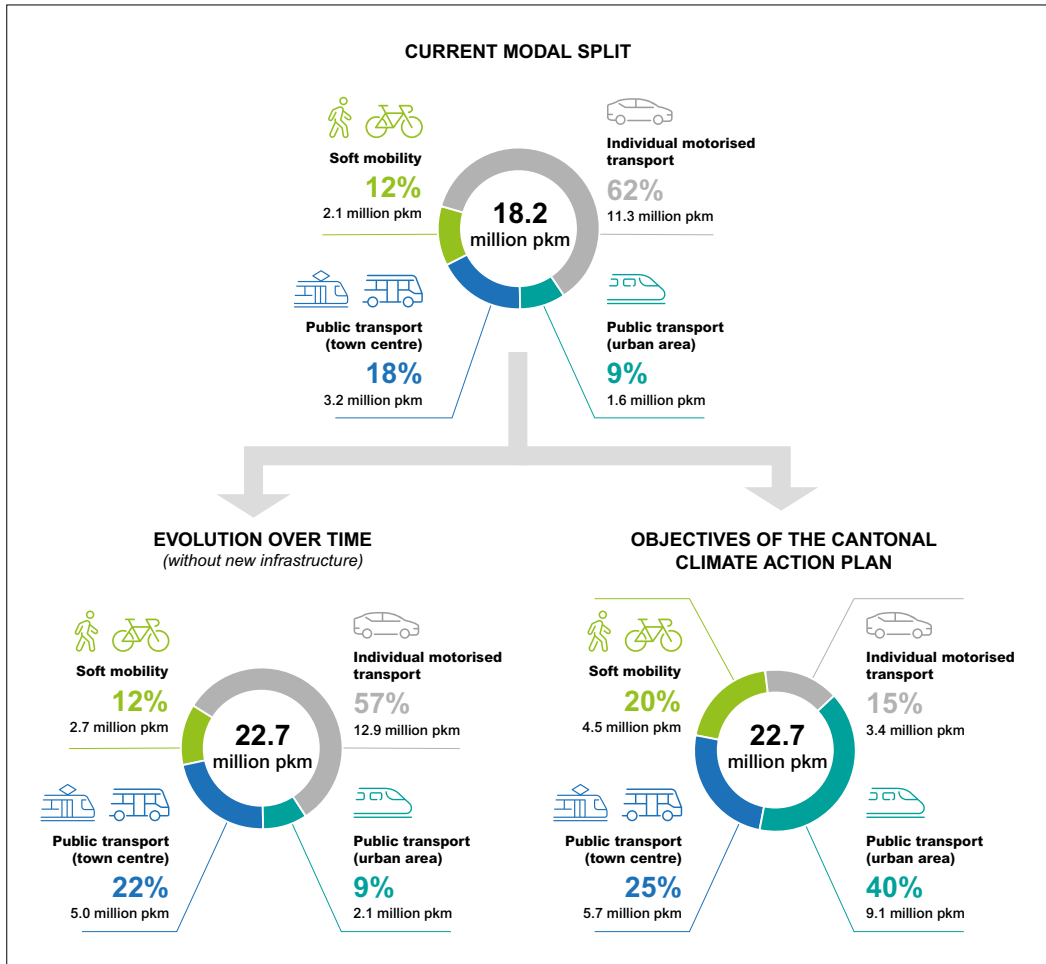
- **At the national level**, Geneva must be connected to all other major cities and Switzerland's main tourist regions by an attractive, reliable and accessible service.

Geneva's main rail connections with Switzerland by 2035



- Finally, **at the level of its urban area**, Geneva must be able to guarantee all its residents and Greater Geneva workers mobility conditions that ensure a good quality of life while at the same time allowing the canton to pursue its economic development.

Forecasts and targets for changes in flows and modal shares by 2050



4. LEGAL AND POLITICAL CONTEXT

4.1 FEDERAL MOBILITY FUNDS: A FALTERING SYSTEM THAT MUST EVOLVE

The Rail Infrastructure Fund (RIF), as well as the Fund for National Roads and Urban Traffic (NRUTF), has revealed structural shortcomings, leading to dysfunctions: competition between cantons, transparency problems in programmatic decision-making processes, spiralling costs and unrealistic planning.

The creation of the RIF was based on a simple and effective idea: a sustainable, programmatic fund designed to ensure the long-term maintenance and subsequent development of the Swiss rail network, in a context of intense growth in travel demand since the 2000s. While until 2014, rail planning was organised according to a principle of opportunity (recognition of a need, identification of measures to be taken, formalisation in a programming act associated with appropriate financing), the creation of a constitutional fund dedicated to rail was intended to allow for programmatic and financial structuring no longer on a case-by-case basis, but according to an integrated, comprehensive and equitable national vision between cantons, in the short, medium and long terms.

This ambition was to inspire the road counterpart of the RIF – the NRUTF – designed to organise and finance, according to the same principles of sustainability, stability and equity, the national road network, as well as the specific infrastructure needs of urban areas, rapidly expanding territorial entities whose absence from the federal legal framework has demanded a suitable solution since the 1990s.

Now, according to the SBB, approximately 300 projects representing nearly CHF 28 billion in investments have been announced and awaited by the cantons in the railway sector.

Naturally, this competitive situation between cantons leads to regional imbalances in the scheduling of developments, but also in their implementation. Therefore, the planned construction projects have direct consequences on the quality of daily services and call into question the principle of a coherent and unified network at the national level. In addition to the imbalances in investments imposed by the circumstantial majorities in Parliament, the implementation of these projects is causing operational degradations that primarily and especially affect French-speaking Switzerland, with the risk of making it a satellite for the next twenty years. Indeed, the 2035 timetable, previously thought up by the Confederation to integrate construction constraints, is resulting in longer journey times, particularly for the Jura Foot Line.

Continued rail development in Switzerland faces major challenges. First of all, while needs are ever-increasing, the various projects already approved, of enormous scope, must be carried out, for the most part, while existing networks are being used. At the same time, these networks require increasingly extensive maintenance operations due to their peak utilisation.

Furthermore, these projects require a human and technical commitment that Switzerland cannot meet in its entirety (engineering, construction companies, supply of equipment and rolling stock), at least not within a reasonable time frame.

Beyond the significant costs, this generates very long implementation times, further delaying the launch of the expected projects. At the Swiss level, it is reasonable to assume that all the projects approved by Parliament and included in the rail expansion steps (ES 25 and ES 35) currently in force will require at least several decades of activity to be completed.

This is particularly true for the canton, with partial commissioning of the capacity expansion of the Genève-Cornavin railway hub (platform) planned for 2038 and the complete compliance of the existing station around ten years later, by 2050. At the same time, the Morges-Perroy Tunnel, the infrastructure necessary to increase service in the Lake Geneva region, is scheduled for 2043-2045.

Any major development of the SBB mainline infrastructure in the canton can therefore only be considered after the completion of these approved projects.

Since the absence of new services for 20-25 years is unthinkable, the Canton must therefore define a strategic vision for the railway system based on projects that can be implemented within more realistic time frames.

Beyond the technical challenges and the issue of implementation deadlines, the fundamental challenge is the financing of all railway developments.

It is exclusively based on the RIF, whose sustainability is currently not guaranteed (end of the VAT system in 2030, reduction of the tax on mineral oils due to the gradual electrification of the vehicle fleet). While the railway development phases allow for the financing of new operations in ten-year tranches of approximately CHF 13 to CHF 15 billion, all the measures sought by the various cantons could cost between CHF 30 and CHF 50 billion, including the “Federal Cross²”, development projects, which therefore corresponds to a budgetary capacity of several decades.

As a result, not all of the new projects sought will be selected by the Confederation for full financial support. In any case, new financing arrangements will have to be found to meet the mobility challenges of the next fifteen years.

4.2 COMPLEMENTARY, BUT NOT COORDINATED, FUNDS

Two major differences are worth noting in the design of the LRUTF Act and the RIF Act. Indeed, the LRUTF Act provides for a comprehensive overview of all modes of transport, integrating both their advantages and disadvantages. It also plans to publish a report on the use of national roads and the implementation of the measures financed by the fund (Articles 2 and 8). However, these two considerations are not addressed in the RIF Act.

Another important difference worth noting: the measures selected and funded by the LRUTF, for both national roads and urban areas, can only be planned once they are considered “mature”, i.e. when they have reached the required level of study for their implementation. A lower level of study maturity, however, allows them to be taken into account and planned in the RIF programming.

Although presented as two sides of the same coin, the RIF and LRUTF exhibit an asymmetry in their structures, resulting in the absence of a cross-cutting policy to ensure fund management based on the complementarity of their programmes.

Generally speaking, the texts relating to the LRUTF and RIF can be criticised for not functioning sufficiently in harmony.

² Concept ensuring long-distance passenger traffic in the form of two high-performance West-East and North-South axes, from border to border.

4.3 FINANCING OF THE RIF AND LRUTF: UNCERTAIN SUSTAINABILITY

Today, the financing of the federal RIF and LRUTF funds is facing major challenges. These issues stem from taxation. Taxation is no longer adapted to technological developments and growing expenses. Financing mechanisms are struggling to adapt quickly to economic changes.

Three major sources of funding for the RIF will undergo significant changes: the mineral oil tax (LUMin), the heavy goods vehicle charge (HGVC) and a portion of VAT. Currently, 9% of the mineral oil tax contributes CHF 300 million per year to the RIF, while 0.1% of VAT is paid into the fund each year, totalling approximately CHF 350 million. However, these two contributions are expected to end by 2030, by which time the full repayment of advances from the former Public Transport Infrastructure Projects Fund (FTP) will have been achieved. The National Council's repeated refusal to take into account the increase in the HGVC raises concerns about the levy's ability to generate sufficient revenue in the long term, as the Federal Council determined in its message of 18 January 2012 that "HGVC revenue can only increase as a result of adapting to rising costs".

In addition to these structural weaknesses, other factors are weakening the fund's structure, starting with climate change, which is leading to increasingly frequent and violent natural disasters, as illustrated once again this summer by the flooding of the river Rhône and the debris flows that hit mountain regions, destroying roads and railways. The reconstruction/repair of this infrastructure, as well as weather protection measures, is financed under the heading of network upkeep and maintenance, the main objective and expenditure item of federal funds. The cost of the damage that occurred this summer in the cantons of Valais and Ticino is estimated at several hundred million Swiss francs.

Just as the ever-growing number of infrastructure development projects ultimately leads to increased maintenance costs, the growing costs caused by natural disasters will also put the funds under further strain and therefore reduce the remaining portion of funding allocated to infrastructure development.

4.4 A LEGAL FRAMEWORK UNSUITED TO CROSS-BORDER ISSUES

The structure of the RIF and LRUTF funds is primarily geared toward national initiatives, which limits their ability to effectively finance cross-border projects, which are nevertheless necessary in a landlocked country like Switzerland.

This legal vacuum does not allow for the development of a single doctrine on cross-border issues, whether concerning the objectives or the financing of international rail links from Switzerland, which therefore depend on outdated or pending legal frameworks. For example, the Act on the Connection of Eastern and Western Switzerland to the European High-Speed Rail Network (LRLGV), which expired in 2022 after its commitment credit of one billion Swiss francs was exhausted, was unable to achieve its assigned objectives, and several strategic links between Switzerland and the European rail network remain unsatisfactory: Geneva–Lyon, Geneva–Milan, Zurich–Stuttgart, Lugano–Milan and Basel–Strasbourg.

4. LEGAL AND POLITICAL CONTEXT

Furthermore, Switzerland is a signatory to several bilateral treaties on rail cooperation, including the Franco-Swiss agreement signed on 5 November 1999, which focuses on improving connections between Geneva, Lausanne, Bern, Basel and Zurich with Paris and the South of France. However, regarding Geneva, it must be noted that twenty-five years after the Agreement was signed, not all promises related to the rehabilitation of the Haut-Bugey line have been kept.

The issue of financing is also an integral part of the signing of the Agreement, which provides for a distribution of contributions that takes into account the respective interests of both parties. However, the translation of this principle into Swiss law is hampered by the lack of mechanisms and procedures identified and integrated into the RIF. Currently, a letter of intent to relaunch the ambitions of the Franco-Swiss Agreement is planned, pending signature by the partners³.

4.5. CO₂ ACT: WHAT PROSPECTS?

While, in the current situation, the legal and doctrinal framework does not allow us to confidently consider the future of rail beyond our borders, the recent revision of the CO₂ Act has opened up new perspectives for cross-border and international railway lines. Indeed, Article 37a stipulates that a percentage of the revenue from the auctioning of aircraft emission allowances will fund up to CHF 30 million per year for the development of cross-border rail services, including night trains. Available from 2025 until 2030, this aid can therefore constitute an interim step pending major infrastructure improvements. The Federal Council's announcement of its intention to freeze these subsidies, if confirmed, would deprive the country of short-term improvements⁴.

The funding issue for cross-border cantons is all the more pressing given the financial difficulties of European partners responsible for railway development. The issue of establishing Swiss subsidies to contribute to the implementation of structural projects in Europe deserves to be addressed by the Federal Council and the Chambers. This discussion must take into account examples of benefits for mobility and quality of life in Switzerland brought about by public transport projects on the other side of the border, financially supported by the Confederation as part of the now-announced priority for urban areas (see *Perspective RAIL 2050 – Concrétisation territoriale* [Perspective RAIL 2050 – Territorial Implementation], in particular), whether this support comes from LRUTF or RIF, or both.

Still from this perspective, certain current systems must be analysed and reviewed: the indicators, which currently determine the overall envelope amount as the maximum percentage for each federal co-financing project for which an urban area is eligible under LRUTF, exclude the number of inhabitants and jobs located outside Swiss territory, while the territorial and social dimensions of cross-border urban areas such as Greater Geneva are recognised within the same framework and at the same time.

³ Since this report was written, the letter of intent between the two states was signed on 11 February 2025.

⁴ Since this report was written, the Federal Council has implemented the revised CO₂ Ordinance on 2 April 2025.

System Limitations and Tailor-Made Solutions

However, the federal organisation of mobility through these two separate and exclusive funds appears to suffer from exceptions in practice, highlighting the limitations of the current system, as well as the Confederation's willingness to be flexible.

The following three examples highlight both the need to resolve situations outside the current system and the potential for doctrinal developments in cross-border engagement, which should inspire federal policy in the area of transport infrastructure investments:

- **Luino Line**

In line with the development of the New Rail Link Through the Alps (NRLA), numerous projects are being undertaken by the Confederation in the Lake Maggiore region. In particular, work entirely funded by Switzerland is planned on the Luino Line in Italy. The financing process for this line is set out in the motion of 27 March 2023, tabled by the National Council's Transport and Telecommunications Committee and accepted by the Federal Council, with the aim of pursuing the objective developed with the NFLA to extend it to the Basel region. The motion describes each of the steps, from the creation of a law dedicated to the project to the signing of international agreements with Italy to formalise its implementation and financing. Switzerland has established a specific legislative framework to ensure the financing of measures it deemed beneficial for transalpine traffic.

- **Hochrhein-Bodensee-Express**

The new Hochrhein-Bodensee-Express (HEX) illustrates the complexity of new cross-border rail services. Today, the Basel-Schaffhausen line is the only link between two Swiss cities operated by diesel locomotives. The Upper Rhine section on the German side of the river will be electrified next year, and the line will be expanded. Switzerland is contributing CHF 50 million to the total costs of approximately €330 million, shared by the Federal Republic, the state of Baden-Württemberg and the districts of Lörrach and Waldshut. There was no call for tenders for operation, as is normally the case in the EU for regional transport. The partners opted for the Swiss procurement procedure and awarded the line to SBB.

- **Lugano Tram-Train**

The Lugano tram-train project, designed as part of the second-generation Lugano urban area plan, provides for the creation of a line from Lugano to Manno via Bioggio and Ponte Tresa. The total cost of over CHF 500 million is covered to the extent of CHF 270 million by the Swiss Confederation through the RIF and LRUTF funds, depending on the rail or urban nature of the various elements making up the complete network.

4.6. TOWARDS REFORMS?

The spring and summer of 2024 were marked by numerous statements by former and current federal transport officials, exposing the flaws in the funding system, particularly in the railway sector. They noted the current deadlock in terms of financing and project implementation capacity, exacerbated by a shortage of qualified labour at the national level in key areas.

Adding to these criticisms is the threat of the fiscal consolidation measures currently being advocated by the Federal Council, which include plans to withdraw hundreds of millions of Swiss francs from the RIF and freeze subsidies provided for by the CO₂ Act.

According to the latest information, the Federal Council's next strategic development programme (STEP), now scheduled for 2027, is expected to focus primarily on measures to stabilise, rectify and upgrade the existing network, without managing to contain costs. Indeed, it is now estimated that some 14 billion additional Swiss francs will be required for this phase alone. A situation as revealing as it is inextricable if fundamental reforms are not undertaken immediately.

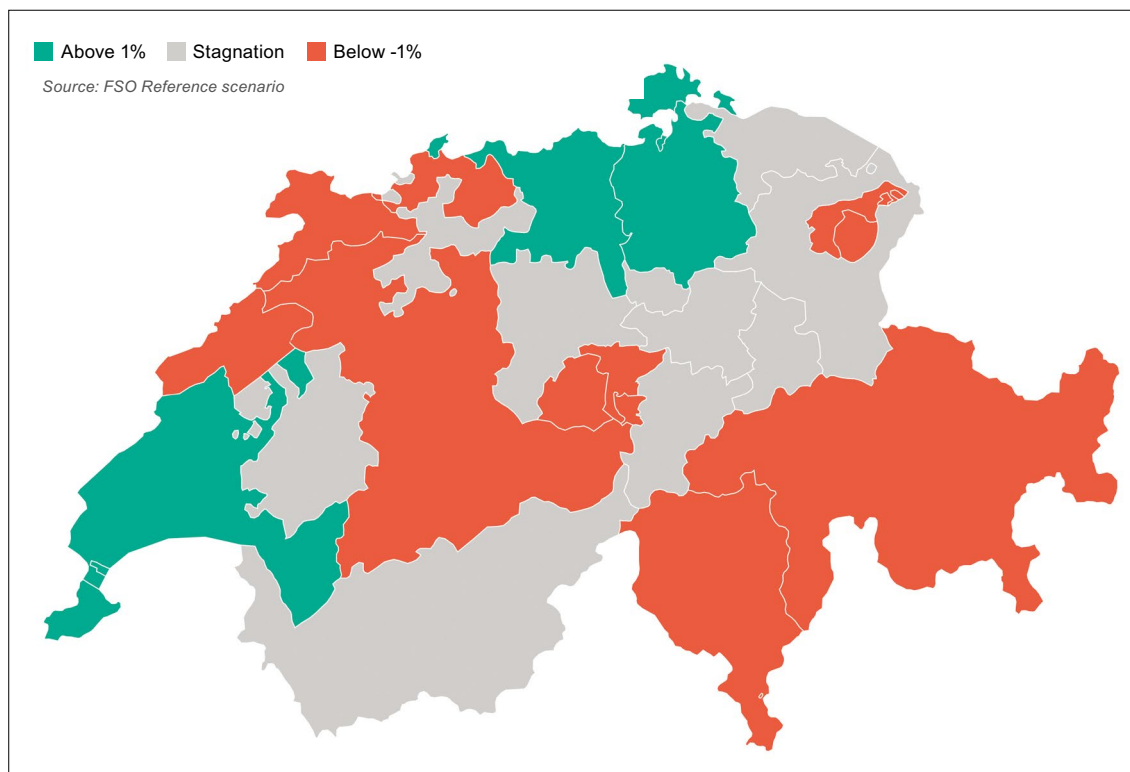
These reforms are all the more necessary given that the Confederation now intends to prioritise federal investments in urban transport, which cannot be achieved on the basis of declarations of intent alone. A new vision calls for new, integrated governance of the funds.

This is particularly clear in the document *Perspective Rail 2050 – Concrétisation territoriale* [Perspective Rail 2050 – Territorial Implementation] published at the end of summer 2024 by the FOT, which also highlights the importance of cross-border connections: “(...) it is a question of developing international connections on sections where the train is not yet competitive in terms of journey time compared to individual motorised transport (IMT) and air traffic (...). Analyses confirm that there is considerable potential for developing rail services in international passenger transport (IPT). (...) With regard to IPT transiting through Switzerland, it is clear that it only has sufficient potential for direct connections on the north-south axis between Germany and Italy. Demand potential from France to Italy and Austria is being exploited, particularly due to network developments taking shape in neighbouring countries, through services bypassing Switzerland. However, efforts should be made to make the East–West corridor more attractive and better integrate it into the European rail network. Important hubs located near borders must also be taken into account, as they generate a comparatively large volume of transport with a high share of IMT.”

Finally, the issue of political and administrative boundaries, which prevail in the current investment planning framework, is directly posed by the ongoing evolution of the country's territorial reality: beyond the question of a Switzerland with 9 or 10 million inhabitants, it is rather the demographic and age distribution that must challenge the current system to enable it to evolve.

Indeed, according to the independent Basel-based competence centre Demografik, people of working age (20-64 years old) are increasingly concentrated in the large urban areas that have developed around Zurich, Basel and the Lake Geneva region. The working population is growing there, while it is already declining in regions such as Graubünden (see map below).

Changes in the working population by Canton by 2030



This phenomenon affects the entire European population: the number of working-age people has been declining for more than ten years and is concentrated in Europe's urban areas.

This changing demographic structure and its territorial effects are also taken into account in the ongoing revision of the Spatial Strategy for Switzerland led by the ARE, as well as in the Territorial Implementation of Perspective RAIL 2050 published in September 2024 by the FOT. The reference area for Geneva is described as follows: "The *Métropole Lémanique* area of action includes the cantons of Geneva and Vaud (except Pays d'Enhaut), part of the cantons of Fribourg and Valais. The expanded territory extends as far as the Jura and the Pre-Alps. In neighbouring France, the area of operation includes the south of Lake Geneva, the Arve Valley and Pays de Gex."

From this perspective, the current situation must be seen as an opportunity to foster a transition to a new federal fund management strategy, based on multimodal strategies deployed at the regional level (the "action areas").

5. RAIL STRATEGY

5.1. STRENGTHENING THE LÉMAN EXPRESS

The Léman Express network, which opened in December 2019, has been gradually consolidated in recent years: nighttime service, quarter-hourly service between Annemasse and Coppet, increased capacity for certain trains, and RegioExpress stops at all stations.

This network still offers numerous development opportunities both in the canton of Geneva and throughout France.

5.1.1 IMPROVEMENTS BY 2026

The creation of a service between the left and right banks (ZIMEYSA and Airport) via the Furet Tunnel is currently being studied by the SBB. Despite the constraints of the existing tunnel, SBB should be able to conduct an experiment starting in 2026, consisting of implementing two to three trips per direction (new line L7) at the start and end of the day.

Route of the new Léman Express line 7 from 2026



In the longer term, the all-day use of the Furet Tunnel will require infrastructure work, the extent of which has yet to be determined. A first step has nevertheless been taken with the inclusion by the Federal Parliament in March 2024 of a CHF 70 million construction credit as part of the ongoing 2025-2035 development phases.

Based on the conclusions of these studies, the Geneva government will advocate for an additional inclusion in the STEP message in order to obtain a comprehensive service for this route.

5.1.2 NEW ROLLING STOCK WITH GREATER CAPACITY BY 2030

The ongoing development, known as “LEX III”, will further increase network capacity through the acquisition of new, additional double-deck trains approximately 100 metres long.

The arrival of this equipment, scheduled for 2030-2032, will increase passenger capacity by more than 50% at a constant frequency (one regional express train (RER) every 15 minutes).

This development will require the alteration of the length of certain platforms between Geneva and Coppet. The work, planned and financed by the FOT as part of network maintenance, is scheduled to be completed by 2031.

The use of these trains in their maximum configuration (200 metres) on French territory will involve extending the platforms at the stations concerned (9 out of 18 French stations on the Léman Express network) and a possible upgrade of the Annemasse railway hub (the end of the network under Swiss electrification) to enable efficient network operation with this new, higher-capacity rolling stock.

Due to the cross-border nature of the interconnection between two national networks, this approach must be conducted within the framework of the collaborative bodies between Switzerland and France.

5.1.3 GENEVA – LA PLAINE: QUARTER-HOURLY SERVICE

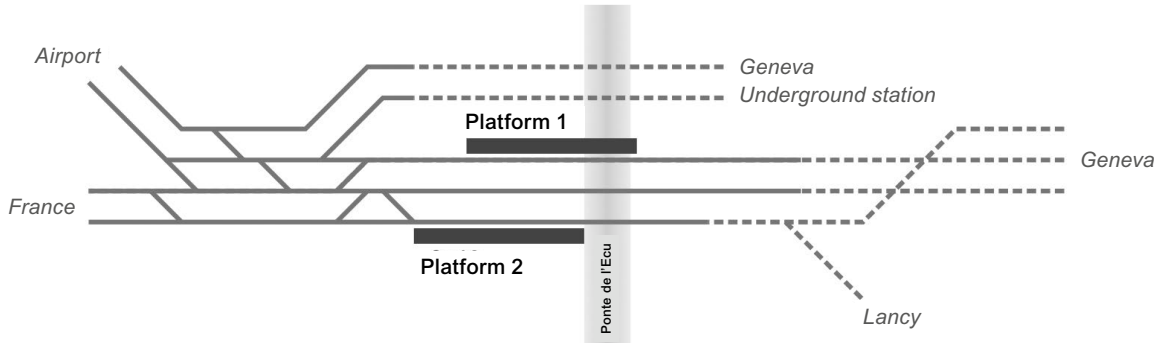
The enhanced quarter-hourly service on the La Plaine line will be implemented thanks to the commissioning of the underground extension of Genève-Cornavin station. This measure, included in the 2035 expansion step, also provides for the complete reconfiguration of La Plaine station (additional tracks and platforms).

In the interim period, operations could be enhanced by a more regular service on line L6 and by increasing the number of double-decker trains (Flirt 2x75m).

5.1.4 VERNIER – CHÂTELAINÉ STATION

While included in cantonal planning for several years and not selected by the Confederation in the current Strategic Development Programme expansion steps, the Vernier-Châtelaine station was nevertheless considered as part of the underground extension project for the Genève-Cornavin station.

Platform layout diagram for the Vernier-Châteline station



Funding for the preliminary studies required for this coordination is currently provided by the Canton (Act H 1 60).

Moving on to the operational studies phase and then to the implementation phase (estimated at CHF 60 million) will require either inclusion in a future Strategic Development Programme expansion step or the adoption by the Geneva Parliament of a specific financing law.

In any case, since the station is located partly on the covered trench of the future access tunnel to the underground station, its construction can only begin after the completion of the civil engineering work on the Cornavin station site, or at best from 2037, with commissioning planned for 2040.

5.1.5 RAIL FREIGHT DEVELOPMENT

5.1.5.1 STATUS REPORT/DIAGNOSIS

In the canton of Geneva, road freight transport remains predominant compared to rail transport. Indeed, on average between 2015 and 2022, a large majority of imported (52%) and exported (71%) tonnages are transported by road, while internal freight transport is exclusively by road, given the canton's small geographical size. On average, for all flows combined, the modal share of road transport is 86%. In terms of distribution by origin or destination, 42% of flows are internal to the canton; 30% are exchanged with the rest of Switzerland; and 28% are with foreign countries⁵.

Specifically regarding rail, between 2019 and 2021, the modal share of rail for volumes traded between Geneva and the rest of Switzerland averaged 45%. It was only 3% for trade between Geneva and France, with equivalent total volumes, highlighting a relatively limited supply of rail freight on the French side. Indeed, the large construction waste treatment centres, representing the majority of flows, are notably less connected to rail on the other side of the border^{6/7}.

Current trends show a decrease in volumes transported by heavy goods vehicles, and an increase in volumes transported by vehicles weighing less than 3.5 tonnes and by rail. Indeed, the use of rail for freight transport has experienced significant growth in recent years. Between 2015 and 2022, tonnages transported increased by 34%, from 1.6 million tonnes to 2.2 million tonnes. This translates into a slight increase in rail's modal share of freight transport over the same period, based on tonnages transported.

Genève-La Praille is the station that generates the most volume, accounting for an average of 48% of rail freight volumes. Numerous private sidings are located there, as well as a SBB logistics hall, a combined terminal and overflow tracks. However, the Cornavin stations, where La Poste branches, and Vernier–Meyrin Cargo, which have private sidings and overflow tracks, are experiencing the strongest growth (+56% between 2015 and 2022, while flows to/from La Praille increased by 12%)⁸.

In terms of the number of wagons, more than 100,000 wagons were transported on average per year between 2020 and 2022, an increase of nearly 25% since 2015.

Geneva logistics zones connected to the railway:

- Cornavin hub (private rail sidings (Post Office, VEDIA))
- ZIMEYSAVER, Zimeysa Sud branch line (private sidings, overflow tracks), Renfile sector (tankers)
- La Praille (private sidings, combined terminal, overflow tracks and SBB logistics hall)

On average, 43 freight trains run daily on the Lausanne–Geneva line in both directions.

5 Data source: SBB infrastructure and BFS-GTE; illustration: Citylog 2023: *Outils pour le report modal dans le transport de marchandises* [Tools for modal shift in freight transport]

6 Citylog 2023 Study: *Outils pour le report modal dans le transport de marchandises* [Tools for modal shift in freight transport]

7 Data source: SBB infrastructure; illustration: Citylog 2024: *Stratégie ferroviaire 2050 - complément fret ferroviaire* [Railway Strategy 2050 - Rail Freight Supplement]

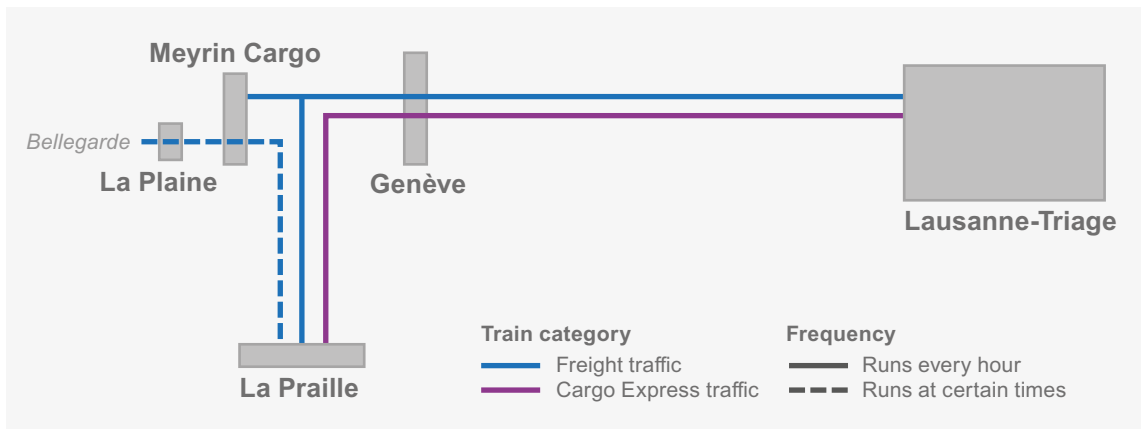
8 Source: SBB Infrastructure

Current freight train path service



By 2035, the train path service should provide a direct connection between Lausanne-Triage and Vernier–Meyrin Cargo, without having to transit through La Praille, in order to strengthen the ZIMEYSAVER logistics hub.

Freight train path service project for 2035 Rail Expansion Step



5.1.5.2 GENERAL OBJECTIVES FOR RAIL FREIGHT

- ❶ Ensure the efficient and safe operation of the urban area in terms of supply and de-supply
- ❷ Limit the environmental impact of freight transport (CO₂).

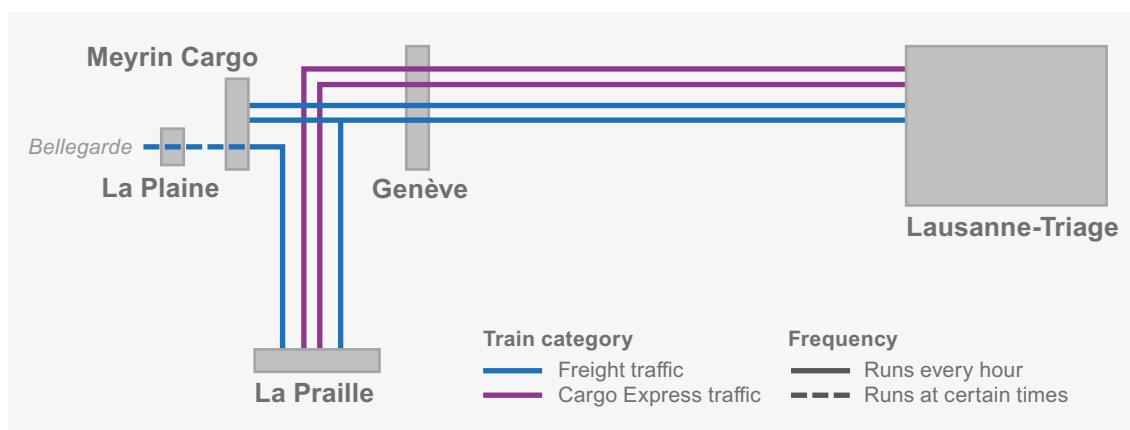
In freight transport, and particularly in supply-related flows, efficient transport organisation requires logistics interfaces that enable the use of rail transport to subsequently ensure detailed distribution. The size of these logistics hubs depends on the area to be served and its economic intensity.

The structural evolution of demand for freight transport and the objectives of a modal shift to rail require ambitious plans and infrastructure improvements. Forward-looking approaches have estimated a significant need for additional train paths by 2050, as well as essential optimisation of flows (fully loaded trains, better distribution of trains throughout the day). So, between Geneva

and Lausanne, the number of freight train paths must double to reach four train paths per hour in each direction by 2050, with the possibility of a fifth train path during peak hours (3 a.m. to 6 a.m. and 7 p.m. to 10 p.m.).

The strengthening of the ZIMEYSAVER logistics hub will also require improving the frequency of the direct Lausanne-Triage–Vernier–Meyrin Cargo train path to 1.5 train paths per hour, in addition to the two train paths to La Praille in each direction (compared to one train path every two hours, alternating with La Praille, planned in the Rail Expansion Step 2035). An increase in Vernier–Meyrin Cargo’s capacity will need to be considered to accommodate the expected flows.

Freight train path requirements by 2050



In a context of growing passenger flows, only the doubling of the Geneva–Lausanne line is compatible with rail freight growth scenarios. This doubling also secures the canton’s supply with the line’s redundancy. Indeed, the canton is heavily dependent on Swiss logistics centres, and motorway and rail links represent the canton’s lifeline. The Tolochenaz pothole hole incident in 2021 demonstrated the fragility of the Geneva–Lausanne rail line and the dependence of stakeholders on rail freight in the context of a saturated motorway network.

Finally, a feasibility study jointly commissioned by the cantons of Geneva and Vaud in 2020 demonstrated the economic benefits of building an underground infrastructure for freight transport between Geneva and Lausanne, provided this section is connected to a national network. Such infrastructure would relieve 44% of the heavy goods vehicles travelling on the A1 motorway. The *Cargo Sous Terrain* (CST) project, a private economic initiative, is an underground freight transport system that aims to provide an alternative to road transport for palletised goods. This project, which plans to open an initial section between Zurich and Härkingen by 2035 and commission the entire network by 2045, could bring significant gains to rail freight.

5.1.6 DEVELOPMENT OF THE LÉMAN EXPRESS IN FRANCE

On the French side, several service developments must be accompanied, or even supported, due to their positive impact on travel in Switzerland:

- increased frequency and range of services on lines L1, L2 and L3 during off-peak hours or on weekends to further increase the network's attractiveness;
- more regular service on line L6 to strengthen service to Bellegarde and Pougny-Chancy, as well as to Mandement and ZIMEYSA;
- the eventual extension of line L6 towards Culoz, and/or possibly Nurieux.

Express bus service

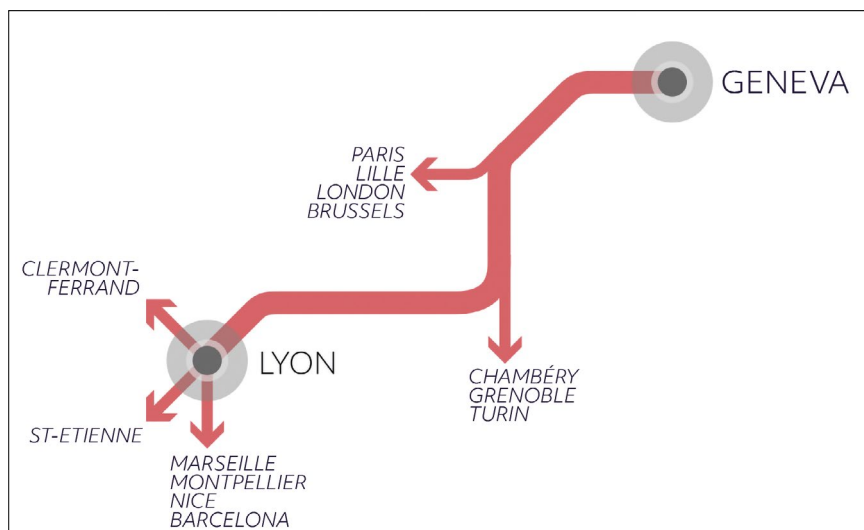
In addition, the Canton and the Auvergne-Rhône-Alpes Region are working on creating a new high-frequency express bus service directly connecting Annecy to the Geneva urban area and its airport via the motorway, so complementing the existing rail service serving Haute-Savoie. This solution is intended to be deployed on other routes where rail investment would be disproportionate.

5.2 DEVELOPMENT OF INTERNATIONAL CONNECTIONS

Thanks to its geographical and rail locations, Geneva is Switzerland's gateway to southern and western France, as well as to Spain. It is also one of French-speaking Switzerland's gateways to northern Europe (Paris, London, Brussels, etc.) thanks to its connection to the Paris-Lyon high-speed rail line via Bourg-en-Bresse.

The Lyon-Geneva rail line is at the heart of these connections and combines both local service functions, with the *TER-intercités* between France's second-largest urban area and Switzerland's second-largest urban area, and international service functions, with the TGV Lyria service to Paris and the Lyon rail hub connected to the high-speed network to southern France.

Main possible connections to major urban areas in southern and western Europe via the Geneva-Lyon route



This infrastructure, between Lyon and Geneva, is also a route used to serve Haute-Savoie and part of Savoie from Paris and Lyon. This accumulation of functions and a partially winding route (Albarine Valley between Ambérieu and Culoz) make the current international service inefficient.

Expanding the service from Geneva to Lyon and beyond requires the establishment of a gradual improvement strategy, which will necessitate infrastructure investments.

Strengthening the Lyon-Geneva service

Provided by a TER link with multiple stops and a frequency of every two hours, the existing service is insufficient. Moreover, the regional line is regularly under-capacity, with equipment that is ill-suited to long distances and is often obsolete. Finally, for many years, the line has proven to be the least punctual in the Auvergne-Rhône-Alpes Region. In 2023, more than one in five trains completed their journey with a delay of more than 5 minutes.

To develop an attractive passenger service on this route, the following are proposed as a first step:

- SBB will implement a fast, direct service (with Valserhône as its only intermediate stop), running every two hours (similar to the Zurich–Munich route), to complement the current TER service;
- the introduction of new dedicated rolling stock that meets current standards of comfort and service.

This deployment in France could take place as part of the evolution of European regulations on Intercités connections, which now allow for “freely organised rail services” (Open Access). This would not require any specific action at the level of the respective offices and ministries. Ultimately, in line with the planned developments between Geneva and Lausanne in the 2035 project, an extension of this link to Lausanne could be considered.

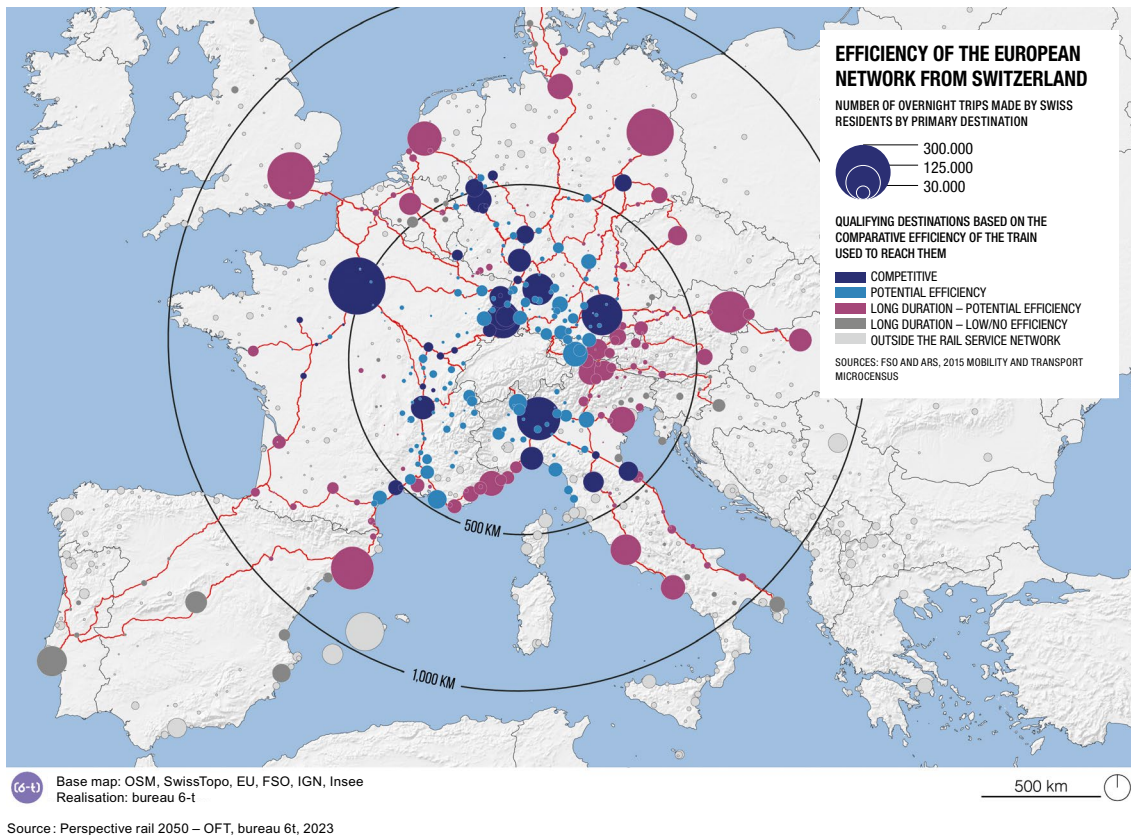
Secondly, an upgrade of the rail infrastructure on the route must be supported by the French authorities. The goal is to ultimately enable a reduction in journey times, an increase in frequencies and a possible direct connection to the high-speed network in the Lyon urban area, also providing a direct connection to Lyon St-Exupéry Airport.

Unlike what is proposed with Germany, Central Europe, and Italy, there are no direct international services between Switzerland, France (except Paris year-round and Marseille during the summer) and Spain.

With such a direct connection to the existing European high-speed rail network (Paris–Lyon–Marseille–Spain corridor), there will be numerous prospects for the deployment of new services from Geneva that could compete with air links, particularly to:

- Southwest Europe, Barcelona, Madrid, Marseille, Nice and Montpellier;
- the Benelux, even London (via Lille);
- Western France (Brittany, Bordeaux, Toulouse, etc.) through nighttime services.

Potential for transfer in international passenger transport



Such an initiative, however, can only be implemented within the framework of collaboration between the two countries through the existing Franco-Swiss Steering Committee (COPIL). This structure, which brings together the two states to address cross-border rail issues, has notably prepared a letter of intent between the Federal Council and the French government. This letter specifically identifies the work to be carried out on the Geneva–Lyon corridor but is still awaiting signature⁹.

To ensure funding for these initiatives on the Swiss side, it will be necessary to obtain the inclusion in the next STEP message of a study credit (up to project studies) for the modernisation of the line in France. The next stage will be to include in the next STEP message (by 2030) a grant for the work required for the project in France.

However, it will be necessary to avoid repeating past mistakes in similar projects (Haut-Bugey line¹⁰, Delle-Belfort liner¹¹) and to require that the Confederation’s financial contribution be subject to contractual commitments and guarantees regarding the level of supply.

9 Since this report was written, the letter of intent between the two states was signed on 11 February 2025.

10 In 2010, Switzerland co-financed the modernisation of the Paris-Geneva line in exchange for a journey time of less than 3 hours, a target never met.

11 In December 2025, due to disagreements between the French and Swiss authorities, the direct regional service Belfort-TGV – Bienne via Delle will be cut at the border, requiring a change of train for passengers making a cross-border journey.

5.3 CONSTRUCTION OF A NEW UNDERGROUND LINK FROM THE FOOT OF THE JURA TO THE FOOT OF THE SALÈVE

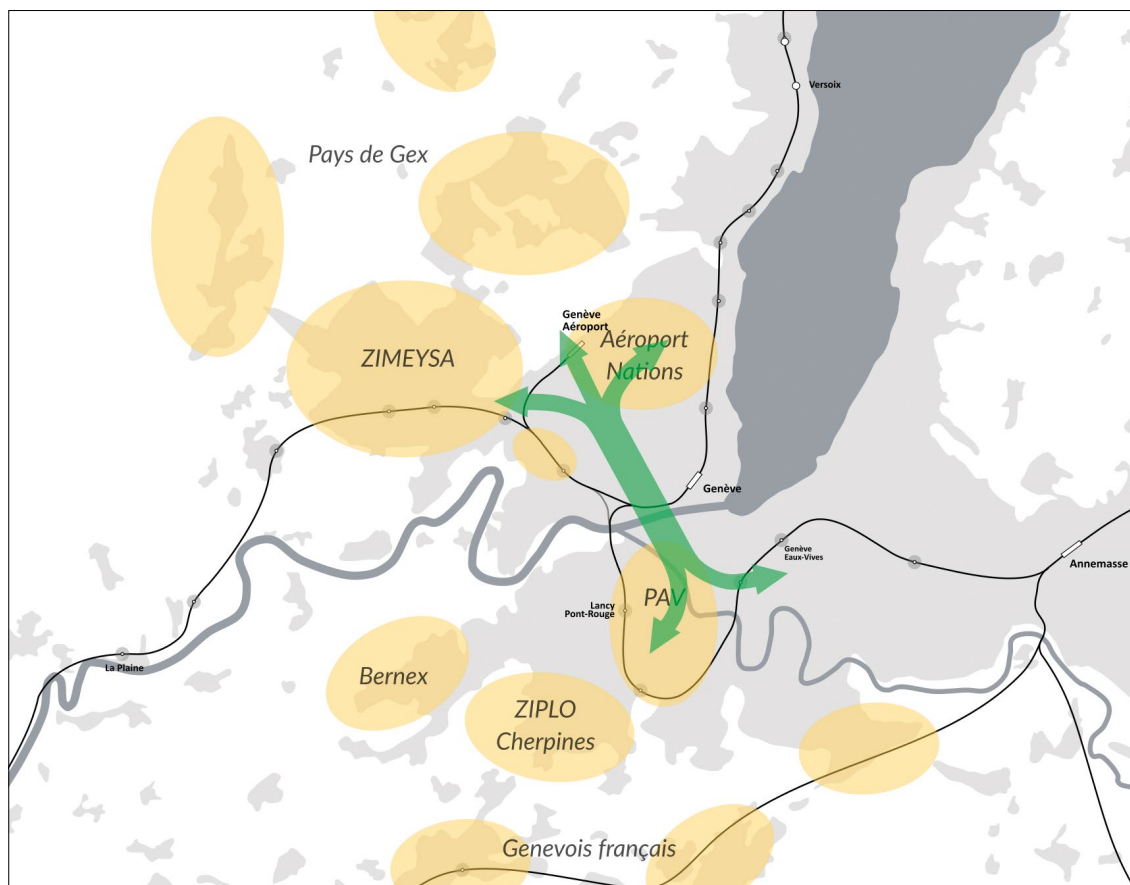
The canton's main project involves the construction of a new underground link from the foot of the Jura to the foot of the Salève.

Since this project was not included by the Confederation as an operational study measure in the final expansion step (ES 2035), the Grand Council approved a budget in 2023 to carry out preliminary studies and the first preliminary design phases, in coordination with the FOT at the national level ("Perspective Rail 2050"), as outlined for the canton in the document "*Stratégie ferroviaire Genève 2050+*" [Geneva 2050+ Rail Strategy].

The programme is based on a North-South axis aimed at addressing the following challenges:

- increasing service in the centre of the urban area, as projections for the urban network indicate that it will be saturated by 2045 (including the planned development of tangential tram lines, i.e. lines encircling the City of Geneva without passing through the city centre) between Lancy, Vernier and the airport;
- establishing a high-capacity, high-frequency transport system to serve the canton's dense residential and employment areas currently not served by the Léman Express;
- creating an additional cross-border service toward the Pays de Gex and the canton's southern coast.

Catchment areas to be served (Act 13176 – Credit for Financing Studies of a Cross-Railway, 27 January 2023)

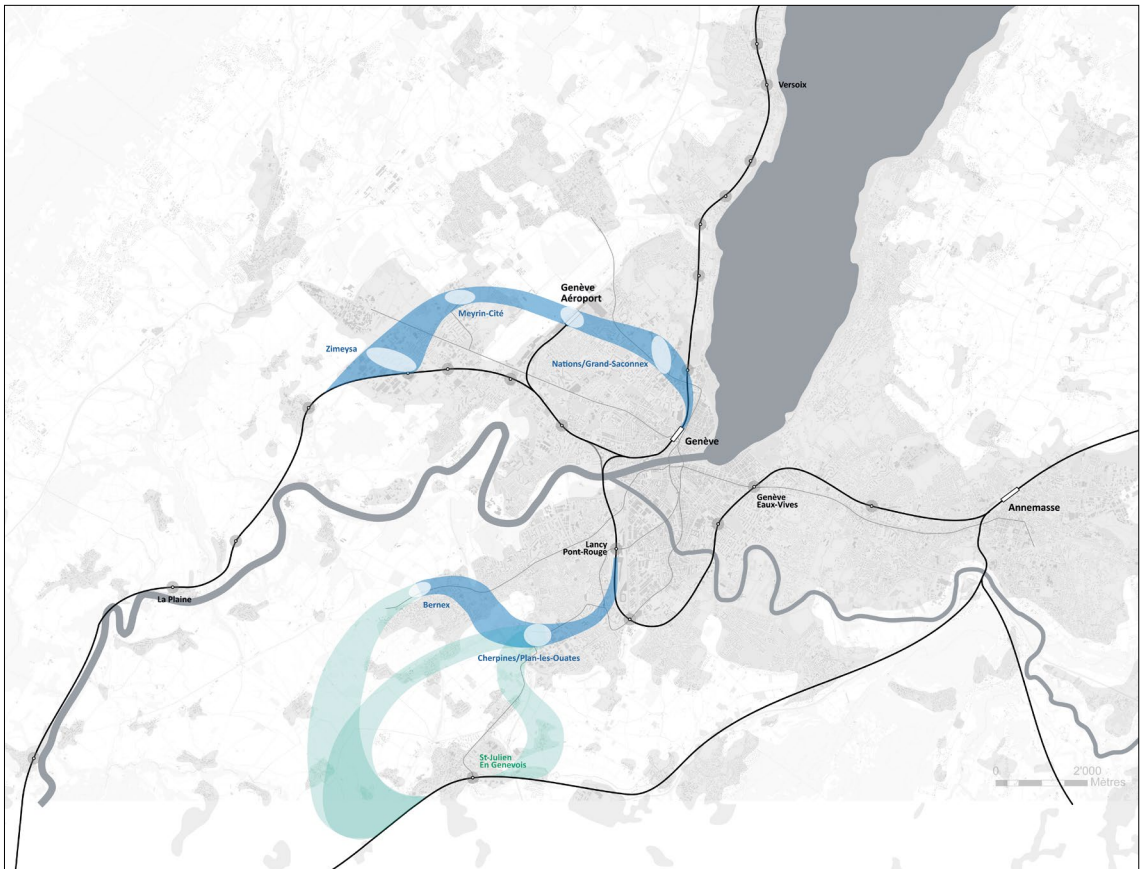


5.3.1 MAIN CHALLENGES

Timescales

Work has begun on the assumption of an extension of the railway infrastructure, connecting with the existing network in the extended Cornavin station and in the Lancy-Pont-Rouge/Bachet sector.

Exploratory route sketches (excerpt from Act 13176 – Credit for Financing Studies of a Cross-Railway, 27 January 2023)



The situation in 2024 described above requires a reorientation. Indeed, on the one hand, implementing a conventional rail project under the current STEP processes would mean waiting for the completion of ongoing projects at the Geneva rail hub, and in particular the full commissioning of Cornavin station (which includes upgrading the existing surface station to accommodate trains using the future new underground link from the foot of the Jura to the foot of the Salève). In concrete terms, this would mean commissioning after 2050 and therefore no new major infrastructure to support Geneva's mobility for the next twenty-five years.

On the other hand, the Canton currently has no guarantees regarding the capacity to accommodate this new underground link from the foot of the Jura to the foot of the Salève as part of the work to upgrade the surface station in Cornavin. In order to overcome the constraints linked to the connection with the SBB main line network and to compensate for the lack of guarantees on the capacity of this network in the heart of Geneva, the aim is to move towards the creation of a transport system disconnected from the SBB network, from the point of view of commercial operation.

While maintaining the same objectives, particularly in terms of service and capacity, the absence of physical connections between the rail infrastructure and the mainline network allows for a decoupling of the construction and commissioning schedules and guards against any new capacity challenges on the SBB network.

This approach makes it possible to aim for completion within the next fifteen years, a timeframe observed in particular in Lausanne for this type of autonomous heavy underground infrastructure (M2 metro).

Commissioning by 2040 is in line with the Canton's mobility challenges.

5.3.2 CHOICE OF TRANSPORT SYSTEM AND OPERATION

Freeing ourselves from joint commercial operation on the SBB mainline network will also make it possible to consider more flexible transport systems, while maintaining the capacity and quality objectives of the service.

At this stage of the study, no specific operating system option has been retained, but given the potential number of passengers (between 55,000 and 80,000 per day) on the busiest section, it appears that a tram system (even underground) cannot be considered.

The choice will therefore be based on a comprehensive analysis of the various possible rail systems (light rail, metro, conventional RER).

It appears that a light rail system such as the Stadler Class 115, in service in Catalonia, operating as a metro in the centre of Barcelona and as a commuter train in the outskirts, could be suitable. These light rail systems offer several advantages: capacity (including reserve capacity) in line with expected travel volumes; improved station layout options (size, spacing between stations, geometric constraints for the route, etc.); and improved operation thanks to the autonomous nature of the new infrastructure.

Example of a light rail system: Class C 115 rolling stock produced by Stadler Rail

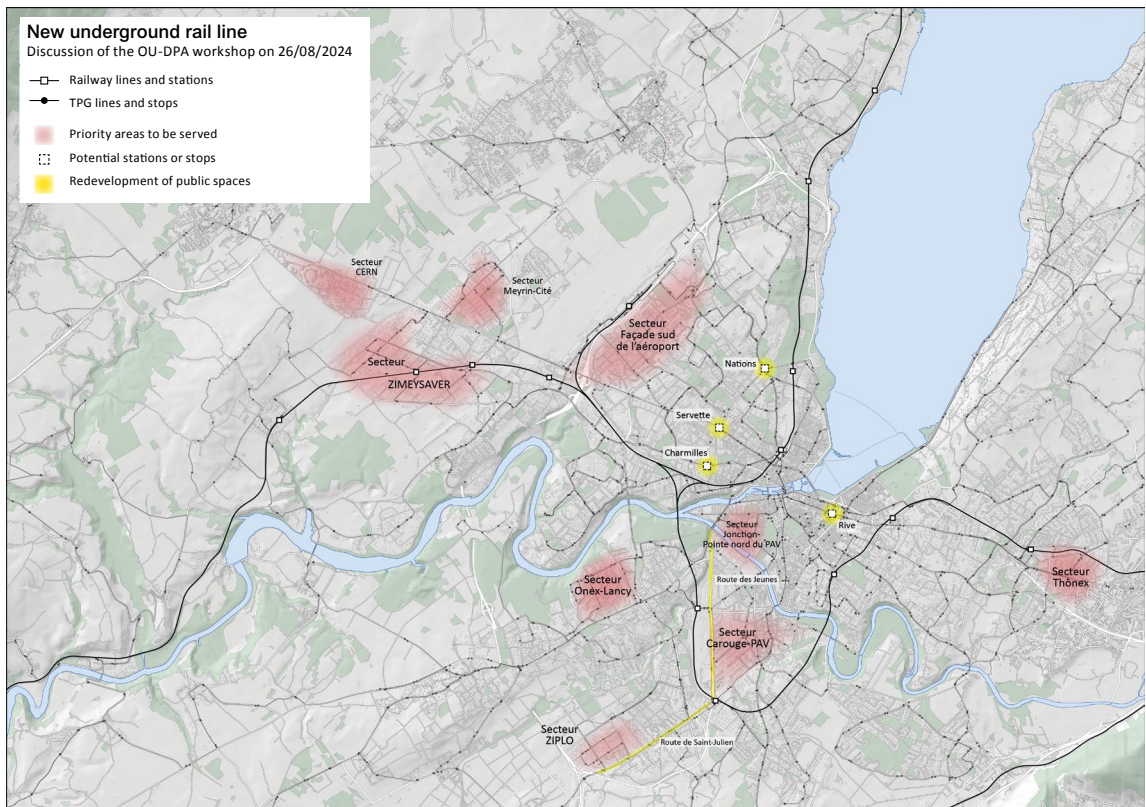


5.3.3 ROUTE POSSIBILITIES, MAIN OPPORTUNITIES, AND POTENTIAL

As described above, the fact of not being physically connected at Genève-Cornavin station and being able to choose a suitable transport system is not a constraint, but an opportunity to meet the needs of Geneva residents and design a project in line with the canton's urban development policy.

This opportunity is made possible by the flexibility of the transport system (route, spacing and size of stations) and by the simplification associated with the absence of a connection to the SBB network at Cornavin station.

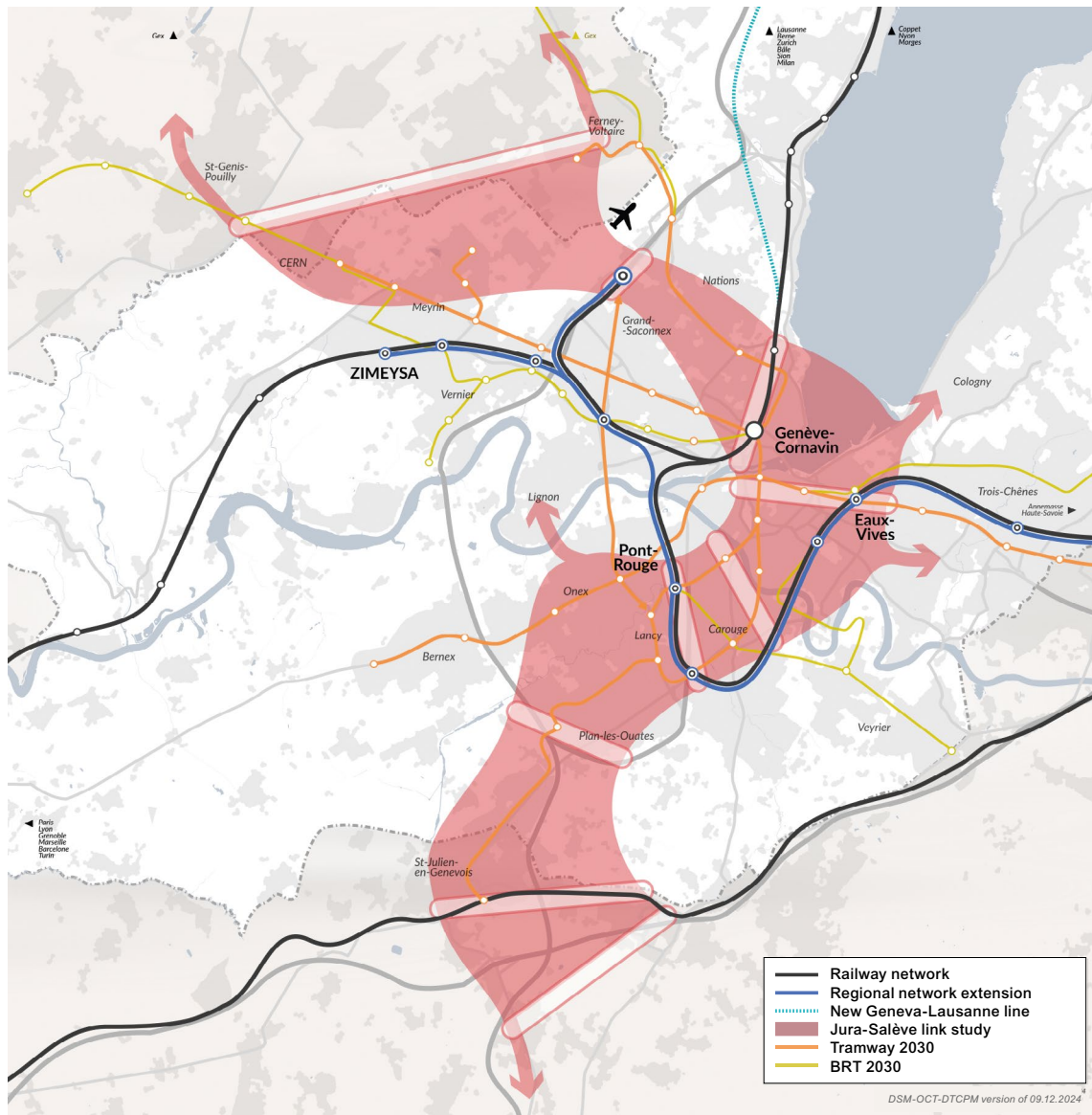
Inventory of urban development projects



While no route has been defined at this stage, initial variants demonstrate the project's considerable urban potential.

While maintaining several essential interconnections to the SBB rail network (Cornavin, Sécheron, Eaux-Vives, Bachet, or even Pont-Rouge?), possibilities are clearly identified for serving the city centre, the municipality of Carouge (particularly at the PAV), and the dense hubs and neighbourhoods on the right bank of the Canton of Geneva (Nations, CERN, Servette, Petit-Saconnex, etc.).

Study for a North-South route



Regardless of the chosen variant, the project, thanks to the choice of a more flexible operating system, will enable denser service to the areas crossed in the centre of the urban area (inter-station distances between 800 and 1,200 metres), while still providing efficient service (frequency of up to 3 minutes).

Modelling of these variants demonstrates that this project can serve up to approximately half a million residents and thousands of businesses. An initial assessment of passenger flow results in a total figure of between 120,000 and 160,000 cumulative daily trips, depending on the modelled variants.

The principle of decorrelation from the SBB mainline network also provides room for scalability through the successive implementation of additional branches. This type of underground transport system allows for network operation with several branch lines at the ends, based on a maximum frequency for the central section.

Such extensions would be technically feasible, for example, towards Onex, Vernier–Lignon or Chêne-Bougeries and the left bank.

5.3.4 ON BOTH SIDES OF THE BORDER

One of the main objectives is to make this project cross-border. To achieve this, the mobilisation of the French authorities will be essential. In accordance with the *Vision Territoriale Transfrontalière* [Cross-Border Territorial Vision - VTT], the implementation of a new major public transport infrastructure across Greater Geneva represents an opportunity.

The choices made by the French partners will be inseparable from the programme led by the Canton, both in terms of the route and the selection of the transport system. As such, they must be consistent with the options retained on Geneva soil.

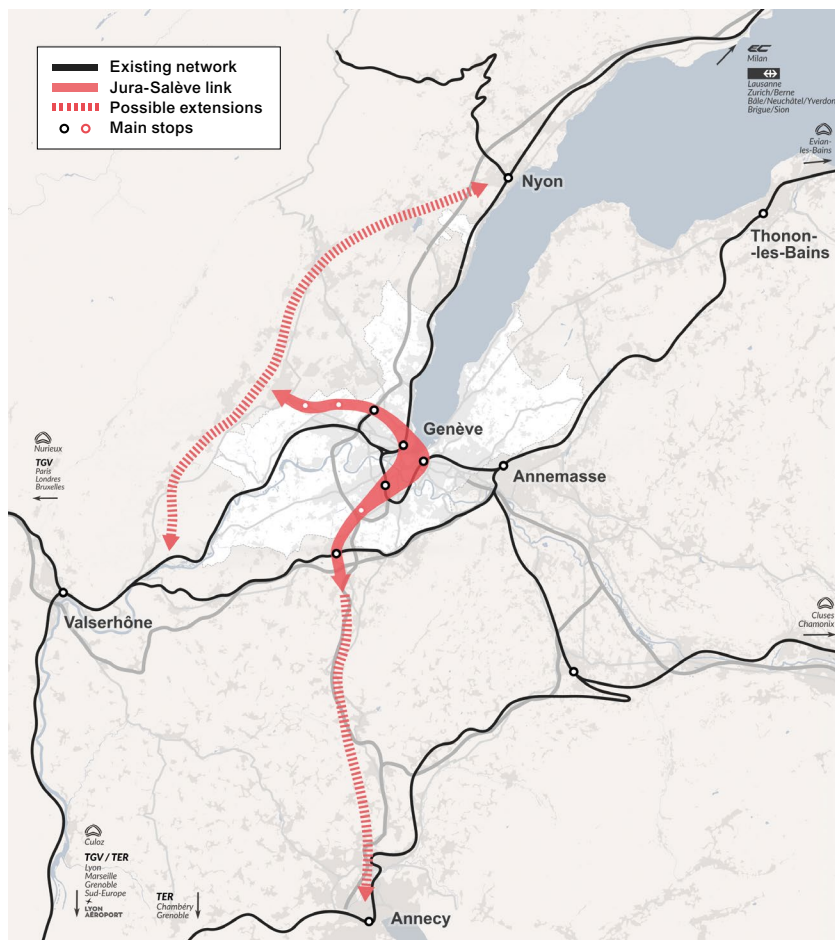
Regarding the route, the main issues towards the Pays de Gex are:

- the choice of route within France (serving Saint Genis or Ferney-Voltaire);
- interaction with internal projects such as the possible reopening of the Jura Foot Line;
- potential mobility needs between France and the Nyon district.

Towards the southern part of the canton:

- serving Saint-Julien-en-Genevois with an interconnection to the SNCF rail network at its station;
- serving the business parks and road and motorway junctions of Archamps;
- serving residential areas along the border;
- potential long-term extension to Annecy.

Development potential to create a new urban network



Source: 6t

The completion of the French section will depend on the issue of financing and its acceptance by local residents. The choice of operating system will therefore be a sensitive parameter. As for the choice of transport system, it will involve a more or less significant underground line given the strong urban development of the Pays de Gex region, and the costs will be defined accordingly. The partnership will therefore have to consider either complete infrastructure continuity with a unified operating system, or a scenario based on new French infrastructure transporting users to the North-South rail line with separate transport systems (tram-train, tramway, BRT, express bus, etc.).

An operating system to be specified for the North-South rail line will finally allow greater flexibility for local French stakeholders, as this does not necessarily fall under the exclusive jurisdiction of the railway sector (State, Region, SNCF).

5.3.5 FINANCIAL ELEMENTS/PHASING

Financial evaluation

Concerning the Geneva section (assuming a fully underground route), the linear cost of this project would be approximately CHF150 to 180 million per kilometre, this amount not including the acquisition of rolling stock (to be borne by the future operator).

The entire project linking “the foot of the Jura to the foot of the Salève” (Saint Genis-Neydens, including 18 km on Geneva soil) would therefore cost approximately CHF 4 billion.

Additional extensions on French territory, whose linear cost would be CHF 80 to 100 million per kilometre (considering a partial construction on the ground or viaduct), would in any case cost several hundred million Swiss francs. This amount could reach approximately CHF 2 billion for a project extending to Divonne via Gex and over 19 km long (not including a section on Vaud territory).

5.3.6 FINANCIAL STRUCTURE/PHASING

As stated above, the completion of such a project by 2040 cannot be achieved by relying on its full inclusion within the framework of a future STEP rail message.

Despite the priority given to the development of urban traffic advocated by the FOT as part of its Rail 2050 vision, a 50/50 split between the Canton and the Confederation must be considered as one of the financing scenarios for this project. The amount to be borne by the Canton would then be around CHF 2 billion.

Regardless of the scale of such a project, the financial stakes of several billion Swiss francs require the implementation of a phased schedule, giving priority to the central part of the infrastructure in the Geneva area as well as that of the Pays de Gex (corridors with maximum potential and currently less – or not at all – served by the Léman Express). Since the terminuses are planned to be located at the borders, its implementation must guarantee autonomous operation, if necessary, within the Canton.

5.4 NATIONAL CONNECTIONS

Progressive rollout of the 2035 mainline service project

The completion of the 2035 expansion step should enable the development of an enhanced mainline service from Geneva, including:

- a quarter-hourly Inter City (ICN) service between Geneva and Lausanne (+2 trains);
- a half-hourly Inter City (ICN) service between Geneva and the Jura Foot Line (+1 train);
- a quarter-hourly Regio Express (RE) service between Geneva and Lausanne (+2 trains);
- a direct hourly service between Geneva and Basel.

However, the full rollout of this service is not expected before 2043 – the announced date for the tunnel between Morges and Perroy.

The expansion of Geneva and Lausanne stations, scheduled for the medium term, should nevertheless allow for a first phase of long-distance service, provided that additional developments are carried out at the same time.

For Geneva, the main challenge concerns, on the one hand, the modernisation of Nyon station, necessary for the deployment of a new half-hourly RE service between Nyon and the Airport, complementing the existing RE service (half-hourly from Annemasse) and therefore providing a quarter-hourly RE service on the Geneva–Nyon section.

Furthermore, additional developments have been identified at Genève-Aéroport station to ensure the agreed level of service.

In the longer term, the surface station's compliance must accommodate the increase in passenger traffic by 2050. The narrowness of platform 2 (tracks 2 and 3) will no longer ensure a safe flow of passengers. This project, identified as part of the underground extension project, is now being addressed specifically (preliminary studies are underway by SBB).

New Geneva–Lausanne line

The weakness of the rail network in the Lake Geneva region was highlighted by the Tolothenaz incident at the end of 2021: a “simple pothole” paralysed rail travel between two of Switzerland's largest cities for several days and isolated Geneva from the rest of Switzerland.

The Geneva–Lausanne line, built in the 1850s, has undergone numerous upgrades, including, most recently, the third Geneva–Coppet track, a special track at Founex allowing freight trains to be diverted onto a section reserved for this purpose to ensure priority passage for passenger trains, the modernisation of the Renens junction, the flyover (see glossary) and the fourth track between Renens and Lausanne.

With increasing housing density, ever-increasing expectations regarding nuisance management, and the increasingly significant impact of construction on existing traffic, the exercise of gradually adding additional adjacent sections of track is reaching its limits.

It was on this basis that the Confederation accepted in 2023 the inclusion in federal planning of a new underground section between Morges and Perroy, in place of the addition of a third track, which would have caused significant disruption and expropriations in the municipalities of Saint-Prex and Etoy. Identified as part of the prospective study included in the 2019 STEP (ES 35) and defined in 2022 by the SBB, this new infrastructure, however, only addresses already planned service developments.

Network saturation and the lack of an alternative route in the event of interruption of the historic line remain a significant constraint on the continued development of both mainline and regional services in the Lake Geneva region.

As for the Canton of Geneva, the long-term challenge is to:

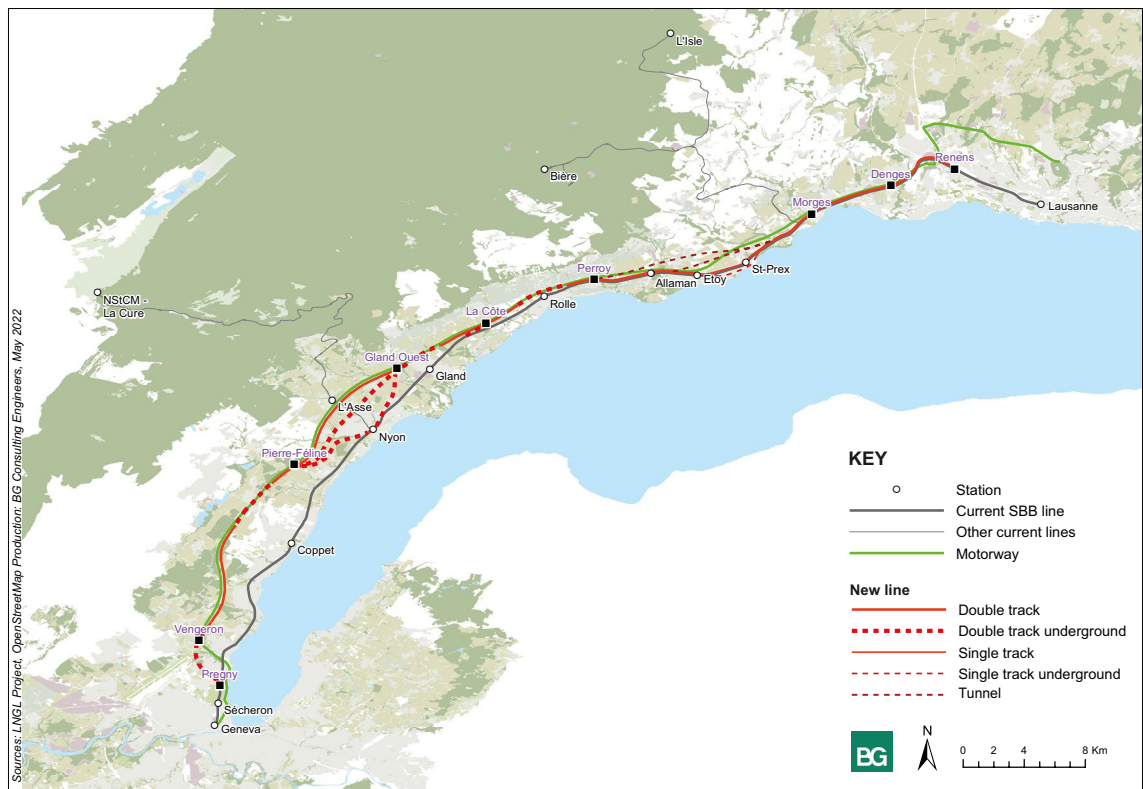
- provide an efficient, frequent, reliable and attractive service for Geneva, along with the main urban areas and tourist areas of Switzerland, and even beyond;
- offer an alternative line on the Geneva-Lausanne axis to secure transport services and facilitate construction;
- enable the continued development of regional services and services in the Lake Geneva region to support controlled urbanisation around existing rail hubs. This includes strengthening the Léman Express and RER Vaud services (frequencies, extension or reopening of stations) and increasing the density of the RegioExpress service.

To achieve these objectives, the new line must be completed within a reasonable timeframe:

- first, the project studies for the Geneva–Perroy section must be included in the 2026 STEP message;
- second, its completion must be included in the 2030 STEP message, with work to be completed during the 2040s and 2050s.

Beyond the financing issues discussed in this report, this commissioning timeframe is technically realistic due to the route of the new line, which is largely independent of the existing network.

New Geneva–Lausanne line: route and section variants for phased construction



Source: Geneva – Lausanne, SBB 2023 prospective study

6. CONCLUSION

Geneva and its urban area are at a crossroads. As the southwestern gateway to Switzerland, a cross-border urban area, and the leading hub of the Lake Geneva urban area, Geneva faces a host of political and administrative complexities to ensure controlled development for its residents.

After years of intense economic and demographic growth, Geneva must now both curb the adverse effects of its rapid growth and anticipate future travel needs through efficient and sustainable infrastructure capable of enhancing the quality of life of the entire region, a major factor of its attractiveness.

The new territorial realities at the heart of which Swiss cities are developing must now be taken more specifically into account in the strategy that guides federal planning and funding. Essential to the country's prosperity, major cities account for a large share of Switzerland's wealth and population. Greater national solidarity towards them must emerge.

Likewise, the increase in violent climatic events, which are hitting Alpine regions particularly hard, calls for a strong and unequivocal cohesion pact.

If financial resources were no longer sufficient to meet all current demands, it would then be necessary to discuss and arbitrate priorities at the national level.

These challenges call on all territorial and political partners to consider and implement solutions capable of supporting general prosperity and ensuring the quality of life of all affected residents.

Geneva must make a greater commitment, both politically and financially, to accelerate the implementation of these strategic projects. However, the Canton does not intend to act alone and calls for new and strong partnerships, based on joint responsibility, to develop the necessary rail infrastructure for regional, national and international travel.

GLOSSARY AND ABBREVIATIONS

CFAL	<i>Contournement Ferroviaire de l'Agglomération Lyonnaise</i> [Railway bypass of the Lyon urban area], a line whose main purpose is to divert transit rail freight traffic away from the Lyon hub.
ES	Rail Expansion Steps of the Strategic Development Programme, currently divided into two periods, namely 2025 and 2035. They consist of a rail service project and all the rail infrastructure improvements required for its implementation.
Flyover	A flyover is a railway device consisting of a bridge or a short tunnel allowing one railway line to cross another by passing over or under it.
IC	InterCity, a passenger train category connecting two major cities and stopping only at major stations along the route.
IMT	Individual Motorised Transport
IR	InterRegio, a long-distance train category located between RegioExpress and Intercity trains and defined by the phrase "Rapidly from one region to another".
LEX	High-speed line, a railway line built specifically to accommodate high-speed trains.
LRUTF Act	Federal Act on the Fund for National Roads and Urban Traffic.
Message 2026	Draft message from the Federal Council to the Federal Assembly, planned for 2026, regarding the consolidation of the 2035 Rail Expansion Step.
Message 2030	Draft message from the Federal Council to the Federal Assembly, planned for 2030, regarding the establishment of a new Rail Expansion Step, following ES 35.
PT	Public Transport
RE	RegioExpress, a train category intended for accelerated regional service, i.e. Does not stop at all stations.
RIF Act	Federal Act on the Railway Infrastructure Fund.
2035 Service Project	Service concept setting out the service objectives to be achieved for the 2035 expansion step. It forms the basis for developing the network usage strategy (NUS).
STEP	Strategic Development Programme for railway infrastructure, the practical implementation of which takes the form of expansion steps (ES).
TER	<i>Transport express régional</i> [Regional Express Transport] is a trademark of SNCF Voyageurs that applies to the trains and coaches it operates.

LEGAL NOTICE

Project management:

Département de la santé et des mobilités [Department of Health and Mobility] (DSM)

GENERAL STUDIES – MODELLING

STATE	DSM, Office cantonal des transports [Cantonal Transport Office] DT, Urban Area Project	AGENTS	SMA, Lausanne RGR, Geneva
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SYSTEMS STUDIES

STATE	DSM, Office cantonal des transports [Cantonal Transport Office]	AGENTS	SMA, Lausanne CAP-MT, Morges
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CIVIL ENGINEERING STUDIES – PUBLIC TRANSPORT NETWORK

STATE	DSM, Office cantonal des transports [Cantonal Transport Office]	AGENTS	6-t, Geneva Geste, Lausanne
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URBAN ANALYSIS – URBAN AREA

STATE	DT, Urban Area Project DT, Office de l'urbanisme [Urban Planning Office] DSM, Office cantonal des transports [Cantonal Transport Office]	AGENTS	6-t, Geneva
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FINANCING ANALYSIS

STATE	DF, Direction Générale des Finances de l'État [Directorate General of State Finance] DT, Urban Area Project DSM, Office cantonal des transports [Cantonal Transport Office] DSM, Office cantonal du génie civil [Cantonal Civil Engineering Office]	AGENTS	6-t, Geneva Meyrat Consulting, Neuchâtel Protentiel, Monthey
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LEGAL AND POLICY FRAMEWORK

STATE	DSM, Office cantonal des transports [Cantonal Transport Office] DSM, General Secretariat	AGENTS	Meyrat Consulting, Neuchâtel Protentiel, Monthey
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