VITAL NODES

Workshop urban node Genova

Summary report on outcomes and conclusions

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Palazzo San Giorgio - Genova

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1 Introduction Vital Nodes project

The Vital Nodes project is funded by Horizon 2020 Program, started in november 2017, and has a duration of 24 months. The consortium is led by the Dutch Ministry of Infrastructure, Transport and Water Management, Rijkswaterstaat and involves the participation of ten partners including transport administrations, city networks, corridor organizations and industry consultants. The other project partners are Trafikverket (Swedish Transport Administration); Department Omgeving Vlaanderen (Belgian National Agency for Spatial Planning), EGTC - Rhine Alpine Corridor, Polis (European Cooperation Network on Innovative Solutions Applied to Transport); EUROCITIES (network of major European cities represented by local governments); UIV (Urban Innovation Vienna - Vienna City Executive Agency) and three consulting firms: ECORYS, Uniresearch and Rupprecht Consult.

The goal of Vital Nodes project is to improve European interconnection while developing sustainable urban mobility. Vital Nodes will provide recommendations for an effective and sustainable integration of the nodes in the corridors of the TEN-T network, in particular by addressing the multi and intermodal connection between long-distance freight logistics and the last mile. It will also support the development of innovation in urban nodes also through the creation of a lasting European network of experts.

Genova is a major transport hub for passengers and freight for Central and Southern Europe and therefore one of the 88 “Urban Nodes” of the European TEN-T transport network of the European Union that will be examined and compared in detail within Vital Nodes project; in particular in workshops as the one in Genova, taking place on Tuesday 12 June 2018, it will be analyzed together with other 7 urban nodes, as a pilot case.

As Genova is located on the Ligurian Sea and bordered by the Apennine Mountains, at the south-end of the Rhine Alpine TEN-T corridor, this position brings huge challenges as well as potential for socio-economic development.

This Italian city needs to ensure that European and national policies and infrastructure decisions contribute as much as possible to other important urban policy goals, such as responsible use of resources, air quality, noise, climate change mitigation, reduction of accidents etc.

For this reason it is very important to exchange ideas and experiences for better integrating Urban Nodes in the TEN-T core networks corridors.

1.1 Vital Nodes workshop Genova

The Vital Nodes workshop in Genova has taken place in Palazzo San Giorgio in Genova on tuesday 12 june 2018; it was prepared by the Vital Nodes consortium in collaboration with local partners Autorità di Sistema Portuale del Mare Ligure Occidentale (Ports of Genova) and Istituto Internazionale delle Comunicazioni.

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Taking into account the goals of the workshop, has been identified the more appropriate Entities to be invited, with a particular attention in bilancing their institutional roles (national and local Administrations, academics, operators) and supporting them with the experience of international experts.

1.2 Outcomes

During the workshop in the urban node Genova good discussions took place and exchange of knowledge and good practices were shared - as were discovered to be in place in Genova and brought in by the presence of Omgeving Vlaanderen and Ecorys.

Key challenges were addressed during discussions in smaller groups and plenary:

- The pressure on available space – challenge of space;
- The necessity and possibilities of modal shift from road to rail.

Take-aways/lessons learned were among others:

- The completion of European corridors is more than finalizing the lines drawn on the map, but includes considering measures and investments throughout the entire corridor. On corridor level as well as functional urban area and local level;
- In order to create an effective/efficient logistic system a strategy on different scale levels is required, setting clear aims for the city/urban node, the region(s) and the (inter)national corridor(s).

1.3 Follow-up

Validation

Following the outcomes of the workshop the challenges and the (impact of) solutions need to be validated by the stakeholders related to the specific urban node.

First recommendations to the European Commission

Based on the outcomes of this Vital Nodes workshop in Genova and the 8 other workshop in other urban nodes as part of the first phase of the project, First recommendations to the European Commission will be drafted this autumn.

Second phase of the Vital Nodes project

In autumn of 2018 the second phase of the Vital Nodes project will start, deepening the challenges in urban nodes and aiming for further deployment of possible solutions. This phase will be formed by thematic oriented sessions with a growing amount of nodes involved.

Expert pool

Currently an expert pool is in development by the Vital Nodes consortium. Goal of the expert pool is to bring together knowledge from different fields of expertise, related to the development of urban nodes and the combination between long distance freight and last mile delivery and stimulate knowledge exchange between different urban nodes throughout Europe

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Knowledge exchange and updates

Via the Vital nodes website (vitalnodes.eu) and the Vital Nodes newsletter, outcomes and updates on the Vital Nodes project are shared regularly.

Policy dialogue

Besides a policy dialogue is being planned for autumn in which a discussion between the urban nodes and the European Commission is facilitated according to the themes of the Vital Nodes project.

2 Opening Interventions – overview of Genova Context

The workshop started with the welcome by Mr. Fabio Capocaccia, President of IIC – Istituto Internazionale delle Comunicazioni, who introduced the role of the city of Genova in the EU Rhine Alpine Corridor, the importance of Terzo Valico with a special focus on the Silk Road, much in vogue in this period. Capocaccia pointed out the new transport approach of Italian and Genoese people, using like an example last Euroflora event, held last June, during which people moved to the venue using public transport (trains and buses) instead of private cars.

Mr. Kevin van der Linder, Rijkswaterstaat, presented Vital Nodes project: key elements, goals of the project and goals of the workshop, explaining the Approach based on Multi scale level and the division of the participants into two groups to discuss on Genova's challenges.
Ms. Prisca Haemers, moderator, presented the Programme of the workshop.

2.1 Fingerprint of the urban node Genova

Mr. Ricardo Poppeliers, Ecorys, presented the Genova Fingerprint and its main issues and trends. An analysis based on facts, policy documents and figures and developments on the three scale levels. A complete overview of this analysis can be found in the fingerprint (attachment 1).

2.1.1 Characteristics of the urban node Genova

- Genova forms the most Southern point of the Rhine-Alpine core network corridor, connecting Southern Europe via Switzerland, France, Germany, Belgium and the Netherlands to the North Sea;
- Covering four modalities of transport: road and rail core network, Genova airport and the port of Genova (+Savona (and Vado)) as core port;
- Key sectors in Genova are port and logistics, hi-tech and advanced industry-tourism. There are limited groupage/added value activities in the node;
- The city of Genova is located on a very small stretch of land between the Apennine Mountains and the Lingurian Sea;
- Specific freight focus is on freight traffic from Liguria towards the neighbouring regions Piemonte and Lombardia.

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2.1.2 Trends

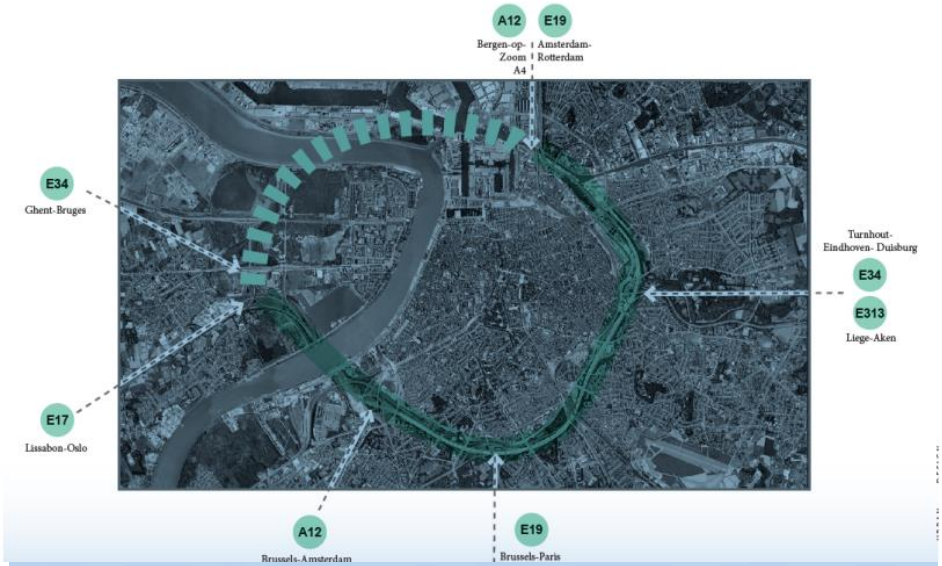
Some trends of the urban node:

- Declining population;
- Connection to Africa with growing passenger and freight flows;
- Increasing thoughts about effects of new silk route investments;
- Important roads are the A7 to the North the A12 to the East and the A10 to the West;
- Transition from a traditional to a more service-oriented economy;
- Major infrastructure projects planned: Gronda – new motorway bypass, Node di Genova – upgrade of the Genova railway junction, Terzo Valico – New railway to the North.

2.2 Experiences from Antwerp

Mrs. Hanne van Gils, Omgeving Vlaanderen, presented “The Antwerp experience“, an integrated infrastructure design as a catalyst for sustainable urban development. The case of Antwerp tells a story about rethinking infrastructure, seeing mobility challenges as a way to tackle other urban issues and using design as a tool to incorporate dreams and expectations and bring different actors around one table.

The growing port city of Antwerp, located on the Rhine Alpine core network corridor, is comparable in size with Genova. With approximately 520000 inhabitants and covering 205 km^2. The area of Antwerp is highly congested, while 75% of the traffic is through traffic.



20 Years ago research solutions for increasingly serious mobility issues has started to be discovered with a referendum by the city in October 2009, having liveability as an important topic and possibilities to tunnel the ring road as one of the outcomes. Local stakeholders did not agree upon the plans. Which made the Flemish government use an external expert (intendant) to bring the big amount of parties together for a constructive dialogue.

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The decision was made to organise a high-pressurecook design competition with ‘local’ support as one of the man criteria. A specific pilot project in each segment and design strategies and principles that work on the overall ring structure for a short term scenario and long term scenario with complete covering of the ring road. In total the competition was divided in 6 segments on which 6 teams worked during 9 months. Each design team combined with experts and locals.

Ambitions were formed by the wish to:

- Realise a competitive integrated city region, putting Antwerp on the map;
- cover the ring road in order to create a healthy future city;
- connect communities, turning backsides into front sides;
- work as a spine for new metropolitan, large scale functions;
- create a multi-generational project, long term engagements are needed;
- have a new model for collaboration – work community round liveability and mobility;
- create conditions for a modal shift 50/50;
- realise spatial recognition of the traffic flows for freight and person traffic.

For the Genova challenges, inspiration could be distillated from:

- Participation tools with stakeholders;
- Balance between the environment, safety and flows;
- Using design as a tool (tool for exploring possible future scenario’s, integrating different expectations and opening up a discussion).

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2.3 Working group of Genova's challenges

Participants have been divided into two groups to discuss on Genova's 'key' challenges.

Both groups have used maps on corridor, regional and local level. Including maps to point out different main topics and to have a general view of the location of the infrastructures in the city.

Group 1

Group 2

Then a shared session took place to discuss, with more details, Genova's Challenges - solutions, drivers & barriers and possible impacts.

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3 Challenges

3.1 Lack of space and urbanisation

Due to Genova's location on the small stretch of land between the Apennine Mountains on the Northern side and the Lingurian Sea on the Southern side at the end of the Rhine Alpine core network corridor makes the availability of space in the urban node rather limited. Besides these geographical characteristics, the hilly areas make it difficult to construct (additional) infrastructure causing a non robust and highly congested network in the city with many tunnels.

On the small amount of space available in the city of Genova a lot of different functions are located on short distance causing a complex coexistence between the city and the port especially concerning the transport flows interfering. The high percentage of private car ownership besides does claim a lot of space for parking facilities and using lots of road space. Even though the population of Genova is declining the coexistence between the city and the port does cause issues regarding the lack and challenge of space. Having noise and air pollution and related environmental issues influencing the liveability of the city.

The airport (Aeroporto di Genova) and port located directly next to each other as well as the elevated road(s) SS1 in the city centre do form serious barriers within the boundaries of the cities.

Directions of solutions discussed during the workshop are except for the projects described in chapter 4 the possibilities of double ground use. The freeing of space for future developments is and could be greatly helped by the cooperation between the port of Genova and the Port of Savona (approximately 30 kilometres to the West). The aimed increase of goods shipped via the port area(s) could only be accommodated by spreading the transport flows among different roads and modalities. This challenge has a strong relation with the (required) cooperation between the port of Genova and the port of Savona, which could be seen as an example of a good practise, described in more detail in chapter 4.6.

3.2 Need for modal shift from road to rail

The infrastructure (roads A7, A10, A12 and A26) and railway tracks (both within the city and on a higher geographical level to the more Northern regions and (inter)national) are currently bundled infrastructure for passengers and freight with local (city), metropolitan (regional) and TEN- T corridor origins and destinations. By the transition from a industrial economy to a more service-oriented economy and the ambition of the port of Genova to handle an increasing amount of goods a modal shift from road to rail is required in order to be able to have the supply chain function well and the goods and parcels transported within a decent amount of time, not being part of enormous (growing) congestion.

Possible directions for solutions could be found in future investments related to the silk road and/or TEN-T related investments with possible effect on metropolitan and local level. Besides this challenge has a strong connection to the policy-measure Ferrobonus and the collaboration between the North-West regions Piemont, Lombardy and Liguria as measures taken to stimulate a modal shift from road to rail. A more detailed description can be found in chapter 4.7 and 4.8.

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4 Possible solutions and challenges / barriers discussed

As a general base for the discussion of most of the following topic, a general map of the west area of the city, provided by Comune di Genova, Port and Sea Department, has been used. See “Waterfront del Ponente”, December 2017, annex 4. While discussing the mentioned projects and key challenges have been addressed.

4.1 “Gronda”: new motorway by-pass in Genova

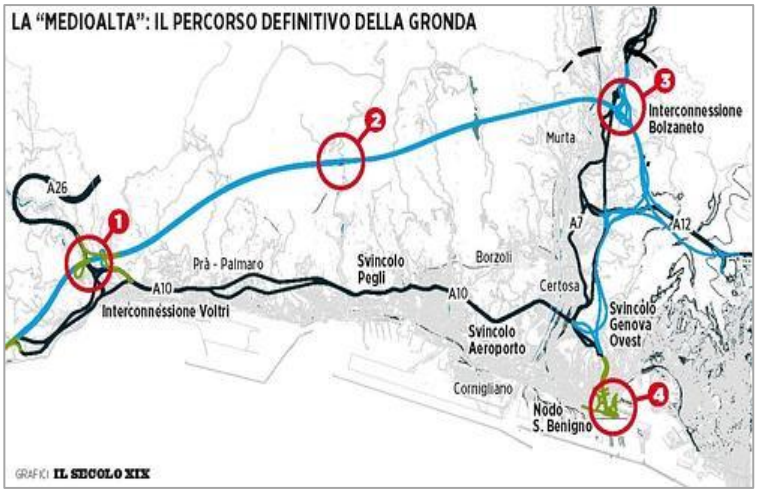
The motorway network around the city of Genova currently consists of four motorways:

- A7 Genova - Serravalle - Milan
- A10 Genova – Ventimiglia – french border
- A12 Genova - Livorno - Rome
- A26 Genova - Gravellona (towards Domodossola and Turin through A4)

The first sections of these motorways and the related interconnections are located within the urban territory, presenting many critical aspects:

- reduced width of the lanes;
- tortuous layout;
- partial absence of emergency lanes;
- mix between local traffic and transit traffic;
- high presence of freight vehicles entering / leaving the port of Genova.

The result: high levels of congestion throughout the day, especially during peak hours.



The "Gronda" project was created to overcome or at least to reduce these critical issues: it is based on the doubling of A10 in Genova’s urban section (from Sampierdarena to Voltri), a 2-lane highway in each direction; the intervention covers over 34 kilometres of network and 52 kilometres of tunnels.

The new “Gronda” will be interconnected with A10 towards west, with A7 and A26

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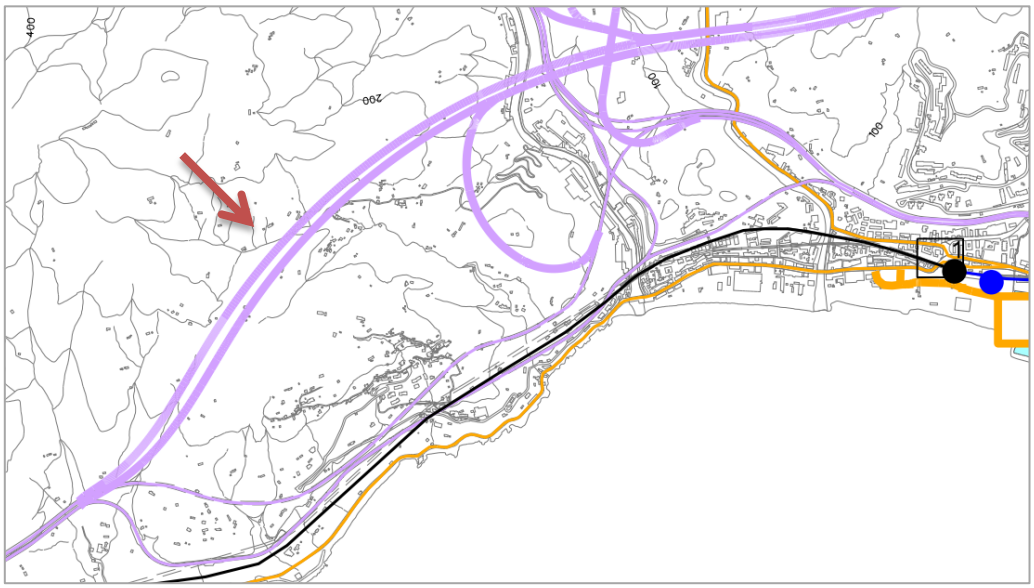
towards the north and with A12 towards the east. Additionally, important infrastructural interventions are planned in San Benigno junction (4), a very crucial point of the network inside the city connecting the final part of the motorway with the port and with the city itself.

The realisation of the new infrastructure presents relevant aspects concerning mainly the safety (most of the new section is in tunnel), environmental (territory frequently subject to floods) and social (presence of buildings very close to the motorway). All these aspects determined a very long period to define the best solution, which involved also the interested citizens in a long public debate.

That “Gronda” project is part of a broader strategic framework, developed in the context of regional planning, provincial and municipal level (with overall costs are around 5 billion euros, financed by Autostrada per l’Italia motorway concessionaire). Works are expected to start in 2019, after the completion of the design, and are planned to be concluded around 2030.



Source: Comune di Genova (Cartografia di livello 1 Il Livello 1, Livello territoriale di Area Vasta), *(scale 1:300.000/1:25.000)* Voltri Area detail

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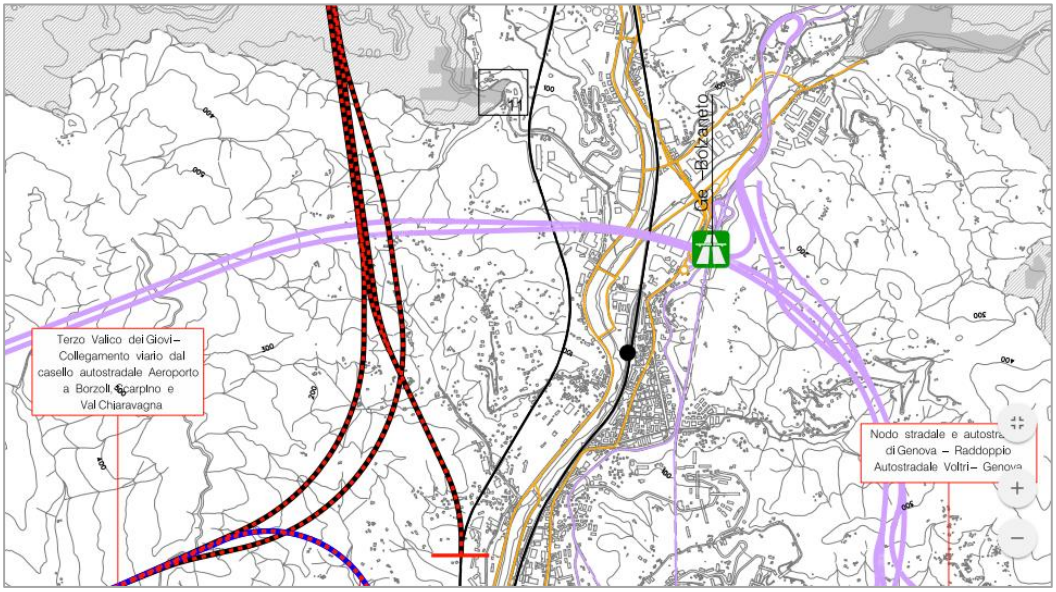

Source: Comune di Genova (Cartografia di livello 1 Il Livello 1, Livello territoriale di Area Vasta), *(scale 1:300.000/1:25.000)* Valpolcevera detail

While discussing this project, the following aspects have been mentioned;

- Liguria Region has a very particular orographic conformation: it overlooks its length completely on the sea but is dominated by mountains that almost crush it. This implies that it suffers from a notable lack of space both as a back-port area and as a port area, consequently this aspect must be taking into account in urban development planning;

- Maintanance state of the motoway network
  Genova is the only major Italian city that has not yet modernized its motorway network which still maintains the original configuration of the '70s and that now is inadequate to perform both the functions connected to urban and extra-urban traffic;

- Huge traffic congestion – congested roads
  The Gronda project is fundamental to reduce heavy vehicles traffic in the city; when the Gronda will be built, part of the actual motorway will be transformed into a ring road;

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4.2 "GATE project": Cablaway from Genova'a airport to new Erzelli railway station

GATE is a project aiming to realize the intermodal connection from the international airport "Cristoforo Colombo", located in the west side of the city of Genova, to train and public transport networks.

The design, developed by a consortium of local stakeholders (Regione Liguria, Comune di Genova and Aeroporto di Genova), was funded by the EU Commission within CEF program and has been completed; presently some initiatives are carried out to identify further funding possibilities, to start the works.

GATE project consists of two distinct subprojects: the new Erzelli / Airport railway stop, located on the Genova Ventimiglia line between Sestri Ponente and Cornigliano stations, and the plant of a cableway link between the new stop and the airport passenger terminal. The solution chosen by the technicians for the cable-link system is that of a gondola with a capacity of 600 - 700 people per hour. A stop of the cabins at the station is foreseen, to allow easy access to the transport system.

A further development of GATE project relates to the prosecution of the cableway to Erzelli area, a hill overlooking the city where an important high-technology park, GREAT CAMPUS, is rapidly growing. Many companies have already moved their headquarters to Erzelli (Siemens, Ericsson, Liguria Digitale, a department of IIT) and other companies are expected to join in the near future. Very recently the moving of Genova Polytechnic School from the city-centre to Erzelli has been stated, for which new buildings for laboratories and classrooms will be built. To complete Erzelli area development, a new hospital is planned to be built there.

Erzelli is located on a hill, physically very close the railway and the airport but difficult to be reached due to size and slope of access roads: the realisation of the cableway seems the best solution to ensure an efficient mass transport system for employees, students and citizens, and at the same time provides a very rapid connection between the Erzelli park and the airport.

In the following figure the first part of the red dashed line indicates the section from the airport to the train/bus station, while the second part indicates the section to Erzelli Park.

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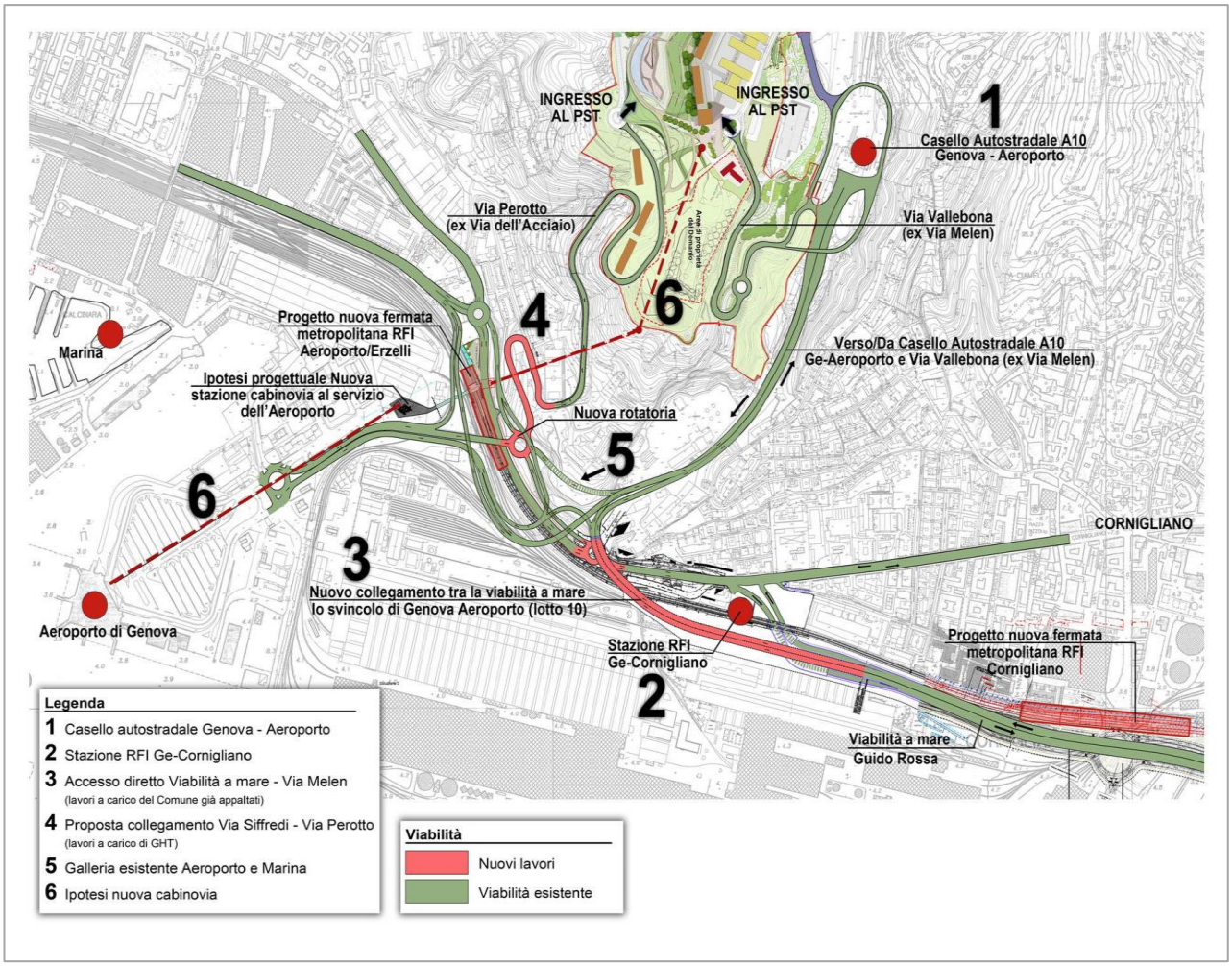

Source: GREAT CAMPUS

While discussing this project, the following aspects have been mentioned;

- GREAT CAMPUS project establishes a 400000 sqm, the largest science park in Italy, 220000 sqm of green park designed for events and exhibitions and 60000 sqm of university campus. In GREAT CAMPUS project laboratories and modern work spaces, comfortable residences, commercial services for families, cultural event spaces and sport and free-time facilities are all conceived in a shared and harmonious design for a project that works seven days a week and is integrated with the surrounding area. The GREAT CAMPUS is a strategic challenge for Genova's future development, and a strong action to push the initiative is necessary both from the Authorities and from private investors;
- The aspect of an easy and sustainable access to the hill is considered as a prerequisite for integrated development of the city of Genova with public and private parties. Economically focused, connectivity and related to available land/circumstances taking current lack of parking in consideration while planning for an easy and sustainable alternative. While at the moment the percentage of private car ownership is huge.

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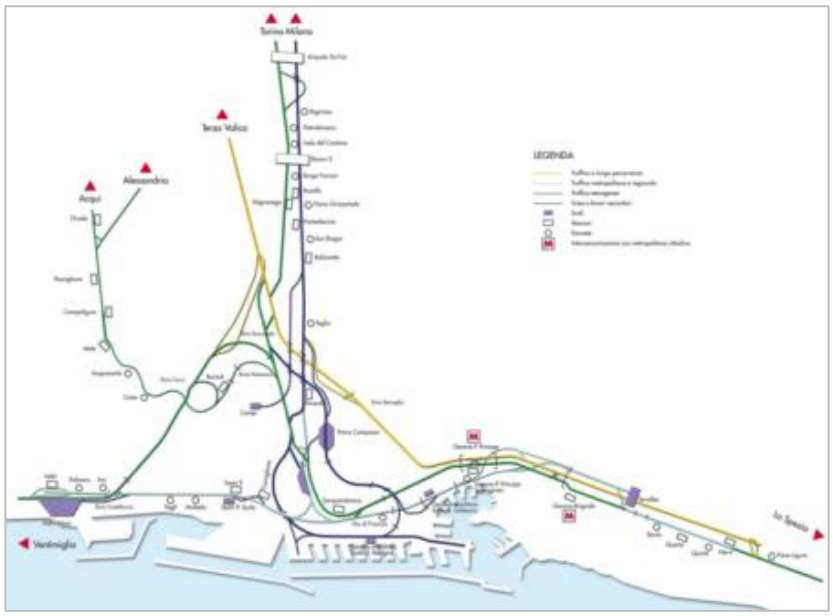
4.3 "Nodo di Genova": upgrade of Genova railway junction

The railway junction of Genova – normally called Nodo di Genova – is considered one of the most important and critical junctions in the whole national network of Italy: it connects five main rail lines (East coast, west coast and three lines towards Pianura Padana), the city of Genova and the port of Genova. The two more critical elements are presently the mix of different kinds of train (freight, passenger long distance and local) on the same lines, and the relevant limitations of capacity due to the presence of Appennino mountains immediately close to Genova.



The upgrade of the junction, developed in high synergy with Terzo Valico (see 5.4), aims to divide the traffic: towards North Terzo Valico (yellow line) mainly dedicated to freight trains and long distance passenger trains, and the two existing lines (green and violet) to passenger regional trains, towards west the existing line (grey) dedicated to local traffic and the new line (green) to long distance trains.

A synthetic scheme is represented in the figure, the interventions include:

- infrastructural upgrading between Genova Voltri and Genova Brignole through the quadrupling of the tracks between Genova Voltri and Genova Sampierdarena
- interconnection to Terzo Valico dei Giovi
- six tracks between Genova Piazza Principe and Genova Brignole
- reorganization of the station facilities of Genova Brignole, Genova Voltri and Genova Sampierdarena
- creation of new safety and control systems (Multistation ACC)

In particular the section from Sampierdarena to Voltri, presently the unique connection towards west for all kinds of trains, after the realisation of the connection (see green line on the map) should become a metropolitan line, dedicated only to local trains with a frequency of 10 minutes in the peak hours. Along this section the new station of Genova Aeroporto will be realised, for a direct train connection from the airport to the city center (see also 5.2). The overall cost of Genova junction upgrading is more than 600 euro-milions; works are expected to be completed in 2021.

While discussing this project, the following aspects have been mentioned;

- bundled traffic, using the same railway trackes;
- capacity constrains

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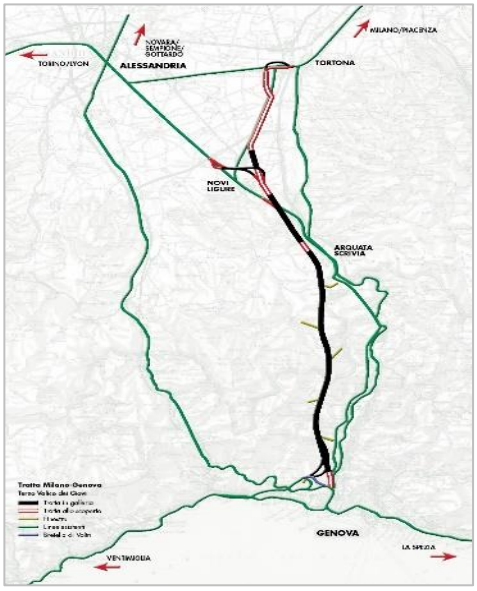
4.4 "Terzo Valico": New railway connection to North along the Rhine-Alpine corridor

The Genova-Milan / Novara railway links are a fundamental part of the Rhine-Alpine corridor (Ten-T network), the most important European North-South connection axis on which the greatest volume of goods transported in Europe moves, crossing countries to greater industrial vocation (the Netherlands, Belgium, Germany, Switzerland and Italy) and connecting the Mediterranean with the North Sea and the ports of the High Tyrrhenian with those of Northern Europe.

In Switzerland, two major interventions along the corridor are in progress: the new Gotthard tunnel, already in operation, and Ceneri tunnel, which will be completed in 2020; when all the interventions on both the Italian and the Swiss side will be completed, the freight traffic capacity is expected to be raised from 290 to 390 trains / day. Of which 170 at the Chiasso border, 90 at Luino and 130 at Domodossola, with significant improvements in terms of regularity and punctuality.



Terzo Valico is the natural prosecution of the corridor from the Pianura Padana area to Genova and specifically to its port: the new high-speed fast line develops for a total of 53 km, 36 km of which in tunnel, and covers 14 municipalities in the provinces of Genova and Alessandria and the regions of Liguria and Piedmont.

The new line will be connected to the South - through the interconnection of Voltri and Bivio Fegino - with the railway facilities of the Genova node, in which important upgrading works are underway, as well as with Voltri port basins and Sampierdarena. To the north, from the plain of Novi Ligure, the route connects to the existing Genova-Turin lines (for traffic flows in the direction of Turin and Novara - Simplon) and to the Tortona - Piacenza line (for traffic in the direction of Milan - Saint Gotthard)

The new infrastructure will significantly increase the transport offer, improving the railway connections between the Ligurian port system and the Center and North Europe and, thanks also to the contextual upgrading of Genova junction, to develop a network to be dedicated to the metropolitan traffic flows within Genova metropolitan area. The overall cost of Terzo Valico (whih is of strategic importance for Genvoa) is more than 6 euro-billions; works are expected to be completed in 2022.

Some relevant figures of the new line:

53 km total length
36 km tunnel
25 km interconnections
12,5‰ maximum gradient of the line
12,5‰ maximum gradient of interconnections
200-250 Km/h maximum speed in the line
100-160 Km7h maximum speed in the interconnections
3 KV c.c. electrical supply (designed for 25 KV c.a.)
CPM05 Gabarit

While discussing this project, the following aspects have been mentioned;

- Bundled traffic on rail of freight and passengers

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4.5 Genova's PUMS – Urban Plan for Sustainable Mobility

Genova's Municipality decided to develop the plan named "GAIA - Genova Accessibility, Interoperability, Environment", according to EU Directive 2014/94/UE and related Italian Law Decree 257/2016 concerning the realisation of PUMS.

In 2017 it assigned to CIELI (Italian Center of Excellence on Logistics, Transport and Infrastructures) the task to develop the SUMP for the city; presently the first phase (consisting in the Strategic Framework) has been completed, it's under evaluation by the Local Administration to define next design steps; the whole plan is expected to be concluded and ready for the adoption from the Municipality beginning 2019.

The plan, aimed at satisfying the demand for mobility of people and businesses in Genova's metropolitan areas to improve the quality of life, addresses some strategic goals, totally coherent with EU Commission indications;

- attractiveness of collective transport
- attractiveness of bicycle and pedestrian transport
- economical sustainability of public transport service
- congestion reduction
- promotion of means with a low polluting impact
- reduction of irregular parking
- improvement of urban logistics
- attention on accessibility and mobility for elderly or persons with reduced mobility
- improvement of safety of vehicular traffic and for pedestrians / cyclists

Some relevant actions to be designed within PUMS:

- interchange nodes for mass transport traffic adduction
- reserved lanes, preferential traffic lights, accessibility means
- reinforcement of public collective transport on main lines and high density residential / commercial / industrial areas
- development of "based on demand" public transport in low-density areas (hills and surroundings) and night service
- bicycle lanes, bike sharing (electric), parking spaces
- technologies for management and payment of shared mobility integrated with TPL
- low impact vehicles for sharing, public fleets, goods distribution
- charging station for e-vehicles
- interventions to improve safety, separation of flows, signalling
- road safety education, information and awareness campaigns.

The documentation available till today, can be downloaded at the following link:
http://www.cieli.unige.it/pums/

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4.6 Port of Genova and Savona

Genova, Voltri, Savona and Vado from: a key link in the Northern Italian industrial heartland's supply chain, the natural tributary for the Made in Italy exports generated in this area and for traffic deriving from trade between Southern Europe and the rest of the world. The leading manufacturing and consumer centres of Europe are located within a 600-km range of the port, for instance, Switzerland, Bavaria, Baden-Württemberg and Austria.
Over 30 specialised terminals handle annually over 69 million tonnes of all types of cargo and are equipped to accommodate the latest generation of mega ships due to its natural deepwater.

In addition, Genova and Savona have developed into leading passenger ports: homeports to the major cruise lines and ports of call for touristic visits to the cities of Genova and Savona or for excursions to Ligurian Riviera, and as embarkation points for ferry services to the islands of Corsica, Sardinia and Sicily, and to Spain and North Africa. Every year over 4 million passengers choose the Ports of Genova, Savona and Vado as the departure points for their journeys. The Port of Genova extends for 22 kilometres along the Italian coastline, covering a total area of about 700 ha.

Due to the increase of maritime traffic, port capacity is an issue:

- port handling areas are in need of more spaces. Port investments are foreseen mainly through land reclamations because of the lack of spaces, i.e. Vado, Bettolo, Ronco-Canepa projects;
- megaships (also in passengers sector, i.e. cruise ships) put pressure on port facilities on the sea side: seawall, turnaround basin, berth line, dry docks, etc.; several projects are planned, the most significant one is the new breakwater in Genova Port (currently at a planning stage).

The Port Authority of Genova aims to expand the intermodal functions of the port and making it a major connection point for freight handlers between Northern Italy and Southern Europe, matching intermodal transport with the state-of-art ICT systems and logistics process innovations. Port capacity expansion is under pressure due to the necessity of coexistance with urban areas and communities all around port areas. Also the presence of the airport within the port area affects some activities and development projects, due to air draft limitations and the compatibility of activities (for instance liquid bulk/chemical/LNG port facilities in the port areas surround the airport).

The shipyards, equipped to offer high quality services to all classes of ships, continue to thrive as one of the leading facilities in the Mediterranean. The port sector ranks as one of the Liguria Region's primary industries, in terms of added-value contribution and employment (over 36,000 people), with an important social-economic impact.

While discussing this project, the following aspects have been mentioned;

- The Port of Voltri, recently renamed as Prà, originates from a large land reclamation project, implemented by the Port Authority of Genova in the 1970s' in response to the strong growth in container throughput, and awarded in the early 1990s to Sinport, the terminal operating company of the Fiat Group. Consequently, the port was specifically designed to cater for large volumes of traffic and to accommodate ultra-large container vessels. With state-of-the-art facilities and direct on-terminal road and rail connections, container throughput has increased rapidly since the

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inauguration of Voltri Terminal Europa in 1994, which today handles approximately 1.6 million teus annually;

Aerial view of the Genova basin source: Port Authority

Aerial views of Savona and Vado Ligure basins, source: Port Authority

- At the end of the 1990s, the old docks adjacent to the city centre were redeveloped for tourism, cruise and pleasure sailing activities, while cargo handling operations (general cargo, ro-ro and bulk handling) were concentrated in the area of the port furthest from the city, where the natural deepwater can accommodate the ultra-large ships;
- Since the 1960s, the Port of Vado has developed to the west of the city of Vado Ligure and today port operations cover a surface area of approximately 350,000 m². Over the years, the port has focused on the fruit and ferry commodity sectors, while the natural harbour provided unloading facilities for petroleum products transported to industries along the coast and oil refineries in the hinterland. A new deep-sea container terminal in the Vado harbour for ultra-large container vessels will open at the end of 2018;
- The ports of Genova and Savona are working together and this is not due only to the recent fusion between the two Port Authorities, but there are many common intents. The ports capacity expansion has limitations due to its location within the proximity of urban areas. Like most of the other Mediterranean seaports, but unlike leading Northern European hubs, land morphology forced ports and cities into a difficult coexistence; throughout its history Genova has painfully conquered this thin strip of land, however, the lack of large areas, particularly suited to accommodate manufacturing plants, forced the Genoese to spread out toward the sea, nestled between land and water. Currently, although territorial conditions are still the same, cities and

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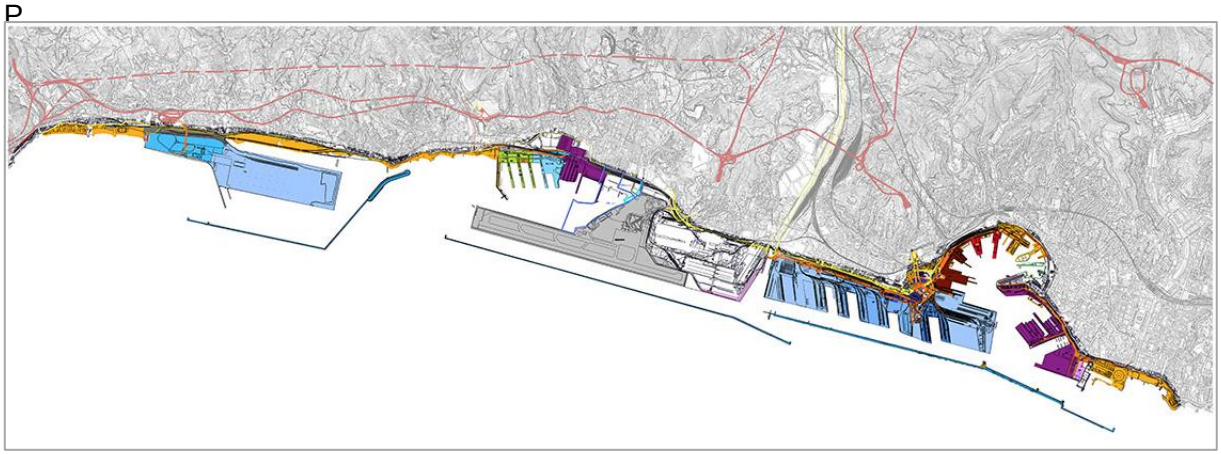
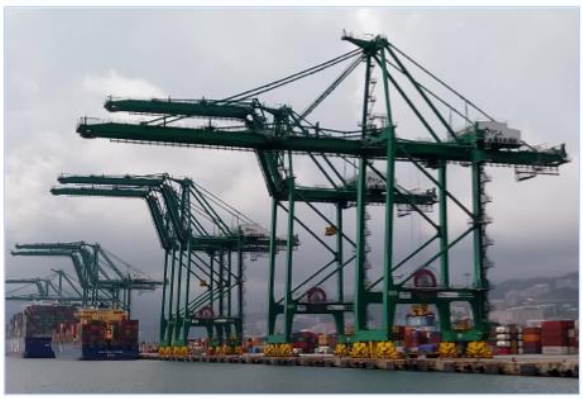
ports have completely changed their attitude targeting the more complicated and multifaceted port-city design and focusing on a mutual development plan. Municipality and Port Authority are required to draw up their respective Masterplans simultaneously and to agree the terms and conditions of certain issues, namely those which focused on city-port relations: Urban Plan and P



- There is a very strong link, not only physical, between port and Genoese people: many citizens live near the sea and the port and many citizens are involved in port activities or in services having an economic impact from port activities. Including also a conflict on economic, safety, health and noise and air pollution aspects.
- The agreement among the Ministry of Infrastructures and Transport, RFI (Italian Railway Network operator) and the Autorità di Sistema Portuale del Mare Ligure Occidentale (Ports of Genova), singed shortly after the Vital Nodes workshop, on June the 28th of 2018, strengthens the railway system of the port of Genova in the Sampierdarena basin and promote the development of train-sea intermodality.
- The investment, for a total of 35 million, foresees a first phase of interventions aimed at the adaptation of the railway link between Parco Rugna, Bettolo and S. Limbania junction that gives continuity to the ongoing interventions by RFI for the connection of the port with Campasso railway park. These works, related to the increase of the limit shape and old permanent way and signaling, will allow to transport the high cube containers (the biggest ones) through the Molo Nuovo tunnel. In the second phase a new station in the area of the current Fuorimuro railway park is planned.
- All the interventions related to the last mile will therefore be able to support the infrastructural upgrading plans that the Port Authority is developing in parallel to the investment projects of the private operators concerning Calata Bettolo, the Voltri-Prà container terminal, the completion of the connections of the new multipurpose terminal of Vado Ligure.



Sea view of PSA Voltri Pra, source: IIC

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4.7 Ferrobonus

Ferrobonus (modal shift incentive stimulation) is the incentive provided by the Government, by Stability Law for the 2016-2018 three-year period to support combined transport and trans-shipment on rail.

The aim of this instrument is to shift the traffic of goods from the road to the rail network through an incentive for the use of intermodal transport and trans-shipment transport to and from Italian logistics hubs and freight villages.

The beneficiaries of the incentive are users of intermodal and / or trans-shipment railway transport services and combined transport operators (MTOs) who commission complete trains to railway companies and undertake to maintain train traffic volumes in terms of train*kilometer and increase them during the incentive period.

Ferrobonus provides for the provision of a fairly modest contribution calculated on the basis of "train-kilometer": to make this measure more attractive, the three Northwest Regions (Piedmont, Lombardy e Liguria) are jointly evaluating the adoption of an additional contribution, a sort of regional Ferrobonus, to be calculated on the portion of the route that interests the three regions, which aims to enhance the use of railways for the exchange of goods between the Ligurian ports and the Piedmontese and Lombard backwardness.

4.8 Cooperation through Northwest Regions (Piedmont, Lombardy and Liguria)

Liguria, Piedmont and Lombardy Regions decided, three years ago, to create a Steering Committee, to formalize operational agreements among them; it represents a venue to claim the role of the national logistics system area vis-à-vis the Government, and an opportunity for the construction of a joint logistics plan between the three regions (strategies, priority strategic works, infrastructure list, etc.), to be presented to the market and to operators as an integrated and "unitary" system.

The Interregional Memorandum of Understanding (MoU), establishing the Cabina di Regia, was signed in 2015, some month later the Presidents of Piedmont, Liguria and Lombardy regions met in Genova to sign the "key actions for the implementation of the protocol for the development of transport infrastructure and logistics in the North West".

This macro-area of the North-West, enclosed by ports and alpine passes, composed of the three Regions of Piedmont, Liguria and Lombardy, concentrates more than one third of the national GDP; it is crossed by the two main TEN-T corridors, the Rhine-Alps corridor and the Mediterranean corridor, also affected by the Mediterranean-Scandinavian corridor, and is characterized by a network of relations between ports and logistic platforms to meet the challenges of a modern logistic system, which can be perceived as a good practise of regional collaboration.

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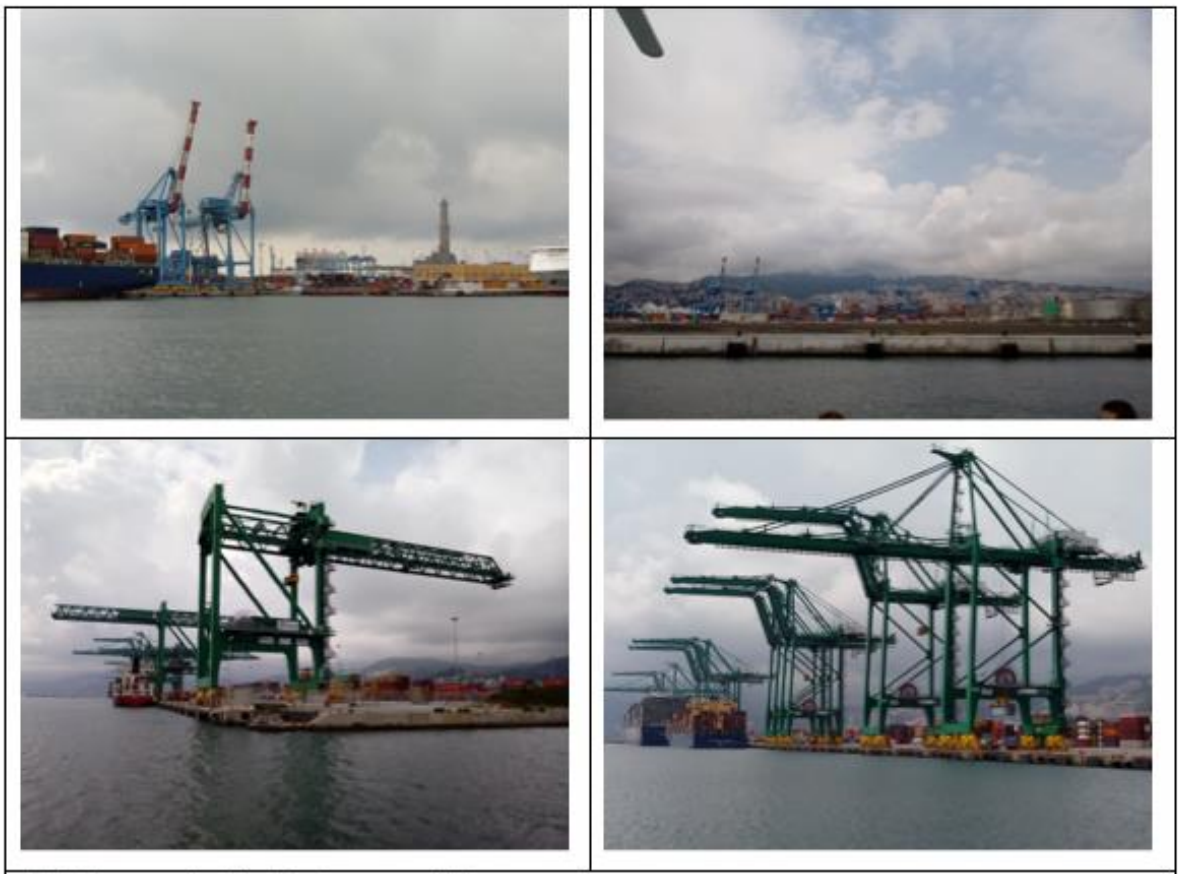
4.9 Visit Genova Port by boat



Visit Genova Port by boat, source IIC

As planned in the workshop agenda, a Genova port boat trip took place in the afternoon. It was very impressive to see “on site” the specific orography of the port and the city as well as listening the noise originated by some port operations. Thus, the boat tour, helped to better understand many discussions of the morning session, concerning the specific challenges and the possible solutions to overcome them. Amongst others eye-catching was the ‘z’ shaped cranes, as a result of the location of the port close to the airport, allowing the necessary descent of the planes. Clearly indicating the enormous density of functionalities on the small stretch of land on which Genova is located.

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5 Lessons learned

- The completion of the EU network includes measures on all levels
  Completion of the European corridors is more than finalizing the line drawn on a map, but includes considering measures and investments throughout the entire corridor. On corridor level as well as regional and local level. The planed enlargement of the TEN-T network with a stretch of the Mediterranean corridor along the French East Coast from Marseille to Nice and Genova could generate more possibilities for the Genova and Savona Port area(s) as is foreseen for the 2021-2027 CEF period, but could not solve the local bottlenecks if measures on regional and local level do not keep up;

- Relevance of a local and regional mobility strategy
  The relevance of a local and regional mobility strategy to be able to position the urban node in the right way on the (inter) national level and vice versa. A local SUMP in the urban node Genova is under construction (see also chapter 5.5);

- Interrelation strategies of different levels
  In order to create an efficient logistic system, a strategy on all scale levels is needed. Requiring clear aims for the city/urban node, the region(s) and the (inter)national corridors. Collaboration amongst and between these levels is therefore a need. Also in order to accommodate freight deliveries at the right place. This includes bundling and unbundling on the right places to free space for other goods. Relating to the possibilities to transfer the goods directly to inland hubs and avoid long administrative processes (main destinations for the goods from the Genova Port are the 3 regions Piemonte, Lombardia and Liguria);

- Need for investments in terms of finance and awareness raising
  In order to facilitate a modal shift from road to rail and a more equal distribution of transport amongst different modalities. Which is a need as a result of highly congested roads used for passenger traffic and freight transport, but also full train tracks used by passengers as well as freight. There is need for investments, financially related to the construction of infrastructure, but also in terms of awareness raising in order to have people shift their transport behaviour;

- Creating awareness and appreciation of logistics
  In many occasions, the logistic processes are only seen as a necessity and disturbance of daily processes. While people are expecting the availability of goods and deliver of parcels to be in time. Awareness raising involvement of the population/inhabitants of Genova and surroundings would be a valuable asset in order to improve the interrelation of transport flows;

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- Defining a clear image and specify added value for the region
  Using the area's/regions image (which still needs to be clearly defined) helps to address current challenges within the urban node and develop towards the future. The transition to a service-oriented economy could be a start for this positioning within the bigger network. The Great Campus (with 400000 sqm. of Science Park (the largest in Italy), 220000 sqm. of Green park for events and exhibitions and 60000 sqm. of university campus which is currently in development could be a start (laboratories/work spaces/comfortable residents/community services/etc.).

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Attachments

1. Fingerprint urban node Genova (info graphic)
2. Good practices with validation of scores
3. Map corridor level
4. Map regional / urban node level
5. Map city level
6. Map Port of Genova
7. List of participants Genova workshop
8. Programme of the workshop

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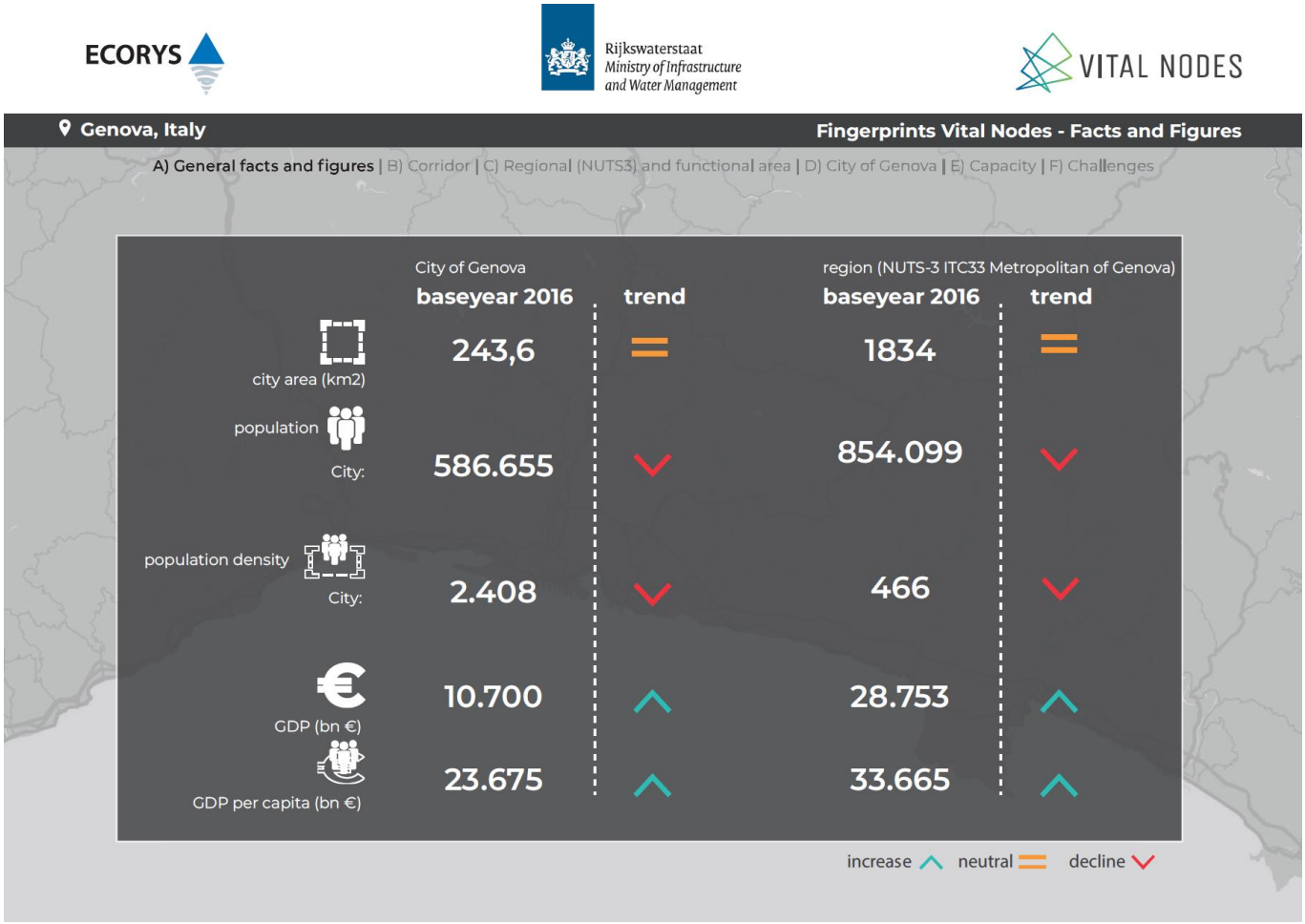
1. Fingerprint urban node Genova (info graphic)



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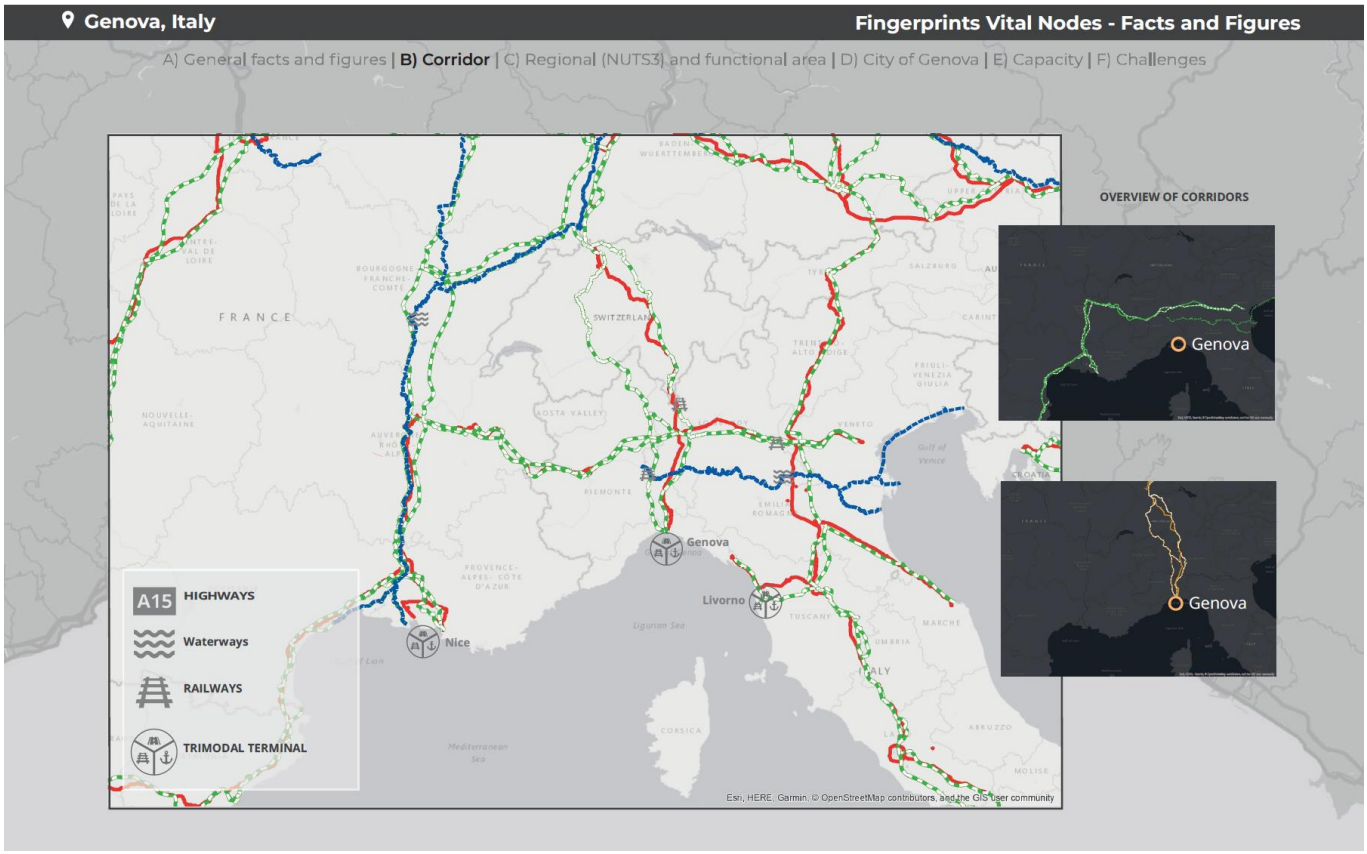
ECORYS

Rijkswaterstaat
Ministry of Infrastructure and Water Management

VITAL NODES



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ECORYS

Rijkswaterstaat
Ministry of Infrastructure and Water Management

VITAL NODES

Genova, Italy — **Fingerprints Vital Nodes - Facts and Figures**

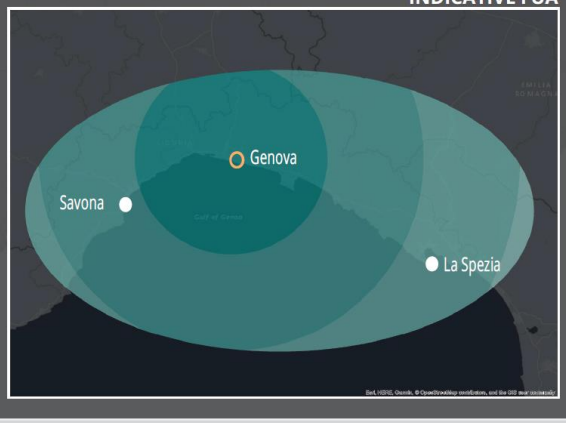
A) General facts and figures | B) Corridor | **C) Regional (NUTS3) and functional area** | D) City of Genova | E) Capacity | F) Challenges

IMPORTANT CHARACTERISTICS:

The seaport of Genova is a one-stop multi-purpose port with over 20 private terminals that can accommodate any type of vessel and cargo. Cargoes handled in the Port of Genova include containers, general cargo, liquid and solid bulk, metals, forestry products, perishable goods, petroleum products, and passengers

The airport (Genova Cristoforo Colombo Airport) has a limited freight function.

INDICATIVE FUA



FREIGHT INFRASTRUCTURE
baseyear 2016

	Number	ha	mton	TEU
Air terminal	1	0.3	2.580	-
Trimodal terminal (deepsea)	6	120	68mil	2.6mil*

*2017

increase ^ neutral = decline v

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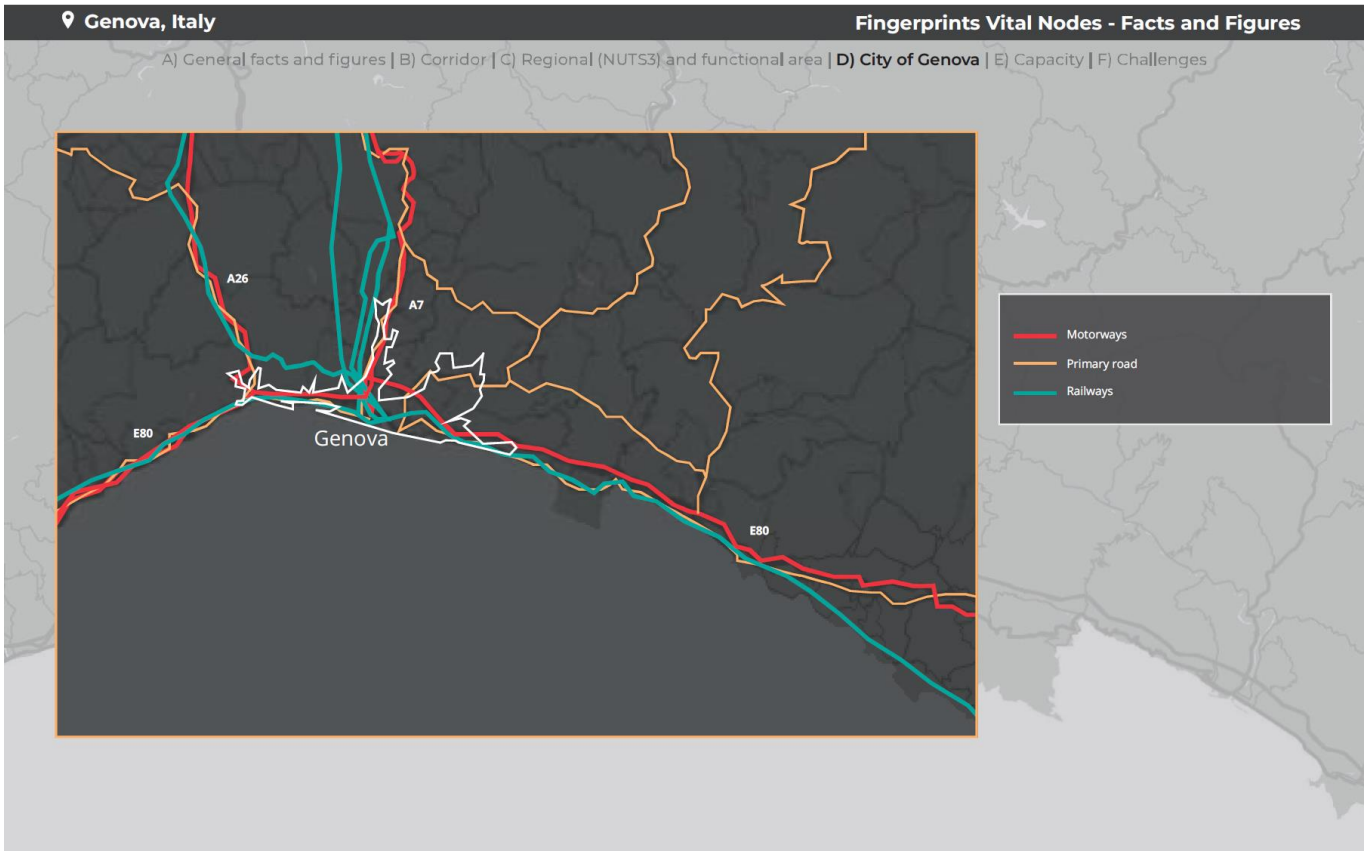
Ministry of Infrastructure and Water Management

VITAL NODES



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Ministry of Infrastructure and Water Management

VITAL NODES

Genova, Italy

Fingerprints Vital Nodes - Facts and Figures

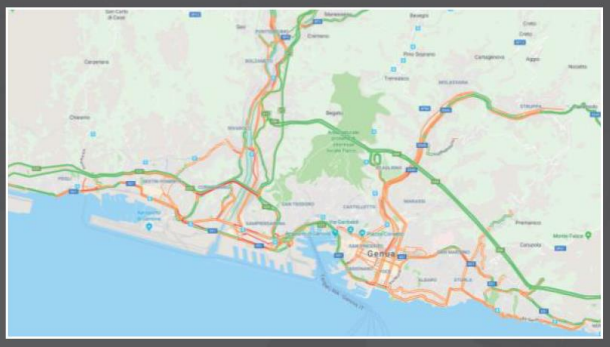
A) General facts and figures | B) Corridor | C) Regional (NUTS3) and functional area | D) City of Genova | **E) Capacity** | F) Challenges

CAPACITY RAIL
Last mile connections are a critical issue as far as rail transport performance and competitiveness is concerned

CAPACITY WATER
Due to the increase of maritime traffic, port capacity is an issue

CAPACITY AVIATION
Cargo terminal: 3,000 square metre warehouse and a similar sized area which houses the airport, customs and shipping offices

CAPACITY ROAD
Average intensity road on evening peak:



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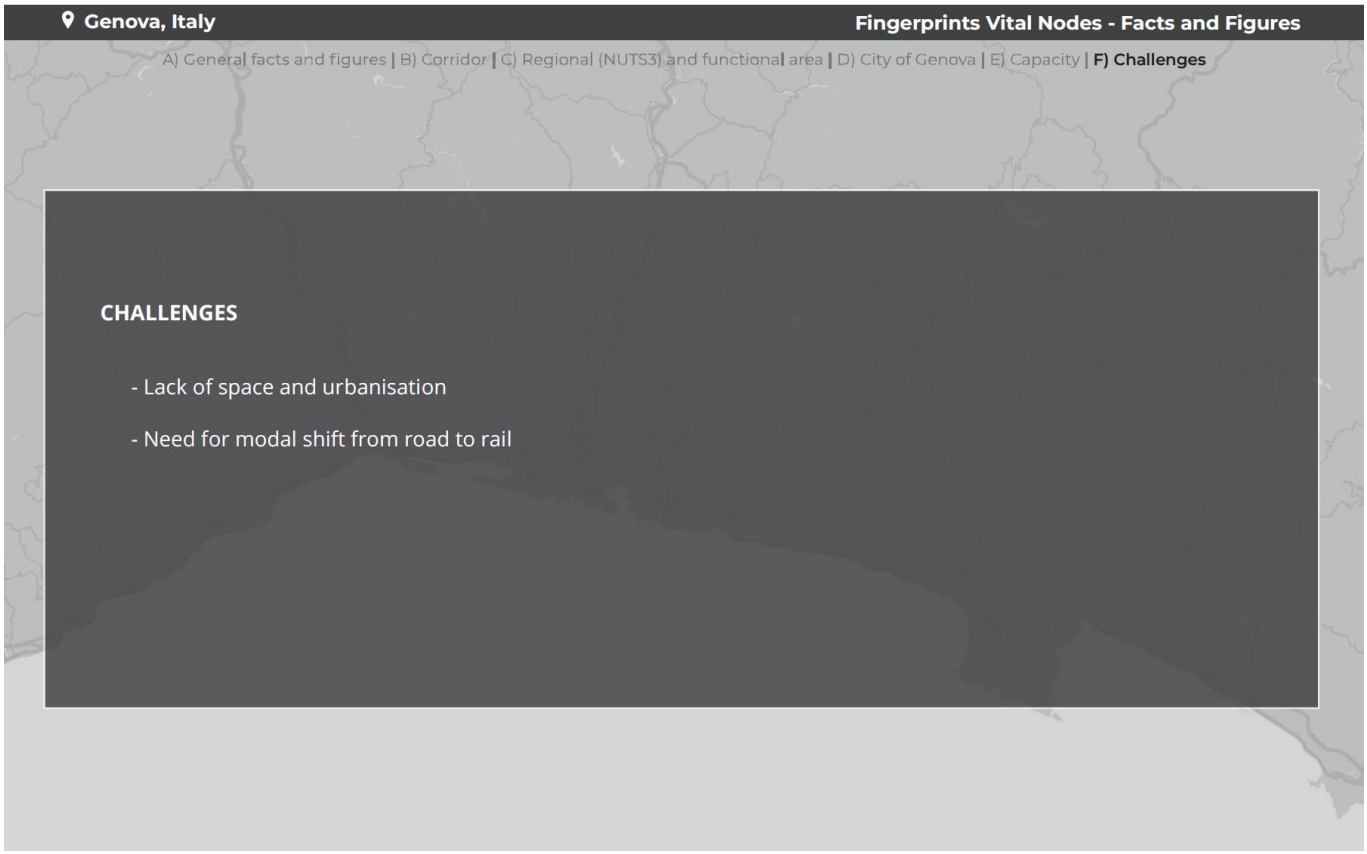
Rijkswaterstaat
Ministry of Infrastructure and Water Management

VITAL NODES



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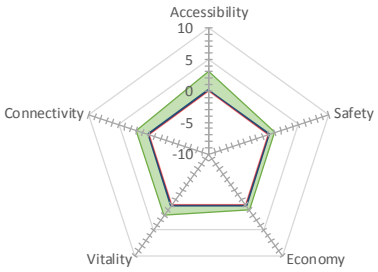
2. Good practices with validation of scores

Solutions name	Ferrobonus
Type of solution	Optimizing a mode
Node	Genova
Link or contact	https://www.onthemosway.eu/wp-content/uploads/2015/09/PRESENTATION-6-The-Ecobonus-and-Ferrobonus-Experiences-and-their-contribution-to-the-TEN-T-Networks.pdf
Investment costs	n.a.
Description	Ferrobonus (modal shift incentive stimulation) is the incentive provided by the Government, by Stability Law for the 2016-2018 three-year period to support combined transport and trans-shipment on rail. The aim of this instrument is to shift the traffic of goods from the road to the rail network through an incentive for the use of intermodal transport and trans-shipment transport to and from Italian logistics hubs and freight villages. The beneficiaries of the incentive are users of intermodal and / or trans-shipment railway transport services and combined transport operators (MTOs) who commission complete trains to railway companies and undertake to maintain train traffic volumes in terms of train*kilometer and increase them during the incentive period. Ferrobonus provides for the provision of a fairly modest contribution calculated on the basis of "train-kilometer": to make this measure more attractive, the three Northwest Regions (Piedmont, Lombardy e Liguria) are jointly evaluating the adoption of an additional contribution, a sort of regional Ferrobonus, to be calculated on the portion of the route that interests the three regions, which aims to enhance the use of railways for the exchange of goods between the Ligurian ports and the Piedmontese and
Impact overview	

Impact criteria	Questions	Answer
A Accessibility	The solution impacts the chosen modality of the flows	1
	The solution impacts the route of the flows	1
	The solution impacts the volume of the flows	0
	The solution impacts the timing of the flows	0
	The solution impacts the available infrastructure capacity	1
B Safety	The solution impacts the number of pedestrian casualties	0
	The solution impacts the number of cyclist casualties	0
	The solution impacts the number of motorised vehicle casualties	0
	The solution impacts the external safety of dangerous goods transport	1
	The solution impacts the external safety of warehousing operations	0
C Economy	The solution impacts the attractivity of the local scale (city) of the Node for investments (value captur	0
	The solution impacts the attractivity of the FUA from logisctics perspective of the Node for investmen	1
	The solution impacts the price of living in urban areas (socio economic)	0
	The solution impacts synergies with other sectors	0
	The solution impacts the GDP	0
D Vitality	The solution impacts the air quality	1
	The solution impacts the visual quality of the environment	0
	The solution impacts the level of noise pollution	0
	The solution impacts the ease of moving in the city for citizens	0
	The solution impacts the quality of living	1
E Connectivity	The solution impacts the connection between the city and the functional urban area from a mobility p	0
	The solution impacts the connection between the city and the functional area from a logistics perspec	1
	The solution impacts the connection with other Nodes on the Corridor	0
	The solution impacts the connection with other TEN-T Corridors	0
	The solution impacts the connection with the comprehensive network	1

2 strong positive impact 1 Positive impact o No substantial impact -1 Negative impact -2 strong negative impact

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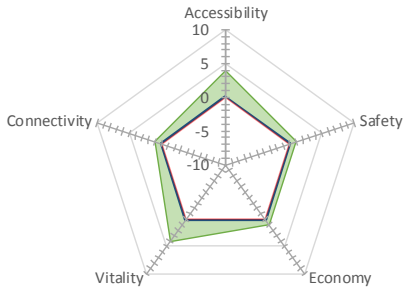
Solutions name	Cable Car (GATE project)
Type of solution	Adding a mode
Node example	Genova
Link or contact	http://www.genovameravigliosa.com/sites/default/files/GATE_.pdf
Investment costs	
Description	GATE is a project aiming to realize the intermodal connection from the international airport "Cristoforo Colombo", located in the west side of the city of Genova, to train and public transport networks. GATE project consists of two distinct subprojects: the new Erzelli / Airport railway stop, located on the Genova Ventimiglia line between Sestri Ponente and Cornigliano stations, and the plant of a cableway link between the new stop and the airport passenger terminal. The solution chosen by the technicians for the cable-link system is that of a gondola with a capacity of 600 - 700 people per hour. A stop of the cabins at the station is foreseen, to allow easy access to the transport system. A further development of GATE project relates to the prosecution of the cableway to Erzelli area, a hill overlooking the city where an important high-technology park, GREAT CAMPUS, is rapidly growing. Erzelli is located on a hill, physically very close the railway and the airport but difficult to be reached due to size and slope of access roads: the realisation of the cableway seems the best solution to ensure an efficient mass transport system for employees, students and citizens, and at the same time provides a very rapid connection between the Erzelli park and the airport.
Impact overview	

Impact criteria	Questions	Answer
A Accessibility	The solution impacts the chosen modality of the flows	1
	The solution impacts the route of the flows	1
	The solution impacts the volume of the flows	0
	The solution impacts the timing of the flows	1
	The solution impacts the available infrastructure capacity	1
B Safety	The solution impacts the number of pedestrian casualties	0
	The solution impacts the number of cyclist casualties	0
	The solution impacts the number of motorised vehicle casualties	1
	The solution impacts the external safety of dangerous goods transport	0
	The solution impacts the external safety of warehousing operations	0
C Economy	The solution impacts the attractivity of the local scale (city) of the Node for investments (value captur	1
	The solution impacts the attractivity of the FUA from logisctics perspective of the Node for investmen	0
	The solution impacts the price of living in urban areas (socio economic)	0
	The solution impacts synergies with other sectors	0
	The solution impacts the GDP	0
D Vitality	The solution impacts the air quality	1
	The solution impacts the visual quality of the environment	0
	The solution impacts the level of noise pollution	1
	The solution impacts the ease of moving in the city for citizens	2
	The solution impacts the quality of living	0
E Connectivity	The solution impacts the connection between the city and the functional urban area from a mobility p	1
	The solution impacts the connection between the city and the functional area from a logistics perspec	0
	The solution impacts the connection with other Nodes on the Corridor	0
	The solution impacts the connection with other TEN-T Corridors	0
	The solution impacts the connection with the comprehensive network	0

2 strong positive impact 1 Positive impact o No substantial impact -1 Negative impact -2 strong negative impact

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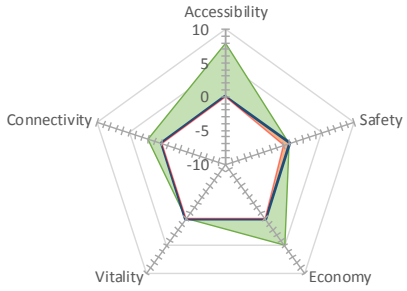
Solutions name	Cooperation between the port of Genova and Savona
Type of solution	institutional / governance
Node	Genova
Description	The ports of Genova and Savona are working together and this is not due only to the recent fusion between the two Port Authorities, but there are many common intents. The ports capacity expansion has limitations due to its location within the proximity of urban areas. Like most of the other Mediterranean seaports, but unlike leading Northern European hubs, land morphology forced ports and cities into a difficult coexistence; throughout its history Genova has painfully conquered this thin strip of land, however, the lack of large areas, particularly suited to accommodate manufacturing plants, forced the Genoese to spread out toward the sea, nestled between land and water. Currently, although territorial conditions are still the same, cities and ports have completely changed their attitude targeting the more complicated and multifaceted port-city design and focusing on a mutual development plan. Municipality and Port Authority are required to draw up their respective Masterplans simultaneously and to agree the terms and conditions of certain issues, namely those which focused on city-port relations: Urban Plan and Port
Impact overview	

Impact criteria	Questions	Answer
A Accessibility	The solution impacts the chosen modality of the flows	2
	The solution impacts the route of the flows	2
	The solution impacts the volume of the flows	2
	The solution impacts the timing of the flows	1
	The solution impacts the available infrastructure capacity	1
B Safety	The solution impacts the number of pedestrian casualties	0
	The solution impacts the number of cyclist casualties	0
	The solution impacts the number of motorised vehicle casualties	0
	The solution impacts the external safety of dangerous goods transport	-1
	The solution impacts the external safety of warehousing operations	0
C Economy	The solution impacts the attractivity of the local scale (city) of the Node for investments (value captur	1
	The solution impacts the attractivity of the FUA from logisctics perspective of the Node for investmen	2
	The solution impacts the price of living in urban areas (socio economic)	0
	The solution impacts synergies with other sectors	1
	The solution impacts the GDP	1
D Vitality	The solution impacts the air quality	0
	The solution impacts the noise polution	0
	The solution impacts the health of citizens	0
	The solution impacts the ease of moving for citizens	0
	The solution impacts the quality of living	0
E Connectivity	The solution impacts the connection between the city and the functional urban area from a mobility p	0
	The solution impacts the connection between the city and the functional area from a logistics perspec	1
	The solution impacts the connection with other Nodes on the Corridor	0
	The solution impacts the connection with other TEN-T Corridors	0
	The solution impacts the connection with the comprehensive network	1

2 strong positive impact 1 Positive impact o No substantial impact -1 Negative impact -2 strong negative impact

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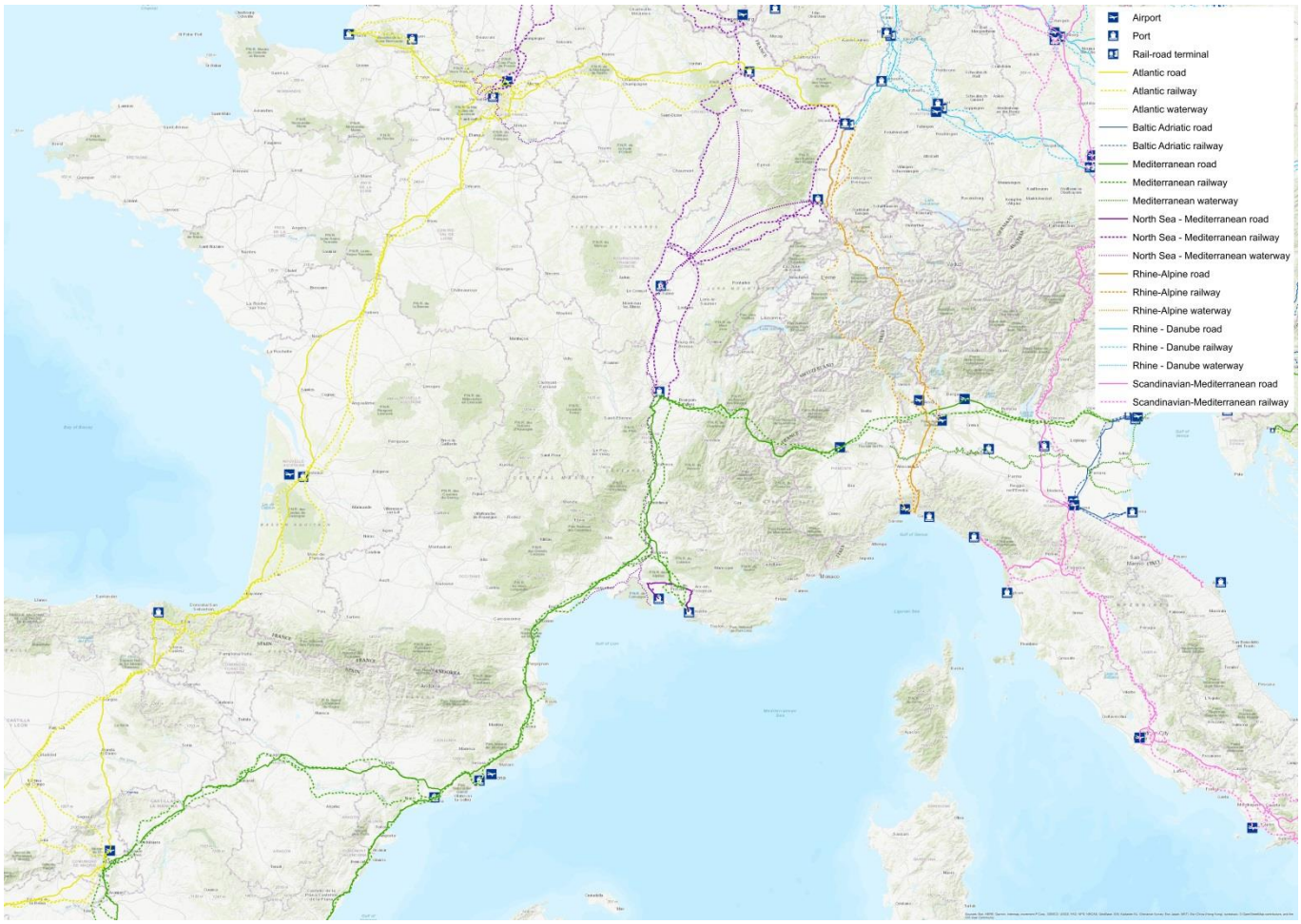
3. Map corridor level



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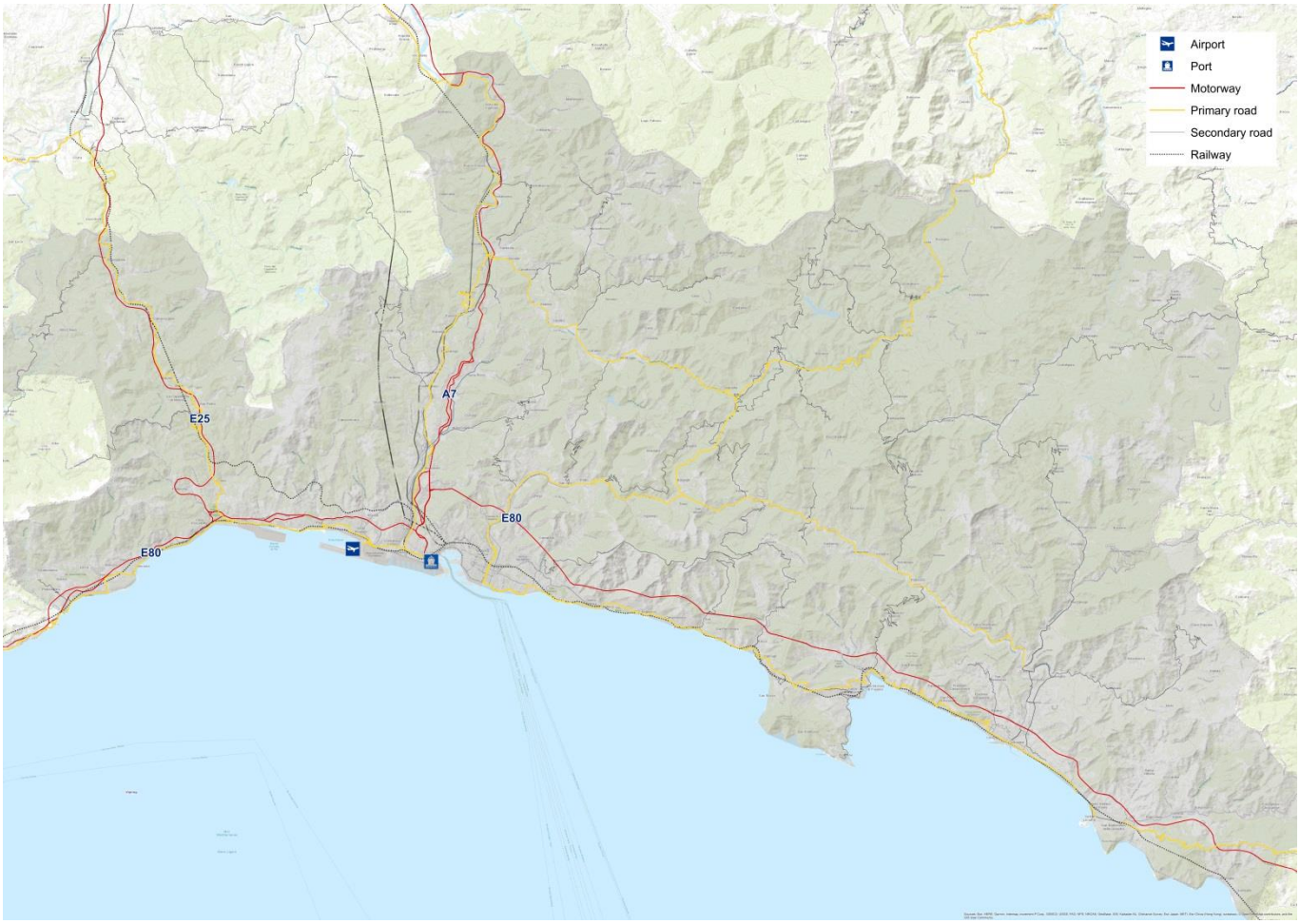
4. Map regional / urban node level



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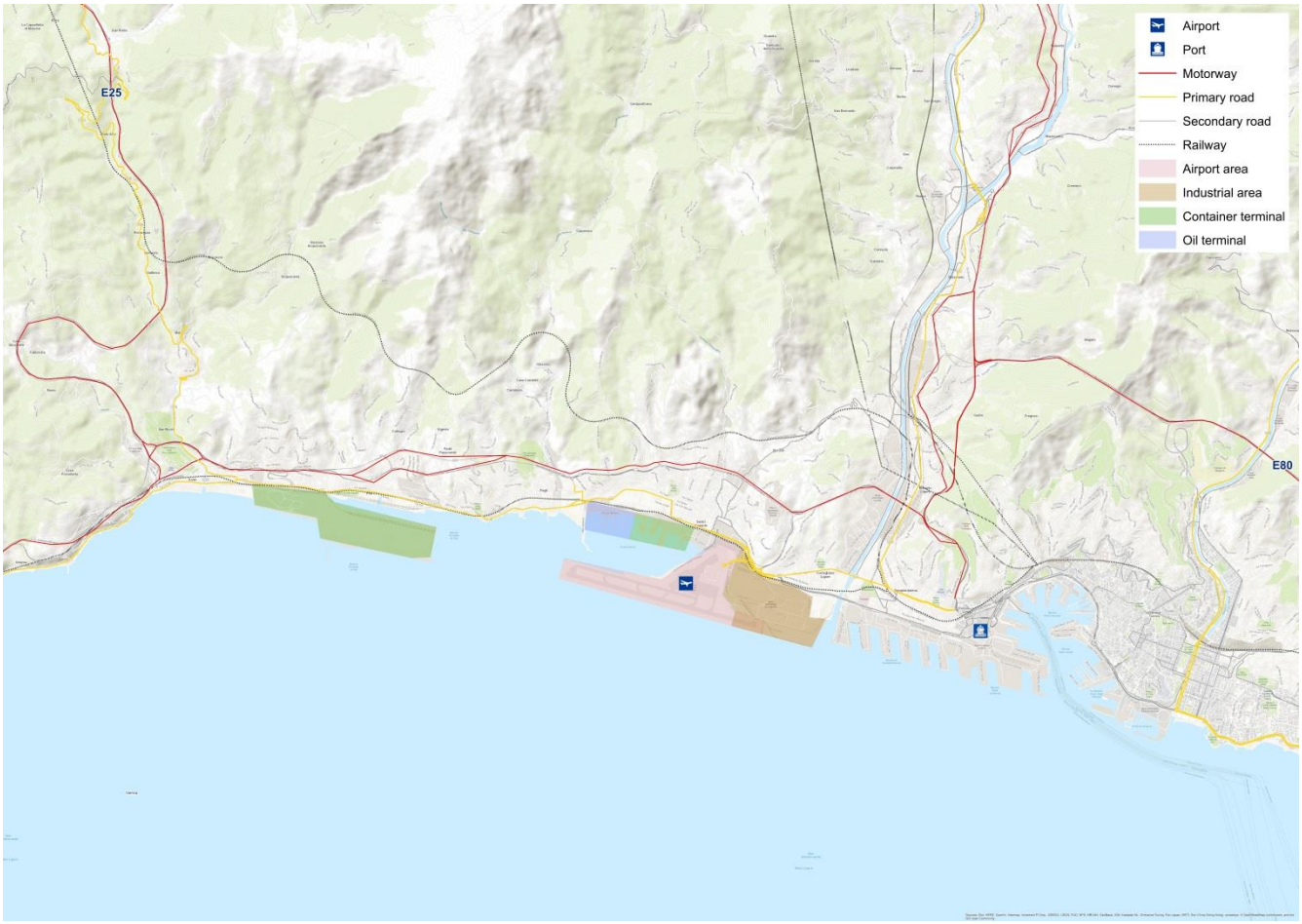
5. Map city level



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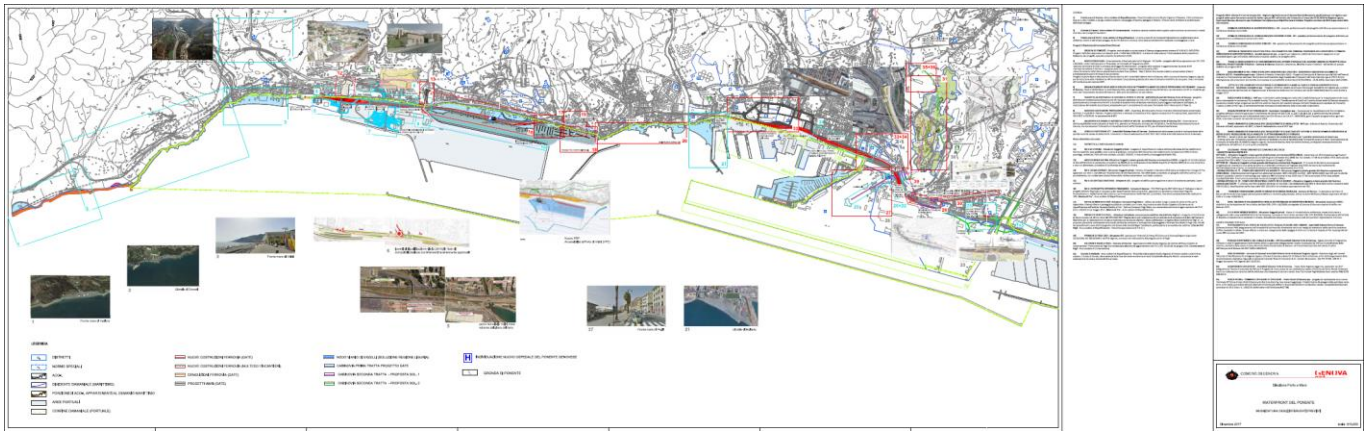
6. Map Port of Genova



7. List of participants Genova workshop

Name	Organization
Mrs. Sara Canevello	IIC
Mr. Fabio Capocaccia	IIC
Mrs. Silvia Capurro	Comune di Genova - Port and Sea Department
Mr. Paolo Castiglieri	Comune di Genova – Planning and International Project Department
Mr. Guido Conforti	Confindustria Genova
Mrs. Ilaria Delponte	Genova's University – Logistics Transport and Infrastructures Center
Mrs. Tiziana Delmastro	Siti Polito - Higher institute on territorial Systems for Innovation
Mr. Roberto Ferrazza	Infrastructure and Transport Ministry - Provveditorato Opere Pubbliche Liguria, Piemonte, Valle d'Aosta
Mrs. Monica Garibaldi	IIC
Mrs. Hanne van Gils	Omgeving Vlaanderen
Mrs. Laura Ghio	Autorità di Sistema Portuale del Mare Ligure Occidentale (Ports of Genova)
Mrs. Prisca Haemers	Rijkswaterstaat
Mrs. Alessandra Maestro	Comune di Genova - Port and Sea Department
Mr. Enrico Melloni	Mercitalia Rail (national railway freight operator)
Mr. Guido Nicolini	Assofer - Association of intermodal freight transport operators)
Mrs. Nicoletta Poleggi	Comune di Genova - Port and Sea Department
Mr. Alberto Pozzobon	Autorità di Sistema Portuale del Mare Ligure Occidentale (Ports of Genova)
Mr. Pier Giuseppe Naso Rappis	IIC
Mr. Jacopo Riccardi	Regione Liguria – Infrastructure and Transport Departement
Vital Nodes Organisation	
Mr. Kevin van der Linden	Rijkswaterstaat
Mr. Raymond Linssen	Rijkswaterstaat
Mr. Ricardo Poppeliers	Ecorys

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8. Programme of the workshop

09.00 – 09.45:

- Welcome by IIC/Port of Genova
  - Autorità di sistema portuale del Mar Ligure Occidentale (Ports of Genova), *Mr. Marco Sanguineri - Secretary General*
  - IIC – Istituto Internazionale delle Comunicazioni, *Mr. Fabio Capocaccia, President*
- Start, welcome and short introduction round, *Mr. Kevin van der Linden (Rijkswaterstaat)*
  - Programme workshop, *Mrs. Prisca Haemers (moderator)*

09.45 – 10.30:

- Presentation "Fingerprint Genova": Facts and Figures and Challenges / Barriers, *Mr. Ricardo Poppeliers (Ecorys)*
- The Antwerp experience, *Mrs. Hanne van Gills (Omgeving Vlaanderen)*

10.30 – 10.45: Break

10.45 – 12.15

- Working on Genova's Challenges (in two groups)
  - Interactive discussion via maps ("spatial dimension") on the challenges of the urban node Genova
  - To decide on 'key' challenges (to be discussed in more detail)
  - Sharing outcomes of the group discussions by the two groups – in plenum
  - Working on Genova's Challenges - Solutions, drivers & barriers and possible impacts (in two groups): Towards (directions of) solutions

12.15 – 13.30

- Plenary discussion on outcomes of the discussions
  - Discussing the (key) challenges and thoughts on solutions
- What is the added value for Europe, what do we need and what can we recommend?
  - Interactive discussion on "Integrating urban node Genova in the TEN-T network"
  - Sharing / summary of outcomes of the discussions
- Wrap up and follow-up, *Mrs. Prisca Haemers and Mr. Kevin van der Linden*

13.30 – 14.30 Lunch

14.45 – 16.30 Trip by boat in Genova Port

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