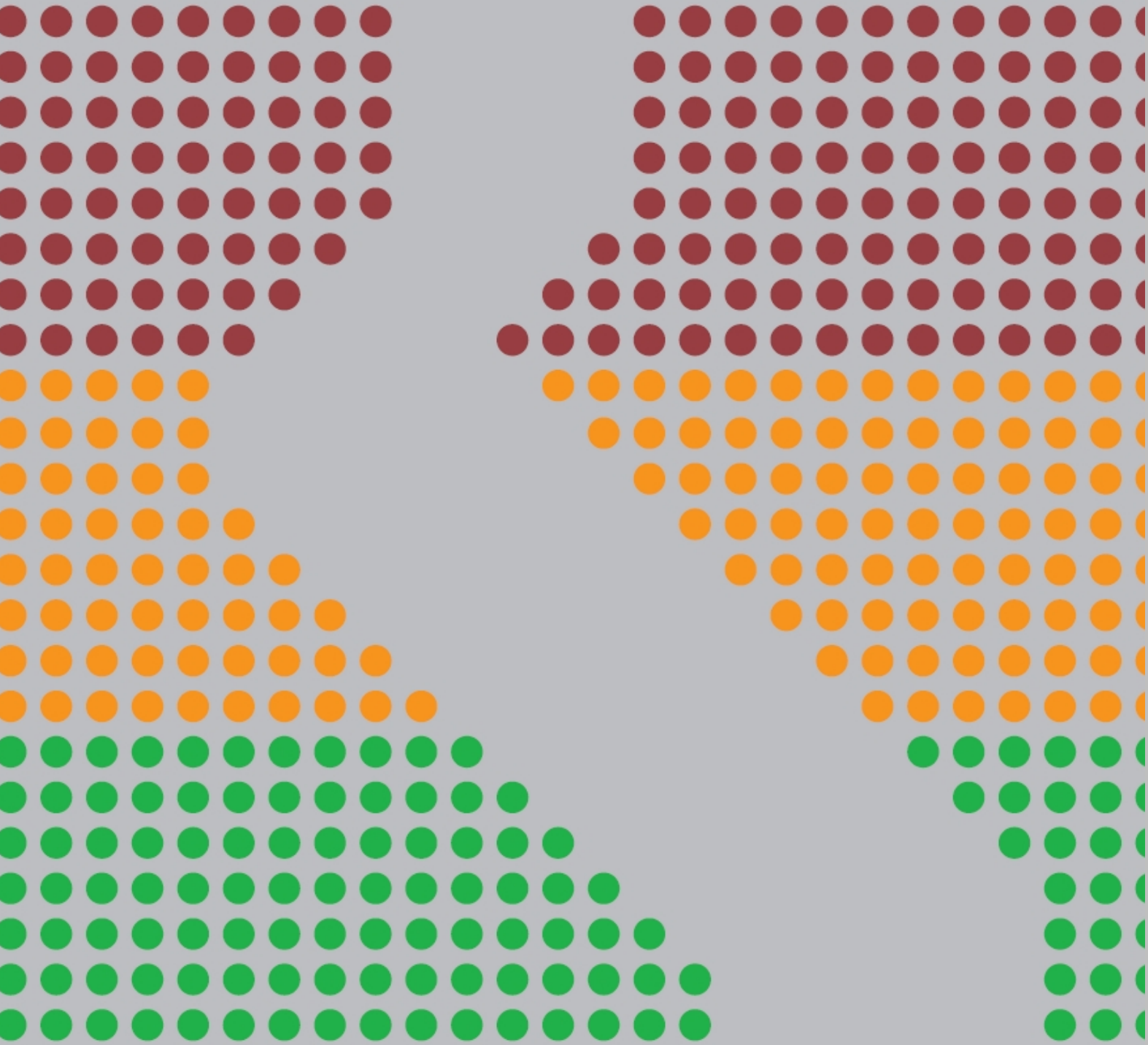


# iMONITRAF! Annual Report 2013

## Annex – Best Practice Update 2013



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## Pillar 2 – Limiting negative impacts of Alpine transport



<b>REVISION OF THE LAW ON NOISE REMEDIATION OF RAILWAYS CH (NATIONAL LEVEL)</b>
<b>Objectives/intention</b>
<ul style="list-style-type: none"> <li>› The revision of the Law on rail noise protection supports the noise protection and remediation programme which has been implemented in 2000 (see factsheet in iMONITRAF Best Practice Guide, p. 84).</li> <li>› The revised law shall guarantee that the minimum objective for rail remediation measures at the source (two thirds of affected population shall be protected from rail noise) will be exceeded. This shall guarantee that an increase in rail freight transport does not lead to further noise exposure.</li> </ul>
<b>Main information on measure</b>
<p>The Law foresees the following measures:</p> <ul style="list-style-type: none"> <li>› From 2020, Switzerland will introduce noise emission standards for existing rolling stock. This implies that rolling stock with conventional grey cast iron blocks will be prohibited.</li> <li>› Additional noise reducing measures on rail infrastructures shall be implemented, e.g. rail noise absorbers grinding of rails.</li> <li>› In addition, the Swiss Confederation can support investments into innovative low-noise rolling stock as well as testing and licensing of new products.</li> <li>› Further, hardship cases resulting from the current law on rail noise remediation shall be removed. This includes noise barriers to close gaps in existing walls as well as the remediation of steel bridges.</li> </ul>
<b>Focus and scope</b>
<ul style="list-style-type: none"> <li>› Focus: noise protection, focusing on the source</li> <li>› Territorial scope: Switzerland</li> <li>› Temporal scope: 2020</li> </ul>
<b>Impacts</b>
<ul style="list-style-type: none"> <li>› In addition to the existing regulations, 50.000 people can be protected from rail freight noise.</li> <li>› The prohibition of grey cast iron blocks will lead to a noise reduction of up to 7 dB(A).</li> </ul>
<b>Costs and revenue</b>
<p>Costs:</p> <ul style="list-style-type: none"> <li>› Additional noise reducing measures on rail infrastructures: 76 Mio. CHF</li> <li>› Investments into innovative low-noise rolling stock as well as testing and licencing of new products: 40 Mio. CHF</li> <li>› Removal of hardship cases: 51 Mio. CHF</li> </ul>
<b>Responsibilities, legal and institutional framework</b>
<p>The revision of the Law on rail noise protection has been passed by the Swiss Federal Council (Bundesrat) on 30 November 2013 but still needs to be approved by the Parligment.</p> <p>If the law is approved, the Federal Council will determine the emission standards for existing</p>

## REVISION OF THE LAW ON NOISE REMEDIATION OF RAILWAYS CH (NATIONAL LEVEL)

rolling stock as well as criteria and preconditions for financial support.

This will be included in the Ordinance on noise remediation of railways (Verordnung über die Lärmsanierung der Eisenbahnen).

The Federal Office of Transport will be responsible for monitoring and controlling.

### Implementation process

- › Drivers: in the EU, new rolling stock needs to be equipped with low-noise brake technologies since 2006. With a lifetime of rolling stock of at least 30 to 40 years, it will however take long until all rolling stock will be renewed. Thus, Switzerland foresees an additional regulation for existing rolling stock.

### Sources

- › Draft version : Communication on the revision of the Federal Law on noise remediation of railways (Botschaft zur Änderung des Bundesgesetzes über die Lärmsanierung der Eisenbahnen)
- › Website of Federal Office of Transport:  
<http://www.bav.admin.ch/ls/01272/index.html?lang=de>
- › Federal Office of Transport : Lärmsanierung der Eisenbahnen – Standbericht 2012.



## **ACTION PLAN NOISE & PACKAGE OF MEASURES FOR NO<sub>2</sub>-REDUCTION SOUTH TYROL (REGIONAL LEVEL)**

### **Objectives/intention**

- › Implementation of two different measures: Action plan (noise-sanitation plan) and package of measures that targets a reduction of NO<sub>2</sub>-emission on motorways

### **Main information on measure**

- › The state agency for environment defined different measures. Regarding road traffic, the noise action plan that is required by the relevant EU-Directive was developed. This action plan is a noise-sanitation plan and it was forwarded to the different responsible Italian ministries. This plan defines noise-protection measures for the regional and national road network of South Tyrol
- › Besides the NO<sub>2</sub>-sanitation plan, a specific package of measure for reducing NO<sub>2</sub>-emissions along motorways has been developed for the Italian Department of Environment. The emissions along the motorway are captured in the emissions inventory.
- › With regard to the noise-sanitation plan: A first agreement was established in 2003 with the RFI (Rete Ferroviaria Italiana - the Italian railway infrastructure provider). With this agreement, 8km of noise-barriers along the railway were constructed. In 2012 there was another agreement signed between the parties. However, as RFI could not fulfil their part of the contract due to financial shortages, the state instead advanced the necessary financial sum and established the noise-barriers in Maibad, close to Sterzing. 4 km of outstanding noise-barriers still needs to be installed, preparatory work is currently under way.
- › If new building areas are planned with a distance of less than 50 meters to roads with high traffic volumes and railways an acoustic report must be elaborated (new noise-protection law). If necessary, new measures need to be defined and implemented whose development costs must be passed on to construction costs for the new building area.
- › With regard to the NO<sub>2</sub>-measurement: Monitoring stations for air quality measurements are established along the motorway (in Sterzing, Brixen and Feldthurn directly next to the motorways as well as in Bozen, Leifers, Auer and Kurtinig). Additionally, there are also "mobile stations" used that can be utilised for short-term measurements. They are first and foremost used to gather detailed information with regard to NO<sub>2</sub>-exposure. To be even more efficient and budget-friendly there are also alternative measurement methods used such as passive samplers.

### **Implementation process**

- › The Environmental Agency of the South Tyrolian state administration signed in December 2013 the „Accordo bacino padano“-agreement between the Alpine regions of Italy and the Italian ministries for the Po valley. This agreement contains measures to reduce PM and NO<sub>2</sub>-emission along the motorways.

## Pillar 3 – Modal Shift



### ECOTAXE POIDS-LOURDS FRANCE (NATIONAL LEVEL)

#### Objectives/intention

- › make the road users pay for investments in transport infrastructure, especially rails and inland water transport
- › price signal for changing the behaviour in favour of more sustainable modes of transport and for improving the road vehicle fleet towards lower pollution.
- › as empty trucks are also included, it gives an incentive for transport companies to rationalise routes of transport

#### Main information on measure

- › The ecotaxe for HGV will be implemented on national level from the 1<sup>st</sup> of October 2013.
- › The tax will be paid by the transporters, who in turn must pass on the costs to their clients by increasing the price for transportation. For pragmatic reasons, transporters will pass on the tax to their clients by applying a surcharge on the bill, depending on a regional taxation level between +1,80% and +6,30% (2,50% in Rhône-Alpes) or an inter-regional taxation level: 4,4%.
- › The tax will be imposed on freight transport on a road network composed of national and departmental roads. Both domestic as well as foreign vehicles heavier than 3,5 tons will be assessed.
- › The road network will contain 10 500 km of national roads and 5 000 km of departmental or communal roads
- › The payment system will be electronic and barrier-free.
- › Applied to the distance travelled, the taxation level is defined on the basis of the category of the vehicle (number of axles and authorized total weight of charge). It will be between 8 and 14 ct. per kilometre in 2013, and between 8,8 and 15,4 ct. per km in 2014. This taxation level is then further differentiated according to the pollution level of the vehicle (criteria are the European emission class).
- › In peripheral regions, the tax is 30% lower, and even 50% lower in Bretagne (as there are no highways).

	1st category 2 axles and ATWC > 3,5 t and < 12 t	2 <sup>nd</sup> category 2 axles and ATWC 12 t and 3 axles	3rd category 4 axles and more
<b>2013</b>	0,080 €/ km	0,100 €/ km	0,140 €/ km
<b>2014</b>	0,088 €/ km	0,111 €/ km	0,154 €/ km

	EURO 1 and before	EURO 2	EURO 3	EURO 4	EURO 5	EURO 6	Electric
<b>2013</b>	+ 20%	+ 15%	+ 10%	0%	- 5%	- 15%	- 15%
<b>2014</b>	+ 20%	+ 15%	+ 10%	0%	- 5%	- 15%	- 40%

- › There is a penalty for not paying the tax which can consist of up to 750 Euro

#### Focus and scope

- › Focus: Shift traffic from the road to more sustainable modes of transport
- › Territorial scope: France

<b>ECOTAXE POIDS-LOURDS</b>	<b>FRANCE (NATIONAL LEVEL)</b>
<ul style="list-style-type: none"> <li>› Temporal scope: The tax is to be paid all time. The taxation level is expected to evolve each year.</li> </ul>	
<b>Impacts</b>	
<ul style="list-style-type: none"> <li>› According to FNTR pays-de-la-Loire, a price increase of 5 to 13% in transportation might occur</li> <li>› The government estimates the price increase of transportation at 3,7% in average. The price increase in goods transported on roads will also amount to 3,7% which is rather low, as already today the share of transportation costs of road transported goods amounts to 10% of the entire goods price.</li> </ul>	
<b>Costs and revenue</b>	
<ul style="list-style-type: none"> <li>› Revenues estimated at 1,2 billion Euro per year</li> <li>› Revenues that arise from taxation of national roads (760 Mio) will flow into the national budget and be invested in sustainable infrastructure such as rail or inland water transport</li> <li>› Revenues arising from departmental roads (160 Mio) will be reinvested in the respective part of the road network</li> <li>› Cost: 240 Mio (~ 20% of the revenue) for the management of the tax such as implementation and operation of supporting points, collection of payments, information system, etc.</li> </ul>	
<b>Responsibilities, legal and institutional framework</b>	
<ul style="list-style-type: none"> <li>› Public-private partnership</li> <li>› The firm Ecomouv is charged with the operation of payment obligations</li> <li>› The custom is charged with the realisation of physical controls, exercise of police power and provision of information about the tax</li> </ul>	
<b>Implementation process</b>	
<ul style="list-style-type: none"> <li>› Competitive bidding in November 2011: Establishment of an electronic payment service</li> <li>› Acceptance of the tender of Ecomouv.</li> <li>› Testing on the national level without payment in the middle of 2013 before implementation from the 1<sup>st</sup> of October 2013</li> </ul>	
<b>Sources</b>	
<ul style="list-style-type: none"> <li>› Website of the firm Ecomouv: <a href="http://www.ecomouv.com/">http://www.ecomouv.com/</a></li> <li>› Website of the Ministry for ecology, sustainable development and energy: <a href="http://www.developpement-durable.gouv.fr/Reseau-soumis-a-l-eco-redevance.html">http://www.developpement-durable.gouv.fr/Reseau-soumis-a-l-eco-redevance.html</a></li> <li>› Website of the National Assembly: Information report: <a href="http://www.assemblee-nationale.fr/13/rap-info/i3782.asp">http://www.assemblee-nationale.fr/13/rap-info/i3782.asp</a></li> <li>› Fondation iFRAP: <a href="http://www.ifrap.org/Ecotaxe-poids-lourds-les-impacts-sur-l-environnement-et-l-emploi,13127.html">http://www.ifrap.org/Ecotaxe-poids-lourds-les-impacts-sur-l-environnement-et-l-emploi,13127.html</a></li> </ul>	

## 4 METER GOTTHARD RAILWAY CORRIDOR

CH (NATIONAL LEVEL)



### Objectives/intention

- › The existing tunnel profile along the Gotthard corridor (Basel–Gotthard–Chiasso/Luino–Northern Italy) is extended to allow the passing of combined transport trains carrying vehicles with a corner height of 4 m (and 2,6 m width).
- › This will support the capacity utilization of the new Gotthard base tunnel and thus modal shift.

### Main information on measure

- › The extension to a 4 m corridor corresponds with the European standards of the corner height profile P/C 80 which is planned to be implemented along the most important European corridors.
- › In Switzerland, the extension to a 4 m corridor affects 20 tunnels along the Gotthard corridor with insufficient profile characteristics. The most expensive measure is the reconstruction of the Bözbergtunnel in the Canton Aargau with estimated costs of about 350 Mio. CHF.
- › Also, 150 obstacles in the open country need to be eliminated.
- › The extension includes the financial support of measures in Italy to ensure the availability of a 4 m corridor on the Southern approach lines.

### Focus and scope

- › Focus: extension of railway infrastructures, support for modal shift
- › Territorial scope: Switzerland and approach lines in Italy
- › Temporal scope: 2020/2025

### Impacts

- › The extension of railway profiles to 4m corner height supports modal shift from road to rail.

### Costs and revenue

- Costs:
- › 710 Mio. CHF for measures in Switzerland
  - › 940 Mio. CHF including measures on approach lines in Italy.

### Responsibilities, legal and institutional framework

- › The Federal Office of Transport is responsible for planning the necessary construction measures. A first communication regarding specific measures and financing has been developed in 2012 and has been approved by the Federal Council in September 2012.
- › The communication on measures and financing has been revised and approved by the Federal Council in spring 2013.

### Implementation process

- › Drivers: The extension of railways towards a 4-m corridor along the Gotthard corridor supports modal shift and is necessary to fully use the capacities of the new base tunnel.
- › Especially in combined transport, most semi-trailers have a corner height of 4 m or slightly more. Also, containers in unaccompanied combined transport often have a corner height of 4 m.

### Sources

- › Press release of the Swiss Federal Council:  
<http://www.news.admin.ch/message/index.html?lang=de&msg-id=48937>
- › Verlagerungsbericht 2011 (Report on modal shift)
- › Standbericht 2012 Neue Alpentaversale (Monitoring report on new corridors).



## NEW RAIL INFRASTRUCTURE ON THE BRENNER CORRIDOR TRENTO (REGIONAL LEVEL)



### Objectives/intention

- › Improve the interconnection between systems in the Brenner Corridor project

### Main information on measure

- › In addition to the Brenner Corridor project, an important project designed to reinforce rail transport in the province and lead to closer links between systems is being started up, in so far as this is compatible with financial resources. This project provides for four main lines, the Trento–Tione section being considered the priority, in relation to which an exchange of ideas has been started up, in preparation for the planning phase.

### Focus and scope

- › Trentino is included within the Brenner Corridor and more specifically in the southern access section.

## Pillar 4 – Passenger transport



<b>REVISION OF TIROL MOBIL – MOBILITY PROGRAM TIROL (REGIONAL LEVEL)</b>
<b>Objectives/intention</b>
<p>Objectives:</p> <ul style="list-style-type: none"> <li>› The mobility program “Tirol Mobil” was founded in 2008 and brings together several initiatives for modal shift of passenger transport (public transport, cycling and walking). The program is described in detail in the Best Practice Guide (factsheet p. 119).</li> <li>› As several environmental objectives still need to be achieved in Tirol (e.g. air quality targets in the lower Inn valley, reduction of CO<sub>2</sub> emissions), the program has been revised for the period 2013-2020.</li> <li>› The program has the following specific objectives: increase modal shift of public transportation by 3%, modal shift of cycling by 3%, modal shift of walking by 1%. In total, modal split of car transport shall be reduced to below 50%.</li> <li>› The revision of the mobility program is integrated into the new „Law on Climate Protection” which also focuses on the period 2013-2020.</li> </ul> <p>Intention:</p> <ul style="list-style-type: none"> <li>› Apart from further increasing the modal share of public transport, the mobility program 2013-2020 puts a special focus on strengthening cycling. This shall be achieved by an extension of the cycling network.</li> <li>› Especially, the initiative “Gemeinden mobil” (mobility management in municipalities) shall be strengthened as distances on local level have the greatest potential for a shift to sustainable transport modes.</li> <li>› The program shall be better linked to EU funding opportunities, thus reducing the funding costs for Tirol.</li> </ul>
<b>Main information on measure</b>
<p>The revised program focuses on the main following initiatives:</p> <ul style="list-style-type: none"> <li>› Extension of cycling infrastructure: as more and more people use their bike to go to work (every third person in Innsbruck) and as cycling speeds increase through the use of e-bikes, the cycling network needs to be improved.</li> <li>› Mobility programs on local level as well as in schools and companies: these institutions have a great potential to trigger changes in mobility behaviour and shall thus be further supported in developing sustainable mobility programs.</li> </ul>
<b>Focus and scope</b>
<ul style="list-style-type: none"> <li>› Focus: Improvement of sustainable transportation of passengers</li> <li>› Territorial scope: regional level</li> <li>› Temporal scope: 2013-2020</li> </ul>
<b>Impacts</b>
<p>Impacts are described in a qualitative way:</p> <ul style="list-style-type: none"> <li>› Improvement of transport safety</li> <li>› Improvement of air quality</li> <li>› Reducing fossil energy use and thus supporting energy security</li> <li>› Reducing greenhouse gas emissions</li> <li>› Improvement of living conditions through the reduction of traffic and thus noise.</li> <li>› Reduction of congestion</li> <li>› Improvement of health through an increase of cycling and walking</li> </ul>
<b>Costs and revenue</b>
<p>Costs:</p> <ul style="list-style-type: none"> <li>› No specific information is available</li> </ul>

**REVISION OF TIROL MOBIL – MOBILITY PROGRAM  
TIROL (REGIONAL LEVEL)**

- › As far as possible, funding opportunities on national and EU level shall be used to reduce costs for the land of Tirol

**Responsibilities, legal and institutional framework**

- › The Department of traffic planning of the land of Tirol is responsible for managing the mobility program.
- › In addition, a mobility committee is established as project steering group. It meets once per year and includes political representatives as well as representatives from the relevant agencies, public transport associations, school and municipal associations.
- › For the operational lead, a mobility coordinator will be established.

**Implementation process**

- › Drivers: Tirol still needs to achieve EU air quality targets as well as CO<sub>2</sub> reduction targets.

**Sources**

- › Land Tirol “Mobilitätsprogramm 2013-2020”

**LINK BETWEEN TRANSPORTATION AND SPATIAL PLANNING  
TRENTO (REGIONAL LEVEL)**



**Objectives/intention**

- › Adoption of structural measures to contain atmospheric pollutants during the winter (Provincial Government Resolution no. 368 of 4 March 2011)

**Main information on measure**

- › Measures to limit traffic [from 1 November to 31 March, from 7 to 10 a.m. and from 4 to 7 p.m., excluding Saturdays, Sundays and public holidays, for all Euro 0 vehicles, all diesel fuel Euro 1 and Euro 2 vehicles without DPF, 2 stroke scooters and mopeds). Provincial indications then imposed through municipal orders.

**Impacts**

- › Estimation of the impact of road traffic in terms of emissions, through the provincial inventory of emissions (updated on 2007 [approved with Measure no. 59 of 30 March 2012 ], being updated as of 2010, using the Inemar method, in association with a further 8 Regions and Autonomous Provinces). Availability of data and methods (circulating vehicles, traffic flows, travel time, emissions).

## INNOVATIVE MEASURES WITH LINK TO TOURISM TRENTO (REGIONAL LEVEL)



### Objectives/intention

- › Increase modal share of public transport, especially for tourism transport
- › Tariff subsidies for tourists: Introduction of a tourist card with integrated microchip (was tried out during the Universiade). The purpose of such valley cards is to be able to circulate freely on all scheduled services in the province of Trento
- › In practice, the intention is that the tourist will acquire a card for a charge (direct or indirect, in the sense that it could be given to him on arrival by those managing hotels, rented apartments etc.). This will then allow her to circulate freely using all available public transport, including trains.

### Main information on measure

- › Provincial Government Resolution no.964 of 2011, recently amended by Resolution no. 346 of 1 March 2013, established that as regards the question of tariff subsidies, including those for tourists (bearing in mind that in the overall context of services almost entirely subsidised and paid for by the general tax system, free or partially free services must not be translated into instruments merely transferring the cost normally paid for by users directly benefiting) any forms of free services for users paid for entirely by local authorities or area promotion bodies are not in line with the principles of fairness and efficiency.
- › Hence, to date the system of tariffs for tourist users has been regulated in such a way that it is possible to issue free tickets within a predetermined geographical area (with proposing bodies extending beyond a single municipality) for holders of seasonal cards issued to tourists upon payment, for a maximum weekly duration (which may also include other advantages), and recording of all free tickets issued by the body offering the card, with a discount of 30%; this approach can also be applied in the case of holders of cards reciprocally recognised in various situations as a result of agreements between proposing bodies.
- › As a result of dialogue with the tourist sector and with the support of the company Trentino Sviluppo spa, it emerged that it was opportune to proceed immediately with definition of an organisational model making it possible to allow valley cards to be used to circulate freely on all scheduled services, while awaiting the issuing of cards for visiting tourists valid throughout the province in 2014.
- › Provincial Government Resolution of 17 June 2013 was therefore passed, establishing that holders of specific cards can travel freely throughout the province of Trento on urban and extra-urban services provided by the company managing the service, Trentino Trasporti Esercizio Spa, in a transitory manner for 2013, integrating existing regulations.
- › To date tourist cards have been without microchip, thus not allowing tracing or automatic recording of journeys. At the end of 2013 a low cost card for tourists was tried out by exploiting the integrated electronic ticketing system on all means of transport since 2009, namely smart card readers, making access to road and rail transport, museums and authorised sites and other services available for a predetermined period of 1, 3 or more solar days from the date the card is first used. Currently tourists and visitors to Trentino are given paper cards by tourist operators which allow, among other things, free access to public transport services. At the time of boarding the user shows his card and the driver issues a ticket at zero cost. At the end of the tourist season the data regarding this type of ticket is then collected and processed, in such a way as to allow statements to be produced for tourist operators, who are invoiced for the corresponding amount, with a discount of 30%. This operational method is demanding in terms of the issuing of tickets and statements to the organisations offering the card. By introducing a card similar to the smart cards used by local users, but of a disposable nature and hence at lower cost, it is possible for the user to interact with the system without ticketing, simply by validating the journey on board. The system then automatically provides the organisation issuing the card with a report on the value of the journeys to be paid to the carriers, discounted by 30%. As regards the experimentation of forms of alternative

## INNOVATIVE MEASURES WITH LINK TO TOURISM TRENTO (REGIONAL LEVEL)

mobility in mountain and tourist areas, in addition to the 2 H2-powered minibuses (which are costly in terms of management as well as in relation to initial investment) 6 hybrid vehicles have been purchased (and tested during the 2013 World Championships in Fiemme and which will be used in a similar way in a few days for the Universiade), with relative monitoring of environmental data and consumption. Once results have been obtained as regards the consumption of hybrid diesel-electric vehicles, but also of the methane-fuelled buses already operational, an increase in their use will be evaluated. This will probably lead to the implementation of a methane-fuelled fleet, which has a cost /km of 0.30 euro/km as compared to 0.70 euro/km for traditional diesel fuel and 0.50 for the hybrid diesel-electric vehicles.

### Focus and scope

Concrete examples of action:

- › development of forms of integrated road-rail mobility: Pinzolo-Campiglio cable car link (2012) and the creation of car parks at the terminus in Pinzolo, with a consequential reduction in road traffic;
- › integration of cable car systems with the panorama pass in the Val di Fassa; an example also followed in the Val di Sole and Rendena – Campiglio, with the objective of speeding up mobility using cable car transport and reducing flows of road traffic. This form of integrated cable car-rail mobility has been specifically developed: Dolomiti express: cable car holding 8 people linking the Folgarida-Marilleva ski area directly with the platform of Daolasa-Commezzadura railway station, without any change in level between the railway station and the cable car boarding area;
- › Memorandum of Understanding (July 2013) aimed at promoting and incentivising alternative forms of mobility in the upper Valle di Non, through reinforcement of the Caldaro – Mendola funicular railway, the public transport service for Mendola – municipalities in the upper Valle di Non and by linking Mendola to golf courses using transport not creating pollution (horse-drawn carriages, bicycles);
- › mobility services within individual tourist areas managed by municipalities, valley communities, tourist offices or consortia of tourist operators.
- › free ski bus service almost everywhere in all ski resorts in the province in the winter season;
- › “ski shuttle” service from strategic points of access for tourists, e.g. in summer and winter the Madonna di Campiglio-Pinzolo-Val Rendena tourist office offers a daily 24h transfer service linking the airports of Milan Malpensa, Milan Linate, Venice, Bergamo, Verona, Brescia, Bolzano and the railway stations of Trento and Bolzano directly to hotels;
- › Guest Card: Card inaugurated in June 2013, allowing holders to use the network of urban and extra-urban public transport of Trentino Trasporti and Trenitalia within the province and obtain free entry to numerous attractions present in the province: museums, castles, nature parks, spa centres etc. The cards, which are valid for a maximum duration of 20 days for the nominated holder alone and cannot be used by others, are given to guests by the managers of accommodation facilities participating in the project. In the first two months of the project around 50,000 were distributed, with the participation of around 300 operators. The card brought together numerous similar initiatives already adopted in the area in the last few years, allowing guests to use transport networks and visit tourist attractions present in the respective areas.

### Costs and revenue

- › Using hybrid diesel-electric vehicles and also an increasing amount of already implemented methane-fuelled buses will lead to the implementation of a methane-fuelled fleet. This has a cost /km of 0.30 euro/km as compared to 0.70 euro/km for traditional diesel fuel and 0.50 for the hybrid diesel-electric vehicles.



## INNOVATIVE TRAFFIC MANAGEMENT FOR BIG EVENTS TRENTO (REGIONAL LEVEL)

### Objectives/intention

- › Making use of ecologically innovative vehicles for big events in the Alpine Space.

### Main information on measure

- › During the 2013 Nordic World Ski Championships in the Valle di Fiemme the standard ski bus service in the valleys was supplemented, making use of ecologically innovative vehicles. Specifically, two hydrogen powered buses were adopted experimentally in the period from 20 February to 3 March 2013. The two buses covered an average total of 366 kilometres a day, without particular difficulties or problems.
- › Furthermore, six 12 metre diesel-electric hybrid buses for urban use came into operation during the event, with their use then continuing in the context of standard urban services.

### Focus and scope

- › During the winter Universiade, which took place in the period from 6 to 21 December 2013, dedicated services were organised for around 3000 athletes and those accompanying them, for arrivals/departures at airports, transfer of the delegations to the 5 clusters, the inauguration ceremony on 11 December and competitions/training sessions (with organisation of a "line" to guarantee transfer to and from competition/training sites using urban bus services).
- › For the "public" it had been decided to offer "free" use of standard scheduled services for accredited parties (volunteers etc) through allocation of electronic cards.

### Impacts

- › The ecologically innovative vehicles are offering savings in terms of consumption and a reduction in emissions



## USE OF INNOVATIVE TECHNOLOGIES FOR PUBLIC TRANSPORT TRENTO (REGIONAL LEVEL)

### Objectives/intention

- › Technological innovation for the bus fleet

### Main information on measure

- › In the last five years, considerable attention has been paid to technological innovation in terms of the fleet of buses.
- › In particular, two electric minibuses fuelled by hydrogen fuel cells were introduced in 2013, commissioned by Trentino Trasporti.
- › The development of the project and experimentation of the 2 electrically powered fuel cell minibuses in the field represents one of the numerous actions started up by the Autonomous Province of Trento with the long-term objective of providing for sustainable development in Trentino.
- › The initiative falls within the context of measures oriented towards the achievement of the objectives of the 2009/28/CE European Union Directive, which establishes the targets known as “20-20-20”; a reduction of 20% in primary energy consumption, a reduction of 20% in greenhouse gases and 20% of energy consumption to be met by renewable sources.
- › In this context, the use of “ZERO” emission buses for routes in the Dolomites within the UNESCO World Heritage site represents a cutting edge project, which will be completed with the subsequent design and construction of a production system based on the use of new renewable energy.
- › The project is also part of an overall plan that Trentino Trasporti, the company managing the infrastructures and transport of the Autonomous Province of Trento, began implementing some time ago, for both the creation of industrial systems with low energy consumption and the purchasing of last generation rolling stock, such as 6 diesel-electric hybrid buses.

The following services are currently offered:

- › train +bike on the Valsugana and Trento Malè railway lines, as well as on the Brenner service;
- › bike and bus services in some tourist areas, to improve access to the circuit of cycle routes (for example from Comano to Tione - Rendena cycle route – or towards Sarche – Valle dei Laghi cycle route)
- › limitations on motor vehicles in park areas, with provision of bus services for access to areas considered to be of value from the naturalistic point of view and at the same time unable to support an excessive human carrying capacity (for example Lake Tovel, Valesinella, Val Genova etc.);
- › agreement with Deutsche Bahn (which offers six return journeys to and from Munich along the Brenner axis). Tourists arriving by train are provided with a transfer service from the station of arrival to the accommodation facilities, along with a card offering access to all public transport services and the main attractions in the area;
- › free fly shuttle from Verona airport to the main tourist destinations in the province.

### Focus and scope

- › The project is also part of an overall plan that Trentino Trasporti, the company managing the infrastructures and transport of the Autonomous Province of Trento, began implementing some time ago, for both the creation of industrial systems with low energy consumption and the purchasing of last generation rolling stock, such as 6 diesel-electric hybrid buses.
- › The technology adopted for the new minibuses, described as dominant fuel cell, is powered by an electric motor, to which energy is supplied by the fuel cell system, capable of transforming hydrogen gas stored in special containers into electrical energy with



## USE OF INNOVATIVE TECHNOLOGIES FOR PUBLIC TRANSPORT TRENTO (REGIONAL LEVEL)

a process of oxide reduction (no combustion). Furthermore, the system allows the kinetic energy of the vehicle to be exploited to recharge the auxiliary lithium batteries during braking.

### Impacts

- › The adoption of hydrogen fuel cell technology indeed makes it possible to overcome some of the technical limitations of “traditional” battery powered systems, such as long recharging times, for example (it takes around ten minutes to fill up with hydrogen), performance depending on battery charge and external temperature, and lower autonomy in terms of kilometre range.

### Costs and revenue

- › The two new minibuses represent the technological excellence of the circulating rolling stock: what is more, in November 2012 new hybrid vehicles were presented in Predazzo.
- › Overall, in numerical terms, 464 and 233 vehicles respectively were used for extra-urban and urban services.
- › As regards the average age of the circulating fleet in 2012, the buses were on average 9 years old (extra-urban Euro 5 EEV vehicles arrived at 21%, definitively eliminating Euro 0 vehicles and reducing class Euro 1 vehicles to 1%)
- › The average age in 2013 will be around 10, with the introduction (pursuant to expenditure of 3.5 million euro allocated for the current financial year) of 9 urban buses and 8 inter-urban buses, all EEVs.
- › The 233 urban buses are used for services in the municipalities of Trento, Rovereto, Pergine Valsugana (started up in 2008) and the upper Lake Garda area (considered as urban services starting from 2008). Urban transport also includes transport related to tourism in different municipalities in Trentino. The relevant local authorities provide for the funding of urban transport, using the transfers for this scope provided for by local funding and their own additional resources.
- › The data recorded for the 2005-2011 period show an increase in expenditure in real terms (calculated by applying a deflation index to the amounts effectively funded) and an increase in the number of passengers. Indeed, expenditure went up by 37.5% in the period in question, with an average annual increase of 5.6%. In the same period, the increase in the number of passengers was 30%, with an average of 4.5% a year, the number of kilometres funded being essentially unchanged. The ratio between passengers and km oscillated between 3.1 and 4.
- › The 464 extra-urban buses are used for transport services outside the main towns, services which saw an increase in the number of kilometres covered (1.8% in the 2005-2011 period) and the number of passengers (nearly 12% over the whole period).

### Responsibilities, legal and institutional framework

- › The implementation of the project has been supervised and developed by Dolomitech S.r.l., a local start up company with its headquarters in Villa Agnedo, in the Valsugana, while hydrogen supplies have been organised at a pilot station set up in Panchià. Furthermore, the initiative is technologically linked to the Green Corridor project, which provides for hydrogen supply systems for the Brenner axis, also serving the private transport sector.





## MEASURES TO INCREASE ATTRACTIVENESS OF RAIL TRENTO (REGIONAL LEVEL)

### Objectives/intention

- › Funding contribution included within the provincial budget, considering progressive activation/replacement by the Province in the planning and funding of local railway services, according to the implementation rules (D.P.R. 587/87, supplemented by D. Lgs. 174/2001).

### Main information on measure

- › Railway transport includes transport provided along the Valsugana line, partly with trains owned by Trentino Trasporti S.p.A (10 out of the 15 'Minuetto' trains in operation), funded by the Province, and along the Brenner railway, falling under the jurisdiction of the province, operated according to an agreement with Trenitalia spa (over time APT has added around a further million km to the 1,389,000 km/year covered, previously under 'state' and now "provincial" jurisdiction as a result of the framework agreement on transfer in 2006). The data therefore show a major increase both in terms of kilometres covered and the relative funding contribution included within the provincial budget, considering progressive activation/replacement by the Province in the planning and funding of local railway services, according to the implementation rules (D.P.R. 587/87, supplemented by D. Lgs. 174/2001).
- › Considering the cost of the local railway service (currently 30 million euro a year in favour of Trenitalia), a series of studies on "self-production", led the relevant department to instruct the company managing the service to obtain ANSF certification for railway companies operating on the national network.

### Focus and scope

- › As regards the number of passengers, the major increase recorded in 2007 (from 1,261,000 to 3,108,000) was a result of the introduction of clock-face scheduling in the Valsugana, with a doubling of passengers/day for this stretch, whereas the increase in 2008 can be justified by the clock-face scheduling introduced on the Brenner line in December 2008.

### Costs and revenue

- › Considering the cost of the local railway service (currently 30 million euro a year in favour of Trenitalia), a series of studies on "self-production", led the relevant department to instruct the company managing the service to obtain ANSF certification for railway companies operating on the national network.

### Implementation process

- › Obtaining the ANSF certificate took place in April 2013, a result which must be considered the main innovation, due to important financial and service repercussions in the last five years, also with the starting up of the railway service in May 2013, which will be progressively extended until 2014, with Trentino Trasporti Esercizio spa supplying half the service on the Valsugana line.

## NEW INFRASTRUCTURE FOR NON-MOTORISED TRAFFIC TRENTO (REGIONAL LEVEL)

### Objectives/intention

- › Planning and design of a pedestrian and cycle route network

### Main information on measure

- › In the province of Trento an office dealing with the planning and design of the pedestrian and cycle route network has been set up to coordinate planning activities, works management and maintenance. Promotion of cycle and pedestrian routes at important national and international events has also been started up and new projects have been approved. There are around 300 Km of cycle routes distributed throughout the province.

### Implementation process

For the promotion of the cycle routes the following purposes are available:

- › cycling guides: containing useful information for organising biking excursions in Trentino and representing an effective way of getting to know the area better;
- › ecological counters: these are devices acquiring data on cycle traffic, through a system of sensors positioned along the routes;
- › more gardens, fewer roads: along the cycle routes green areas have been extended, to create increasingly pleasant itineraries, separate from the usual routes along roads;
- › 'bicigrill' refreshment areas: facilities are made available along the cycle routes providing information, support and a refreshments area. At the 'bicigrill' there is a stop-off area with tables and benches, an area providing refreshments, a small workshop, a bathroom and a small storage area.



THE “SOUTH TYROL PULSE”	SOUTH TYROL (REGIONAL LEVEL)
<b>Objectives/intention</b>	
<ul style="list-style-type: none"> <li>› Bus and railways should become a real alternative for car users for a wide range of target groups</li> </ul>	
<b>Main information on measure</b>	
<ul style="list-style-type: none"> <li>› Pre-conditions are that there is an appropriate supply of modern, environmental-friendly means of transport. On the other side the travel times must match consumer demands and they must therefore be easily memorable and well synchronised. To support modal shift to public transport, the project “South Tyrol Pulse” (Südtirol-Takt) is on good track. The main elements of the project are the following: Trains should operate as “back-bone” in local public transport with hourly and half-hourly connections between the most important routes between the heavy traffic junctions. Additionally, a concentrated supply of these services should be available during peak times. These elements are included in an overall concept that contains four pillars: <ul style="list-style-type: none"> <li>• Synchronisation of the system: Overall concept – Integrated and synchronized timetable</li> <li>• Attractive supply: Modern rolling stock, vehicle fleet on cutting-edge, user-friendly (bus) stops and railway stations, cleanliness, punctuality and security</li> <li>• Customer orientated tariff system: Commuters, pupils, students, seniors, families and groups, day-trippers etc.</li> <li>• Easy and comfortable access, all-round service: Sales network, dynamic customer information with regard to arrival- and departure times, Stylingbook as well as central contact point “Info mobility”</li> </ul> </li> </ul>	
<b>Focus and scope</b>	
<ul style="list-style-type: none"> <li>› The challenge that exists is the coordination of the various connections in the region. These various connections must be coordinated and synchronised. In terms of the bus connections there are in total 99 over-land lines, 22 city lines , 19 city-busy lines and 438 special student-services</li> <li>› The train connections compromise regional trains (half-hourly and hourly running trains on lines), express trains or international trains as well as around 200 cargo trains (these are running on different days respectively and within different time stages).</li> </ul>	
<b>Impacts</b>	
<ul style="list-style-type: none"> <li>› Within the time frame between 2008-2013 (Effective: 30<sup>th</sup> of July 2013) the following can be listed: The railway kilometres were increased from 2.8 up to 5.99 million kilometres and the bus line kilometres were augmented from 22.1. up to 31 million kilometres. Since 2006 there was a tripling of customers (more than 1 million customers a year) on the Pustertaler train. Since 2005, in total 42 railway stations and train station areas have been modernised.</li> <li>› The vehicle fleet has also seen a comprehensive modernisation: 50% of the buses were replaced by new buses since 2005 (in total: 360 new buses)</li> <li>› With regard to local guest cards, in total more than 600.000 mobile/museum mobile/ bike mobile cards were activated. More than 70.000 students and 60.000 seniors are riding public transport for free since 2008. Before, there were only around 5000 abo-users in each of the two categories.</li> <li>› To further develop public transport in South Tyrol an increase in the use of new trains should occur from 2013/2014. New stops and connections are currently planned. The new stop “Bruneck Nord” was introduced in September 2013. The new stop “Kaiserau” close to Bozen was activated in December 2013 and started with an hourly connection to Meran-Bozen-Brenner.</li> <li>› The new “FLIRT”-trains were delivered in Autumn 2013. With their introduction there are greater opportunities for border-crossing railway services (Doublestream). From De-</li> </ul>	

September 2013 on there is the connection between Bozen-Innsbruck without the necessity to change trains at Brenner.

- › The building of the new stop „Vierschach“ in Pustertal and its activation is planned for Autumn 2013. The redesign of the railway station “Innichen” with a respective master-plan for relocation was developed and tendered.



## Pillar 5- Innovative Approaches



### AGREEMENT BETWEEN THE REGIONS AND AUTONOMOUS PROVINCES OF NORTH ITALY AND FIVE ITALIAN MINISTRIES (REGIONAL AND NATIONAL LEVEL)

#### Objectives/intention

- › Programmatic agreement for a coordinated and mutually conducted implementation of measures that enhance air quality

#### Main information on measure

- › Previous experiences have made clear that it is difficult for a single region or province to enforce effective air quality measures, especially to curb NO<sub>2</sub> emissions along motorways. A common approach of the actors in the wider area of the Po valley in Northern Italy might bring synergies and would improve the situation.
- › The programmatic agreement „Accordo di Programma per l'adozione coordinata e congiunta di misure di risanamento della qualità dell'aria” for the coordinated and mutually conducted implementation of measures for enhanced air quality is an agreement between the regions Piemonte, Veneto, Emilia-Romagna, Lombardia, Valle d'Aosta, Friuli Venezia Giulia as well as the autonomous provinces Trient and Bozen and five ministries (ambiente/environment, sviluppo economico/economic development, trasporti/transport, agricoltura/agriculture, salute/health).
- › With regard to fine particles there occurred no exceedance of the threshold value in South Tyrol. However, the nitrogen dioxide (NO<sub>2</sub>) problem is of interest in this region. In the cities of Bozen and Brixen and especially along the motorways, there exist party strong exceedances of annual threshold values. Any form of sanitation of motorways that could minimise emissions of air pollutants were not conducted by the respective Italian ministry so far.
- › The state requirements prescribe that for measures that are of state competence (regolamentazione circolazione su autostrade – Regulation of traffic on the motorways) which could improve air quality, the implementation of a committee on the Presidenza del Consiglio dei Ministri (president of the cabinet) level can occur on request. This committee will identify the measures that need to be implemented. The autonomous province has - in consultation with the A22, the affected municipalities and especially Bozen and Brixen here – already announced interest in such a committee in 2011. However, so far no such a committee was established.

#### Focus and scope

- › On state level, the environmental certification for small-scale wood-firing plants, a re-definition of emission threshold values for biomass power stations, the financial support for new technologies, materials and fuels should in future also incorporate targets to improve air quality. Additional measures with regard to energetic sanitation of buildings, adaptation of funding for the energy products that emerge out of biomass and an adaptation of the in the street codex incorporated directive „Piani urbani di mobilità” – mobility plans for cities are in planning. Besides, also a realignment of the speed limit on motorways and on great traffic axes, a common regulation for traffic restrictions and the funding of electric vehicle and hydrogen vehicles should occur.
- › The regions and provinces compel themselves to implement the listed measures on local level. This takes also place within the respective air quality plan. Additionally, the actors are obliged to participate at the working group meetings. In this regard, the exchange of information and the coordination between the participants can be intensified.