

**Table 1: Description of measures in the field of railway transport (Strategy, 2014)**

Code	Measures	Harmonisation with the Transport Development Strategy	Description of measures
<b>Railway</b>			
<b>Elements of the railway network</b>			
<b>R.1</b>	Koper–Ljubljana		The corridor which connects Koper and Ljubljana with Eastern Europe is mostly used for goods transport, but it also offers the opportunity for international passenger transport in the Divača–Ljubljana section. The corridor is part of the Mediterranean and Baltic-Adriatic TEN-T corridors. In order to meet the expected growth in needs in the Port of Koper for goods transport and similar growth in the economy, its capacity has to be enhanced. Furthermore, Koper is Slovenia's main TEN-T port and one of the most important ports in the Adriatic Sea. In addition to enhancing capacity relating to the significance of the railway connection for goods transport, the railway network will have to fulfil the following minimum technical criteria: 22.5 t of axle load, 750 m long trains, ERTMS and electrification. The base for project speed is 100 km/h, but this will have to be confirmed as per the economic criteria within the feasibility study (together with the main parameters for the railway line, which will also determine whether a double-track line is necessary).
<b>R.2</b>	Zidani Most–Dobova (HR)		The section is part of the Mediterranean corridor (MED) and the TEN-T core network. It is used mainly for goods transport and partly for passenger transport, and also provides a good opportunity for enhancement. The TEN-T standards have to be provided on the corridor with a sufficient axle load, speed, electrification and capacity. The upgrade is required relating to the length of trains (740 m) and introduction of the ERTMS.
<b>R.3</b>	Ljubljana–Jesenice (AT)		This section is part of the TEN-T comprehensive network. It is important for cargo and at least two-thirds of it are used for passenger transport (daily commuting of passengers). It is important to increase the capacity of the line and upgrade the (quality) of service (and speed, frequency of service, ERTMS, length of trains).
<b>R.4</b>	Ljubljana Railway Hub (LRH)		The LRH is a crossroads of international transport corridors and the most important national transport hub. The enhancement of capacities is necessary for the provision of capacity of trade flows and to improve public passenger transport services. In addition to the re-arrangement (reorganisation) of the existing hub and extensions of tracks, several bypasses for goods transport will be necessary, so that it no longer takes place at the main railway station.
<b>R.5</b>	Ljubljana–Zidani Most		The section is part of the Baltic-Adriatic (BA) and the MED corridors and presents part of the TEN-T core network. It is intended for mixed transport. The TEN-T standards for the core network have to be provided on the corridor with sufficient axle load and capacity. The line is also electrified and the upgrade is necessary to achieve higher speeds (100 km/h), the length of trains (740 m) and the ERTMS.

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<b>R.6</b>	Divača–Sežana (IT)		The section is in the BA and MED corridors and is part of the TEN-T core network. It is intended for mixed transport. The TEN-T standards for the core network have to be provided on the corridor with sufficient axle load and capacity. The line is also electrified, and the upgrade is necessary to achieve higher speeds (100 km/h), the length of trains (740 m) and the ERTMS.
<b>R.7</b>	Pragersko–Hodoš (HU)		The section is part of the MED corridor and the TEN-T core network; it is intended for goods transport and partly also for passenger transport; the line complies with the TEN-T standards (or it will comply after the completion of the current investment). Its capacity is currently sufficient; although it is a single-track line. The possible construction of an additional second track depends on Hungary's plans or the enhancement of transport flows.
<b>R.8</b>	Maribor–Šentilj (AT)		The section is part of the BA corridor and the TEN-T core network; it is intended for mixed transport. This is a single-track line whose capacity has to be enhanced (also with the construction of the second track). The line has to be upgraded in order to comply with the TEN-T standards (axle load of 22.5 tonnes, speed of 100 km/h, train length of 740 metres and the ERTMS).
<b>R.9</b>	Pragersko–Maribor		The section is part of the BA corridor and the TEN-T core network; it is intended for mixed transport. The line capacity suffices; its upgrade is necessary to meet the TEN-T standards (particularly axle load of 22.5 tonnes, speed of 100 km/h, train length of 740 metres and the ERTMS).
<b>R.10</b>	Zidani Most–Pragersko		The section is part of the BA and MED corridors and the TEN-T core network; it is intended for mixed transport. The line capacity suffices; its upgrade is necessary to meet the TEN-T standards (particularly axle load of 22.5 tonnes, speed of 100 km/h, train length of 740 metres and the ERTMS).
<b>R.11</b>	Postojna–Ilirska Bistrica–Šapjane (HR)		The section is part of the TEN-T comprehensive network and is particularly important for cargo. The line capacity has to be improved and upgraded to a higher level of service, i.e. increased speed and frequency.
<b>Railway network</b>			
<b>R.21</b>	ETCS/GSM-R		The installation of the ETCS system on railway lines which were not mentioned in the preceding measures would improve the interoperability of the entire network. Because the installation depends on the concept of functioning, it would be perhaps possible to also install the ETCS and GSM-R on other lines in the Slovenian network (fully and not only on parts of the TEN-T network). Further studies will determine specific needs and technical parameters (e.g. ETC's 2 <sup>nd</sup> level) for each case.
<b>R.22</b>	Electrification		The electrification of regional railway lines would improve the efficiency of the existing infrastructure. Further studies will determine specific needs and technical parameters for each case.
<b>R.23</b>	Renovation and upgrading of other lines		The studies of individual sections will determine the need for renovation and upgrading of lines which were not included in the specific measures; whereby, the concept of operations and economic and environmental aspects

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			will also be observed.
<b>R.24</b>	Safety		The elimination of dangerous level crossings: the relevant legislation must be changed for this purpose and we would have to re-determine which types of level crossings may be defined as suitably or unsuitably secured and thus dangerous. A schedule for eliminating unsuitably secured level crossings would be prepared on this basis.
<b>Functioning/organisation of the railway</b>			
<b>R.31</b>	Reorganisation of railway access charges		Railway access charges may be used as a tool to improve the sustainability of the rail transport system. Railway access charges have to be proportionate with emissions and thus in accordance with the liability principle of the responsible person. By harmonising access charges with railway managements in neighbouring countries, international transport would be facilitated.
<b>R.32</b>	Multi-annual contract on the implementation of public services		Contract(s) on the implementation of public services in compliance with Regulation (EC) No 1370/2007 are a basic tool for ensuring transparency and efficiency when performing public transport services. The extended implementation of contracts on the implementation of public services is needed not only for compliance, but also as the first step to improving the sustainability of Slovenia's transport system. The typology and duration of contracts on the implementation of public services have to be determined by an analysis of individual cases together with the applicability of our own model (which may be based on questions of full compliance or on applicability after a thorough evaluation of technical and financial requirements).
<b>R.33</b>	Enhancing financial sustainability		Improving financial sustainability is one of the objectives of the Pan-European transport network. In order to achieve this objective, the organisational structure of the railway system has to be optimised and the efficiency of functioning and maintenance has to be increased. The financial sustainability of the railway system should reduce the system's dependence on public subsidies. Further studies will assess the concrete measures needed to optimise costs and income.
<b>R.34</b>	Modernisation of passenger train fleet		In accordance with the anticipated improvements to infrastructure, the train fleet needs to be modernised in order to increase rail transport's competitiveness in comparison with other means of transport. A comprehensive analysis of the current organisational, operational and maintenance structures of the railway operator is the first step towards developing this measure, and thus further requirements and an operational and maintenance plan. After the actual needs have been established, specific technical requirements relating to the train fleet will be defined on the basis of further studies.

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R.35	Modernisation of goods train fleet		The goods train fleet consists mainly of regular closed and open wagons, among which some are suitable for combined transport. A comprehensive analysis of the current organisational, operational and maintenance structures of the railway operator is the first step towards developing this measure, and thus further requirements and an operational and maintenance plan. After the actual needs have been established, specific technical requirements relating to the train fleet will be defined on the basis of further studies.
R.36	Modernisation of legislation and planning guidelines		Legislation and guidelines for planning related to railway have to promote the development of the sector and should be in compliance with the best international practices and European regulations, particularly relating to safety, interoperability, sustainability and the environment. Forming/encouraging notified/responsible bodies.
R.37	<ul style="list-style-type: none"> <li>• Development of a concept for maintaining the railway network</li> </ul>		The Republic of Slovenia disposes of a branched infrastructure in the field of roads and railway and other infrastructure. The infrastructure enables people's mobility and the implementation of economic activities. In recent years, managers have conducted various measurements of the situation, which enable the establishment of the actual state of infrastructure. In certain segments, a computer-supported system was introduced, which enables simultaneous monitoring of the situation and enables the preparation of renovation plans on the basis of mathematical models. Such models provide for effective infrastructure management and enable the system to become financially sustainable in the long term. Systems based on real data on the state of the infrastructure enable more suitable planning of necessary financial resources in the long term.
R.38	Reorganisation of operations/timetables		The timetable needs to be rearranged (suitable timetable) to increase the share of rail transport and to improve the connectivity and efficiency of services. This possibility will be analysed in further studies by observing the passenger potential and operational and infrastructural requirements.
R.39	Reducing the environmental impacts		Measures relating to environmental protection in the field of transport particularly refer to reducing noise expansion in the environment (anti-noise barriers and embankments). More concrete measures will have to be defined when amending the operational programme for noise protection. The focus must be on reducing noise at source. The reduction of noise emissions will have to be observed when implementing measures R.34 and R.35.

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<b>R.40</b>	Development of the network in intermodal hubs, agglomerations in accordance with demand		<p>The new TEN-T regulation determines the following transport hubs in Slovenia: Ljubljana and Koper as hubs in the core section of the TEN-T network, and Maribor as the hub in the comprehensive section of the TEN-T network. These hubs have the greatest potential for developing logistics in the field of cargo, and Ljubljana and Maribor also have the potential to establish multimodal passenger platforms. However, the transfer of cargo and passengers from one means of transport to another could be better (i.e. expanded) provided for in Slovenia. This would enable more efficient combinations of different means of transport in a transport chain and thus increase traffic efficiency. Possible points of passenger and cargo transfer between different transport modes have to be identified for this purpose. Intermodal passenger platforms for increasing the use of public passenger transport would have to be formed where this is proven necessary, and the efficient or suitable connectivity of logistic cargo terminals with different transport modes would have to be ensured if the economy so requires.</p>

**Table 2: Description of measures in the field of road transport (Strategy, 2014)**

Code	Measures	Harmonisation with the Transport Development Strategy	Description of measures
<b>Road transport</b>			
<b>Elements of the road network</b>			
Ro.1	Draženci–Gruškovje motorway (HR)		The section is part of the TEN-T comprehensive network; the motorway section from Slivnica near Maribor to Draženci near Ptuj was constructed several years ago. The conditions in the current road network in 2030 were analysed, i.e. at the time of the afternoon rush hour on an average working day and a peak period at the time of the tourist season. It was established that traffic capacity will be exceeded in 2030. Traffic at the time of tourist peak periods is particularly problematic, since transport between Ptuj and the Slovenian-Croatian border takes place on a two-lane main road. Major congestion occurs at that time, which imposes additional burden on the environment. This is the only section of the road, over the length of 13 km between Maribor and Zagreb, which is not motorway and where a motorway has to be constructed.
Ro.2	Karavanke Tunnel		The section is part of the TEN-T comprehensive network. It poses a problem in the current conditions due to its capacity in peak periods when congestion occurs. On certain days, there are queues several kilometres long. Due to safety, access for haulage vehicles is limited or access to the tunnel is controlled. Traffic volumes are also growing annually, thus additionally increasing the extent and number of days with congestion, which is problematic for users (congestion, environmental burdening) and the tunnel manager (provision of safety). No other alternative exists for a single-tube tunnel than to construct an additional tube, which will provide a full profile four-lane road. This will also improve traffic safety, which is in compliance with the provisions of the directive on safety in tunnels (Directive 2004/54/EC).
Ro.3	Development of the concept of rest areas in the motorway network		In compliance with Article 19 of the TEN-T Regulation (No 1315/2013), the TEN-T core network defines the priorities of member states for road infrastructure development. <i>Inter alia</i> , the Regulation anticipates the provision of appropriate parking space for commercial users, offering an appropriate level of safety and security. The measure also includes the provision of IT support for the number of free spaces at car parks and also the provision of additional capacities by expanding existing car parks or the construction of new ones if necessary. The result of the accession of the Republic of Slovenia to the EU and the adoption of the so-called Schengen regime on its borders is that border posts have to be rearranged or other functions have to be allocated to them. A review and analysis of border posts have to be prepared within the measure to establish their needs, define a new and changed function and prepare projects for rearranging these surfaces.

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<b>Ro.4</b>	Connecting Bela Krajina with Novo mesto		Individual areas in Slovenia have poor connections with regional centres, or their access is poor due to low travel speeds. A suitable standard of access to centres of regional importance, core centres and core or comprehensive transport network has to be ensured. The measure anticipates the preparation of a project which observes the actual needs of the transport system. It is foreseen to use, reconstruct or upgrade the existing transport infrastructure to the greatest extent possible. Interventions are particularly planned for the existing transport infrastructure. Only in certain cases or locations where a suitable standard cannot be obtained with the existing infrastructure is the possibility of preparing a project outside the existing transport infrastructure studied.
<b>Ro.5</b>	Novo mesto city network		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day. On certain sections of the network, traffic congestion occurs, and thus related excessive emissions in the living environment. The prevention, reduction or mitigation of environmental impacts, particularly in living environments due to activities related to traffic, are among the main strategic objectives. The measure anticipates a bypass which creates suitable conditions for traffic flow capacity for long-distance and origin-destination traffic in the city. The measure will also provide better conditions in the living environment.
<b>Ro.6</b>	Connecting Bohinj and Bled with Ljubljana		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day. On some sections of the network, particularly between the motorway and Bled, traffic congestion occurs. This particularly applies to tourist peak periods or peak periods at weekends. The measure anticipates the reconstruction of the current road, which will create suitable capacity conditions for long-distance and origin-destination traffic in the town and the construction of a southern bypass in Bled. These measures will also provide better conditions in the living environment.
<b>Ro.7</b>	Connecting Bovec, Tolmin and Cerkno with Ljubljana		Individual areas in Slovenia have poor connections with regional centres or their access is poor due to low travel speeds. A suitable standard of access to centres of regional importance, core centres and core or comprehensive transport network has to be ensured. The measure anticipates the preparation of a project which observes the actual needs of the transport system. It is foreseen to use, reconstruct or upgrade the existing transport infrastructure to the greatest extent possible. Interventions are particularly planned for the existing transport infrastructure. Only in certain cases or locations, where a suitable standard cannot be obtained with the existing infrastructure, the possibility of preparing a project outside the existing transport infrastructure is studied.
<b>Ro.8</b>	Škofja Loka city network		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day. On certain sections of the network, traffic congestion occurs and thus related excessive emissions in the living environment. The prevention, reduction or mitigation of environmental impacts, particularly in living environments due to activities related to traffic, are among the main strategic objectives. The measure anticipates the construction of a bypass road which creates suitable capacity conditions for long-distance and origin-destination traffic in the town. The measure will also provide better conditions in the living environment.

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<b>Ro.9</b>	Connecting the Koroška region with the motorway system		Individual areas in Slovenia have poor connections with regional centres, or their access is poor due to low travel speeds. A suitable standard of access to centres of regional importance, core centres and core or comprehensive transport network has to be ensured. The measure anticipates the preparation of a project which observes the actual needs of the transport system. It is foreseen to use, reconstruct or upgrade the existing transport infrastructure to the greatest extent possible. Interventions are particularly planned for the existing transport infrastructure. Only in certain cases or locations, where a suitable standard cannot be obtained with the existing infrastructure, is the possibility of preparing a project outside the existing transport infrastructure studied.
<b>Ro.10</b>	Connecting Hrastnik with Zidani Most and Brežice		Individual areas in Slovenia have poor connections with regional centres or their access is poor due to low travel speeds. In this section, the main road has only one lane, thus enabling alternating traffic in one direction. A suitable standard (two-lane main road) of access to centres of regional importance, core centres and core or comprehensive transport network has to be ensured. Furthermore, a suitable connection past Krško to Brežice has to be provided.
<b>Ro.11</b>	Connecting Kočevje with Ljubljana		Individual areas in Slovenia have poor connections with regional centres, or their access is poor due to low travel speeds. A suitable standard of access to centres of regional importance, core centres and core or comprehensive transport network has to be ensured. The measure anticipates the preparation of a project which observes the actual needs of the transport system. It is foreseen to use, reconstruct or upgrade the existing transport infrastructure to the greatest extent possible. Interventions are particularly planned for the existing transport infrastructure. Only in certain cases or locations, where a suitable standard cannot be obtained with the existing infrastructure is the possibility of preparing a project outside the existing transport infrastructure studied. In addition to road infrastructure, there is also railway infrastructure in the direction of Kočevje. Both transport means have to be considered within the preparation of the measure and it must be established which concrete measures can meet the objectives of faster and better accessibility. In particular, it has to be studied whether the upgrading of the railway infrastructure would fully meet the objectives of faster and more efficient accessibility, or if the final proposals of measures should be sought in the road and rail infrastructure by ensuring the more efficient implementation of public transport.
<b>Ro.12</b>	Motorway network around Ljubljana		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day. Congestion occurs on almost all sections of the Ljubljana motorway ring. With the introduction of public transport in which railway assumes a more significant role in the main directions or in the direction of regions, it can be expected that some traffic will decrease; nevertheless, an increase in traffic can be expected up to e.g. 2030 due to an increase in mobility. Some of these problems may be solved with the introduction of ITS services. If these measures fail to solve the problems completely; it will be necessary to prepare measures which enable an increase in the capacity of the existing motorway sections and link roads. The existing infrastructure could probably be expanded for another driving lane in each direction.

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<b>Ro.13</b>	Connecting Gorenjska and Štajerska		The connection between Gorenjska and Štajerska is provided via Ljubljana with the route of the motorway or expressway running north of Ljubljana. As a result, a large volume of transport between Gorenjska and Štajerska is conducted via a longer route, which results in additional costs to users. Such traffic burdens the Ljubljana motorway ring and causes additional burdening of the environment with emissions. A direct connection between Gorenjska and Štajerska (Želodnik-Vodice) would shorten the travel route between both regions.
<b>Ro.14</b>	Connecting Štajerska and Dolenjska		The connection between Štajerska and Dolenjska is provided via Ljubljana with a motorway. As a result, a large volume of the transport between Štajerska and Dolenjska is conducted via a longer route, which results in additional costs to users. Such traffic burdens the Ljubljana motorway ring and causes additional burdening of the environment with emissions. The existing roads between Celje and Novo mesto do not provide adequate connections. A direct connection between Štajerska and Dolenjska would shorten the travel route between both regions. The possibility of using the existing infrastructure which would have to be updated for speeds of e.g. 90 km/h or e.g. in certain sections for speeds of 70 km/h has to be studied.
<b>Ro.15</b>	Connecting Škofja Loka/Medvode with Ljubljana		Škofja Loka and Medvode generate a lot of traffic, particularly due to commuting. Daily burdening of traffic from these directions is particularly pronounced during morning and afternoon rush hours. Congestion occurs on the road between Ljubljana and Medvode; as a result, congestion increases costs to users and additionally burdens the environment. Some commuters have to be directed towards other forms of transport, e.g. public passenger transport; whereby, it has to be studied which organisational solutions (bus or rail transport) could meet the current and expected needs. In addition to the organisational solutions, the possibility of upgrading the existing infrastructure: railway (e.g. the upgrade of the existing track, construction of an additional track) and road (e.g. expansion of the existing road, possible relocation of the current route (bypass)) also has to be studied.
<b>Ro.16</b>	Road network around Maribor		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day. The main problem occurs in the southern part of Maribor, i.e. from the western part of Maribor and the hinterland in the direction of the expressway or motorway. On certain sections of the network, traffic congestion occurs and thus related excessive emissions in the living environment. The prevention, reduction or mitigation of environmental impacts, particularly in the living environments due to activities related to traffic are among the main strategic objectives. The measure anticipates the construction of a bypass road to create suitable capacity conditions for long-distance and origin-destination traffic in the city. The measure will also provide better conditions in the living environment.

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<b>Ro.17</b>	Road network around Koper		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day and in a tourist peak period. Traffic congestion occurs on certain sections of the network (from the direction of Koper to the Dragonja border crossing) and thus related excessive emissions in the living environment. The prevention, reduction or mitigation of environmental impacts, particularly in living environments due to activities related to traffic are among the main strategic objectives. The measure anticipates the construction of a bypass road to create suitable capacity conditions for long-distance and origin-destination traffic in the town. The measure will also provide better conditions in the living environment.
<b>Ro.18</b>	Connecting Ilirska Bistrica (HR) with the motorway system		Currently, Ilirska Bistrica and its hinterland use a main road which is inadequate for a long-distance main road. Tourist traffic from Postojna to Croatia (Rijeka, western part of Istria, Kvarner) increases particularly during tourist season. In peak periods, traffic reaches 3- to 4-times the average. The section from Postojna to Croatia is part of the TEN-T comprehensive network. Traffic analyses reveal that the road is inadequate in current conditions, since it passes through settlements; some of the road lacks suitable elements, and goods traffic is also limited. The measure anticipates the modernisation of the existing infrastructure in order to ensure an appropriate standard and capacity for the existing road, e.g. for speeds of up to 90 km/h or with limits to 70 km/h. The measure also foresees the study of relocating a section of the route that passes through settlements in order to separate long-distance traffic from national transport and origin-destination traffic. Traffic safety must also be improved and solutions have to observe the separation of motorised and non-motorised traffic.
<b>Ro.19</b>	Celje city network		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day and in a tourist peak period. Traffic congestion occurs on certain sections of the network in Celje between motorway link roads and the remaining network, and thus related excessive emissions in the living environment. The prevention, reduction or mitigation of environmental impacts, particularly in living environments due to activities related to traffic are among the main strategic objectives. The measure anticipates the construction of a bypass road to create suitable capacity conditions for long-distance and origin-destination traffic in the town. The measure will also provide better conditions in the living environment.
<b>Ro.20</b>	Connecting Ormož with Ptuj/Maribor		Individual areas in Slovenia have poor connections with regional centres, or their access is poor due to low travel speeds. A suitable standard of access to centres of regional importance, core centres and core or comprehensive transport network has to be ensured. The measure anticipates the preparation of a project which observes the actual needs of the transport system. Interventions are particularly planned for the existing transport infrastructure. Only in certain cases or locations where a suitable standard cannot be obtained with the existing infrastructure is the possibility of preparing a project outside the existing transport infrastructure studied.
<b>Ro.21</b>	Nova Gorica city network		The conditions of the current road network in 2030 were analysed, i.e. during the afternoon rush hour on an average working day and in a tourist peak period. Traffic congestion occurs on certain sections of the network in Nova Gorica, and thus related excessive emissions in the living environment. The prevention, reduction or

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			mitigation of environmental impacts, particularly in living environments due to activities related to traffic are among the main strategic objectives. The measure anticipates the construction of a bypass road to create suitable capacity conditions for long-distance and origin-destination traffic in the city. The measure will also provide better conditions in the living environment.
<b>RO.22</b>	Connecting Kozjansko, Rogaška Slatina and hinterland with the central network		Individual areas in Slovenia (e.g. Kozjansko, Šentjur, Rogaška Slatina etc.) have poor connections with regional centres, or their access is poor due to low travel speeds. A suitable standard of access to centres of regional importance, core centres and core or comprehensive TEN-T transport network has to be ensured. The measure anticipates the preparation of several projects which observe the actual needs of the transport system. Interventions are particularly planned for the existing transport infrastructure. Only in certain cases or locations where a suitable standard cannot be obtained with the existing infrastructure is the possibility of preparing a project outside the existing transport infrastructure studied. The objectives particularly include improved and faster accessibility.
<b>Road network</b>			
<b>Ro.31</b>	Improving the accessibility of regions without direct connections to the TEN-T network		A better regional network (road and rail, depending on their presence) would enable access to regional centres within acceptable times.
<b>Ro.32</b>	Traffic management, monitoring and counting, and information system		Traffic management is an important aspect of the transport system. Collecting and processing traffic data serves as the basis for updating the traffic database. Traffic counts are conducted in different ways, whereby access to data on suitable platforms which are also accessible to the public has to be ensured. The functions of traffic control and management serve as the basis for optimising traffic flow capacity. Efficient systems enable management in order to reduce congestion in regular traffic and in the case of extraordinary traffic events. A traffic model was developed in the Republic of Slovenia during the preparation of the transport system development strategy. The model has to be maintained and updated by including new research (e.g. surveys of households, other research) and to ensure that the model is constantly up to date.

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<b>Ro.33</b>	Environmental protection and road safety		Measures relating to environmental protection in the field of traffic focus particularly on the prevention of noise pollution in the environment (anti-noise barriers, embankments). More concrete measures have to be defined in more detail when amending the operational programme on protection against noise. The following will be emphasised: a) noise emissions from road traffic have to be reduced at source; a detailed strategy and technological solutions to ensure efficient noise reduction due from tyre-road sound emissions has to be prepared; and b) preparation of starting points to determine in which buildings and in what way the rehabilitation of noise isolation of critical facade elements should be implemented. On the basis of analyses of data on traffic accidents and on-site inspections, crossroads and sections with high rates of traffic accidents are determined. A programme of measures is then prepared for them which define possible immediate measures and short-term, mid-term and permanent measures to improve traffic safety. The national traffic model revealed that many dangerous crossroads and sections have to be rehabilitated.
<b>Ro.34</b>	Developing the network into intermodal hubs and agglomerations according to demand		The new TEN-T Regulation determines the following traffic hubs in Slovenia: Ljubljana and Koper as hubs in the core section of the TEN-T network and Maribor as the hub in the comprehensive section of the TEN-T network. These points have the greatest potential for the development of logistics activities relating to cargo, and Ljubljana and Maribor have the potential for establishing multimodal passenger platforms. However, the transfer of cargo and passengers from one means of transport to another could be better (i.e. expanded) provided for in Slovenia. This would enable more efficient combinations of different means of transport in a transport chain and thus increase traffic efficiency. For this purpose, possible points for passenger and cargo transfer between different means of transport have to be identified. Intermodal passenger platforms for increasing the use of public passenger transport would have to be formed where this is necessary and effective, or suitable connectivity of logistics cargo terminals with different means of transport has to be ensured where the economy so requires.
<b>Ro.35</b>	Filling stations for alternative fuels		The discussion of the proposal on the Directive on alternative fuels infrastructure within the EU institutions has ended (the EU Council and the European Parliament). The publication of the Directive is expected at the end of this year. It stipulates that Member States adopt national strategies on the use of alternative fuels for, i.e.: electric passenger vehicles, vehicles fuelled by compressed natural gas and hydrogen, cargo vehicles fuelled by liquefied natural gas, ships fuelled by liquefied natural gas and charging of ships with electric power from the land and charging aircraft with electric power at airports. The directive also defines deadlines (mostly by 2025); the deadline for filling stations for electric vehicles is 2020. The annex to the Directive also stipulates filling standards for the infrastructure. Relating to environmental requirements at the national or EU level, the purchase of electric or hybrid vehicles will have to be promoted so that at least 15% of transport on Slovenian roads by 2030 is without GHG emissions.

<b>Code</b>	<b>Measures</b>	<b>Harmonisation with the Transport Development Strategy</b>	<b>Description of measures</b>
<b>Ro.36</b>	Internalisation of external costs		This is a tool of transport policy based on the European Directive on charging heavy goods vehicles for the use of certain infrastructures (2011/76). The Directive stipulates that EU Member States have to start charging external costs at least for heavy goods vehicles weighing more than 11 tonnes (or for others as well) if they decide to take the measure. Congestion, air and noise pollution may also be charged additionally. This involves the inclusion of environmental costs as per energy efficiency (quantity of CO2/km) and purity of vehicles (Euro standard) in the price of charges for the use of public road surfaces and parking surfaces if these are in city centres. The condition is the introduction of electronic toll collection in free traffic flow.
<b>Ro.37</b>	Restrictive parking policy		Efficient measures for achieving objectives on the reduction of CO2 emissions and pollutants are: a) reducing the number of kilometres travelled by passenger vehicles in urban environments; b) increasing the share of pedestrian and bicycle traffic in the modal split; c) increasing the share of public passenger transport in the modal split; d) increasing the number of passengers in cars used in urban environment and reducing the use of fuel per cargo unit; e) improving the energy efficiency of vehicles; among measures to reduce the number of kilometres travelled by passenger car, an efficient restrictive parking policy measures are payable parking and limiting surfaces intended for parking passenger vehicles.
<b>Functioning/organisation of road traffic</b>			
<b>Ro.41</b>	Modernisation of legislation and planning guidelines		Legislation and guidelines on planning related to roads have to promote the development of the sector and comply with the best international practice and European regulations, particularly relating to safety, interoperability, sustainability and the environment. Forming/encouraging notified/responsible bodies.
<b>Ro.42</b>	Improving the financial sustainability of the road network and toll collection system		Stable earmarked source and the establishment of electronic toll collection
<b>Ro.43</b>	Development of a concept of road network maintenance (including reconstruction of roads at secondary and tertiary levels)		The Republic of Slovenia has a diversified infrastructure in the field of roads and railway and other infrastructure. The infrastructure enables people's mobility and the implementation of economic activities. In the past years, the operators initiated different measurements of the conditions which enable the establishment of the real situation of the quality of infrastructure. In some segments, e.g. a computer-supported system was introduced on motorways which enables prompt monitoring of the state of carriageways and the preparation of reconstruction plans on the basis of mathematical models supported with curves of carriageway degradation. Such systems enable efficient infrastructure management and enable the long-term financial sustainability of the system. Systems based on real data on the state of infrastructure which enable the planning of necessary measures also have to be introduced in other segments of infrastructure (other roads, railway etc.).

**Table 3: Description of measures in the field of urban traffic (Strategy, 2014)**

Code	Measures	Harmonisation with the Resolution on the Development of Transport	Description of measures
<b>Urban traffic</b>			
<b>Elements of the city network</b>			
U.1	Kamnik–Ljubljana corridor		This is one of the important radial roads towards the Slovenian capital, with a lot of traffic, particularly daily commutes to/from work. Public passenger transport is also quite extensive and could be improved, particularly relating to railways. This could be achieved by increasing the capacity and quality of services of passenger transport. A double-track line (or at least partial double-track line) would have to be ensured for this purpose in order to enable a suitable timetable and electrification.
U.2	Kranj–Ljubljana corridor		The section is an important radial road to Ljubljana, with a large number of passengers commuting by rail. There is already a lack of capacity to transport all potential passengers. In order to improve this, a double-track line has to be particularly ensured to enable a suitable timetable. This will be realised with the construction of the second track for the Ljubljana–Jesenice route.
U.3	Grosuplje–Ljubljana corridor		This is one of the important radial roads towards the Slovenian capital, with a lot of traffic (daily commutes to/from work), particularly by passenger vehicle (on the motorway). Public passenger transport, particularly rail transport could be improved in this section with certain measures. This could be achieved by increasing the capacity and quality of services of passenger transport. A double-track line (or at least partial double-track line) would have to be ensured for this purpose in order to enable a suitable timetable and electrification.
U.4	Connecting Ljubljana with the airport		The Ljubljana Jože Pučnik Airport does not have ideal connections within the public passenger transport with the capital, Ljubljana. On the one hand, more suitable bus connections (direct lines e.g. direct airport–Ljubljana line and not connections through surrounding settlements) or a suitable railway connection would have to be considered. The latter could be done with the construction of a second track on the Ljubljana–Jesenice route if the route was planned to run past the Airport. If this is not sensible or justified, the railway connection could still be considered if more than 3.5 million passengers pass through the airport annually.
<b>City network</b>			
U.11	Ljubljana P+R		Slovenia has a very specific settlement pattern. With regard to its size (20.273 km <sup>2</sup> ) and number of inhabitants (about 2 million), it has about 6,000 settlements. The application of P+R (park and ride) seems a suitable way to promote the use of public passenger transport. It is a combination of parking areas and public transport stops, which enables users to drive their cars or other vehicles to important points on the outskirts of a city or main city radial roads and then transfer to public transport or hire a bicycle. Potential points for constructing P+R were suggested by the traffic model, but a more detailed study will be necessary to plan their precise locations. Some 72 P+Rs are planned for Slovenia.

Code	Measures	Harmonisation with the Resolution on the Development of Transport	Description of measures
U.12	Maribor P+R		Maribor is the second largest Slovenian city, with a large share of daily commuters whose commute could be facilitated or improved with a suitable location of P+R. The car parks are connected directly with public transport capacities, which enable users direct access to the city centre in an environment-friendly way. Users avoid stressful driving through busy city streets, while the city is less burdened with passenger vehicles and the consequences of passenger vehicle traffic, i.e. overburdening of streets and car parks, pollution and general degradation of the environment in city centres. Some 6 P+Rs are planned for Maribor.
U.13	Slovenia P+R		Ljubljana is the largest Slovenian city and the capital, with the largest share of daily commuters, whose commute could be facilitated or improved with a suitable location of P+R. The car parks are connected directly with public transport capacities, which enable users direct access to the city centre in an environment-friendly way. Users avoid stressful driving through busy city streets and the city is less burdened with passenger cars and the consequences of passenger car traffic, i.e. overburdening of streets and car parks, pollution and general degradation of the environment in city centres. Some 25 P+Rs are planned for Ljubljana.
U.14	Development of stations		From the viewpoint of sustainable mobility/integrated public transport plans, a suitable analysis of the existing situation and the expected development of the transport system and social and economic circumstances in city and regional areas will help identify the need for renovation/upgrading of existing stations and the construction of new ones where this is justified by mobility rates. On the other hand, this could also mean the closure or functional degradation of some existing stations, where the expected mobility rates become irrelevant. The development of stations will focus particularly on improving accessibility, particularly for persons with limited mobility, which will ensure passenger safety. Information and public notification systems will also be introduced.
U.15	Separation of transport types – priority is given to public transport, elimination of congestion		Public transport (mostly buses and trams) has to coexist with passenger vehicles, since space in cities is always limited. More attention will be dedicated to public transport and the return of a section of urban space for use by its residents. In this sense, and in order to the increase efficiency of public transport, the level of separation of private passenger and public transport will be increased with the construction of driving lanes intended for public transport and/or purpose corridors for public passenger transport (trams and buses) and the implementation of measures favouring public transport by means of traffic management such as traffic lights. Furthermore, barriers and bottlenecks which hinder efficient public transport flow will be eliminated. These barriers and bottlenecks frequently cause delays to public transport and may even be a hazard to road safety (e.g. level crossings).

<b>Code</b>	<b>Measures</b>	<b>Harmonisation with the Resolution on the Development of Transport</b>	<b>Description of measures</b>
<b>U.16</b>	Enhancing intermodality (P+R etc.)		Some of the key aspects of establishing a good public passenger transport system and the success of integrated transport systems which promote the transition from private to public transport are increasing and facilitating intermodality. With the development of suitable intermodal terminals, the development of infrastructure such as Park & Ride, Kiss & Ride (a combination of being dropped off by a passenger car and transferring to public transport), Bike & Ride etc. will give commuters an additional option to access the city by avoiding congestion in central urban areas, and will promote the use of public transport. The location of this infrastructure will be analysed in more detail for each case separately, whereby its functionality will be observed, e.g. P+R is usually located on the outskirts of a city next to public transport terminals.
<b>U.17</b>	Cycle network		A plan of for the arrangement and categorisation of state and suburban cycling routes has to be made. The priority tasks will be to link the already constructed cycling sections into larger logically concluded units, the provision of a higher standard or level of service for cyclists, an additional reduction in the number of road accidents involving cyclists (the principle of Vision Zero applies abroad) and the construction of local cycling connections linked with the state cycle network which enable cyclists better mobility. The anticipated long-term end planning period for implementing the entire network is 25 years. The construction will be implemented in phases. Investments in the construction of a state cycle network have to be balanced relative to the anticipated individual short-, mid- and long-term planning phases. The economic planning of measures as per financial and spatial possibilities and available road infrastructure is necessary. It would be sensible to utilise as many suitable existing roads as possible with low average volumes of annual and daily traffic, which would be arranged accordingly and equipped with traffic signs for the safe flow and management of bicycle traffic. The construction of new cycling routes is anticipated only where no other option exists. The construction of cycling paths and lanes is anticipated particularly in settlements and where this is necessary for traffic safety.
<b>Functioning/organisation of urban traffic</b>			
<b>U.31</b>	Introducing integrated tickets		One of the most tangible benefits for users of integrated transport systems is the introduction of integrated tariff systems. The level of integration of the tariff system and type of tickets and technologies used (individual tickets and/or electronic tickets, smart cards or contactless payment etc.) will be analysed from case to case on the basis of the competence of the relevant transport body and by considering all options, such as the use of smart cards for the payment of P+R, street parking, tolls etc.
<b>U.32</b>	Introducing on-demand public transport services		One of the main objectives of the transport development strategy is to improve the sustainability of the transport system and to provide solutions for public transport which would be accessible to most citizens. While observing the lack of demand in some Slovenian regions in order to justify the introduction of regular public transport lines (e.g. rural areas or areas of dispersed settlement), the introduction of on-demand public transport services will provide an opportunity to make public transport services available also in the aforementioned areas.

Code	Measures	Harmonisation with the Resolution on the Development of Transport	Description of measures
U.33	Adjusting timetables (harmonised)		Timetables have to be harmonised to improve connectivity, efficiency and the harmonisation of different means of transport in order to increase the share of public transport in urban, suburban and regional traffic. This possibility will be analysed in further studies while observing passenger potential and operational and infrastructural demands.
U.34	Administrative capacities and training		<p>The introduction of integrated transport systems and new technologies together with the need to increase the financial sustainability and efficiency of transport systems leads to defining the lack of administrative capacities and suitably trained staff as one of the key questions in this sector and also one of the priorities of the EU cohesion policy. The application of additional administrative capacities in this sector is necessary particularly in the sense of introducing new jobs positions for integrated transport systems and the preparation and management of projects. The introduction of new technologies means that current and new staff will have to be trained to enable the correct functioning and maintenance of these systems.</p> <p>Due to the close connection of urban, suburban and regional transport with zero emissions and users of passenger vehicles, training will be implemented in combination with educational programmes for users on the safe use of different means of transport.</p> <p>The training and educational programme also has to be developed <i>inter alia</i>:</p> <ul style="list-style-type: none"> <li>– to increase the capacities and competencies of the administrative staff;</li> <li>– to train staff of different transport operators for cost-efficient and safe transportation and communication with passengers;</li> <li>– to train students on the use and safety of bicycles and public transport;</li> <li>– to inform the public on safe driving and the efficient and safe use and advantages of public transport, whereby the emphasis is on vulnerable groups (e.g. the disabled and the elderly).</li> </ul> <p>The programme will be based on case studies and examples of good practice and will thus enable fun and sustainable education.</p>
U.35	Vehicle fleet modernisation		With few exceptions, the current fleet of public transport vehicles is old and based on out-of-date and inefficient technologies. In order to increase the competitiveness of public transport in comparison with passenger vehicles, the vehicle fleet has to be modernised and comply with the highest quality standards and safety and environmental standards, including its accessibility to people with limited mobility. The modernisation of the vehicle fleet will be implemented together with the anticipated improvements to infrastructure. The first step towards developing this measure is a comprehensive analysis of the current organisational, operational and maintenance structures of suitable operators and the analysis of future demands and operational and maintenance plans. When the actual needs are established, specific technical requirements relating to the vehicle fleet will be determined on the basis of further studies.

Code	Measures	Harmonisation with the Resolution on the Development of Transport	Description of measures
U.36	Information platform		Informing the public about administrative efforts and the advantages of public transport is important for the successful implementation of other measures. Promotional campaigns will be organised to disseminate information about the adopted measures. These will include traditional public media, advertising, public workshops and the establishment of special information platforms which will function also as public forums.
U.37	Supporting non-profit groups in transport		Non-profit groups which promote the use of alternatives against to passenger vehicles have proven very successful in numerous cities around Europe. <i>Inter alia</i> , there are groups which promote the daily use of bicycles, passengers' rights, the maintenance of surfaces for pedestrians and even traffic control. These groups (neighbourhood associations or groups with common interests, non-governmental organisations etc.) may help local administrations and transport bodies with their tasks and the promotion of public transport. It is thus necessary to encourage and observe the cooperation of such associations, local groups and non-governmental organisations when making decisions relating to traffic planning.
U.38	Management and information on transport and logistics		New technologies <i>inter alia</i> enable data collection and the monitoring of conditions in traffic and the use of public transport in real time. In order to utilise these new technologies, centres for centralised public transport management will be established which will be equipped with the latest IT solutions. New public transport vehicles will be equipped accordingly; IT platforms will be used to plan routes; traffic signs will be updated so they are integrated into the centralised management system (e.g. 'smart traffic lights' or measures favouring public transport). This will improve the quality of planning and monitoring of public transport, user information for passengers, traffic control and data collection on congestion and the arrival of public transport vehicles in real time.
U.39	Review/modernisation of local/regional central transport plans		Relating to commitments for transport planning, functional regions and/or towns will have to develop suitable plans for sustainable mobility in towns (mobility plans may cover the area of one town or several combined towns (functional regions)). Mobility plans will enable an analysis of the current state of transport systems not only from the infrastructural, but also from the operational and organisational points of view. Future needs will be determined on the basis of the results of the analyses. The preparation of these plans is a prerequisite for investing in public transport systems. Mobility plans have to be regularly reviewed and updated; they must be in compliance with high-level planning instruments such as the transport development strategy.

**Table 4: Description of measures in the field of maritime transport (Strategy, 2014)**

Code	Measures	Harmonisation with the Resolution on the Development of Transport	Description of measures
<b>Maritime transport</b>			
<b>Elements of the maritime network</b>			
M.1	Port of Koper		The objective of the port of Koper is to achieve transport of above 19 million tonnes by 2015 and above 23.5 million until 2020. More than 30 million tonnes of transhipment are expected in 2030. In order to achieve these objectives, piers 1 and 2 have to be extended ( <i>inter alia</i> ). Both measures have been defined in the adopted national spatial plan.
M.2	Port of Koper		The construction of pier 3 as a condition for growing transhipment in the port of Koper is anticipated after 2030. This measure is also determined in the national spatial plan.
M.3	Port of Koper		In accordance with measures M1, M2 and M4, the rearrangement of the port infrastructure is necessary, i.e.: expansion of rear terminals, depots and warehouses, expansion or extension of railway track capacities, loading stations, reservoirs, car parks, implementation of ecological rehabilitation for bulk material, additional road capacities, arrangement of external connections and entry to the port, and external freight terminal etc.
M.4	Port of Koper (area under concession and area outside concession)		Ships, particularly container ships, are becoming larger and have deeper draughts. Thus the constant deepening of entry channels and basins is necessary. The deepening of the entry channel into Basin I and Basin II to a depth of -15 m is anticipated by the end of 2015, and also the deepening of the entry channel into Basin II and Basin II to a depth of -16 m until 2020.
M.5	Port of Koper		Arrangement of infrastructure and construction of a passenger terminal facility
<b>Maritime network</b>			
M.11	Filling stations for alternative fuels		According to the proposal of the Directive on the deployment of alternative fuels infrastructure, the core TEN-T ports (including the port of Koper) should provide infrastructure for filling ships with liquefied natural gas and for electric power charging from the land by 2025.
M.12	Highways of the sea and development of short-distance maritime traffic		Enhancing cooperation with stakeholders in order to establish a uniform window for organising the highways of the sea and short-distance maritime traffic. Participation in activities for the establishment of the free movement of goods by sea, the Blue Belt.
M.13	Improving transport system safety		Establishment of the VTS (vessel traffic service; a maritime traffic monitoring system) centre with suitable technical equipment and the organisation of surveillance service.
<b>Functioning/organisation of maritime transport</b>			

M.21	Developing the network into intermodal hubs and agglomerations according to demand		In addition to transhipment, logistics activity also takes place at the port, which is connected to the (re)arrangement of the port infrastructure described in measure M3, which also serves the logistics activity. Furthermore, suitable end connections with the port (so-called last miles), i.e. road, railway and maritime connections have to be ensured for the successful development of this area.
M34	Administrative capacities and training		The provision of suitable organisational conditions and administrative capacities to implement the supervision of, monitoring and informing about, maritime transport.

Table 5: Description of measures in the field of air traffic

Code	Measures	Harmonisation with the Resolution on the Development of Transport	Description of measures
<b>Air traffic</b>			
<b>Elements of the air traffic network</b>			
A.1	Ljubljana Jože Pučnik Airport		Further development for the needs of transporting passengers, mail and/or goods. Suitable airport infrastructure has to be ensured, particularly the extension of the runway, construction of passenger and cargo terminals, construction of additional parking positions for aircraft, logistics complex and similar, on the basis of which better financial effects and indirect effects on tourism and the economic development of the whole of Slovenia could be achieved. The objective of the development is to become a regional airport. A master plan (main plan of further development) has been prepared for the airport.
A.2	Maribor Edvard Rusjan Airport		Further development for the needs of transporting passengers, mail and/or goods. Suitable infrastructure has to be ensured, particularly the extension of the runway, construction of a cargo terminal, construction of additional parking positions for aircraft and similar, on the basis of which better financial effects and indirect effects on tourism and the economic development of the Štajerska and Pomurje regions could be achieved. The airport could be an alternative to the Ljubljana Jože Pučnik Airport. A master plan (main plan of further development) has been prepared for the airport.
A.3	Portorož Airport		Further development for the needs of transporting passengers, mail and/or goods and the provision of suitable infrastructure for the regular operations of the airport. This anticipates: the asphaltiting of manoeuvring surfaces up to the edge of the planned area, arrangement of the strip and safety area at the end of the runway and other arrangements on the basis of which better financial effects and indirect effects on tourism and the economic development of the Primorska region could be achieved.
<b>Air traffic network</b>			

A.10	Air navigation services		The implementation of air navigation services must provide safety, regularity and continuity of air traffic, the fulfilment of international obligations of the Republic of Slovenia relating to these services and guaranteed flights in search and rescue actions, for humanitarian and medical purposes, emergency flights of aircraft and flights of state aircraft. Within the framework of the aforementioned, the construction, reconstruction or siting of infrastructural facilities, devices and systems of air navigation services are foreseen.
A.11	Filling stations for alternative fuels		In compliance with the TEN-T Directive (1315/2013), infrastructure for the use of alternative fuels has to be provided at TEN-T airports by 2030. According to the proposal of the Directive on the deployment of alternative fuels infrastructure, airports will have to be equipped with infrastructure for charging aircrafts with electric power until 2025. The TEN-T airports currently include the Ljubljana Jože Pučnik Airport, the Maribor Edvard Rusjan Airport and the Portorož Airport.
<b>Functioning/organisation of air traffic</b>			
A.21	Developing the network into intermodal hubs and agglomerations according to demand		The Ljubljana Jože Pučnik Airport and the Maribor Edvard Rusjan Airport have the potential to develop logistics activities if the economy so requires. Both airports have spatial capacities and are close to motorway and railway connections (the latter especially applies to Maribor) within the TEN-T core connections or corridors of the core network (BA and/or MED). At the moment, Portorož Airport has only a passenger logistics platform for transferring passengers from air to road or maritime transport to tourist centres on the Slovenian coast.

Legend (Tables 1-5):

- The R mark denotes railways, Ro denotes roads, A denotes air traffic, M denotes maritime transport and U denotes urban centres.
- The green cells mean that the measure meets a certain sub-objective; the yellow cells mean that the attainment of the objective is not yet certain.