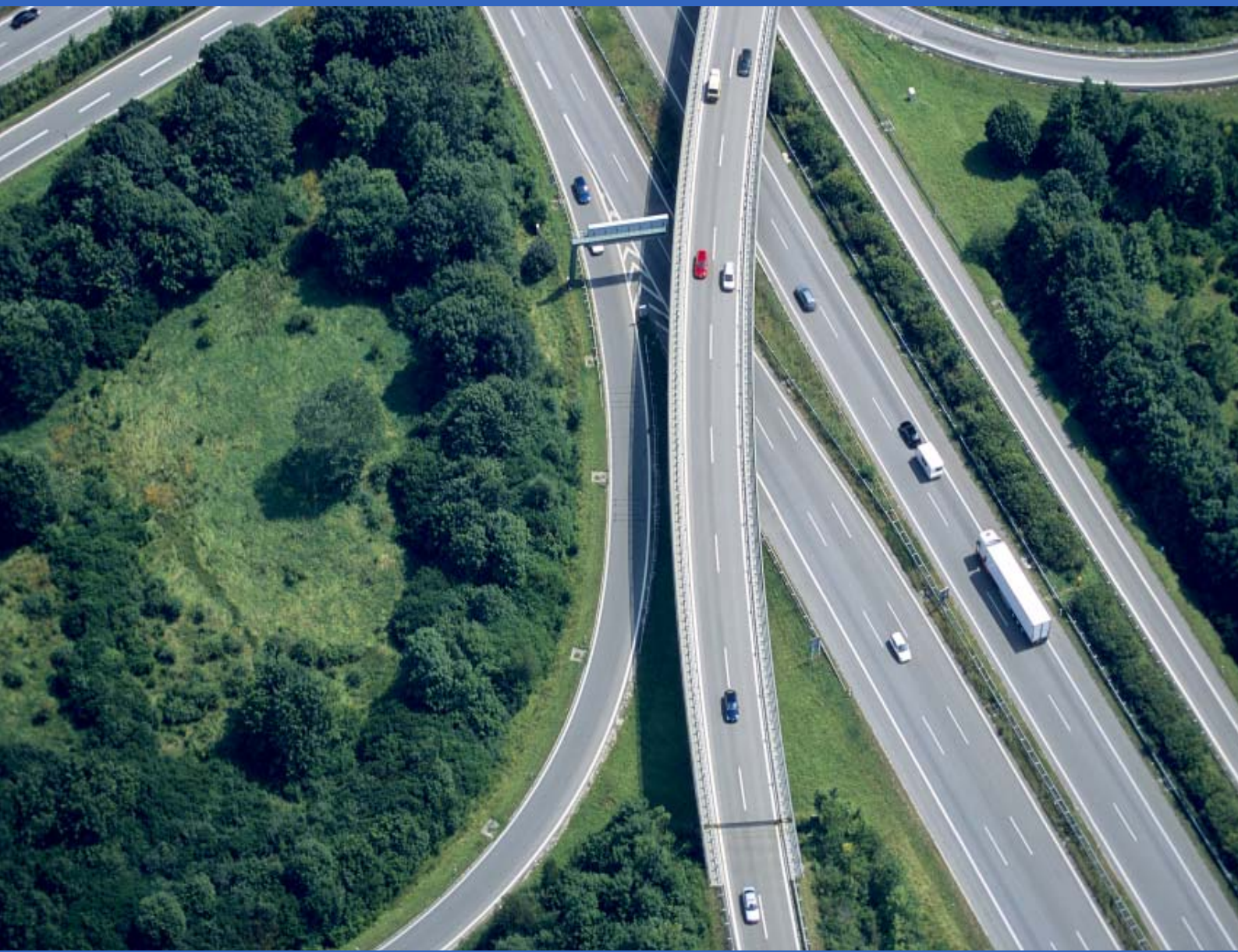
CEDR

Conférence Européenne
des Directeurs des Routes

Conference of European
Directors of Roads

# Future European Road Network (FERN)



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This report is: **FOR INFORMATION and DISCUSSION**

# 1 Executive summary

## Introduction and purpose

Good transport infrastructure and the means for smooth operations are key issues when aiming for stronger European and global integration. A key element of the reinforcement of economic and social cohesion in Europe is the interconnection and interoperability of national networks as well as access to these networks. Today there are two main international road network systems in Europe: the E-road network and the TEN-T road network. These networks differ from each other in a number of respects. Among other things, this paper briefly presents the main features of the two networks. Several parties have expressed the desire for better order in this regard, i.e. for one single road classification system at European level.

This report was drafted by CEDR's PG Planning in order to launch a discussion within CEDR about the definition of a single European road network. It is hoped that this paper will lead to a dialogue between CEDR, EC/DG-TREN, and the UNECE with a view to creating a harmonised road network concept that would be acceptable to all parties and on which network performance reports could be compiled on a regular basis.

## EU policy and the FERN

The policy section of the report concludes that for understandable reasons, EU transport policy has focused on modes other than roads. However, with a further revision of the TEN-T Guidelines due in 2010, an opportunity is now emerging for CEDR to press the case for roads. In particular, the development of a 'Future European Road Network' (FERN) by CEDR would help to:

- address how the European road network could be developed to help reach the EU's objective of developing co-modality or intermodality,
- identify with the help of objective performance data where priorities for investment in the road network lie, so as to alleviate bottlenecks.

## Existing network definitions

Around 70% of the E-road (administered by UNECE) and TEN-T road (administered by the EU) networks are the same. However, there are also a lot of roads that only belong to either the E-road or TEN-T networks. In addition, several other network names exist, e.g. TINA, TEM, and Pan European corridors. This can lead to confusion, even among experts.

Annex 1 of this report summarises the status quo and arrives at the conclusion that the E-road and TEN-T road networks are the key networks to consider when devising possible options for a FERN. Annex 1 also describes the steps being taken to extend the TEN-T road network following EU enlargement.

## Why have a 'Future European Road Network'?

The key question when searching for a new definition of a European trunk road network is 'for what purposes is it needed'. The existing situation with more or less undefined purposes is unsatisfactory. The problem is compounded by the fact that one main network (E-roads) is identifiable by road signs while the other (the TEN-T road network) is not. Chapter 4 therefore lists a number of possible reasons for having a 'Future European Road Network' (FERN):

a) to aim for uniform road signing and numbering throughout Europe;

b) to commit governments to pay attention to international traffic on these routes in a variety of ways (maintenance level, roadside service, intelligent systems, road standards);

c) to encourage the governments of neighbouring states to adopt uniform principles on shared cross-border routes;

d) to give international organisation(s) a mandate for directives (or similar) on these routes only;

e) to define a target for international grant aid or financial support and coordination of road development;

f) to obtain statistical 'European level' data on European roads per route and per country on an annual basis or as needed;

g) to provide a useful tool for future dialogue on revisions of the TEN-T Guidelines between member states, road administrations, and the European Commission (EC).

The suggestions above are all valid reasons for having a FERN based on a merged TEN-T and E-road network. Realistically, however, many of the options are either long-term goals or would require extensive joint consideration by the EU and the UNECE. It is doubtful whether CEDR would have the resources or the influence to drive forward a European-wide activity (such as a revised signing system) or implement legislative changes.

Therefore, the most fruitful direction for any future CEDR activity in this respect lies in suggestions f) and g) above. A longer-term goal would be to initiate dialogues with the EC and UNECE, involving all the individual nations, concerning possible harmonisation of the E-road and TEN-T networks.

## Recommendations

It is therefore recommended that CEDR should resolve to collect statistical 'European level' data on European roads per route and per country by

- using performance indicators and applying a common location reference system,
- aiming to monitor and benchmark, and
- explaining the priorities for further investment in infrastructure.

CEDR should aim for these reports to cover an extended TEN-T road network and the E-roads (in the EU member states) that are not included in the TEN-T network.

This would provide a useful tool for future dialogue on the imminent revisions of the TEN-T Guidelines between Member States, road administrations, and the European Commission. In particular it will help emphasise the vital importance of continued upgrading of the road network and a recognition of this fact in the review of the TEN-T policy, which will soon be initiated by the European Commission's Green Paper.

It should be emphasised that a separate report on performance indicators and a location referencing system drafted by CEDR's PG Planning sets out practical steps on how CEDR could quickly develop consistent means of reporting and analysing performance on the main European roads.

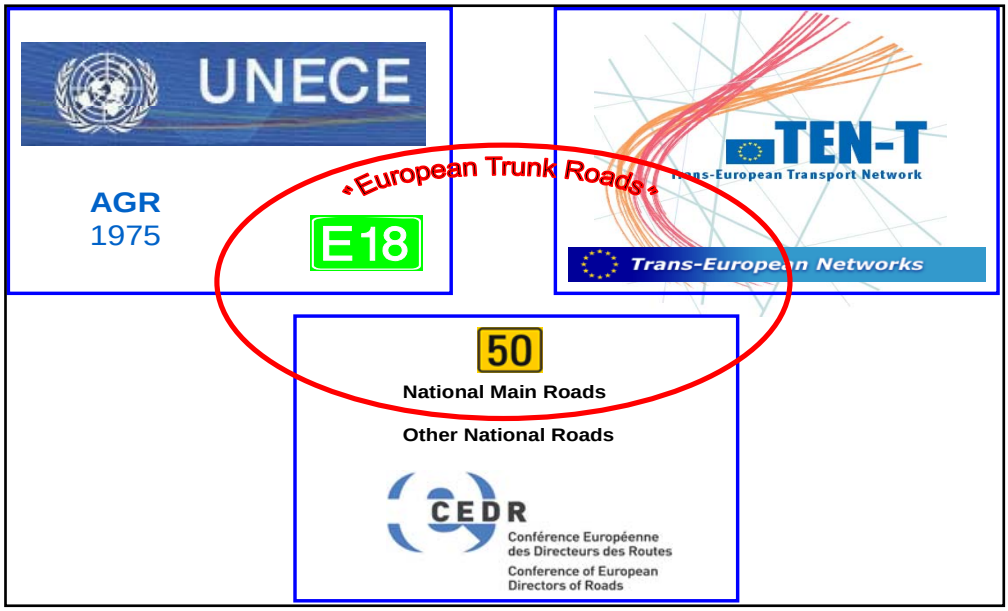
## 2 Table of contents

# 3 Definition of the issue

## 3.1 Background

The central mission of CEDR, the forum of national road administrations (NRAs) in Europe, is to provide a platform for understanding and responding to common problems, especially with a strong involvement in EU developments on matters relating to road transport systems. The need to divide the road network into several functional classes is global. It is a practical way of prioritising traffic functions or land access needs on each road, aiming for differentiated design standards. At national level, this task may be easier and have a longer tradition. At international level, however, with thinner but longer traffic streams, the task seems to be more vague.

Today there are two main international road network systems in Europe with partly different and partly unclear international aims and national commitments. In view of this fact, there is a growing need to start a thorough discussion as to whether one single definition would be sufficient for a 'Future European Road Network' (FERN), or whatever name would be chosen.




## 3.2 Purpose of the report

This report has been prepared in order to launch a discussion within CEDR (PG Planning, EB, and GB) about the definition of a single European road network. It will hopefully lead to a dialogue between CEDR, EC/DG-TREN, and the UNECE with the aim of creating a harmonised road network concept that would be acceptable to all parties and on which network performance reports could be compiled on a regular basis.

A discussion about harmonising existing pan-European road networks and coming up with one single definition would also be a suitable independent issue. This is emphasised by the fact that organisations other than CEDR are the 'owners' of the existing definitions.

Whatever the results of discussions and studies with EC/DG-TREN and UNECE would be, the process would in any case produce a lot of useful information for CEDR members, both for organisations and individual members.

## 3.3 General importance of the transport system

Good transport infrastructure and the means for smooth operations are key issues when aiming for stronger European and global integration. A key element of the reinforcement of economic and social cohesion in Europe is the interconnection and interoperability of national networks as well as access to these networks.

## 3.4 Road transport as one of a number of traffic modes

Road transport and sea transport are the oldest modes of transport in existence. For centuries, road transport was predominantly local or regional; sea transport has been international, or even global, for much longer than that. Today, air transport is the most dominant mode of international traffic, at least for passenger transportation. Rail transport is also international and is seeking to become more international from an operational point of view. There is clear motivation for the growing international uniformity and coherence of sea, air, and rail transport infrastructures. In the road sector—which includes networks, vehicles, and driving regulations—there are also many international rules and standards.

## 3.5 Several views on road classes

In the road sector, the basis for defining network structures is more a mixture of local and international views. Diverging arguments lead to several systems of road classification. The fact that there are several definitions for primary road networks in Europe (E-roads, TEN-T roads, TINA roads, Pan-European road corridors, and the TEM network) may be a consequence of the above-mentioned multilevel background.

To complicate the situation, in individual countries and at national level, these definitions do not necessarily match motorway networks or other definitions for national trunk roads, which are often more commonly used for road user information, road programmes etc.

## 3.6 Need for better order

Several parties have expressed the desire for better order in this regard, i.e. for one single road classification system at European level. It is clear that more pragmatic views and not rhetorical expressions are needed to clarify the **reason for having** an international network. This study seeks to provide this clarification, compile a brief inventory and description of the existing main networks, list possible expectations regarding a FERN network, and address questions that arise when considering a possible solution.

The European Commission's White Paper on transport policy, *European Transport Policy for 2010: Time to Decide,* contained the following statement:

*'In the long term, a common system for identifying stretches of the trans-European road network is bound to be required in order to make things clearer and guarantee continuous network quality for users.'*

The Commission has therefore recognised that there is potential for confusion in the multiple 'European' road networks that currently exist, and has ambitions to make the Trans-European Network more visible to the user, with a view also to providing a guaranteed level of service for users. Consequently, one of the aims of this report is to set out a possible CEDR approach to achieving this goal by thoroughly appraising the options and the risks and benefits associated with them.

# 4 Possible solution and next steps

## 4.1 The reason for having a 'FERN network'

The key question when searching for a new definition of a European trunk road network is 'for what purposes is it needed'. The existing situation with more or less undefined purposes is unsatisfactory. The problem is compounded by the fact that one main network (E-roads) is identifiable by road signs while the other (the TEN-T road network) is not. In order to find a solution, it is necessary to list the needs, purposes, and substantial targets of a 'FERN' network.

The possible reasons listed below are intended to initiate a discussion that will lead to reasons being either eliminated or discussed in more detail. CEDR may not be the only body with the competence to comment on these arguments, but it is perhaps the most suitable body to launch the discussion.

**Suggested reasons for having a defined European trunk road network:**

a) to aim for uniform road signing and numbering throughout Europe in order to
   - inform and guide long-distance traffic on the best/most suitable route to take
   - simplify orientation on long routes (the number is enough to remember)
   - give a visible signal of togetherness on the 'old continent';

b) to commit governments to pay attention to international traffic on these routes in a variety of ways (maintenance level, roadside service, intelligent systems, road standards);

c) to encourage the governments of neighbouring states to adopt uniform principles on shared cross-border routes;

d) to give international organisation(s) a mandate for directives (or similar) on these routes only
   - e.g. by-passes, tunnels, hard shoulders, rest areas, police control etc.;

e) to define a target for international grant aid or financial support and coordination of road development;
   - would it bring aid to all or only a few of these roads (as is the situation today)?
   - would community aid be limited to this network only?

f) to obtain statistical 'European level' data on European roads per route and per country on an annual basis or as needed by
   - using performance indicators and applying a common location reference system,
   - aiming to monitor and benchmark, and
   - explaining the priorities for further investment in infrastructure;

g) to provide a useful tool for future dialogue on revisions of the TEN-T Guidelines between member states, road administrations, and the European Commission;
   - the next revision of the TEN-T Guidelines is planned for 2010 and could include significant amendments to the existing road network and the list of priority projects which attract most of the funding. This is a key policy development that CEDR should monitor closely during the next strategic plan period.

## 4.2 Preliminary conclusions and questions regarding next steps

- The TEM and TINA networks were obviously created more as projects or for temporary use. The same would appear to be the case with the Pan-European corridors; at least insofar as they are situated in the same area as the E-roads or TEN-T roads. It would therefore appear to be sufficient to discuss a possible merger of E-road and TEN-T road aims and networks.
- The backgrounds to the E-road and TEN-T road networks are entirely unrelated. The former is managed by the United Nations Economic Commission for Europe (UNECE) and is based on an agreement dating from 1950, which was renewed in 1975. Meanwhile, the guidelines on the development of the trans-European transport network, TEN-T, were adopted in 1996 by the European Parliament and the Council of the European Union.
- The E-road network extends throughout Europe and into Asia, whereas the scope of the TEN-T road network is limited to the European Union with extension to the EEA.
- The provisions of the AGR—the European Agreement on Main International Traffic Arteries, to which states must accede to become part of the E-road network—do not, however, apply to all European countries, e.g. the UK. The agreement also contains advice on the geometric characteristics (e.g. the width of lanes, junction layouts etc.) to which E-roads should adhere wherever practicable, but the agreement does not require the systematic improvement of routes (e.g. the dualling of roads where a single-carriageway road with one lane of traffic in each direction is improved and widened to provide at least two lanes in each direction and the two carriageways are usually separated by a central reserve barrier to improve safety) represented on the E-road network. There is also no financial support attached to the development of the E-road network.
- The TEN-T guidelines provide only very general guidance on the characteristics of roads forming part of the TEN and do not stipulate a particular design standard or require specific accession. However, the European Commission manages a budget to assist development of the TEN; assistance from the TEN budget is generally limited to 10% or 20% of the total works cost, and a significant majority of funding is reserved for the few priority projects identified in the guidelines.
- The process of administrating the network structures, e.g. how to make changes to them, is organised in quite different ways.
    - With the AGR, the initiative is essentially left to the member states that would like to make changes. The final decision is made quite openly according to a documented procedure. The initiative can be taken at any time.
    - With the TEN-T guidelines, the European Commission (DG-TREN) plays a much more dominant role. Changes are made very rarely.

- Around 70% of the E-road (administered by UNECE) and TEN-T road (administered by the EU) networks are the same. However, there are also a lot of roads that only belong to either the E-road or TEN-T networks. A previous CEDR/SG-TERN study from 2004 (see summary in Annex 2) found that:
    - roads with both E and TEN-T status = 73,000 km
    - TEN-T status only = 17,8000 km
    - E-road status only = almost 14,400 km

# 5 Comparison of ways forward

As far as the establishment of a FERN network (harmonising the E-road and TEN-T road networks) is concerned, the following options for CEDR and its member states have been identified:

- **Do nothing**
  Leave the situation as it is without planning any actions for the merger of the two networks. This would result in some strange planning procedures that involve applying for TEN-T funding for roads that are not E-road standard. For a variety of reasons, countries generally ensure that their E-roads have a certain standard.

- **Plan for a harmonisation of the E-road and TEN-T road networks**
  CEDR could start discussions not only within CEDR but also with the European Commission on the benefits of merging the E-road and TEN-T road networks. This would probably make the planning procedure easier and ensure that the standard of the road networks is the same. It would also ensure that all E-roads would be brought within the basic eligibility criteria for TEN-T funding.

At present, the TEN-T roads in existence are largely the same as those identified in 1996 and adopted by the European Parliament as the TEN-T Guidelines in Decision No. 1692/96/EC. It would appear to be rather complicated to make any changes to the physical links in the TEN-T road network. The main amendment to the guidelines involved the priority projects: initially there were 14, now there are 30. The E-road network, on the other hand, can be changed once a year.

# 6 Conclusions

We are now in a key phase of European transport infrastructure policy development, and CEDR has the opportunity to play a greater role in pressing the case for a greater focus on the challenges that road administrations are facing in keeping Europe moving. The European Commission's focus on other modes such as rail, inland waterways, and sea is understandable, but the reality is that roads will continue to provide the key to the economic development of the continent in the future.

PG Planning makes the following recommendations to the CEDR Executive Board:

- CEDR should start discussions with the EC TEN-T committee on how to start the process of harmonising the two road networks.
- CEDR member states should start internal discussions and study their own road network in order to investigate possibilities for harmonising the E-road and TEN-T road networks within their borders.
- CEDR should encourage member states to be active in the process of revising the existing TEN-T guidelines. This activity has already begun and will hopefully result in new TEN-T guidelines with updated maps of physical links, approximately in 2010.
- The possibility of developing a hierarchical structure of future road corridors throughout Europe should be considered. The top level could contain the most important TEN-T Road network routes as the kernel of the Trans-European Road Network. These roads could be identical to the main axes of the E-road network.

- It is also recommended that CEDR play a more active role in the work to establish EU policies in the transport sector. At present, DG-TREN communicates with EU member states individually in the form of questionnaires and in the TEN-T committee, but not as a group.
- CEDR should resolve to collect statistical 'European level' data on European roads per route and per country on an annual basis or as needed by
  - using performance indicators and applying a common location reference system,
  - aiming to monitor and benchmark, and
  - explaining the priorities for further investment in infrastructure.

CEDR should aim for these reports to cover an extended TEN-T road network and E-roads (in the EU member states) that are not included in the TEN-T network.

This would provide a useful tool for future dialogue on revisions of the TEN-T guidelines between member states, road administrations, and the European Commission (EC). In particular it will help emphasise the vital importance of continued upgrading of the road network and a recognition of this fact in the review of the TEN-T policy, which will soon be initiated by the European Commission's Green Paper.

A separate report on performance indicators and a location referencing system drafted by CEDR's PG Planning sets out practical steps as to how CEDR could quickly develop consistent means of reporting and analysing performance on the main European roads.

# Annex 1: Network definitions and objectives

## 1 The EU policy background to transport networks

**The purpose of this chapter is to describe the above-mentioned EU transport policies in order to give the reader an impression of the kind of objectives a FERN would seek to meet. Please note that in most cases, overall EU policies cover all transport modes.**

### 1.1 Background

In the last 15 years, European transport infrastructure policy has been dominated by the establishment and development of the EU's trans-European transport network. The following timeline highlights headline developments since 1992 that have lead to the current situation:

**1992** The Jacques Delors' White paper *Growth, Competitiveness and Employment*

**1993** The TEN policy is integrated into the Treaty establishing the European Union

**1996** The TEN-T guidelines are first adopted

- 14 priority 'Essen' projects
- integration of national networks
- linking peripheral regions to the centre of the EU
- integrating modes of transport
- improving safety and efficiency of the networks

**2001** The European Commission's White Paper *European Transport Policy for 2010: Time to Decide*

**2001** European Commission High-Level Group chaired by former Commission Vice-President Mr Karel Van Miert (final report on 30 projects)

**2004** Revision of the Guidelines and the Financial Regulation in view of EU27

**2006** Review of the White Paper *European Transport Policy for 2010: Time to Decide*

**2007** Communication on 'Extension of the major trans-European transport axes to the neighbouring countries',

The **1992 White Paper on *Growth, Competitiveness and Employment*,** evoked the idea of drawing up a list of projects of community interest and included measures to mobilise public and private actors. It also clarified that the role of the EU was to eliminate the financial and administrative obstacles to the development of these projects. Based on the proposals in the White paper, the European Council in Brussels adopted a series of measures to speed up the implementation of these projects.

The most important being the creation of the 'Christophersen group', which identified the first list of 14 'priority projects' (known as the Essen list) and eventually led to **the adoption in 1996 of the TEN-T Guidelines**, which included network maps for roads and other modes and the inclusion of the Essen List in Annex 3; this list provided the focus for the bulk of funding from the TEN-T budget.

The main objectives and priorities of these guidelines were:

- the integration of the national transport networks;
- the facilitation of the creation of the internal market and economic/social cohesion. The connection of peripheral regions with the centre of the EU is a prerequisite for the creation of an internal market;
- the promotion of interoperability within the different transport modes and the intermodality between the different transport modes;
- the development of traffic management systems to optimise the use of the infrastructure,
- the improvement of the safety and security of the network.

The result was a single reference framework for the 14 Essen projects and other projects of common interest. Further details are provided in **section 2.2 of this annex.**

The **White Paper adopted by the European Commission in September 2001** and the mid-term review published in June 2006 set out a strategy aimed at delivering a sustainable mobility policy for Europe. These documents recognise the increasing problems of congestion on road and rail routes, in towns and at airports, the harmful effects of transport on the environment and public health, and the heavy toll of road accidents.

The measures put forward in the white paper and the review are regarded as a first step towards the delivery of a sustainable transport system and the main policy issues addressed include:

- *shifting the balance between modes of transport*
- *eliminating bottlenecks*
- *putting users at the heart of transport policy*
- *managing the globalisation of transport*

*Optimising the balance between modes of transport*

A key point made in the mid-term review is that each transport mode must be optimised to enable further growth in the demand for mobility, and that the efficient use of different modes on their own and in combination will result in an optimal and sustainable utilisation of resources. This is termed in the review as ‘co-modality’.

*Eliminating bottlenecks*

The European Commission has long been concerned that bottlenecks on main international routes are posing a major problem for the transport system in Europe. If these are not addressed, it believes the internal market and territorial cohesion of the EU will not be fully realised.

The mid-term review of the White Paper proposed action to coordinate investment in new or improved intelligent infrastructure to eliminate bottlenecks, to enable co-modal transport solutions, and improve connectivity for peripheral regions.

*Putting users at the heart of transport policy*

The European Commission believes that transport users should enjoy a system which meets their needs and expectations and advocates that users should be put back at the heart of transport policy. In the context of the road network, the commission proposes an integrated approach to road safety which includes targeting vehicle design and technology, and infrastructure and behaviour. There is also considerable European and national priority being given to helping to tackle climate change and limit the impact of transport upon air quality.

*Managing the globalisation of transport*

The European Commission argued that with the enlargement of the EU and the fact that further countries are expected to join, which means that transport policy and the trans-European Network will soon extend across the continent, the European Union needs to rethink its international role. This is underlined, in particular, by the fact that long-distance freight transport is growing more than passenger transport. The mid-term review proposed that the external dimension needs to be well integrated into the EU's overall transport policy and needs to be part of a broader relationship with third countries and organisations.

The next significant development was the **2004 revision to the TEN-T Guidelines,** which did not have a large impact on the network maps, but which led to the number of priority projects being more than doubled. The key aspects of this revision were:

- The definition of 30 priority axes and projects
    - » these are the overwhelming priority for investment out of the TEN-T budget
- Integration of the networks of the new member states into the TEN-T
    - » facilitation of the enlargement of the EU
- Sustainable development addressed by giving priority to
    - » rail
    - » intermodality
    - » motorways of the sea
- Organisational means improved to facilitate coordination of funding and implementation of projects along the major axes
- Financial framework adapted to enable concentration on priority projects, especially at cross-border sections

It is instructive to study the map of priority projects in section 2.2 of this annex, as it shows that the great majority of priority projects are non-road projects (especially in central Europe). With the financial weight of the TEN-T budget now concentrated on priority projects, this confirms the concentration of TEN-T funding on non-roads projects.

### 1.2 Extension of the TEN-T network

A report from the High-Level Group chaired by Ms Loyola de Palacio, November 2005, looks to the future and focuses on the 'extension of the major trans-European transport axes to the neighbouring countries and regions'. The Palacio report is discussed in more detail in section 3.2 of this annex.

The European Commission adopted a **Communication on the follow-up to be given to the High-Level Group work in January 2007**. The recommendations of the Communication can be summarised as follows:

- focus on a set of five transnational transport axes
- preliminary identification of infrastructure projects along these axes
- implementation of a range of horizontal measures such as technical and administrative interoperability, safety and security, financing and PPP etc.

The European Commission is currently holding exploratory talks with all neighbouring countries in the North, East, and South. These talks focus on the five transnational axes. The aim is to put in place strong coordination frameworks with a view to removing infrastructure and other types of bottlenecks on these axes. The European Commission is also seeking coordinated action with the UNECE, particularly regarding horizontal measures, public-private partnerships, and the international conventions that the UNECE is in charge of.

### 1.3 Looking ahead: the 2010 revision of the TEN-T Guidelines

It is evident that the European Commission has concentrated much of its policy development and TEN-T funding on transport modes other than roads. But with a further revision of the TEN-T Guidelines due in 2010, an opportunity is now emerging for road administrations to press the case for roads.

Preparatory work for the revision is already underway. In 2007, the TEN-T CONNECT study was initiated to provide an analytical basis for a EU Green Paper and the subsequent TEN-T revision. Amongst other aspects, the TEN-T CONNECT study has been considering:

- traffic forecasts 2020–2030
- the identification of major trans-national corridors
- the identification of bottlenecks and proposals for packages of infrastructure investments to relieve them
- the assessment of the economic, social, and environmental impact of those packages (focus on 30 priority projects)

This is expected to lead in January 2009 to the presentation of a Green Paper. Some of the issues that are expected to be addressed in the Green Paper include:

- the time horizon 2020–2030
- the state of play on the realisation of TEN-T priority projects (2020)
- the financing of the TEN-T
    - » the potential of PPPs, especially for railway projects
    - » the possibilities for infrastructure charging & the internalisation of external costs
- the impact of enlargement on North–South and East–West traffic flows (cohesion and social aspects)
- a strengthened focus on climate change and environmental nuisances
- relations to European Commission initiatives to achieve greater efficiency and sustainability in freight transport
    - » Freight Transport Logistics Action Plan – green corridors
    - » Freight-Oriented Railway Network

# 2 Existing network definitions in Europe

**The purpose of this section of the report is to describe current defined European road networks and to set out their main purposes.**

## 2.1 E-road system (AGR)

The E-road system established under the United Nations Economic Commission for Europe (UNECE) in 1950 was a symbolic gesture of togetherness in post-war Europe. The agreement was originally entitled 'Declaration on the Construction of Main International Traffic Arteries, of 16 September 1950'. The agreement, and especially the road numbering system, was later revised. It is now entitled 'European Agreement on Main International Traffic Arteries (AGR), of 15 November 1975'. For more information, please visit http://www.unece.org/trans/

The AGR is administrated by the UNECE's Inland Transport Committee. The agreement consists of a main text and three annexes. By way of introduction, the document contains a short text outlining the purpose of AGR:

*'THE CONTRACTING PARTIES,*
- *CONSCIOUS of the need to facilitate and develop international road traffic in Europe,*
- *CONSIDERING that in order to strengthen relations between European countries it is essential to lay down a coordinated plan for the construction and development of roads adjusted to the requirements of future international traffic and the environment,*

*HAVE AGREED as follows...'*

**Article 1** of the main text describes the E-road network as *'a coordinated plan for the construction and development of roads of international importance which they intend to undertake within the framework of their national programmes.'*

**Article 2** notes that the *'E-road network consists of a grid system of reference roads having a general north–south and west–east orientation; it includes also intermediate roads located between the reference roads and branch, link and connecting roads.'*

**Article 3** encourages road management: *'The roads of this Agreement shall be brought into conformity with the provisions of annex II to this Agreement.'*

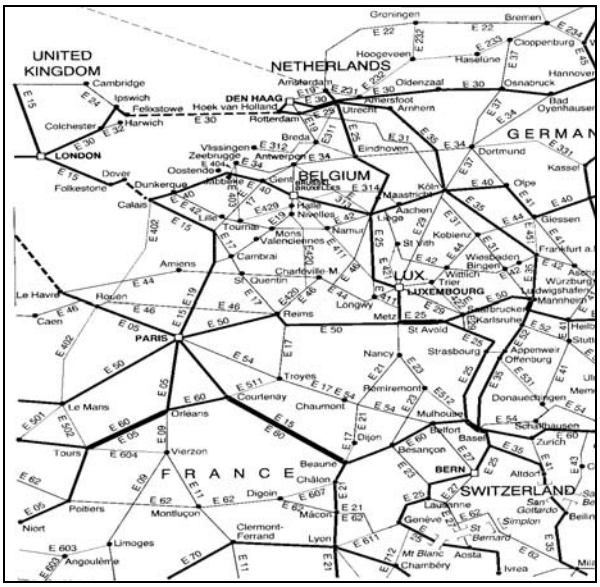
**Article 4** includes perhaps the most important statement of all: *'The E-road network shall be identified and signed by means of the road sign described in annex III to this Agreement.'*

Several other articles outline administrative procedures (e.g. how to accede to the AGR).

**ANNEX I** contains the *'INTERNATIONAL E-ROAD NETWORK, LIST OF ROADS'* presenting each E-road number followed by essential towns for identifying the route. A schematic map is also published. Today the list of E-roads covers the whole of Europe, including most western and southern parts of Russia, as well as Turkey and former Soviet states as far East as the border of China. However, the AGR has not been definitively ratified in all EU member states (United Kingdom, Ireland), meaning that E-road signs are not used in these countries.

**ANNEX II** contains the *'CONDITIONS TO WHICH THE MAIN INTERNATIONAL TRAFFIC ARTERIES SHOULD CONFORM'.* It is generally noted that the provisions presented in this annex are not obligatory. *'They do not apply in built-up areas. The latter shall be by-passed if they constitute a hindrance or a danger. ... Countries shall make every possible effort to conform to these provisions both in the construction of new roads and in modernizing existing ones.'*

All the parameters in this annex are suggestions and recommendations; the style of the text is accordingly soft: *'The choice of geometric characteristics shall be such as to afford to all users proper safety and traffic flow conditions with a minimum of congestion, bearing in mind the function of the road and the general behaviour of drivers.'*
This recognises the fact that although the main principles are the same as a result of international cooperation, each country has standards for its specific circumstances (traffic volumes, density of population, terrain, climate...). The list of technical suggestions has grown in recent years; these suggestions should be understood as guidance for less developed countries.





*MAPS: Parts of the E-road network*

**ANNEX III** deals with *the 'IDENTIFICATION AND SIGNING OF E-ROADS'.* The text is short, and the main messages are as follows: *'The sign to be used for identifying and signing E-roads is rectangular in shape. This sign consists of the letter E, generally followed by the number in Arabic numerals attributed to the route. It has a green ground with white inscription; it may be affixed to or combined with other signs.'*

According to Annex I, there are two-digit and three-digit numbers. By leaving off the initial 0 (zero) in numbers lower than 10, there are also one-digit numbers. In practice, the visibility of E-road signs varies from country to country. In Denmark, Norway, and Sweden, for example, E-road signs do not feature national road numbers, which makes the E-numbering quite visible and well known. Some countries afford equal visibility to E-road and national road numbering on their signs (e.g. Finland), while some use it only at major junctions (e.g. Germany).

Brief assessment of the nature/purpose of the E-road network:
- Its main influence is on maps and road signing
- It promotes tourism
- It is visible to the road user
- It provides advisory engineering standards
- It has a clearly documented procedure for amendments to the network and recommendations

## 2.2 Trans-European road network

Steps towards and visions of a more integrated and economically more powerful Europe subsequently gave new importance to the transport infrastructure—even to the uniform functionality of road infrastructures. The idea of TENs (trans-European networks for transport, energy, and telecommunications) emerged by the end of the 1980s in conjunction with the proposed Single Market of the European Union.

*'It made little sense to talk of a big market, with freedom of movement within it for goods, persons and services, unless the various regions and national networks making up that market were properly linked by modern and efficient infrastructure.'*

The Treaty establishing the European Union provides a sound legal basis for the TENs: *'The European Union must aim to promote the development of Trans-European Networks as a key element for the creation of the Internal Market and the reinforcement of Economic and Social Cohesion. This development includes the interconnection and interoperability of national networks as well as access to such networks.'*

**The Community (TEN-T) Guidelines** for the development of the trans-European transport network were adopted by the European Parliament in 1996. The text of the guidelines concentrates on promoting projects: *'these guidelines identify projects of common interest, the implementation of which should contribute to the development of the network throughout the Community.'*

In its annexes, the guidelines contain a map of Trans-European Network roads for each country as well as maps of other modes. This is now commonly referred to as the TEN-T road network, but is also known historically as the TERN (trans-European road network). In Article 9, the TEN-T road network is described as having the following characteristics:

*'1 The trans-European road network shall comprise motorways and high-quality roads, whether existing, new or to be adapted which:*
- *play an important role in long-distance traffic, or*
- *bypass the main urban centres on the routes identified by the network, or*
- *provide interconnection with other modes of transport, or*
- *link landlocked and peripheral regions to central regions of the Community.*

*2 The network shall guarantee users a high, uniform and continuous level of services, comfort and safety.*

*3 The network shall include infrastructure for traffic management and user information, based on active cooperation between traffic management systems at European, national and regional levels.'*

Although the TEN-T road network in each country was defined in cooperation with national governments, it was the European Commission and the Council of Ministers who had the last word. The result was, in many cases, different from the E-road network and did not reflect national traffic loads.

There are no signs to identify roads that are part of the TEN-T road network. The network structure is known only by a few experts and is only identifiable by information signs erected when road improvement projects are supported by TEN-T funding, which is quite rare. The project information signs do not give any idea of the whole TEN-T road network. The major part of these roads do not get any support (if not cohesion) and do not have any special status in road management (except when separate EU directives apply, e.g. the Tunnels Directive). The EU-related project information signs often actually refer to ERDF support, which can be obtained for any class of road.


TEN-T Road Network MAP ‘EU 25’ with Norway and Switzerland (from the DG TREN website). Separate maps for each country, even Romania and Bulgaria, are available. See http://ec.europa.eu/ten/

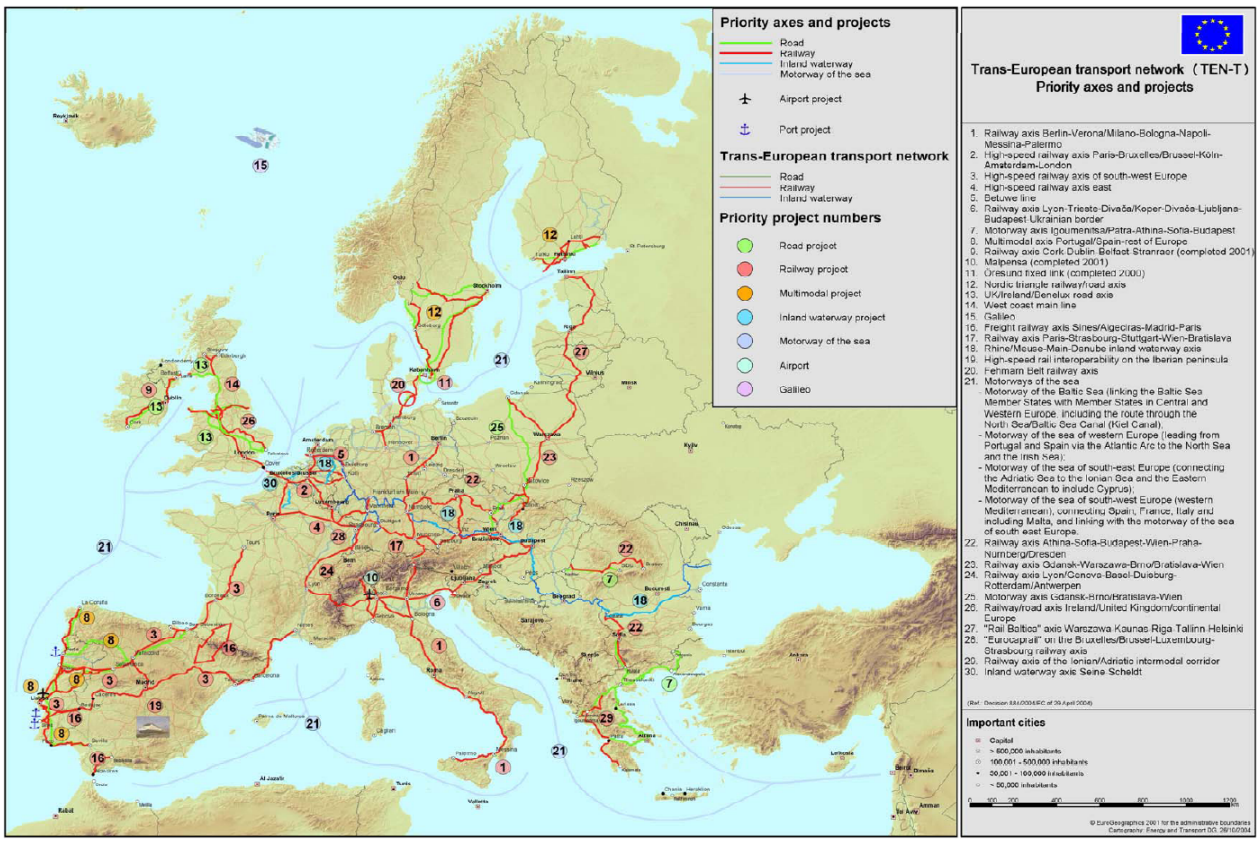
The European Commission has recognised that there is potential for confusion in the multiple ‘European’ road networks that currently exist and has stated in its White Paper the ambition to make the trans-European network more visible, also with a view to providing a guaranteed level of service for users. In a Transport White Paper published in September 2001, *European Transport Policy for 2010: Time to Decide*, the European Commission wrote: *‘In the long term, a common system for identifying stretches of the trans-European road network is bound to be required in order to make things clearer and guarantee continuous network quality for users’.*

A report from the High-Level Group chaired by Ms Loyola de Palacio, November 2005, looks to the future and focuses on the *'extension of the major trans-European transport axes to the neighbouring countries and regions'*. The Palacio report is discussed in more detail in section 3.2 of this annex. Both the Palacio report and the Van Miert report are discussed in more detail in **section 3** of this annex.

The priority projects are, in practice, the most interesting aspect of TEN-T roads, as these are the target of EU aid. That being said, road projects that receive financial support from the EU account for only a very limited part of the TEN-T road network and some of them are probably part of the E-road network as well. In May 2007, large-scale 'TEN-T Days' were organised in Brussels. Even at these events, the programme seemed to concentrate on financing and project issues, not on the issues of network structure or its visibility to the users.

Brief assessment of the nature/purpose of the TEN-T road network:
- It emphasises the TEN-T road network as part of the whole transport system
- It focuses on supporting a number of projects, which are (most certainly) also part of the E-road network
- There are no objective criteria for the selection of routes
- The procedure for making changes to the network is unclear
- It is not visible to the road user

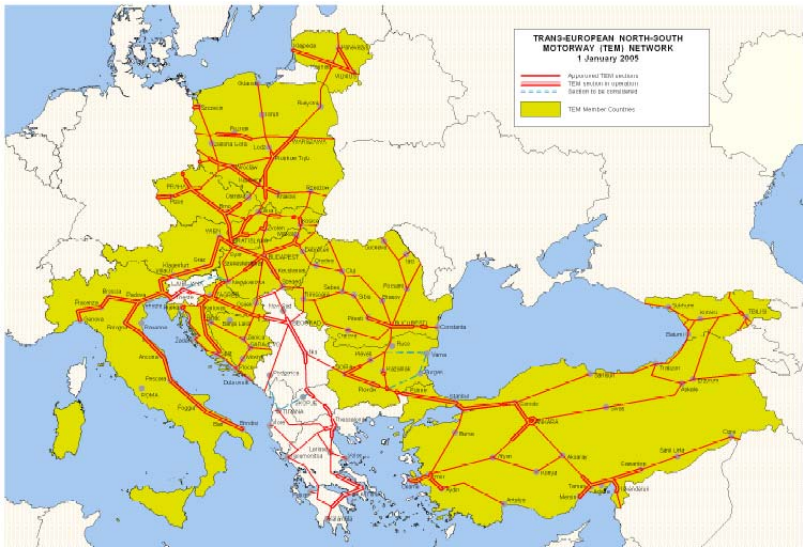
**MAP showing all TEN-T networks and priority projects.**



## 2.3 Trans-European north-south Motorway (TEM)

The idea of a Trans-European north-south Motorway was born in 1972 when the governments of Hungary and Poland jointly asked the UN for assistance in the design and construction of a motorway itinerary, originally from Gdansk to the eastern borders of Turkey, measuring 10,000 km. Today, after political and economic changes in Europe, TEM is a network project covering 24,000 km of road reaching from Italy in the West to Lithuania in the North. TEM is described as a sub-regional cooperation with the coordination and support of the UNECE. There are 15 member states and three observers. The project office is situated in Warsaw, Poland.

The main objectives of the TEM project are*: 'The facilitation of road traffic in Europe among and through the countries participating in the project, the improvement of the quality and efficiency of transport operations, the balance of gaps and imbalances existing in the motorway network between Western, Eastern, Central and South-Eastern Europe and the assistance of the integration process of European Transport Infrastructure systems thus promoting the overall development of the region.'*




The TEM project has published **Standards and Recommended Practice** to reflect the up-to-date requirements of motorway users, the latest experience, research and development achievements in the field of motorway design, construction and operation as well as newly required safety measures in motorway tunnels.

The role of these standards is to ensure that the planning and design of the TEM motorway provide for adequate traffic flow at minimum operating cost, while ensuring harmonized conditions for motorway users, a proper level of service, safety, speed and driver comfort over medium and long distances.

In revisions of TEM standards, other agreements and standards have been taken into account, such as the AGR, the Highway Capacity Manual, and CEN standards.

Brief assessment of the nature/purpose of the TEM network:
- TEM is more a technical development project
- It concentrates on the realisation of one corridor
- It forms a total promotion system for one route
- It is obviously included in the TEN-T road network
- Is it a relic of a divided Europe?

## 2.4 Pan-European transport corridors

The European Conference of Ministers of Transport (ECMT) is an intergovernmental organisation established by a Protocol signed in Brussels on 17 October 1953. It comprises the Ministers of Transport of 43 full member states, 7 associate countries, and 1 observer country.

The Trans-European networks were extended as a result of decisions reached on the occasion of the pan-European Conference of Transport Ministers in Crete (1994) and in Helsinki (1997) to include 10 multimodal corridors connecting up to the infrastructure of those central and eastern European countries in line for accession to the EU.


*MAP: Pan-European corridors during EU15*

ECMT helps to create an integrated transport system that is economically efficient and meets environmental and safety standards. At their meeting in Dublin in May 2006, the Council of Ministers agreed on the creation of an International Transport Forum. The aim of the forum is to bring high-profile, international attention to the essential role played by transport in the economy and society, while facilitating the integration of transport and logistics into key policy-making processes.

Today major parts of the Pan-European corridors are inside the EU and have been integrated into the TEN network. The remaining parts could be described as providing access to third countries.

Brief assessment of the nature/purpose of the corridors:
- They emphasise corridors as a multimodal part of the transport economy
- They open doors to several EU/non-EU financial instruments
- They encourage governments to develop these corridors
- Major parts have been integrated to TEN-T (see the TEN-T road network map)
- They are not visible to the road user

## 2.5 TINA roads

TINA stands for Transport Infrastructure Needs Assessment. TINA roads were pre-TEN-T roads for acceding countries. They have been replaced by TEN-T roads, hence it is more correct to speak of TEN-T instead of TINA in all EU countries.

MAP: TINA during EU15

Brief assessment of the TINA network:
- was only for temporary use
- In the wake of TINA, it is now possible to refer to TEN-T in the whole of Europe + EEA

# 3 Enlargement of the TEN-T road network

The TEM, ECMT, and TINA networks all paved the way for the expansion of the TEN-T road network towards the east of Europe and beyond. This development has been put on a much more secure footing by the conclusion of the Van Miert report and the Palacio Report produced by the European Union.

## 3.1 The Van Miert report

On 22 May 2001, Decision No 1346/2001/EC was adopted by the European Parliament and the Council, amending the TEN-T guidelines as regards seaports, inland ports, and intermodal terminals, emphasising the multimodal dimension of the network and thus reacting to recent developments.

In October 2001, the European Commission proposed an amendment to Decision 1692/96/EC on community guidelines for the development of the trans-European transport network. The proposal was approved by the European Parliament at its first reading with some modifications. As the proposal did not make progress in the Council, the Commission decided to bring forward the more comprehensive amendment of the guidelines and set up a high-level group (HLG) chaired by former Commission Vice-President Mr Karel Van Miert and comprising representatives from the 27 member states of the EU and the European Investment Bank.

On 1 October 2003, the European Commission presented a new proposal complementing the 2001 proposal based on the work of the HLG and taking into account comments received from the European Parliament in its first reading. Following the recommendations of the HLG, the decision identified 30 priority projects of considerable importance for international traffic. The priority projects also include projects in the new member states.

In April 2004, the European Parliament and the European Council adopted the revised guidelines with Decision No 884/2004/EC, amending Decision No. 1692/96/EC. The amended guidelines give greater priority to key projects and concentrate scarce funds on projects of European interest, like cross-border sections and natural barriers, and have a time horizon for completion by 2020.

*'Furthermore, within the general objective of ensuring the sustainable mobility of people and goods, mechanisms should be put in place to support the development of motorways of the sea between member states in order to reduce road congestion and/or improve access to peripheral and island regions and states.'*

## 3.2 The Palacio Report

*'A well functioning transport system connecting the European Union (EU) and the neighbouring countries is essential for sustainable economic growth and the well-being of all citizens in this part of the world.'* In short, improving transport connections would be for the mutual benefit of both the European Union and its neighbouring partner countries. With this development in mind, the EU adopted in April 2004 an ambitious plan that focused investments on a limited number of major trans-European transport axes. In particular, the plan aimed at integrating the networks of the new EU member states, thereby contributing to a stronger Single Market.

Following the ministerial seminar that took place in Santiago de Compostela in June 2004, the European Commission decided to establish a high-level group (hereinafter referred to as 'the group') on the '**extension of the major trans-European transport axes to the neighbouring countries and regions'.**

This group continued the work of the previous HLG lead by Mr Karel Van Miert to extend the concept of European Neighbourhood Policy into the transport field and to find ways to improve connections between the European Union and its neighbouring countries and regions.

Former Commission Vice-President **Ms Loyola de Palacio** was appointed chair of the group, which comprised 27 neighbouring countries, the 25 member states of the EU, plus Bulgaria and Romania, the European Investment Bank, the European Bank for Reconstruction and Development, and the World Bank (hereinafter referred to as 'the banks'). The group met on 10 occasions between October 2004 and November 2005.

**Major transnational axes and projects**

The group identified the following **five major transnational axes.**

- **Motorways of the seas**: linking the Baltic, Barents, Atlantic, Mediterranean, Black, and Caspian Sea areas, and with an extension through the Suez Canal towards the Red Sea.

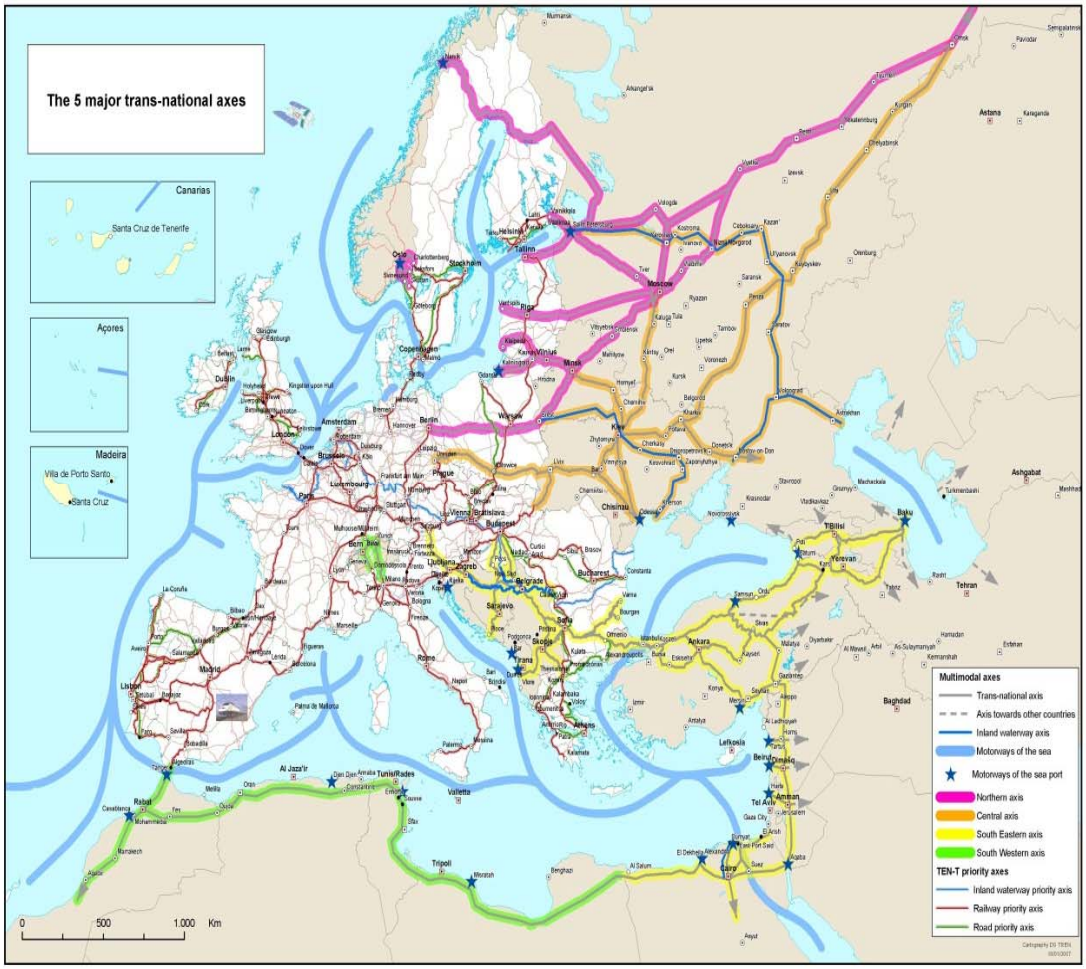
- **Northern axis:** to connect the northern EU with Norway to the North and with Belarus and Russia and beyond to the East. A connection to the Barents region linking Norway through Sweden and Finland with Russia is also foreseen.

- **Central axis:** to link the centre of the EU to Ukraine and the Black Sea and through an inland waterway connection to the Caspian Sea. Connections towards Central Asia and the Caucasus are also foreseen, as well as a direct connection to the Trans-Siberian railway and a link from the Don/Volga inland waterway to the Baltic Sea.

- **South-eastern axis**: to link the EU through the Balkans and Turkey to the Caucasus and the Caspian Sea as well as to Egypt and the Red Sea. Access links to the Balkan countries as well as connections towards Russia, Iran, Iraq, and the Persian Gulf are also foreseen.

- **South-western axis**: to connect the south-western EU with Switzerland and Morocco and beyond, including the trans-Maghrebin link connecting Morocco, Algeria, and Tunisia. An extension of the trans-Maghrebin link to Egypt as well as a connection from Egypt to the South towards other African countries is also foreseen.

These axes, **shown in the map below**, extend and complement the major axes of the trans-European transport network by connecting them to the networks of the neighbouring countries. They also contribute most to promoting international exchanges and traffic as well as enabling regional cooperation and integration. The TEN-T priority axes can also be seen on this map.




**Road safety**

The group stressed the need to take measures to improve road safety, addressing driver behaviour, vehicle safety, road infrastructure (safety audits), and traffic management systems. Priority should be given to the major axes identified by the group. The group recognised the usefulness of the annual Verona road safety conference, launched under the Italian EU presidency in 2003.

**Financing and public-private partnerships**

*'The group emphasised the importance of adequate budget allocations for the transport sector and acknowledged that private capital can in some cases usefully complement public financing through public-private partnerships (PPPs). It underlined the primary role of transparent and clear public procurement legislation in attracting private sector financing and urged its members to prepare appropriate legislation in the light of international best practice.'*

The Group proposed that international organisations such as the banks and the European Commission would organise a series of regional workshops to exchange best practice and to discuss project financing, fiscal space, user charging, and the role that PPPs could have in accelerating the implementation of the proposed measures. These could follow the format of the seminar, jointly organised by the European Commission and Russia, which took place in Moscow on 28 October 2005 to discuss transport financing and PPPs, international experience, and legislative issues.

***'Horizontal measures***

*With a view to the removal of non-physical barriers and to facilitate communication between authorities in different countries, the group recommended the following measures to speed up border control procedures:*

- *International conventions should be implemented in full with the aim of harmonising the form and content of the relevant trade and transport documents. These documents should be mutually recognised in the language of the country concerned and in English, or in a mutually agreed language.*
- *Customs modernisation should be pursued, using as a reference the rules and recommendations of the international conventions and standards. These concern, for example, corresponding opening hours and shared facilities of frontier posts, medico-sanitary, and veterinary inspections as well as use of automated systems and risk management techniques.*
- *To reduce unnecessary delays in ports, simplified custom procedures and electronic data transfer through one-stop administrative procedure should be implemented. Also the five IMO FAL 2 documents already in use in the EU should be adopted by the neighbouring countries with the aim of replacing all existing documents by 2008 at the latest.*

*Regarding satellite radio navigation systems, the group welcomed the on-going bilateral and regional cooperation activities and invited the European Commission and the relevant members of the group to launch such negotiations as soon as possible. The group proposed to introduce, apply, and control security measures resulting from international agreements and standards as well as to carry out security audits in common with the neighbouring countries, when relevant.'*

**Other recommendations**

The group also made a number of other recommendations relating to maritime transport and the motorways of the seas, rail transport, and interoperability, inland waterways, air transport, and implementation of traffic information systems. But these are not considered in detail in this report as they do not have a direct impact on the development of the road network.

**Palacio report: implementation and coordination**

*'The group called for **a review and update of the major axes/projects and the horizontal measures in 2010 and regularly thereafter**. To prepare for this update, **a mid-term review was proposed to be carried out in 2008** based on information provided by the countries concerned on the evolution of traffic, progress of implementation of the proposed measures, and on bottlenecks, including environmental difficulties that may emerge.*

*To ensure effective and timely implementation of the proposed measures along the axes, the group highlighted the need for* ***strong and effective coordination frameworks.*** *These frameworks should be put in place gradually, starting from a memorandum of understanding (MoU) between the European Commission and the countries concerned for axes/regions where no such cooperation mechanism exists today. For axes/regions that currently operate through MoUs, a binding treaty was considered to be the best option.*

*Finally, the group recommended that the European Commission, the EU member states, and the banks* ***focus their cooperation and financing actions on the priority axes and on the horizontal measures*** *put forward by the group. The group's recommendations should also be adequately reflected in the cooperation agreements and action plans under the European Neighbourhood Policy. In this context, the group considered that the twinning of an EU member state with a neighbouring country was a very useful and effective instrument for implementing the horizontal measures, particularly in the areas of maritime and road safety as well as to simplify border crossing procedures.'*

# Annex 2: Length of the E-road and TEN-T road networks per country

Summary of road lengths in km for the E-road and TEN-T road network in EU 25 + EEA
Extract from an inventory included in a CEDR/SG-TERN study from 2004 (Frank Müller/DE + consultants IVV & SSP)

Please note that these figures may have changed since 2004. Nevertheless, they have been included in this report to provide approximate data for each country

| Country | | TEN-T+ E-roads | TEN-T only | E-road only |
|---|---|---|---|---|
| Austria | AT | 1697 | 13 | 486 |
| Belgium | BE | 1521 | 116 | 305 |
| Bulgaria | BG | 1501 | 224 | 612 |
| Czech Republic | CZ | 1663 | 183 | 750 |
| Denmark | DK | 841 | 67 | 2 |
| Estonia | EE | 365 | 522 | 40 |
| Finland | FI | 2819 | 865 | 1115 |
| France | FR | 10777 | 2249 | 1614 |
| Germany | DE | 8522 | 1544 | 1438 |
| Greece | GR | 2784 | 584 | 461 |
| Hungary | HU | 1777 | 252 | 210 |
| Ireland | IE | 786 | 1103 | 0 |
| Italy | IT | 6526 | 401 | 1094 |
| Latvia | LV | 931 | 447 | 95 |
| Lithuania | LT | 1293 | 297 | 0 |
| Luxembourg | LU | 76 | 13 | 122 |
| Netherlands | NL | 1422 | 426 | 175 |
| Norway | NO | 3405 | 0 | 893 |
| Poland | PL | 4111 | 253 | 1051 |
| Portugal | PT | 2137 | 282 | 0 |
| Romania | RO | 2308 | 35 | 2887 |
| Slovakia | SK | 1167 | 34 | 144 |
| Slovenia | SI | 429 | 78 | 43 |
| Spain | ES | 5778 | 3755 | 0 |
| Sweden | SE | 3532 | 1321 | 653 |
| Switzerland | CH | 1127 | 189 | 163 |
| United Kingdom | UK | 3669 | 2577 | 17 |
| **TOTAL** | | **72964** | **17830** | **14370** |

Note: Updated length data of TEN roads were found in the ‘data warehouse’ of the TEN implementation report. However, the problem remains as to how to handle ‘existing’ and ‘planned’ TEN roads. Most ‘planned’ roads seem to be existing routes, where just an upgrading or new alignment is planned.

## Annex 3: List of terms and abbreviations

The following terms and abbreviations were used in this document:

| | |
|---|---|
| **AGR** | European **Agreement** on Main International Traffic Arteries of 15 November 1975. This agreement is a part of the Declaration on the Construction of Main International Traffic Arteries of 16 September 1950. |
| **CEDR** | **Conference of European Directors of Roads**<br>An organisation of the national road administrations of 27 European countries |
| **CEN** | The European Committee for Standardization |
| **DG-TREN** | **Directorate-General for Energy and Transport** at the European Commission. DG-TREN is responsible for the TEN-T network in Europe. |
| **EC** | **European Commission** |
| **ECMT** | **E**uropean **C**onference of **M**inisters of **T**ransport |
| **EU** | **E**uropean **U**nion |
| **FERN** | **Future European Road Network**<br>An approach to single road classification at European level |
| **HLG** | **H**igh-**l**evel **g**roup |
| **Pan European transport Corridors** | **The Pan European transport Corridors**<br>includes 10 multimodal corridors that connect the infrastructure of central and eastern European countries. |
| **PG** | A CEDR **project group** |
| **PPP** | **P**ublic **p**rivate **p**artnerships |
| **SG** | A **subgroup** set up by CEDR's predecessor organisation, WERD/DERD. |
| **TEM** | **Trans-European north-south Motorway**<br>TEM is a network project in the eastern part of Europe, reaching Italy in the west and Lithuania in the north. 15 countries are involved. |
| **TEN-T** | **Trans-European Network-Transport**<br>A road network established 1996 that is supported financially by the EU. |
| **TERN** | **Trans-European Road Network**<br>The TEN-T road network |
| **TINA** | **Transport Infrastructure Needs Assessment**<br>The TINA roads were pre TEN-T roads in acceding countries. They have since been replaced by TEN-T roads. |
| **UNECE** | **United Nations Economic Commission for Europe**<br>Responsible for E-roads in Europe and for other parts of a worldwide road network |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