

Building transportation networks across borders: are there lessons for Europe from the U.S. experience?

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I. Introduction

Transportation was for a long time an ugly duckling among European Union policies. The original Treaty provisions were somewhat obscure, provided guidance on only some issues and left out others, and focused on inland surface transportation, explicitly omitting sea and air. Not surprisingly, for the first twenty-five years of the EU transportation remained a low priority area, leading to insubstantial developments and benefiting from limited resources within the European Commission. Transportation was viewed essentially as a Member State responsibility with limited scope for the Community to intervene. Where there was a need for international cooperation and coordination, this was usually effected through global bodies (e.g. ICAO in civil aviation, IMO for shipping); regional cooperation was typically entrusted to intergovernmental organizations such as Eurocontrol and ECAC for aviation, or the United Nations' Economic Commission for Europe for road transportation.

That situation changed in the 1980s. European Parliament grabbed the initiative from the Commission and brought a historic Court case against the Council of Ministers. Parliament criticized the Council for having failed to implement a Community transportation policy as required by then Article 74 of the Treaty. More narrowly, it also argued that the Council had failed to act on some Commission proposals to achieve the freedom to provide transportation services across the Community. In its 1985 ruling² the European Court of Justice upheld the second point, but the action in relation to the general transportation policy was rejected on the grounds that the requirement to develop a policy was insufficiently precise to be enforced legally.

Yet this case jolted the EU institutions into action. The Commission tabled a series of proposals to develop ambitious EU policies for the different transportation modes and these led to an increasingly important body of legislation throughout the 1990s and 2000s³. As the European Union institutions defined the framework for the organization of most economic activities, transportation participated in that effort. The industry was affected not only as an important economic activity in its own right, but also as the instrument through which mobility of goods and persons is achieved in an increasingly integrated Europe.

The emphasis of this legislative activity was no doubt on market organization. The European Union pursued a progressive liberalization of the various transportation modes, leading to the creation of EU-wide markets with increased opportunities for access and competition, in a relatively light regulatory framework. This approach reflected the EU's general bias towards free markets and extended the single EU-wide market objective to the transportation industry. As the various modes became more competitive and dynamic, transportation was able to fulfill its role as the backbone of the internal market, enabling producers to connect suppliers, manufacturing sites and customers throughout the Union.

² European Parliament v. Council, Case 13/83, [1985] European Court Reports, 1513.

³ See the European Commission's Transport website for a comprehensive overview at http://ec.europa.eu/transport/index_en.htm.

But the EU's focus on liberalization did not exclude attention being paid to other important aspects: in particular safety has been an important objective. There is also significant overlap between transportation policy and some other EU policies, *inter alia* in the field of environmental protection, consumer protection and workers' rights. Single market legislation also led to the technical harmonization of vehicle standards.

Surprisingly there has been only limited policy development in connection with transportation infrastructure. As a network industry it is hard to think of transportation without including its material support in the form of roads, railways, waterways, ports, airports and air traffic control. Some aspects of transportation infrastructure are indeed addressed by EU policies: for example access to railway networks is a key component of rail liberalization, and the competitive operation of ports and airports is a logical extension of the introduction of competition in the corresponding transportation modes. Environmental impact legislation also largely stems from EU measures. And in recent years the European Commission has revised its traditional policy of considering the funding by Member States of their transportation infrastructure, as being outside the scope of state aid discipline⁴; in other words investment in some network components is liable to be assessed as to its impact on competing infrastructures.

However, critical decisions as to the availability and configuration of transportation infrastructure have remained largely outside the remit of the EU. It is normally up to national and local authorities to build - or not to build - new network components and how to configure these.

From a European-wide perspective this raises a number of issues. As a substantial portion of freight and - to a lesser extent - of passenger movements are part of cross-border traffic flows⁵, how can it be ensured that there will be adequate infrastructure all along the main routes? Many of these corridors coincide with the main national networks, but can one assume that this will automatically lead to the provision of sufficient capacity? Will there be sufficient priority given to cross-border segments, that are often of less relevance for national decision-makers than segments between the main points in a Member State? How can one ensure that these cross-border traffic flows are supported by sufficiently seamless infrastructure so that transportation firms can operate in a consistent environment without having to deal with the idiosyncrasies of different systems?

In addition the infrastructure is no longer merely a passive support for vehicles. Increasingly the network and the traffic on it are interacting in what is often referred to as "intelligent" systems. Networks provide information (e.g. on traffic conditions, signaling, even directing all movements as in the case of air traffic control) and conversely vehicles provide information to the network operator, enabling him to adjust the performance of the network to user

⁴ Annabelle Lepièce, Financing of airport infrastructure under State aid rules: Guidelines and Practice of the European Commission, *Journal Luchtrecht* 2008, p. 110-123.

⁵ Eurostat, *Panorama of Transport, 2009*: in terms of freight tonne-kilometres, 33 % of road goods transport performance was international in the EU-27 in 2007, while this proportion was 40 % in rail goods transport.; in inland waterway goods transport, in 2006, this share was 75 %. This conclusion applies to a lesser extent to passenger transport, where only high speed rail and aviation sustain a high proportion of international travel in comparison with national travel.

requirements. Where a substantial portion of traffic occurs between Member States, there is an obvious interest in ensuring that there is sufficient uniformity in the configuration of these networks so that the necessary interaction between vehicles and infrastructure can take place. Going beyond harmonization measures, one can look at the provision of this “intelligence” as part of the basic infrastructure capacity which should be provided to support cross-border traffic flows.

Finally the provision of infrastructure should be consistent with long-term policy decisions that are made at the level of the European Union. Where there has been a choice in favor of environmentally more sustainable forms of transportation and promoting inter-modality, this has consequences for the provision of infrastructure, e.g. leading to the construction of multi-modal terminals and to priority being given to collective forms of transportation over individual, or to rail and sea over road. Any transportation policy that omits infrastructure provision from its scope, is bound to be less effective and might even be perceived to pay lip-service to lofty policy goals without taking the necessary measures to implement these.

These considerations are not new. While the EU has largely refrained from interfering with Member States’ authority over their transportation infrastructures and with free market dynamics, in a number of areas it is clear to see how infrastructure provision has - at least partly and in most cases imperfectly - been affected by Community policies.

This paper will review developments in two areas of particular relevance: decisions on investment in new transportation infrastructure, typically through the instrument of Transportation Trans-European Network (“TEN-T”) policy; and emerging initiatives to introduce new technologies in transportation networks in a coordinated and synchronized manner between Member States.

Many of these issues are also material in the United States which is likewise facing challenges to maintain existing infrastructure, build new infrastructure to accommodate long-term growth projections and modernize its transportation networks.

A comparison between the U.S. and the EU is particularly instructive as both have transportation networks of a similar degree of development and extent; in addition they both are organized according to a federal/state, respectively EU/Member State structure and their transportation policies reflect this duality. The infrastructure of both systems is primarily driven by [member] state and local levels - although the U.S. highway system was essentially a federal initiative but was implemented at state level. In contrast to the EU, much of the investment in highway infrastructure is funded from the federal budget, and the freight rail infrastructure is private. While there are unmistakable differences in the configuration of the two systems (more

rail freight and air transport and less passenger rail transport in the U.S.), the orders of magnitude are similar⁶.

In recent months transportation infrastructure has attracted considerable attention in the U.S. There is mounting concern about the decrepit condition of much of the system - the American Society of Civil Engineers awarded the infrastructure an overall grade of “D” (“poor”) and estimates that the system requires an investment of \$2.2 trillion over the next five years to reach an acceptable level of performance.

Investing in transport infrastructure was one of the pillars of the “stimulus package” that was adopted earlier this year to address the consequences of the financial crisis. The legislation governing the funding of road transportation and aviation is coming up for renewal later this year against a backdrop of significant funding shortfalls during previous legislatures. The debate on this legislation is likely to lay down the main policy options for transportation infrastructure for the years to come.

In order to prepare that debate two “blue ribbon” Commissions were set up to analyze the surface transport infrastructure (defined to include highways, transit and rail) and reported recently⁷. These reports together with an analysis of existing literature and a series of interviews with government transportation officials and industry representatives have enabled the author to compare developments in the U.S. with those in Europe, and most importantly to reflect about any lessons that could be drawn for the EU from the U.S. experience.

II. Investing in transportation infrastructure

A. Trans-European Networks

The original EEC Treaty looked at transportation essentially as a service industry. The relevant provisions (Articles 74-84 EEC) dealt with the application of the main principles underlying the Community, to the transportation industry, and addressed issues like market access, freedom to provide services, pricing, discrimination, competition and state aid. In general a cautious approach was followed and the effect of the original provisions was largely to

⁶ In many ways the U.S. and the EU have comparable transport systems. In 2005-2006 the U.S. rail network extended over 150,000 km and transported 2705 billion tkm (tonne-kilometres) freight and 24 billion pkm (passenger-kilometres) people, as opposed to the EU 27’s 220,000 km on which 435 billion tkm and 384 billion pkm were transported. The U.S. highway system exceeded 90,000 km and carried 1890 billion tkm, again as opposed to EU 27 figures of over 60,000 km and 1888 billion tkm. Road passenger transport in the U.S. amounted to about 7300 billion pkm, compared to 4600 billion pkm for EU 27. Domestic air transport in the U.S. carried 950 billion pkm as opposed to almost 550 billion pkm within the EU 27 (figures from the Eurostat 2009 Panorama of Transport).

⁷ Report of the National Surface Transportation Policy and Revenue Study Commission: Transportation for Tomorrow, December 2007; and Report of the National Surface Transportation Infrastructure Financing Commission: Paying Our Way, February 2009.

modulate the application of these principles rather than to subject transportation entirely to the normal Treaty disciplines.

Infrastructure was absent from this approach. It was not until the 1980s that consideration was given to the need to address the material support for transportation services. The advent of the single market following the 1986 Single European Act made it clear that it was difficult to ensure freedom of movement for goods, persons and services, without providing transportation, energy and telecommunications networks that linked the regions making up that market.

The 1992 Maastricht Treaty introduced a new Chapter XV in the Treaty establishing the European Union:

Article 154

1. To help achieve the objectives referred to in Articles 14 and 158 and to enable citizens of the Union, economic operators and regional and local communities to derive full benefit from the setting-up of an area without internal frontiers, the Community shall contribute to the establishment and development of trans-European networks in the areas of transport, telecommunications and energy infrastructures.
2. Within the framework of a system of open and competitive markets, action by the Community shall aim at promoting the interconnection and interoperability of national networks as well as access to such networks. It shall take account in particular of the need to link island, landlocked and peripheral regions with the central regions of the Community.

Article 155

1. In order to achieve the objectives referred to in Article 154, the Community:
 - shall establish a series of guidelines covering the objectives, priorities and broad lines of measures envisaged in the sphere of trans-European networks; these guidelines shall identify projects of common interest,
 - shall implement any measures that may prove necessary to ensure the interoperability of the networks, in particular in the field of technical standardisation,
 - may support projects of common interest supported by Member States, which are identified in the framework of the guidelines referred to in the first indent, particularly through feasibility studies, loan guarantees or interest-rate subsidies; the Community may also contribute, through the Cohesion Fund set up pursuant to Article 161, to the financing of specific projects in Member States in the area of transport infrastructure.

The Community's activities shall take into account the potential economic viability of the projects.

2. Member States shall, in liaison with the Commission, coordinate among themselves the policies pursued at national level which may have a significant impact on the achievement of the objectives referred to in Article 154. The Commission may, in close cooperation with the Member State, take any useful initiative to promote such coordination.
3. The Community may decide to cooperate with third countries to promote projects of mutual interest and to ensure the interoperability of networks.

Article 156

The guidelines and other measures referred to in Article 155(1) shall be adopted by the Council, acting in accordance with the procedure referred to in Article 251 and after consulting the Economic and Social Committee and the Committee of the Regions.

Guidelines and projects of common interest which relate to the territory of a Member State shall require the approval of the Member State concerned.

These provisions do not in themselves dictate the use of any specific instruments to implement transportation infrastructure. Article 155 refers to “guidelines covering the objectives, priorities and broad lines”, identification of “projects of common interest”, “measures that may prove necessary to ensure the interoperability of the networks” and “support of projects of common interest... through feasibility studies, loan guarantees of interest rate subsidies ... contribute to the financing of specific projects”. In addition Member States are required to coordinate their networks and the Commission is expected to promote this coordination.

This rather open-ended catalogue appears to give EU institutions a wide range of options to organize and support transportation infrastructure initiatives. In practice most effort has been concentrated on financial support in favor of a limited number of high-profile projects.

Even before any of the implementing measures were adopted, the 1994 European Council meeting in Essen endorsed a list of 14 TEN-T ‘specific’ projects, drawn up by a group chaired by then Commission Vice-President Henning Christophersen. This decision set the tone for the TEN program as a vehicle for funding major infrastructure projects of political significance out of the EU budget.

This approach was updated in 2003 by a group headed by former Commission Vice-president Karel Van Miert, which compiled a list of 30 priority projects⁸. These projects focus on high-speed passenger rail and freight rail, but also include a number of highway projects. The addition of one inland waterway project, one airport and the Galileo satellite navigation system turn this into a somewhat heterogeneous group.

⁸ http://ec.europa.eu/transport/infrastructure/maps/doc/ten-t_pp_axes_projects_2005.pdf. The group considered 100 projects submitted by Member States and acceding countries, and developed its own methodology to select a restricted number of priority projects on the transport network of the expanded Union. All selected projects had to:

- be on a main trans-European axis of the enlarged Europe, taking in particular into account natural barriers, congestion problems or missing links;
- have a European dimension and meeting a threshold of €500 million;
- show potential economic viability, other socio-economic benefits and firm commitments from the concerned Member States to complete the project within an agreed timeframe.

Additional qualitative criteria were the following:

- the European value added of the project, in terms of importance for facilitating exchanges between Member States;
- the strengthening of cohesion;
- the contribution to the sustainable development of transport while tackling the problems of safety and of environmental protection and by promoting modal transfer.

How these criteria were applied and the selection was operated, is not documented.

1. TEN-T as a financial instrument

The first implementing rules to give effect to the new Treaty provisions on trans-European networks were adopted in 1995/1996⁹. The implementing rules focused on the use of TEN-T as a financial instrument. The Commission was given responsibility for managing the program. Following periodic calls Member States are invited to submit projects; the Commission operates a selection of projects to be funded and ensures their proper implementation.

It is noteworthy that the substantive rules governing the the objectives to be pursued, the scope of the network and the type of measures to be adopted (the “guidelines”) were finalized only after the political consensus about the priority projects had been reached and the procedure for granting financial support had been detailed. The guidelines state somewhat awkwardly that “Annex III contains, by way of indication, the projects ... to which the Essen European Council attributed particular importance”.

a. Scope

The trans-European transportation network is defined very broadly. The ultimate policy objective of the TEN-T is the establishment of a single, multimodal network covering both traditional ground-based structures and equipment (including intelligent transport systems) to enable safe and efficient traffic. Increasingly, it also involves the deployment of innovative systems that not only promise benefits for transport but also have substantial potential for industrial innovation.

The network is to be established gradually by integrating in-land, sea and air transport infrastructure components, and by including the necessary technical installations, information and telecommunication systems to ensure smooth operation of the network and efficient traffic management.

The transportation infrastructure components are road, rail and inland waterway networks, motorways of the sea, seaports and inland waterway ports, airports and other interconnection points between modal networks. Intelligent transportation systems include the traffic

⁹ Regulation (EC) No 2236/95 of 18 September 1995 laying down general rules for the granting of Community financial aid in the field of trans-European networks, OJ L 228 of 23 September 1995, sets out the rules governing the award of financial support. This regulation was revised by Regulation (EC) 1655/1999, OJ L 197 of 29 July 1999; by Regulation (EC) 788/2004, OJ L 138 of 30 April 2004; by Regulation (EC) 807/2004, OJ L 143 of 30 April 2004; and by Regulation (EC) 1159/2005, OJ L 191 of 22 July 2005.

Decision (EC) No 1692/96 on Community guidelines for the development of the trans-European transport network (TEN-T), OJ L 228 of 9 September 1995, is the general reference framework for the implementation of the transport network and for identifying projects of common interest. This decision, referred to as the “TEN-T guidelines”, was revised by Decision (EC) 1346/2001, OJ L 185 of 6 July 2001, by Decision (EC) 884/2004, OJ L 167 of 30 April 2004, and by Decision (EC) 1791/2006, OJ L 363 of 20 December 2006. A consolidated version is available from <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1996D1692:20070101:EN:PDF>. The Commission reports every two years on the implementation of the guidelines - the most recent report is contained in document COM(2009) 5 final covering the 2004-2005 period. The Commission has published a working draft of a recast of the guidelines at http://ec.europa.eu/transport/infrastructure/basis_networks/guidelines/doc/brochure_guidelines.pdf but these have not been formally proposed yet.

management systems for road, rail, air and waterborne transport as well as the positioning and navigation systems.

The guidelines provide some further detail for modal infrastructures, sometimes relatively constraining (e.g. technical requirements for inland waterways, minimum 250 km/h speed for new high speed rail lines) but more often relatively open-ended (e.g. motorways and high-quality roads which “play an important role in long-distance traffic”).

As a result of this broad-brush approach, the TEN-T encompasses most significant transportation infrastructure in the EU. The consolidated version of the guidelines referred to in footnote 9 counts about 100 pages of network components, including essentially the entire European highway network, the main railroad lines and navigable rivers and canals, and basically all airports and seaports of significance.

Comparing the overall transportation infrastructure and the coverage by TEN-T produces the following result:

Mode	Total infrastructure	Coverage by TEN-T	Proportion
Roads of which highways	4.164.433 61.565	98.500	2%
Railways	219.550	97.600	44%
Inland waterways	40.986	14.100	34%

(Sources: Eurostat 2009 Panorama of Transport; Commission 2009 report on the implementation of the guidelines. All data covering EU27 in 2005. Figures in kilometers).

As a result, much of the transportation infrastructure that is not only of local significance, qualifies for EU funding.

Most of the TEN-T network already exists. Nevertheless almost 20 000 km of the road links, over 20 000 km of railway links (overwhelmingly high-speed lines) and 600 km of inland waterway links remain to be built or substantially upgraded – at an estimated cost of €500 billion according to recent estimates of Member States¹⁰.

The objectives to be pursued by the TEN-T are similarly broad. The guidelines list the following catalogue:

The network must:

- (a) ensure the sustainable mobility of persons and goods within an area without internal frontiers under the best possible social and safety conditions, while helping to achieve the Community's objectives, particularly in regard to the environment and competition, and contribute to strengthening economic and social cohesion;
- (b) offer users high-quality infrastructure on acceptable economic terms;
- (c) include all modes of transport, taking account of their comparative advantages;
- (d) allow the optimal use of existing capacities;

¹⁰ European Commission, Green Paper - TEN-T: A Policy Review, Towards a Better Integrated Trans-European Transport Network at the Service of the Common Transport Policy, Document COM(2009) 44 final.

- (e) be, insofar as possible, interoperable within modes of transport and encourage intermodality between the different modes of transport;
- (f) be, insofar as possible, economically viable;
- (g) cover the whole territory of the Member States of the Community so as to facilitate access in general, link island, landlocked and peripheral regions to the central regions and interlink without bottlenecks the major conurbations and regions of the Community;
- (h) be capable of being connected to the networks of the European Free Trade Association (EFTA) States, the countries of Central and Eastern Europe and the Mediterranean countries, while at the same time promoting interoperability and access to these networks, insofar as this proves to be in the Community's interest.

Again, these objectives are formulated in such a way as to provide considerable discretion to the funding authorities.

While the guidelines define a number of priorities to be pursued, these are not formulated in such a way as to constrain significantly the discretion of the funding authorities:

- (a) establishment and development of the key links and interconnections needed to eliminate bottlenecks, fill in missing sections and complete the main routes, especially their cross-border sections, cross natural barriers, and improve interoperability on major routes;
- (b) establishment and development of infrastructure which promotes the interconnection of national networks in order to facilitate the linkage of islands, or areas similar to islands, and landlocked, peripheral and outermost regions on the one hand and the central regions of the Community on the other, in particular to reduce the high transport costs of these areas;
- (c) the necessary measures for the gradual achievement of an interoperable rail network, including, where feasible, routes adapted for freight transport;
- (d) the necessary measures to promote long-distance, short sea and inland shipping;
- (e) the necessary measures to integrate rail and air transport, especially through rail access to airports, whenever appropriate, and the infrastructures and installations needed;
- (f) optimisation of the capacity and efficiency of existing and new infrastructure, promotion of intermodality and improvement of the safety and reliability of the network by establishing and improving intermodal terminals and their access infrastructure and/or by deploying intelligent systems;
- (g) integration of safety and environmental concerns in the design and implementation of the trans-European transport network;
- (h) development of sustainable mobility of persons and goods in accordance with the objectives of the European Union on sustainable development.

In other words, TEN-T is a flexible instrument that allows the funding of most any project that is consistent with high-level policy goals. The legislation does not contain any requirements to validate compliance with the program's objectives or priorities, e.g. by way of *ex ante* independent review, and does not set out any rules to establish a hierarchy among qualifying projects. This puts a heavy burden on the actors in the selection process to operate a sensible and balanced selection.

In order to enhance the transparency and quality of the selection process the Commission introduced a number of internal improvements. With a view to alleviating resource constraints within its administration, it set up¹¹ the Trans-European Transport Network Executive Agency (TEN-T EA) in 2006 to implement and manage the TEN-T program on its behalf. The Agency prepares the selection of projects and organizes the evaluation of proposals by outside

¹¹ Commission decision of 26 October 2006 establishing the Trans-European Transport Network Executive Agency pursuant to Council Regulation (EC) No 58/2003, OJ L 32 of 6 February 2006

independent experts, copying the approach followed in the context of research and development proposals. The Commission nevertheless retains responsibility for the selection of projects, but ensures collective decision making within its administration. The Commission then submits its selection to a committee composed of Member State representatives which again helps to achieve a balanced decision. The selection is then finalized by means of a decision taken by the full college.

So, while the guidelines do leave substantial discretion to the the Commission, care is taken to avoid arbitrariness and to ensure transparency.

b. Funding

While there are various physical measures of the European transportation infrastructure - length of the network for the different transport modes as referred to on page 8, traffic volumes as listed in footnote 6 - it is difficult to assess its economic importance, in particular as regards capital investment and operating costs.

A first approach focuses on the cost of providing the transportation infrastructure. In the context of the Commission's initiative to internalize external transportation costs, it relied on a study of infrastructure cost and revenue¹², focusing on road but also providing some indications on other modes.

Notwithstanding severe difficulties related to different methodologies and variation in data availability, the study concluded that the unit cost (including depreciation, interest on capital and running costs) per highway kilometer in Europe ranged between € 600 - 800,000. Applying this (no doubt simplistic) figure to the length of the European highway network produces an annual cost of approximately € 43 billion.

A similar exercise¹³ - marred by the same difficulties - for freight and passenger rail shows that European rail infrastructure managers collect approximately € 11 - 15 billion annually for the use of the various national networks. It should be noted that the sector argues strongly for substantially increased investment in freight rail infrastructure¹⁴ which would cost in the order of magnitude of € 10 billion per year for the next decade.

While this short overview of the two main transportation modes does not pretend to any scientific rigor, it suggests that the annual cost of providing transportation infrastructure of European relevance probably is somewhere in excess of € 65 billion (i.e. 0.5% of GDP). Obviously - and the various studies of this subject invariably emphasize this - it would be useful to construct a more robust base of transportation infrastructure economic data.

Focusing in a second stage on investment, it should be recalled that the overall requirements as submitted by Member States for the completion of the TEN-T network have been assessed at

¹² CE Delft, Road infrastructure cost and revenue in Europe, 2008.

¹³ International Transport Forum, Charges for the Use of Rail Infrastructure, 2008.

¹⁴ Community of European Railway and Infrastructure Companies, Towards a Primary European Rail Freight Network, 2007.

around € 500 billion (see text accompanying footnote 10). The European Commission estimates¹⁵ that in the two-year 2004-2005 period the investment within the scope of the TEN-T program in rail infrastructure amounted to € 58 billion, in road infrastructure € 27 billion and in airports € 9 billion, with smaller amounts for ports and inland waterways. Annual investment for all transport modes amounted to an average of € 51 billion.

Most of the cost of building and providing transportation infrastructure is borne by Member States' public funds, by private investors and by users.

The contribution of the European Union is modest. In 2005 the budget for TEN-T amounted to € 564 million - 1.1 % of investment expenditure. There is a certain multiplier effect in that other EU programs are often used to complement TEN-T funding: the European Regional Development Fund contributed € 1,856 million to TEN-T projects and grants from the Cohesion Fund amounted to € 1,460 million. Loans from the European Investment Bank and from the European Bank for Reconstruction and Development added respectively € 7,371 and 176 million to investment funding, for a total contribution of 22% of investment requirements.

For the 2007-2013 planning period the TEN-T budget is expected to rise to over € 1 billion annually. Together with other grants under complementary EU programs and loans provided by EU financial institutions the share of investment expenditure is expected to reach 27%.

While the immediate impact of TEN-T funding on transportation investment decisions is small, the multiplier effect enhances its contribution so that it does make a material impact. Nevertheless the EU remains a junior partner as compared to national budgets.

2. TEN-T as a tool for planning

a. Potential of the program

As a financial instrument the TEN-T program, supported by other budgetary mechanisms, makes a significant - even though not determining - impact on transportation investment decisions.

The question arises to what extent this activity succeeds in directing investment decisions towards projects that are economically optimal and that reflect policy priorities.

The program is in itself quite suitable as a planning instrument. In the words of the Commission's recent Green Paper (see footnote 10):

First and foremost, the TEN-T Guidelines are the Community's instrument for policy definition and network planning. The projects of common interest identified in these Guidelines can be defined through their location on outline plans and/or through their characteristics.

¹⁵ European Commission, Report on the Implementation of the Trans-European Transport Network Guidelines 2004-2005, Document COM(2009) 5 final.

This approach would allow the use of the TEN-T program as an instrument to identify priority components of the transportation network: key segments of crucial importance for freight and passenger traffic, and links that are currently missing or in need of improvement . It would enable the European institutions to direct investment towards new links that are necessary as a result of traffic growth or of shifting traffic patterns. It would also make it possible to develop a systematic approach in order to bring about modal shift and give effect to new transportation policy priorities.

Nevertheless the reality is, as was pointed out above, that the TEN-T program lacks selectivity. Its scope is very wide and covers basically all transportation infrastructure that is not of local importance only. Priorities also are defined in a very broad manner so that any project that is consistent with high level policy goals can qualify for support.

Project selection occurs essentially in two ways: 30 high priority projects were defined politically (see [Annex](#)), covering for the most part railway investment, a few highway and inland waterway projects, completed by a single airport (Malpensa near Milan) and generic priorities for short sea shipping and Galileo, the European satellite navigation system. The remaining projects are selected as a result of the allocation of scarce funds by the Commission in dialogue with the Member States.

The 30 high priority projects are given the first helping. During the 2000-2006 period these projects accounted for € 2.80 billion out of an overall budget allocation under the TEN-T program of € 4.43 billion for the period, i.e. 63% of available funding. This share is anticipated to rise to 67% over the 2007-2013 period.

Unfortunately there are doubts as to the significance of these high priority projects in terms of their contribution to economic welfare and transportation policy objectives. In the Commission's own words, again from the Green Paper:

By and large, the TEN-T priority projects cover major rail, road and inland waterway axes that traverse several Member States. Chosen in 2004 for their high relevance to transnational traffic flows, cohesion and sustainable development objectives, they were subjected to a common socio-economic evaluation. *However, questions still arise, for example, as to the methodological soundness of their selection, the potential for interconnection and extension (both geographically and modally), the approach to coherent capacity and quality standards, and the means of better stimulating their completion within the planned timeframe.* [Emphasis added]

While it is certainly not suggested that these projects are not making an important contribution to European transportation infrastructure, the question remains whether, given the limited budget, these are the best possible use of the available funding. While no-one would dispute the usefulness of investment in railway infrastructure, is its dominance as compared to highway investment justified? What justifies the presence of Malpensa airport on the list of high priority projects at a time when a range of similar projects were carried out throughout Europe (e.g. the new Munich and Athens airports)?

There is even less clarity about the allocation of funds to the non-high priority projects. The periodic report issued by the Commission (referred to in footnote 15) merely lists the overall allocation of funds to modes of transport and beneficiary Member States. In view of the limited budget available and the high number of potentially qualifying projects, it is difficult to avoid the

impression that TEN-T funding is more than a sprinkling of funds in such a way that a reasonable balance among modes and Member States can be attained. It is equally hard to see how this program can be used as an effective steering instrument to support the implementation of priority policy goals.

While the potential exists to use TEN-T as a planning instrument, that ambition is difficult to achieve in light of the preponderance of bottom-up initiative, the open nature of the priorities and selection criteria, and the political nature of the selection process. Furthermore, since priorities essentially stem from funding decisions the limited amount of funds available act as a limitation on the impact of this instrument.

b. Possible improvements

In order to make better use of the potential of the TEN-T mechanism, it should in the first place be seen less as a financial instrument and more as a planning tool, that could eventually provide the impetus for a coherent master plan for transportation investment in the EU.

Under current arrangements choices are made in the context of the decision making process for individual projects. A highway investment project, for example, may be criticized because it is duplicative of other highway connections, because it overlaps with high speed rail investment or because it is not supported by persuasive traffic forecasts.

While this approach has the advantage of being practical, it is essentially ad-hoc, driven by project proposals, and falls short of actual planning. How could the TEN-T program promote the development of new infrastructure if no Member State makes relevant proposals? In the absence of a cohesive and prioritized vision of a European transportation network, the program remains reactive and does not lend itself to the identification of network gaps nor to the establishment of priorities.

A particular weakness relates to cross-modal issues. The TEN-T mechanism is not well suited for making choices about the desired modal balance. There has been an implicit preference for rail, in particular for high-speed passenger links; but on what grounds and in which circumstances should this mode be preferred to aviation? What is the role for short sea shipping as opposed to freight rail? In the absence of a comprehensive framework for transportation networks addressing intermodal complementarity it is difficult to develop an approach that allows investment decisions to be taken in the knowledge of possible alternatives relating to other transportation modes.

The TEN-T mechanism is equally ill-suited to steering investment towards certain geographic areas. Member States retain control over their transportation infrastructure and cannot be obliged to invest in certain network components - nor can they be prevented from doing so. As a result situations may occur where e.g. certain maritime ports or airports serving the same traffic flows are located in different Member States but in close proximity to each other. Coordination does take place but essentially on a bilateral basis and perhaps not always in full knowledge of the impact of investment decisions beyond the Member States concerned. Likewise certain network components may be missing, in particular in border areas, where none

of the States immediately concerned has a strong interest in investing in it as the benefits will arise elsewhere and are dependent on investment decisions to be taken by others as well.

It is not suggested here that coordination is completely lacking. But planning currently is organized essentially at Member State level, and coordination with neighboring Member States is organized on a bilateral basis¹⁶. In a situation where traffic flows to a large extent exceed the context of a single or even of neighboring Member States, there is a need for a framework that enables these decisions to be taken in light of the overall traffic situation.

As investment decisions for transportation infrastructure in any event are subject to the consent of the Member States concerned, it is no doubt overly ambitious at this stage to envisage more than a “soft” type of Europe-wide planning function. Any perspective of a European “master plan” is a long term vision and certainly cannot be conceived as a binding instrument in the short term.

A possible way forward would consist in the creation of an analysis and review function for European transportation, along the lines of Eurocontrol initiatives for air traffic management. Within that organization a Traffic Flow and Capacity Management function has been set up¹⁷ which, on the basis of real time information on traffic and air traffic control capacity, directs the flow of this traffic across the European sky. In addition a Performance Review function¹⁸ collects and analyzes information about a number of relevant parameters (in particular safety, capacity, efficiency of the system) with a view to identifying priorities for improvement.

Air traffic control is a more homogeneous and less complex industry than other transportation modes, and the tradition of controlling traffic is much more established than in most other modes (save perhaps for rail transportation). Nevertheless the availability of comprehensive data and its careful analysis could be an inspiration to colleagues in other modes looking for ways to improve their understanding of complex networks and to organize collective action by various actors to improve the performance of their systems.

Traffic flow data and performance analysis are the key to understanding current network dynamics, identifying weaknesses and defining priorities for investment.

Much of the data is available, even though it is distributed among disparate sources and lacks homogeneity geographically, across modes and as between passengers and freight. Eurostat has quite some experience collecting and harmonizing traffic flow data but much work remains to be done.

But in addition to the gathering of data about current network usage, there is a need to build a capacity for analysis and formulation of recommendations that is not existent now. In view of the technical nature of this work, and of the fact that it should retain some distance from policy

¹⁶ While the “coordinators” appointed for a number of the priority projects are instrumental in improving the coordination on a wider scale, their intervention relates to the implementation of projects rather than to their planning.

¹⁷ http://www.eurocontrol.int/corporate/public/standard_page/cb_managingtraffic.html

¹⁸ http://www.eurocontrol.int/prc/public/subsite_homepage/homepage.html

formulation and spending decisions, it is perhaps to be preferred to look outside the EU institutions for the necessary expertise.

B. U.S. approach

In many ways the U.S. and the EU have comparable transport systems. In 2003 the U.S. rail network extended over 160.000 km and transported 2341 billion tkm (tonne-kilometres) freight and 22 billion pkm (passenger-kilometres) people, as opposed to the EU 25's 200.000 km on which 364 billion tkm and 350 billion pkm were transported. The U.S. highway system exceeded 90.000 km and carried 1845 billion tkm, again as opposed to EU 25 figures of almost 60.000 km and 1573 billion tkm. Road passenger transport in the U.S. amounted to about 7200 billion pkm, compared to 4500 billion pkm for EU 25. Domestic air transport in the U.S. carried about 900 billion pkm as opposed to almost 500 billion pkm within the EU 25 (figures from the Eurostat 2007 Panorama of Transport). While there are unmistakable differences between the two systems (more rail freight and air transport and less passenger rail transport in the U.S.), the orders of magnitude are similar.

As was pointed out above, there exist also organizational similarities between the two areas. The infrastructure of both systems is primarily driven by [member] state and local levels - although the U.S. highway system was essentially a federal initiative but was implemented at state level. In contrast to the EU, much of the investment in highway infrastructure is funded from the federal budget, and the freight rail infrastructure is private.

The following review will focus on surface transportation. Road is particularly topical as the legislation governing that mode currently is in the throes of its periodic revision, and much debate is taking place on fundamental issues. Rail transportation is likewise an important area, in light of the recent emphasis being given to high speed passenger rail and to the need to promote intermodality for freight transportation.

Historically¹⁹ most of the transportation infrastructure in the U.S. has been built either by private entrepreneurs or by local authorities. Local roads typically belonged to their communities. Long distance roads - providing advantages over older roads because they were paved - were often built and operated as toll roads where the traveller had to pass through gates blocked by a pole or pike - hence the word "turnpike". Likewise, canals and railroads were essentially private undertakings;

States did intervene in a number of instances to support the more important projects, either by direct funding or by providing land or tax exemptions.

¹⁹ Much of this analysis is drawn from Robert Jay Dilger, *American Transportation Policy*, Praeger Publishers (2003), and his unpublished paper on *Federalism Issues in Surface Transportation Policy: Past and Present*, Congressional Research Service (2009); and Donald R. Witnah, *U.S. Department of Transportation - A Reference History*, Greenwood Press (1998). An interesting journalistic account of the creation of the railway and highway networks was recently written by Felix Rohatyn, *Bold Endeavors*, Simon and Schuster (2009).

Until the middle of the nineteenth century the role of the national government in transportation policy was minimal. This was in part due to the fact that most transportation was local, but also to fiscal considerations: the federal budget was very limited and did not leave much scope for intervention. The main device by which federal authorities could support major programs (important infrastructure projects but also e.g. the establishment of colleges) was by granting land, which could be used or auctioned off to generate funds.

But there were also constitutional reasons for the limited federal role: Article 1, Section 8 of the U.S. Constitution provides Congress authority “to establish post offices and post roads”. The prevailing view was that because other types of transportation projects were not listed in the Constitution, they were excluded on purpose, implying that other transportation projects were either meant to be state or local government responsibility, or outside the scope of governmental authority altogether.

Nevertheless, as the nation grew and expanded, there was a need for large-scale infrastructure works to support mobility of persons and goods, which were beyond the scope of private or state initiative. In the first quarter of the nineteenth century the Erie Canal linking New York with the Great Lakes had still been funded by the state of New York. But by the middle of the century, railroads had taken over as the dominant mode of transportation and the federal authorities supported their construction by the award of postal contracts and by donating nationally owned land to the states concerned. When the need arose for a transcontinental railroad the federal authorities played an instrumental role in organizing and financing its construction. Yet the railroad operators were private companies and remained largely unregulated.

From the beginning of the twentieth century the automobile entered the scene, with the number of registered vehicles growing from 8,000 in 1900 to over 2 million by 1915. Clearly this development called for a much more extensive and higher quality road system²⁰. A first modest program started in 1916 with the Federal Aid Road Act providing matching funding to states to improve rural post roads. Over the next decades AAA and other automobile and highway organizations pushed for a more active federal role to organize the construction of a massive interstate highway network. While the available funding increased and the eligibility of roads widened, successive legislations continued to leave the initiative for construction with the states and provided for voluntary funding, thereby skirting the constitutional limitation to post roads. Nevertheless increasingly the view took hold that highways that were interstate in nature were also eligible for federal assistance because of their connection to Congressional authority to regulate interstate commerce and promote the general welfare.

When the second World War drew to a close, the federal surface transportation funding eligibility expanded significantly. The Federal-Aid Highway Act of 1944 in addition contemplated the establishment of an interstate highway network, even though that ambition was not yet supported by commensurate funding. The actual launching of that program took until 1956, when the Highway Trust Fund was created to fund the system.

²⁰ Although the first advocates of the “Good Roads” movement were bicycle enthusiasts!

1. Funding Surface Transportation Infrastructure

a. The Highway Trust Fund

The Federal-Aid Highway Act of 1956 launched the construction of a then-41,000 mile National System of Interstate and Defense Highways, with a budget of \$25 billion and a target date for completion of 1972. In the end the system extended over 43,000 miles and was considered substantially completed in the early 1990s, at a cost to the federal budget of \$114 billion (non constant values; \$425 billion in 2006 currency).

Following extensive debate²¹, the funding of this initiative was ensured by the creation of a Highway Trust Fund into which a relatively small increase of the federal gasoline tax was paid. The Fund provided a 90% reimbursement for interstate system expenses. In order to reassure skeptics, revenue was dedicated to highway construction, and in principle (except for some grandfathered infrastructures) no tolls were allowed.

In its current form the Highway Trust Fund is part of the 2005 “Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users” (“SAFETEA-LU”)²² which expires in September 2009 and is currently up for reauthorization.

Over a five-year period the Act envisages expenditure for surface transportation amounting to \$244 billion. Most of the money is passed directly to states in accordance with formulas that reflect relevant parameters for the various programs (e.g. length of infrastructure, traffic volume, number of accidents, etc); in addition states are guaranteed reimbursement of a percentage exceeding 90% of their contribution to the trust fund. The bulk of the expenditure is accounted for by the Federal-Aid Highway Program (\$193 billion), composed mainly of the National Highway System program (\$30 billion), the Interstate Maintenance program (\$25 billion), the Surface Transportation Program (\$32 billion), the Bridge Program (\$ 22 billion) and the Highway Safety Improvement program (\$ 5 billion). The Equity Bonus program ensures that states receive their entitlement on the basis of their contribution to the Fund (\$41 billion). These “formula” programs leave states with very wide latitude on how to spend these sums.

In addition there are a number of smaller programs in support of national or regional priorities rather than providing funding directly to states²³: the Projects of National and Regional Significance (PNRS) program provides funding for high-cost transportation projects that are of national or regional importance in enhancing the surface transportation system (\$1.8 billion), the National Corridor Infrastructure program provides funding for highway construction projects in corridors of national significance to promote economic growth and international or interregional

²¹ Reported in detail by Rohatyn, above, and Richard N. Weingroff, Creating the Interstate System, <http://www.tfrc.gov/pubrds/summer96/p96su10.htm> (1996).

²² Summaries by Dilger, above and the Federal Highway Administration,

²³ General Accountability Office, Surface Transportation: Clear Federal Role and Criteria-Based Selection Process Could Improve Three National and Regional Infrastructure Programs, GAO-09-219 (2009).

trade by enhancing freight mobility (\$2 billion) and the Coordinated Border Infrastructure program (\$0.8 billion).

Overall the Act provides for about 80 different programs, many of which of relatively small size.

The main source of funding is a federal tax on gasoline and diesel (18.4¢/gallon for gasoline, 24.3¢/gallon for diesel fuel). About 10% of revenue stems from truck-related taxes (truck sales tax, tire tax, heavy vehicle use tax). Together with other funding sources the federal budget available for highways in 2005 amounted to \$33 billion. In particular because the nominal amount of the fuel tax has not been increased for many years and because of the higher fuel-efficiency of recent vehicles, this amount increasingly falls short of the required financial support and that is the cause of a difficult debate on the reauthorization later this year.

Overall public expenditure on highways is much higher than the federal budget²⁴. In 2005 states and local authorities made available respectively \$78 and 44 billion, for a total amount of \$155 billion. The federal share thus amounts to approximately 21%.

The combined highway and transit spending as a share of GDP has fallen by about one quarter since the Highway Trust Fund was set up, and now amounts to about 1.5 % of GDP.

While the focus of the Highway Trust Fund rests on highways, it also includes a mass transit account into which part of the gasoline taxes are diverted, allowing a federal contribution of \$7 billion in support of state and local funding, for a total amount of \$40 billion. The federal contribution here is 17%.

Nearly all federal funding is for investment in capital projects, while state and local authorities spend relatively much on maintenance and operations. Currently federal spending accounts for about 44% of the \$76 billion overall capital spending for highways and for transit²⁵.

b. Other funding instruments

Against a background of insufficient funding for surface transportation infrastructure and of mounting concern about the quality of the infrastructure, there is growing consensus about the need to increase the amount available for investment (though not about the modalities of such increase!). Estimates of the shortfall in capital spending for surface transportation from all sources (federal/state/local/private) range from \$17 - 80 billion annually²⁶, \$57 - 113 billion²⁷,

²⁴ National Surface Transportation Policy and Revenue Study Commission, *Transportation for Tomorrow* (2008).

²⁵ National Surface Transportation Infrastructure Financing Commission, *Paying Our Way* (2009).

²⁶ Congressional Budget Office, *Federal Capital Spending on Transportation and Water Infrastructure* (2008). The range mainly reflects the difference between maintaining the current infrastructure and improving it to an economically optimal state. In contrast to the other estimates, the CBO also included rail transportation albeit for relatively modest amounts.

²⁷ Department of Transportation 2006 Conditions and Performance Report, as updated by the National Cooperative Highway Research Program, *Future Financing Options to Meet Highway and Transit Needs* (2006).

\$96 - 138 billion²⁸ to \$118 - 185 billion²⁹. The differences between the estimates are considerable and in part reflect different assumptions about the cost and extent of required improvements, although there are no doubt also some strategic considerations at play. Nevertheless, compared to the \$76 billion baseline available for investment at present, the gap is significant.

The debate about the future financing needs and sources will take place in the context of the discussion of the surface transportation reauthorization bill later this year. But in light of the urgency of the need to improve the situation, the Obama administration has given transportation place of pride in its giant stimulus package to support the recovery of the economy.

On January 8, 2009 the President-Elect gave a speech announcing an “American Recovery and Reinvestment Plan”. He referred to “priorities like ... a new infrastructure that [is] necessary to keep us strong and competitive in the 21st century ... To build an economy that can lead this future, we will begin to rebuild America. Yes, we’ll put people to work repairing crumbling roads, bridges [...] by eliminating the backlog of well-planned, worthy and needed infrastructure projects.”

The American Recovery and Reinvestment Act was adopted in February. The \$789 billion package amounts to almost 6 percent of GDP, and as $\frac{2}{3}$ of the package entails additional expenditure as opposed to tax cuts, the Administration will increase its budget for overall discretionary spending by 46 percent. The transportation provisions consist in appropriations amounting to:

- \$5.5 billion for the Secretary of Transportation to spend as discretionary grants to state and local governments,
- \$200 million for air traffic control improvements,
- \$1.1 billion for airport projects,
- \$27 billion for highways,
- \$3.1 billion for passenger rail services - including \$2 billion specifically earmarked for high-speed rail,
- \$8.4 billion for public transit, and
- \$0.1 billion for assistance to small shipyards.

The Act amounts to the authority to commit about \$45 billion on transportation infrastructure. The expectation was to spend much of it very quickly on “shovel-ready” projects, although increasingly it appears that because of various constraints weighing on public works disbursement will take quite a bit longer. Nevertheless the Act does provide a significant increase to the federal budget in this area.

Most of the transportation expenditure of the stimulus package addresses highways and transit, subjects to be addressed on a more permanent basis by the eventual replacement of SAFETEA-LU later in 2009. It is noteworthy to point out, in addition, the significant budget

²⁸ National Surface Transportation Infrastructure Financing Commission, *Paying Our Way* (2009).

²⁹ National Surface Transportation Policy and Revenue Study Commission, *Transportation for Tomorrow* (2008).

earmarked for passenger rail services, reflecting the new Administration's enthusiasm for that mode of transportation. Up to 2008 capital spending on passenger rail infrastructure amounted to approximately \$0.7 billion annually, all of it from the federal budget. The Recovery and Reinvestment Act thus multiplies the available budget, mostly for the purpose of improving the existing high speed corridor in the Northeast (Washington - New York - Boston) and developing additional high speed links elsewhere in the country; a list of ten potential corridors has been defined for further evaluation and analysis.

Capital spending on freight rail network amounts to \$6.4 billion annually, from private sources as the owners and operators of the infrastructure are private companies. In 2006 the operators spent \$10.6 billion maintaining and improving their infrastructure, and another \$8.7 billion on equipment. There is limited support from state and local sources for freight services that require public assistance. SAFETEA-LU also provides for a total of \$35 billion loans to be granted by the federal authorities under the Railroad Rehabilitation and Improvement Financing program. The public sector has also been the primary provider of funding for the development of intermodal freight facilities.

2. Planning

The U.S. had a history of relying on private initiative and investors to build their transportation network. This still is the predominant approach for rail freight. But for other modes of transportation the role of public authorities has become of paramount importance, not merely as regulators and guarantors of the public interest, but also as financiers of the system.

Of particular interest are the dynamics of the interaction between federal, state and local authorities. As the scale and complexity of transportation networks grew, and as mobility of persons and goods increasingly gained a long-distance dimension, building infrastructure turned from a local matter into one which involved more and more higher levels. We have already seen that extent the funding of investment and, to a lesser extent, maintenance and operations relies on the federal budget.

The story of the National System of Interstate and Defense Highways shows the importance of national initiative. While some components of the system, built at local or state initiative, predate the 1956 legislation, it was only after nationwide political consensus was achieved on what to do and how to pay for it, that the scheme could effectively be launched.

Even before the second World War the federal Bureau of Public Roads engaged in technical preparation. The need for a federal initiative remained controversial, and many diverging interests (the trucking industry cautious about the financial implications, urban vs. rural users, states looking for favorable apportionment formulas) stood in the way of progress. In 1941 a National Interregional Highway Committee was appointed to investigate the need for a limited system of national highways. The 1944 Federal-Aid Highway Act mooted the notion of a 40,000 mile National System of Interstate Highways, without however any commitment to priority, realization or funding, and the administration started working with states to identify suitable

components. In the absence of a strong political commitment and without proper funding, progress remained limited and disjointed until the early 1950s.

The Eisenhower administration - as a young man the President had completed an epic journey as part of the U.S. Army's first transcontinental motor convoy - made this into a priority. The President called for a "grand plan for a properly articulated system of highways" and set up a high level Advisory Committee on a National Highway Program to focus mostly on funding issues. In the meantime the Bureau of Public Roads had elaborated, in liaison with the states, a publication on the *General Location of National System of Interstate Highways* and had worked with state officials to draft uniform design standards.

As a result, even though states were give responsibility (and funding) for constructing the National System of Interstate and Defense Highways, it was actually executed on the basis of a federally prepared blueprint - although this had been a long time in the making and reflected extensive state input.

The approach reflected a carefully elaborated consensus in the highway community. This has been characterized as basically engineer-driven; but as the design was implemented, the focus gradually shifted as politicians at state and local level took over³⁰. "From 1956 to 1991, state and local government officials focused their efforts in surface transportation policy on maximizing the provision of federal assistance and minimizing federal involvement in how they used federal funds"³¹. The program became in an often-use phrase "state administered, federally assisted".

Even though the practical focus of implementation moved to the state and local levels, it would be fair to state that the high level issues continued to be debated at national level. Dilger³² lists the following main issues that arose during the construction of the network: the escalating cost of completing the interstate highway system, using Highway Trust Fund Revenue for nonhighway uses, crossover sanctions (i.e. penalties imposed on the recipient of a program for failing to meet the requirements of another program), suburban sprawl and the use of highways to clear slums blighted areas and the effects of that practice on minority neighborhoods and the urban poor. Each of these issues were debated and decided by Congress.

Subsequently other issues came to the foreground, in particular intermodality, greater emphasis on mass transit and passenger rail, energy and environmental considerations. These were present in the debates during the various reauthorizations and will no doubt also play a major role during this year's discussions.

However, these considerations remain at fairly high level and there is a gap between the world of policy makers and project implementation. It is perhaps symptomatic that the successive surface transportation legislations introduced requirements for state and metropolitan planning processes, but failed to articulate a national planning process.

³⁰ Whitnah, above, fn. ..., p. 54.

³¹ Dilger (2009), p. 12.

³² Dilger (2003), p. 22 and 27-49.

A major study of the highway program, carried out also on behalf of the American Association of State Highway and Transportation Officials (AASHTO)³³, put it succinctly by noting that “It has become clear that that a 50-state program is not the same thing as a true national program”. The difficulty lies in “developing a process to convert the national objective-related criteria into a process for identifying location-specific investments in each jurisdiction that fulfill the criteria and meet system requirements”.

Similar criticism has been voiced by the Government Accountability Office³⁴. It is clear that “formula-based” programs provide limited opportunity for the budget owner to direct the spending by the states. But even more targeted programs, which list the criteria on which project selection will be based, fail to achieve the intended effect either because there is no clearly defined national policy objective to be pursued, or because the selection has been preempted by “earmarking” the beneficiary projects in the legislation, leading the GAO to note that “it was difficult to determine whether the congressionally directed projects addressed national and regional priorities because the projects were not evaluated against the act’s criteria”. In particular the Projects of National and Regional Significance (PNRS) program and the National Corridor Infrastructure program fail to live up to their ambitious goals.

In a 2008 report³⁵ the GAO stated succinctly that “the Federal-aid Highway program functions as a cash transfer, general purpose grant program, not as a tool for pursuing a cohesive national transportation policy.” More recently and in more detail the Office put it as³⁶:

“Stakeholders from all the groups we spoke with for this engagement said that a clear definition of the federal role in transportation could help guide federal investments toward achieving national transportation priorities. Stakeholders mentioned several different ways the federal role could be better defined—from reducing the federal role in transportation infrastructure financing by giving more responsibility to individual states for the transportation system, to focusing more resources on fewer transportation programs, to concentrating federal resources on large transportation projects that affect multiple states.

In our prior work, we have frequently called for more clearly defining the federal role in surface transportation. We have found that multiple federal roles can be inferred from the variety of surface transportation programs the federal government funds, but there is no single definition or set of priorities to use to focus federal surface transportation spending. In 2008, we called for a fundamental reexamination of the nation’s surface transportation system, noting that the federal goals are unclear, the federal funding outlook for surface transportation is uncertain, and the efficiency of the transportation system is declining. We have also found that the lack of a defined federal role in

³³ PB Consult and Cambridge Systematics, Future Options for the National System of Interstate and Defense Highways, prepared for the National Cooperative Highway Research Program of the Transportation Research Board (TRB), 2007.

³⁴ General Accountability Office, Surface Transportation: Clear Federal Role and Criteria-Based Selection Process Could Improve Three National and Regional Infrastructure Programs, GAO-09-219 (2009).

³⁵ GAO, Restructured Federal Approach Needed for More Focused, Performance-Based, and Sustainable Programs (2008).

³⁶ Ibid, p. 22-23.

transportation is a reason why many current federal transportation programs are ineffective in addressing key transportation challenges, and we have identified federal transportation funding as a high-risk area. Additionally, in a May 2007 forum convened by the Comptroller General on transportation policy, participating experts stated that the nation's transportation policy has lost focus and that a better definition of overall transportation goals is needed to better meet current and future infrastructure needs.”

A similar eloquently phrased indictment appears in the report by the National Surface Transportation Policy and Revenue Study Commission³⁷:

“The Nation’s surface transportation program has reached a crossroads. Will it continue to function as it has since the completion of the Interstate system, pursuing no discernible national interests other than the political imperatives of “donor State” rights and congressional earmarking? Or will it advance concerted actions to confront the transportation challenges facing the Nation that have reached crisis proportions - the deferred maintenance of its basic infrastructure; the burgeoning international trade and its impact on our road and rail networks; the traffic congestion that is crippling metropolitan America; the continued carnage on the Nation’s highways; and powering cars and trucks with fossil fuels, much of which is imported from foreign countries?”

This is the challenge that will need to be addressed by the reauthorization of the surface transportation programs later this year. Within Congress and in the various transportation communities with whom the author has spoken, - perhaps also as a result of the concomitant financial crisis - there is awareness that the reauthorization will not be business as usual, but that there is an opportunity for a fundamental recast of the U.S. transportation policy and for a redefinition or at least clarification of the roles of the various players.

Beyond the preparatory work done in the two Commissions that reported in 2008/2009, the House Committee on Transportation and Infrastructure is looking at a bipartisan blueprint for investment and reform prepared by its Chairman Oberstar together with the Chair of the Subcommittee on Highways and Transit DeFazio and ranking members Mica and Duncan. This blueprint would combine increased funding with a focus on limited priorities reflecting “a National Transportation Strategic Plan, based on long-range highway, transit, and rail plans developed by States and metropolitan regions, to develop intermodal connectivity of the nation’s transportation system and identify projects of national significance”.

III. Conclusion

Europe’s Trans-European Network program is still young and does not enjoy the experience of the U.S. in funding and planning transportation infrastructure; in particular the Interstate Highway system is a major achievement, from which lessons can certainly be learned.

³⁷ Report of the National Surface Transportation Policy and Revenue Study Commission: Transportation for Tomorrow, December 2007, p. 3

While the context in which these programs operate obviously is different, the European and the U.S. system share many characteristics and are similar in size and complexity.

In both systems the center of gravity probably lies with (member) state and local authorities. Transportation infrastructure is in the first place a local issue, both because most traffic is local in nature and because the construction of infrastructure components in the first place concerns local communities.

Yet there is also a need for a national/EU layer to plan networks in light of increasingly long-distance traffic flows. Really significant initiatives do not easily emerge in a bottom-up mode, they require a high degree of coordination and top-down guidance - obviously in close liaison with local partners. The major transportation policy issues are debated and decided at high level, and infrastructure implementation should reflect the orientations that come out of this decision making process. Perhaps the need for this higher layer becomes more pressing as the current challenges - greenhouse gas emissions, intermodality, introduction of new technology - preclude a “business as usual” approach.

In order to be credible this planning function requires the availability of robust data on traffic flows, and of the necessary expertise to analyze these data and draw policy conclusions from them. Especially for a relatively young and non-technical administration as the EU, this presents a significant challenge.

While there is a strong technical side to transportation planning, it is also a political exercise. Infrastructure choices reflect decisions made in other areas; they affect the fabric of communities and influence the operation of societies. However, this political dimension should not become a substitute for technical analysis - hence the danger of earmarking and “priority projects” that may lead to misallocation of scarce funding. Therefore a balance must be struck between the technical and political dimensions of infrastructure policies.

The necessary decentralization of network realization should not become a blank check to state and local authorities. There again a balance must be found between high level planning and flexible implementation in light of local circumstances. Also in this context adequate expertise at the national/EU level is needed to monitor and if necessary redirect project implementation; this expertise should encompass both the financial and the technical aspects of infrastructure construction.

Finally - and this reflects the author’s conviction that a planning function comes first - infrastructure policy requires a budget to provide support and orientation to local processes. On both sides of the Atlantic there are budget shortfalls, but increasingly political decision makers are aware of the need to provide adequate funding for the construction, operation and maintenance of functional transportation networks. The current financial crisis provides perhaps an opportunity for one-off Keynesian stimulus measures, but this does not diminish the need to secure stable long-term funding. This will be a challenge for the fiscally conservative U.S. legislators; but also on the EU side Trans-European Networks do not come cheap and will require more commitment from budgetary authorities.

Annex: 30 Priority Projects

