

Title: TRANSPORTATION PLANNING

Headline: Where are we going?

China and Europe have a transportation plan; the U.S. should too

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There is a clear relationship between the economic vitality of a nation and its transportation system. Understanding this relationship and providing a long-term strategy for transportation is essential to long-term economic growth.

The introduction of pricing into the transportation system of the U.S., particularly on the arterial highway system, is happening at a quickening pace. A motivating factor is the growing realization of the need for a revenue stream that will provide for the maintenance and ultimate reconstruction of the existing highways that have been the foundation of long-term economic growth in the U.S.

The U.S. is an \$11.75 trillion economy that is 79.4% based on services as opposed to industry and agriculture and is growing at 4.4% per year. It is enormous and roughly equivalent to the entire European Union, which comprises of 25 countries.

The U.S. economy is sustained by a fabulous transportation system that makes just-in-time delivery possible from coast to coast. It is the result of bold and daring initiatives in transportation such as the 1862 passage of legislation that made the transcontinental railroad possible and stimulated the huge growth in rail construction. This act fueled economic growth for half a century or more.

The construction of the U.S. highway system during the first half of the 20th century and the passage of the first gasoline tax in 1916 created the foundation for economic growth once more. These events were followed by the interstate highway system mid-century.

These bold transportation infrastructure programs have resulted in a transportation system second to none. However, this extraordinary system is beginning to reach its capacity and will deteriorate absent adequate funding to preserve and improve the network.

The last decade of the twentieth century witnessed the results of the North American Free Trade Agreement, the deregulation of the trucking industry and the emergence of just-in-time inventory control. We have seen the results of growth in the population, vehicle registration and miles traveled while little new capacity has been constructed. What is the strategy for adding infrastructure and affecting modal choices?

Rather than considering these questions, we are preoccupied with allocating funds to state and local government through an increasingly political process accentuated by project earmarking. These activities serve only to camouflage the real issue of funding inadequacy. The politically charged process of earmarking draws attention from the policy questions to be considered in the next federal reauthorization. The lack of a bold long-term direction for transportation will weaken the ability of the U.S. to compete on a global scale.

Competing economies

There are new entrants and reorganized confederations of competitors appearing on the global economic stage. Each of these entrants has established transportation policies that will stimulate economic growth. They have established transportation plans and have begun the implementation of these plans on a grand scale. Two of these economies are China and the European Union.

China

China, with a population of 1.4 billion people is highly motivated to be economically progressive. China has been aggressively pursuing economic reform since the end of the cultural revolution and the death of Mao Tse Tung in 1978. As a communist state, China's planning process is centralized. It describes an economic formula based on transportation, energy and education as top priorities. China is moving forward at a frantic pace to implement these programs and is becoming a significant global competitor. China will increasingly influence growth in the U.S. as a competitor for markets and resources, a competition that will heighten as China attempts to feed its enormous, expanding economy.

China's growth rate has been phenomenal. China's economy quadrupled in the last 25 years, and even if growth slows to 6%, its economy will quadruple again in the next 25 years (the current growth rate is 9.3%). In the same 25-year period, the U.S. economy doubled. While the U.S. economy is still the largest at about \$12.41 trillion, China is next largest with \$8.182 trillion.

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While current Chinese transportation systems are substandard to the U.S. or the European Union, construction of transportation infrastructure continues at a such a rapid pace that industry commodity prices are being influenced. China's plans include the construction of 30,000 km of toll roads and vast improvements in air and rail transportation. China is capitalizing on the enormous port capacity of Shanghai and Hong Kong. These plans are documented in China's 10th Five-Year Plan. In the next five years, China is planning to spend \$42.3 billion on subways and light-rail systems in 20 cities and will use \$32.6 billion to build 850 km of new rail infrastructure; the balance of the \$42.3 billion will be invested in rail cars, locomotives and equipment. Most of these improvements are being financed through joint ventures with companies from other parts of the world.

The plan further states that 140 deep-water berths will be built within five years, including 50 container berths, three oil terminals and three ore terminals. Dozens of airports will be built or renovated, including standard international aviation hubs in Beijing, Shanghai and Guangzhou, 13 large airports, three standby airports and 40 lateral airports.

China's transportation system has expanded to 70,058 km of rail line, 22,640 km of which is dual tracked. The highway system now includes 395,410 km of paved roadways, of which 25,130 are expressways. Many of the 20 deep-water ports have been significantly expanded. There are 169 airports with runways over 2500 m in length and another 141 with runways between 1500 and 2500 m.

There are other growing global competitors that are striving to grow through the development of their transportation infrastructure. India is an example. With a sustained growth of 7% and a current gross domestic product (GDP) of \$3.3 trillion, it is only slightly smaller than Japan's GDP of \$3.7 trillion. India has begun a major investment in toll highways using the European concession model. They have begun a 15 year project to improve over 40,000 km of existing highways and the construction of a major four- and six-lane highway stretching 3,625 miles through 13 states and connecting India's four largest cities. They too are implementing an aggressive transportation program.

The European Union

The European Union has prepared a plan for transportation as well. The E.U. white paper on transportation clearly identifies the relationship between the economy and transportation and articulates a plan that is widely distributed to encourage discussion and modification by member states. This is a program that the European Union countries clearly intend to implement.

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In the introduction it documents conditions similar to those of the U.S.: growing congestion in urban areas and increasing highway freight traffic at the expense of other transport modes. Their recognition that the current programs are not sustainable has resulted in 60 measures centered on charging directly for road use, stimulating use of alternative modes and simultaneously targeting investment in the Trans-European network.

Europe prices highway transportation through a system of tolled highways that join the E.U. similar to the interstate system in the U.S. However the resulting cost per mile in Europe is nearly 12 cents/mile versus 2 cents/mile in the U.S. Austria and Germany have been two of the exceptions to this until the recent implementation of truck tolling. Much higher gasoline tax rates in Europe are a further disincentive to use the highway.

Consistent with the European Union white paper, rail alternatives to the roadway are being planned and major rail system upgrades are under way. These networks, when completed, will tie the urban centers of Europe together with high-speed rail operations. It is anticipated that such capabilities will allow air travel to better absorb predicted growth over the next 20 years and that some long-distance passenger travel will be diverted from the roadway system.

Freight traffic patterns have been systematically analyzed, and the transportation modes that have the greatest efficiency will be encouraged to grow. For example, greater use of ocean-going transport is planned, followed by rail and finally motor freight. Preferences for these freight modal choices will be encouraged through the construction of more and improved freight intermodal centers at major ports. These improvements and others are under way and are being funded and coordinated according to a common plan for transportation.

Rx for transportation

What is the U.S. plan to compete with these two trading blocks, and how will it be funded? What are the U.S. plans for establishing a more efficient transportation system? Do these plans establish a connection between use and cost that will balance revenue generation with demand in a system of economic decision making? Absent plans for transportation that include adequate funding and pricing, the U.S. will find it difficult to compete over the long term. Without significant changes in the pricing of transportation, demand for passenger and freight movement will continue to explode. The only limiting factor will be untenable congestion. Already, 87% of the value of freight moved in the U.S. is moved on the highway. Compounded with the unbridled demand of the automobile, the result is overutilization of the highway system.



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The next U.S. transportation plan should not be incremental but must be bold in setting a new direction. It should provide a policy framework within which the transportation programs of state and local governments can flourish. The policy framework should provide for a local emphasis on access and a blending of the various modes of transportation to accomplish enhanced access for all citizens. The state role in this policy set should be the connectivity within the state and particularly between major urban areas. The federal focus should be connectivity between the states and the development of an optimally efficient transportation system. Sufficient funding must be identified to implement the new programs included in the plan.

The plan should include guidelines for developing long-term concessions and provide funding to stimulate innovative public-private partnerships. A first priority must be a program to ensure that highways of national significance, particularly the interstate system, are reconstructed and where appropriate expanded to serve economic growth. Incentives should be developed for states that strive to implement efficient transportation systems.

For example, incentive programs might be developed to encourage the cross-subsidization of transit operating costs from successful urban toll facilities, encouraging the efficient use of transportation resources. Broad financial assistance programs should be instituted that encourage various forms of urban toll roads, particularly to fund the reconstruction of major highways or more efficient use during demand peaks.

The rail system should be considered an enormous complement to the highway system and though essentially privately owned, federal programs should exist to financially assist in the reconstruction of routes most crucial to long-haul freight movement. Assistance might also be considered for rail transfer yards. Intermodal freight centers should be incentivized through public funding and modeled as PPPs for ongoing operations. A passenger rail plan should be prepared that identifies the most likely high-volume passenger routes and a federal program initiated for high-speed rail service. The first operating high-speed maglev system opened for service in Shanghai, China, in 2004, and expansion of the system is planned in the near term. Europe is interconnecting major cities with an upgraded high-speed rail network. America should have a funded program for beginning similar service in strategic corridors.

Travel in urban areas must be addressed with a sense of urgency, and programs should be instituted that change behavior while generating recurring revenue streams to support urban transportation. high-occupancy toll (HOT) lanes, truck-only toll (TOT) lanes, congestion management programs, congestion pricing and optimizing the use of technology to increase the throughput of existing highways must all be included. Such programs will increase the cost of using highways in peak periods or in the city core and will stimulate the use of transit.

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Further, some of the revenue generated by such programs can be used to subsidize other transportation programs. Employer programs should be developed that encourage the efficient use of transportation such as carpooling and vanpooling. Bus rapid transit programs should be expanded and a bus lane network established that shares HOT/TOT lane capacity and considers the use of highway shoulders where necessary.

The ability to fund these new and expanded programs will occur as the pricing of highway capacity continues to expand. Congestion pricing projects that vary the price commensurate with the level of congestion, expanded use of tolling for major greenfield projects, congestion management cordons in major cities, HOT lanes, TOT lanes and other innovative programs are beginning to be developed primarily initiated at a state or local level.

As we begin to reintroduce price to the use of highways, revenue beyond that necessary to sustain the original project will result. To what purpose should this surplus revenue be assigned and who will decide how the money will be used? Unless the state or federal government is involved in financially supporting a project initially, local policy agenda will drive the decisions on applying surplus revenue. With the funding will go the decision making about what the transportation system will look like. The federal, state and local governments should each have a role in deciding the direction of the transportation system. While local input is important, final decision making about the transportation system should have federal and state input for policy continuity.

New direction for transportation must be implemented in the context of a preoccupation with the allocation of revenues. Constituencies of various interests attempt to influence lawmakers for greater allocations to programs or geographic areas. Donor states are consistently lobbying for more tax revenue to be returned. Concurrently, those states that receive more than they contribute, attempt to maintain the status quo. Proponents of rail and bus transit modes lobby for more of the available revenue to be allocated those programs. Advocates for modes of transportation compete with one another. While these maneuvers continue, other stakeholders pursue earmarks “off the top” before allocation. In this environment new transportation programs must be implemented.

Tradition also plays a role in the allocation of funds for highways. The system of collecting and allocating gas tax has been a part of funding transportation since 1916. It is difficult to alter such systems of practice, bureaucracy and political power. While sweeping changes may seem appropriate and even necessary, the challenge will be considerable.

Some have advocated a complete change in the methods of funding transportation that include elimination of the gasoline tax and implementing a system that will charge for each mile traveled. While probably

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technically possible, from a political viewpoint it is unlikely and perhaps unwise. Such wholesale change might reap enormous unintended consequences. Transportation funding influences the economic, political and social fabric of a nation and at the least, a federal policy framework for transportation will be difficult if not impossible to maintain.

The debate about transportation policy for the next federal reauthorization has begun. If we are to remain competitive in the new global economy, noncontroversial incremental changes in existing programs will prove to be inadequate. Nothing less than a program for the first half of the 21st century is required.

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