Senate Committee on Environment and Public Works
"Goods Movement on our Nation's Highways"

Challenge of the 21st Century: The US Transportation System in the Global Network

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1. We are living in the midst of the greatest change in human history.

That the world is changing is no surprise, what is surprising is the breadth and depth of the changes, and the reach of the changes' impacts. For the same reasons that historians refer to the early 19th century as the "Industrial Revolution," our firm calls the current period the "Global Revolution."

This period was initiated by the collapse of the Soviet Union in 1991, a break point that initiated a period of global integration that is fundamentally changing how we live, move, interact, and conduct business. We group the changes into three categories: 1) The integration of transportation, business and information networks, 2) the emergence of a new global economic geography, and 3) a new economy, each of which I will discuss below. These three factors are having enormous impact on our economy, on our transportation systems and on the environment.

2. The myriad set of changes can be put into three basic categories.

2.1. Integration of the Global Network

Our firm finds it most useful to think of these changes in the context of what we call "The Global Network." The system consists of all the means—roads, shipping lanes, air routes, computer systems—we use to move people, goods and information around the world.

The Global Network is much more than an interesting way to think about the world, it is a rapidly growing, increasingly integrated system that has far-reaching impacts: The Global Network is reshaping the global marketplace, shifting the focus from North America to Eurasia. The Global Network has allowed more integration, allowing businesses to seek the lowest costs and most productive relationships on a planetary playing field. This ever more fluid business environment is pushing economies into overdrive. The Global Network's exponential growth creates greater access to resources and allows more of the world's resources to be moved to more places. Again, this creates wealth, but it also is leading to ever-increasing strains upon the natural environment. This changed reality has important implications for America's transportation infrastructure.

Prior to 1991, the Iron Curtain truncated this Global Network into two parts: the Free World and the Communist Bloc. The Cold War separated much of Eurasia from

global politics and economics. This Cold War geography forced the economies of Europe and Asia to look away from the Soviet Union and toward the United States, making it the central hub. Yet today, the geopolitics no longer puts the spotlight upon North America, but has shifted much of the attention and activity to Eurasia.

It was initially thought that the post-Cold War integration of networks would most profoundly affect the former communist countries, but it has also deeply affected the US. Within the integrated network of the 21st century, the US is no longer the central hub. Rather, America has become a subcomponent in a vast global system. With the political barriers to Eurasian trade gone, the transportation costs of reaching US become more significant. The US can only be reached across air and sea. That costs money. In essence, every good and service produced in the US carries a transportation surcharge. In contrast, Eurasia enjoys a continuous land network of roads and rails that now connect airports and seaports to nations, production centers and consumers.

America's transportation system was planned and developed to reflect the central location we enjoyed within the economic patterns of the 20th century. This system is wholly inadequate to meet the new challenges of the 21st century. When we were the global hub, agricultural and manufacturing products moved outbound to the coasts where they were shipped around the world. Today, the flow is reversed: America now receives more goods than it sends out. Containers flood our ports, straining them to the limit. Our rails and roads cannot cope with the rapidly increasing flows of people and goods through the Global Network. Our system is neither set up to handle this volume nor to efficiently channel these new flow directions. For instance, in the 19th and 20th centuries, Chicago built its rail centers to send goods <u>out</u>. In that historical reality, there was no need to build connections between the city's east rail yards and west rail yards. Today, with massive amounts of goods flowing <u>in</u>, those connections are crucial. It will cost billions to create them. The story is repeated again and again across the country.

2.2. New Global Economic geography

Prior to 1991, the US was the largest Free World Economy. Flanked by the Communist Bloc to the east, Europe looked west across the Atlantic to the US. Blocked by the Soviet Union to the west, Japan and Southeast Asia looked east across the Pacific to the US. Thus, all trade routes converged on the US.

As the 21st century opened, a new global economic geography took form. This new geography was based on trading blocs and economic regions, rather than competing political and ideologies. When nations the size of China and India, with the advantage of economies of scale, began to compete in the global marketplace, other nations responded by forming larger trading units, like the European Union, NAFTA, and Russian Federation to compete effectively. As Eurasia's economies continue to grow, the global economic center continues to shift, Eurasia now accounts for approximately 70 percent of Gross World Product (GWP). China enjoys the greatest economies of scale on the planet, and has been able to develop trading-bloc-scale transportation systems without worrying about borders. As the economic structure

changes, the world's largest container ships—those more than 12,000 TEUs in size—have been redeployed from trans-Pacific, Asia-North America routes to routes between Europe and Asia.

The US share of GWP was over 30 percent in 2000, and has been declining. We must face this increasingly competitive world market. Within this new geography, the US has just 4.6 percent of the world's population compared to 86 percent for Eurasia.

2.3. A New Economy

When talk turns to the "new economy," the discussion most often focuses on technology, how technology changes the patterns and characteristics of economic activity. Yet this overlooks the integration of the marketplace.

The integration of the global marketplace has led both to the knowledge economy and to massive changes in the structure of business and the redistribution of economic activity across the world. Insourcing and outsourcing are misleading terms, emphasizing national boundaries that have increasingly less meaning in business, in society, in transportation. Rather, what is happening is that business now links with the Global Network and serves a global marketplace: Business moves various units to places in the world that will produce the highest operational efficiencies, whether it be because of labor rates, resource availability, skill sets, transportation functions or customer access. Repositioning America within these new patterns is not about insourcing or outsourcing, it's about seeing that there's a structure to these flows. Understanding this structure, the Global Network, will allow us to determine how to handle these flows.

Simultaneously, the effects of technology and the growth of the Network have led to changes in economic processes that make an efficient transportation system even more vital for competing the 21st century marketplace: For instance, mass customization has replaced mass standardization, resulting in more parts and pieces, moving to more places, more rapidly and on tighter schedules than ever before. In manufacturing, concepts like "OTD"—"order to deliver"— seek to collapse the time between order of a custom product and the time it takes to deliver that product. This "just in time delivery" has increased the number of trucks on the highways, trains on the rails, as well as aircraft and cargo ships. The increasing shift to a service economy has placed more commuters on the same roads, rails and airports as the freight.

All these changes place huge demands on the transportation network. That means the system has to operate more efficiently.

3. Accelerating Change After 2000

The changes that began in 1991 rapidly accelerated after 2000. This has changed the demands on the transportation system. In 1970, the US economy was only 10 percent dependent upon foreign trade. By 2000, as the US economy became more integrated into the world's economy, that number had increased to more than 25 percent, resulting in significant new demands on the nation's transportation system.

During the 1990s, the world economy readjusted to the new post-Cold War playing field. Then after 2000, the world economy began to accelerate. Since then, there has been an incredible acceleration of economic activity: Global World Product was 31.9 trillion in 2000, then grew to 48.5 trillion in 2006: a 52 percent increase in just 6 years. This has not only strained societies, it has greatly increased the rate of environmental change, since the production of wealth consumes resources and energy.

Yet our transportation system was not set up for this rate of growth. It's fragmented both between modes and within modes. It's set up for a different flow pattern. The new transportation volumes are overwhelming the system we created in the 20th century.

We must find the way out. Unfortunately, the depth and scale of the problem means that there is no quick fix.

4. The Four "Other" C's

To help clarify the current crisis in our transportation system I have divided the main issues in four categories all starting with the letter C. As the ATA has also created a system of "Cs.", I refer to my four as the "Other Four Cs."

4.1. **C**-ondition - The existing system is deteriorating and needs maintenance. Just fixing the broken parts consumes the largest part of the transportation budget.

4.2. **C**-apacity – The increasing volumes of passengers and freight are flooding the system and we are not keeping up with the growth in demand.

4.3. **C**-onfiguration – The system today is highly fragmented, sliced and diced by public and private jurisdictions and interests. Divided both vertically and horizontally, our transportation system is not an integrated system. This system was set up for a Cold War world: moving goods 1) internally -domestically - and 2) from the Midwest outbound to overseas Free World Markets. Today, this pattern has entirely reversed; our transportation system now moves goods from the ports, inland to reach consumers. Furthermore, this system was built with little thought to the patterns of the environment and that is resulting in massive ecological impacts that are largely unrecognized, and will eventually be very costly.

4.4. **C**-onstraints – The institutional structures we created in the 20th century are incapable of responding to the demands of the 21st century. Our bureaucracies fail to reflect the integrated reality of the Global Network. Instead, they remain separated in silos, one for each transportation mode. They rely upon outdated performance metrics.

5. What is the Path to the Future?

There is a way out, but it will require a significant shift and re-definition of the way we do things. We need a new conceptual framework – a comprehensive and integrated framework that connects the pieces and parts into an understandable whole. We need a new methodology for integrated multi-modal planning to guide us towards a more seamless and efficient system. To create this:

5.1. *We must move from projects to strategy*.

As a nation are completing a myriad of individual projects, but we don't have a strategy. We don't have a plan that addresses our nation's economic competitiveness. We don't have a plan that will help to minimize the environmental impact of our transportation system. We have no idea if the projects we are undertaking are moving us toward an efficient future, we have no framework to judge how they operate within the integrations of the Global Network. How do we move from the system we have to the system we need? How do the pieces fit together? How does the US fit into the Global Network. We need to answer these questions.

5.2. We must move from reactive to proactive

Transportation planning is reactive. It is primarily focused on congestion and safety. We must move beyond simply reacting to these problems, and become proactive and create a transportation system that is efficient, while supporting our economic competitiveness and minimizing environmental impact.

Unfortunately, this kind of transportation planning does not happen. Our planning, such as it is, simply accepts the system's configuration, without asking whether it is adequate. We don't ask: What changes do we need in this system? We just look for problems. We use an internalized set of performance metrics to judge success. What we have are engineering studies of modal pieces, what we need is a new framework for understanding and modeling the multi-modal –road, rail, transit, air and sea – system as an integrated whole.

We need to understand how the system impacts the growth of cities, the health of the environment and the national and global economy.

5.3. We need to form new partnerships.

No one entity can do it alone. We must have a mechanism to secure the kind of cooperation among the vast multitude of public and private entities that own and operate the system to ensure that the system is planned and works efficiently. It will require a new kind of strategic partnership among the major participants to get the job done. We need to recognize that only the USDOT has the capacity to lead the effort. This group must address the funding mechanisms. The nation needs a new way to make transportation a budgetary priority and work toward a better structure for public-private financing partnerships.

Conclusion: The crisis in transportation is becoming an increasing threat to the nation's economy, to our competitiveness and to the environment. It adds a cost to every good and service produced or consumed in America, as former Michigan Governor John Engler has so correctly pointed out in his new role as chairman of the manufacturer's council. It is in conflict with the patterns of the environment and needs to be better coordinated with those patterns.

We need to act now!