

*Standing Committee on International Trade and Transportation (AT020)*  
*Juan Carlos Villa, Chair*

## **International Trade and Transportation at the Centennial of TRB**

**PAUL BINGHAM**, *Economic Development Research Group, Inc.*

**MICHAEL BOMBA**, *University of North Texas*

**MARY R. BROOKS**, *Rowe School of Business, Dalhousie University*

**JUAN CARLOS VILLA**, *Texas A&M Transportation Institute*

### **A RETROSPECTIVE**

The Standing Committee on International Trade and Transportation (AT020) committee was initiated in 1986. Unlike more modally specific committees, AT020 did not follow a modal, regional, or even U.S. domestic focus, but was one of the earliest committees to explore the intersection of trade and transportation issues, recognizing that international trade is the seminal demand input for transportation networks. There was a sense that the International Activities Committee would support TRB's connections with other transportation research bodies globally, while AT020 would focus on the burgeoning growth in global goods trade and its freight focus would expand as the trade grew.

The first Chair of the Committee in 1986 was William J. Harris, from the then Texas Transportation Institute. Prof. Harris had joined TTI as associate director in 1985. By 1990, William Harris was still listed as a member of the committee but had moved up to Group Chair of Group 5 (Intergroup Resources and Issues), which included the Committee on International Trade and Transportation (A5006). By that time, Stephen J. Thompson from the Library of Congress was the International Trade and Transportation Committee Chair.

The 1990 TRR lists committee membership as the following: Alan M. Clayton (University of Manitoba), Gary N. Dicer Arlene Dietz (USACE IWR), John Dumbleton, Marta V. Fernandez, Ernst G. Frankel, Frank R. Harder, William J. Harris Jr. (TTI), Arthur F. Hawnn (USACE IWR), Trevor D. Heaver, Matthew J. La Mourie, Donald E. Lang, Marvin L. Manheim, Peter M. Montague, H. Carl Munson, Hans J. Peters, James M. Ronayne, Rosemary Scanlon, Susan K. Sheets, Rexford B. Sherman (AAPA), and Miles H. Sonstegaard.

With the US Army Corps of Engineers having two representatives, Arlene Dietz, Head of the USACE Navigation Data Center and IWR Navigation Planner Dr. Art Hawnn, and AAPA having Rex Sherman on the committee, there was clearly a seaports/maritime trade and transportation element represented. The greater emphasis on the North American land border and reduced focus on international maritime trade and transportation came later.

During the 1990s, under the leadership of John P. McCray of the University of Texas at San Antonio, the Committee explored areas of transportation across the North American Free Trade Agreement borders and frequently discussed topics affecting border fluidity and delay; and these topics are still important to the Committee today. During its early years, the Committee focused on a wide variety of international trade matters reflecting the increased visibility and importance of trade practices of the day and the resulting policy direction for freight in particular. In the Committee's Millennium Paper (Harrison 1999), Rob Harrison noted that in the 1990s the committee focused on the importance of data to global competitiveness—providing

insight and vision in areas of infrastructure planning to support international trade, and on a go-forward basis, for the next decade of the Committee.

According to the Strategic Plans of 2005–2008 and 2014–2017 (AT020, 2005, 2014), the scope of the Committee has not changed from that it had at the turn of the millennium:

*This committee will be concerned with research, management, and regional, national or international policy issues associated with international trade and transportation (inter-country movements and their domestic connections); trends and market forces in trade and international transportation; technological, economic, financial, institutional, or managerial innovations; and barriers to international trade in transportation goods and services.*

By the time the 2005 Strategic Plan was filed, the committee saw its role as providing “an extremely valuable forum for the transportation community both within North America and internationally.” Such a forum was extremely important given two significant events of the early 2000s, which had sharply focused the committee’s efforts to understand needed research. To quote the 2005 AT020 Strategic Plan (AT020, 2005):

*Two events in particular highlight the importance of fostering the study of international trade and its links to transportation services and infrastructure. The first of these events was the attacks of 9/11, which heightened awareness in both the public and private sectors of the potential threats and increased security that exist within the transportation environment. Freight movement has been recognized as a significant potential method for deployment of weapons of mass destruction. The effect this has on transportation options and the subsequent costs of doing business within the international trade arena is only beginning to be recognized and warrants further attention. The second event has been a much more gradual one: the steady growth in international trade over the past decade has now created capacity problems and costly traffic congestion at most large seaports and airports both at home and abroad. The costs of the resulting delay to deliveries of goods can be significant and affect the economic vitality of entire industries and regions of the country.*

The mission of the committee, by 2005, was “to provide a forum to encourage the dissemination of innovative research into the linkage between transportation system performance and the flows of traded goods, and to encourage research into both the barriers to and opportunities for more efficient trading between the United States and other nations.” (AT020, 2005). International membership included personnel from INRETS (French National Institute for Transport and Safety Research), the Panama Canal Authority, and the Mexican Transport Institute among others.

Throughout the period under the leadership of Mary R. Brooks, there was also a considerable focus on the availability of trade data for the transportation community. Transportation data were often difficult to reconcile with trade data, and issues about cross-referencing the two were frequently raised in meetings. “The International Trade and Transportation committee is a vital link in providing various users of TRB data and research projects with not only a knowledge of the key stakeholders in international trade as it relates to transportation but processes and geographical impact of policies both domestically and abroad.”

(AT020, 2005). The Committee also worked closely with Paul Bingham while Chair of the TRB Freight Transportation Data Committee for the Freight Transportation Data User Forum held annually during the TRB Annual Meeting. The data coverage of cross-border goods transportation was a recurring topic for that group, including the national statistical programs providing data on the transportation of imports and exports. International commodity transportation data covering each mode of transportation was important to the committee, extending beyond the modal administrations of the U.S. Department of Transportation and the U.S. Army Corps of Engineers to other country's trade statistical agencies, including Statistics Canada, SECOFI in Mexico and the European Union. As a result, the Committee's Strategic Plan was clear on the pressing data needs and, while the Bureau of Transportation Statistics was represented in Committee membership, linkages with the Organization of Economic Cooperation and Development, World Bank, UNCTAD, INRETS, and other organizations were encouraged. Members from these organizations were added over the next rotation to improve the knowledge available in paper reviews and at both the mid-year committee meetings and the Annual Meeting. (There were more international members added than the four allowed, and these used the allocation assigned to U.S. members to expand the Committee's expertise pool.)

*Committee interaction will include requests for periodic status reports (written and verbal) on relevant research projects and other trade related activities of US government agencies (such as USDOS/USAID, USTR, USDOC/ITA/ USDA, TDA/EXIM/OPIC, USDOT, USDHS) that are directly involved in or supportive of multilateral, regional and bilateral trade agreement through transport related working groups such as APEC/ASEAN, NAFTA, FTAA. The purpose is to facilitate effective knowledge sharing between US public and private sector stakeholders and international finance institutions and relevant United Nations organizations. The potential users of the information about the global transportation and trade relationships would be the public sector freight policy and program coordinators at the Federal, state and MPO level, as well as the logistics managers of U.S. based multinational corporations operating in foreign countries. An example of the potential users of resulting data and research are the various MPOs that are located within land border zones. In the case of Michigan, SEMCOG (South East Michigan Council of Governments) can literally see Windsor, Ontario, Canada from their offices and yet they are privy to little, if any, real-time data as it relates to international trade at one of the busiest land border crossings in North America. What happens on the approach to Michigan will affect not only Michigan but also flows on the transportation networks of many other metro areas and States. (AT020, 2005)*

While the topics of research papers and presentations developed by the Committee sometimes developed new directions, there was a continuing theme examined over the years—identifying border delays and bottlenecks to cargo flows, and what new technologies might be used to ameliorate congestion or identify infrastructure investment solutions. This varied in application from land borders and land bridges in North America to global studies in container yards and along major trade routes. On the other hand, some topics had a shorter or less enduring time span. For two examples, there was a short focus period of a few years on short sea shipping within North America, but the development of marine highways gained less traction than the topic of Panama Canal expansion. In 2007, the citizens of Panama voted in a referendum to support the Government of Panama's plan to widen and develop the Panama Canal to enable the size of vessel transiting to be substantially larger. For container ships, the pre-expansion

maximum capacity was about 4400 TEUs, while the expanded Canal, when it opened in 2014 was able to encourage the transit of 13,200 TEU vessels. This topic had a run of eight years, with the last presentation being a retrospective in 2014. Topics on trade route restructuring with a much less enduring interest included a Nicaraguan Canal, the Northern Sea Route or the Northwest Passage. Surprisingly, there were few papers on the Trans-Siberian rail alternate to Asia–Europe trade.

The Committee continued, and continues today, to monitor trade policy developments as they impact trade patterns and competitiveness, although this activity has not been reflected in the papers received. More recently, many of the committee’s paper submissions have focused on routing and optimization modeling for the maritime industry and fewer papers on policy, planning, and data issues related to international trade.

Furthermore, AT020 has published four articles in *TR News*. This has been part of a concerted effort to inform *TR News* readers of the challenges international trade poses for transportation companies and policies on investment in transportation networks. The growth in international participation in committee activities across TRB has coincided with the committee’s articles in *TR News*. These were:

- Bingham, Paul, Mary R. Brooks and Rob Harrison (2006), “Global Trade Flows and Transportation Challenges,” *TR News*, March-April, pp. 13-16.
- Brooks, Mary R. (2010). “What Do You Know About Globalization and International Transportation,” *TR News*, Washington, DC: Transportation Research Board, July–August, pp. 4-5, 12-13.
- Brooks, Mary R. (2011). “North American Perimeter Security: How Best to Keep Trade Moving?” *TR News*, Washington, DC: Transportation Research Board, 275 (July-August), 37-43.
- Bomba, Michael S. (2015). “U.S. Gulf Ports Harbor the Changing Energy Supply.” *TR News*, Washington, DC: Transportation Research Board, 298, June-July-August, 6-13.

Five chairs served AT020 leadership in the last 20 years. Several members played an important role as volunteers to the Committee (Table 1).

**Table 1: AT020 (A5006) Leadership over the Years**

<b>Years</b>	<b>Chair</b>	<b>Secretary or Vice-Chair</b>	<b>Supporting Volunteers</b>
1996–2002*	John P. McCray	Robert Harrison	N/A
2002–2008	Mary R. Brooks	Paul Bingham	Ann Arquette (Communications Co-coordinator) and Richard (Dick) J. Horn (Research Co-coordinator and Paper Review)
2008–2011	Gordon Rogers	Juan Carlos Villa	Chris Hoff – Paper Coordinator
2011–2017	Michael Bomba	Edward McCormack, Juan Carlos Villa	Steven Beningo (Secretary) and Maria Boile (Paper Coordinator)
2017–	Juan Carlos Villa	Maria Boile	Steven Beningo (Secretary) Isabel Victoria-Jaramillo (Paper Coordinator)

\* The authors were not able to find complete information for the 1996–2002 period.

Note: During the period covered by this table, Joedy Cambridge and Scott Brotemarkle were TRB staff.

## **TODAY**

During Michael Bomba’s tenure as chair, the committee continued to discuss North American border related issues, as was the focus during Gordon Rodgers’ term. However, the committee also emphasized maritime trade issues, particularly the expansion of the Panama Canal, as well as macroeconomic, economic development, and environmental issues related to international trade.

In 2014, AT020 was a sponsor of a workshop at the Annual Meeting entitled “One Hundred Years of the Panama Canal: Legacy and Future,” which examined the historic, present, and future issues related to the Panama Canal and international trade. Rodolfo Sabonge, an AT020 member and Executive Vice-President at the Panama Canal Authority, was instrumental in the development of the speaker panel for this event (Oscar Bazan would follow Mr. Sabonge in this role for AT020). Later in 2014, AT020 represented TRB as a sponsor of the NAFTANext conference held in Chicago. The conference explored ongoing and nascent topics on North American trade and was attended by former Secretary of Transportation Rodney Slater and addressed by then Secretary of Transportation Anthony Foxx.

Because international trade is a broad theme that relates to a variety of other disciplines within TRB’s Freight and Marine Groups, AT020 partnered with many other standing committees to co-sponsor lectern and paper sessions, including: Ports and Channels (AW010), Intermodal Terminal Design and Operations (AT050), Marine Environment (AW030), Transportation Economics and Regulation (AT010), and Agricultural and Food (AT030). The committee also interacted more with policy researchers (such as the Brookings Institution, the Petersen Institute for International Economics, the American Enterprise Institute, the Woodrow Wilson Center, and the George W. Bush Institute) and with industry organizations (like the U.S. Chamber of Commerce, the National Retail Federation, and others), by inviting speakers and adding some representatives as committee members. Additionally, the committee continued its

strong relationship with the Panama Canal Authority, receiving annual updates at committee meetings and participation in lectern sessions.

AT020 anticipates that there will be significant changes to global trade and transportation practices and trends over the next decade. As a result, its members seek to better understand the following urgent and long-term emerging issues (*AT020, 2014*).

### **Risks to Global Trade**

President Donald J. Trump withdrew from the Trans Pacific Partnership (TPP) agreement as one of the first acts of his presidency. President Trump also signed Executive Order 13796, which required comprehensive performance reviews of all bilateral, plurilateral, and multilateral trade agreements and investment agreements to which the United States is a party. One of the consequences to this action was the renegotiation of the North American Free Trade Agreement (NAFTA), which resulted in the United States-Mexico-Canada Agreement (USMCA). As of early 2019, the agreement has not been ratified but it will both facilitate and potentially complicate cross-border trade in North America with new rules of origin requirements. Also undetermined, at the time of this writing, are the conditions of the United Kingdom's exit from the European Union, which will affect continental trade in Europe and beyond. The members of AT020 have said these trade policy changes are important, particularly to define with sound research the potential impacts and future consequences for freight transportation infrastructure investments and operations. AT020 will discuss and research impacts of changes to the global trade environment, so that local, state, and national freight transportation planners can better understand how changes will affect the nation's freight transportation system into the future.

### **North American Trade and Transportation**

During 2016, Canada and Mexico were the United States' second and third largest trading partners, respectively. North American trade is dependent upon adequate transportation infrastructure and efficient inspections at the ports of entry to transport traded goods. Yet, in practice, crossing a binational border in North America can be an expensive and time-consuming process. Following and studying these issues has been a long-standing focus of AT020 and it will continue to be over the planning horizon. Other emerging issues that have renewed the committee's focus on border freight planning include: increasing wages in emerging economies; advances in Mexico's manufacturing industries; increased reliance upon multinational supply chains by North American manufacturers, distributors, and retailers; and expanded energy production in Canada and the opening of Mexico's energy industry to foreign investment.

### **Impacts from Climate Change**

Due to the overall lack of attention by political leaders and the general population, climate change, driven by the anthropogenic release of greenhouse gasses, is occurring at an almost unabated pace. Recently, a significant milestone of 400 parts per million (ppm) of carbon dioxide (CO<sub>2</sub>) in the atmosphere was measured. This level of CO<sub>2</sub> is unprecedented in the last 3 million years and is closely tied to human activity. In addition to the potential consequences of climate change on international trade, AT020 is also interested in encouraging research that identifies potential solutions for stabilizing or reducing CO<sub>2</sub> emissions related to international freight transportation and mitigating their impacts on industry and the general population.

## **The Expanded Panama Canal and Its Effects on the Maritime Shipping Industry and Other Trends in the Maritime Industry**

The expanded Panama Canal began operations in mid-2016. Since the original project announcement, this widely watched event has been a source of intense speculation, from the maritime shipping industry to local economic development officials in the United States. Whether the expected demand at North American Atlantic and Gulf of Mexico ports materializes or predicted load centers emerge in the Caribbean, it will be an important issue to follow for the next few years. Other important topics in maritime trade that the Committee anticipates being monitored and studied include: growing ship sizes and their impact on congestion and delays at port; overcapacity in the containership industry; consolidation within the container-shipping industry; International Maritime Organization fuel sulfur regulations; the movements of LNG and other energy-related cargos; and compliance with the new International Maritime Organization requirements (i.e., the amended Safety of Life at Sea convention) for providing verified container weight to carriers.

In addition to the topics presented above, other questions or areas of interest to AT020 members include:

- The practice and accuracy of trade forecasts, which are used to direct billions of dollars of investments by ports, railroads, private investors, and federal, state, and local governments. Which approaches to planning and forecasting are most effective and should be adopted?
- The return on investment from expenditures on U.S. freight transportation infrastructure.
- The shifting of global (offshoring) manufacturing to regional (nearshoring and reshoring) manufacturing.
- The impacts of new technologies, such as 3-D printing and connected vehicle/autonomous commercial vehicle deployment to serve the infrastructure needs of international trade.
- The analysis of very large data sets and their value for international trade and freight transportation planning and infrastructure investments.
- The use of blockchain and potential impacts on international trade and transportation.

After Juan Villa began his term as committee chair (spring 2017), several workshops and webinars were organized to exchange ideas and foster collaboration among members and friends, beyond the Annual Meeting. During these sessions, the NAFTA renegotiation status was presented by Christopher Wilson from the Wilson Institute, and Matt Rooney with the Bush Institute presented on the North American Traffic Database.

## **TOMORROW**

Changes in international trade relationships around the world are affecting transportation infrastructure plans and programs. Transportation infrastructure that serves international trade requires long-term planning and substantial funding sources. Changes in international trade flows could disrupt the transportation system. Technological advances such as automated vehicles could also affect the way transportation infrastructure is planned, particularly at international land and maritime ports of entry.

International trade flows and technological trends are of high interest to AT020 to identify potential impacts and proposed alternatives to be better prepared for the future. The Committee needs to approach these challenges by:

- Collaborating more with committees that focus on data and technology, beyond the TRB Freight Systems and Marine Groups.
- Relying upon economics and political science to assess and predict global trade conditions.
- Attracting members from private industry and young members that are involved in technology startups that will add value to the current Committee members.
- More communication with other agencies, think tanks, policymakers who are analyzing or influencing current events.

The Committee mission needs to evolve to tackle these challenges and be on top of changes in international trade and transportation. A more dynamic Committee work plan is needed where members and friends could exchange ideas and research results. More frequent meetings and use of new media will encourage this idea interchange to provide Committee members and friends with information and insights.

In conclusion, the International Trade and Transportation Committee continues to be an important resource to those attending TRB events and seeking to examine and discuss the effects of international freight on both international and domestic transportation networks. The issues of transport networks driven by trade, and how well they work, and where delays and bottlenecks can be identified remain important throughout the history of this committee and will likely continue to do so in future.



## **ACKNOWLEDGMENTS**

The development of this paper was led by Dr. Mary R. Brooks, Rowe School of Business, Dalhousie University and Emeritus Member of the International Trade and Transportation Committee with contributions from Paul Bingham, Economic Development Research Group, Inc., Michael Bomba, University of North Texas and Juan Carlos Villa, Texas A&M Transportation Institute and current Chair of the AT020 Committee. The authors also would like to acknowledge all members and friends of the AT020 for their contributions and support to the committee and the international trade and transportation field. More information about the committee can be found at <https://www.trbtradetransportation.org/>. The full membership of the Committee as of March 2019 is:

### **AT020 International Trade and Transportation Committee Membership as of March 2019**

David Amble, WSP  
Elisa Arias, San Diego Association of Governments  
Chris Bachmann, University of Waterloo  
Irina Bedyk, Purdue University  
Steven Beningo, OST-R/Bureau of Transportation Statistics  
Travis Black, Maritime Administration  
Maria Boile, Hellenic Institute of Transport  
Mary Brooks, Dalhousie University  
Maxim Dulebenets, Florida A&M University  
Verena Ehrler, German Aerospace Center, Institute of Transport Research  
Daniel Hackett, Hackett Associates, LLC  
Emily Hashimoto, Goldman Sachs and Company  
Tiffany Julien, Federal Highway Administration  
Marc Levinson, Congressional Research Service  
Ghim Ong, National University of Singapore  
Matthew Rooney, George W. Bush Presidential Center  
Gisela Rua, Federal Reserve Board  
Paloma, Salas-Esparza, FOA Consultores  
James Sassin, LNV, Inc.  
Eleftherios Sdoukopoulos, University of Piraeus  
Rohan Shah, CDM Smith  
Scudder Smith, WSP  
Ahmadreza Talebian, Isfahan University of Technology  
Isabel Victoria-Jaramillo, Cambridge Systematics, Inc.  
Juan Carlos Villa, Committee Chair, Texas A&M Transportation Institute  
Christopher Wilson, Woodrow Wilson Center for Scholars

## REFERENCES

1. AT020. Triennial Strategic Plan 2005-2008. Transportation Research Board, Washington, D.C., 2005.
2. AT020. Triennial Strategic Plan 2014-2017. Transportation Research Board, Washington, D.C., 2014.
3. Harrison, Robert. *International Trade and Transport TRB Millennium Paper*, Transportation Research Board, Washington, D.C., 1999. Retrieved February 1, 2019, from <http://onlinepubs.trb.org/onlinepubs/millennium/00063.pdf>.

## DISCLAIMER

**This paper is the property of its author(s) and is reprinted by NAS/TRB with permission. All opinions expressed herein are solely those of the respective author(s) and not necessarily the opinions of NAS/TRB. Each author assumes full responsibility for the views and material presented in his/her paper.**