A REPORT FROM THE

IBTTA 81st Annual Meeting & Exhibition

IBTTA VANCOUVER 2013

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Canada

THEMATIC REPORT
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Many thanks to all the planners, speakers, moderators, sponsors, exhibitors and especially the delegates for making Vancouver a huge success!

672 Number of Total Attendees

Number of Countries Represented **22**

228 Number of Organizations Represented

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Executive Summary

"Let's embrace the side of our nature that welcomes, invites, encourages and celebrates. This is why we're here, to share knowledge and ideas and to learn from one another."

The International Bridge, Tunnel and Turnpike Association (IBTTA) held its *81st Annual Meeting and Exhibition* at a moment of rapid transition for the global tolling industry.

Across four conference tracks—Technology; Finance, Administration and Policy; Customer Outreach and Communications and Innovation and Entrepreneurship—panelists and participants traced the key trends that are sweeping the industry:

- Technology continues to transform every aspect of toll agency operations.
- Public-private partnerships (P3s) and other innovative models are becoming ever more common in the effort to finance and manage the construction of user-financed infrastructure.
- The range of tolling models is now more diverse, with agencies looking at express lanes, congestion charging, mileage-based user fees and other emerging methods to meet specific local needs.
- Personnel and succession issues are more prevalent, with three or four generations working side by side in a single workplace and many agencies looking ahead to a large number of retirements over the next decade.
- And in the United States, with a federal transportation reauthorization bill due to be debated by mid-2014, IBTTA's Moving America Forward campaign is advocating great flexibility to toll existing Interstate highways, to allow states to choose the financing methods that best suit their needs.

IBTTA Executive Director and CEO Patrick Jones opened the conference in a "spirit of hospitality and gratitude," following a traditional welcome from Chief Simon Baker of the Squamish First Nation. "Let's embrace the side of our nature that welcomes, invites, encourages and celebrates," Jones said. "This is why we're here, to share knowledge and ideas and to learn from one another."

Senior officials from British Columbia, the host province for the conference, pointed to large-scale investment in transportation infrastructure and a strong commitment to P3s. "We all agree that transportation is the backbone of our economy, and that traffic congestion and bottlenecks are a threat to our economy," said Transportation and Infrastructure Minister Todd Stone. "To tap economic opportunities in the growing economies of the Pacific Rim, B.C. and its Pacific Gateway partners have committed $22 billion to road, rail, port, and airport infrastructure since 2005, and we are targeting further investments of at least $25 billion to expand the capacity of the province's supply chain."

Mike Proudfoot, CEO of Transportation Investment (TI) Corporation, said B.C. is gearing up for "big projects, big numbers, big public expectations and they all come with big challenges." He pointed to the Port Mann Bridge as "an architectural marvel, and the link to this region's commerce and transportation."

Participants heard a series of other tolling and highway infrastructure updates from across Canada and around the world.

Much of the discussion at the Annual Meeting focused on the rapid development of new technology, and on the culture of innovation that enables it. Co-Chief Meeting Organizer Stephen Mayer of Parsons Corporation said tolling agencies "are not so much inventors of technology as we are adopters and adapters of technology," from video to RFID to smart cars, making it important to understand what the future might hold.

Keynote speaker Daniel Sieberg, author of *The Digital Diet* and former technology reporter at CNN and CBS who now works at Google as Head of Media Outreach, stressed the value of "moonshots," spectacular project ideas that go beyond incremental improvements to existing technologies or processes. He cited the development of autonomous vehicles through the DARPA Grand Challenge as proof that massive failure can lead to success. Participants heard that a practical technology solution for connected vehicles may be far closer to implementation than many people realize.

Neil Peterson of the Transportation Corridor Agencies said an effort to encourage deep innovation in the tolling industry would have to bring together the three components of the industry—public agencies, consultants and suppliers—in a collaborative "skunkworks" to work on cutting-edge ideas.

Sarah Clark, President and CEO of Partnership BC, pointed to innovations in project design, risk transfer and integration of multiple projects as the best reason for a public institution to form a P3 with a private sector partner.

In transportation, "you can set the performance you want from your asset, not only how many cars it will carry and how fast they can go, but how you want that asset to perform and be maintained over its life," she said. "You're essentially creating something with a warranty for that time."

But the financial structure for any project must ultimately reflect the specifics of the situation and the status of a shifting marketplace. Discussion covered a range of different project development models, and included forthright advice from investment managers on the performance and transparency they expect from toll projects.

Highway safety is always the first priority for anyone who owns or operates a tolled facility, and discussion among panelists and participants focused on a large, emerging threat. "Climate change is a fact that we cannot deny, that we cannot dispute," said Frank Thibaut of Egis Road Operation, France. And as a result, toll operators should expect to see more extreme temperatures, and more intense rainfall with higher coastal storm surges.

Keynote speaker Bryan Norcross, Senior Hurricane Specialist with The Weather Channel, said tolling agencies must prepare for severe weather by thinking out a scaled communications strategy ahead of time, determining lines of authority for decisions on public messaging, and developing public communication strategies that consistently deliver three pieces of information: What's known about the worst plausible threat, what isn't yet known and when more information will be available.

"Last year at this time, we were talking about how to support our new public awareness campaign. I can stand here today and tell you it was well worth it."

Throughout the Annual Meeting, panelists stressed the need and the opportunity to make the case for tolling as an essential infrastructure funding mechanism. IBTTA President Robert Horr, Executive Director of the Thousand Islands Bridge Authority, said the message is beginning to get through, thanks in large part to IBTTA's *Moving America Forward* campaign.

"Last year at this time, we were talking about how to support our new public awareness campaign," he said. "I can stand here today and tell you it was well worth it."

Frank McCartney, Senior Vice President, Toll Industry Markets at Parsons Brinckerhoff, said the campaign will achieve its objectives as long as IBTTA members stand as one. "We have to do it together, folks," he told participants. "We've heard the message that if tolling is to be accepted more broadly and widely, it has to come from the bottom up."

Introduction: A Spirit of Gratitude

Chief Simon Baker of the Squamish First Nation addressed conference participants in his own language, before explaining in English that he was "welcoming you here in a traditional fashion, following the guidelines of protocol."

Archaeologists trace First Nations' presence in the Americas back at least 10,000 years, and "the law of our ancestors has given us a way to present who our families are, what our teachings are and our history," he said. The first song Chief Baker and two colleagues sang as they entered the hall "was a song to identify our canoe, to identify who we are as a family arriving on the shore and to ask the ancestors' permission to come ashore and bring our treasures."

IBTTA Executive Director and CEO Patrick Jones said the songs and drumming acknowledged the "spirit of hospitality and gratitude" with which Chief Baker had opened the association's *81st Annual Meeting and Exhibition*. "At IBTTA, we practice a spirit of hospitality and generosity wherever we come together," he said. "Let's embrace the side of our nature that welcomes, invites, encourages and celebrates. This is why we're here, to share knowledge and ideas and to learn from one another."

A Tour Around the World: Big Projects, Big Numbers, Big Expectations

"We all agree that transportation is the backbone of our economy, and that traffic congestion and bottlenecks are a threat to our economy."

With more than 650 participants from 23 countries gathered in Vancouver, a world tour of the latest tolling and highway infrastructure projects began in Canada, with panelists from B.C., Alberta, Quebec and Ontario talking about recent developments in their own provinces.

Speaking for a province with more than 47,000 kilometers (29,000 miles) of highways, 2,800 bridges, 23 international border crossings, 39 coastal and inland ferry routes, three railways and more than 2,800 transit routes, Transportation and Infrastructure Minister Todd Stone said British Columbia's prosperity depends on all modes of transportation. "We all agree that transportation is the backbone of our economy, and that traffic congestion and bottlenecks are a threat to our economy."

To tap economic opportunities in the growing economies of the Pacific Rim, B.C. has committed $22 billion to road, rail, port and airport infrastructure, and "we're just getting started. We are positioned for extraordinary growth, and we're targeting further investments of at least $25 billion" to expand the capacity of the province's supply chain.

Mike Proudfoot, CEO of Transportation Investment (TI) Corporation, said B.C. is gearing up for "big projects, big numbers, big public expectations, and they all come with big challenges." He pointed to the Port Mann Bridge as "an architectural marvel, and the link to this region's commerce and transportation."

The facility is tolled because "we knew we needed to build it, but we also knew it would be expensive, and we didn't want to saddle our children and grandchildren with the financial burden." The Port Mann has cut most commuters' drive time in half, so "tolling pays for more than just the bridge," he said. "We have effectively uncorked the worst bottleneck in Metro Vancouver."

In less than 10 months, more than one million vehicles—half of the vehicles on the B.C. Lower Mainland—were registered for open road tolling (ORT) accounts.

Days before the conference, Premier Christy Clark announced a new bridge to replace the George Massey Tunnel, a project that will eliminate the next-largest traffic bottleneck in Metropolitan Vancouver. Other major initiatives include:

- The first portion of the South Fraser Perimeter Road, a 40-kilometer route that will boost access to markets by connecting port, rail and highway infrastructure
- Three new rapid transit lines in Metro Vancouver
- Widening of highways in British Columbia's northern and central regions
- Significant investments to improve resource roads for oil and gas development.

B.C. faces the familiar "balancing act" to fund highway infrastructure, Proudfoot said, and a 2014 referendum will give Vancouverites a voice in how to meet transportation needs for a population that is expected to grow by one million

"Toll financing is a realistic alternative to raise the kind of money needed to reconstruct and selectively widen the Interstates."

over the next 30 years. "We look for innovative, affordable ways to pay for transportation projects, but we recognize that there is no silver bullet." Different projects have been funded with public-private partnerships (P3s), traditional design-build financing and tolls.

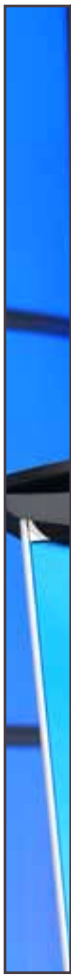
Bob Paddon, Executive Vice President of TransLink, said his agency's unique multimodal mandate includes transit, 2,400 lane kilometers of roadways, three bridges across the Fraser River, goods movement strategies and measures to encourage cycling, walking and car sharing. With the Golden Ears Bridge, TransLink introduced the region's first tolled bridge in 50 years, and while the market is not quite as strong as expected, 2012 brought 10 percent more volume and 15 percent more revenue.

"We're taking the long view on this," he said." This bridge is going to be here for 100 years," and is central to the Vancouver region's future development.

Bridges like the Port Mann also create opportunities to improve transit services, and Paddon said tolled facilities have an impact on customer behavior. "Pricing of any kind is one of the factors people put into the mental equation in deciding how they want to get to work, to school, how they want to get around," he said.

Participants also heard details of:

- A $3-billion project to replace Montreal's Champlain Bridge, the busiest in Canada with 50 to 60 million crossings per year
- A new six-lane bridge between Windsor, Ontario and Detroit, a corridor that carries $500 million in trade each day
- A roadway, bridge, and overpass rehabilitation program in Quebec that will deliver $5.6 billion in infrastructure improvements between 2013 and 2015, as well as a separate, $3-billion project to rebuild Montreal's Turcot Interchange
- Two new toll roads in Quebec, Autoroutes 25 and 30, both developed through P3S
- Efforts in Alberta to complete a system of ring roads around Calgary and Edmonton, using land first set aside for the purpose in the mid-1960s, as well as five P3s that brought $5.1 billion in investment to the province's highways.



Robert Poole Jr., Director of Transportation Policy at the Reason Foundation, presented the findings of Interstate 2.0: *Modernizing the Interstate Highway System Via Toll Finance,* a year-long study that showed how per-mile tolls could cover 99 percent of the cost of modernizing America's Interstate highway system. The Foundation found that Interstate toll rates of 3.5¢ per mile for cars and 14¢ per mile for trucks would be more than enough to fund reconstruction and widening in 30 states. Nine other states could cover their costs with somewhat higher tolls.

"This is a very positive result compared to what anyone could have gotten 50 years ago when the Interstate system began," Poole said. "Toll financing is a realistic alternative to raise the kind of money needed to reconstruct and selectively widen the Interstates."

Jean Mesqui of ASECAP, the European Association of Motorway Concessionaires, said the continent's traffic volumes have stabilized in 2013, after declining as a result of the global economic downturn. He said ASECAP members rely on three pillars: tolling as a tool for financial sustainability, safety as a top priority, and significant use of ITS—which Mesqui reframed as Improved Traffic Services through intelligent devices—to improve comfort and safety and achieve transportation system objectives.

IBTTA International Vice President Emanuela Stocchi, International Affairs Manager of AISCAT, the Italian Association

state and municipal concessions in Brazil. Several years ago, two different agencies developed parallel 915-MHz communication protocols for electronic tolling. Then, in mid-September, a federal transportation regulator announced a decision to harmonize Brazil's ETC standards at 5.8 GHz. The current inventory of tags in operation includes 4.1 million at 5.8 GHz, 60,000 at 915 MHz, and 100,000 ISO 18000 6C tags.

Alex van Niekerk of the South African National Roads Agency (SANRAL) noted that his country relies on sustainable revenue to operate the tenth-longest paved highway network in the world. "In a country in transition, it's always the needs of social investment versus infrastructure investment," he said. But maintenance and repair costs increase 121 percent when a vehicle moves from a good road to one that is poorly maintained. "There's going to be a direct cost to the users, but it's also a cost to the economy."

Tolling frees public funds to invest in the rest of the road network, van Niekerk said. Yet the Gauteng Freeway Improvement Project was barred from charging tolls after 585 new lane kilometers were built, supporting ORT systems were installed, and the road was open to traffic. "These delays have a serious impact on the financial model," he said.

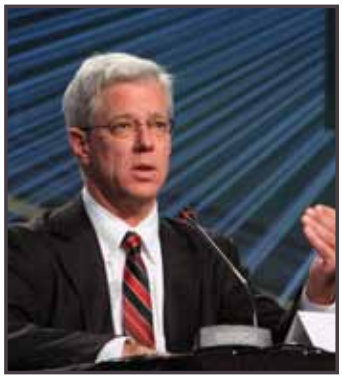
A participant asked van Niekerk how SANRAL "got so far out ahead of the policy-makers" that it couldn't collect tolls against such a substantial investment. Van Niekerk said court cases against the project had been launched by public organizations. Guedes said he had heard of similar political interference in other countries.

"In a country in transition, it's always the needs of social investment versus infrastructure investment."

of Toll Motorway Concessionaires, recapped key developments within the European Union, including ITS applications and the introduction of a September 2015 deadline for completion of a Regional European Electronic Tolling System (REETS).

Hucheng Sun of China's Ministry of Transport said the country's 2030 Road Master Plan envisions 5.8 million kilometers of roadways, including 537,000 kilometers of national highways or expressways. The government will invest directly to satisfy the population's basic mobility needs, then rely on tolls to fund ongoing maintenance and management. China currently charges tolls on 154,000 kilometers of roads, but implementation has faced considerable public resistance.

Gil Guedes of the Brazilian Association of Highway Concessionaires said tolling in 2012 generated $7.3 billion from 1.6 billion transactions on nearly 16,000 kilometers of federal,



Tomorrow's Technology Today

"It did happen, they did finish it, and it really got me thinking about how, to me, engineers are magicians. Think of what's possible when people really put their minds to it."

A CULTURE OF INNOVATION AND ENTREPRENEURSHIP

Co-Chief Meeting Organizer Stephen Mayer of Parsons Corporation said IBTTA asked an important question—What Would Google Do? (#WWGD)—after trying to imagine how a group of technologists would react, if they could hear toll authorities discuss their operational and strategic needs. Agencies "are not so much inventors of technology as we are adopters and adapters of technology," he said, from video to RFID to smart cars.

Mayer moderated a conversation with Neil Peterson, CEO of the Transportation Corridor Agencies, and Daniel Sieberg, author of *The Digital Diet* and former technology reporter, who now works at Google as Head of Media Outreach and was invited to the conference to discuss his book. Mayer invited the panelists to discuss how technology is embedded in tolling organizations.

Sieberg said Google has a top-secret division that focuses on "moonshots," spectacular project ideas that go beyond incremental improvements to existing technologies or processes. The company allows some projects to become "awesome failures," as long as they point to new ways of thinking. He said audacious, "10x" projects designed to make technologies 10 times better can be easier to pitch than standard research, thanks to the infectious enthusiasm they create among developers and potential customers.

Peterson said a similar initiative in tolling would have to bring together the three components of the industry—public agencies, consultants and suppliers—in a collaborative "skunkworks" to work on cutting-edge ideas. A participant commented that, "in my experience, consultants don't have the courage or the need to do the research." But Peterson said a shared effort might shift the focus and make funding available for creativity and innovation.

In an earlier keynote address, Sieberg cited the DARPA Grand Challenge as proof that massive failure can lead to success. In 2004, the U.S. Defense Advanced Research Projects Agency offered $1 million for the designer of the first autonomous vehicle that could complete a 200-mile obstacle track through the desert. Despite huge enthusiasm, massive hype and entries from 15 universities, the best vehicle traveled 7.3 miles—the rest crashed, caught fire, stalled or went backwards.

Just a year later, DARPA doubled the prize, five teams finished the race and all but one of the 23 finalists improved on the 2004 result. Less than a decade later, Google's self-driving car has traveled more than 500,000 miles without an accident, and autonomous vehicles are increasingly seen as the future of highway transportation, capable of 20 safety decisions per second compared to one per second for human drivers.

"It did happen, they did finish it, and it really got me thinking about how, to me, engineers are magicians," Sieberg said. "Think of what's possible when people really put their minds to it."

He said companies can nurture those minds by designing workspaces to encourage collaboration; breaks, unstructured time and play, and by allowing technology-dependent employees and managers to disconnect, rest and gain perspective.

While it isn't clear whether technology drives societal change or vice versa, Peterson said the millennial generation brings new expectations to the economy, technology, and the highway system. "They want instant information," he said. "They want to be able to make choices with the information they get." Even more important for tolling agencies, "people will be willing to pay for the car for the time they use it, not focus on the asset. You see the number of kids with cars or drivers' licenses dropping dramatically as they move to the urban centers."

The sharing economy is reflected in the popularity of zip cars, flex cars and car services like Uber. Peterson and Sieberg said the resulting sense of membership and ownership builds much stronger relationships than more traditional economic transactions.

A highlight of the conference was a session titled Choose Your Own Adventure: The Next Big Thing, where alumni from IBTTA's annual Leadership Academy performed skits to dramatize the future they envisioned for tolling industry technology, systems, structures and practices.

CONNECTED VEHICLES: THE FUTURE HAS ARRIVED

Much of the buzz at the Annual Meeting focused on connected vehicles as a practical technology solution that may be far closer to implementation than many people realize. While annual highway deaths fell from 55,000 in 1972 to 32,300 in 2011, Ellen Partridge of the U.S. Research and Innovative Technology Administration (RITA) said there's still room for improvement, and connected vehicles could have an impact on 80 percent of crash types for non-impaired drivers.

"They want to be able to make choices with the information they get. People will be willing to pay for the car for the time they use it, not focus on the asset. You see the number of kids with cars or drivers' licenses dropping dramatically as they move to the urban centers."

But there are complications on the road to a full-fledged connected vehicles program. Deployment scenarios will have to account for the 20-year turnover of the existing vehicle fleet, device certification will present new challenges, workable revenue models are a major issue and there is concern that drivers could become overly dependent on the technology. Partridge said the full benefits of the technology will only be achieved with a level of connectivity that permits automatic merging and vehicle platooning.

Safety testing is currently under way Ann Arbor, Michigan, with 73 miles of instrumented roadways, and the process could result in guidance on implementation from the U.S. Federal Highway Administration (FHWA) by 2015. In a RITA listening session during the Annual Meeting, participants expressed enthusiasm for the development of connected vehicles.

"When I started looking at this six months ago, I thought it was George Jetson stuff," said one tolling executive. "The more I looked at it, the more I came to believe it was more real than not." With enough connected vehicles in the fleet, tolling agencies could begin to see the benefits within 10 years—and within 20, with deep enough market penetration, it may be possible to fit 3,000 vehicles per hour on a lane that currently accommodates 1,500, while improving safety.

The participant said it might make sense for RITA to test connected vehicles first on managed lanes, where vehicles are already required to have onboard transponders.

RITA's Walton Fehr said Google's work in this area focuses on autonomous vehicles, but FHWA is interested in more interactive, cooperative applications. "It's a very fine distinction" between autonomous vehicles that rely on their own resources and more connected applications where a wider variety of information is shared.

"The agreements, not the technology" were the biggest challenge to regional interoperability. "Ninety percent of it was easy, but we had to make certain the agreement didn't violate each other's statutes"

Other panelists noted that autonomous vehicles offer more ways for automakers to connect with customers and move beyond market fatigue with products that have seen no fundamental change in 50 years. Customers are looking for real-time, personalized, interactive data and virtually every manufacturer will be coming out with some kind of in-vehicle mobile technology in 2014.

TECHNOLOGY HITS THE ROAD

Developments in roadway and back office technologies are opening the door to regional and national interoperability in North America and Europe. Panelists from North Carolina and Florida said they were satisfied so far with their effort to integrate two different tolling systems in the southeastern United States, concurrent with Florida's initiative to streamline its system and eliminate video tolling by replacing its previous Allegro tags with new Sego technology. The state will also complete the introduction of multiprotocol readers by the end of 2014. With an integrated customer service center taking form over the next year, "the real vision is to bring transit into the back office, do fare collection processing as well, and really leverage the center as a backbone in Florida," said Diane Scaccetti, Executive Director of Florida's Turnpike Enterprise.

Scaccetti said "the agreements, not the technology" were the biggest challenge to regional interoperability. "Ninety percent of it was easy, but we had to make certain the agreement didn't violate each other's statutes," she recalled. "We didn't disagree. We just needed to come up with the right words," while preparing for potential difficulties and always keeping customer convenience front and center.

Chris Isbell, Business Development Manager with sanef ITS, said the U.S. Alliance for Toll Interoperability had just awarded a development contract for a voluntary, nationwide interoperability hub, capable of carrying out financial resolutions of toll transactions and resolving disputes. He said sanef had also set up a regional interoperability hub for the M50 toll road, a ring road around Dublin, Ireland. The hub brings together about a dozen other operators in Ireland and will be the first European Electronic Toll Service (EETS) initiative taken in Ireland to enable road users to easily pay tolls across the EU.

Cédric Bourgoin of Egis Projects Canada traced the technical challenge of establishing interoperability between Vancouver's Port Mann and Golden Ears bridges, including three incompatible protocols, no prior back office links, the need to upgrade the automatic vehicle identification system and a tight, four-month project schedule. Aaron Burry of the Xerox Research Center said video-only tolling "could address a number of these key issues, make life simpler for the customer and relieve pain points and congestion."

Martin Stone, Chair of IBTTA's Interoperability Committee, reported on the development of a strategy that will enable customers to drive virtually anywhere in North America, with a single toll tag and a choice of payment methods. With three active subcommittees and a large collection of committed volunteers, the group is trying to address a series of technical and institutional challenges, including multiple brands and protocols and a general lack of uniformity among the more than 100 toll agencies across North America.

Stone said the committee is working hard to "leverage the tremendous investment that many agencies have made in their roadside and back office operations," by focusing first on regional interoperability among neighboring systems.

Joseph Waggoner, Executive Director of the Tampa-Hillsborough Expressway Authority, pointed to the role of technology in an innovative integration plan that combines tolling and transit in a congested metropolitan area. A modeling study found that the system would deliver faster transit at lower cost, a 300 percent increase in ridership, new highway capacity and 100 percent coverage of operating costs through operating revenue. With tolls designed primarily to ensure reliable travel times, Waggoner said, the approach would reduce express bus fares and make transit a competitive choice. The transit agency would help fund construction, then take ownership of the lanes and the revenue stream.

A Diversity of Financial Models

"the trend toward user financing makes this "a good time to be in the toll road sector."

Canada has emerged as a world leader in public-private partnerships (P3s) over the last decade. In British Columbia alone, Partnership BC has invested more than $17 billion in more than 40 infrastructure projects, said President and CEO Sarah Clark.

Clark pointed to innovations in project design, risk transfer and integration of multiple projects as the best reason for a public institution to form a P3 with a private sector partner. In transportation, "you can set the performance you want from your asset, not only how many cars it will carry and how fast they can go, but how you want that asset to perform and be maintained over its life," she said. "You're essentially creating something with a warranty for that time."

The 99-kilometer Sea to Sky Highway from Vancouver to Whistler was one of B.C.'s first P3s. The province started out with a reference design and a budget limit, but it was the private sector that eventually delivered many of the features the government wanted, including safety features that were essential on a treacherous stretch of road. Proponents were also much more adept at assessing the project over its entire life cycle, as a basis for deciding whether key bridges should be rehabilitated or replaced.

But even when P3s are impossible, B.C. is still moving ahead with essential infrastructure investments. After the province issued a request for proposals for the Port Mann Bridge in

"Increasingly, we're seeing that transportation is an incredibly important utility that is vital to our economy and our economic development."

August 2007, financial markets collapsed and negotiations with a prospective P3 partner reached an impasse in early 2009. With TI Corporation already in place as a ready-made concessionaire, the project could proceed under a design-build contract, since the RFP process was flexible enough to accommodate the change.

Participants heard that the financial structure for any project must reflect the specifics of the situation and the status of a shifting marketplace. One panelist from Texas described a project that was essentially a "public-public agreement," in which a regional mobility authority received state funding to relieve local congestion by building two express lanes. The deal had to be structured to allow the agency to cycle state funds back to the local community, but it sped up the work and eliminated the debt charges that would have come along with a standard P3. Elsewhere in the state, two segments of a managed lane project are being funded separately, one as a P3, the other as a design-bid-build.

One project in Australia was forced to restructure after projected toll revenue failed to materialize. The operator was originally listed on the Australian Stock Exchange, and the road met its traffic targets in the first month, when lanes were open at no cost. As soon as tolls were introduced, traffic fell 50 percent. In the end, the project was withdrawn from the Stock Exchange and sold to a consortium of private pension funds.

In another session, participants heard about road user charging as an emerging option for funding infrastructure maintenance and improvements. In one demonstration project in Minnesota, 500 participants allowed their GPS-enabled smart phones to be used to track their travel. Afterwards, 77 percent of them said they preferred road user charges to paying the gas tax. The pilot collected data on trips, trip lengths, miles travelled and travel times. A panelist said technology has already advanced enough that any future initiative could collect much more data by the same means.

Panelists noted that financial markets for new tolling projects have been in flux, with rates increasing by 1 percent or more since May. "There's some expectation that you might have to have a little more liquidity in your deals," a session moderator said, to account for possible differences between traffic projections and actual volumes. But a couple of investment analysts said they still look forward to working on tolling projects.

"From the banking perspective, it's my favorite sector to work in, because toll bonds are typically enterprises, and they have a lot of similarities globally," said one panelist. As well, "tolls are considered user fees, not broad-based taxes. Given the political environment we're in today, the toll sector is an exciting place to be."

A fund manager said reliable revenue streams are absolutely essential in an era of 5 percent absolute yields. "What we look for in all of your roads is something predictable, something that has a market-bonded position and something that will give us nice, stable returns over a long period of time that we can sell as low volatility," he said.

Financiers also expect clear communication when a project runs into trouble. "Everyone does great disclosure when they come to the market," he said. But "if things go badly and we don't get good communication on what's not working and how you're going to turn it around, we're out of those bonds, and we won't be back until they stabilize."

A panelist said toll roads tend to receive a negative outlook from rating agencies due to an uneven economic recovery and increasing leverage across the system. Analysts take a particularly dim view when toll revenues are diverted to fund other uses.

But even so, the trend toward user financing makes this "a good time to be in the toll road sector." Absent other funding alternatives, tolling is seen as "an increasingly valuable tool in the toolbox to address this huge funding deficit," she said. "Increasingly, we're seeing that transportation is an incredibly important utility that is vital to our economy and our economic development."

Keeping Our Roadways Safe

"Highway safety is always the first priority for anyone who owns or operates a tolled facility," said Frank Thibaut of Egis Road Operation, France. He added that, less than a year after Superstorm Sandy slammed into the northeastern United States, it was timely for panelists and participants to focus on emerging safety threats. "Climate change is a fact that we cannot deny, that we cannot dispute," he said. IBTTA is committed to helping its members prepare for and respond to severe weather and keep their assets and clients safe.

Prof. Simon Donner of the University of British Columbia said the basic facts of climate change are a matter of settled science. The understanding that temperatures rise as the amount of atmospheric carbon dioxide (CO_2) increases "goes back to physics and chemistry from the late 1800s," he said. The CO_2 can be traced back to fossil fuel burning, forest clearing and other land use changes, and the temperature data show that global temperatures are rising, particularly since the 1950s and 60s.

"We have real fingerprints of human activity in these climate changes that we've observed," he said. As a result of climate change, toll operators should expect to see more extreme temperatures, and more intense rainfall with higher coastal storm surges.

Bryan Norcross, Senior Hurricane Specialist with The Weather Channel, said all the engineering and infrastructure challenges that road operators face in a weather or climate emergency "are easier than communicating with the public." In the United

"Highway safety is always the first priority for anyone who owns or operates a tolled facility."

"...communicating with the public... it's much more difficult today than it was 20 years ago. Our emergency communications system is far inferior today than it was then, when virtually every citizen knew to turn on a transistor radio for updates."

"The problems really are monumental and fundamentally, there's only so much physical you can do to mitigate them,"

"if the risk is unusually high, the message must be unusually strong."

States, in particular, "it's much more difficult today than it was 20 years ago. Our emergency communications system is far inferior today than it was then," when virtually every citizen knew to turn on a transistor radio for updates.

"The problems really are monumental and fundamentally, there's only so much physical you can do to mitigate them," Norcross said. The planning and public communications challenge is to understand the magnitude of the potential risk, as well as the odds of a worst-case disaster. Regardless of likelihood, "if the risk is unusually high, the message must be unusually strong."

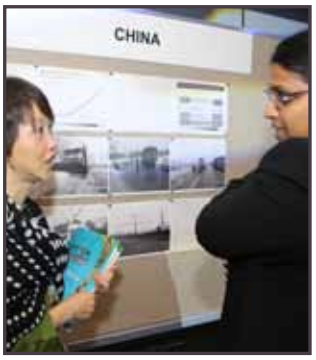
To prepare for severe weather, he said agencies must:

- Think out a scaled communications strategy ahead of time
- Determine lines of authority for decisions on public messaging, based on an understanding of communications techniques as well as the political standing to make key decisions
- Break down the period before a major storm into five stages of urgency—possible, increasing possibility, likely if no changes, likely and imminent—and begin public messaging at the earliest stage
- Develop public communication strategies that consistently deliver three pieces of information: What's known about the worst plausible threat, what isn't yet known and when more information will be available.

"If that rhythm of communications becomes a part of the process of dealing with the emergency, you'll find that people understand much, much better," he said. Representatives from Austria, Canada, China, France, Germany, Italy, Mexico, the Philippines, Poland, Spain, South Africa and USA talked about safety innovations on tolled facilities from around the world, including:

- A user assistance control center along Italy's A22 motorway, designed to consolidate video coverage and image processing, transmit information quickly and efficiently support timely intervention by first responders
- A series of essential safety upgrades along a 17-mile stretch of the Garden State Parkway in New Jersey that relied on a Smart Work Zone system to provide real-time traffic updates to drivers approaching the construction area.

Several participants questioned the rising use of smart phone applications for driver information and, eventually, toll payments, when highway operators are trying to combat distracted driving. A panelist said the problem may soon be resolved by the rise of a driverless society, in which private vehicles are largely replaced by flex car companies and car-sharing services like Uber.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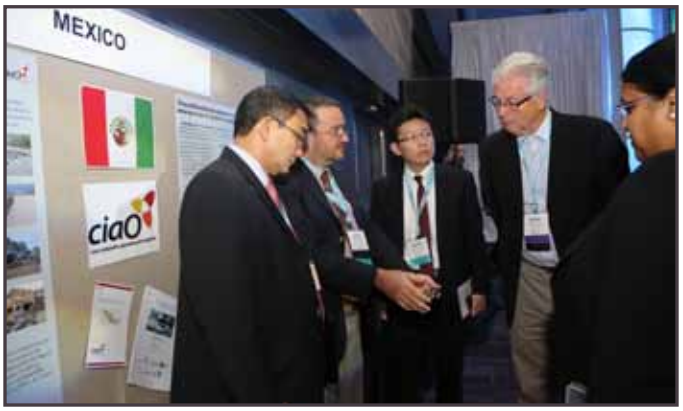
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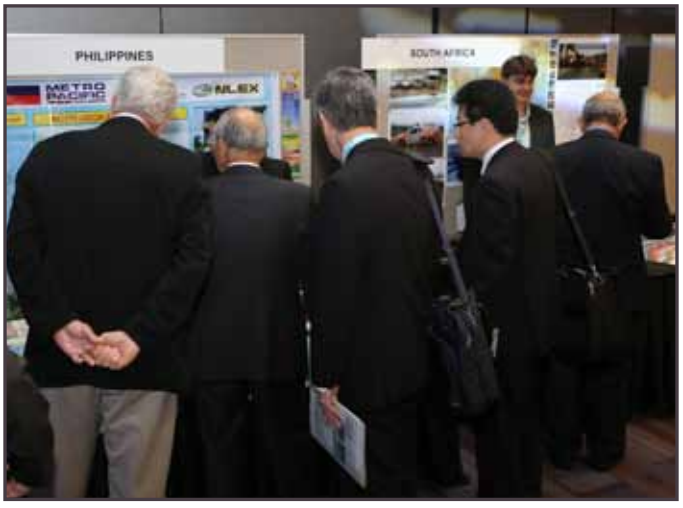
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Conclusion: Telling the Industry's Story

Throughout the Annual Meeting, panelists stressed the need and the opportunity to make the case for tolling as an essential infrastructure funding mechanism—with the drivers who use the roads, and with the elected officials who set policies and budgets. IBTTA President Robert Horr, Executive Director of the Thousand Islands Bridge Authority, said the message is beginning to get through, thanks in large part to IBTTA's Moving America Forward campaign.

"Last year at this time, we were talking about how to support our new public awareness campaign, and we adopted a new dues structure to provide the resources to support that campaign," he said. "I can stand here today and tell you it was well worth it." Highlights of the campaign have included:

- More than 1,000 positive media mentions of IBTTA and the benefits of tolling
- Op-ed placements in a variety of commercial media outlets, including *U.S. News & World Report,* the *Miami Herald*, the *Denver Post* and the *Vancouver Sun*
- Production of a series of fact sheets and case studies
- Stronger relationships with advocacy organizations and think tanks that share IBTTA's commitment to user financing.

Frank McCartney, Senior Vice President, Toll Industry Markets at Parsons Brinckerhoff, Inc., said the campaign will achieve its objectives as long as IBTTA members stand as one.

"We have to do it together, folks," he told participants. "We've heard the message that if tolling is to be accepted more broadly and widely, it has to come from the bottom up. You are our ambassadors…you're the folks who are going to help us get the grassroots working."

"We have to do it together, folks," he told participants. "We've heard the message that if tolling is to be accepted more broadly and widely, it has to come from the bottom up. You are our ambassadors…you're the folks who are going to help us get the grassroots working."

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