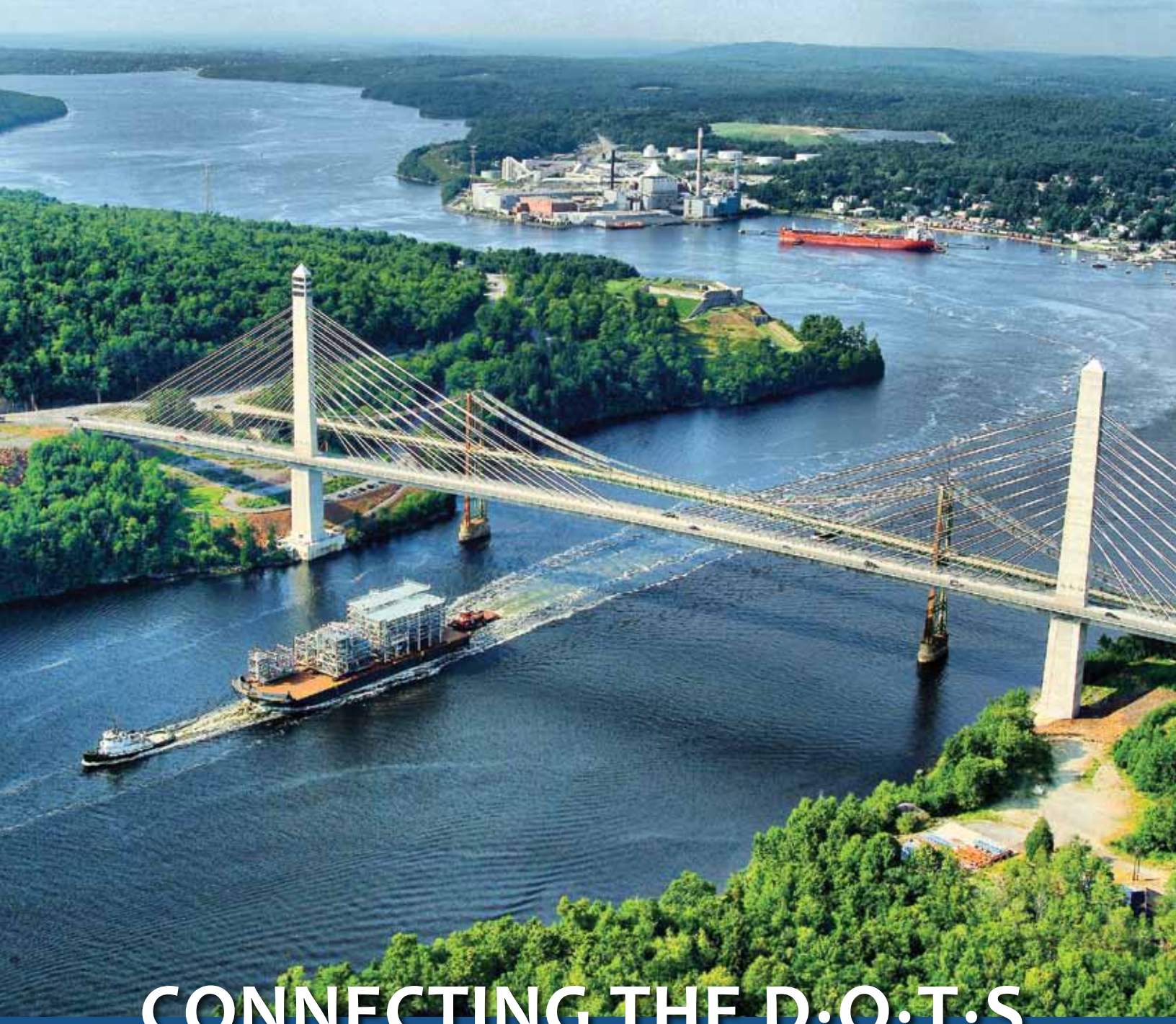

CONNECTING THE D·O·T·S

A Guide for Connecting with Your Department of Transportation

By David Cole

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National Association of Development Organizations (NADO) Research Foundation

Center for Transportation Advancement and Regional Development

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Portland waterfront photo by Brian D. Peterson Photography
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Table of Contents

Introduction 4

SEC. 1 **THE WORLD OF A DOT**

1.1 How it's Organized: Welcome to the MaineDOT 8

1.2 The Mission 10

1.3 Climate and Culture 10

1.4 The Transportation System—The Quiet Giant 12

1.5 The State-Federal Partnership 16

1.6 Forces Shaping Transportation Policy 19

- The future of transportation funding 20
- Beyond borders: The effects of globalization on the transportation system 21
- Changing ways of doing business 23

SEC. 2 **MAINEDOT PLANNING PROCESS AND THE REGIONAL ROLE**

2.1 MaineDOT Planning Process and its Challenges 26

2.2 History of the Regional Role 26

2.3 Expanded Role for the Regional Planning and Development Organizations 27

2.4 The Process: RTAs, CRESTs, and MMCMPs 28

2.5 A CREST Profile: The Acadia Express 28

2.6 The MPOs as Partners in the MaineDOT Capital Program 30

SEC. 3 **TRANSPORTATION AND ECONOMIC DEVELOPMENT LINKAGES**

3.1. Blending Transportation and Tourism: The Penobscot Narrows Bridge and Observatory ... 31

3.2 The Relationship between Freight and Economic Development 34

3.3 Stepping up in a Crisis: The Aroostook Rail Abandonment 36

3.4 DOT as a Partner in Tourism 38

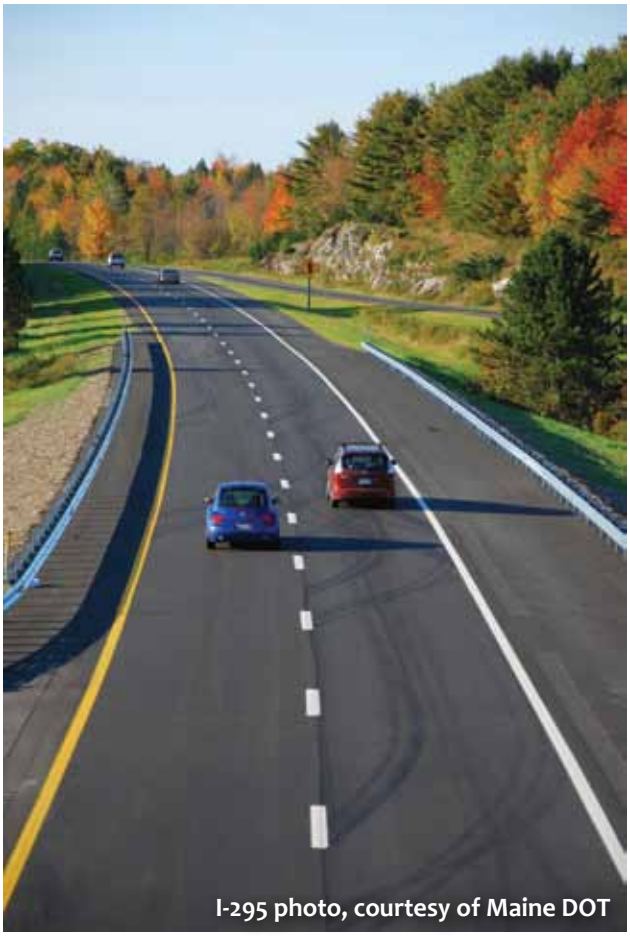
3.5 Capitalizing on Technology and Innovation—Transportation and Composites 39

Concluding Remarks: The Road Ahead 41

Introduction

By David Cole, former Commissioner, MaineDOT, 2003 – 2011

"Are you a rail guy or a road guy?" That was one of the very first questions posed to me by an industry advocate on the third floor lobby of the Maine Capitol building shortly after arriving at the Maine Department of Transportation (MaineDOT) in the spring of 2003. After reflecting for a moment, I responded that I was really more of a "development guy," having come out of the economic development world and viewing transportation assets chiefly as tools to be used to support community and business needs. I'm not sure he was expecting a "mode agnostic" commissioner, seeking the transportation path of least resistance.



I-295 photo, courtesy of Maine DOT

But, my career experience up until that point was that of an economic developer, which in terms of transportation focused on meeting the logistical needs of businesses looking to locate, expand, and operate in my region, as well as pursuing system improvements that would either address its deficiencies or give us a competitive advantage over others. That was my perspective going into the MaineDOT, where I saw my primary mission as leveraging the state's transportation assets to enhance the standard and quality of living for Maine people.

Of course, it was understandable that lobby groups would care about such things and solicit the views of a new commissioner, as there is much at stake within the broad network of businesses, advocacy groups, and public bodies that are part of this extensive funding and supply chain. And it truly is a large and complex system. It really first sunk in when I received a congratulatory call on my nomination from NADO Executive Director Matt Chase, who noted that my MaineDOT budget was larger than that of the entire U.S. Economic Development Administration. At that time, MaineDOT's biennial budget was about $800 million, which equated to a spending rate of about $200,000 per hour based on a forty-hour week. Or looked at another way, my $6 million annual budget at Eastern Maine Development Corporation (EMDC), the regional development organization I had run for several years, would have been eaten up in about 30 hours based on this burn rate. It took some adjusting to say the least, as at times it felt like drinking from a fire hose.

Just the process alone of spending the MaineDOT budget represents a great deal of economic activity and supports a vast number of families and businesses across the state. In addition to the 2,100 men and women who are today directly employed by the department, MaineDOT's current two-year capital work plan also supports private sector jobs in the form of "construction contracts, consultant services, private equipment rental, and construction materials," which will "create, sustain and support over 21,000 jobs over the biennium based on federal estimates."[1] Clearly, the transportation family is extensive, and the fortunes of MaineDOT affect the lives of many, many people across the state.

While maintaining a healthy supply chain is vital to carrying out the DOT mission, the end game in transportation is focused on the ongoing economic and social dividends, or legacy benefits, that are generated every day by our transportation system. We all appreciate that as the system improves, businesses are able to move people and goods more cost effectively, and this productivity translates into business and personal income. Logistics are basic to most any successful economy, particularly in this age of just-in-time/quick-response delivery, where the roads, rail and waterways are increasingly the new warehouses of our economy, and a region's ability to get goods from the factory to the showroom floor (or directly to the customer) will greatly shape its potential to attract and retain core businesses.

I should also note that having, over the years, followed pundits like Richard Florida (*The Rise of the Creative Economy*), the

importance of "quality of place" has long factored into my economic development thinking. I well remember some of the initial blank stares I received from my Board members at EMDC in the mid-1990s when first promoting the connection between economic development and the arts, as well as the region's cultural and natural assets. In this day and age, however, quality of life is certainly seen as a prerequisite for a good business climate, as cities and states jockey to attract entrepreneurs and talented people who can increasingly locate where they like. Surely, providing the public with the right balance of transportation services to allow them to go about their daily lives is vital to maintaining that essential quality of life and place.

When I was named commissioner in 2003, Governor Baldacci cited my economic development experience as the key reason for bringing me on board, recognizing that transportation impacts nearly every aspect of our daily lives and is also a major driver in terms of pursuing any strategy for economic and community development. Governor Baldacci also made it clear that he was looking for me to not only think out of the box, but regionally as well. The governor had served as a member of Congress for Maine's 2nd District for eight years, and enjoyed a close working relationship with the economic development districts (EDDs) serving his district, including my alma mater, Eastern Maine Development Corporation. He had also seen first-hand the creativity and inventiveness at the regional level, as he dealt with the many challenges facing one of the largest and most rural Congressional districts east of the Mississippi.

With these underpinnings, it probably won't surprise you that our approach to planning at MaineDOT incorporated an integrated, "three-legged stool," consisting of transportation, the economy, and quality of life as the three legs that are highly interconnected and co-dependent. I have and continue to believe that transportation, economic development, and land use strategies should be developed in a balanced and synchronized way, and many of these strategies are also best developed at the regional level, working with the public and key stakeholders. Moreover, the vehicle for taking transportation planning in Maine to a new level was an unprecedented partnership and working relationship with Maine's six federally designated EDDs (just recently increased to seven),[2] and the 11 state-recognized regional planning councils (RPCs) that operate within this umbrella.

Why the regional planning and development organizations? First, the Maine EDDs have been working together quite effectively since at least the 1990s under the banner of the Maine Economic Development Districts Association (MEDDA). While the EDDs certainly compete from time to time for funding, business investments, and projects, they have also demonstrated an impressive track record of collaboration across a range of issues including workforce development, forest resources management, mature industries study, defense conversion, and other economic development initiatives such as Mobilize Maine. From my experience, it can be quite attractive to a state or federal agency to be able to partner with a group such as MEDDA that has consistent, grassroots coverage of the entire state and speaks with one voice, rather than trying to assemble such a network on one's own.

Secondly, the EDDs bring specialized knowledge and skills to the table that should be attractive to most DOTs, who are under increasing pressure these days to perform "cheaper, faster, better," all in a climate of great uncertainty and unparalleled transparency. A DOT in my mind can be likened to an aircraft carrier, i.e., a large vessel (almost a self-contained community) that has considerable firepower, is very mission focused, but has a lot of water to cover and doesn't turn on a dime. On the other hand, I always aspired for my EDD to be like the Navy special ops boat—fast and agile, very aware of its surroundings, and able to respond to special missions and emergencies as they arise. These skills are certainly complementary, and formed the foundation of our partnering efforts.

For their part, the Maine EDDs and the 11 regional planning councils that work within these regions bring this flexibility and local understanding to the table; they know the politics, the players, and the landmines, and they work across a range of often interconnected issues, including transportation, economic development, and regional planning. They also possess an air of authority on regional economic development matters, given their state and federal recognition. They can be resourceful as well, with their long-established ability to leverage dollars through creative partnering. This skill set should be valuable to a DOT, in terms of not only long- and medium-range planning, but helping to prioritize projects, stretch dollars, and generate the local support and consensus needed to complete these projects and in a timely manner. Conversely, the region that is organized and knows how to work well with its DOT is also in a better position to successfully shape policy, move its projects through the pipeline, as well as influence the final make-up of projects, and how they are delivered.

This guide is intended to provide regional planning and development agencies (hereafter generically referred to as regional development organizations or RDOs) some level of insight into the operations of a DOT, using MaineDOT as a model, as well as some helpful tips on how to successfully navigate these large, complex organizations. For its part, Maine should be a useful model for the rural regions and small metropolitan areas that make up the NADO membership. While Maine is one of smallest, most rural states in the country, MaineDOT has been quite successful in adopting and adapting innovative practices such as context sensitive solutions (CSS), accelerated project delivery methods including design-build, creative financing techniques on both a state and federal level, and applying multi-modal solutions within a state with relatively low population densities.

Rural states and regions can compete! Sometimes we just have to work a bit harder and be a little more creative.

TAKEAWAY #1

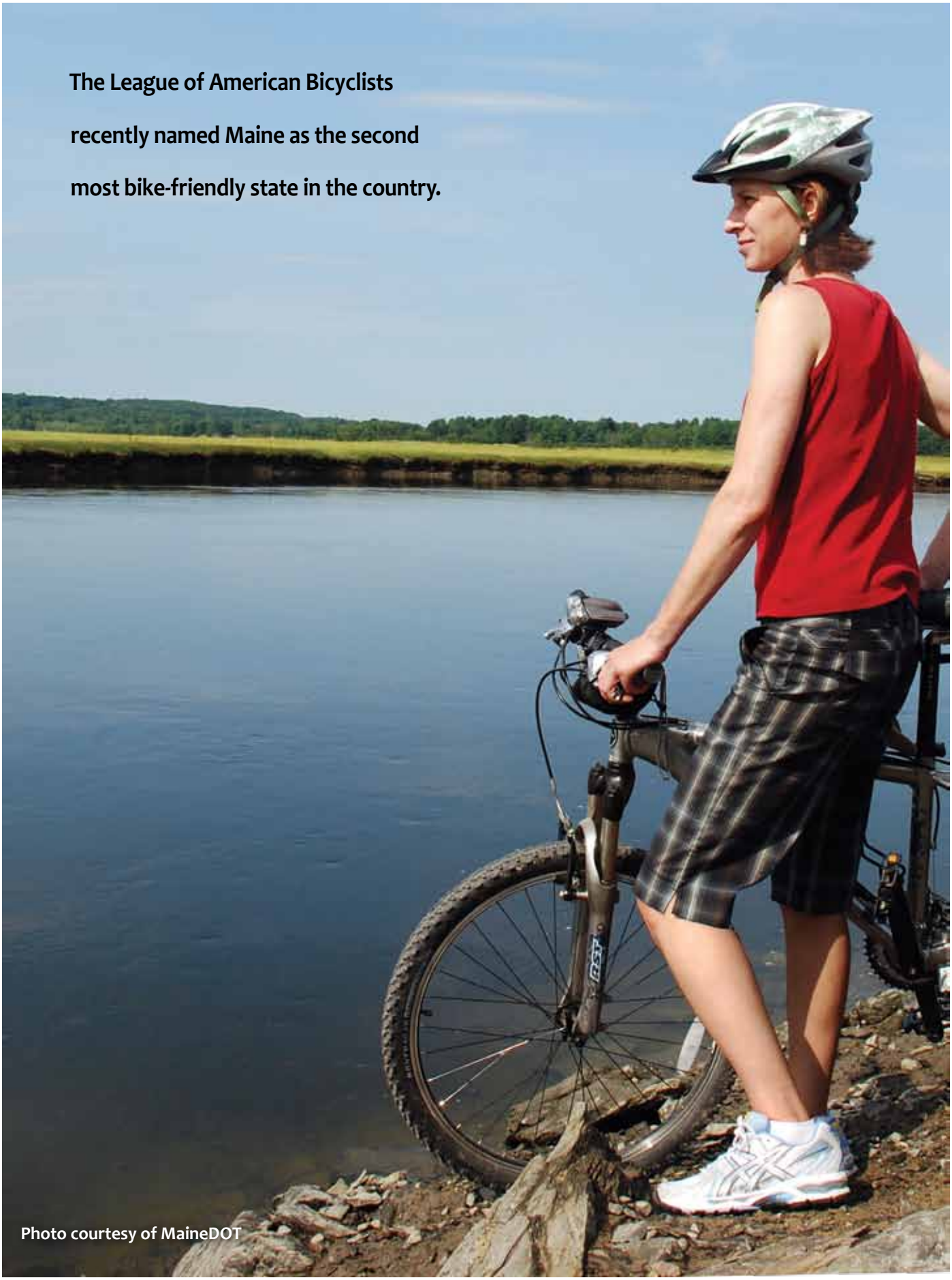
Collaborate!

While there is a time to compete, there is also much to be gained through the statewide or regional collaboration of RDOs, as demonstrated by MEDDA and the Maine EDDs.

TAKEAWAY #2

Know your value and core competencies and how they relate to a state DOT's needs

RDOs can enjoy successful partnering with their DOTs, but the key is to demonstrate your ability to add value in developing policies, plans and projects that result in more cost-effective transportation solutions, in the face of mounting fiscal challenges and increasing public expectations.


The League of American Bicyclists
recently named Maine as the second
most bike-friendly state in the country.
Photo courtesy of MaineDOT

SEC. 1 THE WORLD OF A DOT

1.1 How it's Organized: Welcome to the Maine DOT

Technocracy (tek-NOK-ruh-see): The control of government and society by people with technical skills, especially engineers. Source: Dictionary of Cultural Literacy

The Maine Department of Transportation (MaineDOT) in its present form was created by the Maine Legislature in 1972 when the Maine Highway Commission (formed in 1913) was merged with other state transportation functions to create a new, multi-modal organization.[3] The trend toward more multi-modal DOTs has been underway for some time, and was certainly encouraged by the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA, but pronounced "ICE TEA").[4] This groundbreaking legislation represented a move to a more intermodal approach to highway and transit funding with new collaborative planning requirements.

Photo courtesy of MaineDOT

It's important to note that while the road and bridge function is common to all states, other transportation responsibilities and priorities do vary, and these functions as they exist are not always under one roof. MaineDOT is certainly among the more multi-modal and integrated DOTs, with far-reaching responsibilities over a range of transportation modes, including highways and bridges, freight and passenger rail, marine ports, intermodal freight, aviation, ferries, bus transit, and bicycle and pedestrian facilities.

Even for a DOT from a relatively small state, MaineDOT is a large and complex organization, with approximately 2,100 employees and a biennial budget of over $1.2 billion.[5] Driving the ship is the Commissioner of Transportation, who serves as chief executive (note: the CEOs of state transportation departments may also be known as secretary, executive director, administrator, and by minister in Canadian provinces.) The MaineDOT Commissioner is one of only four appointed positions within the entire MaineDOT, with the balance of the 2,100 people being career employees. Appointees are primarily focused on policy matters and come and go at the pleasure of governors, while many career employees demonstrate impressive longevity. One particularly noteworthy case is that of John Dority, a third generation employee who recently retired at the level of chief engineer after 54 years of service, going all the way back to the construction of the Eisenhower Interstate. Suffice it to say that roots run deep at MaineDOT.

In the eyes of many, MaineDOT is largely seen as an engineering and technical organization. According to the Chief Engineer Ken Sweeney, there are approximately 450 people in the department with engineering, science, or technical backgrounds, and these people tend to dominate the management ranks.[6] This should not be too surprising on either count, as much of the day-to-day activity within a DOT is focused on planning, building, maintaining, and operating an extensive system of infrastructure and services, and a "technocracy" with considerable technical expertise and professional experience is necessary to ensure that it is done safely and efficiently.

Given these responsibilities, the department tends to be production-driven and vertically focused, with the organizational structure largely following the flow of work. There are two major "production lines" within the MaineDOT; the Bureau of Project Development, which delivers the capital work program over all modes; and the Bureau of Maintenance and Operations, which maintains everything from the roads and bridges to the facilities of the Maine State Ferry Service and over 553 miles of state-owned rail. Together these bureaus represent about 90 percent of department personnel.[7] The Bureau of Finance and Administration and other offices (environmental, legal, safety, etc.) provide the necessary support and value-added services to keep these assembly lines moving, as well as support for other agency functions.

Situated between the policy world of the "front office" and these assembly lines is the Bureau of Transportation Systems

Planning (BTSP), which among its other duties develops the capital work plan that feeds the production lines. This is accomplished with policy oversight from the Commissioner's Office, and input from across the line and support groups that comprise MaineDOT, as well as stakeholder groups, the public, and of course the federal funding partners and regulatory agencies who have great say in the process. In addition to the biennial capital work plan, BTSP is also responsible for the long-range and mid-range planning that funnels work down to this level, as well as the planning associated with major projects and program initiatives, such as major bridges, highway corridor development, port facilities, border crossings and transit services. These activities are influenced significantly by federal funding and related requirements, as much of BTSP's efforts encompass federal process and compliance issues involving the National Environmental Policy Act (NEPA), historic preservation and public lands, Army Corps of Engineers wetland requirements, among other federal and state regulations and statutes.

Back at the top of the pyramid is the Executive Office, which under the leadership and direction of the commissioner, drives the agenda, including policy decisions and initiatives that can have great impact on both production levels and product mix, as well as the overall strategic focus of the department and its relationships with the outside world. The commissioner has overall responsibility for delivering programs and services in an efficient and cost-effective manner, as well as pursuing policies that are also effective in meeting the transportation and related socioeconomic needs of the public. A DOT commissioner's role is often focused on driving change and innovation in a culture with a long institutional memory that values the tried and true, while also dealing with many outside forces including a state legislature, federal oversight, and of course a governor's priorities and goals, as well as business and economic forces that can change the ball game in a real hurry (such as the price of gasoline approaching $4.00 a gallon). There is much to balance.

Photo courtesy of MaineDOT

TAKEAWAY #3

The world may be flat, but it's much more vertical at a DOT.

Much of a DOT is vertically focused on delivering projects and services, while a commissioner must deal with broader considerations. Approach any issues of significance from both dimensions.

TAKEAWAY #4

Know your DOT and maintain strategic relationships.

While there are many similarities across states, DOTs do vary as to structure, priorities, and levels of decision making. Map your DOT, and understand how the pieces fit together. Maintaining relationships at both the executive and project levels is important, but also root out the "linchpin" types operating between these layers, whose day-to-day job is focused on policy issues, problem-solving, customer satisfaction, and turning chaos into order. They are generally easier to access, know how to connect across their departments, and often report to and have the ear of senior management.

TAKEAWAY #5

Make sure you are connecting within your own organization.

Just as there can be silos within state and federal agencies, the same can be true of RDOs. In a well resourced RDO, there may be several points of contact with the DOT, ranging from transportation and land use planners, grant writers, business development staff, policy managers working on state and federal issues, and CEOs dealing with policy concerns. Some of the best leads and opportunities are sometimes unearthed by connecting the dots right within your own organization.

1.2 The Mission

MaineDOT's mission is to responsibly provide a safe, efficient, and reliable transportation system that supports economic opportunity and quality of life.

Sound familiar? It is probably safe to assume that terms like "economic opportunity" and "quality of life" are common and integral to the mission statements of many RDOs around the country. The mission statement as outlined above was developed as part of an internal strategic planning process conducted by the department between 2003 and 2004. While much of the day-to-day focus at MaineDOT is on building, repairing and maintaining the system, it is an incomplete picture to view the MaineDOT as a large public works department.

Indeed, the department's mission recognizes that providing a safe, efficient, and reliable system is what the MaineDOT strives for every day, but equally as important is providing services that support economic opportunity and quality of life for its customers, which is why these investments are made and why the transportation system actually exists to begin with. This strategic planning process was a starting point for stakeholder discussions and public outreach that led to the development of MaineDOT's long-range transportation plan (LRP), *Connecting Maine*, published in 2010. *Connecting Maine* adopts five strategic goals to help guide future investment initiatives:

Goals:

1. Ensure a Safe and Secure Transportation System

2. Ensure the Sustainability of Maine's Transportation System

3. Promote Economic Vitality and Competitiveness through Transportation

4. Develop and Implement Transportation Programs that Enhance Quality of Life

5. Enhance Public Awareness and Participation.

If this is any indication, there is considerable common ground between the missions of a DOT and an RDO. Unquestionably, however, the issue of the day is "jobs, jobs, jobs," as it's difficult to identify a time since the Great Depression when the issue of jobs and the economy was so dominant in the thinking of the public and policy makers. DOTs, like many state and federal agencies, will be under growing pressure to demonstrate how their investments support job creation, as elected officials remain focused on this issue. Likewise, these economic benefits can only be realized if transportation projects are actually delivered, and that in many cases requires building public support and innovative partnerships, areas where an aggressive RDO can potentially add value.

TAKEAWAY #6

"It's the Economy…"

Borrowing from this well-known catchphrase from the 1992 presidential election, it's all about jobs right now, and apparently will be for some time to come. Stay on point. An RDO should own this issue. If a designated "Economic Development District" isn't the face of the jobs issue in your region, who is? Help your DOT translate and link your region's transportation initiatives to economic development and jobs programs and it may help separate you from the field.

1.3 Climate & Culture

To the optimist, the glass is half full.
To the pessimist, the glass is half empty.
To the engineer, the glass is twice as big as it needs to be.
(Source: Understanding Engineers)

There is no "dimmer switch" at MaineDOT, a senior colleague at the department would occasionally counsel, comparing the production process at MaineDOT to a light switch. The switch is either "on or off" in the eyes of the people tasked with delivering projects, and shades of gray can cause confusion in the ranks. The topic would usually come up in the context of moving projects from the planning shelf to the production pipeline and preparing them for construction. Given ongoing funding uncertainties, we would debate the extent that projects should move forward into project development for prep work without secure funding for construction.

In fairness to the project managers (PMs), getting a project ready for construction is a major undertaking, and can take considerable time and effort, as in addition to completing the engineering, the process may entail various permits, property takings, public hearings, impacts to communities and individual property owners, and any number of other issues that may arise along the way. PMs are often operating under a microscope, and the whole process begs for a clear mission and critical path, as stop and start is very hard on the system.

In an ideal world, there are sufficient funds to deliver the necessary capital improvements in an orderly, sustainable, and predictable manner. The reality, however, is that MaineDOT (and its counterparts) have been planning in the face of uncertainty for some time, and in a fiscally constrained environment, and that is hard on a system that plans out in 2-, 6- and 20-year increments. Staying with the lighting analogy, the transportation policy world is more akin to "blink-

ing lights," as it is subject to both state and federal legislative action, completed in the mix of other demands, and driven by timetables largely beyond an agency's control. With the expiration of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in September 2009, living from extension to extension provides little foundation to plan for the future.

Further, having a "shelf" of projects ready to go has been important as of late, as the term "shovel ready" has crept into the American vocabulary. MaineDOT has worked hard in recent years to balance the vagaries of public policy with the more orderly world of engineering. In fact, achieving better communication with the department's customers and its own internal operations was one of the top priorities to emerge from MaineDOT's strategic planning process in 2003 – 2004. Much of the internal focus has been on making sure that those charged with delivering production understand these ebbs and flows in funding, and provide them with the communications training and support to deal with public expectations and uncertainty.

Key to effective communications is appreciating and understanding the culture and learning practices of a DOT. Sam McKeeman, the training coordinator for MaineDOT, has considerable insight on working in an engineering environment.[8] He utilizes the Learning Type Measure (LTM)[9] as a tool for crafting the department's training and leadership programs. The LTM helps identify the differences in the way people learn and how that affects communication. The LTM assumes that from a learning standpoint there are four basic classifications of people. The LTM measures learning types along two axes: the east-west axis measures preferences from "watching" to "doing," and the north-south axis measures learning from "experiencing" to "conceptualizing."

As McKeeman explains, most people have elements of all four quadrants, with one or two quadrants typically dominant. When given to many of the engineers and techs at MaineDOT, however, the vast majority had Quadrant 3 as their highest quadrant. Among these Q3s, their scores were described by McKeeman as "extremely high" and "unusual," as several scored in the 50s on a 15 – 60 scale, with any score over 46 considered to be dominant.[10]

So what does it mean to be Quadrant 3 dominant? Q3 characteristics as shared by McKeeman provide some insight: experiments; tests theories, steady, precise, patient with details, efficient, bossy, gets things moving, productive, impatient, interrupts, decisive, independent, dominating, strong willed, sees authority as necessary but will bypass it if forced.

In his brief handout "Being More Successful with Transportation Engineers and Technicians," McKeeman offers some good advice: understand that transportation engineers and technicians tend to be pragmatic, and value common sense. "They like making decisions, and value decisive people." Don't hold meetings that do not "get somewhere," i.e., to decisions. Be direct in communications and get right to the point, and if more detail is needed they will ask for it. They like straightforward people with no hidden agendas.

Within RDOs, typically, many of the staff fall into the job descriptions of planning and economic development professionals. According to McKeeman, planners generally tend to fit into Quadrant 2.[11] Characteristics include: deductive, likes order, logical, impersonal decision maker, must be treated fairly, moralistic, poor with deadlines, accurate, tends to be overly critical, indecisive, serious, orderly, persistent, likes tradition, chain of command authority.

So, where do economic developers fit into this picture? No information was available, but this author, as a veteran economic developer, took the test and landed squarely in Q4. Characteristics: compares theory and experimental results, evaluates, reaches quick conclusions, risk taker, likes change, questions things, brings "different" point of view, manipulative, dramatic, enthusiastic, ambitious, challenge complacency, undisciplined, tends to disregard authority. Of course this should not be taken for a proxy for others, but you may recognize a few of these tendencies in some economic development practitioners you have worked with.

To summarize: Engineers are from Mars, planners are from Venus, and economic developers are from worlds unknown.

TAKEAWAY #7

Understand the role of communications and how it fits into delivering projects and services.

Communications is more than just "public relations." It's the industrial lubricant that keeps the DOT gears from grinding, and it's never been more essential than in this age of transparency, accelerated delivery, context sensitive solutions, and social media. RDOs have a street-level understanding of their regions, know the politics and flashpoints, and can be of valuable assistance to a DOT in navigating these waters, and advancing projects in their regions.

TAKEAWAY #8

Appreciate and respect the DOT culture.

Engineering is among the most respected professions in the world. Engineers tend to have considerable credibility with the public, as well as elected officials, particularly when it comes to matters of safety, so they are a good ally to have in your corner. As guardians of public safety they take this responsibility very seriously, and don't change course lightly. They can tend to be conservative, skeptical, and direct at times. Don't take it personally.

1.4 The Transportation System—The Quiet Giant

Few people would dispute that a state's transportation system has a huge impact on its economy, and it can in fact affect people and businesses in other states and nations if transportation bottlenecks in a state are affecting their ability to get to market or do business. While this connection is intuitive, infrastructure is largely taken for granted. That's just human nature, as it is hard to remember a world without the Interstate, for example, even though the oldest portions just turned 50 years old. Even recent transportation improvements tend to quickly melt into the landscape and just become another part of our daily lives.

It's what MaineDOT Deputy Commissioner Bruce Van Note coined as the "furnace in the basement" syndrome: you don't think about your furnace very much, until it's not working, then it's of the highest priority. Our transportation assets are much the same way. When a bridge is posted or closed, when system conditions spawn unnecessary damage to vehicles (about $282 a year per driver in Maine),[12] or growing congestion brings traffic to a crawl, the consequences become all too tangible. Consider that the marginal cost of each hour's delay of trucking alone is $59.00, according to a recent analysis conducted by the American Transportation Research Institute. Multiply the hours of delay by their number of trucks on a daily basis and the economic impact can be major.

It is difficult to grasp just how expansive a state transportation system truly is, even for a small state like Maine. The following data, provided by MaineDOT,[13] lays out the system "by the numbers." We begin with the state highway system, the backbone of the Maine economy. MaineDOT has responsibility for approximately 8,887 centerline miles of highway, representing about 39 percent of Maine's total road system, with the balance being predominantly local roads, and to a much lesser extent the Maine Turnpike and roads managed by other state and federal agencies (e.g., parks and conservation). MaineDOT highways, however, carry nearly 80 percent of vehicle miles of travel (VMT) in Maine. Overall, the road system in Maine carries about 85 percent of Maine's freight, thus critical to its economy.

However, the dominance of the highway system should not minimize the extensive infrastructure and transportation services represented by other modes, which play a very significant role in their own right. MaineDOT owns about 553 miles of rail corridor, including the recently acquired 233 miles of abandoned rail in Aroostook County, which has been leased back into the hands of a private operator and is in the process of being upgraded; operates the Maine State Ferry Service, which carried over 483,000 passengers in 2009, and maintains the associated facilities including transfer bridges, terminals and crew quarters; owns 437 buses and vans which are leased to various service providers around the state; owns the Maine State Airport in Augusta which it leases to the City of Augusta; and provides capital and operating assistance to communities and other transportation organizations over several service modes.

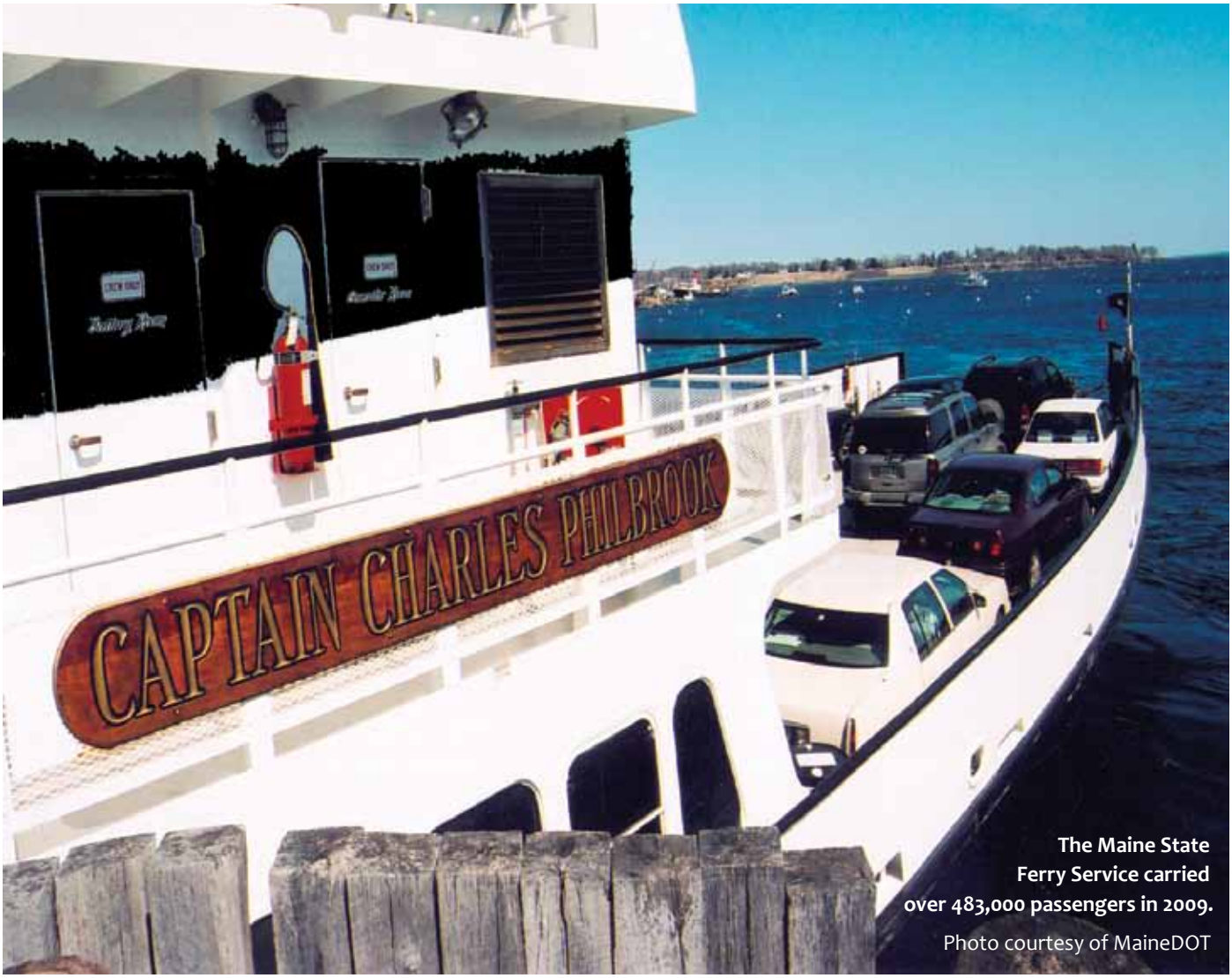
Moving forward, the department plans to invest $764 million in capital improvements over the next two years, including all modes of transportation. The highway and bridge system rep-

MaineDOT uses approx. 110,000 tons of salt each winter season.
Photo courtesy of MaineDOT

resents the vast majority of capital expenditures, $688.7 million, or about 90 percent of the capital budget. This largely reflects the dependence of a rural state on its highway system, plus the availability of dedicated funding for roads and bridges from the state and federal levels. Maintenance of the transportation system is almost exclusively a state responsibility, and the care and feeding of a system anchored by over 8,700 miles of roadway is big job, particularly with a population base of only about 1.3 million people to support it. For the last biennial budget for FY2010 – 2011, MaineDOT budgeted approximately $272 million for maintenance and operations.

Other modes receive substantial investment as well, however. The department has programmed $75.9 million in capital this biennium for multi-modal projects including aviation, industrial rail access, small harbors, transit, and bike and pedestrian facilities. The program also includes $46.4 million in multi-modal operational funding, including support for the Downeaster Amtrak passenger rail service, Maine State Ferry Service, Maine State Airport, and bus transit operators.

Not surprisingly, the vast majority of capital and maintenance expenditures by the department are on the road system, with funds generated from the constitutionally protected state highway fund which is supported by state gas and diesel taxes, as well as other fees. To address other needs, MaineDOT also has a multi-modal enterprise fund to help assist with the multi-modal operating and capital needs cited above. The STAR account (State Transit, Aviation and Rail) will generate an estimated $14.3 million in the current biennium,[14] including funds generated from aviation- and rail-related fuel and excise taxes, as well as revenues from the car rental sales tax. It should also be noted that the department also contributes approximately $7 million a year of its federal Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds along with state match from the STAR account to support the Downeaster passenger rail service, which is included in the $46 million listed above.



The Maine State Ferry Service carried over 483,000 passengers in 2009.

Photo courtesy of MaineDOT

As noted in the introduction, just the ongoing investment in the system alone has a sizeable economic impact. In addition to the 2,100 people who work at MaineDOT, the department supports about 10,500 direct and indirect jobs a year as well. In addition to the jobs focus of the American Recovery and Reinvestment Act (ARRA), the Maine Legislature has also focused on job creation in terms of recent general obligation bonding packages. Construction and related jobs are real, immediate and relatively easy to quantify, based on FHWA-sponsored research that supports an estimated 28 direct and indirect jobs for every $1 million in federal funds invested in road and bridge projects.

By contrast, the ongoing economic benefits from transportation investments and services are certainly significant as well, but often more difficult to quantify, as well as relate. As part of *Connecting Maine*, the University of Southern Maine conducted a study entitled *Changes in the Maine Economy from Strategic Investments in the Transportation System*. The study concluded that for every $1.00 invested in the strategic investments outlined in *Connecting Maine*, the Gross State Product would increase by $3.65 over the 20-year period (all dollars in present value). While such macro figures are useful in conveying the overall economic rates of return on transportation investments, moving public policy makers and the public sometimes requires a micro-level approach that policy makers can relate to the needs of everyday people. The Downeaster passenger rail service (see profile), which enjoys an excellent reputation in rail circles not only in the northeast corridor but nationally as well, provides a good case study in marketing transportation services and effectively connecting with the public.

TAKEAWAY #9

Tell your story in a way that connects with people.

The world of transportation can be particularly dry, with lots of technical language, and often too much focus on the assets, rather than the customers who use these services. Relating transportation projects and initiatives to everyday lives is essential to connecting on this personal and emotional level, as people need to know how these investments will help put bread on the table or make their lives better. Given their broad-based perspective, RDOs are in a good position to help tell that story, and draw linkages between transportation priorities and regional economic development.

Above photos: August 2010 groundbreaking celebration in Brunswick, Maine as construction gets underway for the expansion of Downeaster passenger rail service from Portland to Brunswick—first passenger rail project in the country to get in the ground under the American Recovery and Reinvestment Act. Photos courtesy of Northern New England Passenger Rail Authority.

Profile: The Downeaster

One organization that has done a good job of telling its story is the Maine-based Northern New England Passenger Rail Authority (NNEPRA), created by the Maine Legislature in 1995 to oversee the Downeaster passenger rail service between Portland and Boston. Of course, it all starts with having a good story to tell, and NNEPRA has it. The Downeaster commenced operations in 2002, and after a decent opening year experienced declining ridership in 2003, bringing into question the future of the service. In response, MaineDOT worked with NNEPRA and other stakeholders including the Portland Area Comprehensive Transportation System (the area's MPO) to develop a business plan and investment strategy to increase ridership and set the stage for expansion. Approximately $6 million was subsequently invested in the corridor by the Maine and New Hampshire DOTs to improve trip time and help accommodate an additional round trip to Boston. As a result of these investments and a focused marketing effort, the service did turn around, and by 2006 the Downeaster was indeed the fastest growing segment in the entire Amtrak national system.[15] Ridership topped 500,000 last year, more than double the ridership in 2005.[16]

With the core service now on a solid footing, NNEPRA proceeded to lay the further groundwork for continued support for the existing service plus the long-promised expansion to Brunswick, about 30 miles up the Maine coast. NNEPRA did its homework, and contracted with the Center for Neighborhood Technology to conduct a study on the relationship between the Downeaster service and transit-oriented development (TOD). The research, published in 2008, concluded that $3.3 billion in TOD is projected in the existing Maine service corridor by 2030, with 8,149 new jobs and $54 million in annual tax revenues. NNEPRA also effectively connected with in excess of $100 million in new private development that has emerged since the service began, including investments associated with the Portland to Brunswick service expansion that is currently under construction, where development has taken place in anticipation of the new service. These include a mixed-use development in Brunswick known as Maine Street Station and transit-oriented developments in the tourist mecca of Freeport, home of L.L. Bean. These are linkages that people can clearly see and value.

In a recent profile of NNEPRA Executive Director Patricia Quinn, *Mainebiz* magazine noted NNEPRA's reputation for "smart marketing and effective quantification of economic impacts on station communities" has helped secure federal funding. This includes $35 million in federal funds in 2010 to support the Brunswick expansion, the first project in the country to put "steel in the ground" under the High Speed Passenger Rail program, as well as an additional $20.8 million this past year for other improvements over the Downeaster system.[17] Further, the Maine Legislature also stepped up in 2008 and dedicated 50 percent of the proceeds from the state's car rental tax to provide resources to match and leverage federal funds to make Brunswick a reality. In the final analysis, having a good story is not always enough. The story must be told in a way that connects with the public and decision makers in order to generate the support and resources needed to succeed.

1.5 The State-Federal Partnership

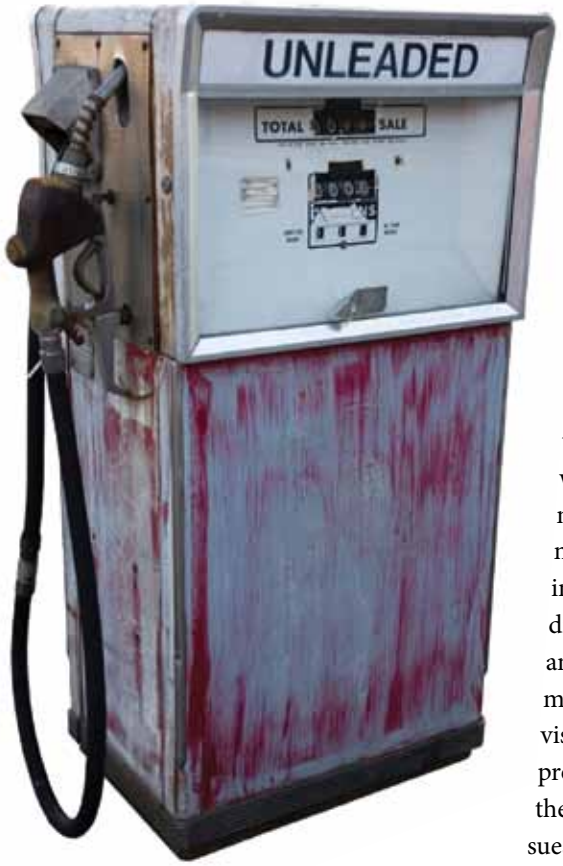
Q.) When was the last time the gas tax was raised?

A.) 1993. It has remained at 18.4 cents since then.[18]

One cannot understand a state DOT without an appreciation for the long-standing partnership between the states and the federal government and their respective roles. Federal aid for state highways has a long history and goes all the way back to the Federal Aid Road Act of 1916.[19] The partnership reached new heights with the passage of the Federal-Aid Highway Act of 1956, also known as the National Interstate and Defense Highways Act, which put into motion President Eisenhower's vision of a national interstate system.[20]

The 1956 act also created the Highway Trust Fund (HTF) as the vehicle to fund this ambitious building program. Today, the federal surface transportation programs (highway and transit) are financed mostly by this dedicated trust fund. The HTF derives its revenues primarily from taxes on the sale of motor fuels. According to the Congressional Budget Office (CBO),[21] an estimated 65 percent of the 2011 revenues credited to the HTF are coming from the gasoline tax, with 24 percent generated from the diesel tax, for a combined 89 percent of overall revenues. The health of the HTF, therefore, is closely tied to the consumption of motor fuels. For many years this was a stable source of funding for supporting the highway and transit programs. But rising and volatile fuel prices in recent years have bent the curve in terms of vehicle miles traveled, and pushed up efforts to achieve greater fuel economy, trends that do not bode well for motor fuel tax as a sustainable and predictable source of funding.

The MaineDOT works with several administrative units that are under the umbrella U.S. Department of Transportation. For the biennial budget period fiscal years 2012 – 2013, MaineDOT has programmed a total capital work plan of $764.6 million, of which $436.2 million is projected in federal funds, including projects and related funds carried forward from the previous work plan, as well as new federal funds forecast to be brought in over this period. The vast majority of these federal funds come through the Federal Highway Administration (FHWA, $379.4 million), followed by the Federal Aviation Administration ($49.9 million for local aviation projects), and the Federal Transit Administration (FTA, $6.9 million for transit). MaineDOT also works closely with the Federal Rail Administration (FRA), and Maine has received significant funding for passenger and freight rail projects over the past two years.



The numerous compliance requirements that follow these federal programs along with the categorical nature of the funds aren't always understood by the public and at the community level. For example, MaineDOT has been criticized at times by some members of the public and elected officials for its spending priorities related to bus purchases and trail construction, as those opposed feel that the money should be spent on fixing potholes and road work. These federal funds are not fungible and can't be spent as a state or community might desire. Federal requirements may also add costs to a project that wouldn't necessarily be incurred under a state or local standard, possibly raising some eyebrows as well. Likewise, Congressional earmarks can also be misunderstood by the local beneficiaries of these funds, who may approach them without a full appreciation of the numerous rules and regulations that must be satisfied. Unless Congress instructs otherwise, earmarks are no different than other federal funding and they must meet eligibility requirements for use of funds and other provisions of Title 23. Local advocates for projects will be well served to seek out their DOT in advance to clarify such issues and avoid disappointment.[22]

The mechanics of federal highway and transit funding are quite complicated, and beyond the scope of this report. It is useful, however, to have a general understanding of how the money flows down from Washington. The use of funds from the HTF is governed by authorization acts that are typically multi-year (5 – 6 years), which provide contract authority for various highway and transit programs. The most recent authorization, SAFETEA-LU includes around 100 various surface transportation programs, with guaranteed overall funding of ap-

proximately $244.1 billion for highway and transit.[23] The act expired in 2009 but has continued to live on through short-term extensions.

There is much at stake within these authorization bills for transportation interests, as the formulas and how they are constructed determine a large portion of the total pie. According to the Congressional Budget Office, about 80 percent of federal highway funding is granted to state governments under these allocation formulas for construction and rehabilitation of highway infrastructure and related areas such as safety programs (thus the importance of the funding formulas established under the authorization bills). The other 20 percent goes to projects or programs determined by Congress or the U.S. Secretary of Transportation.[24]

As of late, the trend appears to be toward competitive programs. In Maine's case, the state has been quite successful in securing these grants, having received two Transportation Investment Generating Economic Recovery Discretionary Grants (TIGER grants) from USDOT totaling approximately $24.5 million, including $14 million to support improvements at Maine's three major port facilities, and $10.5 million to upgrade 233 miles of freight rail in Aroostook County on track purchased out of abandonment by the state, and being leased out to a new private operator (see Sec. 3.5). MaineDOT received a $20 million TIGER grant in partnership with New Hampshire DOT, for the construction of a replacement bridge between the two states. Maine was also awarded a $35 million grant from the Federal Rail Administration under the High Speed Passenger Rail program for the extension of the Downeaster passenger rail service from Portland to Brunswick (see The Downeaster Story).

In all of these cases, the programs were hypercompetitive and oversubscribed many times over. If a municipality or RDO is pursuing these or similar competitive grants, it is suggested that applicants target carefully, start early, and be well prepared in their arguments, and it is always important to have the support of the state DOT. In fact, having the DOT as the applicant or co-applicant in some cases is even better. For example, the City of Portland decided to include its port project as part of a MaineDOT-sponsored three-port strategy, rather than submitting a TIGER application on its own in combination with other city transportation needs. With only 2 – 3 percent of requests under TIGER being funded in that first round, this kind of partnership and strategic targeting most likely made the difference. And, of course, another important relationship in seeking federal assistance is with your members of Congress. Maine enjoys a strong working relationship with its delegation, combining

Port of Eastport photo by Russ Selwood.

the delegation's Washington knowledge with MaineDOT's understanding of Maine transportation issues.

On the formula side, most federal highway funds distributed through FHWA are restricted to highway-related purposes, although some flexibility does exist. Under SAFETEA-LU, the core highway programs include the Interstate Maintenance Program (IM), National Highway System (NHS), Surface Transportation Program (STP), Highway Bridge Replacement and Rehabilitation Program (HBRRP), and Congestion Mitigation and Air Quality Improvement Program (CMAQ).[25] There is some flexibility in the use of these funds, as well as the ability to transfer funds among programs. For example, MaineDOT transfers much of its CMAQ funds to FTA in order to provide operating funds for the Downeaster rail service. MaineDOT has also in the past used CMAQ funds to support freight intermodal facilities, such as the Port of Auburn. STP funds also include a set-aside for Transportation Enhancements, which have been used to a large extent to fund bike and pedestrian facilities in Maine.

Also central to the federal-state relationship is the American Association of State Highway and Transportation Organizations (AASHTO). AASHTO comprises the 50 state DOTs plus the District of Columbia and Puerto Rico, and its decision making body, the Board of Directors, consists of the CEOs of these entities. As such, AASHTO is in effect the central vehicle for this partnership. Not only does the board deal with a range of policy issues and advocacy, but it engages on issues on a technical level as well. AASHTO's Standing Committee on Highways (SCOH), which usually comprises the chief engineers of the member states, develops policies, guidelines, and standards that are recognized by member states, as well as many countries around the world, and are generally required by FHWA. AASHTO is also a wealth of information on transportation issues across all modes, and its extensive committee structure brings in state practitioners from across the country to share ideas and best practices.[26]

I-295, prior to rehabilation project.
Photo courtesy of MaineDOT

TAKEAWAY #10

The transportation silos go all the way to Washington.

States are generally free under the formula programs to determine individual projects and priorities for funding, subject to meeting program and compliance requirements. However, much of the policy regarding eligibility and how funds can be used is set by Congress and by federal administrative rules.

TAKEAWAY #11

Work closely with your state DOT on federal transportation issues.

The rules and regulations that accompany federal transportation funding can be complex, to say the least. Local and regional interests should work with their DOTs when advocating for federal transportation funds, as federal compliance is a big part of the day-to-day life of a state DOT, and it is not easily learned or replicated at a local or regional level. Avoid stranding funds or local disappointment because a project can't be delivered as originally conceived.

TAKEAWAY #12

Take advantage of the 50+ living laboratories that comprise the national system.

Innovation in transportation is occurring on a daily basis all across the country, and learning from other states represents a marvelous opportunity to unearth new approaches and techniques for dealing with similar problems and opportunities, at the state, regional, and local levels. The AASHTO website is a good place to start, as well as groups such as the Transportation Research Board, part of the National Academies.

1.6 Forces Shaping Transportation Policy

There are forces at play in the world of public transportation that are transforming the industry in ways that haven't been seen in many decades. These include the necessity for new funding paradigms to replace outdated models that in some cases go back well over 50 years, the evolving role of our national transportation system in a globalizing world, and a push for new and innovative methods to deliver transportation projects "cheaper, faster, better," and meet the expectations of an ever more engaged and demanding public. For RDOs, RPOs, MPOs, and municipalities, understanding these trends is important to an effective working relationship with your DOT, as well as promoting transportation investments within your region in this time of change.

The world of a DOT is constantly influenced by forces at the global, national, and local levels. For example, China's investment in its new national highway system has certainly contributed to construction inflation in the U.S. over the past decade, as we now compete with developing nations for steel and other commodities needed to maintain our own infrastructure. At the national level, we saw a major spike in the price of asphalt as a result of the 2005 hurricane season and its impacts on the petroleum industry, which certainly revealed our national vulnerabilities related to energy supplies. Consequently, MaineDOT reported in 2010 that its construction costs had increased by a troubling 60 percent over the previous five years, further contributing to the challenge of maintaining an aging system.[27] At the local level, the internet and social media has brought the public into the process in a way that is "up close and personal." As one senior MaineDOT engineer used to remark, all it takes is "one angry man with a laptop" to significantly impede forward progress.

"...all it takes is 'one angry man with a laptop' to significantly impede forward progress."

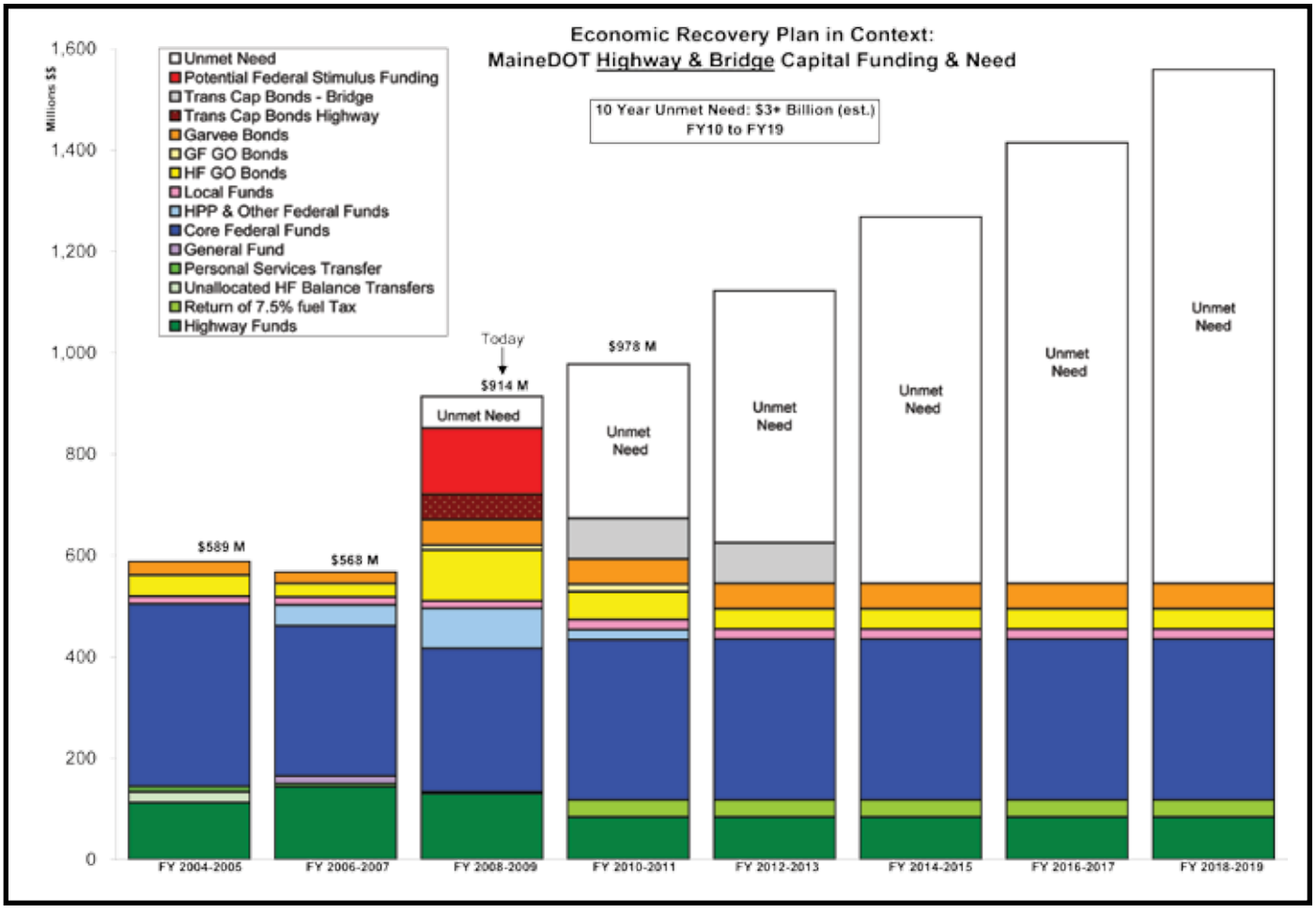
Photo courtesy of MaineDOT

The Future of Transportation Funding

This is, of course, is on everyone's mind in the industry, with SAFETEA-LU expired and operating on short-term extensions. This reauthorization discussion is different from others in recent times, however, given the condition of the Highway Trust Fund. The debate in the past was more focused on transportation policy, setting program priorities, and determining funding levels to each state based on formula and designation of Congressional High Priority Projects. It was about splitting up the pie.

This time is different. Just to maintain existing levels of funding has required significant transfers from the General Fund, and the trend lines do not look favorable. Given the national fiscal and economic picture, it is probably not the best time to be competing for general funds or trying to raise new revenue. The path forward could take many directions, including more reliance on private-public partnerships and user fees, to the establishment of a national infrastructure bank. Rather than speculate on where this story ends, it is probably safe to assume that DOTs will be living under fiscal constraint and uncertainty for the foreseeable future, and should continue to plan accordingly.

To give some state perspective, the following chart is provided from Maine's 2010 long-range plan, *Connecting Maine*. The chart illustrates the long-term funding gap that exists, in terms of historic funding versus needs identified in the long-range plan. The area in white depicts over $3 billion in unmet need over the ten-year period from FY2010 – FY2019. The other interesting takeaway from this chart is the impact of American Recovery and Reinvestment Act (ARRA) funding on the level of need as reflected by LRP. As a result of the infusion of ARRA funding, along with unprecedented levels of state bonding, Maine came close to meeting its projected needs during the FY2008 – 2009 biennium. However, this is the level of effort that is needed on a year-in, year-out basis in order to meet the strategic needs of the statewide system. For regional organizations, this may present opportunities to work with your DOT to structure public-public and public-private partnerships in order to better leverage limited transportation dollars, and potentially move your projects faster through the pipeline. MaineDOT entertained such partnerships in recent years, some of which are outlined in *Connecting Maine*.



Beyond borders: The effects of globalization on the transportation system

Calais-St.Stephen border crossing. First new crossing on the U.S.-Canadian border in over 30 years.
Photo courtesy of MaineDOT

If anyone believes that their corner of the planet isn't affected by shifting currents in the global economy, then they've probably missed the boat, and it's likely a container ship returning to China to bring back more foreign goods to the U.S. "Making stuff" in the U.S. is once again becoming a national priority, as President Obama has recently called for a "renaissance in manufacturing" in the U.S. as a means of creating jobs and competing in the global marketplace.[28] During his 2010 State of the Union address, the President set a goal of doubling exports in five years. In this author's opinion, the added emphasis on manufacturing, technology/productivity and global competiveness is essential to maintaining our standard of living in this country. It will also require addressing our transportation and logistics needs at all levels. The Germans, for example, export four times as much as the United States, on a per capita basis.[29] Part of the disparity is likely the role of small- and medium-sized businesses. While many major U.S. corporations compete well across the globe, small businesses in Europe and other parts of the world appear more accustomed to tapping into foreign markets than those in this country. With past rates of consumption in the U.S., there may have been less incentive for some small businesses in this country to look outside our boundaries, until now.

Trade is vital to a small state like Maine, which is surrounded by Canada and the Atlantic Ocean on three sides. Given its location at the tip of the northeastern U.S. and at the terminus of I-95, Maine has for years looked for ways to better access markets through improved east-west connections along the Northeast Border

Corridor, in order to lessen its reliance on the I-95 corridor to the south. To that end, Maine received a Congressional FHWA earmark to lead a comprehensive study of the transportation deficiencies and opportunities that could play a role in promoting economic development in this border region. The study region involved the states of New York, Vermont, New Hampshire, and Maine, and the Provinces of Ontario, Quebec, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland—truly an international effort. This study, released in 2009, was called "Northeast CanAm Connections: Integrating the Economy and Transportation," which lays the groundwork for ongoing collaboration among these states and provinces. In fact, the recently formed Northeast Border Regional Commission has adopted the CanAm study as its strategic transportation plan as it proceeds to address economic development issues along essentially the same footprint from the U.S. side of the border.

Photo courtesy of MaineDOT

While strategic partnerships are long-term endeavors, Maine has been successful with two project initiatives that support international opportunities. Both have required years of patience and perseverance. First is the new international border crossing that connects Calais, Maine with St. Stephen, New Brunswick. "New" is emphasized, as this is the first new crossing on the U.S.-Canadian border in over 30 years. This is a project that redefined the meaning of partnership, as no less than 56 federal, state, local, and Canadian agencies were involved in making this a reality. Discussed for decades, the new crossing opened in 2010, with well over $100 million invested in border protection and transportation facilities on both sides of the border. This infrastructure is vital to economic connections on the local, state-provincial, and national levels, as this is the eighth busiest crossing on the entire U.S.-Canadian border, and has seen a doubling of commercial traffic since the implementation of NAFTA.[30]

The second project involved the future of Sears Island, a 933-acre island located in Searsport, Maine. The island had been the focus of controversy for decades, with several uses proposed for the site, including nuclear power, liquefied natural gas, and a marine cargo terminal. From a transportation viewpoint, the island is a valuable deep-water asset, as it is undeveloped and shares an established shipping channel with the Mack Point terminal, an international cargo facility, located across the channel on the mainland. From a preservation perspective, the island was largely seen as an untouched gem that should be protected from development. Through a three-year process initiated by Governor Baldacci, who felt that Maine could have both a port and preservation, the two sides worked through the very difficult process of building trust and crafting a solution that represented the best interests of the people of Maine, as this is state property. In the end, approximately 330 acres were designated for marine development, which represents the portions of the island that have transportation potential, as well as some buffer area. The remaining 600 aces went into a conservation trust, permanently protecting it from future development. One tool that proved essential to crafting the deal was the creation of a federal environmental mitigation bank, which allows MaineDOT to get future credit for the value of the preservation and any enhancements. The Sears Island transportation parcel is now available for marine transportation purposes and will augment Mack Point as additional capacity is required, particularly around container shipping, wind energy, and other clean cargos.

Above photo: Port of Searsport, including Sears Island, across the channel. After decades of controversy, consensus agreement will allow for over 330 acres of marine development as well as significant preservation of the island.

Changing Ways of Doing Business

According to FHWA, the common perception is that it takes an average of 13 years to take a highway project from planning to completion.[28] This is likely a product of two factors. First is the time required to obtain permits and other necessary approvals on major projects, such as a Record of Decision under the National Environmental Policy Act (NEPA), or determination of the Least Environmentally Damaging Practicable Alternative (LEDPA) under the wetland rules of the Army Corp of Engineers. Public controversy just by itself can kill a project or hold it up for some time. Secondly, the use of the traditional "design-bid-build" project delivery process has been the staple of DOTs for many years, with its sequential approach to design and construction.[31]

The need to deliver projects in less time has led to the growing use of accelerated delivery methods in state transportation projects, in order to shorten the process. This is driven by several factors, including cost (time is money), reducing impacts on the traveling public (get in, get out, stay out), and more quickly realizing the benefits of an improved system (congestion relief, safety, mobility, etc.). For example, in 2007 Utah DOT replaced an Interstate 215 overpass over a single weekend, a project that would normally take at least four months (source: *Engineering News Record*). This was accomplished by "rolling" out the old segments, and rolling in new pre-fabricated segments, which of course required a great deal of planning and coordination to pull off this engineering and construction feat. This kind of innovation is now emerging around the country, and has become a national priority, as promoted by FHWA in its Every Day Counts initiative, which is aimed at shortening project delivery by mainstreaming innovative practices into the delivery system.

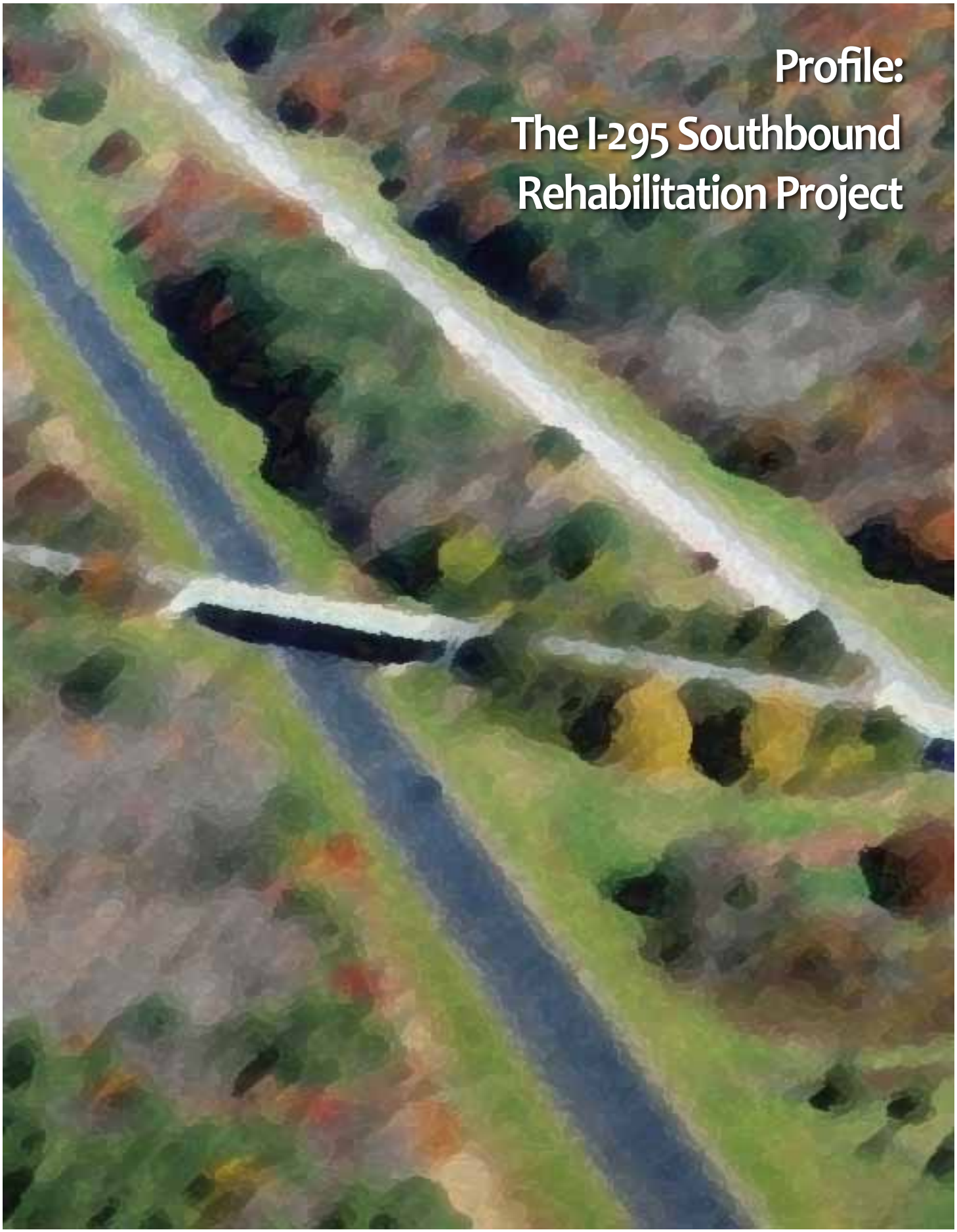
One method of accelerating delivery is design-build (DB) construction. As opposed to the more traditional design-bid-build system, design-build allows the owner (in this case a state DOT) to select a DB team earlier in the process, including both the designer and contractor, who assume the majority of the design work as well as the construction work. Most importantly, the designer and builder roll up their sleeves and work together on problem solving, rather than the more sequential and insular method of design-bid-build. FHWA is confident that with such methods DOTs can deliver projects in half the time, according to the FHWA website.

MaineDOT has been employing accelerated project delivery methods as well, including design-build construction on a number of major projects over the last decade. MaineDOT and its partners within the past seven years have been twice awarded FHWA's Teamwork Excellence award. In both cases, the success of the projects hinged on accelerated delivery schedules, and the teamwork, organization, communications, and local consensus-building needed to successfully push these complicated projects through to completion. These projects include the I-295 Southbound Rehabilitation Project (see profile), and the Penobscot Narrows Bridge and Observatory (see Sec. 3.1).

Another technique utilized by the MaineDOT to build local collaboration is context sensitive solutions (CSS). What is CSS? A description was provided by the Results of the Joint AASHTO/FHWA Context Sensitive Solutions Strategic Planning Process Summary Report, March 2007: *Context sensitive solutions (CSS) is a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.*

Why use CSS? Just as accelerated methods help speed up project delivery, CSS helps develop consensus on the front end of the process, as a state DOT is taking a project from concept to preferred alternative and through design. MaineDOT has been using CSS principles going back at least to the 1990s. The Maine Sensible Transportation Policy Act passed by the Maine voters in 1991 certainly included provisions related to stakeholder involvement and linkages between transportation and land use planning, consistent with CCS principles. In many cases, using these principles not only makes good business sense for the DOT in terms of resolving potential conflicts and moving projects forward, but is the right thing to do from a community standpoint as well.

The need for CSS methods and principles is best summed up by Joyce Taylor, MaineDOT Director of Project Development, who led the team that developed and carried out the bold and innovative plan for the I-295 Southbound Rehabilitation Project: "We all know time is money. The best way to manage a schedule is to embrace public participation early and then to keep listening. A 'project' needs to reflect what people want, or it won't stay on schedule."

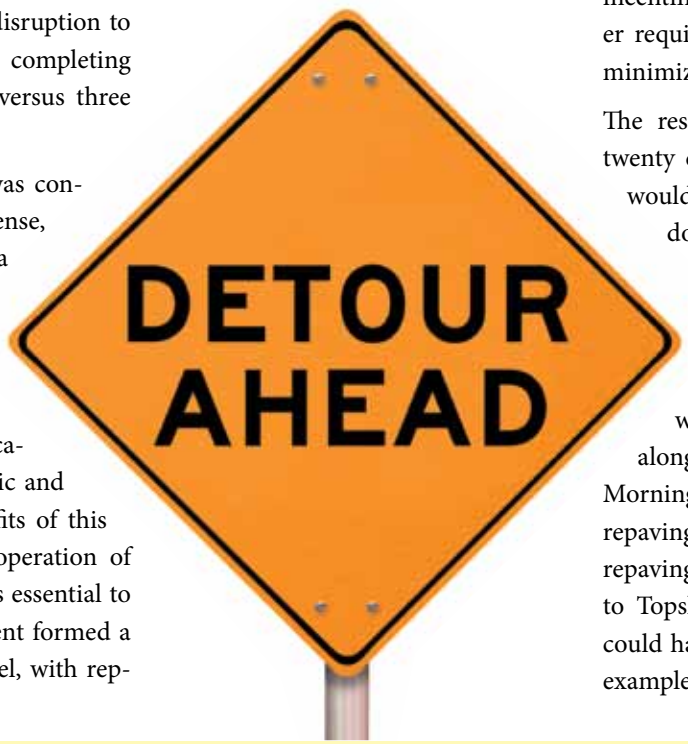


Profile: The I-295 Southbound Rehabilitation Project

The I-295 Southbound Rehabilitation Project, constructed in 2008, involved a bold strategy to close an 18-mile segment of the southbound lanes of the Interstate 295, which connects the state capitol to Maine's largest city, all during the height of Maine's tourist season. This portion of the Interstate consisted of about 8 – 9 inches of concrete that was crumbling due to a condition known as "alkali silica reaction" or ASR, which was accelerating the deterioration of the roadway. MaineDOT concluded that a full closure was the safest, most cost-effective way to rehabilitate this crumbling highway, utilizing Route 201 as the detour, which preceded the Interstate as the north-south connection. On paper, there were several advantages to this approach which would save time, money and disruption to the traveling public, based on completing the project in three months, versus three years by traditional means.

While the MaineDOT team was convinced that this strategy made sense, the idea was initially met with a decidedly negative reaction from the public, media, and elected officials. Undaunted, the MaineDOT proceeded with an aggressive communications plan to educate the public and key stakeholders on the benefits of this strategy and to enlist the cooperation of the traveling public, which was essential to making it work. The department formed a communications advisory panel, with representation from the effected communities, truckers, tourism, and merchants groups, and worked with major employers and the news media to get the word out, generating more than 200 articles and broadcast segments.[32]

"...it was an example of how to do things right."



MaineDOT also retained a communications firm and utilized paid media to keep the public up to date on travel conditions. A well thought-out traffic plan was essential and was developed in conjunction with emergency responders and town officials throughout the route, involving the strategic use of message boards, signage, and a roving MaineDOT vehicle for roadside assistance. Further, incentives and penalties were built into the construction contract, incenting timely completion, as well as other requirements of the contractor to help minimize disruption to the public.

The results? The project was completed twenty days ahead of schedule, and what would have taken three seasons was done in one summer, saving time and money and three long years of construction for residents and tourists alike. Most importantly, the detour was accomplished without a single crash reported along the 201 corridor. According to a Morning Sentinel editorial, entitled "I-295 repaving effort belied early fears": "The repaving of Interstate 295 from Gardiner to Topsham, formally finished last week, could have been a mess. Instead, it was an example of how to do things right."

TAKEAWAY #13

Time is money!

The growing focus on process innovation and accelerated delivery methods, as promoted by FHWA through its Every Day Counts initiative, offers an opportunity for an increased role for RDOs, given the need for ever greater public outreach, stakeholder engagement, consensus building and communication. The use of context sensitive solutions also offers opportunities to build community support and expedite projects, and regional organizations are often well positioned to help facilitate the process.

TAKEAWAY #14

Export Nation

Given national needs, including the current balance of payments with our global trading partners, there is likely to be ongoing emphasis on exporting, particularly among small- to medium-sized businesses that may be new to the game. This represents an opportunity for DOTs and economic development groups to join forces to help address the transportation and business needs of these small firms, toward the larger objective of revitalizing the American economy.

SEC. 2 MAINEDOT PLANNING PROCESS AND THE REGIONAL ROLE

2.1 MaineDOT Planning Process and its Challenges

MaineDOT utilizes two principle planning documents[33] to meet its needs as well as satisfy state and federal mandates. The Long-Range Plan (LRP) is Maine's integrated, multi-modal plan for the next 20 years, outlining the challenges and opportunities facing the state's transportation system. The LRP, which is generally updated about every five years, was last published in 2010 as *Connecting Maine: Planning Our Transportation Future*. Considerable time and effort went into the development of this 20-year plan, including unprecedented outreach to stakeholders and the public, and a three-pronged approach to better connecting transportation planning with economic development and land use planning.

The department also maintains a Mid-Range Plan (MRP), its overarching capital planning document that includes a fiscally constrained listing of projects designated for delivery in the next six years (three biennia). The priorities within the MRP are transferred to a two-year Biennial Capital Work Plan, which are then funded for construction. The MRP is a rolling process, as it is updated every two years to replace the projects that go into the production queue of the Biennial Work Plan. MaineDOT also prepares a federally required three-year Statewide Transportation Improvement Plan (STIP), which is derived from the MRP as well and is consistent and largely parallel with the Biennial Work Plan.[34]

Capital planning has become increasingly more difficult in light of the current environment of uncertainty. MaineDOT in recent years has adopted a dynamic approach to planning and capital programming in order to manage in a time of change, including swings in funding, decreasing buying power, and the growing problems associated with an aging infrastructure. Today's climate also necessitates the need for better prioritization tools as well, and for stretching dollars through innovation and partnership. Capital budgeting needs to be dynamic, in order to respond to this changing environment and opportunities as they arise.

Today, MaineDOT is constantly monitoring projects, pushing projects back if they are not ready to proceed, and pulling other projects forward to replace them in the pipeline. Likewise, initiatives such as ARRA, state-sponsored "jobs" programs, and competitive federal grant programs such as TIGER, have in recent times offered the opportunity for funding to those organizations with projects ready to go. All of this must be managed to maximize output and minimize idle funds, while having sufficient inventory on the shelf to respond to opportunities. It is also about ensuring that transportation investments are first and foremost customer driven, always remembering that it may be the DOT's road, but it's someone's community as well.

2.2 History of the Regional Role

Maine's regional planning and development organizations (EDDs and regional planning councils) have in recent years played a significant and expanding role as a partner in MaineDOT's transportation planning efforts. The roots of this partnership to a large extent go back to the passage of the Sensible Transportation Policy Act (STPA) by Maine voters in 1991 which ushered in a new and unparalleled era of public involvement and transparency in the formulation of state transportation policy. Prior to the STPA, the department operated in a fairly insular environment, at least by today's standards.[35]

As a result of this citizen's referendum, a Transportation Policy and Advisory Committee was named to work with the department to develop an STPA Rule to implement the will of the people, the highlight of which was the creation of a Regional Transportation Advisory Committee (RTAC) process to help ensure broad-based public participation. Seven RTAC Committees were formed to provide statewide coverage, comprising citizens representing diverse parties such as environmental, business, municipal, state, and economic development interests. The regional planning councils, under agreements with MaineDOT, provided administrative and staff support to the process. It should be noted that during this period the department also began the practice of forming ad hoc Public Advisory Committees (PACs) for major projects, in order to ensure public involvement on a project-by-project basis as well when warranted.

Shortly after the new administration came on board in 2003, the department undertook an internal strategic planning process to craft a mission, vision, goals, and strategies for supporting Governor Baldacci's vision for Maine, as well as a plan for addressing the emerging trends that were quickly changing the transportation landscape. Central to these discussions from the beginning was not only the need to focus on transportation and

efficiency issues, but on customer needs as well, and from a community and economic development perspective.

Through this process, it became clear that needs far exceeded available funds, and all the efficiency and creative funding efforts available wouldn't allow MaineDOT to meet public expectations. Further, the trends going forward pointed to a continued squeeze on resources, due to escalating costs and relatively flat revenues. The reality was that many projects that had been programmed were not being delivered as promised and were stacking up, affecting the department's credibility. Many of the larger, new capacity projects that had been in the planning bin for some time had little chance of obtaining funding in the foreseeable future, given the demands on keeping the existing system in repair, including an aging portfolio of bridges.

This "moose on the table" (i.e., elephant in the room), as it came to be known among the senior staff, necessitated a new approach to planning, capital programming and project delivery, recognizing the need for fiscal constraint, better priority setting, more efficiencies and innovation, as well as embracing a realistic capital program and delivering on these promises. It also called for getting out and educating the public on the needs, resources, and the structural funding deficit which was growing due to all these circumstances. That would require new levels of partnering with public and private groups and a lot of buy in from the wide range of stakeholder groups and communities affected by these investment decisions. While the RTAC process had served the state well for over a decade, it was time to take the process to a new level and build on this foundation.

2.3 Expanded Role for the Regional Planning and Development Organizations

The role of the Maine regional planning and development organizations (RDOs) in transportation planning was appreciably expanded in 2005, as a result of MaineDOT's objective to better integrate transportation planning with land use planning and economic development, as well as a more aggressive approach to priority setting. In Maine, most of the state is covered by regional agencies that have both the federal EDD designation and state recognition as regional planning councils, although there are occasions where these functions were not under the same roof. The department worked with the Maine Economic Development District Association (MEDDA) in 2004 to mark out a new partnering arrangement, which went into effect with the biennial work plan commencing in July 2005.

MEDDA comprises the CEOs of all the umbrella organizations that house Maine's EDDs, most of the regional planning councils in the state, and all four of Maine's Metropolitan Planning Organizations (MPOs). MEDDA has a long history of fostering cooperation among the state's regions on issues related to economic and community development, serving as a vehicle to partner with different state and federal agencies that need a statewide network with grassroots knowledge of the terrain and local issues. Under the new plan, all EDDs and RPCs would participate, as both functions were critical given the integrated approach. Cooperative agreements between agencies were expected in those regions where the RPC and EDD were not under the same roof, ensuring that all organizations would be at the table.

"EDDs could achieve a stronger and more integrated CEDS, and MaineDOT would receive greater input from the EDD boards, CEDS committees, and other organizational infrastructure, with the prospect of bringing a wider range of professionals to the table."

Under the prior RTAC model, the process was largely driven by the citizen committees, with support staff mostly confined to the planning section of the organizations. The support role was also limited by both funding and the nature of the RTAC process. Under the new EDD/RPC model, funding was increased—significantly in some cases, depending on the new allocation formula—and the regional organizations were expected to bring a more holistic approach to the process. There was a general consensus that the transportation section of the Comprehensive Economic Development Strategy (CEDS) was underdeveloped in many cases, so this was an opportunity for all parties to benefit. EDDs could achieve a stronger and more integrated CEDS, and MaineDOT would receive greater input from the EDD boards, CEDS committees, and other organizational infrastructure, with the prospect of bringing a wider range of professionals to the table.[36]

As Bob Thompson, executive director of Androscoggin Valley Council of Governments (AVCOG), notes about the process: "This brings transportation into economic development, and economic development into transportation, because the process MaineDOT started with us is now fully incorporated into our annual update process." Thompson also notes that the MaineDOT challenged the leadership of the EDDs as well, and called for real and practical prioritization, not an easy task for an organization such as AVCOG with 56 towns, or any of its counterparts around the state.

2.4 The Process: RTAs, CRESTs, and MMCMPs

With a new partnership in place, MaineDOT proceeded in 2005 on the development of its Long Range Plan (LRP), *Connecting Maine*, and involved the RDOs at several key points in the process. *Connecting Maine* was developed in draft between 2005 and 2008, and published in its final form in 2010, with funding provided by FHWA and FTA. The high level of involvement of the six EDDs and 11 RPCs represented a marked change in developing the LRP. While the RDOs played a leading role, MaineDOT also worked through Maine's four MPOs (see Sec. 2.6), the Maine Turnpike, three Indian Tribal Governments, and consultants including the University of Maine, the University of Southern Maine, and Maine Development Foundation.

The first assignment for the regional planning councils in 2005 was to conduct Regional Transportation Assessments (RTAs) to determine where and how transportation investments could support regional economic development opportunities within the boundaries of Maine's six federally designated economic development districts. The regional planning councils engaged the public and stakeholder groups on transportation, economic development and land use priorities in each respective region. Based on the input gained from the public outreach and data analysis conducted by these groups, Corridors of Regional Economic Significance for Transportation (CRESTs) were identified and prioritized to help guide future transportation investments. In all, 38 CRESTs were identified statewide within the six EDD boundaries. The Regional Transportation Assessments also identified transportation, economic development and land use goals for each of these multi-modal corridors, which will provide guidance to state and federal officials as they consider future allocations of funds (see Acadia Express for an example of a CREST and related goals and investment strategies).[37]

The updated planning process also recognized that priority setting was crucial, given the reality that available funding was not likely to meet transportation needs any time in the foreseeable future. Indeed, Maine faces a projected capital funding gap of approximately $3.2 billion over the next ten years alone. Accordingly, in 2006, the regional planning councils were tasked with identifying the priority policy issues, planning initiatives, and capital investments needed to help meet the transportation, economic, and land use goals associated with each CREST identified in the Regional Transportation Assessments. This involved additional public input and careful consideration, as such priorities have the potential for shaping investment decisions well into the future.

The most recent step in the process is to take the full prioritization process down to the corridor level. In late 2007, AVCOG, in conjunction with the other RPCs, developed a Multi-Modal Corridor Management Plan (MMCMP) Guide to set the framework for the development of Corridor Management Plans for each of Maine's 38 CREST corridors. Corridor Management Plans are now being developed for each CREST corridor by an advisory committee consisting of representatives from MaineDOT, RPCs, as well as the affected municipalities and others involved with transportation, land use, and economic development. These Corridor Management Plans will include detailed, prioritized action plans with realistic and achievable schedules. The guide lays out potential action items that may be appropriate for MMCMPs, including, for example, municipal zoning actions to help preserve public transportation, context sensitive solutions, and quality of place considerations.

2.5 A CREST Profile: The Acadia Express

A good example of a Corridor of Regional Economic Significance for Transportation (CREST) which encompasses the objectives of an integrated, multi-modal approach to transportation planning is the Acadia Express, which connects the Bangor area with the Bar Harbor region via U.S. Route 1A and State Route 3. This corridor carries millions of visitors to Acadia National Park and handles significant commuter, local, and commercial traffic as well, as the major transportation artery within Hancock County.[38] Bar Harbor is also the home of Jackson Laboratory, a world-renowned biomedical research facility of over 1,200 people[39] that draws employees from the Bangor area and beyond. Hancock County is also among the fastest growing counties in the region.

Understandably, this corridor is a high priority in terms of managing local growth, tourism, and commuter traffic while sustaining a vital connection to precious economic assets such as Acadia National Park and Jackson Lab. Accordingly, the Acadia Express was the Number Two priority within the six-county Eastern Maine Development Corporation EDD region, second in priority only to Midcoast Route 1,[40] which was part of the Gateway 1 project that served as the statewide template for CREST corridor development.

In the development of the Acadia Express CREST designation in 2005, Eastern Maine Development Corporation and Hancock County Planning Commission worked together to establish transportation, land use, and economic development objectives for this corridor. The final product was a truly multi-modal approach to balancing the various roles of this critical

transportation corridor. As outlined in *Connecting Maine*, the objectives of the corridor include: reduce congestion delays on Routes 1A and 3; construct additional bike paths and sidewalks in Ellsworth, Trenton, and Bar Harbor; construct additional passing lanes in North Ellsworth; promote car-free tourism with expanded bus, ferry, and bicycle infrastructure; consider extending the Acadia Scenic Byway further into Trenton with intermodal planning.[41]

As noted above, in 2006 the Regional Planning Councils were tasked with identifying policy issues, planning initiatives, and priority capital investments to meet the objectives for each designated CREST. In the case of the Acadia Express, the priority planning initiative was a feasibility study for a "Strategic Transportation and Recreational (STAR) Intermodal Center" in Ellsworth. This effort from a recreational perspective builds on recent successful efforts to re-utilize the abandoned and state-owned Calais Branch Railroad that traverses the region, for purposes of an 85-mile multi-use trail and a 24-mile round-trip scenic excursion railroad. The feasibility study, which is now in draft form, looks at strategically connecting these recreation and cultural assets along with other area transit services.[42]

On the capital side, completing the highway reconstruction of approximately eight miles of U.S. Route 1A from North Ellsworth to Ellsworth Center was the highest priority, which would bring the entire U.S. 1A portion of the corridor from Holden to Ellsworth up to a modern standard. With the Acadia Express CREST ranked as a high priority corridor within the EDD, and the U.S. Route 1A project as the highest capital priority within this corridor, having this project in the pipeline was about to pay dividends. In 2008, the Maine Legislature approved a $50 million state bond specifically dedicated to road reconstruction and the related job creation. Shortly thereafter in 2009, the federal government passed its own jobs initiative, the American Recovery and Reinvestment Act. Between the two funding sources, MaineDOT was able to carve the project up into two segments, one funded by ARRA and the other with state bond funds, at a total cost of about $18 million.[43] The priority status of this corridor and specific road project certainly played a role in the decision to fund this eight-mile segment, as the demand for both pots of money was high.

The second investment priority for the Acadia Express was launching the first phase of construction of the Acadia Gateway Center, as well as continuing the planning and design of future phases. Once completed, the center will serve as a visitor center for Acadia National Park, a transportation hub for public transportation, and a bus maintenance and administrative facility for Downeast Transportation, Inc., the operator of the Island Explorer bus system. The goal is to reduce congestion in the park and on Route 3 by providing access to parking, public transportation and visitor information for travelers prior to arrival on Mount Desert Island, the home of Acadia National Park and Bar Harbor region. The partners include FTA, National Park Service, MaineDOT, Downeast Transportation, Town of Trenton, FHWA, and the Friends of Acadia, who raised the necessary funds to buy a 369-acre lot that will accommodate the center, and other complementary activities. The first phase is now underway, which includes the bus maintenance facilities and a park and ride lot for the public, at cost of approximately $14 million.[44]

2.6 The MPOs as Partners in the MaineDOT Capital Program

Within the borders of Maine are four federally designated Metropolitan Planning Organizations (MPOs). All are embedded within larger regional organizations that have a range of responsibilities and designations including as EDA economic development districts and in most cases regional planning councils. None of the MPOs are classified by the federal government as Transportation Management Areas (TMAs, large MPOs serving populations over 200,000), with defined capital allocations from the U.S. DOT, and can be best described as small metropolitan areas. While administratively situated within larger organizations, all have their own governing boards comprised of municipal representatives and other interested parties, which set priorities and establish work plans.

What appears to be at least somewhat unique is Maine's longstanding practice of providing its MPOs with capital allocations in addition to the planning responsibilities required by federal statute. According to MaineDOT officials, this practice goes back until at least the 1990s if not longer. For many years, the department provided a flat allocation of $12.5 million per year that was distributed among the four MPOs based on a formula allocation. In 2003, the MaineDOT reviewed this practice, to determine if it should be discontinued and have MPO projects prioritized for funding along with all other Maine communities; keep the status quo; or increase MPO allocations to a "fair share" formula that would mirror funding received by MaineDOT from FHWA.[45]

In the end, it was decided to go with an allocation model for MPOs that mirrored how the federal government distributes funds to states, specifically related to three core programs: National Highway System (NHS), Surface Transportation Program (STP), and Minimum Guarantee (now called Equity Bonus under SAFETEA-LU). MaineDOT adopted the same rationale as the federal government, utilizing a weighted combination of lane miles, vehicle miles traveled, and population.

As a result, federal funding to the MPOs through MaineDOT increased to approximately $17.7 million in the FY2006 – 2007 Biennial Capital Work Plan, an immediate increase of 41 percent above previous funding levels. Of greater benefit, however, has been the cumulative impact of effectively indexing the MPO share to the fortunes of MaineDOT as a whole, as the MPO federal share for the FY2010 – 2011 Biennial Capital Work Plan was $19.8 million, a 58 percent increase over the original levels.[46]

MaineDOT could elect to allocate project capital on its own, but the relationship has worked well, with the MPOs acting in both planning and stewardship roles. That's not to say that the relationship on both ends hasn't required a good deal of work and communication over the years, but it does keep the organizations close, and it pays other dividends as well. The MPOs, along with their host organizations, played an important role in shaping *Connecting Maine*, and they continue to provide a constant feedback loop on urban issues in the state. From an MPO perspective, as Neal Allen, executive director of Greater Portland Council of Governments, observes: "We enjoy tremendous participation in the MPO planning process, in large part because of our strong and collaborative partnership with MaineDOT. Funding formula changes in combination with MaineDOT's policy of empowering the MPO to make the decisions on where and how funds will be used in our region brings everyone to the table for substantive policy dialogue and decision-making."

TAKEAWAY #15

Setting real priorities can pay real dividends:

There is no question that it's difficult to set detailed priorities at a state or regional level, as you run the risk of unhappy legislators or local officials. In this time of fiscal limits, however, that is just what needs to be done, as local officials need to know where they stand so they can plan and know what to expect on their level. The Maine RPCs have been able to prioritize the transportation corridors within their regions, as well as top investment priorities, and are now in the process of developing individualized corridor management plans for each CREST with detailed priorities. It can be done!

TAKEAWAY #16

Show Me the Money!

Just as employee stock ownership programs give workers a sense of ownership in a business, giving the Maine MPOs a seat at the capital table has also served as a means of forging stronger partnerships with these metropolitan areas within the state, as they are involved in not only the planning end of the process, but balancing the checkbook as well.

SEC. 3 TRANSPORTATION AND ECONOMIC DEVELOPMENT LINKAGES

3.1 Blending Transportation and Tourism: The Penobscot Narrows Bridge and Observatory

Picture this. You're a relatively new Commissioner of Transportation, just a few months into the job, and you're away on a long-planned family vacation in the middle of July. Then, at 4:45 p.m. on Friday, you get a call from your Deputy Commissioner: the Waldo-Hancock Bridge may need to be closed at the height of Maine's tourist season. This is what they call a "DOT vacation." The Waldo-Hancock Bridge is a major gateway bridge which carries U.S. Route 1 over the Penobscot River to connect mid-coast Maine and the rest of the United States to the Bar Harbor/Acadia National Park region. As part of a major rehabilitation project, the contractors had been unsheathing and inspecting the suspension cables when they discovered a particularly weak spot in the cable, a product of years of deterioration of this 70+ year old bridge. It was subsequently determined by MaineDOT engineers and their advisers that the bridge needed to be replaced.[47]

Shutting the bridge down immediately would have resulted in a 45-mile detour, which would have severe impacts on the region, given that this bridge is the major artery for tourism and wood fiber for the paper mill, as well as serving school buses that use it on a daily basis during the school year. Through a herculean effort from MaineDOT, FHWA and the contractor, Cianbro, the team was able to add auxiliary cables by the end of October, which was a challenge, given that the bridge wasn't originally designed to accommodate such cables. This accomplishment of engineering and construction know-how on Cianbro's part was to buy 3 – 4 years to build a replacement bridge, from concept to completion. Not much time in bridge world.

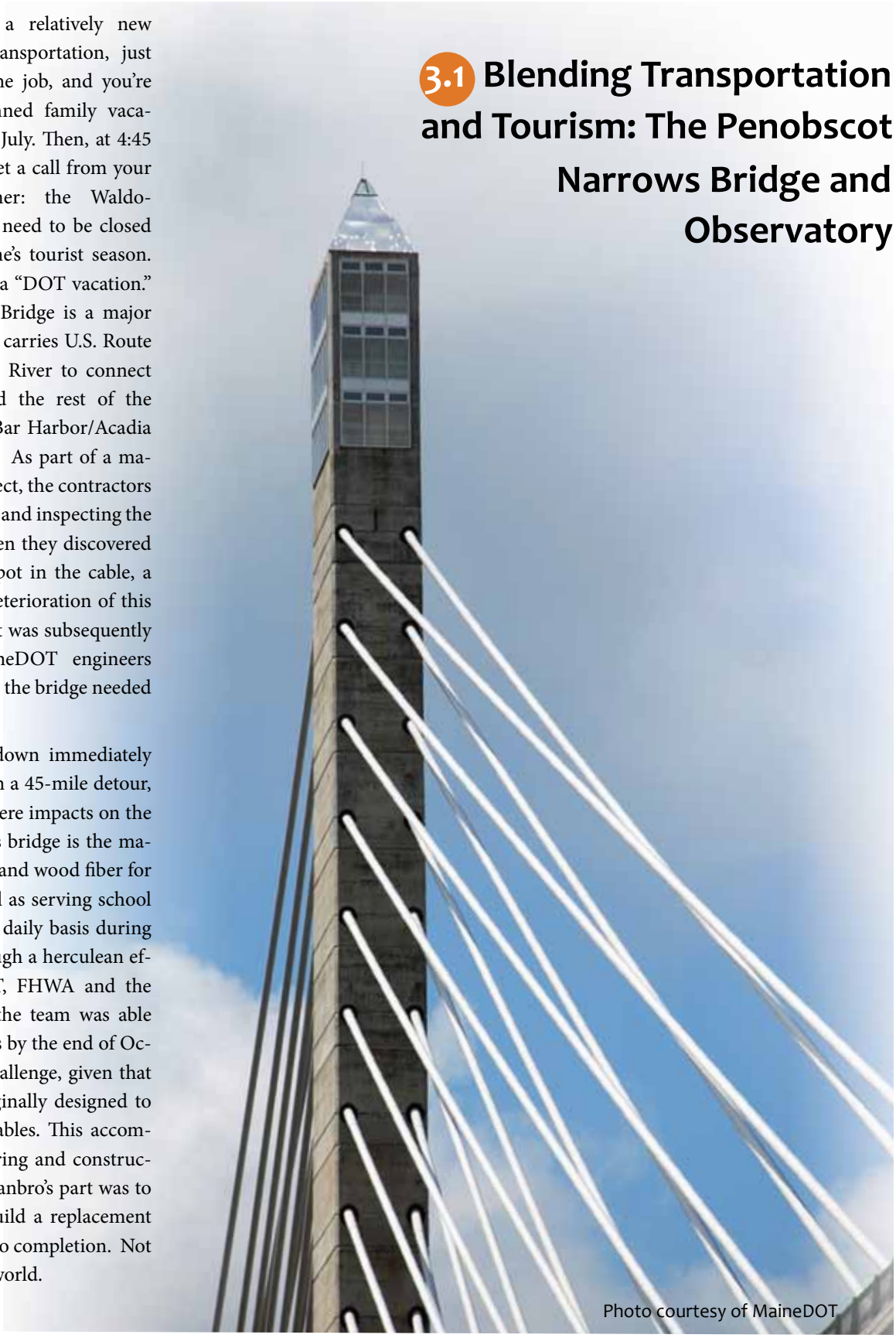


Photo courtesy of MaineDOT

All the while, the department had been working with the trucking and wood products industries to limit the bridge to one truck at a time until the auxiliary cables could be added. Much of this was self-enforced through the industry itself, with MaineDOT cameras monitoring the bridge and providing feedback to the trucking companies if their drivers didn't cooperate. The department also worked closely with the tourism industry through the Maine Tourism Association and area chambers and undertook an aggressive advertising program to make sure the public knew the traffic was flowing and the region was open for business.

Meanwhile, and parallel to all these efforts, the department had a bridge to build, and the clock was ticking. While MaineDOT intended to use design-build (DB) construction in order to meet the compressed timetable of replacing the existing bridge, under DB the owner normally selects a builder and designer as part of an initial team through a selection process. In this case, the MaineDOT needed a designer immediately in order to help determine what type of bridge would be built, as well as its design. In a normal process this can take significant time. In order to stay on schedule, this process had to be boiled down to a few short months. The Figg Engineering Group was retained and at a later point was "married up" with the contractor selected to build the new bridge, a joint venture of two experienced Maine bridge builders, Cianbro and Reed and Reed.

To appreciate the process of selecting a preferred alternative as required under NEPA, one must understand the setting. The public process was heated at times and controversial, as the Waldo-Hancock Bridge was a historic, beloved icon within the region, located next to Fort Knox, Maine's most visited historic site, and in full view of spectacular Penobscot Bay. This is the poster child for "context sensitive." People were angry, as many felt that MaineDOT had allowed this structure to deteriorate through a lack of maintenance. That could have been disputed, but it wouldn't have changed the emotional atmosphere as the Public Advisory Committee worked through the process with MaineDOT, FHWA and Maine Historic Preservation Commission, another major player in this story.

Many in the public initially wanted another suspension bridge, which would have been significantly more expensive than a single-plane cable stayed bridge. That just didn't make sense under the circumstances, and it was subsequently dismissed. Then the Public Advisory Committee backed a "dual plane" cable stayed bridge that was similar in appearance to a suspension bridge, but would still be significantly more expensive to build and maintain than MaineDOTs preferred alternative, the single plane cable stayed bridge. It appeared to be a no-win situation. Being at odds with the community could have delayed the project, and time was of the essence, and going with the state's preferred design would have left a legacy of bitterness in the area for years to come.

In the end, MaineDOT came back to the public with the idea of placing a public observatory in one of the two 440-foot towers that support the bridge design under MaineDOT's preferred alternative. This observatory was not an option on the dual plane design, as it didn't depend on this type of tower structure. The community quickly grasped the potential tourism value and notoriety of the observatory and opted for creating new history, letting go of the past. With this resolved, and a designer and contractor group in place, the team proceeded to build the new bridge. The bridge was finished in 42 months from start to finish, including all the planning and public process required to build the new $85 million structure.

The Penobscot Narrows Bridge and Observatory opened in October 2006 to much acclaim. The project received 20 national and international awards for design excellence, public involvement, and process innovation, including being named the top new bridge of the year in 2004 by *Road and Bridge Magazine*, and was one of four finalists for the prestigious Outstanding Projects and Leaders (OPAL) Award from the American Society of Civil Engineers from an international field of major construction projects. None of this could have happened without a proactive approach, recognizing not only the best technical solution, but viewing the project through a community and economic development lens as well.

TAKEAWAY #17

What would Captain Kirk do?

He would think outside the box of course, as he did as a cadet at Starfleet Academy where he successfully solved the Kobayashi Maru training exercise, which involved a seemingly no-win situation. The addition of the observatory to the bridge was an outside-the-box economic development solution that produced a win-win for all in the form of a major tourist attraction for the region and a cost-effective technical solution for MaineDOT.

Photo courtesy of MaineDOT

The Penobscot Narrows Bridge includes the tallest bridge observatory in the world, offering spectacular 360-degree views of Penobscot Bay and the Penobscot River Valley from 420 feet above the water. Over 80,000 people visited the Observatory in 2010.

The observatory, as seen in the background of the photo above, is located within America's first Fort Knox, one of Maine's premier historic sites. The facility is located within a state park and is managed by park personnel.

Inland Port of Auburn, Maine.Photo courtesy of MaineDOT

3.2 The Relationship between Freight and Economic Development

One of the key linkages between transportation and economic development lies in the area of freight movement. Most state DOTs have staff assigned to this issue, although it can vary in priority and structure from state to state. Rob Elder is Director of MaineDOT's Office of Freight and Business Services (the "Freight Office") which includes a small but seasoned staff. Its focus is horizontal in nature compared to most units within MaineDOT, cutting across several modes of movement including seaports, freight rail, air freight and pipelines, with the objective of facilitating the safe and efficient movement of goods. The Maine Port Authority is staffed by the Freight Office as well, and chaired by the Commissioner of Transportation or designee.

If Maine is any indication, the freight staff are good people to get to know at the state DOT if you're involved in economic development, as they work closely with manufacturing, transportation, distribution, and other freight-oriented businesses who are seeking assistance in finding the best ways of getting raw material to the plant, intermediate goods through the supply chain, and finished goods to market. The MaineDOT Freight Office is also responsible for the development of the state's five-year rail plan, as well as activities associated with promoting Maine's three-port strategy for cargo shipping, which goes back over 30 years.

The Freight Office has been very busy as of late, having secured major construction grants from the TIGER program in the first two rounds, including over $14 million for improvements to three Maine ports and over $10 million to rehabilitate the Aroostook railroad (see Sec. 3.3 for more on this project). The Freight Office also has some state tools at its disposal, including the Industrial Rail Access Program which provides matching grants to businesses to build rail sidings in order to access service, and the Small Harbors Improvement Program, which provides matching grants to support working waterfronts.[48]

The growth and success of the Maine Intermodal Facility at Auburn and the Port of Auburn is an excellent example of a region and community strategically incorporating freight and logistics into its economic development strategy. As it turns out, Maine's largest container port isn't a seaport at all, but the inland port of Auburn. The intermodal facility was built in the mid 1990s as a public/private partnership, and is operated by the Saint Lawrence and Atlantic Railroad, a regional railroad emanating out of Auburn which connects with the Class 1 system in Montreal. According to Elder, the port of Auburn is "well respected in the logistics community as an efficient choice for rail cargos." He also points to local support as being critical to its success, including the Lewiston Auburn Growth Council, Androscoggin Valley Council of Governments (AVCOG), and the Cities of Lewiston and Auburn, as well as support from FHWA, U.S. Customs and Border protection, and the Federal Rail Administration.[49]

The intermodal complex has seen several expansions and freight-related developments over the years, utilizing an array of public and private resources, including both transportation and economic development programs. It is noteworthy that the original intermodal project represented an early use of federal CMAQ funds by the MaineDOT in the mid 1990s, with the objective of improving air quality by taking trucks off the road and putting the freight on to rail. According to Bob Thompson, AVCOG executive director, funding from the Economic Development Administration was also used in the formative stages of the project, marking this as a true transportation/economic development partnership.[50]

MaineDOT has also provided Industrial Rail Access Program funds to freight-dependent businesses in Auburn, such as Safe Handling, which has allowed for better connections into the rail system. In 2005, MaineDOT also provided $1 million from its Industrial Access Road Program, which in combination with local funding constructed an access road for the new Walmart distribution center, further solidifying the area's role as a strategic freight hub. More recently, $3 million in state transportation bond funds are being used by the MaineDOT to upgrade approximately one mile of community-owned rail, which will open up about 300 acres for freight-related development. AVCOG is administering the project under agreement with MaineDOT, largely based on its long history with the project going all the way back to the original EDA grant.

Additionally, in fall 2010, $5.2 million in improvements were completed at the Auburn junction of the Saint Lawrence and Atlantic and Pan Am Railways, in order to significantly reduce switching times and improve the overall efficiency of the entire rail system. This public/private partnership was funded by the two rail companies—who compete on some days, but saw the value of collaboration—as well as MaineDOT's Freight Rail Integration Program, along with FHWA Section 130 safety funds. This strategic focus and persistence has paid off for the Lewiston-Auburn area, which recognizes that transportation is more than just infrastructure, but its own industry cluster as well.[51]

TAKEAWAY #18

Freight and trade are two sides of the same coin, as logistics is a natural interface between transportation and economic development.

Logistics represents the mechanics of moving trade and commerce. The industry also provides good paying jobs and services that are critical to economic development.

Photo of Maine Intermodal Terminal, Auburn courtesy of MaineDOT

3.3 Stepping up in a Crisis: The Aroostook Rail Abandonment

The people of MaineDOT know how to step up in a crisis. It is in their blood, as emergencies bring out the best in these men and women, whether it is an ice storm, flooding, or a failure in the system. An economic crisis, however, is a somewhat different animal, and more in the world of a state or regional development organization. Given that major disruptions in the transportation system can cause significant economic dislocations, a state DOT and regional development organization(s) make a natural team, combining the technical and transportation knowledge of the DOT with the RDOs' intimate understanding of the impact areas, economic stakeholders who reside in these areas, and the economic development tools that can complement traditional transportation resources.

An excellent example of just such teamwork emerged in response to the proposed abandonment of 233 miles of rail in Aroostook County Maine by the Montreal, Maine and Atlantic Railroad (MMA, or "the railroad"). The railroad initiated the process in August 2009 with the filing of a systems map to the Surface Transportation Board (STB) outlining the intended abandonment of rail in the northern most portion of Maine, which was then followed up by a formal application to abandon service on these lines with the STB in February 2010. Needless to say, the August announcement stunned the northern Maine region, as it was inconceivable to many that one of the finest wood baskets east of the Mississippi River could be cut off from freight rail service to the marketplace. But the situation was all too real, as the railroad's plan was to abandon service on the lines and either secure a buyer or tear up the track and salvage the steel, which was fetching a decent price at the time. Given that there were no private parties expressing interest in the line, which was also in dire need of upgrading and repair, all eyes turned to the state and MaineDOT to step in and preserve this vital service for the 23 shippers along this route, with hundreds of jobs at risk if this vital connection were to be terminated, as well as greatly reducing the county's development options for the future.[52]

"In addressing the Aroostook Rail Crisis, the EDD added value, and they did it it real time when there was little margin for error. Combined with the tireless efforts of the MaineDOT staff, this was a winning combination."

To that end, following the August 2009 announcement, MaineDOT engaged Gary Hunter of Railroad Industries, Inc. (the consultant) to do a feasibility study on the line, in the hopes of developing a business model that could sustain the service as a state-owned but privately operated venture, assuming the funds could be raised for MaineDOT to buy and preserve the corridor. At the same time, the phone lines between MaineDOT and Northern Maine Development Commission (NMDC, the EDD for the region) were heating up, as both organizations were reaching out to each other to figure out how to wrestle with this potential economic calamity. The first challenge out of the gate was developing a sustainable business model that could support ongoing service, while keeping the shippers together and committed to the rail through this period of great uncertainty. The second heavy lift was securing adequate funds to not only purchase the assets out of abandonment and prevent the tracks from being torn up, but also to improve the condition of the system, in order to support more timely and dependable service, the key to a successful operation. Otherwise, a new operation would be in much of the same situation as the MMA Railroad.

In the end, MaineDOT purchased the Aroostook rail assets through the STB process in January 2011 for $21.1 million, including $7 million from a June 2010 bond issue, $7 million from state cash reserves, $4 million from previous approved bonds, $2.1 million from reprogrammed rail funds and credits with MMA, and $1 million from a shipper. MaineDOT, with the strong support of Maine's Congressional delegation, also secured $10.5 million in USDOT TIGER grant funds to bring the condition of the tracks up to an acceptable standard.[53] MaineDOT has also selected a new operator for the Aroostook rail among five bidders, and the Maine Northern Railway is now in business.

This happy ending, however, required a mammoth effort on the parts of many groups and individuals, spearheaded by MaineDOT and Northern Maine Development Commission. Working in close coordination with the department, NMDC was on point on several issues, beginning with the shippers. NMDC knew these businesses and their industries and served as a facilitator toward developing a business model that was credible. The consultant completed its due diligence, and reported that there was minimally enough freight to support continued operations, with potential to grow the business over time as markets inevitably recover. The numbers were

skinny, however, and the deal would require the shippers to be "all in" if it were to have a chance of succeeding. NMDC convened a meeting of the shippers, the railroad and MaineDOT at a critical juncture, and a strategy was subsequently developed that everyone felt had a reasonable chance of succeeding, provided that the rail could be acquired on the right terms and funding could be accessed to make the badly needed improvements.

With a plan to rally around, the next steps were to concurrently negotiate the terms of purchase, and obtain the necessary funding. A task force was named by Governor Baldacci to assist the department in negotiating the deal, comprising legislators, industry representatives, and community and economic development officials. A major sticking point in negotiations centered on the fact that the abandoned segments did not reach all the way to the junctions on either end of the line, thus a new operation would not have independent utility, and would be dependent on the Montreal, Maine and Atlantic Railroad to get off the system and link up with other railroads, thus effectively making it a subset of the MMA. NMDC was very helpful to MaineDOT in gathering local support to obtain these trackage rights from the railroad so the new operator would have the ability to do business with all railroads. When the deal was done, trackage rights were included, which was crucial to a viable operation.

Finally, NMDC also stood shoulder to shoulder with MaineDOT and other advocates in selling this project, from the hallways of the state capital, to a rare on-site Surface Transportation Board hearing held in the Aroostook County. NMDC put a local face to the issue and helped paint the economic picture in understandable terms. According to the consultant, Gary Hunter of RRI, who has worked with communities on rail abandonment issues in several parts of the country, the Aroostook rail effort should serve as a model for other states and regions facing abandonments, particularly given this state/regional partnership that united in the face of one of the largest abandonments in the country in many years. In three words: ***they added value***, and they did it in real time when there was little margin for error. Combined with the tireless efforts of the MaineDOT staff, this was a winning combination.

New operator of the Aroostook rail corridor: MaineNorthern Railway. Photo courtesy of MaineDOT.

3.4 DOT as a Partner in Tourism

DOTs are regularly cursed at during the busy summer driving season for construction-related delays, which are hopefully but a momentary frustration for the traveling public. The reality is that DOTs are key partners in fueling the tourism machine, especially in a rural state or region. In Maine's case, the state is enriched with natural, cultural and built amenities for visitors, but spread out over 3,000 miles of meandering coastline, as well as inland lakes and mountains. Just as there are logistical challenges with the movement of freight, so are there with the tourism industry. Given the competition for tourist dollars, MaineDOT needs to do its part to move people safely and efficiently about the state and in an informed and convenient manner, so they can enjoy their stay and leave behind as many dollars, euros, or yen as possible.

MaineDOT supports the tourism industry in several ways. First is information. In the early days, this included signs and a roadmap, but today's tools include websites and social media. MaineDOT supports an Explore Maine website, which provides connections between the state's tourism regions and all modes of transportation down to bus, air, ferry, ride-share, and train services, as well as bike and pedestrian facilities and the location of park and ride lots. Maine is also part of the national 511 traveler information system, where the consumer can access current highway conditions by phone or internet. Visitor centers also continue to play an important role in guiding visitors on their journeys, and MaineDOT works in conjunction with the Maine Tourism Association to maintain the state visitor centers.

Recognizing the value of Maine's multi-billion dollar tourism industry, MaineDOT has worked closely with the industry and Maine communities to develop transportation infrastructure and services that are consistent with a tourism economy. For example, over the years the department has consistently invested a significant portion of it federal Transportation Enhancement (TE) funds along with state bond funds and congressional earmarks into the development of bike and pedestrian facilities. This long-term strategy may be one reason that the League of American Bicyclists recently named Maine as the second most bike-friendly state in the country.[54] Maine has also used its TE funds to support the renovation of historic train stations, and as funding at least in part for the observatory at the Penobscot Narrows Bridge (see Sec. 3.1). In addition, the state was also a major partner with the City of Portland in the development of the more than $20 million Ocean Gateway facility, which is supporting Maine's growing cruise ship industry. And as illustrated in Sec. 1.6, the I-295 rehabilitation project illustrates how a state DOT can work with tourism interests to manage the impacts of a major construction project while maximizing outreach to those impacted. These are all examples of the extensive interrelationship between transportation and tourism.

One final example is that of the "Explorer" bus systems that serve the seasonal transit needs of Maine's tourism regions, ranging from the coastal areas in the summer to the ski areas in the winter. The model was the highly successful "Island Explorer," which carried over 412,000 riders in 2010 from summer to mid-October, serving Acadia National Park and the communities of the Bar Harbor region[55] (see Sec. 2.5. The Acadia Express). The partnership includes over 20 public, private and nonprofit organizations, along with major funding support through FTA and MaineDOT. Similar Explorer services have been established throughout the state, including the Shoreline Explorer which services Maine's southern coastline, and the Mountain Explorer and Sugarloaf Explorer that serve the major ski areas of the state.[56] This is a strategic and creative use of transit dollars in a rural state, whose opportunities for "mass transit" are often constrained by population densities.

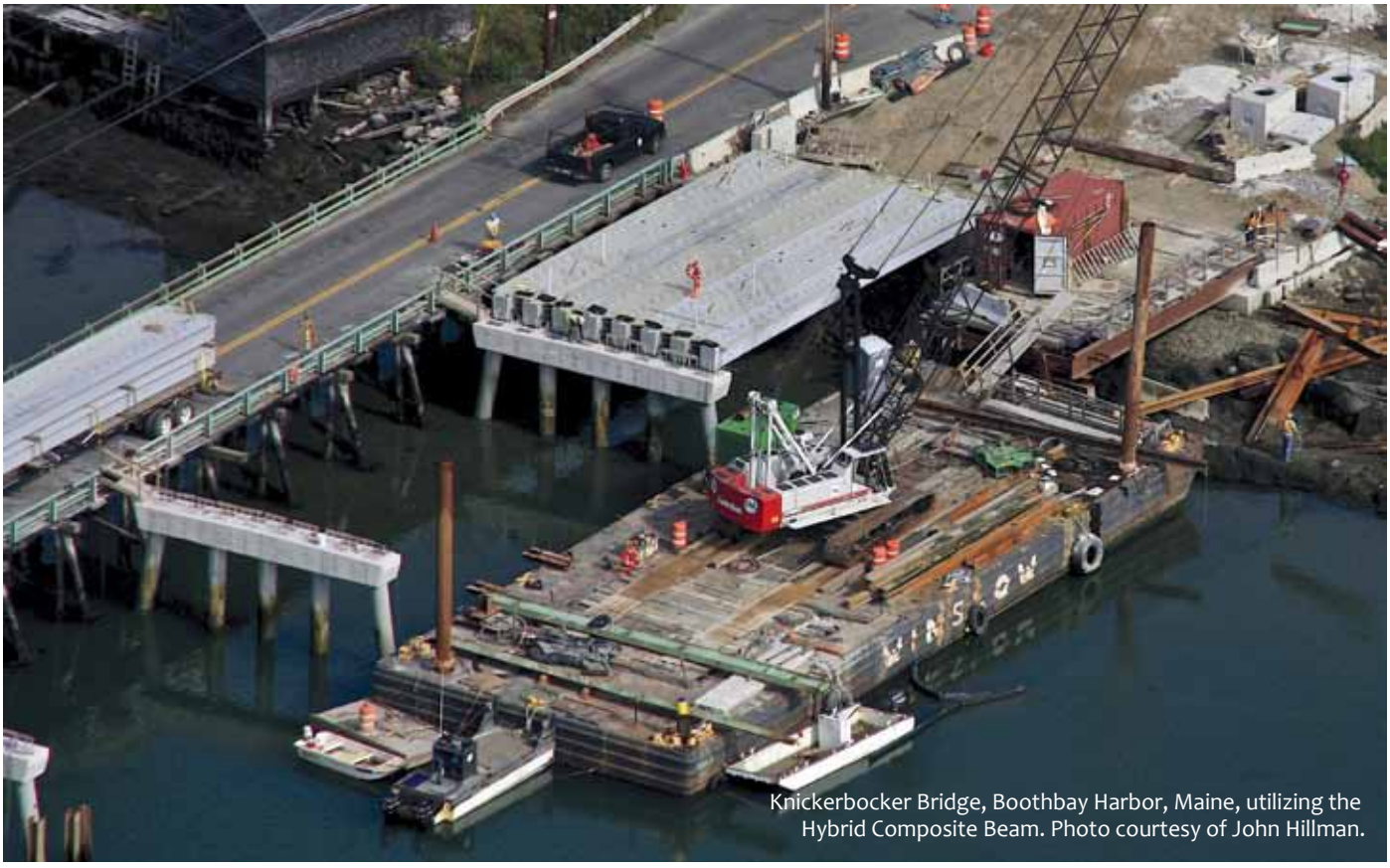
Scenic overview of Mooselookmeguntic Lake courtesy of MaineDOT

3.5 Capitalizing on Technology and Innovation—Transportation and Composites

Dale Peabody is the Director of MaineDOT's Transportation Research Division with a staff of three people. His program is funded through FHWA's State Planning and Research (SPR) program, along with a 20 percent state match. By federal rule, states must use at least 25 percent of the SPR funds for actual research, so apparently every state DOT has a research program. Dale points to the Louisiana Transportation Research Center and the Virginia Research Council as among the more robust programs that have received substantial state funding support as well.[57]

For those involved in economic development, research and development (R&D) is seen as a well-spring for generating economic opportunities. Innovation in transportation offers not only the potential for more cost-effective ways to provide services, but economic opportunity as well for those at the center of the innovation. In the 1990s when the University of Maine (UMaine) first focused on the potential of engineered wood structures, they worked with FHWA, U.S. Department of Agriculture, and MaineDOT to design and build 14 bridges and piers to demonstrate the potential.[58] By the mid 1990s, efforts were underway to raise the funding necessary to build a composites laboratory for research and testing. Working with the Eastern Maine Development Corporation, UMaine was successful in securing a $2.2 million EDA grant to build what would be the first phase of what would come to be known as the Advanced Structures and Composites Center. Today the center has grown to an 87,000-square-foot facility. In addition to several hybrid technologies for transportation, the lab is now one of the leaders in the nation in offshore wind energy.

Among the more noteworthy products developed at the lab is the "Bridge in a Backpack (BiBP)" composite arch bridge system. This technology employs concrete-filled, carbon-fiber-reinforced tubes for structural support. Minimal heavy equipment is needed to build these bridges, as the lightweight carbon tubes can be easily transported and put into place. With concrete encased in carbon tubes, there is little deterioration, providing a longer, maintenance-friendly life. In response to this opportunity, Advanced Infrastructure Technologies (AIT) was formed to commercialize the BiBP system, under license with UMaine. MaineDOT has led the way in piloting the use of the BiBP system, having constructed six projects around the state. Pilot projects are also being done in Massachusetts and New Hampshire, and Michigan has two under design, with several other states currently considering initial bridges. UMaine recently received the prestigious Pankow Award for



Knickerbocker Bridge, Boothbay Harbor, Maine, utilizing the Hybrid Composite Beam. Photo courtesy of John Hillman.

Innovation from the American Society of Civil Engineers in recognition of this transformative bridge technology.[59]

Another example of a hybrid composite technology with Maine ties is the Hybrid Composite Beam (HC Beam), invented by Chicago-based engineer John Hillman. The HC Beam includes a rectangular composite shell that encases concrete and steel, combining the durability of composites with the strengths of concrete and steel. Given its strength and durability, the HC Beam has excellent growth potential as well, considering the state of the aging American bridge inventory. In recognition of Hillman's efforts, he was named the winner of the 2010 Award of Excellence by Engineering News Record.[60] Meanwhile, MaineDOT recently constructed the world's longest composite vehicular bridge in Boothbay Harbor, Maine using the HC Beam. The beams were manufactured by HC Bridge Maine, a Maine start-up company spun off from Harbor technologies of Brunswick, Maine.[61] These and other products under development at the center offer the potential of a composites cluster to further support economic development in the state.

Top photo: Carbon fiber, concrete-filled composite arches undergo testing at UMaine's Advanced Structures and Composites Center. Photo courtesy of the University of Maine.

Left photo: Bridge utilizing composite arch bridge system under construction in Caribou, Maine. Photo courtesy of AIT.

Concluding Remarks:

The Road Ahead

As history would indicate, transportation and logistics have been the strategic underpinnings of great nations and empires through recorded times. While most of written history has focused on conflicts and political intrigue, the role of transportation in nation- and empire-building (for better or worse) has always been right under the surface, providing the means to reach outward and accumulate wealth. After all, many soldiers in ancient Rome spent more time building roads and infrastructure than fighting in battles, and in fact, arguably built the first Interstate system across the expanses of Europe and the eastern Mediterranean. This system of transportation also provided the opportunity for free trade across the far reaches of the ancient world, raising living standards for many, just as the European Union seeks to do today.

Fast forwarding to present times, the United States would seem to be at a crossroads. To maintain our standard of living and position within a globalizing world will require a state-of-the-art transportation system that can move people and goods smoothly and cost-effectively across our nation and the planet. Our competitors are doing it. The Chinese are well into building a new national highway system, drawing on the best practices of countries around the world. When completed later this decade this Interstate-like system will be larger than our own, and it will all be brand new.

As much as any nation on top would like to freeze its place in the world economic order, history has also taught us that there is no standing still: you either move forward or you fall back. Rising to the transportation challenge will require substantial changes in how business is done, and the DOT of a decade from now will in all likelihood look very different than today. **But, the final take-away is that change also generates opportunities for those within the transportation supply chain and funding stream that can help effect innovation, adapt to these new realities, and connect the dots.**

Photo courtesy of MaineDOT

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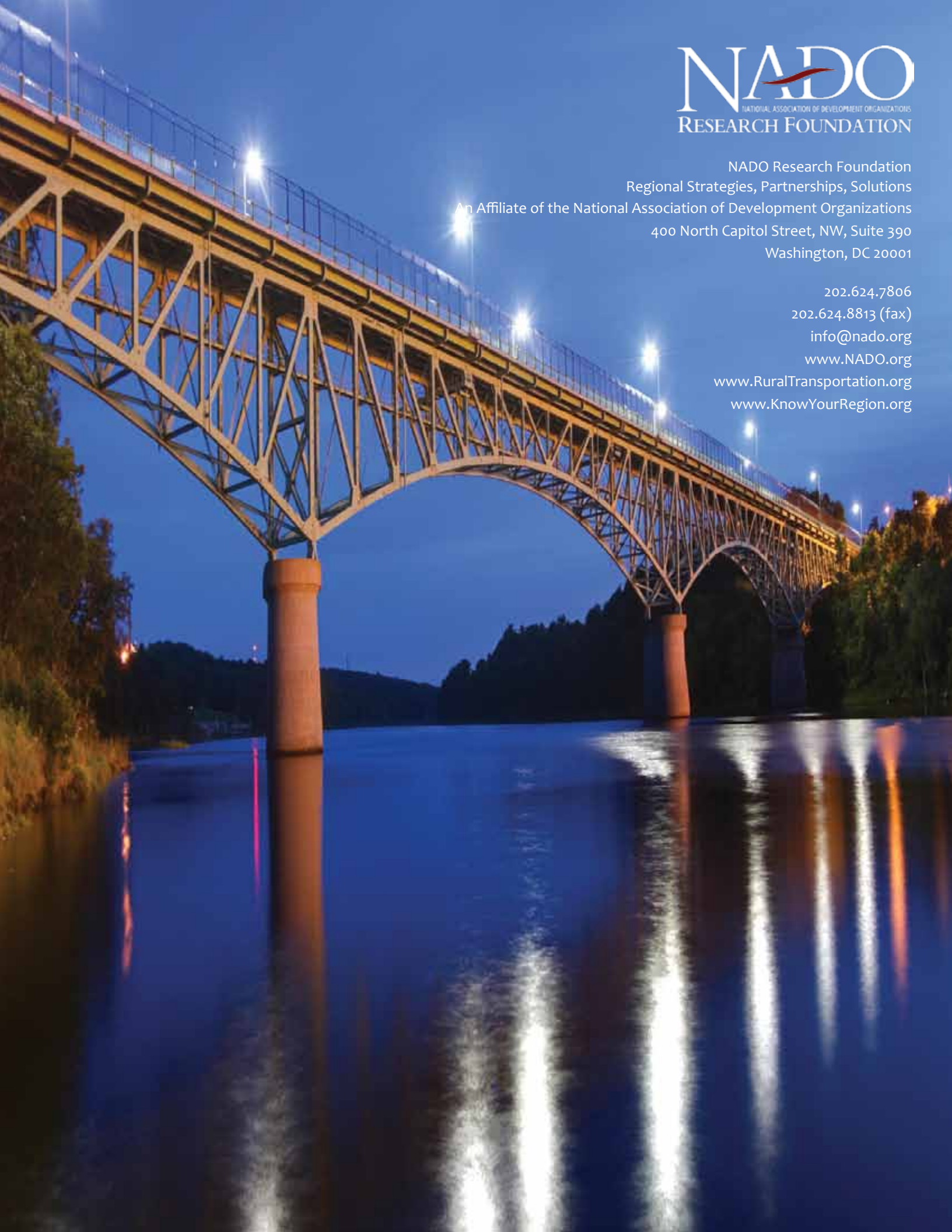

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