



Shubenacadie River Bridge Project

The Shubenacadie River bridges, which accommodate more than 20,000 vehicles daily, are being replaced. The project is expected to be completed by late 2015. Contributed

CBRM taking an innovative approach

Municipality thinking outside the box to fund infrastructure investments

By **Ken Cashin**
Custom Media Writer

It's like a typical household conversation at the kitchen table. One partner points out that the roof is leaking and in need of repair. There's no money to fix it, says the other, because the mortgage is due. Both are correct. It's a dilemma from which there's no easy escape.

The same kind of catch-22 is facing municipalities across the country with respect to infrastructure funding. Their roads are deteriorating and the traditional source of revenue, property tax, is a small pot with not enough left over in it to pay for new or even maintain existing infrastructure.

How did things get this way? Andrew Lake, president of the Nova Scotia Road Builders Association, says there's three main reasons: governments are running deficits and not allocating enough funding to infrastructure, which compounds the problem annually; existing infrastructure is aging; and the Feds are imposing much higher standards for water and sewer, which is leaving municipalities scrambling to upgrade their assets, with scarce funding around to do so.

Overall, the infrastructure spending deficit in Nova Scotia is huge. Lake points out that a 2009 Department of Transportation and Infrastructure Renewal (TIR) report indicated the province needed to spend 400 million over each of the next 10 years to get the system in decent shape.

The TIR budget in 2013 was about 246 million. "This is a significant problem for municipalities," says Lake. "Infrastructure investment is funded by tax dollars. Many municipalities have a finite source of revenue from their tax base and these infrastructure projects can pose a significant burden for them. Municipalities look to the province for assistance and the province looks to the federal government. Many municipalities are looking for funding arrangements in order to fund infrastructure investments."

CBRM \$300 million capital plan

The Cape Breton Regional Municipality (CBRM) is trying a novel approach. In April 2013 it put together a pitch to present to Ottawa for a funding formula to help solve the area's huge infrastructure problems. Mayor Cecil Clarke has developed a 300-million dollar plan for fixing roads, arenas and other infrastructure over five years.

CBRM's pitch calls for the federal government to pay 50 per cent of the municipality's five-year-plan with the province and the municipality each paying 25 per cent or \$75 million.

Clarke is arguing that CBRM is the only city in Atlantic Canada with double digit unemployment and at the same time is being required by regulations to upgrade \$454 million in wastewater

See **INNOVATIVE** / 11



NSRBA Board of Directors 2013

Nova Scotia Road Builders Association (NSRBA) 2013 Board of Directors: back row (left to right): **Bob Bernier, Brian England (former Director), Pam Sullivan, Chris Meunier and CCA/CICC representative John Flemming.** Middle row (left to right): **Stephen Weeks, President Andrew Lake, Office Manager Carol Ingraham, Vice President Greg MacDonald and Phil Sullivan.** Front row (left to right): **Mark Underhill, Immediate Past President Donald Chisholm, Executive Director Grant Feltmate and Calvin Flight.** Absent: **Dave Wilson**

Contributed

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MacDonald, Chisholm given honorary memberships



John Chisholm

By **Heather Laura Clarke**
Custom Media Writer

Allister MacDonald and John Chisholm both grew up in the heavy equipment industry, so it was no surprise when these distinguished road builders were recognized as honorary members of the Nova Scotia Road Builders Association.

Members had voted unanimously for MacDonald and Chisholm, and there was much applause when they each accepted their membership at the 66th annual NSRBA general meeting in January. An honorary membership may be extended by the Board of Directors to "any person in recognition of distinguished service in the field of road construction."

NSRBA President Andrew Lake noted that MacDonald has attended every single annual general meeting since the inception of the NSRBA back in 1947 — when he drove his father to the very first one.

Allister MacDonald was just 12 years old when he began his career in heavy construction. Working for his father as a water-boy, he was responsible for carrying the pail and dipper to each of the labourers.

MacDonald grew up in the industry — constantly learning and improving his skills — and ultimately took the reins of his father's business: Alva Construction Limited.

A lifelong road builder, he's been successful in bidding, securing, and building many of the roads and bridges throughout the province. From coordinating challenging projects along the Cabot Trail to twinning large portions of Highway 104, MacDonald made a name for himself by consistently building structures on the leading edge of technology and design.

Today, he co-owns Alva Construction Limited with sons A.G. and Allan — making them the third generation to own and operate the family business. When he retires someday, he will be remembered in the industry as someone who always ran well-organized, efficient projects, and always questioned whether there may be a better way of doing things.

Lake commended Chisholm for his outstanding accomplishments, which include building many of the twinned sections of the Trans-Canada Highway through Cumberland, Colchester, and Antigonish Counties.

"What I have noticed is they don't run with an issue of one particular member — it has to benefit the whole association."

John Chisholm

Honorary lifetime member,
Nova Scotia Road Builders Association

Presenting your 2013 award winners:



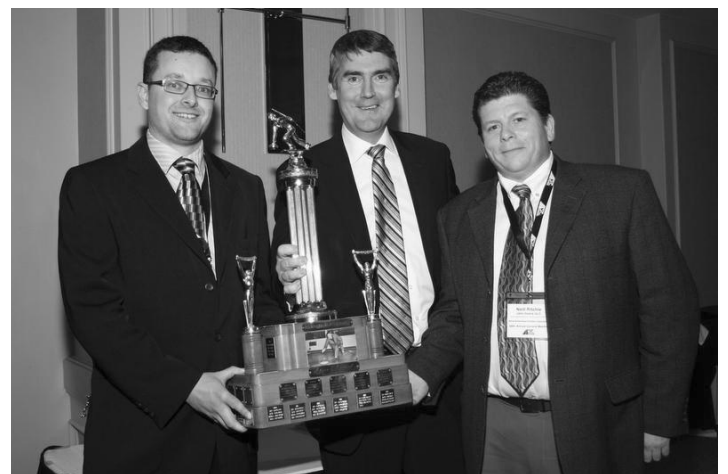
WCB Shield Award: Calvin Flight (Industrial Cold Milling), presented by Stuart MacLean, CEO of WCB.

11th Annual NSRBA Golf Tournament Winners: Basin Contracting's team of Pam Sullivan, Curtis Isenor, Jeff Sullivan & Brad Scott.



H.W.L. Doane Trophy Winner: Jesse Spicer (B. Spicer Construction), presented by Pam Sullivan (Basin Contracting).

61st Curling Bonspiel Winners: Phil Sullivan (AMEC), Albert Gibson (Casey Concrete - absent), Neill Ritchie (John Deere ULC), and George Cooper (Elmsdale Landscaping - absent). Trophy presented by the Honorable Stephen McNeil.



61st Curling Bonspiel Runners Up: John Flemming (Ocean Contractors), Raymond Benere (Basin Contracting), Dan Church (Bomag) and Steve McCall (absent). Trophy presented by the Honorable Jamie Baillie.

See **MEMBERSHIPS** / 6

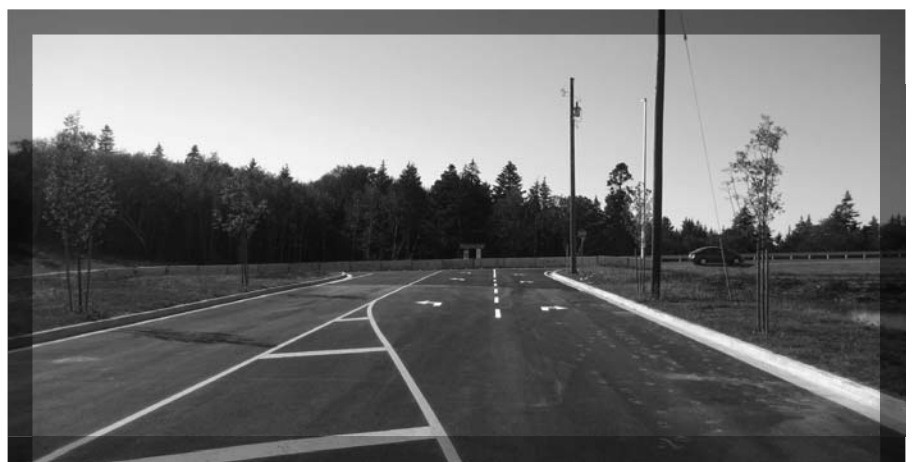
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More 2013 Award Winners:



Second Annual NSUPA Softball Tournament, June 22, 2013

Above: Presentation picture (Left to right): Back row: Don Walls (Enfield Legion President), Mike Deering (NSUPA), Pat Adams (Enfield Legion Events Co-ordinator), Mark Underhill (NSUPA). Front Row: Casey Underhill

Below: Winning team (Left to right): Back row: Ashley Whitehead, Travis Whitehead, Cody Roland, Sim Robart, Mike Deering, Ellis Carrol. Front row: Terrence Bona, Brent Keough, Chris Isenor, Julie Hughes, Rob Kay.



NSRBA 10th Annual NSRBA Hockey Challenge Cup Winners: the South Atlantic Cats. Presented to Steve Mackenzie of Ocean Contractors by Mayor Mike Savage



NSRBA's 10th annual Hockey Challenge Winning Team, the South Atlantic Cats.

Motorists can expect safer travels on Highway 125



Construction is underway to build an interchange that will help improve the safety of motorists on Highway 125.

Contributed

By Heather Laura Clarke
Custom Media Writer

Construction is underway to build an interchange that will help improve the safety of motorists on Highway 125.

Project Engineer Greg MacDonald with Alva Construction Ltd. says Highway 125 is "extremely busy" and is used by commuters as a bypass to downtown Sydney.

"It's going to improve traffic flow, and the general safety of the traveling public," says MacDonald.

Highway 125 was built in 1970, and encircles the west side of Sydney Harbour. Currently, it's a two-lane highway. It's being converted into a four-lane narrow median highway between Sydney River and Grand Lake, and the new interchange will improve access to locations off the highway - including the Cape Breton Regional Hospital.

"I can only imagine it's going to be better for the public, going from one lane to two lanes," says MacDonald. "Being able to pass slow-moving vehicles can really improve your whole travel experience."

So far, two structures have been completed. One is an underpass structure at the intersection with Alexandra Street (Exit 7) that carries traffic over the newly-twinning highway. The second is an overpass at the George Street (Exit 8) intersection that forms the Eastbound lane of Highway 125.

MacDonald says the majority of the 8.5 km subgrade work will be completed late this summer.

Before 2013 comes to a close, he says they are hopeful to have completed the third intersection/structure - that has yet to be started - which will link Membertou to the province's highway and nearby reserve lands.

There is also paving work to complete, which will include the construction of a roundabout at the Grand Lake Road intersection. MacDonald says all of the work is schedule to be completed by next summer, and that it's expected to greatly improve highway travel.

"It will make for an easier commute for drivers, with more access points off the highway," says MacDonald. "That that will inherently result in a safer drive for everyone."

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Costin Paving & Contracting Ltd. is an example of a paving company that is switching to cleaner-burning, more efficient fuels such as natural gas for the process of heating up asphalt. Contributed

Amherst now home to a natural gas-fuelled asphalt plant

By **Ken Cashin**
Custom Media Writer

In the minds of many people, road building is old school. Typically, the images that first come to mind are those of dump trucks, hot asphalt and shovels. While these mainstays have not disappeared from road building — a sector that is 160 member companies strong in Nova Scotia — the industry is changing. Like others, it's always looking for ways to improve efficiencies in costs and energy.

Road builders are also utilizing new and creative ways to reduce their environmental footprint. Like other long-time industries here, road building is going green, embracing new technologies and,

in general, forging ahead.

For example, paving companies are switching to cleaner-burning, more efficient fuels such as natural gas for the process of heating up asphalt.

One such company is Costin Paving & Contracting Ltd. in Amherst, N.S. Owner Bill Costin has shifted from fuel oil to natural gas at the plant and also invested in a new computer-controlled blending system, allowing for a more consistent and efficient blending of material.

Costin converted to natural gas in 2007 and his was the first business in Amherst's industrial park to do so. The changeover and purchase of a natural gas burner cost \$75,000, which Costin says he recouped through operational

savings within only a year.

"There's just so many advantages," he says, of the alternative fuel source. "It's quieter, burns cleaner and more efficiently, there's no parts to wear out like nozzles or pumps, no storage tanks to worry about, no spills, no odor, and no maintenance. It's just a win-win all around."

Natural gas burning is 90 per cent efficient, compared to at best 75 per cent with other fuels, like furnace oil, and is also cheaper.

Costin says his company's use of a computer-controlled blending system also saves money, as it allows for better quality control and consistency with the asphalt mix. A sophisticated piece of equipment, for troubleshooting operations it communicates on-

"It's quieter, burns cleaner and more efficiently, there's no parts to wear out like nozzles or pumps, no storage tanks to worry about, no spills, no odor, and no maintenance. It's just a win-win all around."

Bill Costin

Owner, Costin Paving & Contracting Ltd.

line to the manufacturing plant in Florida where it's made.

"It allows you to get exactly what you want," says Costin. "That's very important with asphalt because if you have to do it over, it can be very costly — you have to get it right."

Road builders today are utilizing various other technologies and ways of stretching a dollar, such as warm mix asphalt. With this method the asphalt is mixed at a lower temperature, which, in addition to reducing fuel costs, creates less odor and is easier on the environment.

Costin says the road building industry is well suited to environmental efforts, as asphalt is 100 per cent recyclable. He points out that companies today are turning to things like reclaimed asphalt pavement (RAP). With this process a paving train consisting of a mill, re-blender, and paving machine recycles an existing road and uses it, plus new materials, to make a new one.

The RAP method can build a new road using up to 20 per cent recycled material. The process saves on new asphalt cement and also reduces the costs of trucking material to the construction site.

"Every truck load can be recycled and reused," says Costin. "That's the way it's going, there's huge potential for savings there."

Another method used today is the grinding up of roof shingles to help make asphalt. The process saves on virgin liquid asphalt and reduces the amount of shingles that end up in the dump.

Costin says road builders are doing whatever they can to stay competitive.

"The industry might seem old style, but we're moving ahead and trying new things," says Costin. "There's more stuff coming out all the time."



Road builders are utilizing new and creative ways to reduce their environmental footprint. Contributed



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'The old bridge' getting a new look

Halifax's Macdonald Bridge set to undergo a redecking project

By **Ken Cashin**
Custom Media Writer

One of the major road building projects on the horizon in Nova Scotia is the estimated \$150 million Macdonald Bridge Suspended Span Redecking Project.

The work will see the bridge's road deck, floor beams, trusses, and suspender ropes replaced in 2015-16.

Being done to extend the life of the bridge and reduce maintenance, the job will go out to tender in 2013 and on-site work will begin in earnest in 2015 with the first panel being replaced sometime in March 2015. Engineering began in 2010 and the project will be complete in 2016.

Known locally as "the old bridge," the Angus L. Macdonald suspension bridge crossing Halifax Harbour opened in April 1955 and is one of the province's most travelled and recognizable pieces of roadway infrastructure. It carries approximately 13.6 million crossings per year.

The Macdonald Bridge has seen many upgrades over the years, including modernization and the addition of a third lane in 1999, but its deck is nearing the end of its functional life.

"The bridge remains safe, but after 60 years the deck is wearing out and needs to be replaced," says Jon Eppell, senior engineer for Halifax Harbour Bridges (HHB). "When complete, much of the infrastructure will be new, leaving the original towers, main cables and anchorages on the suspended spans."

The project — which will also raise the bridge's road deck by about 2.1 meters, to increase headroom for ships entering the harbour — will be the largest of its kind in Nova Scotia since the nearby MacKay Bridge opened in 1970.

Many unique engineering chal-



The Macdonald Bridge Suspended Span Redecking Project is the largest bridge-related development in Halifax since the opening of the MacKay Bridge in 1970.

HERALD FILE / ERIC WYNNE



The Macdonald Bridge Suspended Span Redecking Project is expected to be completed in 2016.

Contributed

lenges will be met on the project, which will be conducted largely at night to minimize impacts to transportation. Because of insufficient capacity to handle the extra traffic during peak periods on the nearest alternative, the MacKay Bridge, the Macdonald's redecking project will see its deck replaced during 10.5 hour closures at night, 10 or 20 meters at a time.

Throughout the deck replacement the bridge will remain open during weekdays to vehicular traffic, but close weekdays from 7 p.m. until 5:30 a.m. and several full weekend closures will be needed for deck segments that cannot be replaced in 10.5 hours.

The work on the Dartmouth side will involve a lifting gantry positioned on suspender ropes and existing panels being lowered to a barge in the harbour, with new panels being lifted into position in the same manner. On the Halifax side the deck panels will be replaced in 10 m lengths over land and brought in by truck rather than on a barge.

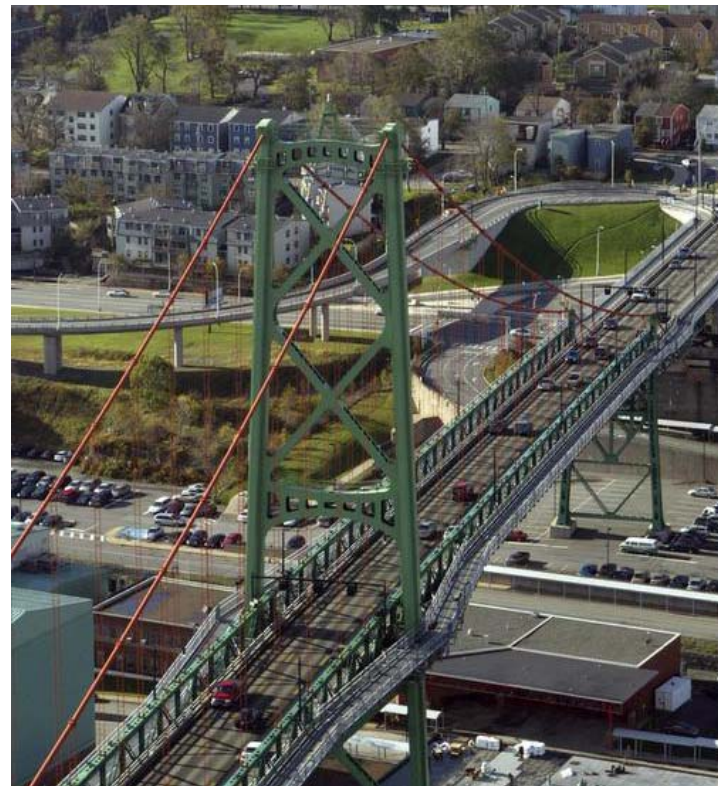
Also, due to safety concerns and space requirements necessary for construction, the bridge's

sidewalk and bike lane will be removed before the main work begins. A new sidewalk and bike lane will be added as the new panels are installed and will be open when the project is complete.

Other challenges are related to weather and climate, such as the high winds, salt air, and fog in Halifax.

Eppell says the project will represent only the second time in the world that the suspended span of a suspension bridge has been replaced at night and open during the day. The first time was on the Lions Gate Bridge in Vancouver in the late 1990s. The Lions Gate Bridge is the sister bridge to the Macdonald Bridge, also designed by P.L. Pratley. HHB is working with the same bridge engineering firm, Buckland and Taylor, as was used on the Lions Gate redecking project.

"It's a very challenging and interesting project," says Eppell. "It's like something you would expect to see in a documentary on the Discovery Channel. We've been planning this for many years and we're very excited."



MacDonald Bridge

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Building Futures for Youth

By **Ken Cashin**
Custom Media Writer

As evidenced by the success of the Nova Scotia Department of Education's Co-Operative Education initiative, there's a huge demand in the province for co-op work placement programs that allow students to get hands-on experience in and test drive potential careers.

As part of its co-op expansion efforts, the province has developed and strengthened partnerships with the Nova Scotia Community College (NSCC) and industry. One example is the Building Futures for Youth (BFY) program, designed to attract young people to careers in construction.

The program was developed by the Construction Association of Nova Scotia (CANS) in partnership with the N.S. education department — English Program Services, N.S. Department of Labour and Advanced Education — Apprenticeship Division, NSCC and local school boards, and in consultation with industry and groups like the road builders association.

Grade 10 and 11 students from across the province can apply online to CANS. Successful applicants attend 80 hours of workplace orientation, safety, and hands on tools training at a local NSCC campus, in preparation for a five-to-seven week, paid summer work placement with a host of employers in the construction industry.

For their participation, students can earn high school Co-operative Education credits, Construction Trades Pre-Apprenticeship hours, NSCC scholarship opportunities and, most importantly, they're given the opportunity to safely gather information and make informed career choices.

Program coordinator Alain Lefebvre of CANS says that, considering Nova Scotia's aging workforce and the significant number of expected new skilled trades jobs on the horizon, the timing is excellent for young people looking to enter construction.

"It's estimated that over the next decade far more people will be retiring from than entering the construction industry," he says. "The challenge facing employers will be to develop and retain



The province of Nova Scotia and the Nova Scotia Community College have created the Buildings Futures for Youth program, designed to attract more youth to careers in construction.

Contributed

talent, ensuring that we continue to have a skilled and available workforce."

Too often, adds Lefebvre, careers in construction are dismissed as unskilled and low paying. Nothing could be farther from the truth, he says.

"There's potential for excellent compensation," he says. "Wages in the skilled trades are on average 21 per cent higher than other Nova Scotia wages. In fact, a skilled construction worker can start off earning a higher salary than that of a starting police officer, firefighter or school teacher."

Hundreds of different construction occupations are available for young people to consider, says Lefebvre. The choices, he points out, can range from less skilled labour to highly skilled occupations like a heavy duty equipment operator, a blaster, or a civil engineer — all of which require substantial learning and training.

Building Futures for Youth started in 2008 as a pilot program, presented to students in high schools across the Halifax Regional School Board. In 2009 the program was expanded into Chignecto-Central and Cape Breton-Victoria Regional School Boards. In 2010 it grew to encompass all eight regional school boards.

Since its inception BFY has provided opportunities to over 400 students from 45 different high schools. Recent alumni follow-up has found that 80 per cent of participants two years or more

"The challenge facing employers will be to develop and retain talent, ensuring that we continue to have a skilled and available workforce."

Alain Lefebvre
Program Coordinator,
Construction Association of
Nova Scotia

removed from the program have since found work in construction.

Over 120 employers from Sydney to Yarmouth have hired students through Building Futures for Youth.

"Industry feedback is very positive," says Lefebvre. "Many employers see it as an opportunity to gain a summer employee who is prepared for work in the industry, and also as a way to identify potential future employees and support youth in career exploration."

Strong support

Here are some of the NSRBA members that have participated in the Building Futures for Youth program:

- AMEC Environment & Infrastructure
- Black & MacDonald
- J. W. Bird & Company Limited
- Ocean Contractors Ltd.
- Dexter Construction
- Will-Kare Paving & Contracting Ltd.

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Memberships

Continued from I2

Chisholm also got an early start in the industry, as he spent much of his childhood hanging around construction sites with his father (who owned Chisholm Construction).

At the age of 17, he bought a used bulldozer and started up a little business building driveways, and digging basements and lawns. He was so successful that his projects often interfered with his schoolwork, but Chisholm continued to dedicate himself to his business. He soon landed a job digging the foundation for the Angus L. Macdonald Library at St. F.X., which he remembers was "a big job at that time."

Chisholm's dozer business continued to grow, and today it's known as Nova Construction Company Ltd. — employing more than 250 people during the peak season.

Nova Construction has been involved in many major projects, including the paving and construction of hundreds of kilometres of highway in Newfoundland, dams at Wreck Cove in Cape Breton, a major part of the highway over Cobequid Pass, and the aggregate production at Porcupine Mountain near the Canso Causeway at Auld's Cove.

Chisholm received an Honorary Doctor of Laws degree from St. Francis Xavier University in 2011, and remains actively in-

involved with several local charities and community organizations.

President of the NSRBA in 1986, Chisholm describes the association as one with "a significant role to play."

"It deals with government on

behalf of its members and works for the betterment of the whole association," says Chisholm. "What I have noticed is they don't run with an issue of one particular member — it has to benefit the whole association."



Allister MacDonald.

Contributed

Training a new generation

By Ken Cashin
Custom Media Writer

The future of road building in Nova Scotia is being shaped by two significant trends, which are causing the industry to take steps now to ensure its ongoing success.

On the one hand the sector is quite healthy, with 5,000 direct and 2,500 indirect jobs that generate \$375 million in payroll. The outlook is also promising, due to infrastructure renewal programs announced by federal and provincial governments. Labour forecasting reveals that 40 per cent of new jobs in the coming decade will be in skilled trades or technology.

Counterbalancing all this is that many of the skilled trades people in the province are nearing retirement. The industry is realizing that if it doesn't act now to train people to fill the jobs of tomorrow, there won't be enough qualified people here to do the work.

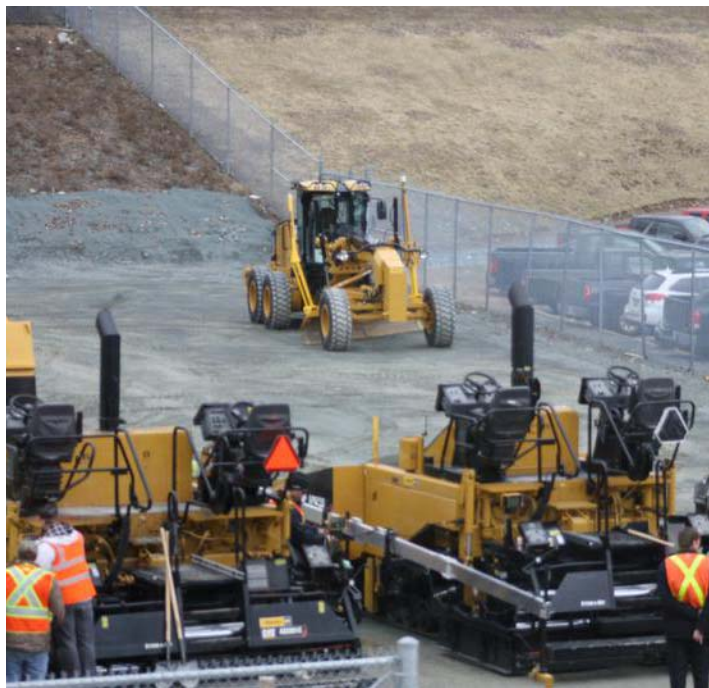
In view of these realities, and specifically in response to a 2010 labour department workforce study that identified more training as a top priority, the road building industry is taking measures to head off the forecasted labour shortages. One of the key initiatives on this front is the Nova Scotia Road Builders Association's development of an asphalt laydown technician's course, aimed at retaining and developing better longer-term employees.

The Asphalt Laydown Technician (ALT) program was first delivered in the spring of 2012 and met with such success that the NSRBA offered it again this year and plans to keep it going.

ALT was developed proprietarily for the NSRBA, which received assistance from the N.S. Department of Labour and Advanced Education. The program consists of two sections: a four-week classroom phase followed by a similar amount of practical experience in the workplace.

The NSRBA's executive director Grant Feltmate says the work segment can vary in duration, as the course is more focused on training for competency than it is time-driven.

"It provides students, who already have paving experience, with significant skills and know-



The Asphalt Laydown Technician (ALT) program was first delivered in the spring of 2012 and met with such success that the NSRBA offered it again this year and plans to keep it going.

Contributed

ledge that will allow them to become much more valuable to their employers," says Feltmate. "The average attendance has been 12 and the feedback from participants is excellent."

The 2013 course ran from March 18 to April 12. Training took place at the Nova Scotia Construction Safety Association facilities and Atlantic Cat. This year a session at Cat Rentals was conducted on small power tools and portable equipment used in paving operations.

Nine participants representing three companies took part, for 120 hours. Participants represented a variety of experience in the paving industry, including crew foremen, MTV operators, paver operators, asphalt production, and screed operator.

Tom Gamblin of Industrial Learning Resources led the instruction, helped by several others with decades of experience and highly respected in the industry.

Feltmate says the course was developed strictly from an internal road building discussion as to what training was most needed, specific to the industry. Similar

courses, he notes, are offered in other jurisdictions, but the ALT program is both unique to the province and of very high caliber. He points out that the training is not entry-level, it's more for someone who shows an interest in working in the paving side of road building and is looking for a solid foundation in it.

During the class time participants receive both technical and safety training and even learn about some of the history of road building and asphalt paving. They continue to work on their practical ability during time on a paving crew. Once they meet all the requirements they receive certification.

"The quality of the course has been recognized with the Canadian Construction Association Gold Seal Accreditation," says Feltmate. "The NSRBA also offers its own certification. This allows those who have successfully completed the course to receive documentation that will allow current or new employers to know that they've had this high level training."



The NSRBA is a proud sponsor of the Turkey Club, a volunteer group dedicated to raising funds so less fortunate families can enjoy a Christmas dinner and a brighter holiday season. For more information please visit www.turkeyclub.org. (Left to right: Ron Leger, past President of the NSRBA and chief organizer of the annual golf and curling events; Mel Boutilier, Chair of the Turkey Club and 2012 NSRBA President Donald Chisholm.)



The Tearmann House was the charity selected for the 2012 AGM silent auction donation (\$24,651).



TAPA Cat Rescue Society donation (\$300). (Left to right: Angela Miller and Ron Legere, NSRBA past President.)

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Tactile Walking Surface Indicators are typically made from metal, rubber or plastic inserts, or are built directly into concrete. Optimally TWSIs should have a texture that can be felt underfoot and detected by a long cane, and beveled edges to decrease the likelihood of tripping.

Contributed

Safety both in the car and on foot

Tactile Walking Surface Indicators working out well at new Dartmouth bus terminal

By **Ken Cashin**
Custom Media Writer

Road safety has always been a top priority for both the users of Nova Scotia's roads as well as the people who build them. The Nova Scotia Road Builders Association (NSRBA) has a long history of working with government to ensure that the province's 23,000 km of paved roads and 4,100 bridges are properly maintained.

The Road Builders association works with government to standardize road building processes and develop environmental and safety regulations. And, every spring, the NSRBA partners with the department of Transportation and Infrastructure Renewal (TIR) on a safety campaign aimed at educating the public on the hazards that road crews face while working on the province's roadways.

While traditionally the safety efforts in construction and road building have focused on the motoring public, and in general, today there's a growing emphasis on making all of the built environment safer and more accessible to everyone who uses it.

Increasingly, the use of technology like Tactile Walking Surface Indicators (TWSIs) — sometimes called detectable warning surfaces — are being used to help the visually impaired with safety and wayfinding. TWSIs are standardized walking surfaces that convey information to people with vision loss through texture, and, occasionally, through sound.

Originally used at crosswalks in Japan and elsewhere, the US and Canada started implementing the technology in transportation in the 1990s. Canada has been introducing TWSIs into the built environment since the early 2000s and in recent years the requirements

"TWSIs have a positive impact. They increase the independence and safety of blind and partially-sighted people."

Peter Parsons
Manager, programs and services, CNIB



Tactile Walking Surface Indicators have been used at the corner of Alderney Drive and Portland Street in Dartmouth for a number of years, and were installed at the new Dartmouth bus terminal in 2012.

Contributed

for the use of this technology have started showing up in provincial and municipal building standards, as supplements to building codes.

Typically, the standards require TWSIs in prescribed locations, such as on the slopes of pedestrian curb cuts/curb ramps, exterior and interior ramps, at the top of stairs and on landings, and at the edge of rail platforms. TWSIs include both truncated domes and tactile bars.

There are two types: Attention TWSIs and Guidance TWSIs.

Attention TWSIs, sometimes called warning TWSIs, call attention to key hazards, such as the start of a staircase or edge of a platform in a subway station.

Guidance TWSIs, also known as wayfinding TWSIs, provide information about the direction of travel through open spaces. They're designed to guide a person on a designated path of travel.

TWSIs are typically made from inserts — made of metal, rubber, or plastic — or are built directly into concrete. To work best, TWSIs should have a texture that can be felt underfoot and detected by

a long cane. TWSIs should also have beveled edges to decrease the likelihood of tripping.

Locally, TWSIs have been used at the corner of Alderney Drive and Portland Street in Dartmouth for a number of years.

The technology has also been implemented at the new Bridge Terminal bus station in Dartmouth, completed in the fall of 2012. TWSIs were installed at each crosswalk access point and at each bus stop at the terminal. In addition, a directional bar tile was installed between each TWSI at the bus stops, along both sides of the terminal platform. This was done to improve the accessibility of the new terminal and help guide passengers who are blind or visually impaired.

Tiffany Chase, communications advisor with HRM, says the project is the first in Nova Scotia to utilize the directional bar tile and the response has been very positive.

Peter Parsons, manager, programs and services with the CNIB, says the organization recommends that TWSIs be installed at various public places, such as railway platform edges,

bus shelters, train stations, airports, and many others.

The CNIB installed TWSIs at its Vision Rehabilitation Centre of Excellence on Almon Street in Halifax, which opened last August. The building has Guidance TWSIs that indicate to clients that they are in line with the stairs or in line with the ramp. The centre also has Attention TWSIs at the top of its front steps.

Parsons says TWSIs have also been installed at an intersection in Bridgewater. He says a CNIB client had self-advocated for them because the curbs there are so blended that it's very challenging to tell if you've stepped out onto the street.

"TWSIs have a positive impact," says Parsons. "They increase the independence and safety of blind and partially sighted people. We've had positive feedback from our clients regarding the TWSIs in front of the CNIB building. Our orientation and mobility specialist teaches people to travel safely and independently and has received positive feedback from clients regarding the TWSIs when teaching them at the new Bridge Terminal."

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GPS technology makes its mark in Cape Breton highway project

By Heather Laura Clark
Custom Media Writer

Highway 125 near Sydney has become one of the most heavily-travelled roads in Nova Scotia, handling more than 15,000 vehicles per day.

The highway has been undergoing incremental twinning upgrades — converting a two-lane road into a divided four-lane highway — since the 1990s, and the final section is scheduled to be finished this month.

The 8.5 km stretch between Exit 6 and Grand Lake Road is being completed with the help of the latest in GPS technology, and Alva Construction Ltd. is finding that it's helping to keep the \$33.5 million project on track — and in budget.

Reg Tramble, the firm's engineering manager, says they've been using machine control on their excavator for land-based dredging work, because it allows them to see where the actual grades are — even those under water — and they avoid the risk of over-dredging. Once the dredging wraps up, they have the luxury of being able to move that system over to their motor grader — maximizing the use of the technology.

"When we won the bid for this segment of Highway 125, we knew a dozer with machine control was the answer to boost production for us — and, at the same time, cut down on some of our survey costs," says Tramble.

Working with the Dartmouth branch of On-Grade, Inc., the local dealer for survey and machine control systems, Tramble said they committed to Topcon's 3DMC2 machine control system — and had it installed on a new Komatsu D-65 dozer purchased specifically for the Highway 125 job.

"The fellows at On-Grade were excellent, both in the initial decision-making process and in support afterwards. We can't say enough about them," Tramble said.

Using both their existing machine control on a Cat 140H motor grader and the newly-acquired one on the dozer, work commenced in July of 2012. Tramble says it was on the gravel application that GPS technology really made itself known, because the process of laying down the Type 2 gravel was much, much easier with machine control.

"In the past, we would have had a surveyor stake out the road,



Using machine control on excavators has helped Alva Construction Ltd. improve production in some cases as high as 25 to 30 per cent.

Contributed

then we'd put the gravel down, stringline it, and go from stake to stake — a fairly labour-intensive process when you factor in all the checking that is necessary," says Tramble. "But with GPS, we simply do everything from inside the cab. The operator always knows where he is at, he knows when he is at grade, he knows all the cut and fill areas."

"It was both fast and accurate, and eliminated the need to have that surveyor present at all times."

While they still did put in isolated stakes on the job, Tramble said they did so more for the benefit of the supervisors who needed to verify how close they were getting to grade.

"There was very minimal staking throughout the job," he said. "So we really saved on labour commonly associated with that part of the job, as well as on the final checking to identify high and low spots."

"We no longer need to have two labourers stringlining as the grader gets closer to the final pass — those men can now be re-assigned elsewhere onsite."

From a production standpoint, the percentage of improvement will vary — depending on the complexity of the job itself, the information coming from the owner or the engineering group, and the weather — but Tramble says production increases are as high as 25 to 30 per cent when everything goes well.

The project's proximity to the Cape Breton Regional Municipality reservoir dictated that special

"Because we are getting things done quicker than ever before, we are burning less fuel in each GPS-equipped machine — and, as a result, reducing emissions."

Reg Tramble

Engineering manager, Alva Construction Ltd.



Alva Construction Ltd. has helped outfit their excavators with GPS technology, provided by On-Grade Inc. in Dartmouth.

Contributed

consideration be taken — in the form of a geosynthetic clay liner (GCL).

"GCLs are common in landfill-type jobs, but not that common for us on highway projects," said Tramble. "However, because we were within an area that has to be protected from spills and runoff, it was in the design and it was up to us to find a way to grade those areas accurately and quickly."

"But once we got the info loaded into the dozer's system, the operator simply followed what was on screen in his cab. We were able to bring the material to grade without any effort at all."

The most commonly-touted benefits of GPS equipment are an

ability to get to grade quicker and more accurately, and do so with less effort and manpower. But Tramble says there is another perk that often gets overlooked.

"There is something of an environmental component to using GPS that even we didn't foresee," he said. "Because we are getting things done quicker than ever before, we are burning less fuel in each GPS-equipped machine — and, as a result, reducing emissions."

"Many companies like ours are becoming increasingly aware of the impact we have on the environment, and taking steps to minimize that impact. This is a great way to do so."

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The Shubenacadie River bridges, which were built in the mid-1970s, are made out of steel girders which are in need of repair.

Contributed

Shubenacadie River bridges being replaced

By **Heather Laura Clarke**
Custom Media Writer

Commuters going between Truro and Halifax have been driving through a major construction zone since January, as the Shubenacadie River bridges undergo a complete overhaul.

Kevin Cooke, Estimator/Project Manager with Dexter Construction, says the plan is to replace both of the existing structures — northbound and southbound — on Highway 102.

“The original structures aren’t really that old — they were built in the mid-1970s — but they have steel girders in them, and they’re in bad shape,” says Cooke. “There are some serious corrosion issues, so that’s really the main reason for replacing them.”

The project began in January and is currently in the first phase, which involves building a temporary bridge between the two existing sections. Motorists have been

looking at the progress with interest as they drive by, and soon they’ll get a chance to try it out.

“We’re about a month away from having the temporary bridge installed and open to traffic,” says Cooke. “At that point, the Halifax-bound traffic will be re-routed onto the temporary bridge.”

Once traffic is rerouted, crews will begin demolishing the existing southbound structure. By about this time next year, the first new structure should be in place, and Halifax-bound traffic will be moved onto it.

At that point, Truro-bound traffic will be rerouted onto the temporary bridge, and the original northbound structure will be demolished and rebuilt.

Cooke says the project is proceeding on schedule, with a crew working daily.

“It was slated to be approximately 30 months, so everything should be completed by September of 2015,” says Cooke.

He explains that it’s common with bridge projects to only have one crew working at a time, because it’s a linear project.

“If you’ve got a big road job, you can quite often get two-to-three crews working at a time. But with this project, you can’t tear down an existing bridge until the detour is put in, and you can’t start new construction until after the demolition,” says Cooke. “It’s a situation where one task has to



The Shubenacadie River Bridges Project is slated to take 30 months, being completed by September 2015.

Contributed

follow the other, because of the nature of the work.”

Cooke says it’s a “challenging project” because it’s such a high-traffic area, and Mother Nature isn’t always making it easy for the crew. The river experiences a tidal bore twice a day, sometimes reaching up to three metres in height.

“Some of the work being done on the temporary bridge has revolved greatly around the tides,” says Cooke.

Approximately 20,000 vehicles travel over the Shubenacadie River bridges each day. Cooke travels them daily himself, and says motorists will certainly appreciate the smoother ride once

the project is completed. “For the last five years, the bridge decks have been really rough,” says Cooke. “The bridges have a lot of flexibility, so it tends to make the asphalt not stick well.”

“But once they’re completed, the new structures should last 100 years.”

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Getting a head start in the roadbuilding industry

By **Ken Cashin**
Custom Media Writer

Taking up a career in road building is a smart choice. The challenge for the industry, though, is getting more people to see just how good of a choice it is.

For starters, there's lots of work on the horizon. The long-term employment forecast is quite positive, largely in response to infrastructure renewal programs announced by federal and provincial governments.

Road building jobs tend to be good ones, too. In Nova Scotia the industry is a major economic driver, employing about 7,500 people and contributing an estimated \$375 million in wages annually. Its payroll and benefits far exceed minimum standards. The top 20 per cent of all individuals working in heavy construction earn more than \$45,000 annually, while the average salary for the profession is about \$39,000 per year.

Job opportunities run the gamut from heavy equipment operators to highly technical careers like surveying and new product development. Many unique career paths are available, both in the field and in the office, with positions as diverse as project management and engineering & design. Options range from mechanics and technicians to

occupational health and safety.

A top priority for the industry, though, is to replace the retiring skilled trades persons and train enough people to do the work coming down the pike. To this end, organizations such as the Nova Scotia Road Builders Association (NSRBA) and government and educational institutions are partnering up to help meet the labor needs of the future.

A major initiative on this front is the Nova Scotia Department of Education's High School Co-operative Education program, which has spawned others of its kind. It consists of co-op work placement through schools across the province and allows students to earn high school credits by completing an experiential work placement in the community, in a choice of various work industries.

Placements are arranged by the school and comply with N.S. Department of Education policy and guidelines. The program consists of both an in-school and a placement component.

John Cochrane, community-based learning coordinator with the education department says the co-ops help students plan their education and get hands-on experience in potential careers while they're still in school. He says it provides students with the opportunity to understand the workplace and gain the knowledge, skills and attitudes they need to succeed.

"For students, planning for the

future can be exciting, scary and overwhelming all at once," says Cochrane. "Work placements are important in every industry because they allow students to explore the trades in a hands-on, minds-on way, and that's what good learning is all about. The construction and road building industry have identified the importance of being proactive and preparing for future workforce shortages."

Co-Operative Education has grown considerably since first launched in 2006. The amount of credits earned has spiked by 700 per cent and the number of schools participating has jumped from 15 in 2006 to 84 out of 87 in 2013. This summer it's expected that Nova Scotian students will earn more than 400 co-op credits.

Cochrane says the province is in the midst of some of the best opportunities in its history and is focused on making sure Nova Scotians are ready. He points out that in the province's booming construction sector, alone, in the next five years we'll see a demand for 7,000 workers. If we don't act now, he says, we won't have enough skilled people to fill the upcoming opportunities.

"We're investing not only in the future of students, but the future of Nova Scotia," says Cochrane. "We're preparing today's youth for tomorrow's opportunities. Nova Scotia will have a strong, capable and prosperous workforce."



Roadbuilding employs about 7,500 Nova Scotians and contributes \$375 million in wages annually.

Contributed

Innovative

Continued from I

infrastructure, an amount that comprises over 20 per cent of the wastewater requirements of all Atlantic Canada. He says the five-year plan would allow CBRM to address its core community infrastructure, such as water, sewer, roads and sidewalks, while stabilizing its communities.

The cost sharing idea has already received support from the province, contingent upon approval from Ottawa. Other Cape Breton municipalities are also looking favorably on the idea and may try a similar approach themselves.

Arguably, the state of the roads in Halifax is not as bad as those in CBRM. This is due to a focus on asset renewal over the past several years and funding arrangements with the province. However, while HRM has not tabled any proposals that look anything like CBRM's, the municipality, like others across the country, is indeed reaching out to Ottawa.

As existing federal infrastructure programs are set to expire in 2014, HRM council recently approved priority areas for funding under the new long-term infrastructure program, the new Building Canada Fund. The targets HRM has identified include transit funding, urban core investments, and wastewater systems.

The city is currently in the process of communicating its funding priorities to the province and Ottawa, as well as its desire to be included in infrastructure funding negotiations going forward.

"The plan for the next 10 years," says HRM communications advisor Tiffany Chase, "is to

continue emphasizing a state of good repair for our assets while also budgeting some for growth."

Downloading of responsibility

Michael Atkinson, president of the Canadian Construction Association, says he's not surprised that municipalities are looking for different ways to fund infrastructure renewal. He points out that greater Toronto has come up with various ideas for alternative sources, including the GST, tolls, and user fees.

Atkinson says the trend of downloading custodial care and responsibility for infrastructure from the federal to the local level has been going on for many years. Unfortunately, he says, the results are poor and showing. He says politicians are beginning to realize that the deteriorating roads, bridges, wharves, and waste water systems are negatively impacting standard of living, the economy, health, and the environment.

"These issues are all linked," he says.

Claude Dauphin, president of the Federation of Canadian Municipalities (FCM), agrees. He says all orders of government can and must do better by working together and forming long-term partnerships to address these issues.

Dauphin points out that Canada's municipalities own and operate 60 per cent of the country's core economic infrastructure, but collect just eight cents of every tax-dollar paid in Canada.

Increasing asset management practices across the country, he says, is imperative for the future sustainability of our communities.

"At FCM we believe there is no surer way to create jobs today and strengthen the economic foundations of tomorrow than investing in municipal infrastructure," says Dauphin. "When federal, provincial, territorial, private and local partners bring funding and expertise to the table, no other investment goes as far or achieves as much. One of the best and surest ways to reduce red-tape, increase private sector infrastructure involvement and ensure fairness is through predictable infrastructure investments. When municipalities can plan against the funding they know they will receive, all stakeholders and the local community benefit."

Patches on patches

Dave MacKenna, president of Municipal Ready-Mix Ltd., a large construction company in Sydney, says that if CBRM's five-year funding plan goes through, it would be a huge shot in the arm for the local construction industry. In season, his company employs up to 250 people and he says that number would likely double. He says the work would also allow contractors to make capital investments for equipment, which would increase future capacity.

MacKenna says a major boost in road building work would make CBRM a more viable municipality. Cape Breton, he says, is a great place to live, and tourists enjoy it, but there's years worth of work needed to upgrade the highways and byways.



Cape Breton Regional Municipality Mayor Cecil Clarke has developed a \$300-million plan for fixing roads, arenas and other infrastructure, with the federal government paying 50 per cent of the municipality's five-year-plan and the province and municipality each paying 25 per cent.

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Minister of Transportation and Infrastructure Maurice Smith said the main reasons for twinning Highway 104 around Antigonish are to provide greater driver safety, and to cut down motorist travel time. Contributed

Second phase of Highway 104 improvement well underway

By Heather Laura Clarke
Custom Media Writer

A “vital link” in our highway system is on its way to being safer and more convenient for motorists in and around Antigonish.

Maurice Smith, Minister of Transportation and Infrastructure Renewal, says they’re nearly a year into phase two of the multi-year improvement project on Highway 104.

“This highway is important as a vital link in the Trans-Canada Highway system. It not only links Nova Scotians to one another, but to other parts of Canada and North America,” says Smith.

He says the main reason for twinning the highway is improved road safety for motorists, but it’s also a matter of convenience.

“The additional benefit of a twinned highway is that it is more efficient — it cuts travel time for drivers, and greatly reduces road congestion,” says Smith.

The first phase began in 2009, and saw the construction of a four-lane divided highway running from west of Addington Forks Road to just east of Beech Hill Road. The new stretch of highway opened in the fall of 2012.

The second phase involves constructing a new four-lane highway that will divert traffic from the existing Highway 104 alignment that currently passes through the eastern side of Anti-

“This highway is important as a vital link in the Trans-Canada Highway system. It not only links Nova Scotians to one another, but to other parts of Canada and North America.”

Maurice Smith
Minister of Transportation and Infrastructure Renewal

gonish and the community of Lower South River.

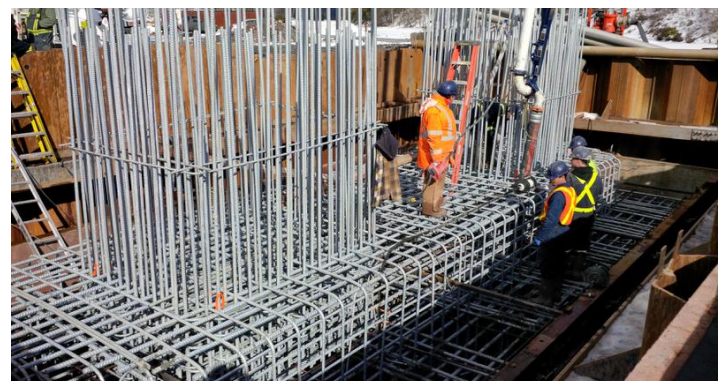
The new highway will extend the recently-twinning section from just east of the Beech Hill Road overpass to a point near the Taylor Road. It’s a stretch of approximately eight kilometres, with an estimated cost of \$88 million — of which the federal contribution is \$30 million. Work is expected to be completed by the fall of 2015.

The project is part of the provincial government’s five-year plan to improve our highways. Smith says they have invested \$1.1 billion in highway capital construction since 2009, and committed an additional \$245.8 million in 2013-2014.

“Investing in this work is one of the best ways to generate jobs and improve the quality of life in our communities,” says Smith. “The project has provided a major economic boost for northeastern Nova Scotia. Its construction is creating good jobs, and its completion will result in a valuable upgrade that will provide a safer, more efficient — and less congested drive — for motorists.”

Smith says it’s important to note that the Department of Transportation and Infrastructure Renewal are issuing tenders for road work earlier than ever before, and allows road builders to better plan their work and allocate resources.

“This has been an important issue for the Nova Scotia Road Builders Association, and I’m pleased we’ve been able to respond,” says Smith. “This advanced planning allows them to bid on more jobs throughout the year.”



The new highway will extend the recently-twinning section from Beech Hill Road to Taylor Road. Contributed

What can motorists expect?

There are four major projects that are or will be underway this summer:

- 1. South River Bridge Construction:** Bridge construction is currently underway. The concrete abutments and piers for the eastbound lanes are complete, and the contractor is working to complete the concrete substructures for the westbound lanes. Structural steel is now being fabricated, with installation to start on the eastbound structure in August. The westbound structure will follow with forming and installation of the decks for both bridge and approach work.
- 2. Taylor’s Road Underpass:** The concrete abutments and centre pier are complete, and so is the installation of the concrete girders. The contractor is currently forming the deck in preparation of deck placement in early summer. They also have the majority of the approaches for the newly realigned Trunk 4/Taylor Road complete, as well as a portion of the subgrade for the future highway twinning.
- 3. Dunn’s Loop Underpass structure (for existing Hwy. 104):** This tender is for the construction of the underpass that will eventually form the crossing of the newly realigned (existing Hwy 104, future Trunk 4) over the Highway 104 twinning.
- 4. Highway 104 (Phase 2) Grading:** This is for a section of sub-grade construction from the end of the Phase 1 portion of the twinning just east of Beech Hill easterly to South River (approximately 3.6 km). This will include all drainage structures within this section. The pre-engineering and production of plans are almost complete, and will be followed by the completion of the estimate for tender.

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Road building is one of the longest standing and most successful industries in Nova Scotia, with a storied history going back more than 100 years.

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Road building industry healthy, but challenges still await

By **Ken Cashin**
Custom Media Writer

Road building is one of the longest standing and most successful industries in Nova Scotia, with a storied history going back more than a hundred years.

While the sector remains robust and healthy, it's facing challenges such as forecasted labour shortages and deficits in infrastructure renewal spending. However, the industry is working with government and educational institutions to prepare for the challenges ahead and is taking steps now to ensure that road building remains strong and healthy for the future.

Comprised of 160 member companies — 40 of which are focused on core road building in bridge, heavy civil, marine, sewer and water main construction — Nova Scotia's road building industry today is one of the province's most modern and progressive sectors. It utilizes advanced engineering, technologies and equipment and is committed to environmental stewardship and safety.

Represented by the Nova Scotia Road Builders Association (NSRBA), the industry works cooperatively with government to standardize road building processes and develop environmental and safety regulations. Road builders strive to implement safe working conditions and utilize environmentally friendly technologies and construction methods such as cleaner burning fuels and materials like reclaimed asphalt pavement.

Many road building companies also show a commitment to environmental stewardship through best practices in the area of land rehabilitation, for example, that go above and beyond legislated requirements.

Economic Impact

Road building is also one of the province's largest employers and economic drivers, representing a wide cross section of professions and trades. It employs 7,500 people and pays an estimated \$375 million in wages annually. Jobs range from engineers and architects to surveyors, project managers, heavy equipment operators and safety managers, to name just a few.

And, make no mistake, building and maintaining Nova Scotia's

roadway infrastructure is a big job. It encompasses 23,000 kms of roads and 4,100 bridges, including the 100-series highways, secondary highways, local paved and gravel roads, and the many concrete, steel, and wooden bridges.

NSRBA member companies work on everything from roads, bridges, wharves, and shipping plants, to airports, sewer and water systems, subdivisions, building sites, wind farms, and landscaping. Andrew Lake, president of the NSRBA, says the industry's payroll and benefits far exceed minimum standards. He says that 20 per cent of all individuals working in heavy construction earn more than \$45,000 annually, while the average salary for the profession is about \$39,000 per year.

Many of the industry's skill trades people, says Lake, are approaching retirement and the industry has identified as a top priority the need to attract and retain skilled workers.

Lake points out that the proposed changes to Employment Insurance also may have a significant impact on road building.

"Many employees are concerned that their ability to draw EI will be challenged, which may force individuals from seeking employment in the industry," says Lake. "We live in a region where the climate and weather conditions preclude employers from performing certain construction activities such as asphalt paving in the winter. People who perform the asphalt paving have a valuable skill set that's not easily transferable or obtainable. Employers fear that EI reform will push these skilled individuals to find alternate careers, which could potentially jeopardize the health of the industry."

Training

To offset the forecasted labor shortages, the NSRBA has partnered up with government and other industry groups like the Construction Association of Nova Scotia (CANS). For example, the NSRBA has been active in participating in the CANS Building Futures for Youth program, which matches high school students who have expressed an interest in the construction industry with prospective contractors. The partnership exposes individuals to the demands of the industry and provides employers with the opportunity to build relationships with potential recruits.

Through the NSRBA, the industry is also developing training programs like the Asphalt Lay-down Technician (ALT) course, to improve the level of training in road building and increase the number of skilled workers. The program was offered in the spring

"A well-constructed and adequately-maintained highway system is what we're all after. It would have far reaching benefits for the entire province."

Andrew Lake
President, NSRBA

of 2012 and 2013, graduating close to 25 students.

Lake says safety remains another chief concern. He points out that the NSRBA has partnered with the Department of Transportation and Infrastructure Renewal (TIR) over the past number of years on a safety campaign aimed at educating the public about the hazards that road crews face on the job. It brings awareness to drivers to slow down when entering a construction zone.

Infrastructure Spending Deficit

While provincial spending on infrastructure renewal has increased in recent years, it is still insufficient. In 2009 a TIR report indicated the department needed to spend 400 million over each of the next 10 years. The TIR budget in 2013 was just shy of 246 million.

However, Lake points out that infrastructure spending in Nova Scotia is reasonably healthy when compared to other provinces such as New Brunswick and P.E.I.

"As a result this has drawn contractors from N.B. and P.E.I. to compete for road building contracts here," says Lake. "This is the first time in recent memory that tenders have been let early, with 48 per cent of the provincial budget already awarded. The department has acknowledged that they're receiving great value this year due to the competitive nature of the industry. The capacity of the industry is such that it can handle an increase in infrastructure spending."

In the years ahead, says Lake, the ongoing challenge will be to secure from government a sustainable, long term funding strategy for the province's roads. He points out that the present funding levels won't be enough to halt the deterioration of existing infrastructure and meet new highway needs.

"We must have adequate infrastructure in place to support growth and investment in Nova Scotia," says Lake. "A well-constructed and adequately maintained highway system is what we're all after. It would have far reaching benefits for the entire province."

Highlights of major roadway projects

The Department of Transportation and Infrastructure Renewal (TIR) total budget for 2013-14 is \$245.8 million.

In total for 2013-2014, 10 major construction projects are planned, along with 83 repaving projects, 29 double chip re-surfacing highway maintenance projects and 22 bridge replacement or repair projects.

Highlights of the plan for 2013-14 include work to re-align highway 103 between Port Joli and Broad River; twinning of highway 125 around Sydney River; twinning of highway 104 around Antigonish; culvert replacement in the town of Stellarton; work on the Cabot Trail in Inverness and Victoria Counties, as well as trunk 4 in Cape Breton and Richmond County.

Some of the other major projects include replacement of the bridges over the Shubenacadie River on Highway 102 and repaving 17 km on the Cobequid Pass.

TIR is also replacing bridges such as the Indian Sluice Bridge near Yarmouth, and the Sydney River Bridge.

Major repaving work is planned for several areas including Highway 105: Cape Breton County Line easterly to Highway 162 Intersection (10 km); and in Halifax, Highway 107: from Route 318 overpass to Main Street Intersection (9.1 km).

In addition to roads and highways, TIR is designing and constructing all new buildings — such as schools, court houses, correctional facilities, office buildings — to meet LEED certification standards.



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Quarries and pits: gems hidden in the wild

By **Ken Cashin**
Custom Media Writer

Pits and quarries are frequently considered nuisances rather than essential components of communities. Focus is often placed on temporary annoyances rather than mid and long term social and economic benefits. Often overlooked, one of the long term benefits of pits and quarries are the end-use applications of reclaimed sites.

All Nova Scotia Environment-approved sites are required to post a rehabilitation security proportional to the size of a site to ensure resources are available for site reclamation when site operations conclude. Typically, within one year following the closure of a pit or quarry, reclamation is to be completed. Reclamation activities may include a combination of surface contouring, drainage, and re-vegetative work. All reclamation work is completed with a planned end use. End-use alternatives may include one of several options including those in the agriculture, industrial, residential, recreational, or wildlife sectors. In this way the end use of a reclaimed pit or

quarry site may provide additional value once its primary purpose has been exhausted.

Typically, rural quarries are reclaimed as mixed forest compatible with the surrounding environment; however, quarries located near or within urban areas present an opportunity for other end-use developments to further benefit the nearby communities. Such projects may include: sports fields, hiking trails, campsites, and golf courses (recreational end-use alternatives), fields, forested areas, lakes or ponds (natural habitat end-use alternatives), crop or livestock areas (agricultural end use alternative), parking lots, buildings, and storage areas (industrial end-use applications).

Locally, there are several examples of successful mine reclamation projects. These include the site of the Dartmouth Crossing shopping centre, which was developed at a location where several quarries used to operate. The former Pioneer Coal Mine in Stellarton has been reclaimed to include open space, a running track and related field facility. Part of the Cabot Links Golf Course in Inverness was built over a former coal mine. Rock faces from aggregate extraction locations add to the landscape and privacy in the Twin Brooks residential development in Sackville.

A much more visible example of reclamation is Point Pleasant Park, one of Nova Scotia's most beautiful natural spaces and one of Halifax's most popular walking areas. The park includes upwards of 50 former pits and quarries, which presumably were used to provide aggregate for nearby roads, fortifications, and the Prince of Wales Tower, the oldest

Martello tower in North America. The Quarry Pond, situated near the entrance to Point Pleasant Park, was developed as a result of quarrying activities and now offers a scenic view and peaceful resting location. Remaining pit and quarry features add to the natural topography of the area and can be seen amongst the trees and vegetative cover near the walking paths and trails throughout park.

"Environmentally conscious aggregate suppliers place significant effort and financial resources into ensuring pit and quarry reclamation is completed on time and in an environmentally responsible manner," says Gary Rudolph with Dexter Construction. "These reclaimed sites often transition into a variety of uses and add value to many communities."



End-use alternatives for quarries may include one of several options such as those in the agriculture, industrial, residential, recreational, or wildlife sectors. Contributed



Often overlooked, one of the long-term benefits of pits and quarries are the end-use applications of reclaimed sites. Contributed

"Environmentally conscious aggregate suppliers place significant effort and financial resources into ensuring pit and quarry reclamation is completed on time and in an environmentally responsible manner. These reclaimed sites often transition into a variety of uses and add value to many communities."

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