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NOVA SCOTIA ROAD BUILDERS ASSOCIATION



SPECIAL ADVERTISING FEATURE



Bonnie Bobryk Photography

The NSRBA strategic plan will refocus the association's direction to better serve its members, continue improving its relationship with government, promote the road building industry as a career option, and restructure the association's committees.

Undertaking 'significant' changes

Association's vision to be recognized, respected as definitive leader of infrastructure for Nova Scotia

By Ken Cashin
Special Features Writer

Like in the game of chess, in practically every undertaking in life, from business to sports to politics, you have to have a plan. You have to know what your goals are and how you're going to achieve them. You've got to know where you're going.

Over the last few years the Nova Scotia Road Builders Association (NSRBA) has undertaken a number of significant changes. It has relocated its office and hired an administrative assistant and executive director.

The organization has also revamped its website and taken steps to raise its profile by promoting greater awareness of what the association does and highlighting the significant role it plays in driving the Nova Scotia economy.

The most important change, however, has been the development of the group's first ever formal strategic plan, a process it began in late 2009.

The NSRBA strategic plan will refocus the association's direction to better serve its members, continue improving its relationship with government, promote the road building industry as a career option, and restructure the association's committees.

"The vision of the Nova Scotia Road Builders Association is to be recognized and respected as the definitive leader of infrastructure for Nova Scotia," says NSRBA president Brad Scott.

"Our mission is to promote best practices focused on improving infrastructure in the province and our core purpose is to be the collective voice of the road building

See **CHANGES** / E5



Bonnie Bobryk Photography

The NSRBA Board of Directors. Back Row, (from left to right): John Flemming, Yuri Power, Steve MacKenzie, Trevor Chisholm, Andrew Lake. Front Row (left to right): Donald Chisholm, Grant Feltmate - Executive Director; Ron Dunn - Vice President; Brad Scott - President; Carol Ingraham - Administrative Assistant, Pat Gray, Rick Bezanson. Missing from photo: Greg MacDonald and Ken Thomas - Immediate Past President.

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Road builders take up the challenge

Idea for hockey event was launched in 2003 during play at the annual golf tournament

By Ken Cashin
Special Features Writer

Team building is important in every organization. It helps bring individual members together and enables them to work with a single focus, for everyone's benefit.

In a large, diverse group like the 150-member strong Nova Scotia Road Builders Association (NSRBA), which encompasses many sectors of the economy, from engineering firms and paving contractors to energy, insurance, and telecommunications companies, team building is absolutely essential.

In addition to organizing annual events for its members like the curling bonspiel in January and golf tournament in July, the NSRBA hosts a yearly hockey tournament called the Challenge Cup.

It takes place every January at the annual general meeting. Now in its seventh year, the three-day tournament consists of four teams. Originally the event pitted NSRBA members from the north of the province against those from the south, but, as of this year, the Challenge Cup also includes a team from the N.S. Department of Transportation and Infrastructure Renewal, as well as a mixed team.

Sponsorship for the event comes from Atlantic Explosives Ltd., Atlantic Tractors and Equipment Ltd., Wallace Equipment Ltd., and Bluewave Energy.

Organizer John Flemming, an NSRBA director, says the hockey activity is great for team building.

"In our industry, as big as it is, with the many types of companies that do road building work, our individual members don't often get to see and interact with one another as much as they'd like," says Flemming. "The Challenge Cup gives people an opportunity to get together to network and socialize."

The heavy construction field is by its very nature competitive, says Flemming, and the hockey gives association members an opportunity to engage in friendly competition away from the real world of business. "It's a good excuse," he jokes, "to vent your frustrations on the ice instead of in the field."

The idea for the hockey event was launched in 2003 during play at the annual golf tournament.

"It started as a friendly rivalry between the north and the south. Now it's one of our most highly-anticipated annual events. People really look forward to it — it has even increased participation at our AGM."

Flemming says the Challenge Cup has also opened up event participation to more people, as not everyone plays golf or curls.

"We're very proud of our industry and the work we do," he says.

"Road building is highly competitive, but our members respect one another and play fair. We have a good group."

"It started as a friendly rivalry between the north and the south. Now it's one of our most highly-anticipated annual events."

John Flemming
An NSRBA director



Challenge Cup: Paul White, left, of Nova Construction (a Past President of NSRBA) presents Pat Gray of Dexter Construction, current NSRBA board member and captain of the South Atlantic Cats, with the Challenge Cup.



Curling Champions: Premier Darrell Dexter, left, presents Steve Carruthers and Blair Landry, Ocean Contractors Limited, curling bonspiel champions, with their trophy. The bonspiel is held in January.



Golf Champions: (left to right) David Brien, Michelin; Roger Scott, Miller Tirecraft; Rob MacKinnon, Michelin and Dave Johnson, Regional Tire Distributors, were winners of the 2010 Road Builders golf tournament.

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Traffic flows through the Armdale Roundabout in HRM. Today, Canada has about 200 roundabouts. France has more than 20,000 and Britain has 30,000.

Round, round we go

All around the world roundabouts are being used as traffic control measures, Canada just coming online

By Melanie Furlong
Special Features Writer

A number of roundabouts planned for Nova Scotia in 2010 will make transportation safer for all road users, says Keith Boddy, senior highway design engineer for the Department of Transportation and Infrastructure. "The international evidence that roundabouts are safer is overwhelming," he says. "It's been proven time and again that roundabouts are safer for all road users, including cyclists, pedestrians and drivers to varying degrees. All road infrastructure has its inherent risks, but roundabouts have less exposure to risk for all users." Boddy says this is because there are less

conflict points, or possibilities of vehicle-to-vehicle or vehicle-to-pedestrian conflict. Slower operating speed in the roundabout combined with exposure to risk improves the overall safety of the intersection.

"At a set of signals, drivers will try to get through a yellow light and may have a collision. In a roundabout, you'll hit the centre island or the grass instead of hitting someone in a head-on or t-bone collision."

Today, Canada has about 200 roundabouts. France has more than 20,000 and Britain has 30,000. Boddy says all around the world roundabouts are being used as traffic control measures and Canada is just coming online.

In Nova Scotia, six new roundabouts, three on Larry Uteck Boulevard and three

on Margeson Drive, are being installed in HRM. More roundabouts in Antigonish, New Glasgow, Stellarton, and Milford are planned for the coming year, with Stellarton expected to be operation soon.

"The program is in place now and is on-going. Budgets change, but we save a lot of money installing them and each and every one of them has their own business case analysis."

"For example, in Milford we're saving millions of dollars of Nova Scotian taxpayers' money because we don't have to install temporary infrastructure. We're installing permanent infrastructure and we're removing what's there now."

Costs for a roundabout can run from \$1 million to \$1.5 million, but each job has a

different cost, especially if other infrastructure gets tied into it.

"Compared to signals, roundabouts have comparable price numbers," says Boddy. "The real savings are with bridges and other infrastructure around the roundabouts. Because of the way they handle traffic, we're able to keep our bridges narrower. There are less construction costs and less long-term maintenance costs."

Roundabouts also mean less energy consumption on signals and reduced idling cuts down on greenhouse gases.

"On a very measurable study done at an HRM intersection, it shows we can reduce greenhouse gases by 300 tonnes a year."

Nova Scotia has three roundabout legacy projects in Armdale, Port Hastings and Pictou as well as three new modern roundabouts in Avonport, Sydney and Windsor which were built over the last four years. Various roundabouts are also planned by municipalities in Debert, Bridgewater and Halifax.

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Photos by Joseph Robichaud Photography

Surface treatments are very thin, typically less than 20 mm compared to conventional hot mix asphalt, which is machine intensive and is placed in layers of up to 75 mm. Surface treatments are something the industry intends to offer long-term to municipalities and government.

Affordable road improvement options

By **Melanie Furlong**
Special Features Writer

As municipalities across the province look for ways to deal with costly road improvements, Micro-Surfacing and Chip Sealing are rising to the forefront of affordable options. Gary Rudolph, director of Aggregates and Pavement Rehabilitation for Dexter Construction, says these options have been around for a while, but are getting more and more important as municipalities look for ways to extend the life of existing roads and infrastructure.

"These surface treatments do a couple of things," says Rudolph.

"They provide a new riding surface over the existing pavement, they improve safety by filling in wheel ruts as well as improve overall appearance and skid resistance. Surface treatments also extend the life-cycle of asphalt pavement from approximately 15 to 20 years before a total rebuild or a conventional asphalt overlay is required."

With Micro-Surfacing, a very thin layer of 5 mm minus aggregate is blended on site with emulsion or specially-designed tar and evenly spread on the road with specialized equipment. Rudolph says it improves the profile of the road, corrects surface imperfections and protects the underlying pavement from oxidizing or becoming brittle.

"It's a very thin layer of material," says Rudolph, "utilizing emulsion and fine aggregate versus conventional pavement designs using asphalt cement and a broader range of aggregate sizes."

Chip-sealing also improves the ride on roads, protects the existing asphalt and addresses surface deficiencies. Chip sealing operations use specialized machines

whereby layers of stone are evenly distributed or embedded in emulsion which is spread in advance on the road surface.

"The chip-sealing operation essentially sprays the emulsion on the existing riding surface at a prescribed spread rate, then applies a constant feed of 12 mm clear stone on top. You carefully spread the stone on the emulsion and quickly end up with a riding surface of consistent texture and ride once it is rolled."

The entire operation is relatively quick and traffic is allowed to travel on the new surface within a short timeline.

Surface treatments are very thin, typically less than 20 mm compared to conventional hot mix asphalt, which is machine intensive and is placed in layers of up to 75 mm. Rudolph says surface treatments are something the industry intends to offer long-term to municipalities and government.

"They need to have affordable construction techniques and materials which provide safer and longer lasting pavements."

As governments become more and more challenged with their capital programs and the availability of capital money, says Rudolph, they're going to be looking for innovative ways to extend and spend the dollars they have, to do as much as they possibly can on city streets and provincial roads.

"The whole thing is to provide options to the designers of pavements," he says.

"As an industry, we're constantly looking for ways to be innovative, to provide new solutions and products."

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New technology eliminates human error in determining finish grade and reduces the number of surveyor checks and regrading of surfaces that may have been required under the conventional system.

Building safer roads

Global position systems being employed to make road bed preparation prior to paving far more efficient

By Tom Peters
Special Features Writer

Nova Scotia's road builders are building safer, more durable highways and are doing it more efficiently with the aid of global positioning (GPS) technology, says Ron Dunn of S.W. Weeks Construction Ltd., of New Glasgow. The Weeks company is presently working on an approximately \$6.5 million provincial highway contract east of New Glasgow, paving on a new 7.4 kilometre twinned section of highway. The work also includes signs and guardrail installation.

Dunn, project manager and estimator for Weeks, says materials include approximately 37,000 tonnes of hot asphalt mix

and 150,000 tonnes of gravels. The job employs about 50 of Weeks' people and about 50 people indirectly.

The contract is scheduled for completion August 31 when traffic will be permitted to use the new section.

Dunn says the additional safety features being added to the project are rumble strips on the edges of the pavement which will warn motorists when they are getting too close to the edge and guardrails with energy absorbing ends. "If you run into them they absorb the energy of the vehicle (impact) without causing extensive damage to the guardrail or the vehicle," he says. These two features have been available in the province for the past few years but are becoming more common in high-

way construction. A new section of twinned highway between Mount Uniacke and Windsor, which will also open this summer, will also incorporate these safety features.

On the technology side, global position systems are being employed to make road bed preparation prior to paving far more efficient. In getting gravels graded to the required design surface, Dunn says Weeks Construction is using machine-control technology that runs off a global positioning system. "Our motor grader is equipped with machine control and both corners of the blade levelling the gravel have GPS receivers."

The province's required design surface is put into Weeks' computer and a model

created. "And basically the computer converts it to a language that the machine can read." That information is transferred to the motor grader which has machine control software. The software combined with the GPS receivers on the blades provides the grader operator the information as to where he is relative to the finish grade on his screen, Dunn says.

The technology eliminates human error in determining finish grade and reduces the number of surveyor checks and regrading of surfaces that may have been required under the conventional system.

"It saves time in getting material to the desired grades. We go with the province's surveyor and check and confirm that the grades are proper. It has been fairly seamless."

Weeks is not the first company in the province with this technology but Dunn says it is becoming more commonplace.

With regard to highway durability, Dunn says a major component in the life of asphalt is the ability to achieve specified compaction. With more modern equipment being used in building highways "we are better equipped to achieve those compaction levels which gives the asphalt more life," he says.

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Joseph Robichaud Photography

Hydroseeding: Workers drive alongside the road with a man at the cannon on top of a truck. The truck has a pump of its own that allows it to spray up to 120 feet away. An even coat is put on the ground and the mulch used is designed to hold the seed in place until it germinates.

Landscaping our roadways

Hydroseeding is the mechanical means of seeding the area along the shoulder used instead of liming, fertilizing and sodding an area

By Melanie Furlong
Special Features Writer

Once the bulldozers, graders and pavers have done their work on Nova Scotia's roads and highways, someone has to look after the shoulders.

Elmsdale Landscaping Limited, a commercial hydroseeding and mulching contractor, is often responsible for the important job of seeding the overturned soil.

Collin Logan, corporate controller for Elmsdale Landscaping Ltd., says seeding the soil not only makes the landscape more attractive, it protects the highway from wash-outs and the environment from erosion. Hydroseeding is the mechanical means of seeding the area along the shoulder used instead of liming, fertilizing and sodding an area.

Paul McDonell, hydroseeder superintendent for Elmsdale Landscaping Ltd., says their Bowie hydroseeders hold 3,000

gallons of water, fertilizer, mulch, lime and seeds. Along Nova Scotian highways those seeds are usually the Nova Scotia Highway mix which consists of seven or eight brands of seeds including clover, tall fescue or Kentucky bluegrass.

"That'll do approximately 5,000 square yards," says McDonell.

"We drive alongside the road with a man at the cannon on top of the truck. The truck has a pump of its own that allows us to spray up to 120 feet away. We put a nice even coat on the ground and the mulch we use is designed to hold the seed in place until it germinates."

Once they spray the seed in place, they're finished the job. Grass appears anywhere from three to four weeks later.

McDonell says hydroseeding the shoulders of highway 104 between New Glasgow and Truro was one of their biggest recent highway projects and took about four months.

"We work closely with the contractor, in



Joseph Robichaud Photography

Landscaping work underway in Bedford.

this case Dexter Construction, to do each area as they finish with it," he says. "Ninety per cent of the time, we're on closed roads that are safe for us to travel on."

Hydroseeding usually starts at the end of May and they can seed up until the end of October.

"In the fall, we put hay over the hydroseeded to keep it from eroding. We have hay blowers that will mix a tackifier with the

hay to make it sticky so it doesn't blow away. It hangs on to the ground a lot better." The company has four Bowie hydroseeders that they use on different projects in the Maritime provinces.

They have on-going projects at the Halifax Stanfield International Airport, ditching projects along new subdivisions and roads across Nova Scotia, Ski Martock, and various others.



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“The excavation of materials and placement of fill is the most costly and time consuming process in road constructions”

Ron Dunn
S. W. Weeks Construction Ltd

Road building step-by-step process

Nova Scotia's unique geography, geology present many challenges for construction

By Ken Cashin
Special Features Writer

As members of the motoring public, most people are quite familiar with Nova Scotia's highways and by-ways. We use them every day for practically everything we do.

What many people may not know, however, is how roads are built. Although it may look simple, road building is a complex, time consuming process. It requires many kinds of engineering expertise during the design and construction and usually involves the cooperation of various trades people.

During the design another challenge is to obtain the necessary permits from various government agencies, which is also time consuming and exacting. And, Nova Scotia's unique geography and geology also present many challenges for construction. Road builders must take great care not to disturb the province's many bodies of water and other sensitive environmental areas.

Steps in the road building process

There are many steps required in the construction of a road and each step is completed according to the design that meets the needs of the planned route. The first step is the clearing and grubbing of the area where the road will be built. This entails removing all trees, shrubs, roots and other organic material.

After this process is complete, the land must be levelled to meet the design grade for each section of road.

"Removal of excess material or excavation is needed when the land is higher than



the desired grade," explains Ron Dunn of S. W. Weeks Construction Ltd. "And, the placement and compaction of materials or fill is required when land is lower than the desired grade. Fill consists of either the previously-excavated materials, or new material brought in.

"All disturbed material — either the fill or the native material left behind after excavation — must be compacted. Basically, what this means is that the land that the road will be built on must be strong enough to support the road and its traffic without settling or shifting. After the road has been sufficiently compacted, a granular subbase is placed to add additional strength to the road's structure."

The last step is laying the finish material of the road's surface, which is what the traffic will ultimately drive on. This layer usually consists of asphalt; however depending on the needs of the road, it may be made of concrete or a combination of the two products.

Dunn says the most difficult road building process is probably excavation and placement of fill.

"The excavation of materials and placement of fill is the most costly and time consuming process in road construction," he says.

"There are some public misconceptions about the road construction process. People sometimes think road building takes much longer than it should to complete. This may be due in large part to the slow phases of construction that occur early on in the process, like clearing and excavation. Many times people also question why traffic needs to be re-directed when no actual construction is being done at that particular moment. There are often many reasons for this, including the safety of the workers."

Permits and Environmental Protection

All land that the road will pass through must be owned or purchased by the developer. If any excavation is required there must be verification of the utilities which may be found in that area. If the road passes over or near any body of water, precautions must be taken to satisfy environ-

mental regulations. If blasting is required, permits must be obtained.

In addition to the challenges of tight deadlines, other challenges involve Mother Nature. Nova Scotia has many lakes, rivers, and streams, and other sensitive areas which road builders must take great care to leave undisturbed. The province has in place many strict environmental regulations that contractors must adhere to.

New Technology

Dunn says one of the newest developments in road building is the use of Global Positioning System (GPS) technology. It allows road builders to model existing conditions and the finished product on computer, which provides greater precision and control.

"With GPS we can take information about multiple surfaces and input that into the excavators and other road building machines. This allows us to be less reliant on surveying stakes, as the machines know exactly where they are in relation to the desired design grade and finished surface."

By the numbers

By Melanie Furlong
Special Features Writer

Road building has a widespread impact on Nova Scotia's economy, says Grant Feltmate, president of the Nova Scotia Road Builders Association.

"Some effects of the industry are more obvious than others," he says.

Most visible are the thousands of well-paying jobs the road building industry

creates. That includes an estimated 5,000 direct and 2,500 indirect jobs with a payroll estimated at \$375 million. Feltmate says the average wage and benefits are high.

Spin-offs from the economic impact are less obvious.

For example, he says, "if you had a typical \$8 million grading contract, \$1.7 million of that would go out in wages, which equals 80,000 man-hours of labour;

\$780,000 to local trucking contractors; Nova Scotian sub-contractors would get \$150,000; rental equipment like trucks and dozers would be \$400,000; room and board for employees, \$160,000; fuel costs would be \$1,480,000; royalties to local landowners for aggregate, \$160,000; and, construction material purchases of pipe, concrete, hay and Geotextiles, would add up to \$630,000."

When road building construction of bridges, marine and sewer water mains, or roads is complete, citizens are left with extremely valuable assets.

"An economy cannot be developed without proper road building infra-

structure. Tourists cannot travel to attractions, goods can't be moved, and businesses can't be developed."

Feltmate says Canada, and Nova Scotia in particular, has a huge infrastructure deficit.

"Insufficient spending has been committed to this vital area for several years. The recent infrastructure stimulus spending, to help move our economy out of the recession, has been a help, but it is nowhere near sufficient relative to the needs that have been accumulated over many years. It is crucial that all levels of government increase their spending directed at infrastructure."

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Today's machines 'light years' ahead of past road building equipment

John Deere 764 High Speed Dozer billed as 'the world's first high speed dozer'

By Ken Cashin
Special Features Writer

Road building is perhaps one of man's earliest forms of construction. Paths leading to water and food sources have been traced back as far as 4,000 B.C. in the form of paved stones and later as logs and bricks. From the time of the first earth-moving machines of the modern era, like the Otis Shovel of the 19th century, and long before that with the use of horse-drawn plows, the road building process has involved planning, clearing, levelling, laying materials, and maintenance.

While the theory of road building hasn't changed much, the machinery to do it with certainly has.

"The machines of today are light years ahead of where they were even a few decades ago," says Yuri Power of Wallace Equipment Ltd. "The construction industry's earth-moving requirements have greatly evolved. We're seeing an increased demand for faster and more productive equipment."

Power says newly-designed ADTs, crawler dozers, excavators and various other road building machines are more powerful, efficient, and versatile than ever. The newer equipment, he points out, can save time and money and help to build better roads.

One of the most state-of-the-art new machines is the John Deere 764 High Speed Dozer. Billed as "the world's first high speed dozer," the 764 HSD offers outstanding productivity and comfort while increasing uptime and reducing daily operating costs.

The 764 HSD finishes grades and does up to twice as fast as a traditional crawler. Its articulated-frame steering and four-track oscillating undercarriage make the 764 HSD highly manoeuvrable, reducing the need to transport it on trailer for short distances.

Another key feature is its long-life rubber tracks, which enable it to traverse hard surfaces like concrete without damage.

Described as a one-of-a-kind machine, the 764 HSD can finish grade within 1/4th of 25mm and grade at 8MPH with TopCon 3D MC2. It boasts a top speed of 16 MPH, allowing quicker access to the next task.

The 764 HSD is standard equipped with medium-duty Category 4 drawbar and flow-adjustable rear hydraulics, making it a highly versatile taskmaster that works well with a wide variety of pull-type attachments such as land levellers, disks, and compaction wheels.

"The benefits of the 764 HSD are completely over the top," says Doug Braswell, product consultant with John Deere. "There's nothing like it."

Highly fuel-efficient, its Tier 3-certified John Deere PowerTech™ 6.8-L engine provides power without compromise in all conditions, delivering up to 210 hp at a low 1,800 rpm.

In addition to its performance, the 764 HSD offers greater comfort for the operator, improved operator and bystander safety, and easier maintenance.

"Its wide expanse of front glass, large side and rear windows, and narrow, low-profile forward console allow virtually unrestricted all-around visibility," says Braswell.

The Cab-forward design, he points out,



The 764 HSD finishes grades and does up to twice as fast as a traditional crawler. Its articulated-frame steering and four-track oscillating undercarriage make the 764 HSD highly manoeuvrable, reducing the need to transport it on trailer for short distances.

isolates the operator from powertrain noise and vibration — at just 72 dBA, it's refreshingly quiet.

"The 764 HSD's wide-open ground-level access to dipsticks, see-through fluid reservoirs, and sight gauges make quick work of the daily routine," says Braswell. "Coolers are housed in a unique box configuration that's isolated from engine heat, for increased efficiency, durability, and easier core clean-out."

He says the high speed dozer performs in many different applications and environments.

"The 764 HSD is being used throughout North America — from Ft. McMurray, Alberta to New Mexico," he says. "They're increasing productivity and saving money for our customers."

"The construction industry's earth-moving requirements have greatly evolved."

Yuri Power
Wallace Equipment Ltd.

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More than just motor vehicles

Due to growing demand, more and more tenders these days are calling for the provision of bicycle lanes

By Ken Cashin
Special Features writer

When you hear the term road building in Nova Scotia, the first thing you think about is usually cars and trucks, the main types of vehicles that utilize our roads. However, the highways, byways and streets in Nova Scotia are traveled by more than just motor vehicles. Due to growing demand, more and more tenders these days are calling for the provision of bicycle lanes. While the number of existing on-street bikeways may be few at present, the prospects for future development are encouraging.

While the province is still in the early days of policy planning, HRM approved an Active Transportation Plan in 2006 that lays out an extensive network of connections including bike lanes.

HRM's David McCusker, manager, Regional Transportation, says whenever the municipality undertakes major street work on a road identified as part of the bike route network, it strives to include bike lanes in the street design.

In some cases, he says, it's simply not possible to add bike lanes, in which case other options are taken, such as widening curb lanes, signing a route, or other measures to improve biking.

"There's a consensus of opinion by health care professionals, urban planners and other professions that regions like HRM need an action plan to accommodate a more active lifestyle by a larger segment of the population in an environmentally- and financially-sustainable manner," says McCusker. "Developing an Active Transportation Plan is one of the building blocks being undertaken by HRM to meet these needs," he says.

The purpose of the Active Transportation Plan is to build upon the existing system of on and off road pedestrian, trail and cycling facilities, link them together in an integrated network that also supports transit use, and design existing programs to promote, educate and encourage more people of all ages to choose active transportation modes more often.

"We're striving to develop a region-wide, visible and connected network of on- and off-road facilities that are convenient, accommodate the needs of existing and future users, and promote an increase in non-motor vehicle travel, particularly for short distances," he says.

"This network will be supported by various programs, policies, and strategies that will help and encourage active transportation year round and improve quality of life for both residents and visitors to the region. It will help position HRM as one of the most desirable municipalities in which to live, work and visit in North America."

The challenges

The Active Transportation Plan aims to have all new collector and arterial streets constructed in HRM include a bike lane. For new streets, the challenge will be primarily the additional cost for the extra street width to accommodate the bike lane. This will be particularly noticeable on overpasses and underpasses where extra width can be very expensive.

Redesigning an existing street can be equally difficult. "No two streets are the same, but adding a bike lane to an existing street in an urban area is normally very



Bonnie Bobryk Photography

While the number of existing on-street bikeways may be few at present, the prospects for future development are encouraging. The Halifax Regional Municipality approved an Active Transportation Plan in 2006 that lays out an extensive network of connections including bike lanes.

challenging," says McCusker.

"In very few cases, it's possible to widen the street just enough to add bike lanes, such as the case with Main Street in Dartmouth where widening of the existing street was done. In some cases the existing street width is not fully utilized and a bike lane can be added without interfering with existing uses, as was the case with adding bike lanes to South Park Street.

In most cases, however, bike lanes can only be added if an existing traffic lane or parking lane is reallocated for bikes."

While the Active Transportation Plan looks promising and is perhaps long overdue, McCusker points out that change will not come overnight.

"We've adopted a 25-year plan that will see an extensive network of bike routes develop. Rather than building that network route by route, we find it much more economically efficient to build it opportunistically, which means we will build sections of a route at the same time as a street rehabilitation project or an adjacent development project."

In the short term, he says, the bike network may look disjointed, but, overtime, the pieces will begin to connect and a network will result.

HRM currently has 70 km of bike lanes. While it has less on-street bike lane kms per road way lane kms than several other Canadian cities (it ranked 18th out of 23 in

a recent study), the city is adding many off-road trails that accommodate biking for transportation and not just recreation. The Chain of Lakes Trail being built this year is a good example.

The key issues for drivers and cyclists, says McCusker, will be mutual respect for and awareness of one another, as well as knowledge of the rules of the road.

"A key safety message for cyclists is to become a part of the traffic flow and stay there," says McCusker, who is a cyclist himself.

"Switching from street to sidewalk and back again just to get around traffic is not safe and not respectful."

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Road building machines getting cleaner

By **Melanie Furlong**
Special Features Writer

The latest technology and emission controls are making road building machines so clean that air going into the engines will soon be dirtier than the exhaust.

Gordon Munro, product support manager for Wallace Equipment, the John Deere Construction and Forestry dealer for the Maritimes, says there have been huge changes to emission controls of diesel engines and how much nitrogen oxide and particulate matter, or soot, they put out. "All the technology is changing for every machine that's going to be sold in North America within the next five years," says Munro. "John Deere is a market leader in Off-Highway Emissions Solutions, and our company is investing heavily in training and tooling to support the new engines being introduced."

Environmental regulatory agencies like the U.S. Environmental Protection Agency (EPA) and Environment Canada (EC) focus on four types of engine emissions: carbon monoxide, hydrocarbons, nitrogen oxides, and particulate matter. As more focus is placed on health and environmental issues, governmental agencies throughout the world are enacting more stringent laws to reduce these emissions.

Because so many diesel engines are used in trucks, the EPA and its counterparts in Canada, Europe and Japan first focused on setting emissions regulations for the on-road market. While the worldwide regulation of non-road diesel equipment, such as bulldozers, excavators, backhoes and



loaders, came later, the pace of cleanup and rate of improvement have been more aggressive for non-road equipment than for on-road engines.

"I think we've all been behind trucks that are blowing out huge amounts of black smoke," says Munro. "That's going to be a thing of the past. In four to five years, you're not going to see that anymore."

The improved engines will have exhaust filters that go through cleaning cycles every 1,000 hours. Those filters will have to be removed and replaced every 4,000 to 6,000 hours.

"The cost of the machinery is probably going to be anywhere

from five to 15 per cent more. That's quite expensive to get this new technology. However, we have to do it to meet the new standards."

Munro says these machines will be costlier and require more maintenance, but that one engine from 1995 puts out more pollution than 20 engines will in 2015.

"After 2015, the standards will change again and the amount of fuel used will be reduced," he says. "Automobiles have done the same thing so we don't get smog and dirt in the atmosphere and this technology will change our lives. It will improve the air we breathe for our children and children's children."

Good corporate citizens

By **Tom Peters**
Special Features Writer

Protecting the province's environment is an ongoing concern and priority for the Nova Scotia Road Builders Association.

The industry works with government and other industry stakeholders, following policies and procedures to ensure the safety of natural habitat and other aspects of the environment, says Andrew Lake of Truro, an association director.

Lake, project manager at Will-Kare Paving and Contracting Ltd. and responsible for environmental issues for the association, says there is less tolerance from a very knowledgeable public on matters relating to the environment and therefore the industry must be more vigilant.

"You try to be good corporate citizens and put infrastructure in place to try and manage the environment," he says.

One major concern of the industry, for example, is the protection of wetlands which are often home to birds and other wildlife plus act in some cases, as natural filtration systems.

The province has put forth a proposal to create a new wetlands policy and the road builders have been tracking that process.

"The government's commitment was to create a new wetlands policy and it is based on the concept of no net loss of wetlands," said Bruce Nunn, spokesman for the provincial department of environment. It is a complex problem to develop a policy whereby certain ecologically sensitive wetlands would be off limits to any change while other wetlands could be affected by



Contributed

The road-building industry works with government and other industry stakeholders following policies and procedures to ensure the safety of natural habitat and other aspects of the environment.

development only if there was a compensation package in place, Nunn says.

"If given permission to alter a wetland then they (industry) would have to compensate by creating new wetland elsewhere or adding land to a wetland somewhere. It might even be a draft proposal for financial compensation to a wetland development group." The government spokesman says the proposed policy is presently in the draft stage and road builders and contractors have been involved in the consultation process.

Lake says industry "always get painted with the brush of the worst guy in the industry so there is a lot of pressure on companies to keep up with the changes and challenges" they face on a daily basis. In that light, the association is proactive in distributing information to members related to

the environment.

Lake says the Departments of Environment and Transportation, through Dalhousie University Center for Water Resources Studies, puts on sedimentation and erosion control classes annually to educate people in the field on proper techniques to controls these two things. Further, the department has a water course alteration program which certifies contractors on the proper methods of installing culverts or small structures on stream crossings.

Lake says it all goes back to awareness of wetlands and the environment in general whether association members are doing work on highway projects or private contracts.

"The rules apply to everybody so you have to be aware so you don't get yourself into any difficulty," he says.

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Photos by Bonnie Bobryk Photography

At any given time through peak construction months on Nova Scotia's highways there are hundreds of workers involved in the building or upgrading of the province's highway infrastructure. In 2008 the provincial government introduced a law that called for double speed fines in a temporary work zone.

Slow down through construction zones

Workers' safety and that of motoring public is paramount

By Tom Peters
Special Features Writer

At any given time through peak construction months on Nova Scotia's highways there are hundreds of workers involved in the building or upgrading of the province's highway infrastructure.

Their safety and that of the motoring public is paramount.

"Conditions in a construction zone can change in an instant. Work zones are congested and distracting and a driver's attention, speed and reaction time are key factors in safely manoeuvring a work site," says Aaron Davis, general manager of Eastern Traffic Services, a division of Municipal Contracting, Bedford.

"Being aware of and reducing your speed in a construction zone will increase reaction time and create a safer environment for workers and motorists. It could also be the difference between a near miss and a fatality," he says.

In recent years both government and industry have worked co-operatively to increase safety for all.

"In Nova Scotia the construction industry is highly regulated and boasts some of the country's most stringent regulations and programs for safety and traffic control," says Davis.

In 2008 the provincial government introduced a law that called for double speed fines in a temporary work zone. The temporary work area is designated as the portion of roadway between the 'Road

Work' signs and the 'Construction Ends' signs. Between these signs a fine equivalent to double the regular applicable penalties could be given.

A new sign, 'Speed Fines Double in Work Areas' was created to warn motorists in advance of the work area of the doubled fines, Davis says.

"These laws were passed to help protect the safety of the workers and the motoring public. Also, speed limits are often reduced on Nova Scotia's busiest and fastest highways to further increase the level of safety in the work area," he adds.

In addition to the speed fine changes, the Department of Transportation and Infrastructure Renewal stipulates that workers carrying out jobs in the aspect of traffic safety control must undergo and

pass certified government courses in order to work in those jobs.

The requirements for these position are stringent, says Davis. They are administered by the provincial department and are standard requirements across the province.

Davis says overall impact of the stronger direction toward worker safety has been a major benefit.

There is a greater willingness on the part of the department to entertain speed zone reduction and there is a noticeable difference in enforcement of these new regulations by police agencies, he adds.

In 2007 the Department of Transportation released a new traffic manual and Davis says there is co-operation between the province and industry to ensure this manual meets the needs and requirements of those affected by it and changes to the manual are made when warranted.



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F-shape barriers have three primary uses on provincial highways, including providing workplace protection by preventing errant vehicle entry into the worksite.

Setting the new standard for NSTIR workplace control

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A safety barrier may seem like a pretty simple thing. That is until it's all that stands between you and a vehicle travelling at 80 kilometres per hour. In 2009 the Minister of Transportation and Infrastructure Renewal 'published' the minimum standards for traffic control at temporary workplaces on or near the roads within the province.

At that time it was determined that the acceptable standard for portable anti-intrusion barriers in Nova Scotia would be the Portland Cement Concrete F-shape barrier meeting NCHRP 350 Test Level 3 standards (crash test certified). These pre-approved F-shape barriers must be constructed and installed copying a design certified as meeting NCHRP 350 Test level 3, or be tested to that standard.

F-shape barriers have three primary uses on our provincial highways, including providing workplace protection by preventing errant vehicle entry into the worksite; to provide protection to errant drivers by redirecting them from a hazard; as well as for separating two-way traffic. A proper barrier installation mustn't have any gaps

between them, and must be securely fastened together in accordance with the NCHRP 350 Test level 3 design provisions.

F-shape barriers are new to Nova Scotia. They didn't exist anywhere within the province before 2009. This "F-shape" is a new generation of the safety shape that is intended to further limit vehicle damage upon impact. The lower sloped face redirects vehicles under low-impact conditions. During moderate to severe impacts, some energy is dissipated when the vehicle is lifted off the pavement.

The F-Shape reduces this lift, which promotes better vehicle stability while maintaining vehicle redirection. In crash tests, the F-Shape has proven to be more successful in preventing rollover of smaller vehicles. The F-Shape has been found to be more effective overall than the Jersey Shape barrier. The barriers main purpose is to contain and redirect the vehicle, and not allow the vehicle to under-ride, nor over-ride (flip) the barrier installation.

These concrete F-shape barriers will protect construction workers by creating a

See **STANDARD / E5**



Contributed

John Flemming, centre, president of Ocean Contractors Ltd. of Halifax, was presented with the Canadian Construction Association's Roadbuilders Award of Recognition for outstanding service and contribution to the road building and heavy construction sector.

Flemming CAA winner

By Tom Peters
Special Features Writer

Receiving the Canadian Construction Association's Roadbuilders Award of Recognition is not only a "great personal achievement," it is also recognition of the company, says John Flemming, president of Ocean Contractors Ltd. of Halifax. Flemming was presented with the award in March. It is given for outstanding service and contribution to the road building and heavy construction sector. Those nominated are judged on their contribution to business, support of association activities and local community involvement.

Flemming says the award also highlights the fact, "we are running a successful outfit here and success breeds success, so it means quite a bit."

Flemming has a Civil Engineering degree from Dalhousie University and after graduation in 1992, moved to the Pacific coast to work as an estimator for two prominent construction firms: JJM Construction and Concord Pacific.

He returned to Nova Scotia in 1998 and joined the family business as its

senior estimator and project manager.

In 2008, he assumed the presidency of Ocean Contractors while retaining responsibility for the estimating and project management divisions.

Within the industry, he has also been a leader and extremely active member of the road building community at both the national and local levels. In 2004, he became president of the Nova Scotia Road Builders Association; in 2005 he joined the board of directors of the Canadian Construction Association and is the current chair of the association's finance committee. In 2006, he joined the board of directors of the Construction Association of Nova Scotia and became a member of its executive committee in 2009. He is also a past director of the Urban Design Institute of Nova Scotia.

Flemming's enthusiasm, knowledge and willingness to give back to his community have made him a favourite with volunteer organizations.

He currently serves on the board of the Holiday on the Harbour Charity Ball and the Nova Scotia Construction Curling Association.

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On the job

The industry can expect it will need to replace one in five of its current workforce within five years

By Melanie Furlong
Special Features Writer

The labour outlook for the road building industry in Nova Scotia is both promising and challenging, says Grant Feltmate, executive president of the Nova Scotia Road Builders Association. Due to the demographics associated with this industry there will be a significant number of quality job opportunities available soon," says Feltmate.

"The challenge exists with the same outlook that faces many Nova Scotian industries going forward. There is projected to be a substantial shortage of available labour relative to positions available."

A recent study completed in cooperation between the provincial Department of Labour and Workforce Development and the Nova Scotia Road Builders Association, entitled 'Understanding the Workforce Development Needs of Nova Scotia's Road Building Industry,' produced a detailed examination of the challenges ahead.

"We found that given the retirement outlook and the current rate of industry leavers, the industry can expect it will need to replace one in five of its current workforce within five years," says Feltmate.

One of the objectives of the industry, in successfully competing for the available labour pool in the future, is to get the message out that working in the road-building industry is a career and not a job of last resort.

Many of those working in our industry start at a young age and work their way up to very good positions over time," he says. "Wages throughout the industry are attractive. The industry is unique and many people stay in it for a very long time."

Road building work tends to be labelled as seasonal. In fact, says Feltmate, this is quite misleading.

Although there are a limited number of months in the year, due to weather, when road building can take place and, in particular, the paving component, the industry takes advantage of all available hours during the "open" months to get their work completed, says Feltmate. "The result is the long hours worked during these months easily equal a full-time job in more typical employment circumstances. A large percentage of employees return, year after



year and thus have careers in road building, not just a short-term job."

The labour study highlighted a few areas upon which the industry must concentrate as it goes forward. One is the need for training specific to the industry. This will

enable those completing the training, anticipated to have a co-op nature to it, to have the competencies and experience necessary to make them excellent candidates for employment within the industry. Training courses are already in place.

"Road building careers have changed over the years with technology, similar to other fields. Modern, large equipment operation often has a significant amount of computerization involved and this has made it much more dynamic."



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A look inside the NSRBA

Founded in 1947, the association and its members play an integral part in building the province

By Ken Cashin
Special Features Writer

There's no denying it, when it comes to infrastructure, you can't get any more basic than a community's roads and bridges. The very foundation of our transportation system, they impact everything we do, from where we go, to how we get food on the table — they're absolutely essential.

What people may not be as fully aware of, however, is the significant impact road building has on our local economy. One of the province's largest employers, representing a wide cross section of professions and trades, the sector employs more than 7,500 people annually, with an estimated payroll of \$375 million.

Represented by the Nova Scotia Road Builders Association (NSRBA), the industry is made up of 150 member companies engaged in road, bridge, heavy civil, marine, and sewer and water main construction. Founded in 1947, the association and its members play an integral part in building the province, its roads, and its crucial infrastructure components.

NSRBA membership encompasses many sectors of the economy, from engineering firms and paving contractors to energy, insurance, and telecommunications companies. People employed in road building range from engineers and architects to surveyors, project managers, heavy equipment operators and safety managers, to name just a few.

"Our industry represents a significant economic driver," says NSRBA president Brad Scott.

"Spending on infrastructure generates a huge amount of direct and indirect employment. The investment provides long-term benefits to Nova Scotia by enhancing the transportation of people and goods. It also enhances Nova Scotia's ability to attract tourists and corporate trading partners."

Road building has a long and storied history in Nova Scotia, going back more than a century and today the industry remains strong and healthy and is one of province's most modern and progressive sectors. The NSRBA works with government to standardize road building processes and develop environmental and safety regulations. The association also partners with other local industry associations and educational institutions to develop training programs.

And, every June the NSRBA is part of a transportation department campaign advising highway motorists to slow down near construction. "One of our overarching objectives is to ensure that our industry takes a highly professional approach that results in the best quality highways possible for Nova Scotians," says Scott.

"The association also provides a single forum for members to discuss important industry issues and communicate their positions on these issues to key stakeholders." Scott says road building has an exciting future in Nova Scotia, with a projected increase in employment and more work expected in the public sector resulting from infrastructure renewal programs announced by federal and provincial governments.



Joseph Robichaud Photography

Road building has a long and storied history in Nova Scotia, going back more than a century and today the industry remains strong and healthy and is one of province's most modern and progressive sectors.

Industry Capacity, Needs and Challenges

The ongoing challenge facing the industry, says Scott, is to secure from government a sustainable, long-term funding strategy for the province's roads.

He points out that while present funding levels have increased in recent years, they remain insufficient to halt the deterioration of existing infrastructure and meet new highway needs.

For the construction season last year, the Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) saw its largest ever capital program of \$325 million. The road-building industry produced one million tonnes of asphalt and replaced 17 bridges. The work included paving 150 km of 100 series highways and 500 kms of trunks, routes and local roads.

For 2010, NSTIR has projected a capital budget of \$310 million. This level of spending is higher than in past years due to federal infrastructure funding. Scott says that while this level of funding is encouraging, it still falls short of what's needed even to repair our roads and bridges, let alone to upgrade them for future needs.

"Nova Scotia has an accumulating infrastructure deficit. The province has 14,000 km of paved roads which last an average of 20 years. We would have to repave 700 km each year just to maintain the existing road system.

"Our province also has 4,100 bridges, many of which are above the national average in age. NSTIR estimates that nec-

essary spending over each of the next 10 years is in excess of \$400 million. Normalized capital budgets are significantly less than this level."

The province has committed to establish a rolling five year capital plan this year, which Scott says is also a step in the right direction.

"We're supportive of this initiative and hopeful that it will facilitate improved capacity utilization in future years. Stable and sufficient funding is essential."

What is the NSRBA?

- Founded in 1947, NSRBA represents contractors working in Nova Scotia who are engaged in road, bridge, heavy civil, marine, sewer and water main construction. The interests of suppliers to the industry are met through associate membership.

- NSRBA is the only organization representing the road-building sector in N.S.

- Our 150 member companies directly and indirectly employ approximately 7,500 individuals annually.

- Our work impacts significantly on the service and supply industry.

- We are distinct from the construction industry; we have unique working conditions and needs.

Industry realities

- Our sector is highly competitive.

- The industry is seasonal. Early tender calls are critical to timely tender completion.

- Safety is a top priority for the industry.

- Employees are highly valued.

- They expect, wish and are often required to work long hours.

- They are often away from home for extended periods.

- They originate from both rural and urban communities; from every county, town and village in the province.

- Their payroll and benefits substantially exceed minimum standards.

Spin-offs of road building

- Approximately 7,500 persons, directly and indirectly earning an estimated \$375 million in wages, are employed annually by the sector; and these numbers will grow as funding increases.

- Economic benefits accrue to communities and families across N.S.

- Goods and services required by contractors are purchased locally wherever possible, assisting small businesses province wide; a typical paving job brings increased revenues to the local market.

- Improves sustainability of Nova Scotia's rural communities and businesses.



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Road builders giving back

Building a strong community means more than just construction

By Tom Peters
Special Features Writer

Building a strong community means more than just construction for the Nova Scotia Road Builders Association. It also means helping people.

The association membership works to support local charities and two in particular are the Sackville Bedford Developmental Centre and the Turkey Club Society.

Guy Kendziora, with McAsphalt Industries Ltd. in Dartmouth and B.J. Harvey with Atlantic Cat/Cat Rentals, Dartmouth, co-chaired both silent and live auctions at the association's annual meeting in Halifax and raised \$15,370 for the Sackville-based developmental centre.

In the previous two years Kendziora and Harvey spearheaded events that raised \$80,000 for the Children's Wish Foundation and \$5,930 for the STAR program in Truro that provides recreational games, activities and sports for children with special needs.

Anna Weagle, program director for the Sackville Bedford Developmental Centre, located in the lower level of the Sackville Kinsmen Centre on First Lake Drive, says the donation is very much appreciated.

"It is absolutely awesome. It is the biggest fundraiser we have had in many years."

And the timing couldn't have been better. The centre, which is licensed for 30 children per day and historically offers programs for children with additional needs, has been struggling financially so the "fundraiser came at a time when we were able to



Bonnie Bobryk Photography

Cheque presentation: Guy Kendziora (left) of McAsphalt Industries Ltd. in Dartmouth; Brad Scott, president of the NSRBA; Anna Weagle, program director for the Sackville-Bedford Developmental Centre and B.J. Harvey, with Atlantic Cat/Cat Rentals, Dartmouth, present a cheque to the Centre on behalf of their members.

address some debt and pull us up. There is also part of it that goes for children's toys and equipment," Weagle says. "This is so timely. They will never know how timely this is."

Harvey says items for the auction were donated by the association's membership.

And why does the association do it?

"We just want to give back to the community," Kendziora says.

The Turkey Club Society of the Halifax Regional Municipality received \$5,000 last year from the road builders which was a significant contribution to the \$60,000 the society raised.

Jack Cruickshank, chair of the society that is made up of volunteers, says the \$5,000 raised through a road builders' golf tournament chaired by Ron Legere of Industrial Cold Milling, Dartmouth, is "a real boost for us because the total we raise for Christmas is \$60,000. We have very little expenses and I think that is one of the reasons the road builders support us. We keep expenses below five per cent and let them know where we spend the money."



Contributed

Turkey Club: Ron Legere (left), tournament chair with Jack Cruickshank, Head Turkey, and Ken Thomas, 2009 NSRBA president. The Turkey Club Society of the Halifax Regional Municipality received \$5,000 last year from the road builders.

Cruickshank said one of the biggest benefactors of the society, which supports organizations that help needy families, is the Parker Street Food and Furniture Bank in Halifax.

"We give them a cheque for \$25,000 when they are packing Christmas boxes for families. They decide where the money is spent."

The society also supports boys and girls clubs, Hope Cottage and other organizations.

The society would not have reached its \$60,000 goal if it wasn't for the road builders. "They are the largest contributor to the Turkey Club and we are more than tickled with it," Cruickshank says.



Changes

Continued from / E1

industry in Nova Scotia."

Early discussions in the development of the plan centered on the key areas the association must focus on in order to be successful as it moves forward. Those discussions led to the development of five key focus areas: association structure, industry liaison, public profile, labour and workforce development, and member services.

Scott points out that for each focus area the plan established strategic directives, success indicators, and action plans. In the focus area of association structure, for example, the strategic direction will be to revise the protocols for board membership, realign committees to meet current association needs, and give the executive director guidelines within which to operate.

Success indicators of asso-

ciation structure will be when the structure supports the association's core purpose and mission, appropriate committees are in place, the executive director has sufficient parameters to operate with reasonable independence, and when there are ample candidates, from the members, to serve. The action plan for restructuring the association will be the introduction of a structured meeting schedule with annual dates. Scott says that, overall, specific projects being undertaken this year include by-law amendments, committee restructuring, membership review, formalization and increased NSTIR/government meetings, and the completion of a workforce development needs study.

"The NSRBA is on target with this plan," says Scott.

"It will function as a guide for 2010 operations and give us direction and focus for the foreseeable future."

Standard

continued from / E2

high level of containment, and by restraining stray vehicles from entering a work zone. F-shape concrete barriers allow construction sites to operate safely in close proximity to busy roadways. Precast concrete barriers are useful for redirecting vehicles into new traffic patterns during different phases of construction. Whether it's a temporary or permanent barrier installation, F Shape traffic barriers reduce the risk of head-on collisions from out-of-control vehicles crossing over the median. The weight of barriers and the interlocking design provide sufficient inertia to redirect an impacting vehicle without requiring attachment to the highway. F-shape barriers also reduce the risk of erratic vehicles deflecting back into the traffic stream after a barrier collision.

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