



MANITOBA HEAVY CONSTRUCTION ASSOCIATION (MHCA)
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HEAVY CONSTRUCTION INDUSTRY – SUSTAINABLE PRACTICE, INITIATIVES

Climate Change and Green Plan

The MHCA submitted July 21, 2020, a position paper to the Manitoba Expert Advisory Council (Green Plan) regarding a proposed Green Transportation Strategy. The EAC released a discussion paper with a series of possible initiatives to promote reduction in the transportation sector's GHG emissions. MHCA's response included support for:

- the intent of/effort toward a green transportation strategy; government should consult industry prior to adopting legislative/tax/policy initiative that impacts the industry
- the design, building, maintenance and rehabilitation of efficient modes of transportation
- planning and investment in the Winnipeg Metropolitan Region's proposed transportation masterplan to prioritize/coordinate municipal investment in a regional trade-transportation network
- a whole-of-government, environmentally sensitive approach strategic transportation infrastructure planning and investment. Preserving access to finite aggregate resources in the Capital Region, which are now under threat from development pressures, holds measurable environmental benefit.

Strategic Investment in core infrastructure and the benefits to the environment

The MHCA initiated and the Canadian Construction Association (CCA), the national voice of the construction industry in Canada is in the beginning stages of a research and policy development project which reminds and encourages strategic investment in core infrastructure which demonstrate a direct benefit to the environment.

Roundabouts

The MHCA is an early proponent for the use of roundabouts for its safety, traffic flow, capital and life cycle cost savings and environmental benefits. Traditional intersections force vehicular traffic to slow down and stop in varying patterns and contribute to the increase in vehicular emissions. Roundabouts enhance the performance and safety of many intersections. They not only capable of improving traffic flow, but they can as well cut down vehicular emissions and fuel consumption by reducing the vehicle idle time at intersections and thereby creating a positive impact on the environment.

Six guiding principles for investment in core infrastructure

The MHCA developed and has championed six guiding principles for core infrastructure investment. They are:

1. Permanent program
2. Focus on economic growth
3. Embrace innovation in every respect including sustainability
4. Partner with the private sector
5. Dedicated revenue stream
6. Annual review for adjustment

Quarry Rehabilitation Program – Extraction Levy History

The MHCA initiated discussions that led to the implementation of an extraction levy now \$.12 for every tonne of aggregate extracted, dedicated under the provincial Mines Act to the rehabilitation of spent quarries. For the last at least three years, the MHCA has been advocating an increase to the tax to enhance the rehabilitation standards. The

program has already made significant contributions, generated economic activity, spurred the development of a small cottage industry, and has helped restore landscapes in and around rural municipalities affected by surface extraction of aggregate materials.

Recycling in Heavy Construction

Asphalt – pulled up from streets being renewed, asphalt is crushed to recover the oil to add to the production process of new asphalt, for paving roads; the City permits 15% of recycled asphalt product (RAP) in pavements.

Roofing shingles – old roofing shingles are recycled to recover oil product for use, as well, in asphalt used for paving roads. Shingles are shredded and reduced to a dust-like product called RAS, which is also added at the end of the production process of new asphalt; the City permits pavements to have 3% RAS.

Water – water pumped during dredging of pits and quarries (gravel, rock and sand) is returned to a settling pond, where sediment separates. The water is then used to wash the aggregates for concrete and is again recovered. About 2% of the water is lost in the process in stockpiles, etc.

Rubblizing

In road construction, a worn-out Portland cement concrete can be rubblized and then overlaid with a new surface, usually asphalt concrete. Specialized equipment breaks up the old roadway into small pieces to make a base for new pavement. This saves the expense of transporting the old pavement to a disposal site and purchasing/transporting new base materials for the replacement paving. The result is a smoother pavement surface than would be obtained if a layer of asphalt were to be applied to the unbroken concrete surface. The technique has been used on roads since the late 1990s and is also being used for concrete airport runways.

The rubblizing process provides many benefits versus other methods of road rehabilitation, such as crack and seal or removal and replacement of a concrete surface including: rubblizing a concrete surface is less expensive than remove and replacing concrete; rubblizing reduces road reconstruction time, from days of lane closures to hours, providing large savings to contractors and reduced impact on travelling public; and rubblization is an environmentally friendly "green" process.

RCA Edmonton: The solution in Edmonton for 3-63 mm material was to blend 60% RCA with 25% reclaimed asphalt and 15% other material such as soil cement, brick or granular.

Manitoba Infrastructure (MI)

Rather than recycling concrete, much of the concrete aggregate is used in place when roads and highways are renewed. This is done by rubblizing with heavy equipment the concrete pavement, compacting it and laying new bituminous pavement over top. From 2017-20, approximately 884,000 m² of rubblized concrete pavement was used.

Future of recycling in heavy construction

Recycling cement from demolished concrete construction materials for use in infrastructure projects is practiced in some jurisdictions (not Manitoba). Recycling cement is valuable as it is cement production that creates the greatest greenhouse gas emissions, notes University of Manitoba Prof. Asia Shvarzman, who also leads the research and innovation division at Antex Western/ACM Technologies.

Recycled glass is also used in some provinces, including Ontario and Quebec, in roadbuilding, with glass powder replacing 30-40% of cementitious materials to produce concrete. Shvarzman is optimistic for the potential, given the economic advantages, in Manitoba for recycled glass in concrete, but it would need a pilot project and producers would require new equipment in their plants. Recycled plastic is in development around the world as a road-building material, but still in initial stages.

Old carpets are also finding a place as a road-building material, in use in the United States, including in North Dakota.