

Avenues talks to Ontario municipalities leading the way with aggregate recycling

Recycling masters

By Treena Hein



It appears recycling is an excellent concept any way you slice it! And when the quality and consistency of the finished materials is first-rate, it can be the best win-win scenario possible.

Several municipalities in Ontario are leading the way by using recycled aggregates and saving costs while simultaneously realizing a wide variety of other sustainability benefits. “The use of recycled aggregates from crushed concrete within these forward-thinking jurisdictions helps preserve land by reducing demand for virgin aggregates from pits and quarries,” observes Moreen Miller, CEO of the Ontario Stone Sand & Gravel Association (OSSGA).

“Recycling aggregate also reduces energy consumption, lessens climate change impact and cuts overall costs,” continues Miller. “The production of construction aggregates, as well as its transportation, should include a sustainable balance of primary and recycled aggregates.” Using crushed concrete to make recycled aggregate prod-

ucts also significantly shrinks the amount of waste going to local landfill sites.

The City of Toronto is a strong proponent of recycled aggregate and has been using the material for years. “Recycled aggregate is a product that the city fully supports,” says Peter Pilateris, senior project engineer. Pilateris explains that a large amount of attention was first given to the potential of using the environmentally-friendly product around 2003 by the then-commissioner of the Works Department. “The main reason for this was the tangible environmental benefits of reusing old concrete,” he says.

Pilateris estimates that prior to ten years ago, the City of Toronto used recycled aggregate at least 60 to 70 per cent of the time, and since then, recycled product use has increased to almost 100 per cent. “The Design and Construction Unit within which I work uses recycled material as backfill for sewer and watermain installation projects and as road bedding and backfill on road construction projects

on the vast majority of projects – over 95 per cent of the time,” he says. “The quality and consistency is a lot more reliable now, which is great for all involved.”

FOCUS ON QUALITY

The consistency improvements over the years are due to “a big improvement in the quality control processes at the plants that recycle the material,” Pilateris says. He notes that concerns present long ago over the suitability and consistency of recycled material – primarily as applied to projects projects with wet conditions or less-than-ideal sub-grade conditions – have disappeared.

The drive to improve recycled aggregate quality has come from both the purchasers and producers, explains Mike O’Connor, executive director of the Toronto and Area Road Builders Association (TARBA) and CEO of the Ontario Hot Mix Producers Association. “The quality of recycled aggregates from reliable sources has been good for many years,” notes O’Connor.



“The Ontario Ministry of Transportation (MTO) has been accepting the product and even encouraging its use longer than that, and they do frequent testing to ensure quality. They have been very willing to use it, and have served as an example for municipalities.”

O’Connor says there is a well-defined Ontario Provincial Standard Specification (OPSS 1010) for recycled aggregate that paving company owners are beginning to use and aggregate producers follow religiously. He says there are now many permanent aggregate recyclers within TARBA’s membership, and one of the most significant factors driving growth of aggregate recycling over the last two years has been the distribution of TARBA’s Best Practices Guide. “Crushed concrete provides excellent quality that meets all physical aggregate requirements,” notes O’Connor.



Recycled aggregate being applied at an ongoing project at Queen St. and Spadina Ave. in Toronto. Recycled concrete was used under the track foundation slab and under the concrete road base as a Granular A base.

Photos courtesy of Chris Zawisza, inspector, road design and construction unit, City of Toronto.

OTHER MUNICIPALITIES

The Regional Municipality of York has

Applications

Typical granular applications for recycled crushed concrete and asphalt aggregates include:

- 50 mm recycled aggregate as granular sub-base for pavements
- 19 mm recycled aggregate as granular base for pavements
- Trench backfill material
- Engineered fill
- Stabilization of soft subgrades
- Fill under concrete slab-on-grade
- Pavement shoulders (MTO allows using up to 100 per cent crushed asphalt)
- Construction access roads, bicycle paths and trails, and rural driveways (100 per cent crushed asphalt)

(From "The ABCs of Aggregate Recycling" produced by The Ontario Hot Mix Producers Association and OSSGA)

used recycled aggregates for 20 years, says Stephen Collins, engineering manager in the Roads Branch of the Transportation and Community Planning Department. "Between 75 to 80 per cent of our Granular A road base material is now recycled concrete," notes Collins. "Our use has tripled in the last 20 years on an annual basis, mostly because recycled aggregate availability and use by our contractors has increased."

York Region is very rural in northern municipalities and very urban to the south. "The Greater Toronto Area (GTA) market (to the south) has a lot of old concrete being generated, so there's a good amount of source there, and it's price competitive," says Collins. "There are good relationships between the building demolition companies and construction companies that rip up concrete and aggregate producers."

Those in the Town of Oakville first started using recycled aggregate from concrete in the late 1990s as base granular material on a road rehabilitation project. "We continue to allow the use of recycled concrete ... up to the limits as provided for in OPSS specifications," says Erik Zutis, the municipality's manager of infrastructure planning. "As more and more plants and suppliers are accepting recycled material, we are seeing an increased use of these products on our construction projects."

AGGREGATE RECYCLING ONTARIO (ARO)

Aggregate Recycling Ontario (aggregate recyclingontario.ca) was founded in 2011 to provide a unified platform for industry stakeholders that produce, recycle and consume aggregate materials in Ontario. Initiated by OSSGA and TARBA, the organization was formed to bring attention and find a solution to the province's growing aggregate piles, as well as expand opportunities for recycling aggregates.

"As a group, TARBA had approached local municipalities as far back as 2008 and told the elected officials and employees who look after roads about the product, and how good the quality is," says O'Connor, who also serves on the ARO board. "Response has been good, but we still have some distance to go."

Nearly three million tonnes of aggregate recovered from GTA construction sites sit in piles to be processed. According to O'Connor, although the MTO and some municipalities have been leaders in using recycled aggregates for several years, many municipalities' specifications currently don't allow for recycled aggregates to be used in construction projects.

"We started (ARO) with seven or eight member companies and now have about 19 and 8 member associations," says O'Connor. "All the construction associations and recycling producers have joined ARO, and the strength of pooling our contributions means more exciting progress can happen." Member companies would like to expand opportunities for recycling aggregates by permitting more recycling facilities, especially in pits and quarries where companies can better utilize mined primary aggregates by mixing them with re-processed material. As well, ARO plans to engage in research and trial projects to develop new applications for recycled aggregates.

CHALLENGES

ARO executive director Moreen Miller says three main challenges exist in the effort to boost the use of recycled aggregates in Ontario. "Provincially, there is very little policy direction on aggregate recycling in



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existence, and that is where municipalities often take their lead,” she says. “We are looking at policy recommendations we’d like to see implemented as soon as possible.”

ARO has also discovered that there is a vast difference between support for and use of recycled aggregate by municipalities and regions. Miller notes that smaller municipalities have been more prone than larger ones to stick with well-known virgin aggregate sources that they have used for many years because of outdated concerns over quality. But that is changing.

Miller also explains that under *Ontario’s Aggregate Resources Act*, recycling of aggregate is not designated as a right, nor it is specified as a requirement. “A company can still seek and obtain a licence to produce aggregate with no requirement for recycling,” she says. “We believe that aggregate recycling should be an expectation of every new pit or quarry. In today’s road-building and construction sectors, it should be a fundamental requirement.” Companies will still need to extract raw materials and produce virgin aggregate, explains Miller, but they also should be expected to be innovative and take part in recycling.

“We are actively looking to support municipalities that use recycled aggregate to use more and encourage those that use none to start using the product,” adds Miller. “We are ready to show them the quality is fantastic – as good as virgin aggregate, if not better. Our goal is to use up all the province’s concrete stockpiles, and we would love to be in a shortage situation in the future.” ●

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