

POSITION PAPER - RECYCLING

The term **Recycling** is commonly used as an all-encompassing term. For purposes of understanding and regulating the activities involved it is important to recognize that there are two distinct steps. We propose the following definitions and descriptions.

Recycling: the use of reprocessed material, alone or in combination with other materials, to create clean, environmentally safe new products.

Reprocessing : all of the steps necessary to disintegrate, separate and/or sort previously-used waste material to obtain a useful product by removing undesirable or toxic components to produce clean reprocessed materials suitable for recycling uses.

In many instances, safe reprocessing is a highly skilled industrial activity that can involve multiple stages and a variety of techniques. In the case of aggregates it involves transport and stockpiling of demolition debris composed primarily of concrete from disparate sources, often mixed with contaminants of different types.



The demolition debris above must be crushed, separated, sorted, washed and segregated into toxic and non-toxic stockpiles before safe materials may be shipped to aggregate recycling plants and toxic or waste materials may be forwarded to specialized facilities for special handling and/or disposal.

Economically viable reprocessing of demolition debris is a large-scale industrial activity involving heavy equipment producing noise, dust and toxic elements. Safe reprocessing requires state of the art technologies, highly skilled technologists, appropriately scaled facilities and constant monitoring of inputs and material handling processes ...

Recycling begins after **Reprocessing** is complete.

We at PitSense heartily endorse **increased usage of recycled materials** for infrastructure improvements and construction projects. We also believe there are many examples around the world that can guide our implementation of increased usage.

Stationary Recycling Plant -

One good example is in the Netherlands where Kleemann has built a turnkey stationary recycling plant. [Europe's largest recycling plant](#) is located in the vicinity of Amsterdam's Schiphol Airport. This plant was designed and built by Kleemann for processing demolition waste, reclaimed concrete debris and asphalt into high-quality aggregate for the construction industry. It includes, among other units, Kleemann's largest impact crusher model SHB 20/160. The recycling plant has a feed capacity of up to 700 tons of material per hour. One year of planning, construction and assembly was needed before the new recycling plant was put into operation. **To protect the environment from dust and noise, the entire plant was subsequently enclosed with a trapezoidal panel construction.**



We oppose the scattered approach pursued by the aggregate operators in Ontario who want to locate limited capacity recycling operations in a wide variety of locations, many of which are in rural residential and/or environmentally sensitive areas. This approach does not take advantage of the significant economies of scale inherent in the Netherlands example. It also becomes far more difficult or impossible to obtain a consistent product and effective monitoring of the processes.

A U.S. study indicates that in order to realize economies of scale, a plant should process **at least 110 – 275 tons of debris per hour**, and in order to produce a reasonable return on investment, the plant should process and sell **no less than 200,000 tons of recycled aggregate per year**. This implies that urban areas of at least 1 million people are needed to support the operation of a stationary concrete recycling plant. There are no reasons to believe that this requirement would be substantially different in Ontario.

If we want to ensure the maximum utilization of recycled materials (as proposed in MPP Sylvia Jones' private member's bill) we must process the material in the most effective, economical, and socially responsible manner possible. Large-scale operations, appropriately located, are a responsible and economically viable way to proceed.

Mobile & Portable Recycling –

Increasingly, **on-site or at-source recycling** is favoured because it reduces haulage expenses and related hazards. Transport to and from a central facility is avoided, particularly where the product is re-used in the re-development occurring at the same site. Both Mobile and Portable recycling plants are utilized, depending on the volumes to be processed.

Crushing at the actual construction site using portable crushers reduces construction costs and the pollution generated when compared with transporting material to and from a pit or quarry. Large road-portable plants can crush concrete and asphalt rubble at up to 600 tons per hour or more. These systems normally consist of a rubble crusher, side discharge conveyor, screening plant, and a return conveyor from the screen to the crusher inlet for reprocessing oversize materials. Compact, self-contained mini-crushers are also available that can handle up to 150 tons per hour and fit into tighter areas. With the advent of crusher attachments - those connected to various construction equipment, such as excavators - the trend towards recycling on-site with smaller volumes of material is growing rapidly. These attachments encompass volumes of 100 tons/hour and less.

Portable Recycling Plant in use:



Photo Credit: Herington Times

Both approaches – large scale stationary plants or mobile/portable plants - **are superior to what is being proposed by Ontario pit and quarry operators.** With their approach we would have numerous limited-capacity plants **requiring haulage of unprocessed debris from demolition sites,** and storage of contaminated materials in or near sensitive environmental and residential areas **not suited to Class III Industrial activities.**