

# The Aggregate Program: Research with Economic, Social and Environmental Implications

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Aggregate is a strategic resource which is critical to the functioning of our society. From roads and airport tarmacs to concrete bridges and traction sand, all Nova Scotians use these basic materials every day as part of routine life. Much of the stone has an environmental connection such as erosion control, the prevention of siltation, coastline protection and concrete pads that support wind mills. More than 10 million tonnes of stone are extracted and delivered to construction sites throughout the province each year. The demand for aggregate will continue to grow as our population expands and our needs change.

Although the need for aggregate is undeniable, meeting the market demand is becoming increasingly challenging. Public works agencies are demanding high quality stone through rigid materials specifications, making the search for stone that will pass 'spec' more difficult. A host of land uses, such as residential development, wind farms, protected places and hiking trails are competing for the resource land, making much of it inaccessible for future use. The necessity of rigorous regulatory legislation is also restricting where aggregate operations can be established. And many people simply oppose new aggregate operations in their communities (or province) because of a fundamental dislike or distrust of this heavy industry. Aggregate potential in Nova Scotia is disappearing at an alarming rate.

Although aggregate quality is critical, the location of the deposit is equally important. You can have the best rock in the world but if it isn't competitively located, the site has no value. This reflects the high cost of transportation which is the largest component in the price of the landed aggregate. Hauling these heavy, bulk materials 15-30 tonnes to a truck load is very costly. Because of the difficulty of accessing/permitting new aggregate deposits near the markets they serve, the distances to new sources of materials are gradually increasing. Each additional kilometre that the stone is hauled means higher costs for the stone and the public works projects in which they are used. In the future this added cost burden may lead to difficult choices for government. Will we be able to afford the continued upgrading and repair of our infrastructure to make it safe and efficient, or will some of the money be sacrificed to service other critical public responsibilities such as medical care and education? There are also environmental costs to longer hauls associated with fossil fuel consumption, air emissions and truck damage to the roads for each additional kilometre that the stone (millions of tonnes) has to be hauled. Consequently finding the best materials in proximity to the construction site is an important goal.

The Aggregate Program has been evaluating the aggregate resource for more than three decades using methods such as field investigations, diamond drilling, sampling programs and laboratory analysis. The compilation and assessment of this information has allowed us to take a very focused look at the resource in the context of our resource needs. This is particularly important for bedrock aggregate which is the primary source of stone in the province. Recent research has identified strategic bedrock aggregate resource potential near the HRM market and along the Cobequid Highlands. Equipped with this knowledge we have the ability to protect strategic resource potential for future generations. Currently efforts are being made to promote the concept of protecting some of the most valuable resource land in a manner similar to important ecological landscapes and other special places.

Other research initiated with the future in mind has focused on alternative sand sources and rock dust fertilizer. Sandy tills are being examined to determine if they may be a suitable replacement for traditional sand sources which are under pressure. Preliminary research suggests that quarry fines may act as slow release fertilizers. Further study has the potential for establishing a new export industry, producing blends of different fines marketed as natural, environmentally benign soil conditioners.

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