

GIS Database Construction for the Annapolis Valley Aggregate Project

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Geological conditions at the end of the last glacial episode resulted in the deposition of large amounts of sand and gravel in the Annapolis Valley and surrounding areas. Numerous ice-contact, proglacial and glaciomarine deposits are found in the lowland and coastal areas. The North Mountain and South Mountain upland areas also contain scattered mounds and ridges of ice-contact gravel. Collectively these glacial sediments have met the aggregate needs of the communities for many decades. However, the continual exploitation of the materials has depleted many deposits and exhausted others. Sand sources in the eastern end of the region have also come under additional pressure to satisfy the demand of the Halifax-Dartmouth area, which has no natural sand deposits. The coarse stone component of the resource is also being affected by industry changes. The recent tightening of construction materials standards has favoured the development of crushed stone quarry operations throughout the region. These large bedrock deposits generally offer a more consistent, higher quality product than most glacial gravels. However, locating deposits which contain high quality stone is a challenge. The vast majority of the bedrock geology in the region will not meet construction aggregate specifications.

The aggregate resource is also being affected by land-use issues. Residential and commercial development, for example, is continually encroaching on the resource land. Similarly, recreational uses of the land such as cottages and hiking trails are expanding into the remote areas where the resource potential still exists. Infrastructure developments such as highways, power transmission corridors and communications towers are also expanding in the region. Many of these land uses not only sterilize the aggregate potential of the underlying land but commonly affect much of the adjacent land as well. Resource development is also being affected by social and environmental concerns. Issues such as view planes, species at risk, nesting habitats and archeological findings will make much of the aggregate potential vulnerable to sterilization in the future.

Collectively these issues will have negative consequences for the region's aggregate resource in the future. The problems will include diminishing stone reserves and difficulties accessing new, high quality deposits. In order to gain a better understanding of the resource DNR conducted an assessment of the aggregate resource in Hants, Kings, Annapolis, Digby and Yarmouth counties. This mapping and materials analysis study has looked at all aspects of the sand, gravel and bedrock potential throughout the region. Currently the fieldwork for the project is finished and the resulting information is being compiled into a digital database. The finished product will include point and polygonal data, descriptive fields, resource maps, sample analyses and a photo record of the fieldwork. A report describing the findings of the research will be prepared as the final component of the study. During 2005, the construction of the database continued with the entry of point data, descriptive fields and analytical tables. The work was carried out by Megan Little with the assistance of Geoscience Information Services at DNR. Ultimately it is anticipated that the information will provide meaningful input into identifying solutions to the problems which will face the region's aggregate resource in the future.