

Integrating Mineral Values in Provincial Land-use Decisions

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Nova Scotia has a vibrant mining industry with a long history and excellent potential to contribute to the economic prosperity of the province for many years to come. The mineral industry requires access to lands for exploration to identify new mineral deposits, thus ensuring the sustainability of the sector. Balancing stakeholder interests is challenging in all Canadian jurisdictions, and especially in Nova Scotia, which has one of the lowest proportions of Crown land (approximately 24%) and one of the highest population densities (6.17 hectares per person) in the country.

There are increasing pressures on land-use in the province, with many stakeholder groups asserting their desires for use of both public and private lands. Perhaps the most significant land-use development in recent years was the proclamation of the *Environmental Goals and Sustainable Prosperity Act* (EGSPA) in June 2007. This legislation commits the province to legally protect 12% of the province's land base by 2015. The designation of the Ship Harbour-Long Lake Wilderness Area (14 700 hectares) on September 17, 2009, brings the current total to 8.7% of the province. There are several initiatives underway to reach the stated 12% target.

As most people in, or associated with, the mining industry are aware, estimating the mineral potential of any given parcel of land is problematic since mineral resources, by their very nature, exist in the sub-surface and are mostly hidden from view. Accordingly, estimation of the potential for mineral resources requires a combination of surface information (e.g. geological mapping or geochemistry) and remotely sensed techniques (e.g. geophysics, drilling). Many global jurisdictions have addressed this challenge using a wide range of approaches.

The Mineral Resources Branch at DNR has been working for several years on an innovative approach to estimating the mineral values for Nova Scotia. A preliminary version of a Geological Resource Atlas (GRA) has been completed and is currently being used to evaluate mineral values in land-use decisions. The GRA uses a spectrum of data to assess mineral value, including: historical claim staking information (for the past 70 years), previous and current mining activities, exploration drilling, mineral occurrence databases, metallic and industrial mineral 'domain' data (i.e. geological environments with low-medium-high mineral potential based on various geological criteria), bedrock (crushed stone) and surficial (sand and gravel) aggregate resources, and peat deposits. Data layers are assessed with an ArcGIS®-based data model using the mineral claim grid (400 m x 400 m). The resulting mineral resource potential map layer can be compared to other information regarding forest, ecological, wildlife and other important land-use parameters to identify best-use for areas being considered for protection. A preliminary version of the GRA was used to identify mineral values in the Ship Harbour-Long Lake Wilderness Area and contributed to the decision to exclude 300 hectares of high mineral potential area from the original proposed area.

Ensuring that mineral values are clearly evaluated and given due consideration in future land-use decisions will help meet the EGSPA goals of maintaining a clean and sustainable environment, and a vibrant economy in Nova Scotia.

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