SUMMARY AND CONCLUSION

The overall health of the Muskoka River and Black/Severn River Watersheds is a **B-**. This evaluation is based on an analysis of the Water, Air and Land components of the natural environment.

The first Muskoka Watersheds Report Card was released in July 2004. It took a cursory and very strategic look at the health of the Muskoka and Black/Severn River watersheds. Three years later, there is a little more data upon which the evaluation of the watershed can be based. Although it is generally agreed that the health of the watersheds have not changed significantly in the three intervening years, our ability to analyze and evaluate ecosystem health has improved.

In 2005, the District of Muskoka completed its review and analysis of their recreational water quality model and the 20 years of sampling data. The review resulted in the Lake System Health Program and new restrictive development policy around lakes. The completion of the District review provided an updated understanding of lake nutrient levels and the health of lakes across the watershed.

In 2005, the Muskoka Heritage Foundation in collaboration with the Muskoka Watershed Council, District of Muskoka, and the Ministry of Natural Resources, began to develop the Muskoka Watershed Inventory. This project has provided a better and more detailed understanding of the health of our forests. We now understand the fragmented nature of the watershed and the vulnerable state of some of our most dearly loved natural areas.

The data we have on our air quality has not changed significantly over the last three years. The provincial air quality monitoring stations continue to record sporadic high levels of ozone and fine particulate matter, however, no trend is readily apparent. In Muskoka, we will not be satisfied with our air quality until there are no days during the year where smog is an issue. This will not occur until international agreements on air quality address the nitrous oxide (NO_X) and volatile organic compounds (VOC) emissions coming from the Ohio valley.

Comparison of 2004 to 2007

Water

In general, both the 2004 and 2007 analysis indicated that the recreational water quality in lakes is good to excellent with low bacteria and phosphorus levels and it is likely that the water quality of the lakes has not changed over this time period. Our understanding of the data, however, suggests that there has been a slight decline in water clarity over the 20-year time period for which there are monitoring data and this may be a first 'red flag' that should continue to be monitored. The reason for a decline in water clarity is not understood and may be a result of a change in types of algae, changes due to climate change, or a result of nutrient enrichment.

Drinking water continues to score very high. Both ground and surface water sources are clean and not subject to any significant threats. Over the next several years, the District of Muskoka will develop source protection plans that will provide an even higher level of security for our drinking water sources.

The aquatic habitat section expands on the fish section from the 2004 report card. In 2004, the report card highlighted a mild concern about fish. Many fish species had eating advisories and the Georgian Bay fishery was experiencing threats due to invasive species, fishing pressures and chemical contaminants. In 2007, these stresses have not lessened but our increasing understanding of the impacts of climate change has complicated the analysis. For this reason, fish have been addressed through the new Climate Change section, however, it should be noted that concern for our fish populations remains. This section also examines the loss of natural shoreline vegetation that is critical to the survival of many aquatic and terrestrial species. Additional work is required on this indicator to fully report on the health of aquatic habitat

A new section on Stewardship was added to the 2007 report card. People's actions around water will significantly impact the health of the lakes and rivers in the watershed. This is a difficult indicator to evaluate and will evolve as more sophisticated measures are developed.

Air

Air quality has not changed significantly over the three years between the first and second report cards. There is still concern about the level of ozone and fine particulate matter and the number of air quality advisories across the watershed. Without a concerted effort by all levels of government to reduce emissions through industrial regulations, conservation and improved transportation standards, air quality will remain the same or worsen.

Land

The Land section of the report card demonstrates the most change since 2004, although it is unlikely that there has been that noticeable a change on the land. As a result of completing the terrestrial component of the Muskoka Watershed Inventory the evaluation of the land section has benefited from a more detailed review of data. The watershed inventory identified landscape level concerns and geographic patterns that could not previously be understood. It is now evident that many ecosystems are not protected and are vulnerable to being lost. There are only a few very large intact natural areas that can support some of our native large mammals. In some areas of the watershed, even moderate sized natural areas are missing. These areas are important to support interior forest species like many birds.

A new area of concern is hardened surfaces. Scientific studies indicate that when 10% or more of a watershed or smaller catchment area is hardened, erosion and other damage will result.

The ongoing concern for the protection of the area wetlands continues. There have been no new wetland evaluations completed in the last three years. Although municipalities take a proactive approach, through the development process to protect these areas, much damage is done when no approvals are required. Increased education and stewardship are required, along with protection through the efforts of local land trusts.

Climate Change

A new section for the 2007 report card is Climate Change. Climate change will be the single most significant stress on the watershed in the foreseeable future. Although it is still too early to truly understand what changes will occur and the impact on the social, economic and environmental systems within the watershed, some early changes have been noted. It is generally agreed that there is little that can be done in the short-term to significantly alter the impact of climate change. Adaptation to rapidly evolving situations will be essential for both natural and human systems to survive.

People will adapt and find opportunities for improvement along the way. Many species and ecosystems will not be able to adapt as quickly and it is likely that many native species will become extinct. With these multiple stressors affecting our watersheds, maintaining healthy natural, intact ecosystems is the best insurance against widespread degradation.

Watershed Evaluation (B-)

The health of the Muskoka and Black/Severn River Watersheds has been defined through an analysis of the water, air and land. The following analysis of the Strengths, Weaknesses, Opportunities and Threats (SWOT) of the watersheds begins to highlight areas and programs that can address some of the identified threats, build on the strengths and take advantage of the opportunities to ensure the long-term health of the area. For the purpose of this report these term are defined as follows:

Strength – an inherent quality of the landscape, the geographic location, or human interactions that provides a benefit to the natural values and ecological functioning of the watershed.

Weakness - an inherent quality of the landscape, the geographic location, or human interactions that is a liability to the natural values and ecological functioning of the watershed.

Opportunity – an action that may result in an improvement to the natural values or ecological functioning of the watershed

Threat – an action that may result in a deterioration of the natural values or ecological functioning of the watershed

This analysis will form the basis for the next three-year work program to continue to monitor the health of the watershed and report again in 2010.

Strengths	Weaknesses	Opportunities	Threats
General			
Well-vegetated watershed with many natural areas.	Watershed is subject to multiple stressors including acid rain, invasive species, climate change, and development.	There are many associations and individuals becoming involved in stewardship and environmental action activities.	Climate change will impact all facets of the natural systems within the watershed
Good stewardship ethic by residents and district and area councils.	The area is located outside southern Ontario and there is limited funding opportunities or government programs to address data gaps.	New municipal planning policy is encouraging better individual stewardship.	There is insufficient data to understand the threats and potential impacts of climate change.
People have a passion for the natural beauty and strengths of the watershed.	There is poor data and there is no local organization with the mandate and dedicated budget to collect data and undertake the analysis to understand change and impact.	New funding opportunities are becoming available for environmentally related projects.	Current targets for the reduction in sulphur will not reduce acid deposition below critical levels.
Good planning policy.		As we begin to adapt to changing ecological processes and warmer temperatures many new social, economic and environmental opportunities will arise	Acid deposition has and will continue to impact the forests, waters and air quality of the watersheds.
		Increased development may provide opportunities for remediation and the protection of wetland areas and other important natural areas.	Increased development may encroach into natural areas or degrade wetlands and other natural areas.

Strengths	Weaknesses	Opportunities	Threats
Water			
Good to excellent recreational water quality in our lakes.	Small lakes that support cold-water fish are at the southern edge of their range and are being significantly impacted by warming temperatures which is reducing important bottom habitat.	There is a new comprehensive provincial program to develop source water protection plans.	Removal of shoreline vegetation as small 'traditional' cottages are replaced with large homes and lots are landscaped based on urban values.
Most lakes have only normal background levels of bacteria and have low levels of total phosphorus.		Fish tournaments that rely on warm-water fish will become more viable.	Introduction of invasive species through bait fish and boat movement
Good nutrient and bacteria data for most lakes across the watershed		Many lake associations are undertaking local lake planning.	Climate change and acid deposition
The Dorset Environmental Science Centre is located within the watershed and provides good scientific level data on many lakes and undertakes lake specific studies where warranted.			
Good clean sources of drinking water.		.	
Planning policy limits incompatible uses adjacent to municipal drinking water sources and encourages good stewardship adjacent to all lakes and other surface water sources.			

Strengths	Weaknesses	Opportunities	Threats
Air			
Improved air quality data with two watershed-based stations.	Location of the watersheds in the flow path of air masses from the Ohio Valley.	Current environmental climate is good to get real improvements in air quality legislation.	Increased industrial development in the Ohio Valley without improved air quality standards.
	Reliance on vehicle transportation from southern Ontario, especially during the summer when air quality is an issue.		Federal governments reliance on intensity-based air quality standards.
Land			
A forested landscape with many intact natural areas.	Only a few wetlands have been identified and classified as provincially significant.	General environmental concern has increased people's interest in donating land to land trusts.	Development may fragment the landscape and reduce the connectivity of natural areas
11 provincial parks including 2 large natural environment parks.	There is no comprehensive or coordinated program to evaluate wetlands	The District of Muskoka plans to develop a natural areas strategy in conjunction with the current review of its Official Plan	
There are large areas of crown land	Poor data sets to understand health of natural areas.		
Many privately owned large natural areas including hunt camps and lake association holdings.	The cores of built-up areas have more than 10% hardened surfaces and municipalities have not identified hardened surfaces as a concern for remediation.		
Three local land trusts	No comprehensive growth strategy to accommodate accelerated development pressures and to establish firm urban boundaries.		
	No comprehensive natural areas strategy upon which a protected areas plan can be developed.		