

Project Results and Recommendations

The following are the results and recommendations of the work carried out by the Steering Committee and Scenario Development Team for the Nature for Niagara's Future Project from June 2010 until November 2011. There are several key messages that the Scenario Development Team in particular wanted to include in this final document.

- The engagement approach was highly valued by the project stakeholders. The group chose to use consensus in their decision making and appreciated the opportunity to express their point of view and learn from other perspectives.
- This process provided an objective based quantitative assessment of the data produced through the Natural Heritage Areas Inventory (2006-2009).
- The Scenario Development Team established a set of ecological objectives to be used as the "measuring stick" with which to analyze the landscape for natural heritage values. This became the Baseline Comparator Scenario.
- Issues and concerns of stakeholders were valued in the process. Through discussions of socio-political constraints several scenarios were developed to investigate their influence on system design. These came together in the Most Constrained Scenario.
- Nineteen Learning Scenarios were developed throughout the evaluation to ensure robust analysis and to facilitate a deeper understanding of existing natural heritage resources.
- The Scenario Development Team concluded that no one scenario was preferred. However, their best attempt at addressing as many of the concerns expressed as possible resulted from the combination of several of the Learning Scenarios. This became the Compromise Scenario.
- The information tool produced through the project provides and benefits a wide range of decision support capabilities. Stakeholders expressed many potential uses for the data derived through the project by their respective organizations.
- The Scenario Development Team felt strongly that the information should be regularly updated and maintained.
- Several critical information gaps were identified through the process and should be filled for a fuller, more balanced analysis in the future.
- Key concerns of the Scenario Development Team centered on the idea of a policy being derived in a land use planning context from this process. It is important to understand the distinction between conservation planning as an exercise in system design/resource management, and land use planning for regulation.

The Scenario Development Team developed the following disclaimer to accompany any communications that might be associated with the project.

"The Scenario Development Team wishes to emphasize that the products developed through our collaborative effort are meant to serve as information and decision-support tools. The NHS scenarios should not be directly applied to any policy or land use planning purpose without subsequent refinement, consultation and interpretation."

Identified Data Gaps

- Municipal parks mapping is inadequate and inconsistent
- Complete mapping for riverine erosion/ valley land and NPCA regulations
- Unconstrained aggregate resources (unlicensed deposits) are not mapped
- Agriculture mapping from OMAFRA (Agriculture Resource Inventory)
- update groundwater discharge areas, collect data to support
- update mapping of rate of recharge in relation to type of cover (natural or non-natural)
- complete inventory of storm water management ponds and their contribution to hydrologic targets re: wetlands.
- update and complete database for Species at Risk, and other information to address fine scale species habitat gaps
- Study area wide vegetation level mapping to replace biodiversity surrogate units
- Pre-settlement Vegetation Mapping
- complete mapping on the locations of old growth areas within the watershed
- complete mapping of old growth forests throughout the watershed.
- better typing on the watercourse layer
- remove manmade drainage from the dataset where appropriate
- run the analysis of proximity of wetland patches as a book keeping exercise on the final scenario

The Final Scenarios

The work of the Scenario Development Team and the time spent assessing the information from the Learning Scenarios resulted in the adoption of three final scenarios. They are explained in detail in the following pages of this report.

Explanation of the Baseline Comparator Scenario

The Baseline Comparator Scenario forms the point of reference for all comparisons within this process. The Baseline Comparator Scenario reflects the best available science for targets and ecological thresholds, and the current policy and legislation that affects land use in the study area.

The targets and socio-political constraints used in the development of the Baseline Comparator Scenario were set by the Scenario Development Team (SDT) during ten full day workshops between October of 2010 and November of 2011. The constraints and targets are based on the best science and information available to the team. When there was additional information required to make a decision, subject matter experts were brought into the SDT meetings to help explain and clarify the information being presented.

For much of the process, the SDT insisted on two Baseline Scenarios, because SDT members representing agricultural, urban development and aggregate interests felt strongly that exclusion of all lands that currently or, which could potentially support their land use interests, best reflected existing land use policies. Eventually, the group came to consensus on use of the final Baseline Comparator Scenario when the decision was made to present the Most Constrained Scenario (formerly Baseline1) as one of the Final Scenarios. In what became the Baseline Comparator for this project (formerly Baseline 2), agricultural, aggregate deposits and urban areas were accounted for using costs rather than through an exclusion status.

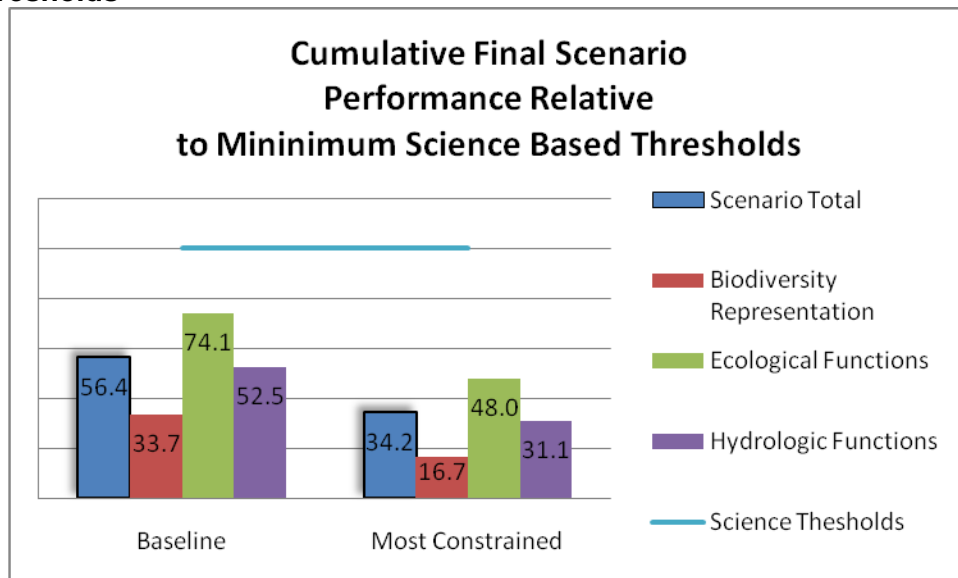
In relation to science thresholds, the Baseline Comparator Scenario achieved only 56.37% of the relative value that would be required to meet the science objectives. This Scenario occupied 27.61% of the total land base and needed to use 97.33% of all available natural cover.

What this means is that even if more than 97% of what is currently natural within the study area, is included, just over 56% would be achieved towards the cumulative amount of what science suggests are the minimum thresholds for healthy and sustainable resources. In essence, this demonstrates that even if all of the existing natural cover remaining across the watershed were included within a natural heritage system, the minimum thresholds currently suggested by science cannot be achieved.

If one looks at the achievement in relation to the various types of ecological targets, this Scenario captures only 33.7% of the value related to Biodiversity Representation targets, but 74.1% of the value in Ecological Function targets, and 52.5% of the value in Hydrologic Function targets when compared back to the minimum science-based thresholds. The low Biodiversity Representation percentage here is likely related to the use of a 5% minimum representation as suggested by the literature. If the group had chosen to go with a 3% minimum representation, this percentage would have been slightly higher. The big picture is that there is insufficient existing natural cover across the watershed relative to the minimum science-based thresholds and in addition, what does remain is highly fragmented.

Only the Baseline Comparator Scenario is necessary to compare to the science thresholds in order to gain an understanding of the current condition of the landscape; all other scenarios are subsequently compared to the Baseline Comparator since all other scenarios represent deviations from the baseline condition.

Figure 6 : Cumulative Final Scenario Performance Relative to Science Thresholds



Explanation of the Most Constrained Scenario (formerly Baseline 1)

The Most Constrained Scenario as the name implies is the Scenario in which the team chose to exclude large portions of the landscape from contributing to the ecological targets based on current or potential future land uses such as agriculture, aggregate extraction or urban development. The vast majority of natural features that were allowed to contribute to ecological targets under this scenario consisted of land already protected through existing policy and legislation such as Provincially Significant Wetlands (PSW's), etc. that had been assigned an included or conserved constraint status. Very little area of natural cover without an excluded or included status remained under this scenario option. As a result, there was no opportunity to optimize for a design under this scenario since much of the natural cover which could or could not contribute to targets had been fully prescribed across the land base.

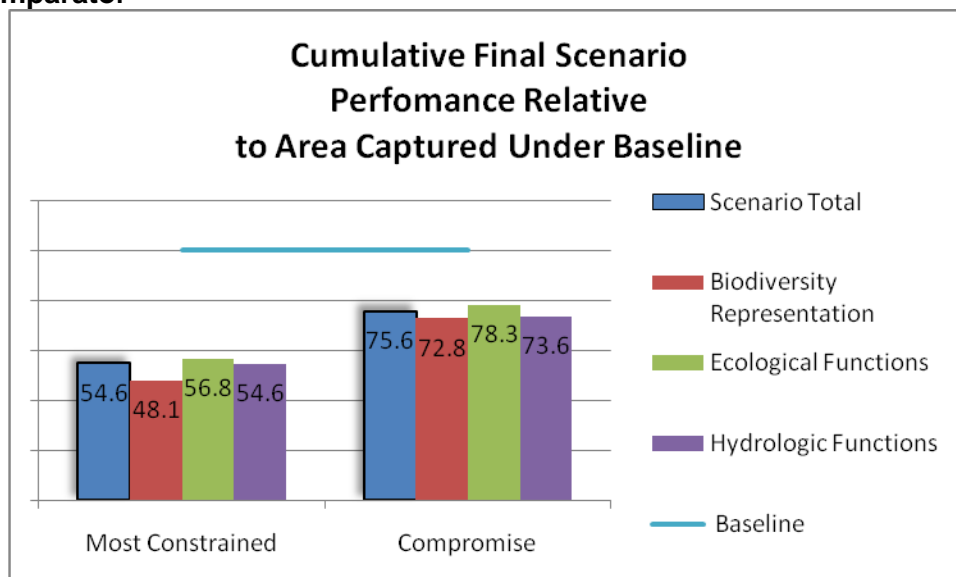
Essentially this Scenario reveals the contributions towards targets by nothing more than the existing parks and protected areas currently established in the watershed.

The changes under the Most Constrained Scenario relative to the Baseline Comparator Scenario include:

- Exclusion of all Agricultural Lands with an agricultural soil capability rating between 1 and 3
- Exclusion of all areas of bedrock deposits mapped under the Aggregate Resources Inventory
- Exclusion of all lands within the Built Boundary of the Growth Plan

The results of this scenario reveal that if only those areas of natural cover already protected through existing policies and legislation are maintained across the landscape, only 34.15% of the minimum science-based thresholds are achieved and only 54.58% relative to the Baseline Comparator.

Figure 7 : Cumulative Final Scenario Performance Relative to Baseline Comparator



If one looks at the achievement in relation to the various types of ecological targets, this Scenario captured 48.11% of the targets for Biodiversity Representation, 56.82% of the targets for Ecological Function targets, and 54.59% of the value in Hydrologic Function targets relative to the Baseline Comparator Scenario.

If one compares these same types of ecological targets back to science thresholds, this Scenario achieves 16.7% of the value related to Biodiversity Representation targets, 48.0% of the value related to Ecological Function targets, and 31.1% of the value related to Hydrologic Function targets. The extremely low percentages here especially related to Biodiversity Representation are the result of the exclusions and the fact that essentially only the value associated with wetlands that are locked into the model are being captured.

This Most Constrained Scenario occupied 12.69% of the total land base and used 44.73% of all available natural cover. Of the nearly 45% natural cover captured, nearly all of it was already protected through existing policies and legislation and assigned an included status.

Perspectives of the Agricultural, Urban Development and Aggregate communities in support of the Most Constrained Scenario

The following are position papers presented by the Agricultural representatives, Urban Development representatives, and the Aggregate representatives to the Scenario Development Team. It explains the position of these interests in relation to the development of a Natural Heritage System within the Niagara watershed. It provides the perspectives of these stakeholders and explains why they were unable to agree to just one preferred scenario option.

Agricultural Lands

Natural Heritage System -- January 19, 2011

It is the position of the Niagara North and Niagara South Federations of Agriculture that Prime Agriculture Lands (Class 1, 2, 3 including specialty crop areas as per PPS definition) with regards to identifying the applicable Socio-Political Restraint, shall be considered as excluded, for the purposes of designing a Natural Heritage System.

This position is also supported by the Ontario Federation of Agriculture.

The Provincial Policy Statement also points out that in section 2.1 – Natural Heritage -sub-section 2.1.7 “Nothing in policy 2.1 is intended to limit the ability of existing agricultural uses to continue”.

The OFA believes first and foremost that agricultural lands are designated primarily for sustainable and profitable agricultural production. Their role in preserving, protecting and enhancing natural heritage is secondary.

The Natural Heritage Planning Manual (published as a support document for the Niagara Scenario Development Team) supports the Federation position in the definition of “constraints”. “The idea of “constraints” reflects the fact that areas vary in their availability for inclusion and /or modification in a natural heritage system”.

“Because prime agricultural land, built-up urban areas, and /or lands zoned for industrial development cannot be used for any other purpose, they are labeled “excluded”. (Natural Heritage Planning Manual)

Further support for the Federation position can be found in the presentation entitled “Natural Heritage System Analysis, The MARXAN Decision Support Model”. This presentation was presented by Steve Voros of MNR to the Guelph District Staff and partners, July 3, 2008 in Guelph. In the power point presentation under the slide title of “Identifying the System Using MARXAN, Socio-Political Inputs”, urban and prime agriculture lands are identified as “excluded”.

In referencing the Natural Heritage Reference Manual, (published by Ministry of Natural Resources) page 9, section 2.3.2, it clearly states that “The Ontario countryside supports both agricultural and natural heritage resources.” “It is important for municipal land use planning documents to fully take into account agricultural and natural heritage policy direction set out in the PPS.” “The PPS directs that Ontario’s prime agricultural areas are to be protected for long-term use for agricultural (policy 2.3), and in prime agricultural areas all types, sizes and intensities of agricultural uses and normal farm practices shall be promoted and protected (policy 2.3.3.2) in accordance with provincial standards.

The agricultural community recognizes the important contribution that they are currently providing to linkages/corridors of the Natural Heritage Landscape. We also agree that should prime agricultural lands be rezoned under a Planning Act application out of agriculture, then their role as a linkage should be recognized appropriately.

Opportunities for linkages/corridors also currently exist through land covered by the Conservation Land Tax Incentive Program. Many farmers currently take advantage of that program thereby indicating support of conservation activity. Other farmers may also want to participate in contributing to a Natural Heritage landscape by joining the Conservation Land Tax Incentive Program, but this should be on a strictly voluntary basis. It should also be noted that lands identified under Provincial Significant wetlands or other legislation

The farming community will not tolerate additional restraints on their ability to conduct normal farming practices. While it may be argued that “policy” is not the intent of this particular exercise, the farming community tends to look (similar to their own farming operations) into the future to establish goals and direction. Based upon experiences from other parts of the province where NHS has been completed, municipal policy has been implemented to the detriment of the farming community. With food production being the major economic engine in the Niagara area, the farming community will tread very carefully.

Presented by: Henry Swierenga, Ontario Federation of Agriculture

Urban Lands

Urban Development Concerns – January 2012

The Niagara Home Builders Association appreciates the opportunity to participate in this process, and looks forward to future collaborative efforts to achieve balance between conservation efforts, and growth. Having said that, the NHBA neither endorse nor recognize the Nature for Niagara’s Future mapping as anything more than a coarse scale screening map of potentially significant features on the landscape. Despite the “consensus based approach”, we

feel that biased assumptions and positions made throughout the process have produced a skewed finished product.

Moreover, we feel that efforts to “ground truth” the mapping have not been as extensive as would be necessary. Consequently, this mapping and all of the features contained within it are almost entirely based on assessments of aerial imagery which does not substitute scientific study. These assessments and assumptions taken from photos, coupled with the significant data gaps acknowledged by NPCA staff, mean that these maps are inherently flawed. Without further review and investigation on a site-by-site basis, the designation or classification of features on the landscape proposed by this mapping are preliminary at best. In addition, the fact that multiple maps were assessed, each different from one another further supports that the finished product of this exercise is subjective and arbitrary.

While we can understand the Regions interest to look holistically at the environmental features they wish to conserve, we feel it cannot be over stated that the “wish list” that is this Nature for Niagara’s Future would bring with it significant implications to the socio economic future of the watershed and it would be irresponsible of us to promote the benefits of the project without examining the consequences.

Most significantly, the fragmentation of our developable land, and the overall reduction of it by sterilizing land for conservation negatively impacts the affordability of housing. The fragmentation of developable land that results from corridors, and linkages of environmental features makes for an inefficient and expensive network of infrastructure required to service the lands which remain. Further, the general reduction of land available for development drives up the cost of the land that remains, and limits the number of houses which can be built. It’s a simple supply and demand equation; fewer homes being built on lands that are expensive to service will naturally be much more expensive, and with demand pressures in place, but supply numbers limited, home ownership could eventually be unattainable for an increasing number of people. Not just new homes either, re-sale home prices are equally impacted by a reduced supply of housing.

Notwithstanding the reduction in land supply that would result from an eventual implementation of the Nature for Niagara’s Future objectives, there is still a demand for housing and forecasted growth for Niagara to the year 2031 and beyond. The reduction in the supply of land combined with the anticipated growth pressures could jeopardize municipalities from realizing their expected growth potential. Without sufficient land to accommodate the growth, and with the resultant prices being dissuasive to growth, development could migrate out of the watershed capping the tax base municipalities depend upon to grow and finance their infrastructure and services, resulting in fewer people picking up more of the tab.

These concerns are merely brief overviews of some of the implications of government land takings. It is for these generalized reasons though that we object to the further sterilization of lands within our urban area boundaries. It’s becoming increasingly difficult for middle to low income households to afford housing, and the resulting debt load being taken on by Canadians in order to attain housing is hurting our collective growth potential. Moreover, as housing prices

are driven ever higher, more and more people cannot afford home ownership which puts a strain on our rental housing supply and need for subsidized housing which only exacerbates the financing obligations of tax payers.

The media and general public like to villainize developers as being greedy and ruthless toward the environment, but it's not the developer or home builder that pays the consequences of these policies, it's the new home buyer. We in the development and home building industry provide the voice for these people in need of a place to call home. We believe that housing should be affordable, and that people should have the right to choose how and where to live.

We understand the need for balance and aren't suggesting that everything within the urban area boundaries should be fair game for development, but we fear that the Nature for Niagara's Future mapping proposes to take conservation efforts beyond what is a fair and balanced approach. Conversely, we do acknowledge that this mapping enables us the ability to measure features and their contribution to the overall "system". As much as we question the validity and perceived significance of some of the targets and features identified through this project, we would support the ability to make trade-off's on the landscape in order to consolidate conservation lands while allowing for growth and development to proceed in a practical and cost effective form, and this mapping software could enable such compromise.

To conclude, we are reassured to learn that this product is merely an information tool, and not being considered for incorporation into Official Plans, or enshrined with policy. Should the decision ever be made to advance this Plan into the realm of regulatory planning, the Niagara Home Builders Association requires to be so notified. It will ultimately become the responsibility of our elected officials to weigh the pros and cons when deciding whether or not to endorse the Nature for Niagara's Future mapping, but they (along with the general public) need to be made aware of the consequences; it would be reckless and irresponsible not to do so.

Presented by: Jonathan Whyte, Niagara Homebuilders Association

Aggregate Lands

Natural Heritage System – OSSGA Submission

It is the position of the Ontario, Stone, Sand and Gravel Association (OSSGA) that bedrock resources identified by the Ministry of Northern Development and Mines (MNDM) Aggregate Resource Inventory Papers (ARIP) be excluded in the Niagara Peninsula Conservation Authority designation of a natural heritage system.

OSSGA believes that the protection of aggregate resources for future use is vital to the economic and environmental health of the region. The study area is blessed with excellent resources that when needed will provide a locally sourced material. This will reduce the need to transport materials over long distances, saving on greenhouse gas emission and environmental degradation.

Support for OSSG's position can primarily be found in the PPS. For example, section 2.5.1 of the Provincial Policy Statement requires that "Mineral aggregate resources shall be protected for the long term", in addition section 2.5.2.1 suggests that "as much of the mineral aggregate resources as is realistically possible shall be made available as close to market as possible".

The aggregate industry feels that they can make a positive contribution towards a natural heritage system through progressive and final rehabilitation of licensed sites. However, OSSGA strongly believes that legislation must allow for the flexibility to license new aggregate extraction sites.

Presented by: Mike Scott, Ontario Stone, Sand and Gravel Association

Explanation of Compromise Scenario

This Scenario reflects the Scenario Development Team's (SDT) best attempt at finding a middle ground solution between the two extremes of the Baseline Comparator and the Most Constrained Scenarios. Of all of the Learning Scenarios run throughout this process, it is most reflective of the overall discussion, common vision and gathered the most support. The team could not arrive at a Preferred Scenario through consensus but "consensus does not mean that everyone has to agree, but simply has to agree to move forward". This Scenario was presented by the project team as the product of our efforts to work together.

This changes under the Compromise Scenario relative to the Baseline Comparator Scenario included:

- No Distribution of targets by soil landscapes or watershed planning areas (i.e. targets were applied and assessed across the watershed as a whole);
- 80% of what remains, targets were all set to 80% of what currently exists of each feature across the watershed;
- Areas in the Natural Areas Inventory classified as Meadows (i.e. successional community type) were removed from contributing towards targets based on the assumption that they could be agricultural lands that are being left fallow and could be brought back into production;
- All natural areas within the Urban Built Boundary were prescribed either an included or excluded status based on input from the Urban Development representative on the SDT. Natural Hazard lands formed the basis for included natural areas.

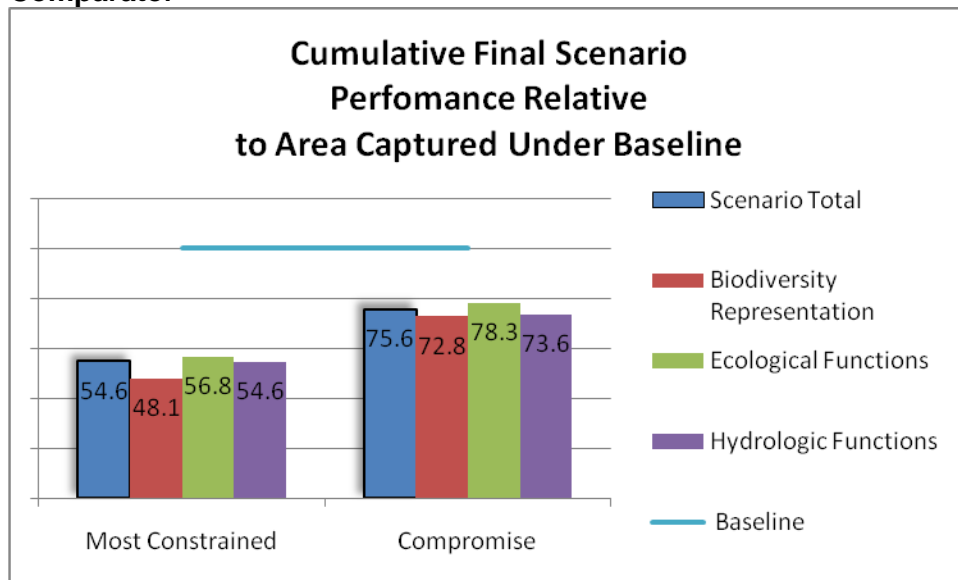
The Compromise Scenario achieved 75.64% of the relative value captured by the Baseline Comparator. If one looks at the achievement in relation to the various types of ecological targets, this Scenario captures 72.78% of the value related to Biodiversity Representation targets, 78.34% of the value in Ecological Function targets, and 73.55% of the value in Hydrologic Function targets when compared back to the Baseline Comparator Scenario.

This Compromise Scenario occupied 17.37% of the total land base and used 61.24% of all available natural cover.

Now remember, 80% of what remains was to be included for each target across the study area,

due to the fact that this is an efficiency model, it met most of the targets at 80% by some features meeting more than one target hence it only needed 61.24% as its footprint. In addition, because meadows were excluded from this final scenario, the natural cover that would have contributed here was not considered. This is why there are shortfalls of the target under Biodiversity representation in particular.

Figure 8 : Cumulative Final Scenario Performance Relative to Baseline Comparator



Conclusion

This process has seen the stakeholders work through a robust assessment and evaluation of the existing natural heritage features; and the way in which they contribute to overall system objectives set on the basis of the best available science, information and knowledge. As a result there is a much better understanding both quantitatively and qualitatively of the landscape. In addition, there is a deeper respect for the varied points of view, stakeholder concerns, and the potential impacts and benefits of the information tool created. The end product of this process is the information that will help to create the backbone of a natural heritage system for Niagara.

While Scenario Development Team didn't get to one preferred scenario, all is not lost.

The relationships built through 14 months of really listening to each other and working through the evaluation is valuable in its own right.

The project generated 52 gigabytes of information from the evaluation. This provides critical information on every natural feature in the watershed. There is now information on the contribution of each natural feature to the targets. The information now exists about which targets a features contributes to, and by how much. The data gives the relative importance of each feature in relation to every other natural feature. The data is an information tool.