

# ENGINEERING AND TECHNICAL SERVICES ADVISORY COMMITTEE (ETS)

## AGENDA

Meeting: Friday, March 12, 2010

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### Committee Members

Ralph Hough	Township of Oro-Medonte
John McKean	Town of The Blue Mountains
Chris Carrier	Town of Collingwood
Mary Brett	Township of Adjala-Tosorontio
Cal Patterson	Town of Wasaga Beach
Gerald Poisson	City of Barrie
Joan Sutherland	Town of New Tecumseth
Robert Walker	Township of Clearview

### Staff Members

Glenn Switzer	Director of Engineering and Technical Services
Tina Desroches	GIS Analyst
Ryan Post	Hydrogeologist/Source Water Protection Coordinator
Brian Smith	Water Resource Technologist/Flood Warning Coordinator
David Featherstone	Manager, Watershed Monitoring Program

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### ITEMS FOR DISCUSSION

1. Adoption of Agenda.
2. Election of Chair and Vice Chair.
3. Program overview including: Key Mandates, Business Plan Targets, 2009 Program Highlights and 2010 Program Direction/Expectations for the following program areas: Engineering Services, GIS and IT services, Watershed Monitoring Program, Flood Forecasting, Source Water Protection/Groundwater Program.
4. Review and Discussion of Proposed Business 2010 - 2012.
  - a. Review and discussion of proposed business plan – program priorities, staffing and actions contained in draft Appendix E Engineering and Technical Services (Attachment A).

### Recommendation

That Engineering staff develop a final version of the Engineering and Technical Services component of the 2010 -2012 Business Plan based on recommendations of the Engineering Advisory Committee, and the April 9, 2010 NVCA program review Board member workshop, for consideration of the Board of Directors at their May 14, 2010 meeting.

5. Other Business.
6. Adjournment.

# **Appendix “E”**

## **Engineering and Technical Services**

**This Appendix Includes:**

- **IMPLEMENTATION PRIORITIES**
- **COMMUNICATIONS PRIORITIES**
- **STAFF RESOURCES**
- **IMPLEMENTATION STRATEGIES, ACTIONS, AND RELATED TARGETS**

## **IMPLEMENTATION PRIORITIES**

To assist in achieving NVCA's goal, objectives and targets, the following summarizes the Engineering and Technical Services implementation priorities

- Provide engineering and natural heritage review services in support of Planning Services
- Update the technical standards for engineering submissions
- Complete the HSPF hydrologic model for the Nottawasaga River system
- Operate and maintain flood warning and forecasting system
- Operate and maintain flood and erosion control structures
- Continue development of the NVCA Flood Forecasting Model
- Complete the annual update of our Flood Operation and Maintenance Manuals
- Manage the NVCA low flow monitoring program
- Manage the NVCA groundwater management & Source Water Protection programs
- Develop a natural heritage monitoring program focused on NVCA lands and key watershed priorities (including invasive species)
- Delivery of the PWQMN, PGWM, biomonitoring and in-stream temperature monitoring programs
- Complete an annual update of the Watershed Report Card
- Operate and maintain GIS and IT systems
- Maintain a metadata catalogue for NVCA data holdings
- Acquire and share geospatial data needed for all programs through our partners
- Provide NVCA staff with custom GIS/IT tools to help meet business needs effectively

## **COMMUNICATIONS PRIORITIES**

To assist in the implementation of NVCA's Corporate Communication Strategies, the following are Engineering and Technical Services Communications Actions.

### Engineering Program:

- Directly communicate plan review & technical support information to program clients and consultants

### GIS and Information Technology Programs:

- Communicate directly with NVCA staff to provide GIS support
- Meet with GIS/IT user groups consisting of GIS staff from NVCA, counties, municipalities and other local agencies.
- Continue to meet and network with the South Central Ontario Conservation Authorities (SCOCA) GIS user group and other neighbouring CAs
- GIS/IT Update Newsletter/Emails for NVCA staff and municipal partners including any new data resources, project updates and tips and tricks for using our data

### Watershed Monitoring Program:

- Provide annual stream health updates on a subwatershed basis (2 updates/year; subject to data availability) with new Watershed Report Card every 5 years (2007/2012/2017...)
- Develop a Watershed Groundwater Overview
- Work with Lands and Bass Lake Ratepayers Association to construct and deploy a loon nesting platform in Bass Lake in support of Report Card findings
- Work with Stewardship Program and other partners to develop Orr Lake report card (stewardship focus)
- Work with Oro Moraine Working Group, LSRCA and other partners to develop Oro Moraine Report Card
- Continue to enhance natural heritage portion of NVCA website (subject to capacity – invasive species, Species At Risk, canoeing opportunities)

### Flood and Erosion Hazard Management:

- Issuance of Flood Warning, Advisory and Safety Bulletins to all appropriate parties as per the Flood Emergency Response Plan.
- Conduct direct communications with all appropriate municipal emergency response staff.
- Meet regularly with the GTA Flood Forecast Group

### Source Water Protection:

- Participate in the Source Water Protection (SWP) Communication Working Group
- A communications strategy has been developed by the SWP Team to guide public consultation post-legislation. this strategy was developed in the first phase of SWP, and will guide the completion of annual work plans

## **STAFFING RESOURCES**

The following table identifies the Engineering and Technical Services staff and outlines their status and duties

<b>Position</b>	<b>Employment Status</b>	<b>Chief Duties</b>
Director	FTP	Member of Senior Management Team responsible for leading & administering the Water Resource Engineering, Natural Hazard Management, Environmental Monitoring GIS/IT Services Program and Source Water Protection programs
Water Resource Engineers  (2 positions)	FTP	Responsible for the delivery of water management programs in two program areas: - Engineering review for applications submitted under the Planning Act and the Authority's Regulations - Engineering studies and special projects - Provides engineering support for flood forecasting and warning, and flood control structures operation and maintenance.
Hydrogeologist /Source Water Protection Coordinator	FTP	Responsible for coordinating source water protection planning and providing technical expertise related to groundwater resources and groundwater quality.
Water Resources Technologist	FTP	Responsible for the development and delivery of the Authority's flood forecasting and warning program and flood/erosion control structures operation and maintenance
GIS Analyst	FTP	Responsible for the development and management of the Authority's GIS and Information Technology system in support of all of the Authority's programs, and for the maintenance and operation of the Authority's computer systems.
GIS Technician	FTP	Developing and populating spatial data layers, fulfilling data requests and map preparation while assisting Conservation Authority Staff with GIS related requests.
Manager, Watershed Monitoring Program	FTP	Responsible for the development, administration and delivery of an effective watershed monitoring program, natural heritage strategy program, natural heritage plan review and special studies for the Authority.
Watershed Monitoring Specialist	FTP	Responsible for the collection, organization, and analysis of field monitoring data for the Watershed Monitoring Program.
Watershed Monitoring Technician	Contract	Responsible for assisting Watershed Monitoring Specialist with monitoring tasks.

## IMPLEMENTATION STRATEGIES, ACTIONS, AND RELATED TARGETS

The following chart provides a brief summary of the implementation strategies and outline of their success for the programs within the Engineering and Technical Services.

### Engineering Program (400):

2010-2012 Implementation Strategies	2010 Actions	2011 Actions	2012 Actions	Related Targets
Provide Engineering Plan Review Services	Ongoing	Ongoing	Ongoing	<u>Primary Targets</u> <ul style="list-style-type: none"> <li>▪ 100% Healthy Streams</li> <li>▪ Zero unauthorized development in Hazard Lands</li> </ul>
Develop tools that streamline plan review and clearly define the NVCA submission requirements to developers	Development guidelines, oil grit separators, end of pipe facilities check list as time permits	Ongoing	Ongoing	
Provide Engineering Support for the C.A. Regulations	Ongoing	Ongoing	Ongoing	
Provide engineering services for special projects	HSPF, Mike 11 hydrologic modelling, Low Water Program	Ongoing	Ongoing	
Assist with IT Support	Assist as necessary	Assist as necessary	Assist as necessary	

**Geographic Information System / Information Technology (410):**

<b>2010-2012 Implementation Strategies</b>	<b>2010 Actions</b>	<b>2011 Actions</b>	<b>2012 Actions</b>	<b>Related Targets</b>
<b>1) Maintenance, Technical Support and Training</b>	GIS and IT support to all NVCA staff	On Going	On Going	GIS/IT provides support to all Departments in the NVCA in support of all the NVCA goals and objectives
Metadata Development	Update Metadata on GIS layers,	Ongoing	Ongoing	All New layers be created with Metadata Going back to historical data and updating when information is known and when time allows
Assist with Special Projects involving GIS Analysis	Examples: Source Water Protection, Natural Heritage, Generic Regulations, 3D South Simcoe Geological Study, Agricultural Resource Inventory, Landuse Updating, Southern Georgian Bay Coastal Initiative, Online Mapping, Watershed Report Cards	Ongoing	Ongoing	GIS staff provides data management, compilation, analysis and data related project management in support of NVCA projects
Co-ordinate/Maintain sharing agreements with OGDE, MNDM, OMAF, Counties, Municipalities, Conservation Authorities and other agencies	Maintain relationships and share GIS data and applications	Maintain relationships and share GIS data and applications	Maintain relationships and share GIS data and applications	GIS department recognizes the benefit of maintaining and developing new partnerships and working relationships with external agencies
Develop and Implement a Centralized Database Environment	Continued Development on Centralized Databases for all NVCA staff programs, Ongoing Geodatabase development (Planning, Education, Watershed Inventory, GIS tasks/mapping, Healthy Waters, Engineering, Lands, Admin, ...)	Continued development	Continued Development	Centralized Databases developed in SQL Server Enterprise Customization of Front End applications and reports for Users Databases are meeting several varying program business needs of the NVCA
<b>2) New Initiatives</b>				
Update Generic Regulation Hazard Mapping	Revise Slope, Wetlands and Meanderbelt, finalize revised floodlines, produce new mapping and document changes	Continued Development	Continued Development	Support the Planning department by providing updated mapping that will help them better meet their regulatory mandates.

**Geographic Information System / Information Technology (410): cont'd.**

<b>2010-2012 Implementation Strategies</b>	<b>2010 Actions</b>	<b>2011 Actions</b>	<b>2012 Actions</b>	<b>Related Targets</b>
<b>3) Information Technology</b>				
Develop and maintain a secure, current and stable network environment	Ongoing Work with GDS Computing consultants to design and implement upgrades to the network and computer systems to maintain Network currency and security, manage Windows update system	Ongoing	Ongoing	Ensuring a safe, secure and reliable Network system for staff to meet NVCA business needs
Daily maintenance and troubleshooting of the computer network server and workstations	Troubleshoot server and workstations, control spam and viruses, data back-ups, Install and manage software and hardware as required	Ongoing	Ongoing	Daily support of users to allow for smooth running of NVCA Business
Restructure Data Management system	Build a new file structure to house NVCA data holdings – move data from old server to newer server	Maintenance	Maintenance	Provide easy and reliable access to NVCA data holdings to allow staff to meet NVCA business needs
<b>4) Communications</b>				
Implement new GIS Newsletter/Emails for NVCA staff	Report on new data holdings, project status updates, GIS Tips and Tricks - keeping everyone informed	On going	On going	Regular Emails or update documents to staff when GIS datasets are obtained or updated or when action is required for specific IT precautions
Provide focused ArcGIS 9.3 Training to all NVCA Staff who are GIS users	Develop and Present focused training sessions in ArcGIS 9.3 for NVCA staff using GIS	Ongoing support and training updates as new staff start or as the software is updated	Ongoing support and training updates as new staff start or as the software is updated	Training sessions that are geared toward different department user needs Ongoing support after training sessions
Provide GIS presentation to Students	Offer a GIS presentation during GIS Week to Georgian College Students or any other schools within our jurisdiction	Offer a GIS presentation during GIS Week to Georgian College Students or any other schools within our jurisdiction	Offer a GIS presentation during GIS Week to Georgian College Students or any other schools within our jurisdiction	Promote GIS during GIS week, Community Involvement, Inform students of the type of projects the NVCA is currently involved in

**Watershed Monitoring Program (420):**

<b>2010-2012 Implementation Strategies</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Related Targets</b>
<b>Ongoing Monitoring Programs</b>				<b>Monitoring program in support of 100% Healthy Streams, &lt;25 mg/L TSS; Total P Load Targets</b>
Biomonitoring Program	Annually Review Program effectiveness and undertake 60 Biomonitoring samples (including full coverage of two subwatersheds)	Ongoing	Ongoing	Important tool for measuring stream health
Provincial Water Quality Monitoring Network (PWQMN)	Annually Review Program effectiveness and undertake 6-10 PWQMN runs (18 stations) – various flow events	Ongoing	Ongoing	Provides long term database of water quality in support of the NVCA targets
Pesticides Monitoring (pending MOE/other agency funding)	Continue to work with MOE to develop new program initiated in 2007.	Ongoing	Ongoing	To better understand potential impacts of pesticides in surface waters.
Provincial Groundwater Monitoring Network (PGWN)	Annually Review Program effectiveness. Review network expansion and add new wells as appropriate. Undertake continuous recording of water level and annual water quality sampling at all equipped wells.	Ongoing	Ongoing	Monitoring quantity and quality of groundwater aquifers important for the protection of healthy streams
In-stream Temperature Monitoring Program	Annually Review Program effectiveness and undertake 2 summer temperature logger runs (integrated with biomonitoring)	Ongoing	Ongoing	Temperature measurements used to identify fisheries habitat and groundwater discharge reaches
Baseflow Monitoring Program	Annually Review Program effectiveness and undertake base flow measurements in support of ground water models and Source Water Protection	Ongoing	Ongoing	Baseflow measurements used to calibrate groundwater models and water balances

**Watershed Monitoring Program (420) con't:**

<b>2010-2012 Implementation Strategies</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Related Targets</b>
<b>1) Ongoing Monitoring Programs con't</b>				
Annual updates of stream health mapping based on previous year's subwatershed monitoring.	Annual subwatershed stream health mapping updates (rotating basis)	Annual subwatershed report updates (rotating basis),	Annual subwatershed report updates (rotating basis).	Used to communicate the state of the watershed to the public
Implement the monitoring recommendations of the Assimilative Capacity Study subject to funding	Monitoring of water phosphorus, turbidity and flows for each ACS subwatershed	Ongoing	Ongoing	Important strategy to protect stream health and water quality
Innisfil Subwatershed Low Flow Pilot Project (possible expansion into other subwatershed areas)	Work with Engineering and Planning to develop strategies to study and address low flows/water-taking in subwatershed.	As needed	As needed	To address significant low flow problems identified in 2007
<b>2) New Monitoring Initiatives</b>				
Initiate bacteriological monitoring program at selected PWQMN sites.	Initiate monitoring at 9 PWQMN sites and mouth of Nottawasaga River as part of PWQMN runs	Review 2010 results and refine program.	Ongoing	To reinstate bacteriological monitoring in watershed, standardize monitoring with Conservation Ontario initiatives, understand source areas/magnitude of potential bacteriological pollution.
<b>NATURAL HERITAGE STRATEGY PROGRAM</b>				Program supports targets of at least 10 % wetlands and at least 30% of the area of any subwatershed should be self-sustaining vegetation
<b>1) Ongoing Natural Heritage Programs</b>				
Provide technical plan review services for Environmental Impact Studies in support of new development	Ongoing	Ongoing	Ongoing	To ensure the development process protects important wetlands and woodlots
Identify, assess, and classify significance of natural heritage features on broad watershed basis (and in priority municipalities/sub-watersheds subject to funding)	Develop a regional natural heritage model for the NVCA watershed	Continued development and updating	Continued development and updating	A watershed strategy will strengthen our ability to meet our wetland and woodlot targets

**Watershed Monitoring Program (420) con't:**

<b>2010-2012 Implementation Strategies</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Related Targets</b>
Develop tools or processes to streamline plan review and clearly define the NVCA submission requirements to developers	Develop an Environmental Impact Study Terms of Reference.	Implement	Implement	Natural heritage guidelines will assist the development community to complete EIS reports to NVCA standards for a timely review
<b>2) Natural Heritage Special Projects</b>				
Species At Risk	As feasible, undertake monitoring of priority species.	Ongoing	Ongoing	Maximize protection of Species At Risk in urbanizing areas, develop appropriate management strategies for NVCA properties.
Provide ecological services in support of management of NVCA lands	Priorities – Minessing Wetlands and Tiffin	Ongoing	Ongoing	To assist in the preparation of management plans for the protection of NVCA environmental lands
Collingwood Shoreline Survey	Spring survey of shoreline (possibly with Stewardship Services) to monitor fish and substrate. Possible water quality and shorebird components.	Review need for ongoing monitoring based on 2010 results.	To be determined.	To assist Southern Georgian Bay Shoreline initiative, Lake Huron Biodiversity Strategy and address fisheries mgt/shoreline planning needs.
Invasive Species	As feasible, undertake monitoring of priority species (i.e. Phragmites, dog strangling vine, garlic mustard) in conjunction with other partners (Bruce Trail Association, Wasaga Beach Prov. Park)	Ongoing	Ongoing	To monitor spread of invasive species and provide recommendations for management.

**Flood and Erosion Hazard Management Program (430):**

<b>2010-2012 Implementation Strategies</b>	<b>2010 Actions</b>	<b>2011 Actions</b>	<b>2012 Actions</b>	<b>Related Targets</b>
<b>1) Flood and Erosion Control Structures</b>				Zero lives lost to flooding/erosion/& minimize property damage
Maintain operation and maintenance manuals and emergency preparedness plans for each structure	Maintain, Fine Tune, & Implement	Maintain, Fine Tune, & Implement	Maintain, Fine Tune, & Implement	
Fulfill provincial requirements under the pending Dam Safety Legislation, capital repairs and studies	Implement recommendations from Dam Safety Studies, subject to funding	Implement recommendations from Dam Safety Studies, subject to funding	Implement recommendations from Dam Safety Studies, subject to funding	
Undertake regular operations and maintenance as detailed in the O&M manual	Tottenham Spillway upgrade, millrace decommissioning, Utopia/New Lowell expansion joints	Utopia Spillway Upgrades, Pretty River Vegetation removal	Ongoing - to be determined	
<b>2) Flood Forecasting and Warning</b>				
Develop and maintain and automated stream gauge and meteorological network	Construct stream flow gauge - Trillium Creek maintain & calibrate all gauges	Maintain	Maintain	
Maintain snow course network	Maintain – remark sites; create trail	Maintain	Maintain	
Develop and maintain a reliable, flexible data collection, storage and backup system	Continue to enhance data acquisition system to facilitate dynamic requirements; Explore new technologies where feasible	Maintain	Maintain	
Strive to meet current GTA and MNR minimum standards for Flood Forecasting and Warning	Assist to develop and calibrate the Mike 11/MIKE Floodwatch models. Populate flood damage database	Implement and monitor progress	Implement and monitor progress	
Monitor watercourse events	Use current flood forecasting system to monitor flood and meteorological conditions, post event debriefing & documentation	Maintain	Maintain	

<b>2010-2012 Implementation Strategies</b>	<b>2010 Actions</b>	<b>2011 Actions</b>	<b>2012 Actions</b>	<b>Related Targets</b>
<b>3) Flood Forecasting and Warning Communications</b>				Zero lives lost to flooding/erosion/& minimize property damage
Maintain a Flood Contingency Response Plan for a co-ordinated emergency response with our municipalities	Annual emergency contact list update	Annual emergency contact list update	Annual emergency contact list update	
Continue to liaise with provincial, GTA and municipal flood response organizations	Ongoing	Ongoing	Ongoing	
Issuance of Flood Warnings, Advisory and Safety Bulletins	As required	As required	As required	

**Groundwater Management / Source Water Protection (460):**

<b>2010-2012 Targets</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Measures of Success</b>
Administration	Participate in the Administrative Staff Team; manage the NVCA SPA; review and provide comment to the lead Source Protection Authority on the Terms of Reference	2009 work plan to be determined	2010 work plan to be determined	Complete outstanding tasks
Communications	Provide input to print and web documents; assist with the quarterly newsletter; assist with the logistics of event planning and implementation for consultation sessions; communicate Source Water Protection/Clean Water Act messages during relevant communications endeavors			Complete outstanding tasks
Technical Support	Provide specified NVCA data to the project team; consultation with watershed partners to collect additional information; and review and comment on draft documents			Complete outstanding tasks
Water Budget modeling and calibration	Complete Tier 2 water budget calibration for the NVCA, LSRCA, and SSEA targeted watersheds. Provide technical assistance for Barrie Tier 3 water budget study. Develop and populate the LFlow database for historical baseflow data.			Complete outstanding tasks
Collingwood IPZ-3 Study	Technical review and collaboration with Town of Collingwood			
Assessment report	assist in the completion of the NVSPA Assessment Report			Complete outstanding tasks
CAMC-YPDT (Oak Ridges Moraine and York-Peel-Durham)	Update the CAMC-YPDT database with recently generated Source Water Protection data			Complete outstanding tasks
Management of Municipal grant studies	Actively assist Wasaga Beach, Essa, Adjala-Tosorontio, Shelburne, Mulmur in the municipal grant Studies, track progress of the project, solicit interim and final reports including raw digital data			Complete outstanding tasks

**Groundwater Planning:**

The Planning Act, the Provincial Policy Statement, and associated regulations, determine the planning process in Ontario. These documents outline the environmental and resource management responsibilities of all conservation authorities. Conservation authorities have become the primary local agency to review and comment on development proposals pursuant to the Planning Act with the NVCA’s mandate to manage the watershed's natural resources.

As part of the Engineering and Technical Services, Professional Hydrogeological review is required for file applications where the groundwater resources can be potential impacted. Below are the 2010-2012 technical business plan targets.

**Groundwater Management / Source Water Protection (460):**

<b>2010-2012 Targets</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Measures of Success</b>
Technical plan review as per hydrogeology / geology	Provide technical plan review assistance for Permit to Take Water, aggregate applications, NVCA pond policy, planning application in identified sensitive areas requiring an EIS completed, etc	Provide technical plan review assistance for Permit to Take Water, aggregate applications, NVCA pond policy, planning application in identified sensitive areas requiring an EIS completed, etc	Provide technical plan review assistance for Permit to Take Water, aggregate applications, NVCA pond policy, planning application in identified sensitive areas requiring an EIS completed, etc	Improve water course health and meet Provincial Water Quality Objectives by reviewing hydrogeologic impacts of development proposals
Develop tools to streamline plan review and NVCA hydrogeology / geology submission requirements	Develop guidelines for development review	On-going	On-going	

**Groundwater Monitoring:**

Groundwater monitoring is the systemic collection and evaluation of data which enables the long-term understanding of groundwater supply and the anthropogenic effects throughout the land. A well designed monitoring program defines water quality problems, characterizes existing and emerging problems, determines the magnitude and geographical extent of water conditions, provides the basis for designing and operating pollution prevention and sustainable uses programs, and most importantly, it identifies trends in the water characteristics over time. The long-term business plan objectives are:

- Quantify regional aquifer water quality and quantity to determine long term trends and issues.
- Quantify base flow contributions to NVCA watercourses.
- Provide scientifically defensible data on NVCA groundwater systems to other NVCA programs and for support NVCA policy development.

- Develop in collaboration with the MOE, NVCA municipalities and the County of Simcoe an integrated groundwater monitoring network that incorporates the existing NVCA Provincial Groundwater Monitoring Network (PGMN), the County of Simcoe landfill monitoring wells, and the monitoring wells associated with the municipal supply system.
- Provide input and direction to the NVCA Board of Directors on issues where groundwater monitoring is affected.
- Enhance the NVCA PGMN to satisfy the MOE requirements for the NVCA watershed.
- Annual compilation and review of all monitoring data.
- Integration of information with ongoing surface water and climate monitoring.
- Develop surface-groundwater interaction studies in areas of special interest.

**Groundwater Management / Source Water Protection (460):**

<b>2010-2012 Targets</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Measures of Success</b>
Quantify base flow conditions in NVCA watercourse	Develop a base flow monitoring strategy  Complete 50 annual base flow measurements throughout the NVCA watershed	Complete 50 annual base flow measurements throughout the NVCA watershed	Complete 50 annual base flow measurements throughout the NVCA watershed	Complete 50 sites (subject to funding)
Quantify regional aquifer conditions	Complete continuous recording of water level at all wells. Complete possible annual water quality sampling at well sites with dedicated pumps if additional outside funding is secured  Develop an integrated groundwater monitoring program	Complete continuous recording of water level at all wells. Complete possible annual water quality sampling at well sites with dedicated pumps if additional outside funding is secured	Complete continuous recording of water level at all wells. Complete possible annual water quality sampling at well sites with dedicated pumps if additional outside funding is secured	Complete continuous recording (subject to funding)

**Groundwater Special Projects:**

Several special projects are either currently underway or in the proposal stage. With the development of groundwater understanding, it is anticipated that additional projects over the next three years will come on-stream. Staff will continue to identify potential projects that will enhance the local knowledge of NVCA groundwater resources.

**Groundwater Management / Source Water Protection (460):**

<b>2010-2012 Targets</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Measures of Success</b>
Continue support for the OGS Orangeville Moraine Study	Provide local-level communications and other technical support for the OGS Orangeville Moraine Study	Provide local-level communications and other technical support for the OGS Orangeville Moraine Study	Provide local-level communications and other technical support for the OGS Orangeville Moraine Study  Integrate model results into the NVCA groundwater model	Acceptance of the project proposal by the Ontario Geological Survey
Minesing Wetlands Hydrogeological Study	Continue to monitor groundwater and surface water interactions along the east side of the wetlands.	On-going	On-going	Reporting. Use of results/recommendations in planning and management documents.
CBSM Nutrient Management (with OMAFRA)	Initiate study to review nitrates in the Innisfil Creek subwatershed.			
OGS South Simcoe 3D Geological Study	Provide support for well-drilling/coordination. Focus on Laurentian channel.			
Niagara Escarpment Baseflow Project (with NEC, TUC)	Complete reporting for 2009 field work.			
Identify special capital projects for the enhancement of NVCA groundwater knowledge	On-going	On-going	On-going	