WRIP Information Management Roadmap 2010 to 2015

Supporting Watershed Knowledge

Prepared by: Chris Wilkinson, Conservation Ontario, July 2010

Acknowledgements

Conservation Ontario's ongoing participation in WRIP has been successful due to the continued support and dedication of staff from Conservation Authorities throughout Ontario. Participation through committee work, interviews and workshops has been very effective and most appreciated.

Many of the objectives developed during WRIP I to IV have now been completed and this progress is a reflection of the dedication and commitment from the WRIP Committee and Conservation Authorities throughout Ontario. Over the past five years incredible growth has been experienced in water resources information management. Thank you to all participants for sharing their expertise in information management and ideas for increasing capacity of Conservation Authorities (CAs) over the next five years.

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Introduction

Conservation Ontario is building on previous phases of the Water Resources Information Project, with WRIP V which begins an evolution towards information management. This report outlines a roadmap for Conservation Authority GIS and information management for the next five years. This roadmap will allow conservation authorities to provide a strong leadership role in geospatial technology and continuing to further the significant gains of past WRIP efforts.

The following report outlines the guiding principles and recommendations proposed to move Conservation Authority GIS and information management forward into the future.

Background

Designing, collecting, storing, analyzing and reporting information is fundamental to the business of CAs. The geospatial component of the information is now at the forefront. The guiding principles and recommendations are the result of many individuals contributing their insights and expertise towards the direction of GIS and information management.

To develop the guiding principles and recommendations a consultative process was implemented, inviting all Conservation Authorities to identify and recognize the potential of GIS and information management. The process approach is found in Appendix A of this report.

The process began with a WRIP V Progress Report distributed to all Conservation Authorities to detail accomplishments and future potentials. Interviews with selected General Managers and program area staff (9 participants) identified opportunities and challenges. An online survey was completed (23 individuals) representing both smaller and larger Conservation Authorities across Ontario.

This consultation was vital for the WRIP Committee to build consensus for the direction forward. The WRIP Committee developed key principles and recommendations (13 representatives) to take forward to a Provincial CA Workshop (27 participants from 19 CAs) to gain collaborative direction for the guiding principles.

WRIP Steering Committee

Terry Chapman, GIS Specialist (WOCA Chair) Upper Thames River Conservation Authority
Ewan Hardie, GIS Coordinator (EOCA Chair) Rideau Valley Conservation Authority
Frank Kenny, WRIP Ministry of Natural Resources
Marlene McKinnon, GIS Specialist (Past NOCA Chair) Sault Ste. Marie Region Conservation Authority
Jeff Moxley, GIS/IT Manager Ganaraska River Conservation Authority
Caryn Perry, WRIP Ministry of Natural Resources
Jo-anne Rzadki, Stewardship Coordinator Conservation Ontario
Graham Smith, Geomatics Coordinator Grand River Conservation Authority
George Sousa, Manager of Resource Science, Information and Policy, Grand River Conservation Authority
Geoff Verkade, GIS Coordinator Niagara Peninsula Conservation Authority
Ian Wilcox, General Manager Upper Thames River Conservation Authority
Chris Wilkinson, WRIP Coordinator Conservation Ontario
Charley Worte, Source Water Protection Manager Conservation Ontario

WRIP Roadmap

Guiding Principles

The following Guiding Principles were developed by the WRIP Committee and participants at the Provincial WRIP Workshop, to move GIS and Information Management forward for the future.

1. Information Management is critical to CA business
2. Information Management needs to be supported by sustained funding

Key Benefits

1. Improves decision making through: availability of information, confidence in decisions made, and ability to defend decisions
2. Optimizes access to data in the delivery of conservation business functions
3. Increases value of CAs with key clients and partners

Demonstrating Key Benefits:

The participants worked in small teams to focus on one of the key benefits and discuss and record how to best meet/demonstrate these benefits.

1. Improves Decision Making
- Making information readily available, e.g., flood forecasting
- Providing local information for international studies, e.g., Climate Change, Great Lakes
- Coordinating centralized information, e.g., regulation limits that are later defensible at OMB
- Organizing and storing information to preserve institutional memory and defend previous decisions

2. Optimizes Access to Data
- Providing access and maintenance of information creates trust in CAs
- Standardizing data provides better access amongst CAs, i.e., schema & data models
- Giving staff desktop access to current information

3. Increases Value of CAs
- Providing specialized, defendable data products representing local expertise and knowledge
- Providing timely, credible decision making support and tools with partners
- Taking leadership on standards that work at local and broader scales

Recommendations

The following recommendations for GIS and Information Management were developed by the WRIP Committee and participants at the Provincial WRIP Workshop. These recommendations were developed considering the guiding principles and key benefits of GIS and Information Management (IM).

1. Define CAs business - understand, prioritize and agree

2. In 5 years all CAs will have adequately funded, effective IM programs

3. Build capacity to develop and maintain large scale data distributed across CA regions

4. Adopt a refined governance model within one year

Recommendations and Key Steps

Upon approval of guiding principles and recommendations, detailed implementation will be developed over the next 6 months.

Custodianship

Recommendation Statement:

Define the CAs business - understand, prioritize and agree upon data that CAs are owners of and data that we store for others
Rationale:
Allows CAs to prioritize resources for the most important data and partnerships

Key Steps:
- Define, document data that CA is owner of
- Document data CA is custodian of - bridge between inventory custodian and user (data blueprint)
- Document maintenance cycle of data
- Create a communication strategy customized to CAs and CO to promote understanding of efficiencies, standards, and streamlined business

Considerations for Moving Forward:
- Educating and training towards benefits
- Develop business case to show value and return on investment
- Define what layers are key to CA business
- Agree on standards, then move to CA maps

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Natural Champions

Sustained Funding (Financing)

Recommendation Statement:
In 5 years all CAs will have adequately funded, effective IM programs

Rationale:
Provides resources for CAs to meet the growing demand for high quality data

Key Steps:
- Each CA develop an IM strategy
- Each CA develop an IM funding strategy which will include sustained provincial funding for SWP and a phase in of municipal levy, plus other sources
    - Identify techniques, e.g., GRCA solid charge back model, e.g., motor pool
    - IT group decides how to spend money - time frame 1 to 5 years

Considerations for Moving Forward:
- Partnerships among CAs to achieve economics of scale, e.g., share staff and resources
- Learn from the examples of CAs already sharing resources
- Partnering with external partners
- Marketing and communication of range of benefits for complementing IM
    - Communicate value at senior management, general management and board levels

Large Scale Base Data

Recommendation Statement:
Build capacity to develop and maintain large scale data distributed across CA regions (DEM, hydrology, regulatory and natural heritage information)

Rationale
Demonstrates that CAs are the primary holders of large scale base data in Ontario

Key Steps:
- Pilot projects, standards to get buy-in
- Build business case for upper government to recognize and agree that CAs are large scale data custodians - secure funding for CAs to do this work
- Build communications and training
- Develop partnerships with upper tier municipalities and private sector
- Continue history and culture of visionary growth for new information based products and services, i.e., Landcover, Time Series Water Quality and Quantity Data

Considerations for Moving Forward:
- Engage partners at the beginning, e.g., Province, CA, Municipalities, Federal
- Demonstrate pilots – sell it!
- Engage vendors in communication, e.g., let agencies know when flying in a specific area to share resources/expertise

Governance

Recommendation Statement:
Adopt refined governance model within one year (Figure 1)

Rationale: Provides clear direction for decision making and communication
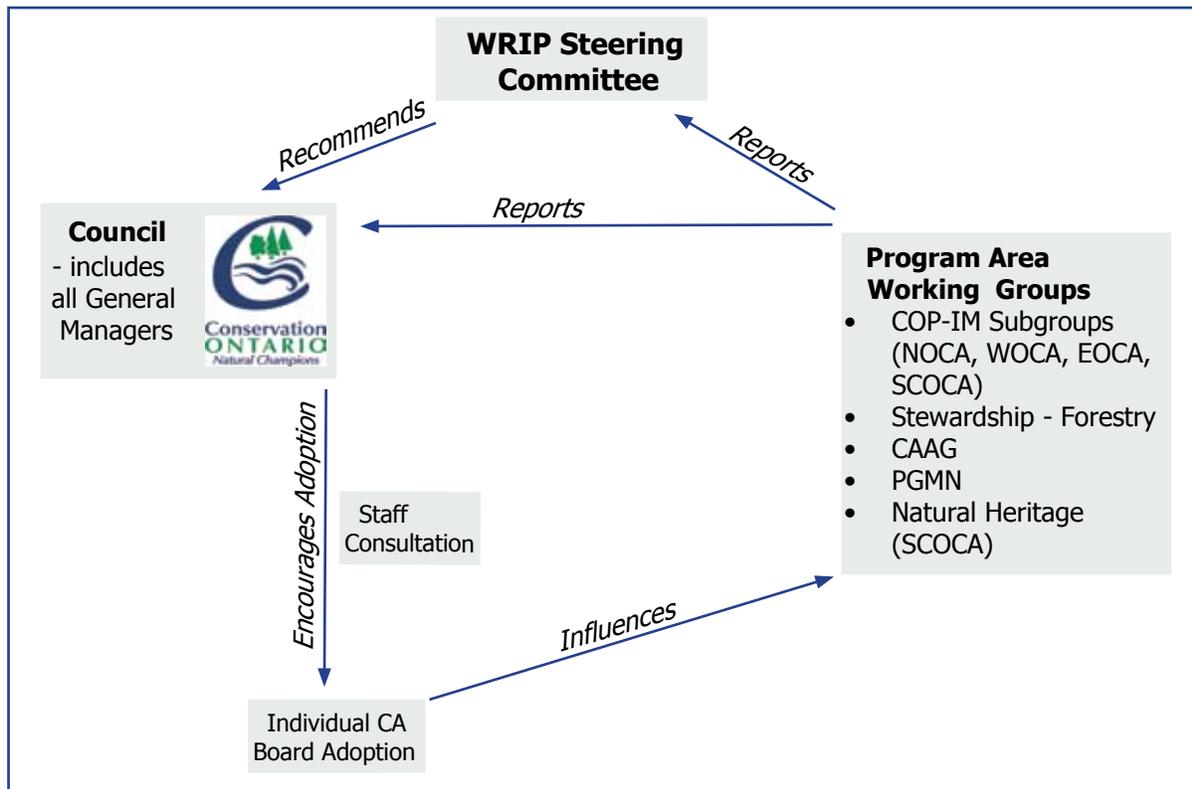
Key Steps:
- Communication from WRIP Committee to Council
- General Managers and program staff present governance model to CA boards and staff
- Create and implement a feedback survey for general managers – a 10 minute biannual survey on endorsed council items to determine participation/adoption by CAs
- Partner among CAs to standardize and grow information base
- COPIM reports to CO - meet once a year - report to council with recommendations
- Change GIS working groups name to IM working groups

Considerations for Moving Forward:
- Provide high level process map
- Maximize partnerships externally when and where appropriate
- Make surveys simple and short
- Provide document or detailed presentation for staff reference
- Understand management priority business areas, i.e., source water protection, climate change, health, and connect and focus on these priority areas

Figure 1: Refined Governance Model

Next Steps

Upon approval of the WRIP Information Management Roadmap, the WRIP Committee will move forward with implementation of the recommendations. The WRIP Committee will work closely with Information Management and GIS staff of CAs throughout Ontario to develop specific approaches for reaching the recommendations. Some of the steps will include:

- Creating an implementation template (GIS/IT Strategy Template) that CAs can use to initiate action toward fulfilling the recommendations
- Create a Presentation Template that CAs can use to communicate the WRIP 5 principles more effectively to management
- Host an annual update meeting and evaluation for GIS and Information Management staff
- Report progress twice per year to General Managers and CO Council

Contact Information

Contact Information

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Appendices

Appendix A

Survey Highlights

Kayak highlighted the interview and eSurvey results.

- 89.5% make decisions around large scale data

- Key business functions
    - Generic Regulations
    - Conservation Areas/Lands
    - SWP

- Top priorities over next 5 years
    1. Integrating data management into all aspects of CA business
    2. Imagery and DTM acquisition
    3. Maintain existing capacity

- Key Benefits
    - Improves decision making
    - Optimizes access to data
    - Increases value of CAs to key clients/partners

- Strategies to make GIS more cost effective
    1. Shared software maintenance (ESRI)
    2. Shared internet mapping
    3. Locally hosted hardware
    4. Training opportunities

- Leadership role of Conservation Ontario
    - Extremely/very valuable by all

- Importance of data management in future
    - Extremely/very important by all

Appendix B

Approach

To plan the overall process, Kayak Consulting met with the Conservation Ontario WRIP Coordinator and Project Manager to discuss background information, define the purpose of the process and develop criteria for determining best opportunities for future direction. The following activities make up the overall process:

- **February 2010 WRIP V Report** - A progress report that highlights the accomplishments of WRIP and the potential of GIS and Information Management for the future

- **February March 2010 Interviews** - General Managers and Program Area Managers from selected Conservation Authorities were interviewed to find key opportunities and potential barriers for moving forward

- **April 2010 eSurvey** - All Conservation Authorities had the opportunity to give input toward the direction of GIS and Information Management through an online survey

- **May 2010 WRIP Committee Session** - The WRIP Steering Committee reviewed the anonymous results of the interviews and eSurvey and refined the key principles and barriers for moving forward

- **June 2010 WRIP Provincial CA Workshop** - A team with representation from Conservation Authorities and key partners across Ontario met to build collaborative direction for the key principles. The team also developed potential options for addressing the barriers

- **July 2010 WRIP Information Management Roadmap** - This report will act as a guiding document for GIS and Information Management for Conservation Authorities in Ontario over the next 5 years

- **October 2010 Presentation to Conservation Ontario Council** - The WRIP Committee will develop a collaborative approach for presenting recommendations for moving forward