

Striving to Restore a Living City

Ecosystem Compensation in the Urban Environment

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Presentation Outline

Municipal and Environmental Relationships

- TRCA's Ecosystem Compensation Program
- Determining ecosystem compensation requirements
- Managing ecosystem compensation
- Implementing strategic compensation
- Next steps



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Ecosystem Compensation Defined

“In the context of conservation and land use planning, compensation is defined as the replacement of lost/altered ecosystem services or ecological function.” The Living City Policies, TRCA



TRCA's Ecosystem Compensation Program

- Science has shown that the natural heritage system must be expanded to protect biodiversity and water resources, adapt to climate change, and contribute to healthy communities.
- TRCA and our municipal partners are committed to protecting and working to expand the natural system.
- There is a strong protective policy framework within Ontario.
- TRCA advises on natural heritage system protection in the development and infrastructure review processes.

Despite this, losses to natural features continue as our region develops.



TRCA's Ecosystem Compensation Program

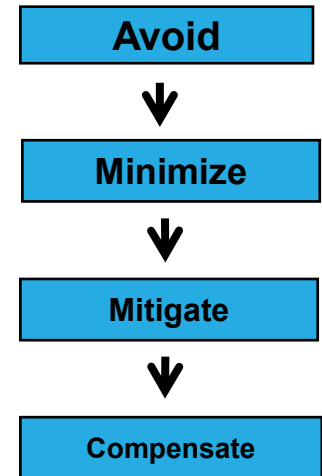
TRCA is continuously working to eliminate these losses by:

- Strengthening protective policy
- Advocating for improved community design
- Communicating the importance of natural systems

In addition, ecosystem compensation has been used to help replace lost ecosystem functions and services.

Partially successful, but has suffered from:

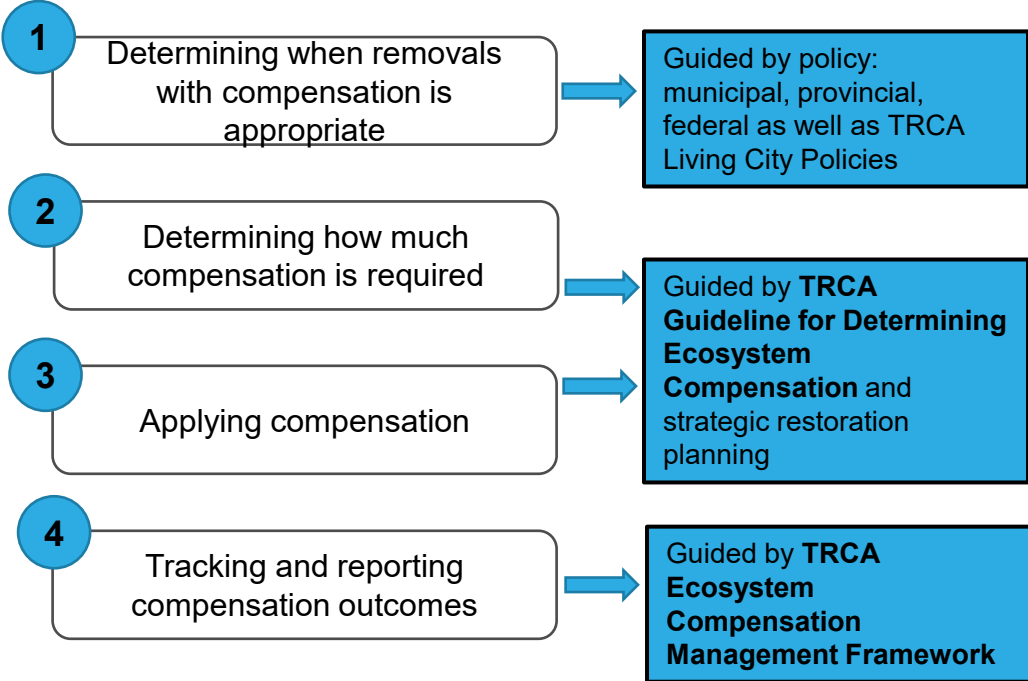
- Lack of consistency and standards
- Lengthy negotiations
- Overall loss of ecosystem functions/services



TRCA's Ecosystem Compensation Program

TRCA and other CA's recognized the opportunity to improve compensation practice.

Developed policy, guidelines and tools to inform the four stages of compensation planning and implementation.

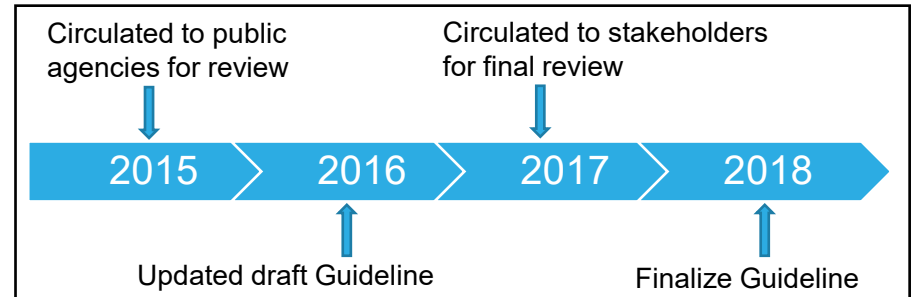


Ecosystem Compensation Principles

1. Compensation must be considered only as **a last resort**.
2. The compensation process should be **transparent** helping to ensure **accountability** of all parties involved.
3. The compensation process should strive to be **consistent and replicable**.
4. Compensation should strive to **fully replace** the lost ecosystem structure/function in proximity to where the loss occurs and, where possible, achieve an **overall gain**.
5. Compensation should be directed to **on-the-ground ecosystem restoration** and be informed by **strategic watershed and restoration planning**.
6. Implementation should be **completed promptly**.
7. The compensation process should be **adaptive**, incorporating monitoring, tracking and evaluation.

TRCA's Ecosystem Compensation Guideline

- The Guideline is a tool that supports the Living City Policies
 - Determines compensation requirements after the decision to allow removals has been made
 - Does not modify the existing review and approval processes
- The Guideline has gone through a collaborative and inclusive review process
 - Engaged a number of stakeholders including Municipalities, CA's, the Province, BILD, Metrolinx
 - Worked closely with Credit Valley Conservation
 - Considered and balanced a number of different perspectives
 - Reviewed approaches used by other jurisdictions / Municipalities / CA's



TRCA's Ecosystem Compensation Guideline

- Establishes a method for determining compensation requirements based on:
 - Restoring lost ecosystem structure
 - Replacing lost land area
- Uses increasing restoration ratios to help address the time required to restore some ecosystem types and functions
- Does not duplicate compensation requirements from existing municipal, provincial or federal processes
- Can be applied to any natural feature
- Recognizes many options for who implements the compensation



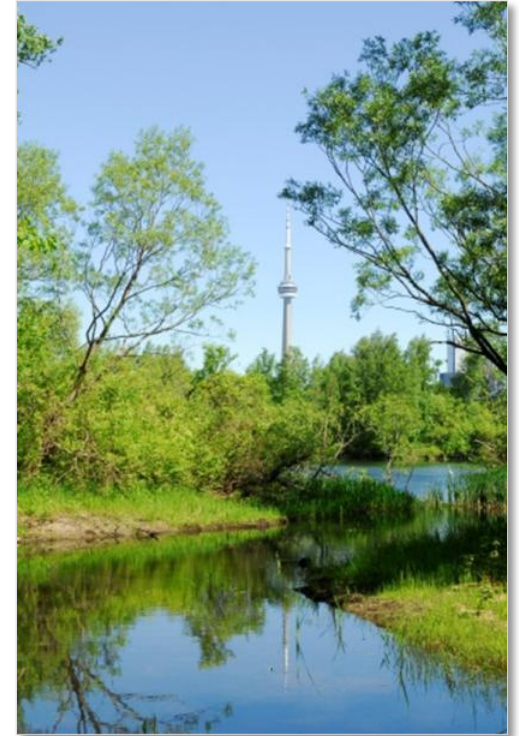
Program Challenges

- Fully replacing lost ecosystem function is **risky**, **uncertain**, and very **difficult** (or impossible) to achieve
- Lack of policy direction for **when** removal with compensation is appropriate
- Developing a formal program may seem to **legitimize** removals
- Increased compensation requirements



Program Successes

- Improved **understanding** and standardization of requirements
- Improved **consistency** in the review and approval process
- Compensation outcomes are **more fully restoring** lost structure and function
- Ecosystem Compensation policy **gap is being filled**



Managing Ecosystem Compensation



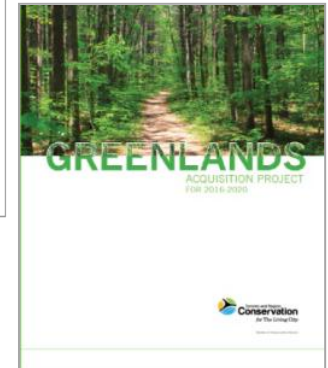
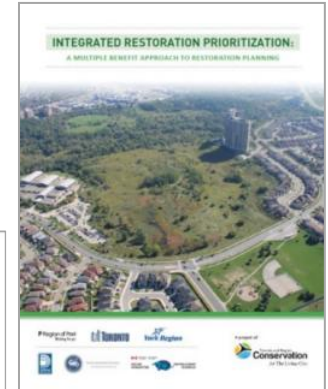
How Strategic Compensation is Implemented

Process

- Compensation determined (unavoidable loss)
(Planning and Ecology)
- If cash-in-lieu is provided to TRCA
(Property and Restoration)

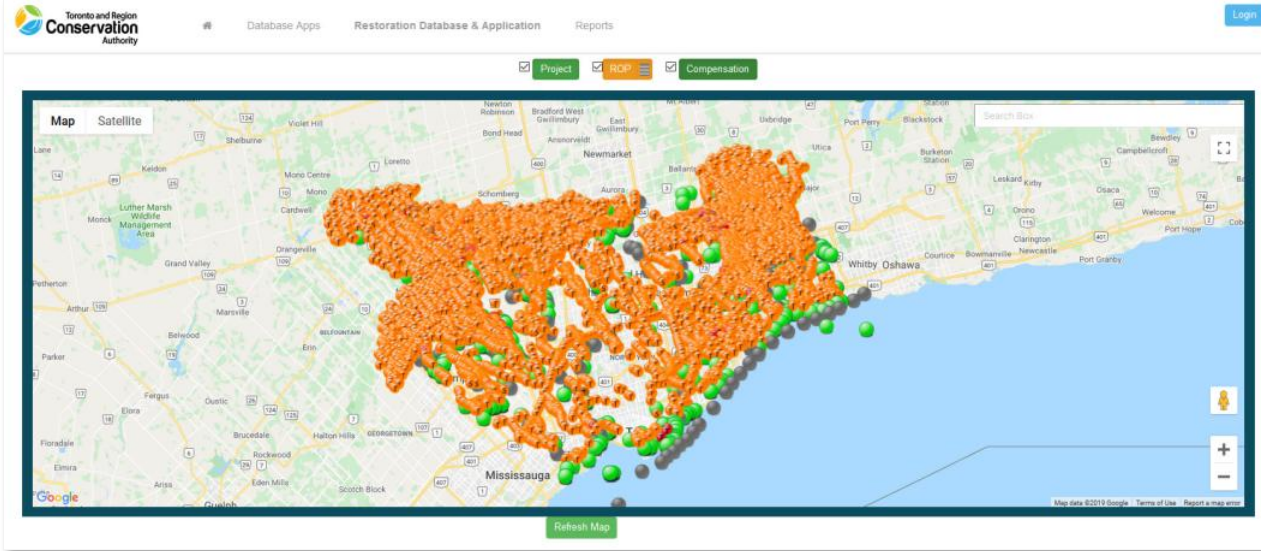
Strategic Compensation Site Selection Tools

- Local Plans / Watershed Plans
- Land Acquisition Priorities
- Restoration Opportunities Planning (ROP)
- Integrated Restoration Prioritization (IRP)
- Restoration Databases
 - Opportunities, Projects, Compensation Impacts

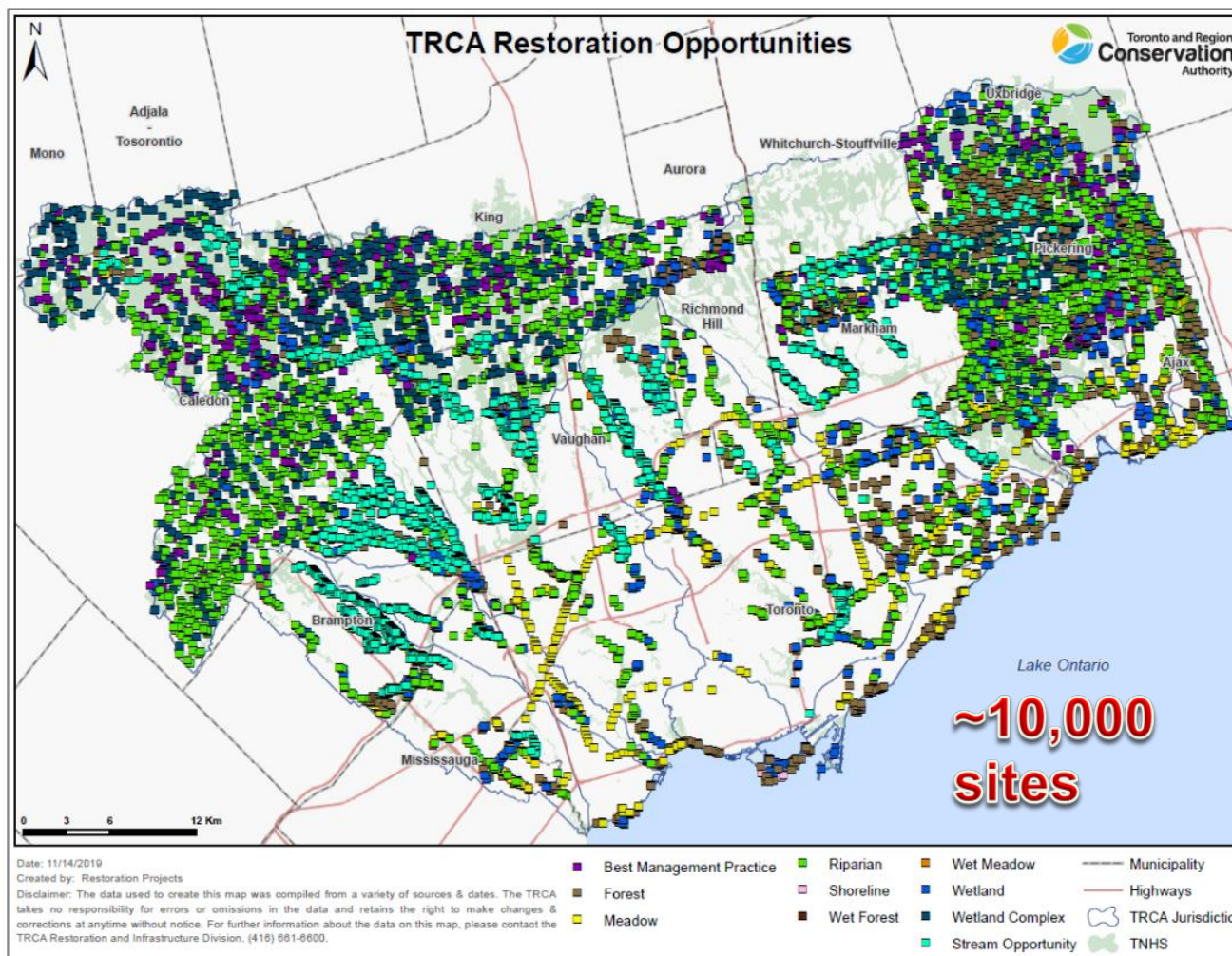


Restoration Opportunity Planning and Implementation

- ROP provides locations where meaningful and effective restoration can occur across the jurisdiction
- Database to track opportunity, project, and compensation deliverables



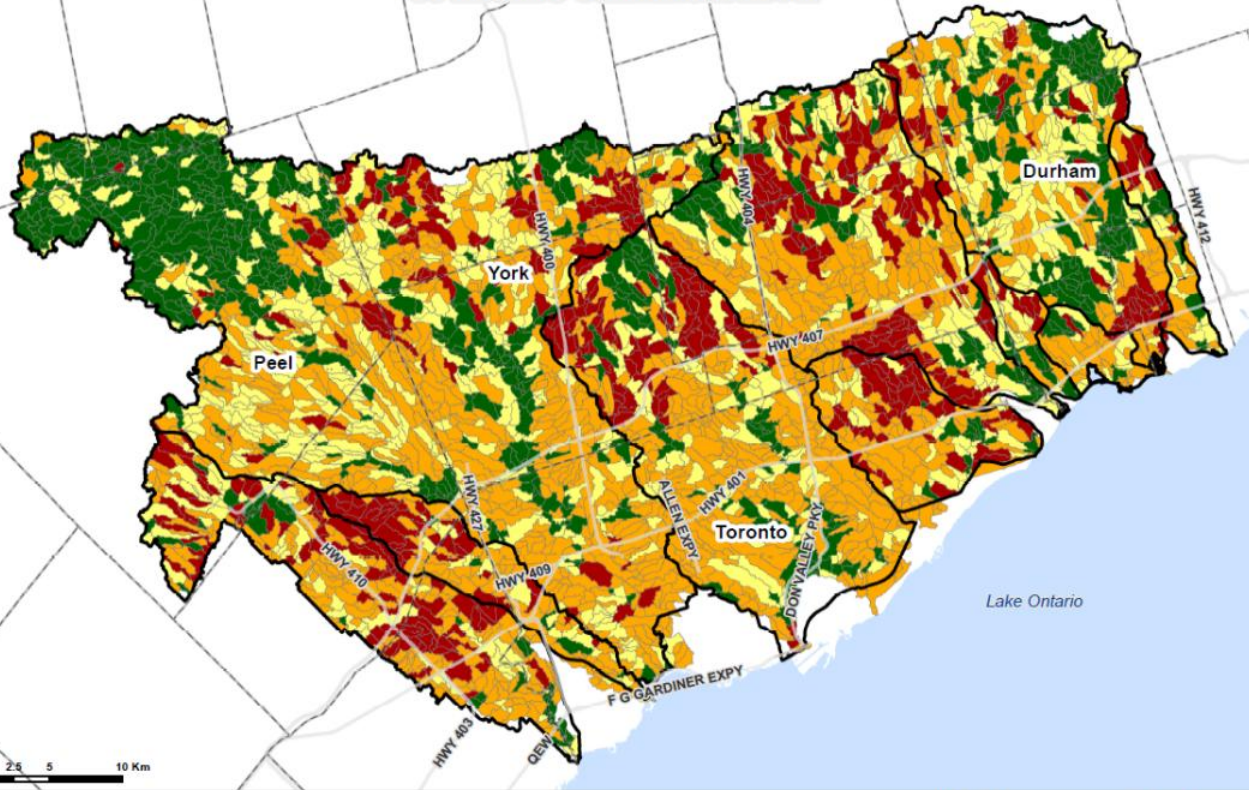
Restoration Opportunities



- With over 10,000 potential restoration sites identified, how do we choose where to restore to have the greatest impact?

Integrated Restoration Prioritization

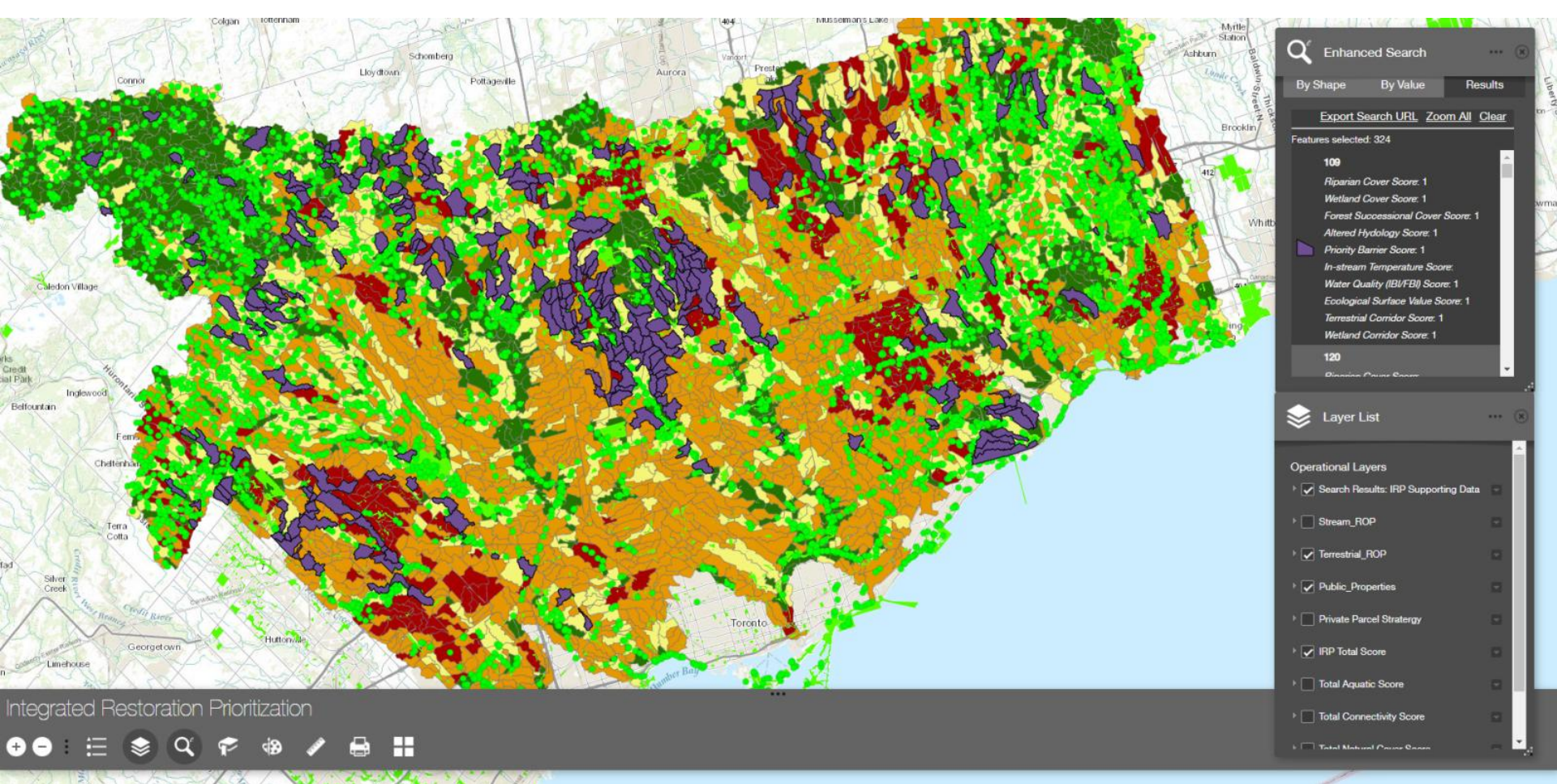
IRP Final Scores at 30 Hectare Catchment Level



- A **watershed perspective** to site-level restoration
- Considers multiple objectives for **terrestrial and aquatic** ecosystem health
- A **comprehensive, consistent, repeatable** framework to help guide restoration implementation

Date: 11/14/2019
 Created by: Restoration Projects
 Disclaimer: The data used to create this map was compiled from a variety of sources & dates. The TRCA takes no responsibility for errors or omissions in the data and retains the right to make changes & corrections at anytime without notice. For further information about the data on this map, please contact the TRCA Restoration and Infrastructure Division. (416) 861-8800.

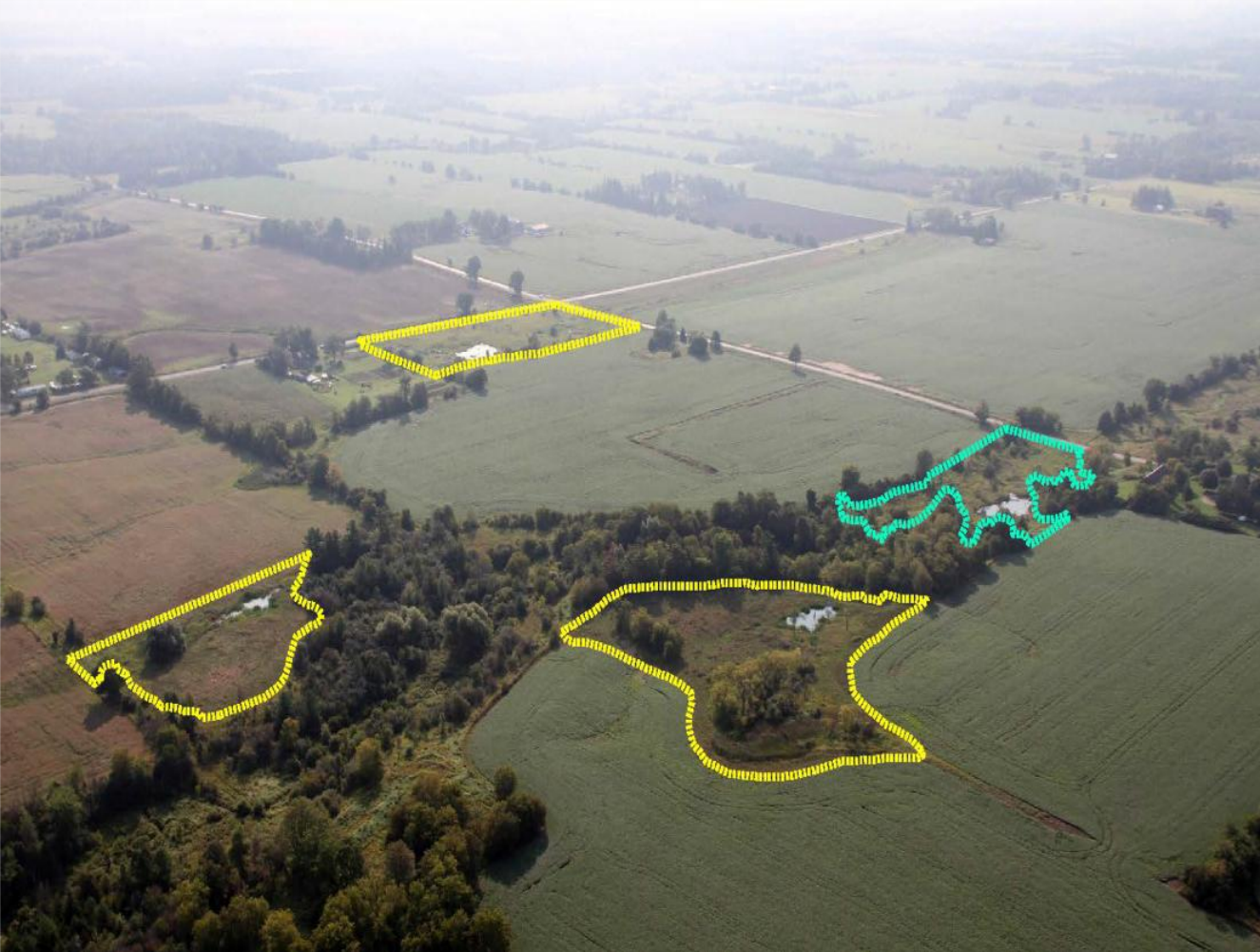
IRP Score	— Municipality
0 - 2 Protection	— Highways
3 - 4 Low Priority	TRCA Jurisdiction
5 - 6 Medium Priority	
7 - 10 High Priority	





Low Wetland Cover **Before** Restoration

- A landscape approach to restoration
- Yellow = Gains to NHS
- Blue = Improvements to existing cover



Low Wetland Cover **After** Restoration

- Impairments removed
- Marginal land returned to natural processes
- No loss of Ag land
- Yellow = Gains to NHS
- Blue = Improvements to existing cover

Wetland Restoration Example

Within the Natural Heritage System



Before



After

Wetland Restoration Example

Outside the Natural Heritage System



Before



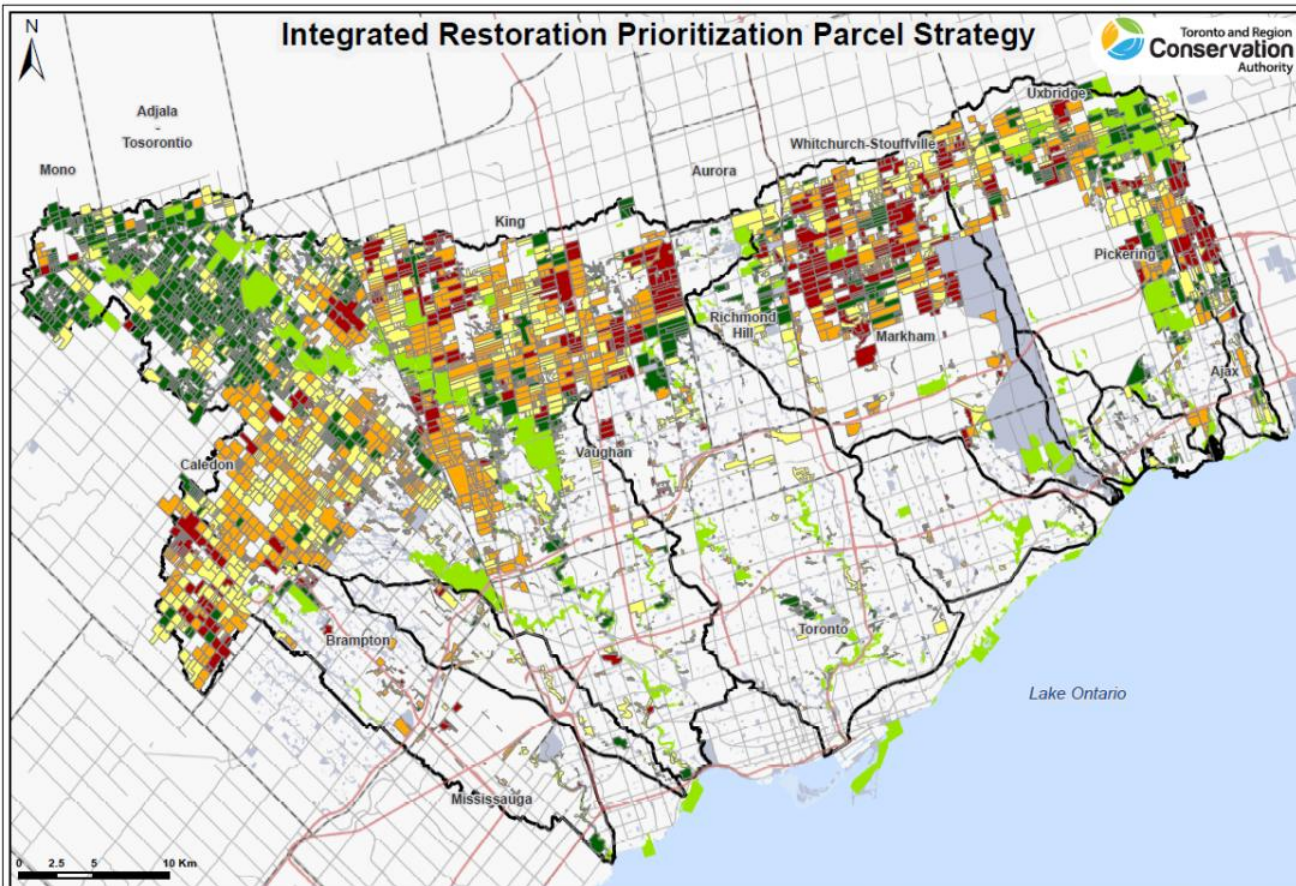
After

Project Monitoring

- Monitoring sites before and after
- Rapid Restoration Assessments at 1, 3 and 5 years post implementation
- To ensure project is on the right trajectory (Structural equivalency)
- Guides the decision making process (Adaptive management)
- Helps to Informs future restoration efforts (i.e. Determining what works and what doesn't)
- Informs decisions made on a spatial scale



Integrated Restoration Prioritization Parcel Strategy



IRP and Private Property

Apply IRP scores to parcels that:

- Cross watercourses
- Connect to existing Public Lands/TRCA Properties
- Further refine using areas of High Priority TNH Connectivity

Valuable in the land acquisition process

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IRP Final Score

- 0 - 2 Protection
- 3 - 4 Low Priority
- 5 - 6 Medium Priority
- 7 - 10 High Priority

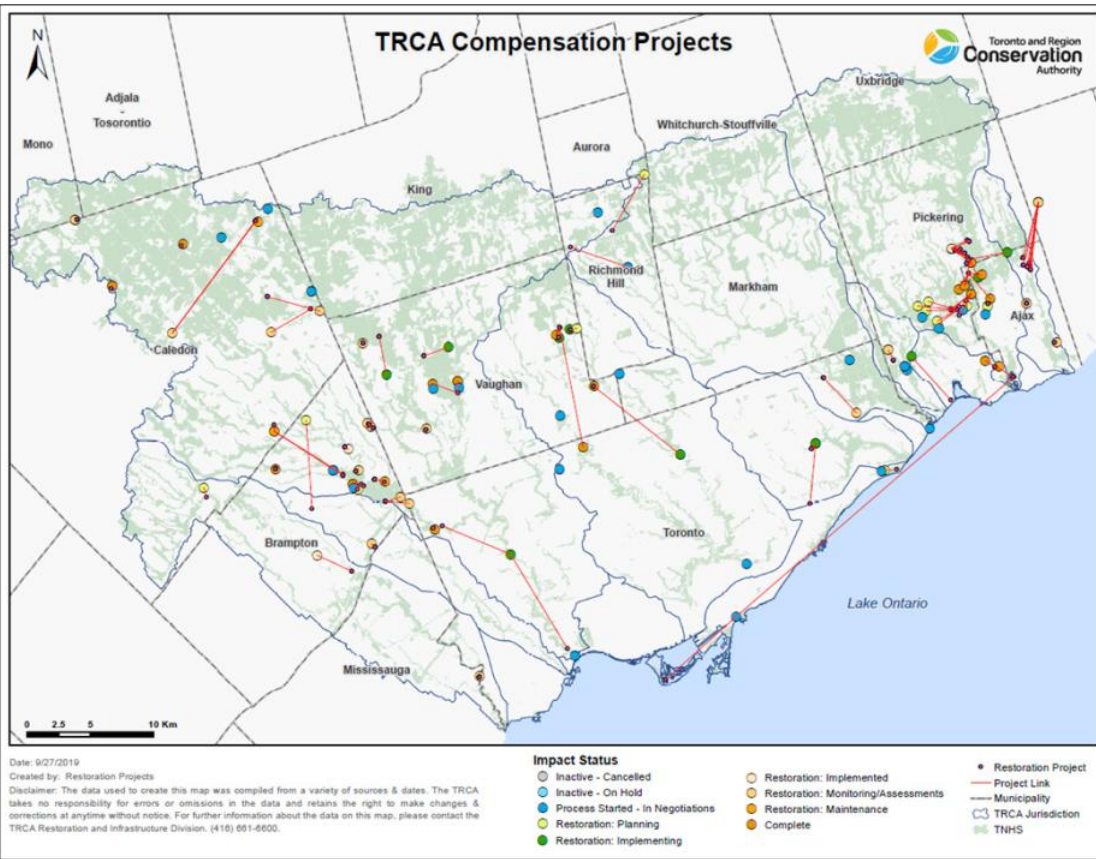
- Municipality
- Highways
- Major Roads
- TRCA Jurisdiction
- TRCA Property
- Public Lands

How Strategic Compensation is Implemented

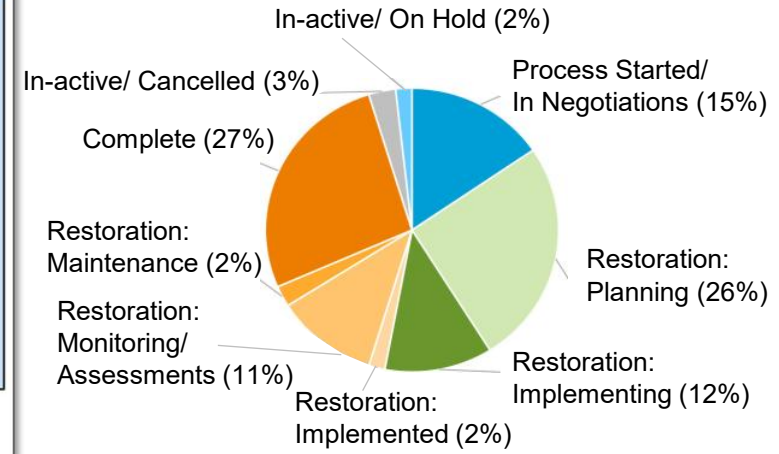
Following Project Implementation & Monitoring

- Project Adaptive Management
- Project Reporting
- Program Assessment and Reporting
- Program Adaptive Management





Impacts and Restoration by Current Status 2006-2019



*Data within the analysis are from prior to Guideline approval (2018), and therefore trends will not be related to Guideline requirements for a few years.

Compensation Management Challenges

- Difficult to **define and track** no net loss
- Gathering and digitizing old information is **time consuming**
- Complexities of compensation in **urban** landscapes
- Complexities of restoration in an age of **climate change**



Compensation Management Successes

- Compensation funding **standardized**
- Improved **communications** and **efficiency** with project delivery/implementation
- Improved **consistency** in the implementation and tracking process
- Ability to demonstrate that compensation outcomes are **more fully restoring** lost structure and function
- **Learning** from monitoring and assessments in order to change and provide better restoration
- Setting delivery (lag time) **targets**
- **Reporting** back post compensation to close the loop

Next Steps

- Continue to refine compensation approach based on evolving science
- Continue to refine information being gathered & tracked to get a better picture of no let loss
- Development of different reporting to aid in more holistic tracking and answer specific questions
- Collaboration and information sharing with other CA's and municipalities



Thank You

Questions?

www.trca.ca

