

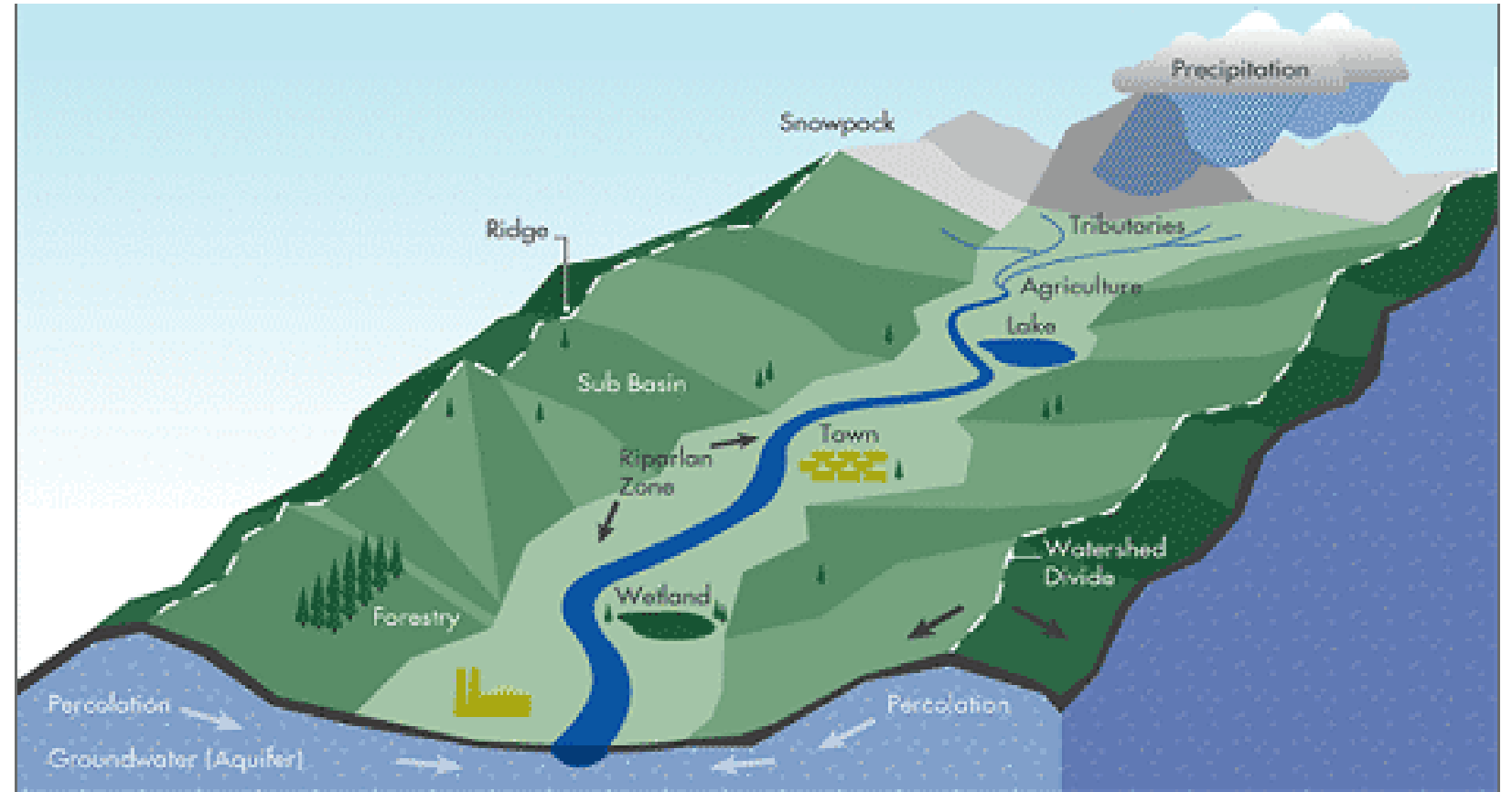


MAKING WAVES

INTEGRATED WATERSHED MANAGEMENT IN MUSKOKA

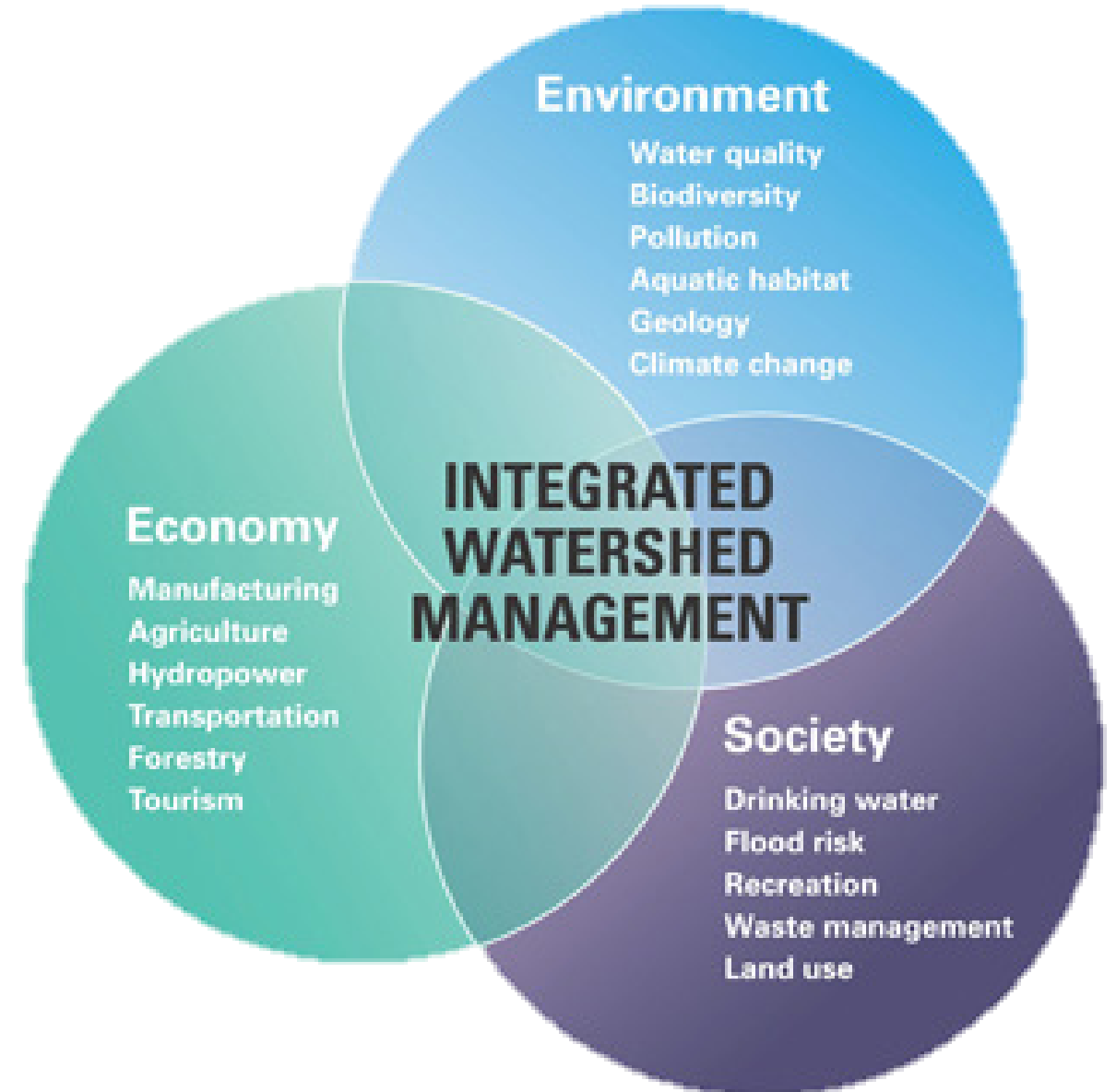
WHAT IS A WATERSHED

- Watershed is a land area that channels rainfall and snowmelt to creeks, streams, and rivers, and eventually to lakes.
- Interconnection of features at a hydrologic level.



WHAT IS INTEGRATED WATERSHED MANAGEMENT

- IWM is an approach that seeks to manage human activities and natural resources, together, on a watershed basis taking into consideration the connected interests and needs of the environment, economy and society.



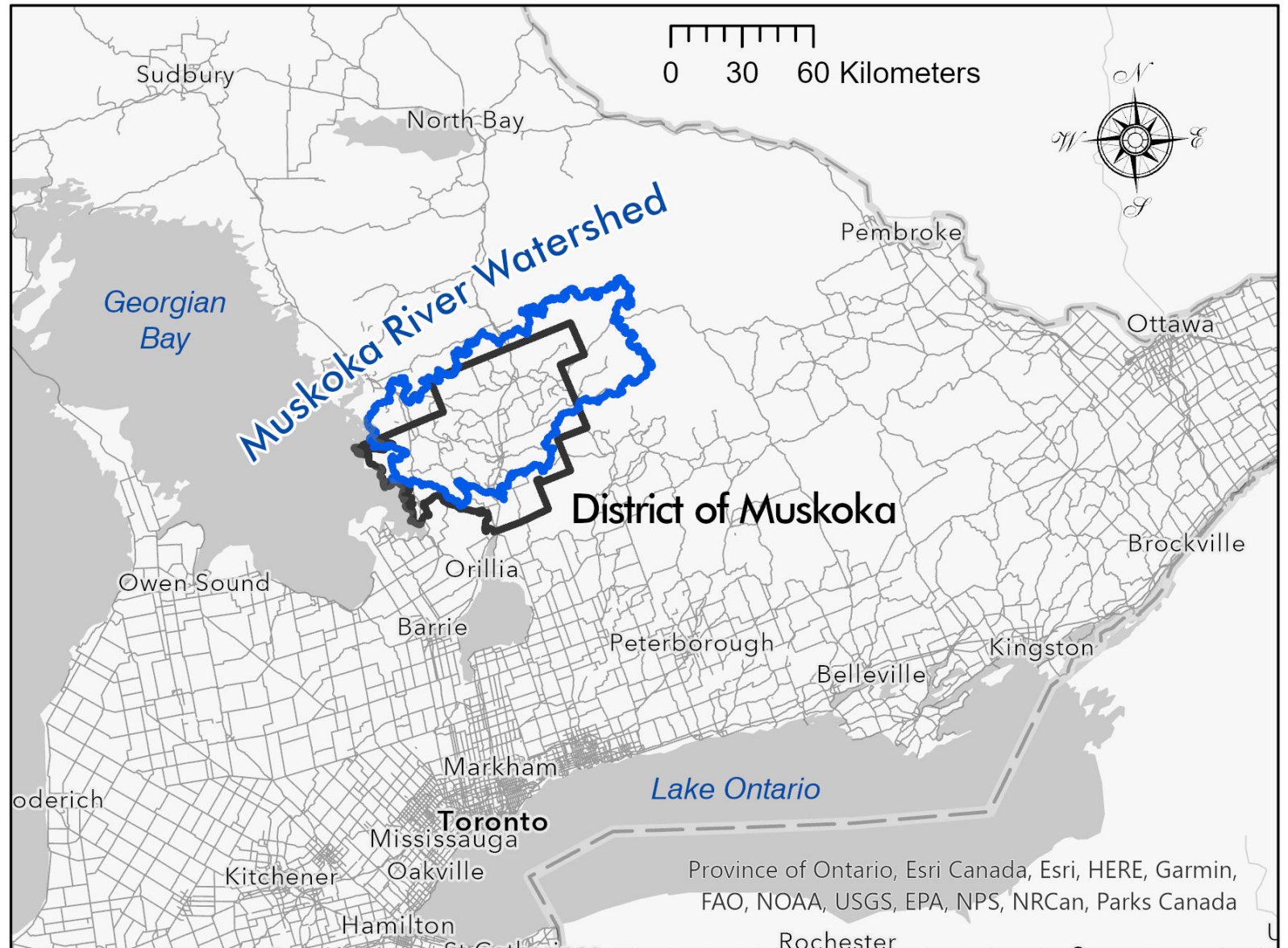
INTEGRATED WATERSHED MANAGEMENT IN ACTION

- Linking of a:
 - **GOAL:** Protection of aquatic and terrestrial resources within a watershed to sustain environmental, economic, and social needs.
 - **PROCESS:** Creates a shared vision to achieve common goals and tangible results.
- Adaptive management



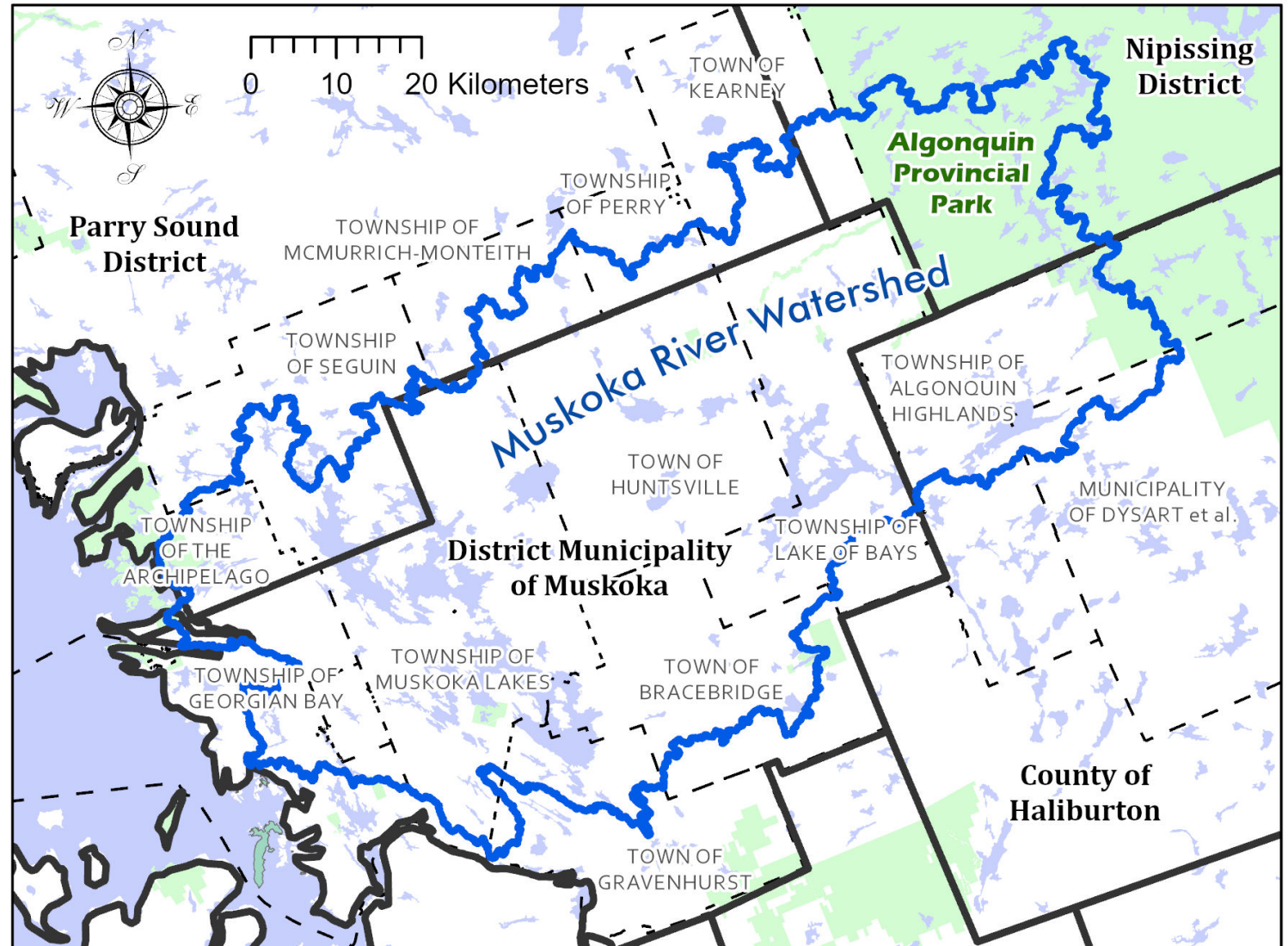
MUSKOKA RIVER WATERSHED

- In central Ontario on the edge of the Canadian Shield.
- 5,100 km² in area.
- 210 km in length flowing from Algonquin Park to Georgian Bay.
- Over 2,000 lakes with approximately 6,800 km of shoreline which is the equivalent of driving from Ottawa to Calgary and back.
- 42 water control structures
- 38 provincially significant wetlands



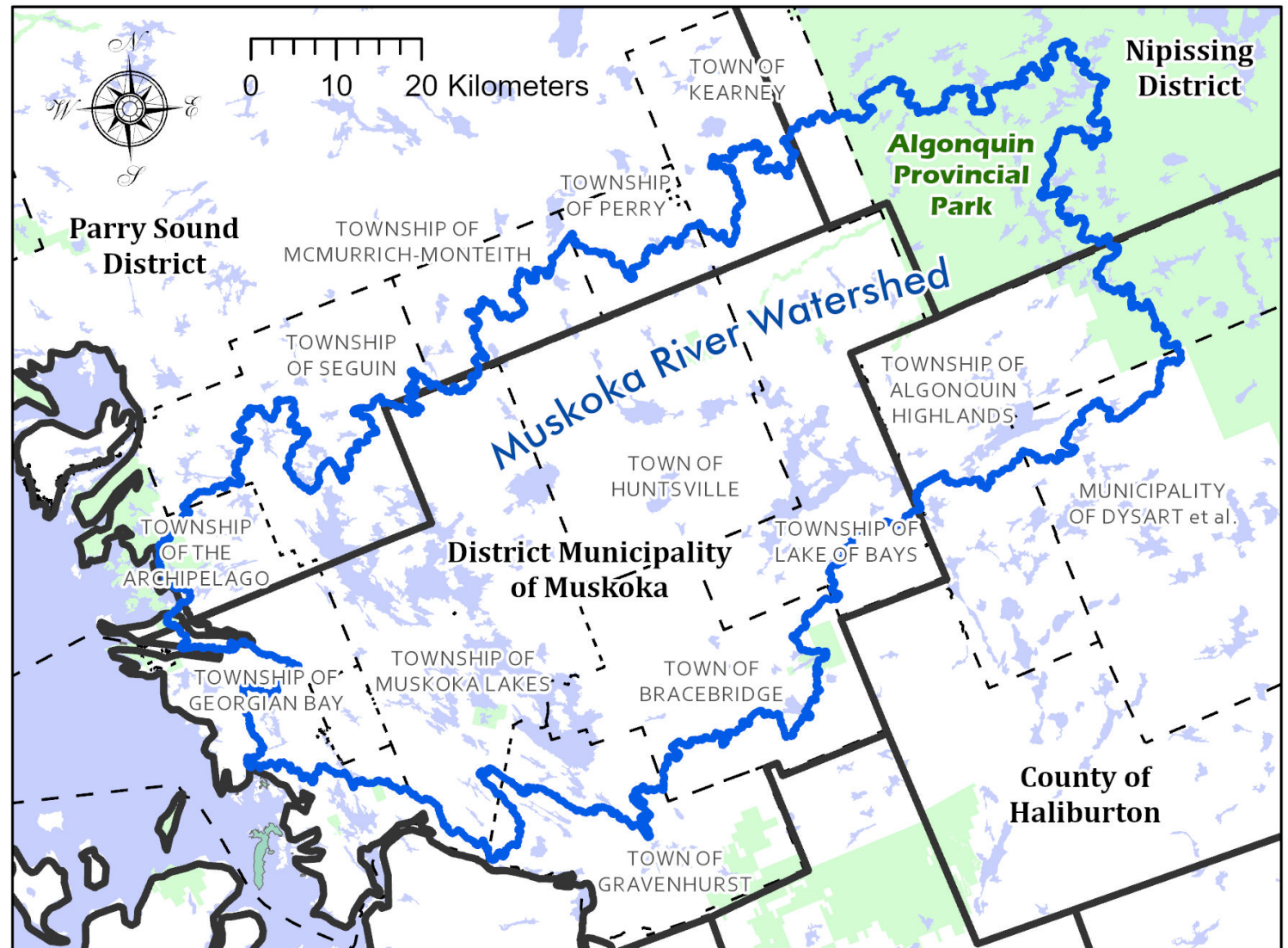
IWM IN MUSKOKA

- Facing pressures due to:
 - increased development,
 - severe weather events,
 - changing climate,
 - invasive species,
 - loss of habitat for species at risk,
 - shoreline erosion.
- Watershed overlaps with 2, Indigenous communities, 13 lower-tier, and 4 upper tier municipalities
- No Conservation Authority



IWM IN MUSKOKA

- In the last 10 years, the Muskoka River Watershed has experienced three 100-year storm events (**2013**, 2016, **2019**).
- Muskoka Watershed Advisory Group formed in 2020 at the request of the Minister of Environment Conservation and Parks (MECP).
- Provincial funding of \$4.16M was awarded to the District in 2021 to describe the existing conditions within the Muskoka River Watershed and further IWM.



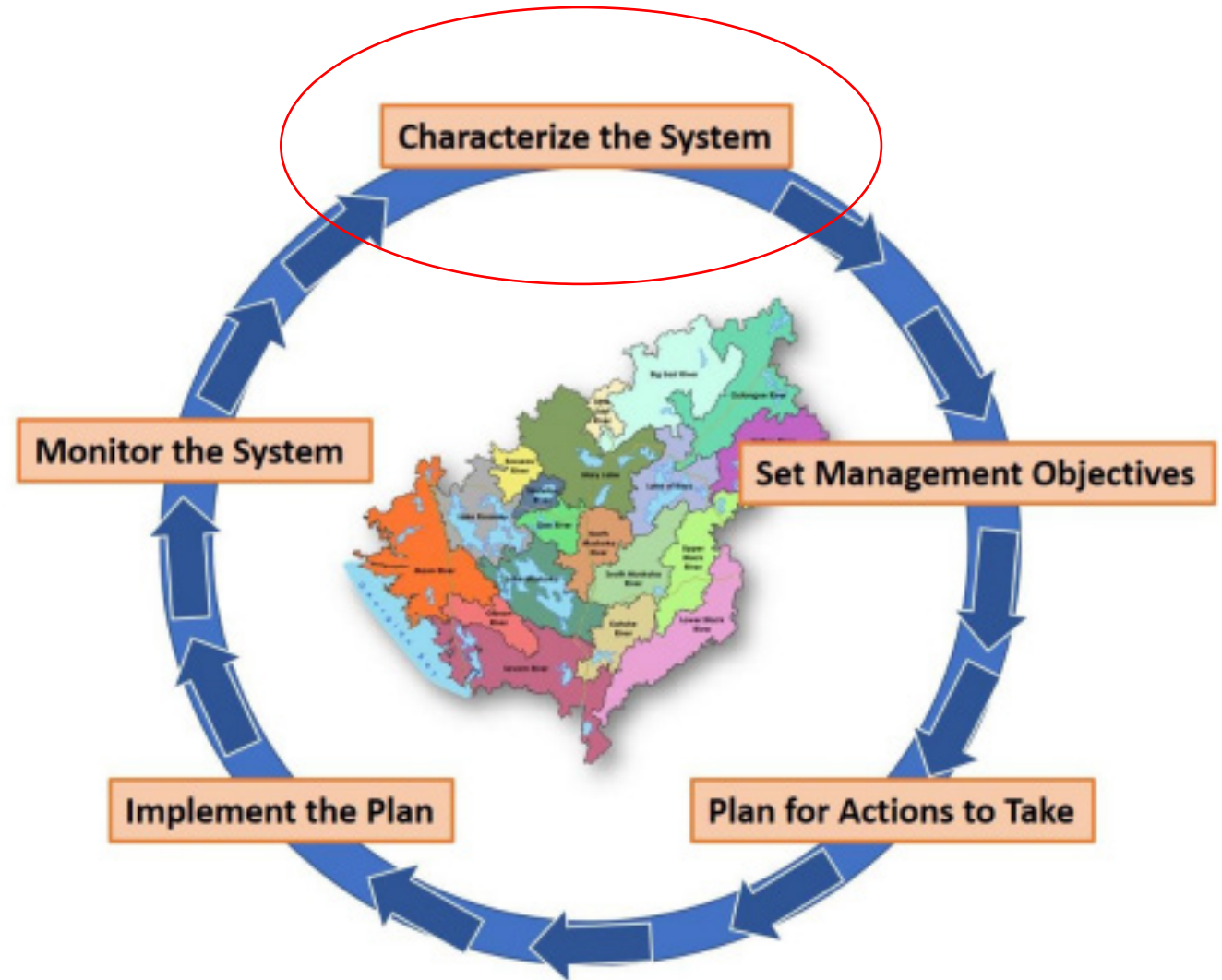
COMMUNITY ROUND TABLE

- Muskoka Watershed Council (local not-for-profit) is working with the District to establish a Community Round Table.
- Role of the CRT is currently to engage and educate the community.
- Into next year the CRT will take a more leadership role to move IWM forward in the Watershed.



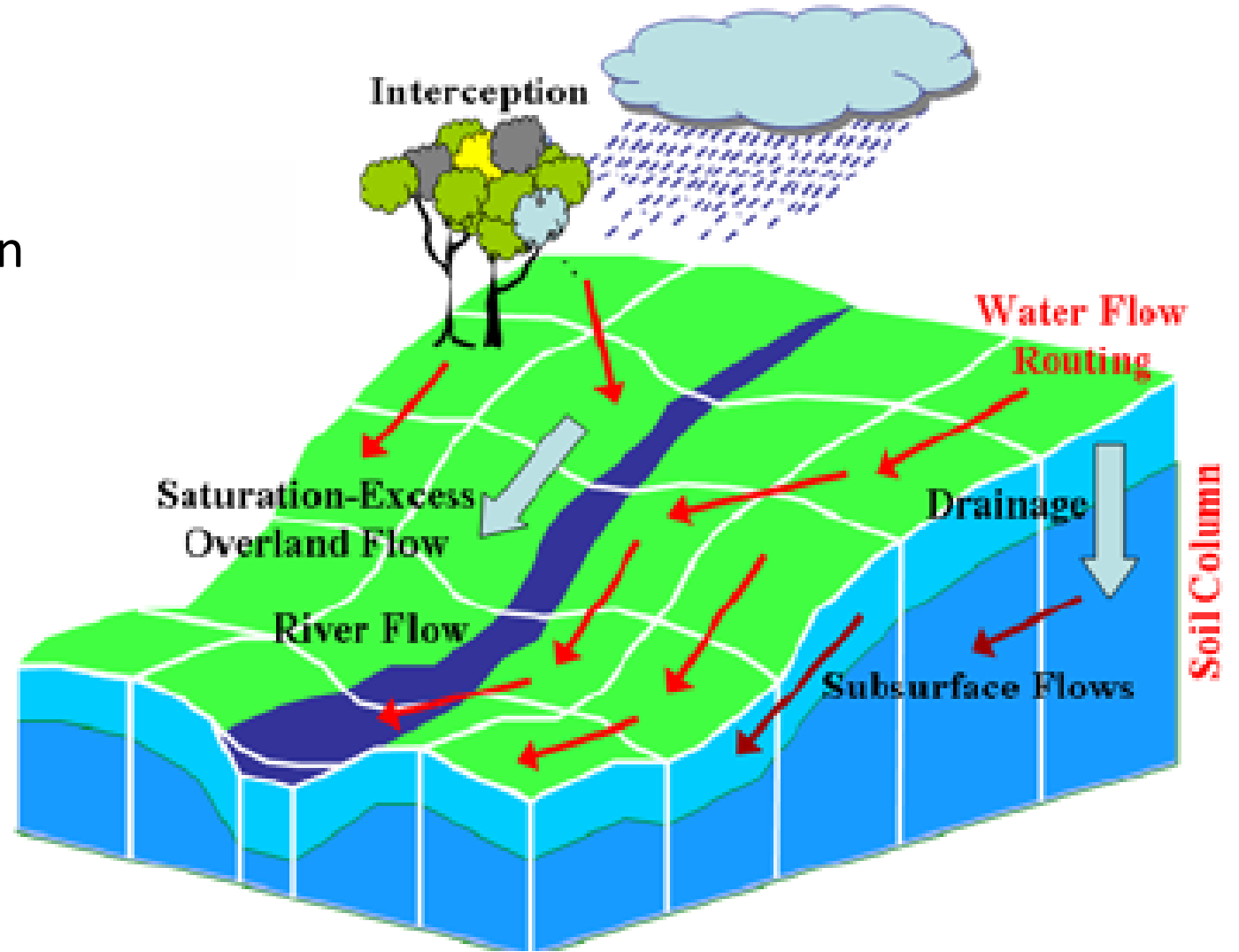
IWM IN MUSKOKA

- Engaging the community through a Community Round Table (CRT).
- Currently working to describe existing conditions in the Watershed.
- The 12 technical projects fall into several categories.
 - Flooding
 - Natural Features
 - Policy
 - Monitoring



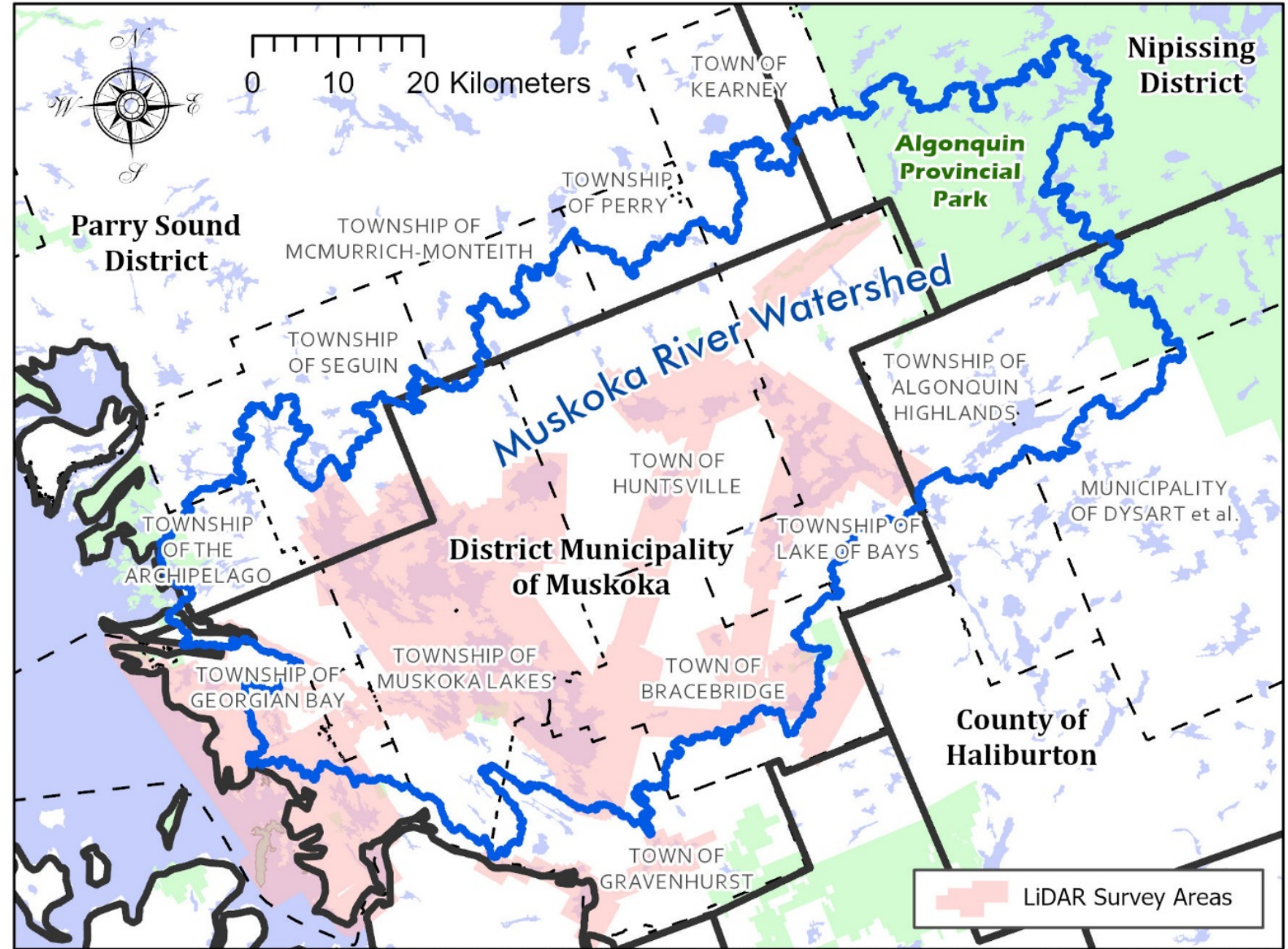
HYDROLOGIC MODEL

- Increase our ability to understand how water moves through the watershed and the effects of various climatic events or land use changes on flooding.
- Model has been developed and calibrated.
- Scenarios are currently being run through the model.
- Preliminary results indicate that climate change will have the greatest impact.
 - Timing of spring melt
 - Amount of snowfall



FLOOD PLAIN MAPPING

- Currently completing the second phase of flood plain mapping.
- Flown extensive LiDAR (2019, 2021).
- By end of this year will have approximately two-thirds of the watershed mapped.



OPERATIONAL ADJUSTMENTS & SCOPING STUDY

- Muskoka River Water Management Plan directs operation of the 42 water control structures in the watershed.
- Primary focus is on hydro power generation, maintaining recreational water levels during summer, balancing with ecological impacts (fall/spring spawning, waterfowl nesting, etc.).
- Using conditions documented in 2013 and 2019 floods to see if adjustments could be helpful in mitigating flood events using existing infrastructure.
- Developing a scope of work required to update the Management Plan.



STRUCTURAL MITIGATION AND FLOOD MODIFICATIONS

- Projects focused on reviewing existing infrastructure in the watershed and identifying new opportunities to minimize or mitigate impacts of flooding in the watershed.



NATURAL CAPITAL INVENTORY

- Data available from the watershed municipalities, Province, and public databases have been compiled.
- Final mapping will include:
 - Ecosystem Land Classification
 - Improved wetland layer
 - 1st / 2nd order streams
 - Rare community types (old growth)
 - Candidate Significant Wildlife Habitat (15E Criteria)
 - Vernal Pools



LAND USE POLICY REVIEW

- 13 lower-tier and 4 upper tier municipalities.
- Identify differences and similarities in land use policy across the watershed.
- Recommend best-in-class policies that can improve consistency and overall management of the watershed.



WATER QUALITY INDICATORS

Develop indicators for the Muskoka River Watershed that reflect emerging global and local threats to aquatic ecosystems will be developed.



WATERSHED HEALTH INDICATORS

Building on existing successes within the Muskoka River Watershed (e.g., MWC Watershed Report Cards) to develop recommendations how we will measure and track the health of the watershed.



EROSION SURVEY

Identify locations in the Watershed where erosion has occurred as a result of fluctuating water levels.



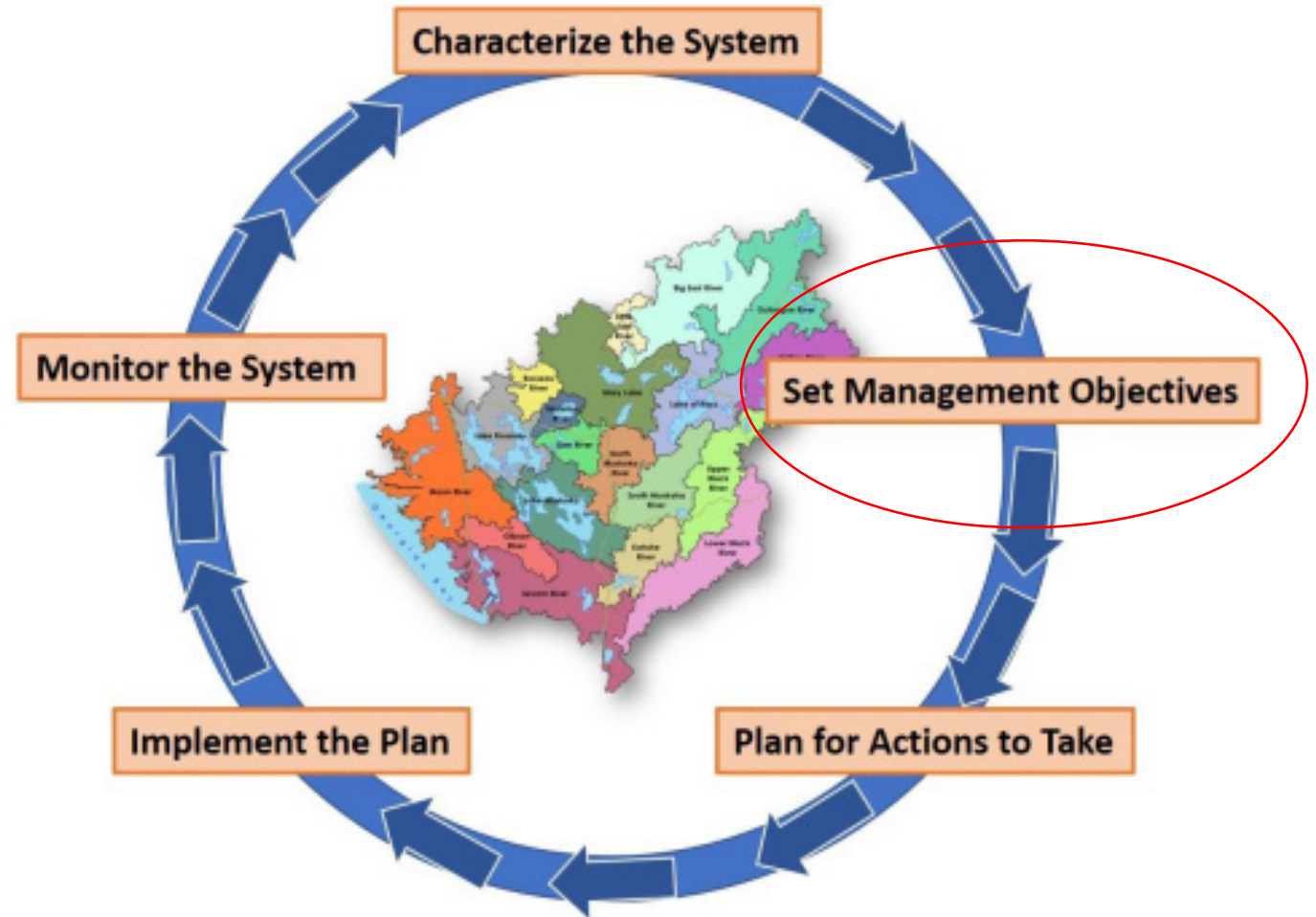
PUBLIC ACCESS INVENTORY

Will identify public access points to lakes, rivers, and natural areas within the Watershed.



NEXT STEPS

- Wrap up technical projects before end of year.
- Develop Goals/Objectives for IWM in the Muskoka River Watershed.
- Continue working with the community to develop a shared vision for the Watershed.



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