

Legislative Water Commission - 2019 Legislative Recommendations:  
Desired Future State Minnesota's Water Resources  
DRAFT, for discussion  
JRS

*Background: In 2008 Minnesota's citizens passed the Clean Water, Land and Legacy Amendment to the Constitution that dedicated a portion of the state sales tax for water. These resources created significant opportunities to achieve a sustainable water future for our state. Much has been accomplished, including research, monitoring, mapping, planning and implementation. However, recent information suggests that improvements to our state's water, when the amendment expires in 2034, may not meet citizen expectations. As the amendment period reaches a half-way point, there is need to reflect and refocus on a desired future state for water for 2034 and beyond. The citizens of Minnesota, local governments, the Clean Water Council, the Lessard-Sams Outdoor Heritage Council, the Legislative-Citizen Commission on Minnesota's Resources, the Administration, and the Legislature each have important roles and responsibilities to work together in prioritizing, funding, implementing, and evaluating environmental programs aimed at improving our water, increasing our return on investment, and reaching a desired future state for water in Minnesota. To ensure adequate and clean water for the future, we must balance long-term plans for conserving and protecting our natural resources with those for ensuring a healthy public and healthy economy. This is a long-term issue that will require our leaders to think about the future and in the best interest of our children and grandchildren.*

*There are several plans and reports that lay the groundwork for a strategy for the desired future for our water resources. Some of these recommendations have been accomplished. Others are included in the following draft recommendations from the Legislative Water Commission. The recommendations employ an interdisciplinary approach with multiple perspectives and expertise. The draft recommendations follow. They are not listed in priority order:*

***Recommendations Ranked by Stakeholders***

1. Keeping Water on the Land: Slowing runoff to streams will reduce erosion as well as reducing the impacts of nutrients, sediment and other contaminants. Focus on retaining water on the land, in all parts of the state, to improve groundwater and surface water quality. Best-management practices are key to improving the quality of our waters. Identify conservation practices most likely to reduce the impacts of our uses of the land when tailored to specific landscapes and land uses across the state. This should be a next-step in BMP implementation. Leverage state and federal funding programs to maximize land-owner involvement and enrollment in conservation practices using existing programs and incentives.
2. Address our Aging Wastewater and Drinking Water Infrastructure: Conduct cost-effectiveness reviews of best-management practices at drinking water and wastewater facilities: The societal benefits of cleaner water, resulting from improvements in wastewater and drinking water facilities practices are difficult to measure because they are qualitative. Therefore, we need to move toward with infrastructure-improvement decisions based on cost-effectiveness reviews that examine feasible alternatives to meet required needs relative to the cost. Recommend that wastewater and drinking water facilities undergo an "alternatives review" process that includes improvements to best-management practices. Move forward with pilots of watershed-scale trading programs that involves stakeholders: Identify efficiencies for regional drinking water and wastewater administration, operation and maintenance. Define the level of

infiltration and inflow considered excessive--above which corrective action should be funded. Address and fund improvements to our aging infrastructure. The U.S. Environmental Protection Agency (EPA) estimates that in the next 20 years more than \$6 billion will be needed to improve drinking water systems throughout Minnesota. The Minnesota Pollution Control Agency (MPCA) estimates that in the next 20 years more than \$4.5 billion will be needed to improve public wastewater systems, and more than \$1.2 billion to upgrade and maintain individual wastewater systems.

3. Plan for an uncertain future: Prepare policy and manage water in the face of uncertain future conditions that considers emerging contaminants, emerging technology, changing demographics, technology and land use, climate change, economic uncertainty, and aging infrastructure. Formulate a plan to better understand the importance that water and water use plays in providing ecological services. Include a process address the impacts of long-term variations in precipitation and temperature on water supply and on ecological services. Adopt a state-wide climate change adaptation policy. Develop policy to guide adaptation for changes that likely will occur to landscapes, biota, hydrology and infrastructure. New technology and industry growth may exert demands on water resources and technology may provide avenues to improve water quality and water sustainability. Our understanding of existing and potential technologies often is insufficient to evaluate all impacts. New technology needs to be carefully considered relative to feasibility and potential unintended consequences. Consider funding projects, within established funding programs such as the LCCMR that involve technological uncertainty. In to order initiate a future-state process--strengthen communication and ties between the Legislative Water Commission and the Environment and Natural Resources Committees in the House and Senate.
4. Increase Public Education-- The role of education is undervalued in protecting water resources. The Governor's Town Hall meetings recognized the need for additional water-resources training and education. Minnesotans understand the need to change behavior in order to reach sustainable water-resource goals. They recognize that we need to learn more about how behavior affects water quality; more about the basics of the water cycle, lakes, and rivers; and more about current water resource management efforts and how they can help. The diversity of Minnesota's citizens requires tailored messages and tailored methods of delivery. Minnesota has many components of a comprehensive water education system, but needs a better overall strategy and systematic approach. Professional training curriculums in land-use planning, engineering, horticulture, and agriculture need more water-resources content. No system links formal and non-formal, youth and adult water education. Two key messages for all Minnesotans are that there is a strong connection between individual and corporate actions on the land, and that water is important to all living things and to our economic well-being.
5. Water quality degradation is a prominent issue in our state. The state has made good progress in characterizing drivers, stressors, and issues that affect water quality. We now have a good picture of how changes to chemical, physical, and biological components have led to present water-quality conditions in our rivers, lakes, and groundwater. Many areas of Minnesota have are relatively undisturbed and have a high degree of attainment of designated beneficial uses. Other areas show measurable effects on water quality associated with particular land uses and human activities. These changes affect the quality and safety of drinking water; the presence of toxins; the quality of recreational waters; the support of healthy aquatic communities; and many other ecological benefits from flood control to spiritual fulfillment. We need to better identify these areas and tailor our management practices individually with respect to water-quality protection, preservation and improvement.
6. Increase the Understanding and Water Management Focus on Ecosystem Services--Minnesota's water resources contribute to ecosystem services in several ways. These services include water for agricultural,

industrial, and residential use; fish, waterfowl, mussels, and other foods; recreation (boating, swimming, fishing, hunting, collecting food, nature viewing; flood control; and aesthetic, spiritual, and cultural values. Research is underway to increase our understanding of how eco-services can be measured in terms of economic value. Ecosystems are interconnected and complex. Human impacts to ecosystem services vary across the state due to differences in climate, geology, soils, topography, and vegetation. Stressors impact ecosystems in a cumulative and interacting ways that are not all related to human activity. Water resource management and policies needs to be focused at watershed scales rather than statewide. There is a need to improve methods used to estimate and manage ecosystem services and to define goals to guide on-the-ground decisions. As a state, we need to enhance our understanding of the connections between hydrology and aquatic biology and aquatic ecology as well as associated eco-services. We need to place more focus on developing criteria for assessing the critical water levels, or flow conditions, required to support ecosystems that including habitat and population-based minimum flows; high-flow protection standards for habitat-forming, and silt-flushing high flows; protections for downstream needs; protection of the natural variability of flows over time (hydrograph shape); and groundwater/surface water interactions

7. Increase locally-led water management--Based on the Governor's Town Hall feedback, our citizens want Clean Water funds allocated at regional levels rather than all at the state level. They also request that funding to be available to nonprofit and citizen volunteer organizations and to tribal partners working toward clean water. Citizens want measurable outcomes, accountability, and clear assessments of whether waters are improving. As a state, we should continue to increase locally-led water management programs that are directed under state goals and guidelines as well as a state water policy. We should continue to support and encourage inter-jurisdictional water planning through the one-watershed/one-plan process.
8. Protect Our Lakes: Consider a comprehensive program and policy for lake sustainability--Consider policy/legislation/incentives aimed at protecting lakes, based on a tired approach that considers lake status. Consider rigorous legislation focused on stopping the progression of invasive species across lakes. Provide additional agency support to understand stressors and best-management practices to preserve and to enhance deep lakes. Provide program support to assess lakes across the state, focused on the potential effects of climate change and management practices that can mitigate those impacts. Provide analyses, funding and incentives, and support legislation to address and to fix inadequate septic systems. Support legislation to limit liability for de-icing applicators and property owners. Promote legislation focused on eliminating emerging contaminants from wastewater across the state. Prioritize funding opportunities, within established programs, to increase environmental and conservation land easements in watersheds that contain lakes needing protection. Provide funding for a sentinel lakes program. Incorporate robust water- budget information into water planning for lakes. Consider legislation and incentives aimed at protecting shorelines of lakes.
9. Recharge and Re-use of excess water: Begin to value wastewater and storm water as a resource and not as a liability. Assess the state to prioritize areas with the most critical and significant wastewater system repair needs. Identify and promote mechanisms to address areas with leaky septic systems. Identify, prioritize, allow and promote areas where groundwater recharge of wastewater and storm water is feasible. Allow for managed recharge. Protect areas where enhance recharge makes hydrologic sense. Assess and allow water reuse where appropriate.
10. Prioritizing soil Health added recommendation
11. Recognize the Full Cost and Value of Water: In one sense all of our water resources are allocated to important uses including natural and human-related needs. Any new use of water needs to be assessed in

that context. Managers need to account for the water quality and quantity implications of additional uses of water. State rules should capture the total costs of new allocations. However, other than data related to municipal water supply, little information is available for assessing the value of water and water-related ecosystem services. The price of residential water is extremely variable. Water-based ecosystems provide unquantified aesthetic, spiritual, and cultural value. Other studies indicate that people are willing to pay for improved water quality. We need to assess the costs and benefits of ensuring water sustainability and quantify the economic value of ecosystem services provided by adequately managed streams and lakes. In addition we need to address problems and costs associated with aging water infrastructure and leaking water systems and prioritize areas that are most vulnerable. Consider increasing appropriations permit costs and connection fees to recognize the full societal costs of using water.

12. Promote conservation pricing
13. Harnessing market Forces. Develop and improve. Leverage changes through market development- added Protect drinking Water supplies
14. Implement a Statewide Water Policy--Statewide water quality and quantity regulation and management is coordinated by state agencies. However, rigorous processes, involving multiple agencies often creates delays in decisions. This could be improved by establishing an interagency/legislative water policy process that includes the Future State of Water. The policy should include specific and emerging issues such as a statewide guide for mineral development that includes constraints, goals, and Control Emerging Contaminants in Waters of the State: Emerging contaminant affect aquatic biota and potentially human health in ways we do not understand. Continue to fund studies to understand this problem. Promote legislation that mandates a simple process for the return and disposal of un-used pharmaceuticals.
15. Increase Data, Information and Analysis--Maintain and enhance water information and monitoring programs. Increase emphasis on collecting information to understand water use, water budgets, groundwater, surface water, and aquatic biology and their interactions. Prepare a strategy for generating and managing information needed to integrate water sustainability assessment results into regulatory programs on a statewide basis. Support systematic water sustainability programs by re-assessing data programs in order to collect data that are needed. Establish Watershed "Water Bank Accounts"-- Create a water budget tool for each of the major watersheds in the state, using existing information. Improve our understanding of statewide water balances (bank accounts) as well as water sustainability by enhancing the One Watershed/One Plan program. We can use existing information about groundwater recharge, streamflow, and water use to identify priorities and concerns about water sustainability implementation, based on objective criteria. We are at a point where data exist to incorporate water-budget information into water planning and land-use planning.
16. Protect our Rivers and Groundwater: Plan to continue efforts supported by the Clean Water, Land and Legacy Amendment, beyond 2034. Continue to provide stable funding for monitoring, planning, restoration and protection activities for rivers, streams, and groundwater. Address drinking water protection, subsurface sewage treatment systems, analysis and restoration of impairments from nonpoint and point contamination, and watershed research and tool development. The Amendment has resulted in fundamental changes and improvements in sustainable management of waters in the state. We need to ensure that progress continues as we move from assessment to implementation.
17. Increase efforts to Control Invasive Species--The issue of aquatic invasive species was of high importance to the citizens of the state. Many believe that the Legislature, and agencies, do not realize how critical an issue this is to Minnesotans. State rules, education, regulations and penalties need to be increased to preserve and to protect our water resources

18. Increase our Knowledge About our Water Supply and Water Use--Population growth, development in the agricultural and energy sectors, climate variability, pollution, and competition for water all influence our future availability of water (National Science and Technology Council 2007). As a state, we need to improve tools to answer the following question: “How much water can the people of Minnesota use on a sustainable basis?” The National Science and Technology Council has identified three challenges to ensuring adequate water supplies: measurement and accounting for water availability and use; development of methods that allow for expansion of freshwater supplies while using existing supplies more efficiently and; development and improvement of predictive management tools. A program focused on water sustainability needs to be based on sound hydrologic and water-use information as well as an understanding of the role of ecosystems. There also are needs for short and long-term predictive methods. These include models and other forecasting tools supported by sound data. Development of a national water census (<http://water.usgs.gov/wsi>) is one of USGS’s seven major strategic directions (USGS 2007). The USGS goal is to provide technical information and tools to evaluate water availability and inform decision making. These resources should be linked to state programs to better integrate water availability, water budgets, water use, and climate-variability information within the state’s water-appropriation and permitting process.
19. Enhance and Improve the Water Appropriation Permit Process: Develop an automated water-appropriation tool that assesses streamflow deletion based on the cumulative effects of groundwater pumping and stream-water withdrawals. Simplify the water appropriation-permit process (internet-based) for small appropriators to speed-up and simplify the process... Permit criteria should include the effects of total watershed appropriations relative to watershed size, groundwater recharge, summer streamflow, and stream thermal regime. Expand the DNR’s authority to designate water-resources management areas. Expand the DNR’s authority to adjust appropriations when needed.