

**Legislative Water Commission- 2019 Legislative Recommendations:
Keeping Water on the Land
DRAFT for Discussion
JRS**

Issue Summary and Draft Recommendations

Throughout our state's history, our residents have worked to change how water flows--building dams and dikes, straightening and dredging channels, armoring streambanks, digging ditches, installing subsurface tile, and constructing storm-sewer systems. The most extreme hydrologic alterations are the construction of impervious surfaces such as roads and buildings in our cities. However, the most widespread alteration of our hydrology has been the conversion of native prairie to farmland and the construction of the network of drainage ditches and subsurface tile that have been essential for intensive crop production and transportation infrastructure. Altered hydrology occurs in both urban and agricultural portions of the state and hydrologic alterations are locally more extreme in our cities and towns. However, the total area of affected lands is greater in agricultural portions of the state. In both areas, we need to increase efforts to retain water on the land in order to improve natural streamflow and to improve water quality and aquatic ecology. The question is this: What best management practices are appropriate in specific landscape settings within watersheds, and how can they be encouraged to improve our water resources?

Ranked Recommendations by Stakeholders

1. Effects of drainage on underlying aquifers is unknown. A basic understanding of the impact on unconfined, and confined, aquifers is necessary to quantify the effects (quantity and quality) of agricultural drainage on shallow groundwater. This should include an evaluation of the effects on groundwater recharge.
2. An improved understanding of historical water-balance shifts from pre- to post-drainage periods is needed to understand long-term implications on groundwater recharge. More direct field-scale studies and modeling studies are needed to characterize water budgets for fields with subsurface drainage
3. Promote the role and importance of the relationship between healthy soil and healthy water. Establish programs to improve soil health, aimed at increasing agricultural productivity and water retention
4. Existing tools and systems need to be applied and used to identify the appropriate best management practices at landscape and watershed scales
5. Utilize the one-watershed/one-plan process to locate and to implement best- management practices, within watersheds, at appropriate places and
6. The overall extent of drainage is needed. Direct estimates of the extent of subsurface drainage do not exist in Minnesota. However, several indirect methods could be utilized to estimate the extent of surface drainage statewide.
7. Quantify the extent and distribution of open-tile inlet structures across the state and create incentives to replace them with alternatives
8. Expand the responsibilities of the Drainage Working Group to include all drainage and water retention activities, rural and urban
9. Encourage programs to maintain and upgrade rural ditches and culverts that reduce erosion and encourage fish passage

10. Design programs to quantify potential problems of emerging contaminants in urban storm water retention basins
11. The effects of urban storm-water, with respect to the quantity and quality of ground water
12. Fund a cost/benefit/return on investment analysis of conservation drainage-management practices
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13. Support the recommendation of the Drainage Working Group
14. Quantity and map areas of deep aquifer recharge as areas that need to be protected from chemicals introduced as the result of drainage and water retention activities
15. Evaluate the effects of drainage on by wetland systems
16. Create an organizational structure, similar to the Drainage Working Group, that encompasses all conservation- management practices