**PROJECT TITLE: Where and When? Improving the cost effectiveness of Minnesota’s water quality conservation programs.**

**Project Manager: Brent Dalzell**

Dr. Dalzell is a Research Associate at the University of Minnesota in the Department of Soil, Water, and Climate. He applies a variety of approaches to understand human impacts on Earth resources with particular focus on landscapes that have been modified for agriculture. This includes computer modeling approaches as well as field- and lab-based research aimed at quantifying movement of water, carbon, sediment, and nutrients in the landscape. Relevant to this proposed project, Dr. Dalzell has extensive research with watershed-scale modeling of agricultural landscapes in the Upper Midwest, including watersheds in the Minnesota River Basin. Those efforts include combining watershed-scale model outputs with complementary data sources and analytical approaches to improve model robustness and support cross-disciplinary research efforts.

**Organization: Department of Soil, Water and Climate; University of Minnesota**

From its’ beginnings in 1913, the Department of Soil, Water, and Climate has contributed substantially to science that functions in support of preserving and restoring Minnesota’s soil and water resources. Research from the Department of Soil, Water, and Climate has been integral to advancing the state of the science with respect to improving Minnesota’s water quality through improved stewardship of managed landscapes. The Department has an excellent collection of support staff, faculty, and research associates with prior experience with LCCMR-funded projects. Our research team will have monthly in-person meetings throughout the duration of the project to ensure suitable progress and discuss challenges that may arise.

For this project, we have assembled a team of experienced researchers with the collective skills to ensure the success of the proposed work:

**Dr. Dalzell** (Dept. of Soil, Water, and Climate) will serve as the overall project manager as well as conduct the watershed scale modeling effort.

**Dr. Levers** (Water Resources Center) will conduct the spatial and cost-benefit analyses by linking watershed-scale model outputs with an optimization programming approach to identify landscapes that meet environmental benchmarks while protecting farmer income.

**Dr. Verdin** (Institute for Social Research and Data Innovation) will refine seasonal weather forecasting approaches and generate weather data to drive watershed modeling for evaluating how prescribed management scenarios may change with the weather.