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Olmsted County Soil and Water Conservation District
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Subject: Department of Natural Resources Priority Concerns for the Zumbro River One Watershed, One Plan.

Dear Kaitlyn and Skip:

Thank you for the opportunity to provide Department of Natural Resources (DNR) priorities and concerns for the Zumbro River Watershed as you and your partners begin developing a Comprehensive Watershed Management Plan. I am writing on behalf of DNR Commissioner Sarah Strommen to share our resource priorities and express our support for this effort. The Zumbro River watershed is highly diverse and a wealth of information exists to guide plan development. Department of Natural Resources staff who work within the watershed have extensive knowledge and experience across multiple natural resource disciplines. We can provide data, reports, and presentations for your use in plan development. We encourage you to reach out to us for assistance.

Attached are suggested priorities you may choose to address in your plan. We focused priority development on core issues where the DNR plays an active role statewide. Some priorities were identified in the Zumbro Watershed WRAPS process and are included here as well. We also developed a companion list of suggested priorities and priority location maps for each HUC10 subwatershed in the planning area. This information will be provided in a separate companion document. We look forward to participating and providing assistance to help ensure success of the One Watershed One Plan (1W1P) process.

Our lead for the Zumbro River One Watershed, One Plan is Jeff Weiss, Clean Water Hydrologist in Rochester. Please contact Jeff by phone (507-206-2851) or email (jeffrey.weiss@state.mn.us) if you have questions or would like more information about the attached priorities.

Sincerely,

A handwritten signature in blue ink that reads 'Keith Parker'.

Keith Parker

Central Region Director

Ec: Jeff Weiss (DNR), Barbara Weisman (DNR), Dan Lais (DNR), Rob Collet (DNR), Jeanne Daniels (DNR), Todd Kolander (DNR), Adam Bigalke (BWSR)

Department of Natural Resources Priorities for the Zumbro River Watershed

The following priorities were identified with input from staff in five DNR divisions who have extensive knowledge and experience working in the Zumbro River watershed. The following are priorities and issues we would like to see addressed. As a team we identified issues and opportunities that would provide multiple benefits towards watershed protection and improve livability for residents. We will be providing additional information that may be useful to you in targeting implementation efforts. Thanks again for the opportunity to provide input.

Resource Concern: Outdoor Recreation

Issue: Bacteria impairments of surface water

Water quality impairments that impact aquatic recreation occur throughout the Zumbro River watershed and are a major concern for the DNR. Impairments are mainly due to high levels of *E. coli* and/or fecal *coliform* bacteria from feedlots, land application of manure, and cattle in riparian areas. Leaking septic systems can also be a contributing factor. Demand for aquatic recreation opportunities is increasing as the City of Rochester grows, further emphasizing the need to address these impairments.

Strategies to consider for bacteria impairments

- Conduct an evaluation of the effectiveness of feedlot and manure application rules and make improvements where needed
- Enforce feedlot zoning and manure application regulations
- Examine feedlot density in relation to impairments, particularly in areas with sinkholes and other karst features, to determine a density that supports water quality standards for aquatic recreation
- Conduct E-DNA studies to determine bacteria sources and target BMP implementation
- Ensure that unsewered communities and private septic systems are in compliance with regulations

Issue: Expansion and management of trails

There are five state trails and two water trails in the Zumbro watershed and over 100 miles of bike and walking paths within the City of Rochester. The Zumbro Bottoms near Theilman is a popular destination for horseback riding with 79 miles of state forest trails. Managing trail corridors for native plant communities and pollinators can improve wildlife habitat and restore connections between fragmented habitats. The recreational enjoyment of trail users would also be enhanced.

Strategies to consider for trails:

- Work with the DNR to acquire additional easements that expand existing trails and protect habitat.
- Manage trail corridors, particularly along waterways, for native plant communities and pollinator habitat to improve trail aesthetics and protect shoreland from erosion
- Identify opportunities for development of new canoe landings and a boat ramp at Lake Zumbro
- Install additional fishing piers on Rochester reservoirs

Issue: Public water access

The DNR manages multiple public water access sites in the Zumbro River watershed as well as many miles of public fishing easements that also provide the DNR with access for fisheries and habitat management. Reservoirs near Rochester have public fishing piers that are handicapped accessible and receive high use. Many of the public canoe launches scattered throughout the watershed need maintenance or reconstruction due to flood damage. Lake Zumbro receives very high recreational use and boat ramps are often crowded with limited parking.

Strategies to consider for public water access:

- Identify needs and opportunities to add canoe access sites and additional boat ramps
- Modify existing access sites to reduce flood damage and maintenance
- Install additional fishing piers on reservoirs
- Work to reduce nutrient and bacteria loading waters of recreational value

Resource Concern: Altered Hydrology

Issue: Peak flows and flooding

The hydrology of the Zumbro River Watershed has been highly altered for agricultural production and land development. This has resulted in increased peak flows and flooding, reduced infiltration of water, loss of water storage capacity, and increased stormwater runoff. With annual precipitation increasing due to climate change, water storage is a critical concern to the DNR.

Strategies to consider for peak flows and flooding:

- Restore wetlands in the headwaters and lower watershed to increase water storage
- Help agricultural producers install controlled drainage tile systems to slow the flow of water into the river system
- Promote the use of cover crops to reduce runoff from row crop fields
- Encourage the conversion of marginal agricultural land to permanent native vegetation to promote infiltration and reduce runoff
- Work with the DNR to update floodplain and shoreland zoning rules to reduce flooding impacts as has been done by Olmsted County and the City of Rochester

Issue: Stream stability and habitat

Altered hydrology has played a significant role in the development of hundreds of miles of eroding stream banks and incised channels in the Zumbro River watershed. Restoring hydrologic function and instream habitat is a DNR priority. Stream restoration projects designed to restore or mimic natural stream channel processes can reduce flooding, improve water quality, stabilize stream banks, restore fish and wildlife habitat, and add water recreation opportunities.

Strategies to consider for stream habitat and stability:

- Work with the DNR to implement stream channel and restorations using natural channel design principles to improve hydrologic function and habitat for fish and wildlife

- Properly size bridges and culverts and install floodplain culverts where appropriate so that stream channel stability is maintained

Issue: Aquatic Connectivity and Dams

The DNR supports removal of the Silver Lake dam in Rochester. We would prefer that the channel of the South Fork Zumbro River be restored instead of maintaining the existing pool. This would open the floodplain area to a host of recreational possibilities while restoring hydrologic function and fish passage.

Strategies to consider for connectivity and dams:

- Remove the Silver Lake dam and restore the river channel upstream to improve fish passage and habitat
- Replace low-head dams within the Rochester flood control project with rock rapids to improve fish passage and public safety

Resource Concern: Groundwater and Drinking Water

All drinking water in the Zumbro River watershed is provided by groundwater and it is vitally important that the quality and quantity of this resource is protected and wisely managed.

Issue: Nitrate in drinking water and surface water

Nitrate in drinking water and surface water is a growing concern of watershed residents and the Department of Health. Several communities in neighboring watersheds have had to drill new water supply wells to reach groundwater that meets the nitrate standard.

Strategies to consider for nitrate in groundwater:

- Target nitrogen management BMPs in the upper watershed, the karsted lower watershed, and within drinking water supply management areas
- Implement nitrogen BMPs on lands within mapped springsheds and work with the DNR evaluate BMP effectiveness by monitoring nitrate levels in springs
- Target trout stream springsheds for nitrogen reduction to improve water quality and reduce the effects of nitrate on fish and aquatic insects
- Install sinkhole buffers and berms to filter runoff

Issue: Groundwater Quantity

As population growth continues in the Zumbro River watershed, groundwater withdrawals are increasing. It is important to monitor groundwater levels to avoid well interference issues and ensure that water availability meets water demand. The DNR can provide support in the following strategies.

Strategies to consider for groundwater quantity:

- Ensure that water appropriation permits are obtained for all water withdrawals for which a permit is required
- Identify sites for additional observation wells to track groundwater levels over time
- Work with municipalities to improve water use efficiency

Issue: Decorah Edge

The Decorah Edge is an impermeable layer of shale which underlies the upper aquifer in a narrow band through the Zumbro River watershed. This geological feature plays an important role in filtering pollutants from groundwater. Calcareous fens are also present along the Decorah Edge. The City of Rochester has been proactive in protecting the Decorah Edge by adopting zoning regulations that guide development.

Strategies to consider for the Decorah Edge:

- Adopt protective zoning regulations to protect the Decorah Edge where it occurs in the Zumbro River watershed
- Educate the public about the importance of the Decorah Edge to groundwater quality

Resource Concern: Conservation of Habitats and Rare Features

The Zumbro watershed has many special and rare habitats and plant communities. Some are critically imperiled and could be lost without additional protection from development and pollution. These include calcareous fens, algific talus slopes, and bottom land hardwood forests. The DNR's ecological inventory of the watershed will be provided as a companion document.

Issue: Lower Zumbro River floodplain restoration

The lower 3.5 miles of the Zumbro River was channelized and levees were constructed downstream from Kellogg in 1973. Historically, this area was a series of meandering channels that provided diverse habitat and water quality benefits. Re-connecting the river to its floodplain would restore up to 2,000 acres of wetlands and reduce sedimentation and nutrient loading in the Mississippi River and Gulf of Mexico.

Strategies to consider for floodplain restoration:

- Review the 2010 DNR and Army Corps of Engineers proposal for floodplain restoration and gauge landowner interest in participation

Issue: Native plant communities and biodiversity

There are 49 native plant community types in the Zumbro River watershed of which over half are considered imperiled or vulnerable to permanent loss. These plant communities provide a diversity of habitats and support many native wildlife and bird species. Twenty-one sites have outstanding biodiversity. Protecting these sites promotes watershed health and ecosystem resilience.

Suggested to consider for native plant communities and biodiversity:

- Protect native plant communities and increase habitat connectivity through easements, acquisition, and coordinating management with private landowners
- Manage the watersheds of Rice Lake and the Rochester reservoirs to reduce nutrient levels, improve water clarity, and support native aquatic vegetation growth
- Protect calcareous fens through zoning rules and groundwater appropriation monitoring

Resource Concern: Climate Change Impacts and Landscape Resiliency

Increased annual precipitation and more intense rainfall events are impacting hydrology, water quality, and infrastructure in the Zumbro River watershed. Planning for future climate conditions is becoming increasingly urgent. The One Watershed, One Plan process offers the opportunity to explore potential impacts of climate change on the watershed and ways to reduce them.

Issue: Increased precipitation and effects on infrastructure

Precipitation amounts and intensity are increasing. Large floods are occurring more frequently placing increased demands on infrastructure.

Strategies to consider for increased precipitation:

- Work with the DNR to assess the vulnerability of water resources to climate change
- Design new bridges and culverts to dimensions appropriate for future climate conditions so that hydrologic function is maintained
- Update stormwater systems to operate effectively under increased runoff
- Work with the DNR to update floodplain and stormwater ordinances to account for increased flood frequency and magnitude
- Increase water storage through wetland restoration
- Work with the DNR to use regional climate models together with watershed models to predict the impact of climate change on water quality and the landscape and target projects to address impairments

Issue: Climate adaptation and landscape resiliency

Climate adaptation refers to the ability of populations, species, or systems to adapt to a changing climate. As the climate becomes warmer and wetter changes will occur in the organisms that live here. Plants, animals, insects, and diseases that normally could not survive Minnesota winters may expand northward. Protecting and restoring habitats and ecosystem functions supports the resiliency of native species. The DNR can provide extensive support for implementation of the following strategies.

Strategies to consider for climate adaptation and resiliency:

- Evaluate the vulnerability of native habitats and species to climate change and implement projects with multiple benefits including protecting resiliency
- Increase landscape diversity by restoring habitats that were historically common but are now rare such as wetlands, prairies, and floodplain forests, to maximize ecosystem resiliency.
- Develop a landscape monitoring plan to detect new types of plants, animals, and insects so that potential threats to native species and agriculture can be evaluated and action plans developed