Emerging Issues

(To be included in Plan Section 2: Priority Resources and Issues)

This section presents an assessment of reasonably foreseeable or “emerging” issues. Emerging issues are those that lack detailed information, which are sometimes prominent in the media, and may affect the resources within the Buffalo-Red River Watershed (BRRW) at some time in the future. The assessment of emerging issues has been compiled from a variety of sources including:

- A review of previous studies, reports, and scientific papers;
- The collective experience of staff and technical advisors;
- Specific requests from the members of the BRRW 1W1P Committees; and
- A general understanding of resource management trends. A summary of the technical resources reviewed during plan development to identify concerns and issues including emerging issues is shown in Appendix (X).

Emerging issues are expected to be periodically monitored by plan participants, with respect to how they may affect plan implementation. Action items are included within the targeted implementation schedule (Section 4) to clarify the technical data needed to address emerging issues. If new emerging issues are identified during implementation, goals included in this plan may shift.

This section summarizes and lays out a framework for addressing emerging issues during this plan. These issues include scientific and technical matters influencing the priorities established by the plan; potential administration and fiscal limitations and barriers for implementing actions identified within the targeted implementation schedule; and improved water and resource policy to aid with plan implementation.

Scientific and Technical Emerging Issues

Climate Change Adaptation

According to the National Climatic Data Center, Minnesota’s average temperature has increased about one tenth of a degree every decade, from 1895 to 1970. Since 1970, the rise has been more dramatic about a half a degree every decade. Much like temperature, Minnesota has been experiencing an increase in the severity and frequency of storm events. The Minnesota Department of Natural Resources (DNR) defines “mega-rain” events as “events in which six inches of rain covers more than 1,000 square miles and the core of the event topped eight inches.” Minnesota has seen a sharp increase in these events since 2000, with 2016 being the first year on record with two mega-rains in the state (DNR, 2017).

If the climate warms, ice-cover of lakes and streams are likely to melt earlier. Many lakes and streams throughout the northern hemisphere already are showing this pattern (Magnuson and others, 2000; Hodgkins and James, 2002). In turn, earlier snowmelt runoff would cause stream flows to peak sooner in the spring, leading to baseflow conditions earlier in the year. The effect of earlier ice-cover loss for lakes and streams in conjunction with heavier spring rainfall could increase the magnitude and frequency of spring flooding.

It is important to understand these changes in regional climatic trends because they impact water resources and their seasonal management. As noted by the Soil and Water Conservation Society (SWCS), increased storm intensities result in increased soil erosion and increased runoff. Also, the MPCA warns that these more frequent, intense precipitation events may increase flooding (MPCA, 2013).
This plan recognizes the potential implications of climate change by encouraging the use of updated design standards for water resource infrastructure, based on National Oceanic and Atmospheric Administration (NOAA) Atlas 14. Plan participants also should recognize the importance of this issue when designating 100-year floodplain boundaries, and the inherent uncertainty in defining the boundary location.

**Contaminants of Emerging Concern**

A contaminant is defined as a substance in a place where it doesn’t belong. According to the Minnesota Department of Health (MDH), contaminants of emerging concern are substances that have been released to, found in, or have the potential to enter Minnesota waters (groundwater or surface water) and do not have Minnesota human health-based guidance (how much of a substance is safe to drink), pose a real or perceived health threat, or have new or changing health or exposure information (MDH, 2016).

In the last decade, national and statewide studies have revealed that many contaminants of emerging concern are found in the aquatic environment. They can include pharmaceuticals, pesticides, industrial effluents, personal care products that are washed down drains and processed by municipal wastewater treatment plants, and others (MDH, 2016). These contaminants are being found in Minnesota’s waters, in part because methods have improved and are able to detect substances at lower levels, additional substances are being looked for, new substances are being developed and used, and old substances are being used in new ways (MDH, 2016). There is a growing concern that these contaminants even at low concentrations, or mixtures of them, may adversely affect fish, wildlife, ecosystems, and possibly human health.

Plan participants recognize the need to provide public water supplies free from contaminants of emerging concern. The plan addresses this emerging issue through education and implementation programs that reduce the source of contaminants of emerging concern from entering water resources and reduce the volume of water entering groundwater and surface water resources.

**Large-Scale Infrastructure Projects (Fargo – Moorhead Diversion Project)**

Flooding has long been a major issue in the BRRW and more broadly, the Red River Basin, inundating agricultural fields, washing out roads, and impacting cities and towns. Since the 1997 and especially following the historic 2009 flood, the cities of Fargo, North Dakota and Moorhead, Minnesota have sought permanent flood protection in the form of a diversion channel. The Fargo-Moorhead Area Diversion Project is a 20,000 cubic feet per second (cfs), 36-mile long, 1,500 foot-wide diversion channel with 35,500 acres of upstream staging. The project is designed to reduce a 100-year flood event from 42.4 feet to 35 feet at the Fargo gage and to reduce the 500-year flood event from 46.7 feet to 40 feet. The current flood of record in 2009 peaked at 40.84 feet. The project includes 150,000 acre-feet of upstream staging for flood events exceeding a 10-year event.

After denying the project permit in 2016, the DNR granted an alternate project permit, or “Plan B” in December 2018. Because the majority of the construction, costs and benefits will occur on the North Dakota side of the Red River, impacts to the Minnesota side will be reduced as a result of Plan B. In the BRRW, this plan reduces the staging area from 14,800 acres to 5,400 acres, removes five cemeteries from the impacted area, reduces the impact to the Wolverton Creek floodplain, reduces impacts to organic farmland from 2,900 acres to 300 acres, and eliminates any impacts to the City of Comstock and the need for a ring levee.

Despite the reduction of impacts to Minnesota, concerns remain about potential impacts in the BRRW. The eastern tieback levee crossing at Wolverton Creek will have an impact on the floodplain as well as downstream and upstream drainage. An estimated 180 parcels in the Minnesota side of the staging area may be impacted by the temporary storage of water during a flood event, thus flowage easements will be required. Local drainage as well as current and future local projects may be impacted by alterations to drainage patterns. As a condition of the DNR permit, the Fargo-Moorhead Area Diversion project must comply with Buffalo-Red River Watershed District rules and follow the District permitting process. LGUs in
the project area will continue to monitor project progress and coordinate with the Flood Diversion Authority on any potential issues that could impact the BRRW.

Tile Drainage
The amount of tile drainage within the BRRW has been on the rise over recent decades. It is well documented that tile drainage has many benefits for agricultural producers, including, but not limited to ease of field access, an extended growing season, and decreased plant stress that frequently increase annual gross income and increase in land value. A study led by the Red Lake Watershed District found that tile drainage also includes many potential water quality and quantity benefits, including, but not limited to reductions in turbidity and TSS, total phosphorus, and, depending on the type of outlet, temporary storage. Despite these positive impacts, tile drainage can increase nitrate and conductivity levels downstream (RLWD, 2009). More information is needed in the BRRW regarding the prevalence of tile drainage systems and their impacts on water resources.

Agricultural Irrigation using Surface and Groundwater Sources
Groundwater is an important drinking water source for residents throughout the BRRW. It is also a primary source for irrigation in Otter Tail, Clay, and Becker Counties. Irrigation use is greatest for Otter Tail with use frequently exceeding 2 billion gallons annually.

A drought frequency investigation for the Red River Valley predicts a strong probability of an extreme drought event occurring before 2050 (Meridian Environmental Technology, Inc. 2004). A prolonged drought event could have a pronounced impact on agricultural productivity, leading to a greater reliance on groundwater as a source of irrigation. Furthermore, with increased demands for water for crop production and yields and the increased installation of tile drainage, irrigation is frequently looked at for a way to boost production and control the amount of water applied, which leaves long term impacts and water quality concerns on the groundwater resources.

It is not expected that the BRRW surface or ground waters will be impacted by irrigation soon. However, this does remain an area of emerging concern.

Tiered Aquatic Life Use (TALU) Framework
Minnesota adopted changes to water quality standards (Minn. Rule Chapters 7050 and 7052) that establish a tiered aquatic life use (TALU) framework for assessing rivers and streams. The rule amendments and resulting TALU framework categorizes Class 2 (aquatic life) rivers and streams into three tiers: Exceptional, General, and Modified Uses. These tiers are based upon the potential to support aquatic invertebrate and fish communities.

- Exceptional Use – High quality waters with fish and invertebrate communities at or near undisturbed conditions.
- General Use – Water with good fish and invertebrate communities that meet or should meet minimum goals.
- Modified Use – Water with legally altered habitat that prevents fish and invertebrate communities from meeting minimum goals.

Whereas past Class 2 assessments were based on chemical and physical water quality standards, the intent of the TALU framework is to incorporate biological criteria into the assessment. The TALU framework provides more protection for high quality waters and sets attainable goals for altered waters. It is not intended to add additional authority to regulate ditches created under Minnesota Drainage Law or relax pollution controls as required by the Clean Water Act.

Waters in the BRRW will undergo a two-year period of intensive watershed monitoring (IWM) from 2019 through 2020. Waters will be classified for aquatic life use attainment into the three TALU tiers. Results from monitoring will be analyzed and reported in the forthcoming Watershed Monitoring and Assessment Report as well as the Biotic Stressor Identification Report.
This plan will take into consideration any changes to the aquatic life use status of rivers and streams in the BRRW during the five-year plan update.

Policy and Funding Emerging Issues

Funding for Plan Implementation

Funding is one of the primary constraints on executing the targeted implementation schedule in Section 4. This plan shows that the ability to execute actions within the targeted implementation schedule and achieve the measurable goals requires more fiscal and staff resources at the local level than is available to the BRRW. The BRRW is expected to carry more of the responsibility to implement state and federal goals (e.g., attaining state water quality standards) while regional partners are addressing regional flooding concerns. An expectation that the BRRW will achieve these common goals without additional funding seems unreasonable.

The targeted implementation schedule in this plan represents a coherent, comprehensive approach to mark progress towards measurable goals. Although local agencies have had success in acquiring competitive grants and designated state and federal funds, relying on those funding sources to achieve the measurable goals seems unreasonable and makes success tenuous. Therefore, block funding on an annual basis is needed. This plan includes actions to achieve a consistent funding mechanism and reasonably ensure implementation success.

Conservation Practice Delivery Mechanism

An improved means of effectively delivering conservation programs is needed. The targeted implementation schedule in this plan represents a coherent, comprehensive approach to mark progress towards measurable goals. However, both technical and financial resources at the local level to implement conservation programs are limited. Some agricultural policies encourage the agricultural producer to maximize yield, in conflict with soil and water preservation policies. This plan recognizes the need to improve conservation delivery through implementation programs aimed to increase engagement with agricultural landowners, producers, and lake shore owners within the plan area.

Inconsistent Administration and Enforcement of MN Rules and Statutes

Administration and enforcement of Minnesota Administrative Rules and statutes is an important aspect of managing and protecting the State’s water quality. Examples of these rules and statutes include, but are not limited to, the regulation of animal feedlots (Minnesota Administrative Rules Chapter 7020), shoreland and floodplain management (Minnesota Administrative Rules Chapter 6120) and soil erosion (Minnesota Statutes Chapter 103F). Local governments provide for the administration and enforcement of these rules and statutes. However, the inconsistent administration and enforcement of these rules and statutes between jurisdictional boundaries may result in confusion among landowners and farmers that manage property in two or more jurisdictions. Furthermore, negligent administration and enforcement in one jurisdictional boundary may negatively impact water quality and quantity of jurisdictional boundaries downstream.

Minnesota enacted the “Soil Loss Law” (103F.401-.455) in 1984, and amended in 1985, which simply states, “a person may not cause, conduct, contract for, or authorize an activity that causes excessive soil loss.” Adoption and administration of a local soil loss ordinance by local government is not required, with only five counties in Minnesota developing an ordinance.

Implementation of local adopted soil loss limit regulations is through a complaint-based system with investigation and corrective plan done by the local SWCD and enforcement by the LGU.

In 2015, significant changes were made to the Soil Loss Law. Statutory changes include:

- Repealing the requirement that the law is only applicable with a local government ordinance (§103F.451)
• Changing local enforcement provisions and revising the requirements for state cost-share of
corrective conservation practices (§103F.421), and;
• Creating specific Administrative Penalty Order (APO) authority for counties to enforce the law
(§103B.101)
BWSR drafted guidance in 2016 and initiated a rulemaking process in 2017 pertaining to excessive soil
loss. Due to differences in interpretation of the revised statute, BWSR has put on hold any further action
on rules and guidance, pending further input from stakeholders and partners on the most effective
strategies to address excessive soil loss. Planning partners within the BRRW will continue to provide
input to BWSR on the development of future guidance and rules pertaining to excessive soil loss in order
to draft effective and equitable local ordinances that comply with state law.
Planning partners within the BRRW recognize the value that consistent application of Minnesota Rules
and Statutes can have on water quality and quantity at a major watershed scale. This plan addresses the
emerging issue in the targeted implementation schedule, with actions that focus on identifying problem
areas with the BRRW, and the consistent application of existing rules and statues within the plan area.

Farm Law Legislation (National and International)
Changes to international and national legislation has large ramifications on the types, magnitude, and
profitability of crops produced in the Minnesota. Types and productivity of crops are particularly prone to
the impact of legislative changes to crop insurance support and crop subsidies. For example, legislation
promoting corn growth for ethanol production may impact the amount of corn and rotation of crops in an
agricultural area. Conversely, legislation incentivizing production of alternative crops (i.e. cellulosic crops)
for alternative fuels may also impact cropping practices. Conservation funding allocation for the 2018
Farm Bill is comparable to the 2014 Farm Bill so federal conservation support will likely be similar to
efforts in the mid-2010s for the first half of this plan.

This plan recognizes the impact that national and international legislation has on local agricultural
production and the producer’s economic vitality. The plan addresses this emerging issue by supporting
standard practices for all producers (i.e., managing for good soil health) and is addressed throughout the
plan by programs that encourage the long-term resilience of farms.

Renewable Energy Legislation (State and National)
State and national renewable energy policy has the potential to affect the economies and land use
patterns of counties. Renewable energy production in Minnesota has increased from approximately 3 to
15 Terrawatt hours from 2000 to 2017, with wind energy seeing the greatest growth of wind, solar, hydro,
and biomass. Within the four counties in the BRRW, wind energy has great potential due to strong,
sustained wind conditions but infrastructure growth in this energy sector has lagged. Changes to federal
tax credits for wind energy that expired at the end of 2018 may impact future wind industry growth. Similar
to wind, commercial solar development has increased with the greatest growth from 2015-2017 that
paralleled rapid gains in panel efficiencies. In contrast, growth in hydro and biomass programs growth has
remained near neutral since 2000. State of Minnesota policy enacted in 2016 may increase the rate of
adoption of perennial cropping systems once developed.

BWSR has completed a feasibility study and plan for the Working Lands Watershed Restoration
Program – a program that is seeking to improve water quality and soil health by providing incentives for
landowners to plant perennial and cover crops. Crops explored for financial incentives include perennial
grasses and winter annual cover crops that promote soil health by keeping roots in the soil and maintain
vegetative cover throughout the year. Avoiding fallow periods by using perennial or cover crops frequently
improves soil health, stores carbon (and increases soil organic matter), and captures excess nitrogen.
These crops can be grazed, used for livestock feed or processed for electricity, thermal energy, advanced
biofuels such as bio-jet fuel, renewable chemicals, or similar applications. Some crops may even be
grown for food or beverage production.
Paramount to the BRRW will be ensuring that renewable energy policy initiatives address the assessment and mitigation of the environmental impacts of renewable energy production, while protecting the economic benefits the production of renewables offers. Potential environmental risks include but are not limited to wetland impacts, fish and wildlife habitat fragmentation, aquifer depletion, and threats to avian species such as eagles and bats. This plan addresses the issue of concern through implementation programs that protect surface water resources and wildlife habitat.

**Changes to Definitions of Waters of the United States under the Clean Water Act**

The Clean Water Act establishes the framework for regulating the discharge of pollutants into waters of the United States. The United States Army Corps of Engineers (USACE) first defined the Waters of the United States (WOTUS) in 1986. Subsequent court decisions reshaped the WOTUS definition leading to a revised definition in 2015. Subsequent court hearings resulted in adding an applicability date to the 2015 ruling, giving states until February 6th, 2020 to comply. The amendment gives the USACE and the EPA time to reconsider the definition of WOTUS. The USACE drafted a new definition of WOTUS in December of 2018 that significantly reduces the number of streams and wetlands protected under the Clean Water Act (CWA). While Minnesota is still operating under the 2015 WOTUS definition, finalization of the 2018 definition would change the scope of the Clean Water Act. This could have an impact on the legal obligations of and federal funding available to states to implement the CWA.

Planning partners in the BRRW will continue to monitor proposed changes to the 2015 WOTUS definition and take appropriate steps to ensure the plan follows federal and state regulations under administration of the CWA.