

1 Emerging Issues

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

3

4 Emerging Issues

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

- 9
- 10 • A review of previous studies, reports, and scientific papers;
 - 11 • The collective experience of staff and technical advisors;
 - 12 • Specific requests from the members of the BRRW 1W1P Committees; and
 - 13 • A general understanding of resource management trends. A summary of the technical resources
14 reviewed during plan development to identify concerns and issues including emerging issues is
shown in **Appendix (X)**.

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

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

24 Scientific and Technical Emerging Issues

25 *Climate Change Adaptation*

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

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

39 It is important to understand these changes in regional climatic trends because they impact water
40 resources and their seasonal management. As noted by the Soil and Water Conservation Society
41 (SWCS), increased storm intensities result in increased soil erosion and increased runoff. Also, the MPCA
42 warns that these more frequent, intense precipitation events may increase flooding (MPCA, 2013).

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43 This plan recognizes the potential implications of climate change by encouraging the use of updated
44 design standards for water resource infrastructure, based on National Oceanic and Atmospheric
45 Administration (NOAA) Atlas 14. Plan participants also should recognize the importance of this issue
46 when designating 100-year floodplain boundaries, and the inherent uncertainty in defining the boundary
47 location.

48 *Contaminants of Emerging Concern*

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

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

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

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

68 Flooding has long been a major issue in the BRRW and more broadly, the Red River Basin, inundating
69 agricultural fields, washing out roads, and impacting cities and towns. Since the 1997 and especially
70 following the historic 2009 flood, the cities of Fargo, North Dakota and Moorhead, Minnesota have sought
71 permanent flood protection in the form of a diversion channel. The Fargo-Moorhead Area Diversion
72 Project is a 20,000 cubic feet per second (cfs), 36-mile long, 1,500 foot-wide diversion channel with
73 35,500 acres of upstream staging. The project is designed to reduce a 100-year flood event from 42.4
74 feet to 35 feet at the Fargo gage and to reduce the 500-year flood event from 46.7 feet to 40 feet. The
75 current flood of record in 2009 peaked at 40.84 feet. The project includes 150,000 acre-feet of upstream
76 staging for flood events exceeding a 10-year event.

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

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

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91 the project area will continue to monitor project progress and coordinate with the Flood Diversion
92 Authority on any potential issues that could impact the BRRW.

93 *Tile Drainage*

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

103 *Agricultural Irrigation using Surface and Groundwater Sources*

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

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

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

116 *Tiered Aquatic Life Use (TALU) Framework*

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

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

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

133 Waters in the BRRW will undergo a two-year period of intensive watershed monitoring (IWM) from 2019
134 through 2020. Waters will be classified for aquatic life use attainment into the three TALU tiers. Results
135 from monitoring will be analyzed and reported in the forthcoming Watershed Monitoring and Assessment
136 Report as well as the Biotic Stressor Identification Report.

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137 This plan will take into consideration any changes to the aquatic life use status of rivers and streams in
138 the BRRW during the five-year plan update.

139 **Policy and Funding Emerging Issues**

140 *Funding for Plan Implementation*

141 Funding is one of the primary constraints on executing the targeted implementation schedule in **Section**
142 **4**. This plan shows that the ability to execute actions within the targeted implementation schedule and
143 achieve the measurable goals requires more fiscal and staff resources at the local level than is available
144 to the BRRW. The BRRW is expected to carry more of the responsibility to implement state and federal
145 goals (e.g., attaining state water quality standards) while regional partners are addressing regional
146 flooding concerns. An expectation that the BRRW will achieve these common goals without additional
147 funding seems unreasonable.

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

154 *Conservation Practice Delivery Mechanism*

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

162 *Inconsistent Administration and Enforcement of MN Rules and Statutes*

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

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

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

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

- 180 • Repealing the requirement that the law is only applicable with a local government ordinance
181 (§103F.451)

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- 182 • Changing local enforcement provisions and revising the requirements for state cost-share of
183 corrective conservation practices (§103F.421), and;
- 184 • Creating specific Administrative Penalty Order (APO) authority for counties to enforce the law
185 (§103B.101)

186 BWSR drafted guidance in 2016 and initiated a rulemaking process in 2017 pertaining to excessive soil
187 loss. Due to differences in interpretation of the revised statute, BWSR has put on hold any further action
188 on rules and guidance, pending further input from stakeholders and partners on the most effective
189 strategies to address excessive soil loss. Planning partners within the BRRW will continue to provide
190 input to BWSR on the development of future guidance and rules pertaining to excessive soil loss in order
191 to draft effective and equitable local ordinances that comply with state law.

192 Planning partners within the BRRW recognize the value that consistent application of Minnesota Rules
193 and Statutes can have on water quality and quantity at a major watershed scale. This plan addresses the
194 emerging issue in the targeted implementation schedule, with actions that focus on identifying problem
195 areas with the BRRW, and the consistent application of existing rules and statues within the plan area.

196 *Farm Law Legislation (National and International)*

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

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

209 *Renewable Energy Legislation (State and National)*

210 State and national renewable energy policy has the potential to affect the economies and land use
211 patterns of counties. Renewable energy production in Minnesota has increased from approximately 3 to
212 15 Terrawatt hours from 2000 to 2017, with wind energy seeing the greatest growth of wind, solar, hydro,
213 and biomass. Within the four counties in the BRRW, wind energy has great potential due to strong,
214 sustained wind conditions but infrastructure growth in this energy sector has lagged. Changes to federal
215 tax credits for wind energy that expired at the end of 2018 may impact future wind industry growth. Similar
216 to wind, commercial solar development has increased with the greatest growth from 2015-2017 that
217 paralleled rapid gains in panel efficiencies. In contrast, growth in hydro and biomass programs growth has
218 remained near neutral since 2000. State of Minnesota policy enacted in 2016 may increase the rate of
219 adoption of perennial cropping systems once developed.

220 BWSR has completed a feasibility study and plan for the Working Lands Watershed Restoration
221 Program – a program that is seeking to improve water quality and soil health by providing incentives for
222 landowners to plant perennial and cover crops. Crops explored for financial incentives include perennial
223 grasses and winter annual cover crops that promote soil health by keeping roots in the soil and maintain
224 vegetative cover throughout the year. Avoiding fallow periods by using perennial or cover crops frequently
225 improves soil health, stores carbon (and increases soil organic matter), and captures excess nitrogen.
226 These crops can be grazed, used for livestock feed or processed for electricity, thermal energy, advanced
227 biofuels such as bio-jet fuel, renewable chemicals, or similar applications. Some crops may even be
228 grown for food or beverage production.

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229 Paramount to the BRRW will be ensuring that renewable energy policy initiatives address the assessment
230 and mitigation of the environmental impacts of renewable energy production, while protecting the
231 economic benefits the production of renewables offers. Potential environmental risks include but are not
232 limited to wetland impacts, fish and wildlife habitat fragmentation, aquifer depletion, and threats to avian
233 species such as eagles and bats. This plan addresses the issue of concern through implementation
234 programs that protect surface water resources and wildlife habitat.

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

236 The Clean Water Act establishes the framework for regulating the discharge of pollutants into waters of
237 the United States. The United States Army Corps of Engineers (USACE) first defined the Waters of the
238 United States (WOTUS) in 1986. Subsequent court decisions reshaped the WOTUS definition leading to
239 a revised definition in 2015.. Subsequent court hearings resulted in adding an applicability date to the
240 2015 ruling, giving states until February 6th, 2020 to comply. The amendment gives the USACE and the
241 EPA time to reconsider the definition of WOTUS. The USACE drafted a new definition of WOTUS in
242 December of 2018 that significantly reduces the number of streams and wetlands protected under the
243 Clean Water Act (CWA). While Minnesota is still operating under the 2015 WOTUS definition, finalization
244 of the 2018 definition would change the scope of the Clean Water Act. This could have an impact on the
245 legal obligations of and federal funding available to states to implement the CWA.

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

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