

**Long-Term Vision for Assessment, Restoration, and Protection
under the Clean Water Act Section 303(d) Program**

**Nebraska Department of Environmental Quality
Water Quality Division**

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Introduction

The Nebraska Department of Environmental Quality (NDEQ) as required by the Clean Water Act (CWA) Sections 305(b) and 303(d) must report biennially the status of all assessed waterbodies as well as list impaired waterbodies including their causes of impairment and the status of actions taken to restore the waterbody. The 305(b) report summarizes water quality of all U.S. waters in Nebraska where monitoring data is available and assessed against Title 117, Nebraska Water Quality Standards. The 303(d) report summarizes the impaired waters list, for which Total Maximum Daily Loads (TMDL) are required to be developed. A TMDL is a technical document outlining possible sources and the extent of pollution impairing a waterbody as well as the load reductions necessary to meet water quality standards. In 2001, the federal Environmental Protection Agency (EPA) issued guidance to States encouraging them to integrate the 305(b) and 303(d) reports into a single Integrated Report (IR). Efforts to combine these separate reports came as a result of many states submitting contradictory water quality data and assessment results. In the past, emphasis was placed on the number of TMDLs States developed and EPA approved. However, in 2011 EPA and State TMDL managers were under pressure to show what steps have been taken to restore impaired waters, began developing guidance for a new “Long-Term Vision” for the CWA Section 303(d) program that focused on implementable TMDLs in high priority areas.

Under this new vision States outline their process for prioritizing TMDL development and identifying their top priority areas over the long term (2016—2022). “Long-Term Vision” plans are to be individually tailored to fit each State’s needs while being a fluid document intended to adjust as their priorities change. The “Long-Term Vision” addresses six main focus areas that impact most States TMDL programs: Prioritization, Assessment, Protection, Alternatives, Engagement, and Integration. States may choose to include all of these focus areas or just a few in their tailored “Long-Term Vision” plans.

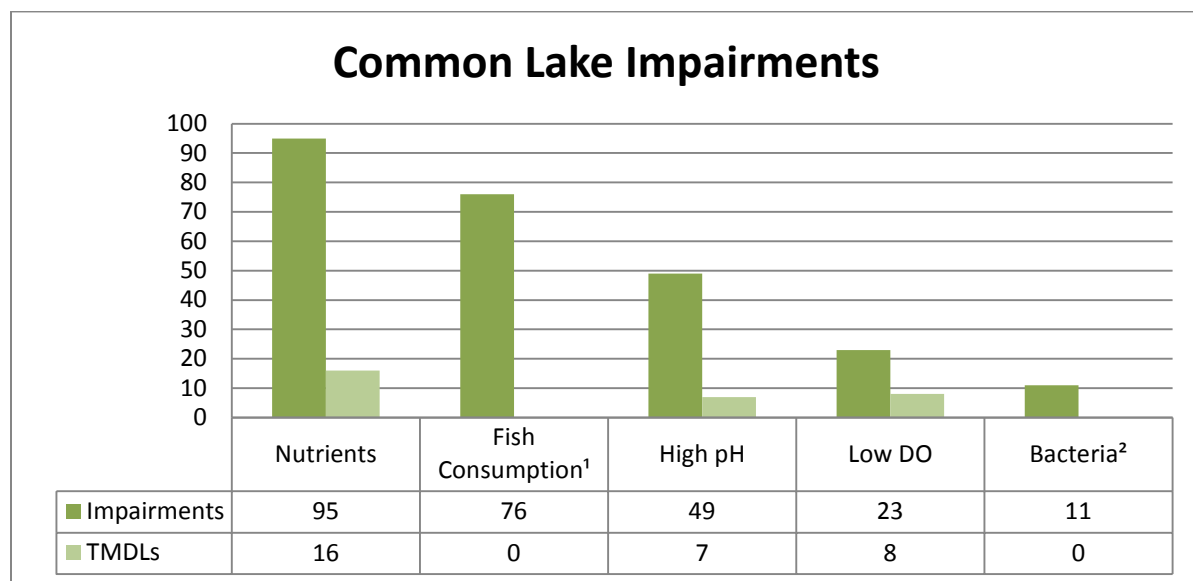
Over the past few years, EPA and the States have collaborated on the development of two new CWA Section 303(d) Measures, referred to as WQ-27 and WQ-28, in line with the “Long-Term Vision”. The purpose of these new measures is to provide a common unit by which EPA can report national summaries and measures nationwide. The WQ-27 measure will reflect EPA approved TMDLs as well as alternative restoration approaches and protection plans agreed to by EPA within States priority areas where as the WQ-28 measure reflects the entire state. EPA will translate State priorities to National Hydrography Dataset version 2 (NHD*Plus* V2) catchments and then calculate area of the catchments to calculate the State’s progress.

Nebraska’s approach to TMDL development decisions is unique in that NDEQ considers input from many internal programs as well as other key local, state, and federal

organizations and interest groups in order to address water quality issues in a cohesive and efficient manner. It is the intent of NDEQ to address waterbodies listed on the 303(d) list that are also of interest and concern to State residents and other water resource agencies and groups. Nebraska’s distinct water laws give authority to manage ground water and surface water quality and quantity to separate agencies. The NDEQ, along with the Nebraska Department of Natural Resources (NDNR), co-manage surface water, NDNR has authority over water quantity and NDEQ has authority over water quality. In 1972, Nebraska’s Natural Resources Districts (NRDs) were created by the Nebraska Legislature to manage the State’s ground water resources. This was at a time when it was widely believed that ground water and surface water were not connected. We now know these water resources are hydrologically connected in certain areas with the majority of Nebraska’s streams being gaining streams (i.e., meaning ground water feeds into the stream to provide base flow). However the reverse is true for many other streams, mainly those in the upper portion of the South Platte, lower end of the Middle Platte, and the Lower Platte river basins.

Currently Nebraska has 539 lakes and 1558 stream segments designated in Title 117. According to the 2014 IR, 289 lakes and 522 stream segments have been assessed where 156 or more than 50% of these lakes have been determined to be impaired and 180 or nearly 35% of the stream segments are listed as impaired. The most common impairments are charted below in Figures 1 & 2 with the total number of EPA approved TMDLs for each type of impairment. It must be noted that waterbodies can be impaired for more than one pollutant, therefore, these numbers will not correspond to the total impaired stream segments and lakes listed in the 2014 IR.

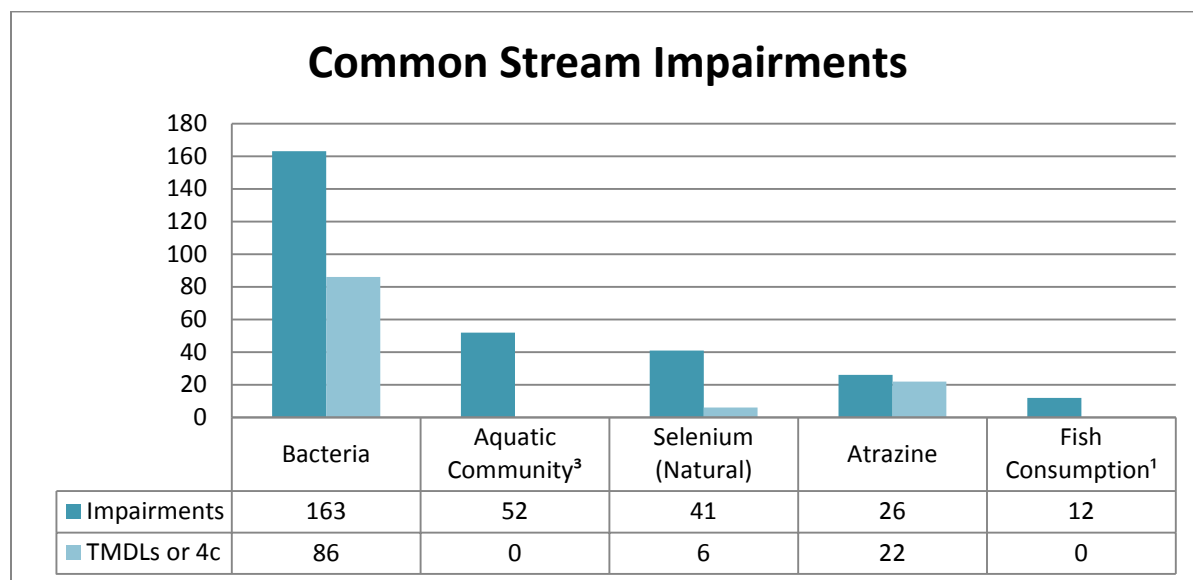
Figure 1. 2014 Integrated Report Lake Findings



¹Fish Consumption impairments have been listed for Mercury, Hazard Index compounds, Cancer Risk compounds or a combination of all three. Historically, a total of 22 contaminants with a tendency to bio-accumulate in fish tissue were analyzed using a complex risk assessment formula. In 2013, EPA’s Region VII rescinded analysis of all parameters with the exception of mercury due to continued low concentrations, non-detects, declining trends, and limited resources. In addition, because mercury has diffuse sources and an intricate and variable global cycle, NDEQ will not prioritize the development of mercury TMDLs at this time. For more information see NDEQ’s Regional Ambient Fish Tissue Program Report at <http://deq.ne.gov/NDEQProg.nsf/OnWeb/FTMP>.

²Bacteria impairments for lakes only include E.coli bacteria. Three additional lakes were also impaired by bacteria due to Microcystin.

Figure 2. 2014 Integrated Report Stream Findings



³Aquatic Community impairments are due to a deficiency in either the fish or the macroinvertebrate populations and a lack of habitat where the pollutant is unknown. These bio-assessments are compared to reference sites with similar sizes (small, medium, or large) as well as waterbody types (warm water or cold water). A waterbody is considered impaired if the multimetric index scores are below the average reference site score. These assessments are used as an indication of the watershed health and the need for additional water quality monitoring. Aquatic Community impairments will not be prioritized for TMDL development due to the nature of this monitoring program, however, the NPS program considers aquatic habitat impairments as a justification for writing a watershed management plan.

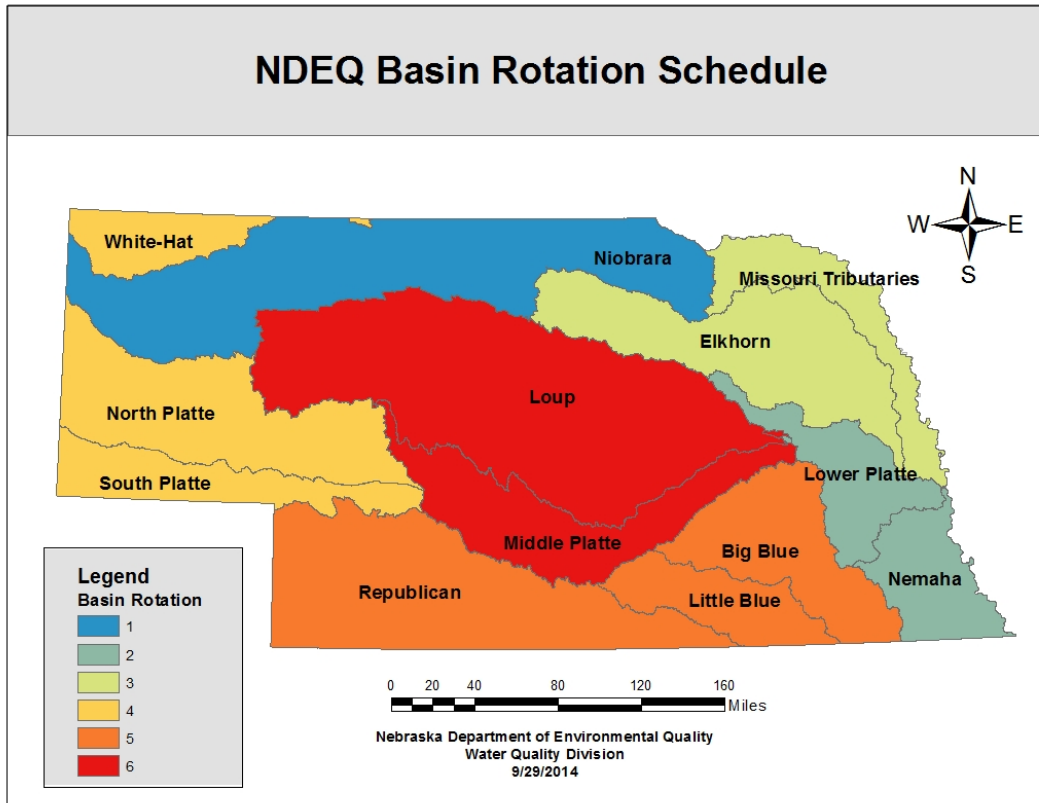
Currently, NDEQ utilizes the following system in determining where to focus TMDL development in the next two years following each new IR. In the past NDEQ included a short description within the IR outlining priority ranking considerations but fell short of listing the actual waterbodies where TMDLs were being planned. In addition to expanding the TMDL prioritization description to fully explain how NDEQ prioritizes, NDEQ will also list the waterbodies prioritized for TMDL development and include them in the IR.

Prioritization – For the 2016 Integrated Reporting cycle and beyond, States shall review, systematically prioritize, and report priority watersheds or water for restoration and protection in their biennial Integrated Reports to facilitate State strategic planning for achieving water quality goals.

The “Basin Rotation Approach” will be used in conjunction with the “Social Impact and Implementation Matrix” to facilitate prioritizing TMDL development, Figures 3 & 4. The

NDEQ’s six year basin rotation monitoring schedule divides the State’s thirteen river basins into a systematic monitoring scheme. Monitoring occurs at both random and ambient sites throughout the basins providing data for previously unassessed waterbodies as well as long term data sets to gauge water quality trends. In an effort to use the most recent data possible, NDEQ prefers to work within the river basins of the previous basin rotation when possible.

Figure 3. Basin Rotation Map



Nebraska utilizes a matrix which considers the likelihood of TMDL implementation as well as the social impact of the impaired designated use. The matrix puts a higher emphasis on TMDLs supported by local government and active local interest groups. These TMDLs are more likely to be implemented due to the capacity of these groups to provide funding as well as write grant proposals to develop watershed management plans and implement on-the-ground projects. The other matrix consideration is the social impact of the impaired use. NDEQ gives priority to TMDL development which addresses waterbodies impaired for public drinking water supply uses. These impairments have the highest social impact and pose the highest risk and cost to our residents.

The NDEQ is also committed to working with neighboring States to insure downstream public water supply uses beyond the Nebraska state line are not being impaired even when

that use is not designated or impaired in Nebraska. Nebraska’s rivers and lakes provide an abundance of recreational opportunities for residence and visitors alike. The condition and sustainability of these water resources not only drives the recreational season’s economy, but it also provides an indication of overall soil system health of the watershed. For instance a stream that is unable to support a healthy macroinvertebrate population will not be able to support a healthy fish population. Often times these sites are found to be highly disturbed and/or the stream bed is covered in silt and the water may be highly turbid. This is an indication of soil erosion and may be associated with non-point source pollution including high levels of pesticides and bacteria from the use of organic fertilizers. A waterbody’s aquatic life designated use is important not only for sportsmen and tourism, but also for the ecological integrity of the natural resource in and of itself. Special consideration will be given to waterbodies that support sensitive aquatic species, federally threaten and endangered species, as well as aquatic life unique to Nebraska’s varied geographic regions. In addition to considering the type of designated use for which a waterbody is impaired, special characteristics of the waterbody as well as the length and severity of the impairment will also be taken into consideration.

Figure 4. TMDL Development Matrix

			Social Impact of the Impaired Use			
			High			Low
			Public Drinking Water	Recreation	Aquatic Life	Other
Likelihood of TMDL Implemented	High	Local Government Interested				
		Active Local group interested				
	Low	No Interested parties				

Assessment – By 2020, States shall identify the extent of impaired, threatened, and healthy waters in each State’s priority areas through site-specific assessments, which may be supplemented by on-going state-wide statistical surveys that have been initiated by 2014.

NDEQ utilizes a Basin Rotation Monitoring Approach to more heavily monitor each basin every six years. The Basin Rotation Monitoring Program network consists of several different kinds of sites monitored monthly for trend analysis and threatened waters identification. Integrator sites represent water quality conditions in large heterogeneous basins affected by complex combinations of land use settings, point sources, and natural influences. Basin Integrator sites are located at the downstream-most gaging station of each river basin and reflect environmental factors occurring throughout the entire river

basin. Stream Integrator sites are located at the downstream-most gaging station of all major tributary systems to capture the most significant contaminant sources in the basin. Ecoregion Indicator sites represent water quality in a single ecoregion with more than 90% of its area in relatively homogenous land use. Point Source Indicator sites are located downstream of specific major point sources whereas Urban Indicator sites are located downstream of a major urban area and represent their influence on water quality. NDEQ's Surface Water Assessment Unit works collaboratively with the TMDL and Integrated Report programs each year to identify data gaps for the next basin rotation efforts. Nebraska utilizes the Biological Stream Monitoring Program to provide an indication of the overall health of the watershed. If the waterbody is determined to not be supporting healthy fish and macroinvertebrate populations, it will be listed as impaired and targeted for a complete chemistry analysis during the next year NDEQ is in that basin. Fish kills, algal blooms, and aesthetic issues are also used to identify a need for more in-depth monitoring.

Protection – *For the 2016 reporting cycle and beyond, in addition to the traditional TMDL development priorities and schedules for waters in need of restoration, States shall identify protection planning priorities and schedules for healthy waters, in a manner consistent with each State's systematic prioritization.*

Nebraska is not currently prioritizing the development of protection TMDLs for Title 117 designated State Resource Waters (SRW), which constitutes an outstanding State or National resource or possesses an existing quality which exceeds levels necessary to maintain recreational or aquatic life uses. Should interest in developing a protection plan for a SRW arise, NDEQ's NPS program will consider working with the interested party at that time.

The field of water quality management is constantly evolving as technology advances, new products are developed and utilized by consumers and management practices inevitably adapt. For example, Nebraska is continuing to research nutrient levels in streams and rivers to create scientifically defensible and economically feasible management options. Should a new water quality priority develop, the TMDL Program will work with EPA and state water programs in modifying TMDL development priorities. Furthermore, NDEQ is committed to working with other state and local agencies to address water quality deficiencies where flexibility is required to take advantage of time sensitive projects and funding abilities. With that said, Nebraska reserves the right to substitute projects, aiming for the agreed upon total catchment area by 2022 rather than a static list of priorities.

Alternatives – *By 2018, States shall use alternative approaches, in addition to TMDLs, that incorporate adaptive management and are tailored to specific circumstances where such approaches are better suited to implement priority watershed or water actions that achieve*

the water quality goals of each state, including identifying and reducing nonpoint sources of pollution.

Pollutant sources that are determined to be solely of natural or point source causes will not be prioritized for TMDL development; rather a more appropriate alternative approach will be utilized. Naturally occurring pollution will be analyzed and justified in a 4c document while point sources will be addressed with National Pollution Discharge Elimination System (NPDES) permit limits and moved to category 4b. EPA has recently created a new 5alt category for impaired waterbodies where the State feels it would be more effective to restore the waterbody with a plan. In cases where the alternative plan option was chosen, the plan must address all pollution sources and outline actions required to meet water quality standards. EPA will not take action to approve or disapprove an alternative to a TMDL plan. However, if EPA agrees to the plan, Nebraska will reclassify the category 5 waterbody to a category 5alt meaning the waterbody is impaired but a plan to meet WQS is being pursued in lieu of a TMDL at this time.

Engagement – *By 2014, EPA and the States shall actively engage the public and other stakeholders to improve and protect water quality, as demonstrated by documented, inclusive, transparent, and consistent communication; requesting and sharing feedback on proposed approaches; and enhanced understanding of program objectives.*

Nebraska's TMDL and Nonpoint Source (NPS) Programs are designed to complement each other. The NPS program considered EPA's National and Regional priorities as well as state priorities in the development of Nebraska's NPS Management Plan. The NPS Management Plan then lists NDEQ's priority waters for restoration and protection and is put on public notice for 30 days seeking input from the public and other state and federal agencies. Input is again sought in the Integrated Report public review processes. The Integrated Report not only provides the public a central location for all of the assessed and impaired waters in Nebraska but also references this document which includes an updated list of TMDL development priorities.

Integration – *By 2016, EPA and the States shall identify and coordinate implementation of key point source and nonpoint source control actions that foster effective integration across CWA programs, other statutory programs (e.g., CERCLA, RCRA, SDWA, CAA), and the water quality efforts other Federal departments and agencies (e.g., Agriculture, Interior, Commerce) to achieve the water quality goals of each state.*

NDEQ holds a biennial TMDL priorities meeting with the development of each new IR. Nebraska works collaboratively across internal NDEQ programs where input is sought from the Groundwater, Surface Water, and Planning Programs including the Water Quality Division (WQD) Director, as well as liaisons from the Nebraska Association of Resources Districts (NARD), the University of Nebraska-Lincoln (UNL) Extension and the USDA

Natural Resources Conservation Service (NRCS). The intention of Nebraska's TMDL program is to compliment the Nebraska Nonpoint Source (NPS) Management Plan which considered EPA's National and Regional priorities in the development of state priorities.

The NARD represents the collective interest of Nebraska's 23 NRDs which are individually governed by locally elected board members from within each District. Each NRD has taxing authority which enables them to provide matching funds and personnel to sponsor CWA Section 319 grants. The NARD/NDEQ liaison provides the Department with areas of interest from each District, as well as informing the Districts about NDEQ programs and grants that may complement their efforts. Many NRDs manage area lakes and work jointly with NDEQ's "Beach Watch Program" to provide the public with up to date toxic algae and bacteria alerts and beach closures. The NRDs are major sponsors of NPS projects for both planning and implementation of on-the-ground projects.

The UNL Extension is a trusted source of both human and environmental health research information. Many residents tune into UNL Extension's Backyard Farmer television and podcast programs, seek expert advice from their local County Extension Educators and reference NebGuides and mobile apps for everything from Early Child Development to the latest CropWatch publications. UNL Extension facilitates Nebraska's 4H programs, County and State Fairs in addition to assisting with multiple environmental field day events for school age children across the state. The NDEQ/UNL Extension liaison plays a vital role providing NDEQ with public engagement opportunities, the latest information on UNL's priorities and projects as well as new research and tools available to assist NDEQ. The Liaison communicates NDEQ's program updates and grant opportunities to not only the University's staff and students but also the general public.

The NRCS's designated National Water Quality Initiative (NWQI) Hydrologic Unit Codes (HUCs) are also factored into NDEQ's TMDL prioritization decisions. In anticipation of NWQI HUCs remaining in the program for several years, NDEQ prefers to work collaboratively not only with TMDL development but also through our NPS, Community Lakes, and Wellhead Protection programs. NDEQ's liaison with NRCS is key to facilitating these inter-agency relationships. Once a waterbody has been assessed and is placed on the 303(d) list, NRCS looks at areas where there is public interest in the form of either a community based watershed management plan or an active NPS project that runs through the HUC or is upstream of an impairment to make their NWQI HUC selections.

TMDL Development Priorities

Nebraska's TMDL priorities are listed below for the next two years following each new IR. Due to NDEQ's prioritization process it is not possible to provide a static long term list.

2014-2016 TMDL Priorities (4A)			
Waterbody ID	Waterbody Name	Impaired Use	Pollutant
MT2-12500	Bazile Creek	Recreation	E.coli
RE1-10200	Lost Creek	Recreation	E.coli
RE1-20300	Courtland Canal	Recreation	E.coli
RE1-30000	Republican River	Recreation	E.coli
RE1-31200	Thompson Creek	Recreation	E.coli
RE1-40000	Republican River	Recreation	E.coli
RE1-50000	Republican River	Recreation	E.coli
RE2-10100	Methodist Creek	Recreation	E.coli
RE2-10200	Cook Creek	Recreation	E.coli
RE2-10300	Prairie Dog Creek	Recreation	E.coli
RE2-10610	Beaver Creek	Recreation	E.coli
RE3-10200	Medicine Creek	Recreation	E.coli
RE3-10300	Medicine Creek	Recreation	E.coli
RE3-10400	Medicine Creek	Recreation	E.coli
RE3-10500	Red Willow Creek	Recreation	E.coli
RE3-10600	Red Willow Creek	Recreation	E.coli
RE3-20000	Republican River	Recreation	E.coli
RE3-20200	Frenchman Creek	Recreation	E.coli
RE3-20220	Stinking Water Creek	Recreation	E.coli
RE3-20400	Frenchman Creek	Recreation	E.coli
RE3-40000	Republican River	Recreation	E.coli
RE3-40500	South Fork Republican River	Recreation	E.coli
RE3-50000	Republican River	Recreation	E.coli
RE3-50300	North Fork Republican River	Recreation	E.coli
RE3-50400	Arikaree River	Recreation	E.coli

2014-2016 TMDL Alternative Priorities (4C)			
Waterbody ID	Waterbody Name	Impaired Use	Pollutant
BB1-20000	Big Blue River	Aquatic Life	Selenium
BB2-10000	Turkey Creek	Aquatic Life	Selenium
BB3-10000	West Fork Big Blue River	Aquatic Life	Selenium
BB4-20800	Lincoln Creek	Aquatic Life	Selenium
LB2-10100	Big Sandy Creek	Aquatic Life	Selenium
LB2-20000	Little Blue River	Aquatic Life	Selenium
LP1-10000	Platte River	Aquatic Life	Selenium
LP1-20700	Shell Creek	Aquatic Life	Selenium
LP2-10000	Salt Creek	Aquatic Life	Selenium
LP2-10100	Wahoo Creek	Aquatic Life	Selenium

LP2-20300	Little Salt Creek	Aquatic Life	Selenium
LP2-20900	Antelope Creek	Aquatic Life	Selenium
MP2-10000	Platte River	Aquatic Life	Selenium
MP2-10200	Wood River	Aquatic Life	Selenium
MT1-10100	Papillion Creek	Aquatic Life	Selenium
NE1-12800	Weeping Water Creek	Aquatic Life	Selenium
NE2-10000	Big Nemaha River	Aquatic Life	Selenium
NE2-12200	North Fork Big Nemaha River	Aquatic Life	Selenium
NE3-10000	Little Nemaha River	Aquatic Life	Selenium
NI1-10100	Ponca Creek	Aquatic Life	Selenium
NI2-10000	Niobrara River	Aquatic Life	Selenium
NI2-10100	Verdigre Creek	Aquatic Life	Selenium
NP2-10800	Blue Creek	Aquatic Life	Selenium
NP3-10100	Pumpkin Creek	Aquatic Life	Selenium
NP3-12600	Winters Creek	Aquatic Life	Selenium
RE2-10000	Republican River	Aquatic Life	Selenium
RE2-10600	Sappa Creek	Aquatic Life	Selenium
RE3-10000	Republican River	Aquatic Life	Selenium
RE3-20200	Frenchman Creek	Aquatic Life	Selenium
SP1-20000	South Platte River	Aquatic Life	Selenium
SP1-90000	South Platte River	Aquatic Life	Selenium
SP2-10000	Lodgepole Creek	Aquatic Life	Selenium
SP2-50000	Lodgepole Creek	Aquatic Life	Selenium
WH1-20000	White River	Aquatic Life	Selenium

2014-2016 TMDL Alternative Priorities (5-Alt)			
Waterbody ID	Waterbody Name	Impaired Use	Pollutant
EL1-21000	Rock Creek	Recreation	E.coli
EL1-21900	Union Creek	Recreation	E.coli
EL2-10000	Logan Creek	Recreation	E.coli
EL2-20000	Logan Creek	Recreation	E.coli
EL2-20800	South Logan Creek	Recreation	E.coli
EL3-10000	North Fork Elkhorn River	Recreation	E.coli
EL3-20200	Willow Creek	Recreation	E.coli
EL3-20400	Dry Creek	Recreation	E.coli
LO4-10000	South Loup River	Recreation	E.coli
LO4-20000	South Loup River	Recreation	E.coli
LO4-30000	South Loup River	Recreation	E.coli
LO4-40000	South Loup River	Recreation	E.coli
MT1-10100	Papillion Creek	Recreation	E.coli

MT1-12000	Omaha Creek	Recreation	E.coli
MT2-10100	Elk Creek	Recreation	E.coli
NE1-12310	Unnamed Creek	Recreation	E.coli
NE2-10750	Little Muddy Creek	Recreation	E.coli
NE2-11200	Pony Creek	Recreation	E.coli
NE3-13100	North Fork Little Nemaha River	Recreation	E.coli
NE3-20000	Little Nemaha River	Recreation	E.coli
NE3-20300	South Fork Little Nemaha River	Recreation	E.coli
NE3-30000	Little Nemaha River	Recreation	E.coli
WH1-11300	Chadron Creek	Recreation	E.coli
WH1-11820	West Ash Creek	Recreation	E.coli
WH1-20000	White River	Recreation	E.coli
WH1-20100	White Clay Creek	Recreation	E.coli
WH1-30000	White River	Recreation	E.coli