

**Upper Mississippi River Bacteria TMDL  
Response to Preliminary Stakeholder Comments**

7/3/13

**Item 8D.  
BCWMC 7-18-13**

Page #	Line #	Comment	Name of Person Providing Comments	Organization	Minnesota Pollution Control Agency (MPCA) Response
104	25-32	The sources of the bacteria were not analyzed before this study was completed. How can we know the most effective action to take if we don't know where it is coming from? But see page 24 and page 154 of "UMRB TMDL: Data Analysis, Source Assessment, and Monitoring Recommendations" report... More sampling needs to be done to more accurately determine where the loading is coming from.	Bill Douglass	Bolton & Menk, Inc.	The work referred to in the "UMRB TMDL: Data Analysis, Source Assessment, and Monitoring Recommendations" report was completed before the TMDL was developed. The amount of additional monitoring that was conducted to fill data gaps was appropriate and typical of other TMDL studies.
51-53, 96	Pages 51-53 & 162	MS4s are the most regulated bodies in the watershed, and they make up only a small geographic area of the watershed. It is not fair to make such a small area be accountable for a WLA for the majority of the watershed. For example, the permitted vs. unpermitted animal feeding operations (AFO) in each watershed are shown on UMRB TMDL pages 51-53, but the numbers of permitted vs. unpermitted are not specifically stated. (Page 162 of "UMRB TMDL: Data Analysis, Source Assessment, and Monitoring Recommendations" report states that only some feedlots are required to register with the State. The number of NPDES permitted feedlots is 30 within the study area, while there are 7,541 open feedlots not requiring NPDES coverage.) These numbers should be added to the TMDL to illustrate that livestock is a major contributor, but is not nearly as regulated as MS4s. Please prove that the majority of the problem is coming from a specific MS4 before requiring them to mitigate such a large portion of the load.	Bill Douglass	Bolton & Menk, Inc.	All sources are taken into account when developing the allocations for a TMDL. Regulated sources are included in the WLA and non-regulated sources in Load Allocation (LA). The percent reductions presented apply to all sources within a given contributing watershed area.
Appendix E		There are several Assessment Unit Identifications (AUIDs) where there is not sufficient information to know if it supports the E. coli standard or not. More sampling needs to be done to more accurately determine where the loading is coming from.	Bill Douglass	Bolton & Menk, Inc.	The issue of lack of sufficient data was recognized from the outset of this project. A data gap analysis was done early on which resulted in additional data being collected throughout the project area. However, we were not able to monitor all stream and river reaches (and note some had accessibility issues). Note that the reaches listed in Appendix E are not listed as impaired and therefore, entities are not required to make bacteria loading reductions to these reaches. We will recommend additional monitoring occur in these areas.
42	24 thru 35	Sources of bacteria should be quantified, at least in relative terms, the impact of the various sources of bacteria. With the declining numbers of feedlots and riparian pastured areas within these watersheds and with the implementation of feedlot rules, livestock related agriculture may be a minimal source of contamination.	Dennis Fuchs/Greg Berg	Stearns County SWCD	Additional efforts/tasks were incorporated into the Upper Mississippi River Bacteria (UMRB) TMDL project in the attempt to gather as much data as possible on bacteria sources within the project area. These tasks included an additional comprehensive bacteria monitoring effort and contracting with the University of Minnesota to conduct a Microbial Source Tracking (MST) analysis. The MST work was completed on select monitoring sites where high bacteria concentrations were identified through previous monitoring efforts. The additional monitoring and MST work was not required for this project but was completed to help in the implementation planning process. As a general rule, a significant amount of uncertainty exists in all bacteria TMDLs. With limited funding, there is no feasible way to address all the uncertainty in this project. This uncertainty includes quantifying bacteria sources. A margin of safety (MOS) factor is built into the TMDL equation to help address uncertainty. The MOS factor can be increased if it is felt that the uncertainty is high. Data available and or collected for this project suggests that there are several sources contributing bacteria to the surface waters within the project area. This information also suggests that agricultural activities make up a portion of that bacteria contribution. It is our goal to cooperatively work together with the stakeholders throughout the project area to incorporate actions in the Implementation Plan that best address sources in each subwatershed.
72	4 thru 20	In this day and age of DNA testing would it be possible to determine the animal source of the most prevalent bacteria? There are more non-migrating waterfowl in the Mississippi and its tributaries than ever before.	Dennis Fuchs/Greg Berg	Stearns County SWCD	A Microbial Source Tracking Pilot Study (DNA testing) was conducted for the project and can be found on the project website. Waterfowl are clearly a source of bacteria in the watershed but were not included in the Study due to limitations in the available technology chosen.
186	36 thru 41	Generalizations of types of BMP's is a fine starting point. To take it a step farther, and make progress, specific monitoring of watershed areas needs to be conducted to identify critical source areas to develop priority management zones for the greatest success of reducing load.	Dennis Fuchs/Greg Berg	Stearns County SWCD	We will provide more guidance in the Implementation Plan about priority areas and appropriate BMPs for each subwatershed.

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General		The load duration curve for Shingle Creek (Figure 6-47 attached) is difficult to review because of one outlier value. We would like to see the figure plotted on a log scale. For comparison also attached is a load duration curve for monitoring site SC-0 (Webber Park) with Commission-collected data.	Diane Spector/Joel Bischoff	Wenck Associates on behalf of Shingle Creek/West Mississippi WMO Commissions	We will provide access to the bacteria data for Shingle Creek so you can plot it on a log scale for your use.
General		The microbial source tracking study would provide important input to the source identification, especially where we disagree that human waste from aging infrastructure is a significant source. That information is not yet available and we would like to see the results.	Diane Spector/Joel Bischoff	Wenck Associates on behalf of Shingle Creek/West Mississippi WMO Commissions	The results of the Microbial Source Tracking Pilot Study is now posted on our project website at <a href="http://www.pca.state.mn.us/ktqha48">http://www.pca.state.mn.us/ktqha48</a> .
General		Very little guidance has been given on implementation actions. There is a growing body of literature regarding rooftop, sump, and other urban impervious areas having high bacteria runoff concentrations, likely due to local wildlife populations, including songbirds. We did not see that this is addressed in the TMDL, either as a source or appropriate BMPs.	Diane Spector/Joel Bischoff	Wenck Associates on behalf of Shingle Creek/West Mississippi WMO Commissions	These practices and others will be addressed in the Implementation Plan.
General		Wash off of pet waste, specifically dogs, was also identified as a high probability source. While we agree this is a contributor, we believe that waterfowl waste is a more likely source. Many of the cities in the watersheds have been actively managing the Canada geese population. There are resident geese and duck populations on Shingle Creek and on a variety of wetlands and small ponds immediately adjacent to and discharging to Shingle Creek. However, the TMDL identifies this as a low probability source.	Diane Spector/Joel Bischoff	Wenck Associates on behalf of Shingle Creek/West Mississippi WMO Commissions	This is excellent local observation and will be of use when prioritizing implementation efforts.
General		We question the identification of aging infrastructure as a probable source of bacteria in Shingle Creek and the West Mississippi Protection subwatershed. There are no known CSOs (combined sewer overflows), and few if any reportable SSOs (sanitary sewer overflows). Where the infrastructure is older, cities in the two watersheds have been routinely reconstructing their local streets and making sanitary repairs and replacements as necessary based on televising sewer lines. While there are occasional localized failures, televising has not revealed any significant or systematic failures or issues with aging infrastructure. While this cannot be ruled out as a source, we believe it is not a significant source of bacteria to Shingle Creek or from the West Mississippi Protection subwatershed.	Diane Spector/Joel Bischoff	Wenck Associates on behalf of Shingle Creek/West Mississippi WMO Commissions	We will reduce our estimated contribution from this source in Tables 4-9 and 4-15. We will add information to the report that mentions that every city has a routine operation and maintenance plan for sanitary sewers and some have ongoing rehabilitation efforts to address sanitary sewer pipes that are leaking or structurally unsound and that a common method used is lining. We will add a footnote to Table 4-3 that notes that some of the older sewer systems have been lined or rehabilitated. We appreciate the information you provided on the Shingle Creek and West Mississippi watersheds and will consider it for the Implementation Plan.
General		Incorporate additional detail into the study for Rice Creek Watershed (metro). We are concerned that the study does not provide adequate detail to characterize existing bacteria loads and to allocate loadings within the Rice Creek Watershed. In particular, Rice Creek and its tributary streams extend more than 20 miles upstream of Long Lake and flow through more than a dozen of the metro area's largest lakes. The study generally evaluates major watersheds by either: a) recognizing other TMDL Studies that are planned for the watershed, or b) evaluating each assessment unit identification (AUID) reach within the watershed. This process is outlined in Section 5 of the report. The calculations and allocations for Rice Creek Watershed are not consistent with this methodology. Instead, the report suggests that all MS4s within Rice Creek Watershed are responsible for bacteria loads discharging to Rice Creek's downstream reach (AUID 07010206-584). Research presented as a part of this TMDL indicates that bacteria populations are generally not transferred through large lakes due to extended exposure to ultraviolet light. In addition, stakeholders were informed that large lakes would be used as an upstream boundary condition for this TMDL. Recommendation: List upstream AUID segments of Rice Creek and its tributaries and indicate that insufficient testing has been performed on those reaches to determine if a TMDL is needed. Flow data that has been collected as a part of other TMDL studies could be incorporated into the subject Study to serve as a basis for future allocations once additional bacteria monitoring has been performed. If science indicates that bacteria are not transferred through large lakes, then it seems reasonable to remove MS4s from Table 7-3, unless they discharge directly to the impaired stream segment without passing through a large lake.	Jay Hartman; Paul Hudalla	City of St. Anthony Village; WSB & Associations on behalf of the City of Circle Pines, City of Grant, City of Hugo, City of Lino Lakes, and City of Mahtomedi	We need to include all areas that drain to an impaired stream reach. We do not have enough technical information to support using lakes, wetlands, or ponds as boundary conditions for <i>E. coli</i> conditions. However, we agree that additional monitoring should be conducted in the Rice Creek Watershed to determine if upstream reaches are meeting water quality standards for <i>E. coli</i> . We will work with the Rice Creek Watershed District to conduct additional <i>E. coli</i> monitoring upstream of Rice Creek (07010206-584, Long Lk to Locke Lk) in the next few years. We will recommend sampling the three reaches upstream of 07010206-584 which are (1) Rice Creek (07010206-583, Unnamed Lk (02-0041-00) to Long Lk), (2) County Ditch 2 (07010206-521, Pike Lk to Long Lk), and (3) Unnamed creek (07010206-605, Lk Valentine outlet to Long Lk). We recommend sampling <i>E. coli</i> over at least a two-year period with the result of having at least five samples for each month from April through October (e.g. 3 <i>E. coli</i> samples each month from April through October in 2014 and 2 <i>E. coli</i> samples each month from April through October in 2015). Note that our MPCA water quality guidance for assessing surface waters ( <a href="http://www.pca.state.mn.us/index.php/view-document.html?gid=16988">http://www.pca.state.mn.us/index.php/view-document.html?gid=16988</a> ) states that "At least five values for each month is ideal, while a minimum of five values per month for at least three months, preferably between June and September, is necessary to make a determination."
General		Is it true that if the MS4 General Stormwater Permit is issued before this Bacteria TMDL is approved by EPA, then MS4s would not be required to include BMPs in their SWPPP or implement BMPs in the field until the next 5-year permit cycle?	Jeff Oliver/Eric Eckman	City of Golden Valley	Yes.

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General		Please provide guidance for MS4s regarding the installation and maintenance of stormwater ponds that may increase bacteria loads in some circumstances.	Jeff Oliver/Eric Eckman	City of Golden Valley	Discussion of the relative effectiveness of all BMPs will be discussed in the Implementation Plan. A sentence will be added to the TMDL to refer the reader to-the Implementation Plan.
General		Please provide guidance for MS4s regarding the installation and maintenance of underground structural water quality practices that may harbor or promote bacteria growth such as sumps, environmental manholes, wet vaults, etc.	Jeff Oliver/Eric Eckman	City of Golden Valley	Discussion of the relative effectiveness of all BMPs will be discussed in the Implementation Plan. A sentence will be added to the TMDL to refer the reader to-the Implementation Plan.
General		Research documents presented during the stakeholder process indicate that bacteria can rapidly decay in natural systems, particularly when exposed to ultraviolet light. It is also suggested that bacteria populations can rapidly decline in large lakes / basins, and that these basins could reasonably serve as a boundary condition for bacteria loads in streams. The TMDL and allocations presented in the study do not account for these scientific observations. If the study does not account for the decay of bacteria, it is difficult to justify the numeric thresholds presented in the study.	Jeff Oliver/Eric Eckman	City of Golden Valley	We do not have enough technical information to support using lakes, wetlands, or ponds as boundary conditions for <i>E. coli</i> conditions. On page 99, the report states that, "The load duration analysis does not address bacteria re-growth in sediments, die-off, and natural background levels. The MOS helps to account for the variability associated with these conditions." so therefore the report does address the factors of re-growth and die-off but uses the margin of safety rather than the load duration curve to address these components.
General		The study identifies very few bacteria sources that could be regulated by the MS4 (mostly pet waste and raw sewer leakage). In contrast, a wide variety of unregulated sources have been identified including livestock, manure application, and wildlife. It will be difficult for MS4s to justify expending efforts to address bacteria loads unless the study clearly and reasonably shows the extent that MS4 discharges are responsible for the bacteria impairment. Additional monitoring work should be performed as a part of the TMDL study to quantify the extent that bacteria sources are coming from MS4s (vs. non-regulated runoff). We request that MPCA assist MS4s in providing monitoring, or seeking funding to provide monitoring/analysis for bacteria standards compliance at MS4 system discharge points and other key discharge locations upstream.	Jeff Oliver/Eric Eckman	City of Golden Valley	Monitoring is not a requirement of MS4s and is not expected to be a necessary part of implementation for Permittees. MS4 permits are implemented through best management practices, both structural and non-structural. BMPs should continue to be the basis of an MS4's strategy to reduce bacteria loads, regardless of the status of monitoring. □
General		We request that MPCA organize the format of the Final TMDL Plan document in a way that makes it easy to find key information. Ideas include providing something web-based and geographically-based so you can click on a watershed, creek, or city; OR providing a pdf document with bookmarks/tabs listing watershed, creek, or city name.	Jeff Oliver/Eric Eckman	City of Golden Valley	This suggestion will be considered as we develop the Implementation Plan. Our goal is to make the document user-friendly and easily accessible for all parties.
General		We request that MPCA provide a list of possible BMPs that could help MS4s to reduce bacteria and meet the compliance standard.	Jeff Oliver/Eric Eckman	City of Golden Valley	This will be addressed in the Implementation Plan.
General		We request that MPCA provide guidance on how to quantify bacteria reduction (percent, number of orgs, etc.) based upon the selected BMPs.	Jeff Oliver/Eric Eckman	City of Golden Valley	This will be addressed in the Implementation Plan.
General		We request that MPCA provide the criteria we should use in our GIS analysis to effectively target priority locations of BMPs.	Jeff Oliver/Eric Eckman	City of Golden Valley	This will be addressed in the Implementation Plan.
General		We understand based on the recent stakeholder meeting, that MS4s are not responsible for wildlife waste expelled within or on land adjacent to natural waters of the state that are not part of the MS4 system.	Jeff Oliver/Eric Eckman	City of Golden Valley	The MS4 permit applies to the water and pollutants that get into the MS4.
General		We understand that a TMDL is not regulated, but the MS4 permit is regulated, and that MS4s need to add BMPs in their SWPPP to address impairments. This Bacteria TMDL will have significant reductions that cannot be mitigated within a 5-year permit term. However, when included in the SWPPP, these BMPs should include descriptions, dates, and estimated reductions which together show annual progress toward meeting the required bacteria reductions. Is this correct?	Jeff Oliver/Eric Eckman	City of Golden Valley	At the time of application, BMPs and implementation dates will be submitted as a component of a compliance schedule in the SWPPP document. A target date for fully achieving WLAs is also included. It is not the expectation that WLAs will be fully achieved in a single five-year permit term, rather multiple permit cycles may be necessary to fully achieve the necessary reductions to meet a WLA; therefore, the target date may be many years in the future.
General		We understand that, through localized monitoring and testing, an MS4 can demonstrate to the MPCA that its discharge consistently meets TMDL compliance standards (the bacteria standard), and that the MS4 would not be required to implement additional BMPs so long as it can demonstrate it meets these standards. Anna Kerr of MPCA stated she would consider this.	Jeff Oliver/Eric Eckman	City of Golden Valley	Yes. Monitoring results that demonstrate a WLA is being met is one way compliance can be demonstrated.

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General		Can you get the summary of a paragraph at the first, before the technical information. As a "Lay person" it was difficult to get through all the technical information, before I could find the problem (situation). Also I think our problem may be smaller dairy operations (herds) that may not be "registered"	Jerry Finch	Lynden Township; Clearwater River Watershed District	The MPCA appreciates your comments and concern that sections of the report can be difficult to interpret. The report is formatted to have summary information at the beginning of each section, including an Executive Summary at the beginning of the overall report. In some cases the language used can be difficult to interpret by people who are not in a science or environmental profession. This is not uncommon and is why we encourage concerned citizens/local leaders like yourself to participate in the stakeholder meetings. Participation in these meetings allows stakeholders to provide input and become more familiar with these projects and the technical information that is needed to successfully complete these projects. We thank you for taking the time to come to the March 2013 stakeholder meeting and sharing your knowledge of the Mississippi River St. Cloud watershed. Your local knowledge of the area and potential bacteria sources is an important asset as this project moves into the implementation phase. We appreciate your concern for water quality and encourage you to contact the MPCA if you have further questions on the report or on water quality projects in general.
General		I found the Study and protection Plan difficult to get the "Basic Message"!! Each subject begins with a lot of technical information that a non-technical person like me finds difficult to understand and difficult to find the conclusions that you want us to know and understand. It may be contradictory to report form, but I recommend you tell us what you want us to know and give the supporting details (for those who understand it)	Jerry Finch	Lynden Township; Clearwater River Watershed District	The MPCA appreciates your comments and concern that sections of the report can be difficult to interpret. The report is formatted to have summary information at the beginning of each section, including an Executive Summary at the beginning of the overall report. In some cases the language used can be difficult to interpret by people who are not in a science or environmental profession. This is not uncommon and is why we encourage concerned citizens/local leaders like yourself to participate in the stakeholder meetings. Participation in these meetings allows stakeholders to provide input and become more familiar with these projects and the technical information that is needed to successfully complete these projects. We thank you for taking the time to come to the March 2013 stakeholder meeting and sharing your knowledge of the Mississippi River St. Cloud watershed. Your local knowledge of the area is an important asset as this project moves into the implementation phase. We appreciate your concern for water quality and encourage you to contact the MPCA if you have further questions on the report or on water quality projects in general.
28	lines 8-9	Only the most downstream reach of Rice Creek (Long Lake to the mouth at Miss. R.) is shown as impaired. No other reach in the upper watershed is listed as impaired. Please explain how the upper watershed can be included when there are no direct impairments in those areas. Runoff is conveyed through extensive wetland systems and other surface waters before reaching the impaired reach. There is no indication of impairments in the upper watershed area.	Jim Hafner	City of Blaine	We need to include all areas that drain to an impaired stream reach. We do not have enough technical information to support using lakes, wetlands, or ponds as boundary conditions for <i>E. coli</i> conditions. However, we agree that additional monitoring should be conducted in the Rice Creek Watershed to determine if upstream reaches are meeting water quality standards for <i>E. coli</i> . We will work with the Rice Creek Watershed District to conduct additional <i>E. coli</i> monitoring upstream of Rice Creek (07010206-584, Long Lk to Locke Lk) in the next few years. We will recommend sampling the three reaches upstream of 07010206-584 which are (1) Rice Creek (07010206-583, Unnamed Lk (02-0041-00) to Long Lk), (2) County Ditch 2 (07010206-521, Pike Lk to Long Lk), and (3) Unnamed creek (07010206-605, Lk Valentine outlet to Long Lk). We recommend sampling <i>E. coli</i> over at least a two-year period with the result of having at least five samples for each month from April through October (e.g. 3 <i>E. coli</i> samples each month from April through October in 2014 and 2 <i>E. coli</i> samples each month from April through October in 2015). Note that our MPCA water quality guidance for assessing surface waters ( <a href="http://www.pca.state.mn.us/index.php/view-document.html?gid=16988">http://www.pca.state.mn.us/index.php/view-document.html?gid=16988</a> ) states that "At least five values for each month is ideal, while a minimum of five values per month for at least three months, preferably between June and September, is necessary to make a determination."
40	18-19	Page 40, line 18-19: The document referenced here (Upper Mississippi River Bacteria TMDL: Data Analysis, Source Assessment, and Monitoring Recommendations) states on page 179 "...no bacteria data were available for Rice Creek for this study." If data is not available to support a bacteria impairment, how can a watershed be included in the TMDL? If data has been made available since the date of the referenced document then it should be included in the TMDL report. Without data, how are MS4's to know what needs to be done?	Jim Hafner	City of Blaine	Data were collected on Rice Creek after Phase 1 of this project; these data were included in the Total Maximum Daily Load (TMDL) analysis (Refer to Section 5.1 and Table 5-1).

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44	25	Page 44, line 25: If data was available for only 4 outfalls out of hundreds, how can that provide suitable data to support the findings of this TMDL, or to list specific reaches of impaired or unimpaired waters in this TMDL?	Jim Hafner	City of Blaine	Only water samples taken from streams/ivers is used for listing streams as impaired for aquatic recreation due to high <i>E. coli</i> concentrations. Note that stormsewer outfall data is not used for listing a stream/river as impaired, but where this data was available we included it to help us better understand the possible sources of bacteria so we can prioritize implementation efforts.
44	11-13	Page 44, lines 11-13: Sanitary sewer lines are typically buried deeper, 5 to 7 feet on average, than storm sewer lines. Therefore, the likely hood of leaking sewage routinely reaching storm drains is unlikely with the occasional exception of large storm events. The studies listed as examples are from large metropolitan areas without mention of whether or not those cities have separate sanitary and storm systems or if they have significant CSO problems. These examples may not be pertinent to the TMDL study area.	Jim Hafner	City of Blaine	We will add language to the TMDL report similar to the following: "Generally accepted engineering practices are to site sanitary sewers below water mains and stormsewers to minimize leakage. However, the number of sanitary sewers that are sited below stormsewers in our project area is unknown." We will also reduce the estimated contribution from this source in Table 4-15.
44	16-18	Page 44, lines 16-18: This quote is taken from the second line of an abstract that goes on to provide a number of qualifiers. I find the quote as used in the TMDL report to be out of context, very broad in nature, and not necessarily representative of actual conditions in the study area. (See also comment above for page 44, lines 11-13.) Supporting documentation would be better suited if taken from the study area, or at least from Minnesota.	Jim Hafner	City of Blaine	The sentence beginning on page 44 line 13 will be deleted.
47	Table 4-4	Page 47, Table 4-4: While this table makes the point that septic systems can be a problem and are more so in certain counties, it provides a sense of sensationalism in this report. Using Rice Creek as an example, most of that area is sewered. Small parts of it may still have private systems. Does the 6% statistic shown for the entire Anoka County represent the area included in the study? It would be more helpful in understanding the scope of the problem if statistics were more accurate to the specific areas affected by the TMDL.	Jim Hafner	City of Blaine	We agree that there is uncertainty associated with the data presented in table 4-4. We will add a footnote to Table 4-4 similar to the following text: Imminent Threat to Public Health (ITPH) Septic System data are derived from surveys of County staff and County level SSTS status inventories. The specific location of ITPH septic systems is not known. The table is not intended to suggest that ITPH septic systems contribute excess bacteria to the specific waterbodies addressed in this report, rather it suggests that, in general, failing septic systems are believed controllable sources of bacteria in the project area. We will also note that that the percentages of ITPH systems may not apply at the same rate to areas in the Twin Cities served by the Metropolitan Council's WWTPs. A few links we will consider adding to our TMDL report and/or Implementation Plan include Recommendations and Planning for Statewide Inventories, Inspections of SSTS ( <a href="http://www.pca.state.mn.us/index.php/view-document.html?gid=15476">http://www.pca.state.mn.us/index.php/view-document.html?gid=15476</a> ) and Metropolitan Council Environmental Services web page that specifies the communities served by each of their 7 Wastewater Treatment Plants (WWTPs): ( <a href="http://www.metrocouncil.org/Wastewater-Water/Services/Wastewater-Treatment-(1)/Communities-Served-by-7-MCES-Treatment-Plants.aspx">http://www.metrocouncil.org/Wastewater-Water/Services/Wastewater-Treatment-(1)/Communities-Served-by-7-MCES-Treatment-Plants.aspx</a> ).
56	31	Page 56, line 31: The tool would be much more valuable if municipal boundaries were included on the maps. At the very least, insert maps with boundaries on the TMDL web site and reference them in the report.	Jim Hafner	City of Blaine	We will make maps with municipal boundaries and TMDL and Protection Subwatersheds available either in the report or accessible on our web pages.
56	lines 9-17	Page 56, lines 9-17: See comments for page 44 listed above.	Jim Hafner	City of Blaine	The first statement within sentence beginning on page 56 line 12 will be changed to state: "In cases where there are failures in the sanitary sewer system, ..."
185	4	Page 185, line 4: Wetlands can be a source of pollutants/bacteria as much as they can be a sink. This problem with created wetlands and other BMPs listed as treatment for bacteria removal is pointed out in a 2011 document written by EOR, Inc. There is a wide variability in BMP effectiveness and a limited number of BMPs that can be considered for bacteria removal. This makes selection of BMPs difficult and potentially more expensive. The variable nature of these BMPs should be more clearly stated and taken into consideration when discussing implementation.	Jim Hafner	City of Blaine	We will provide more guidance in the Implementation Plan about appropriate BMPs for each subwatershed and an update about their known effectiveness.
187	25	Page 187, line 25: The cost of implementing this TMDL should not be underestimated not understated. Blaine has spent over \$8 million in lining old sanitary sewer pipes and is not yet finished. If leaking infrastructure is actually a significant problem as indicated in this report, the cost of resolving that problem alone could exceed the estimates listed on page 187. A more accurate estimate of potential cost should be developed for this study.	Jim Hafner	City of Blaine	We have not been able to estimate the cost of sewer replacement or rehabilitation because it is so dependent on the size, site, type, etc. However, we will work with you and a few other cities and Met Council to provide examples of the costs to include in our TMDL Report. We will also note in the TMDL Report that aging infrastructure was not a primary concern in any of the TMDL subwatersheds.
175-178	Table 7-1	Pages 175-178, Table 7-1: Listing "Reductions" (far right column) as "required" is problematic. Please change the term to "Estimated Reductions".	Jim Hafner	City of Blaine	The change will be made as suggested.

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45-46	Table 4-3	Pages 45-46, Table 4-3: Is the far right column for sanitary sewers only or does it include storm sewers as well? Simply stating the age of the system assumes that no maintenance has been performed and that the systems are faulty as a result of age. Please be more specific as to why the data was included and what it means to the study. Many cities are investing large sums of money (Blaine has spent over \$8million in recent years) to replace or repair/line older infrastructure. Perhaps that is information for implementation plans but it should be considered, at the very least acknowledged, for this study.	Jim Hafner	City of Blaine	Table will be revised to indicate that aging infrastructure refers to sanitary sewers only. A footnote will be added to the table stating that infrastructure failure is the key issue and that age of infrastructure is used as an indicator of potential for failure per <i>Future Wastewater Infrastructure Needs and Capital Costs: FY 2012 Biennial Survey of Wastewater Collection and Treatment</i> which states that sewers installed over 50 years ago are typically beyond their useful life due to the materials used at the time of construction. We recognize that some of these sewers have been lined and will make a note of that. Rankings described on page 71 will be revised so that if the area has >50% sewers over 50 years old, these will be ranked as medium-low and all other age classes will be ranked as low.
29	2,20,33	Frequently refer to Figure 2-2 for a map of TMDL and Protection subwatersheds, but 2-2 is only for the Sartell Subwatershed.	Kari Oquist	Mississippi Watershed Management Organization	The references on lines 2, 20 and 33 will be adjusted to Fig 2.2 through 2.4
91	7-9 and Table 5-1	MWMO also added a monitoring location on the Mississippi River, between Upper and Lower Saint Anthony Falls, AUID 07010206-513 to fill in data gaps. Details are in EQuIS.	Kari Oquist	Mississippi Watershed Management Organization	We will add a footnote to the table noting additional monitoring data is available for this reach.
175-178	Table 7-1	Include the 5 impaired reaches where TMDLs are being deferred so that the 0% reduction required is transparent to partners, EPA and other interested parties	Kari Oquist	Mississippi Watershed Management Organization	As discussed, we will provide the draft TMDLs for these 5 mainstem Mississippi River reaches to you.
General		Rather than requiring BMPs, implementation should provide an option for MS4s in the upstream portions of a TMDL subwatershed to monitor streams downstream of their discharges to show that the reach they directly discharge to is not impaired.	Kari Oquist	Mississippi Watershed Management Organization	Specific BMPs are not mandated by the MS4 general permit. If Permittees are already meeting a WLA, they may provide such document in the permitting process.
47	21-22	Who provides the septage application license? Report goes on (p. 48) to say PCA doesn't regulate land application of septage.	Lark Weller	Mississippi National River and Recreation Area - NPS	We will make the following language changes to the TMDL to clarify this responsibility. MPCA issues licenses for people who work on subsurface sewage treatment system (SSTS) (designers, installers, maintainers) but does not regulate the land application of septage. The EPA does that, but no license is required. They regulate based on the authority contained in 40 CFR § 503. We will modify the text as follows: Land Application of Septage: A state SSTS license <u>issued by the MPCA</u> is applicable to the type of work being performed is required for any business that conducts work to design, install, repair, maintain, operate, or inspect all or part of an SSTS. <del>A license is also required to land-spread septage and operate a sewage collection system discharging to an SSTS. Land application of septage is regulated by the U.S. Environmental Protection Agency (EPA).</del>
32	40	Thanks for naming the national park!	Lark Weller	Mississippi National River and Recreation Area - NPS	You are welcome!
40	25	Report doesn't discuss bacteria's survival rates in sediment much, although in earlier phases of the project, that was discussed as a potentially important factor. Would the 1st sentence of Sect. 4.1 work as, "Humans, pets, livestock, wildlife contribute bacteria to the environment, <i>where they can survive for long periods in sand and sediments</i> "?	Lark Weller	Mississippi National River and Recreation Area - NPS	The change will be made as suggested.
40	45	add "upstream" so sentence reads, "for dischargers within 25 miles <i>upstream</i> of a water intake..."	Lark Weller	Mississippi National River and Recreation Area - NPS	The change will be made as suggested.
46	Table 4-3	Any thoughts as to how two (highly urbanized) reaches with CSOs in them have managed to not become impaired? Also, do you think the dams help clear/mix bacteria concentrations, and that may contribute to the stretches below Upper St. Anth. Falls and LD 1 being unimpaired, despite being surrounded by impaired, urbanized stretches?	Lark Weller	Mississippi National River and Recreation Area - NPS	In response to the first question it is possible that the volume within these reaches dilutes the concentrations below the standard but this is merely a theory. As to the dam question, we are not aware of any research on the impact dams have on bacteria concentrations.
53	Fig. 4-4	Dots are very hard to distinguish for sure on e-version due to pixelation.	Lark Weller	Mississippi National River and Recreation Area - NPS	The pixilation issue will be resolved in the next draft.

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69	Fig. 4-13	I can't see Metro WWTF on this.	Lark Weller	Mississippi National River and Recreation Area - NPS	A footnote will be added that states that only Wastewater Treatment Facilities (WWTFs) that discharge to the TMDL Subwatershed are mapped (those receiving WLAs).
70	Table 4-8	These are "bacteria production rates by head," rather than production rates we'd expect to see relative to their likely proportionately in the environment, right? So, dogs and cats produce 2-1/2 times more bacteria than humans?	Lark Weller	Mississippi National River and Recreation Area - NPS	Yes, on an individual basis. Differences in populations would affect the relative contribution between all dogs vs. all cats.
71	Table 4-9	ITPHS SSTS, last 4 lines: half the fecal coliform concentration of what? I could use some additional explanation here.	Lark Weller	Mississippi National River and Recreation Area - NPS	Language will be adjusted to better explain that there is a 2:1 relationship between <i>E. Coli</i> and fecal coliform as suggested in the sources cited
71	Table 4-9	SSTS Discharge to Groundwater: I thought we know so little about groundwater/surface water interactions that we can't really say with confidence there's no potential connection between ground- and surface water contamination?	Lark Weller	Mississippi National River and Recreation Area - NPS	The note in the Data Sources and Assumption column will be re-worded to indicate that there is not enough information available to adequately evaluate the role of groundwater so it was decided to treat it as a boundary condition and not consider those sources.
74	3 thru 7, 11	How were horse estimates made, if they're not required to be registered and weren't included in windshield surveys?	Lark Weller	Mississippi National River and Recreation Area - NPS	Horse estimates were made using the methodology described in section 4.2.3 on page 74. Line 7 on page 74 will be updated to include horses.
75	Table 4-11	Do AVMA data include estimates of un-licensed pets that are not taken to the vet? Where do feral cats figure in? (I live in the Feral Cat Central neighborhood of Minneapolis). Feral cats would make the 100% cat waste collected by owners number inaccurate. 38% of dog waste not collected by owners seems low to me, based on very informal observations around town. How do the "collected" vs. "not collected" pet waste categories account for waste that sits in the yard for awhile until the owner does a big clean-up? (This again ties to the bacteria survival rate question.) What do we know about how immediately pet waste has to be picked up in the yard to avoid bacteria pollution?	Lark Weller	Mississippi National River and Recreation Area - NPS	The American Veterinary Medical Association (AVMA) estimates include pets that are not taken to the vet (it is a population estimate). AVMA estimates do not include feral cats. Feral cat population estimates are not sufficiently certain for Minnesota and have not been included in the analysis. Refer to the strengths and limitations section 4.2.7. We don't know enough and have not adjusted for the extent of time that cat waste sits in the yard. We have used a delivery risk factor matrix as explained in Section 4.2.6.
85		For 07010206-568 and 07010206-564, I'm surprised to see ITPHS as such important sources, and don't recall any particular discussion of this.	Lark Weller	Mississippi National River and Recreation Area - NPS	Refer to Section 4.1.1 page 47 for discussion on Imminent Threat to Public Health and Safety (ITPHS) estimates.
138	Fig. 6-34	No flow data available since 2010?	Lark Weller	Mississippi National River and Recreation Area - NPS	There was no flow data for Assessment Unit Identification (AUID) 07010206-501 in 2010 and 2011.
184	38	Sediment can be associated with sediment, but it's not the only source, so I propose revising the end of the sentence to something like, "...sedimentation and filtration <i>may help limit bacteria pollution opportunities.</i> "	Lark Weller	Mississippi National River and Recreation Area - NPS	The change will be made as suggested.
184	39	Bacteria " <i>may</i> " or " <i>is known to be</i> " removed/deactivated with sunlight exposure?	Lark Weller	Mississippi National River and Recreation Area - NPS	The change will be made as suggested.
185	19	Designs " <i>are estimated</i> " or " <i>have been shown to have</i> " higher removal efficiencies?	Lark Weller	Mississippi National River and Recreation Area - NPS	The change will be made as suggested
188	7	At how many square miles of urban stormwater-shed in the project area? How do these BMPs compare to others' efficacy (cost-benefit comparison would be helpful with such numbers)?	Lark Weller	Mississippi National River and Recreation Area - NPS	We will add the number of "developed" acres to the TMDL report and Implementation Plan. We will consider incorporating a cost-benefit analysis of different best management practices in the Implementation Plan if this is available.
170, 172		These two reaches appear to have similar amount of data, but one is determined to be "ID" while the other is impaired. Again, maybe preparing readers for this incongruity, or explaining it, would be helpful	Lark Weller	Mississippi National River and Recreation Area - NPS	Refer to Page 94, Lines 17-20 for an explanation of how the data displayed in the load duration curve is not used in the same manner (or in its entirety) for assessment purposes. For example (and this may be the specific answer to this question), data in the load duration curves shows ALL available data, whereas the state assessment only includes data from April to October.

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42-43		good CSO info/stats here	Lark Weller	Mississippi National River and Recreation Area - NPS	Thank you.
General		Across a number of the LDCs, some "unimpaired" reaches seem to have a lot of exceedances (e.g. Fig. 6-41, p. 144), while some "impaired" reaches seem to have fewer (Fig. 6-44, p. 147). The data is what it is, but maybe including a more explicit narrative preparing readers for this apparent incongruity.	Lark Weller	Mississippi National River and Recreation Area - NPS	Refer to Section 5.3.1 Load Duration Curves.
General		Also tied to survival rate question: how does what we don't know about bacteria's survival rates tell us how far downstream we can expect to see the influence of a certain source remain relevant? (e.g., entire stretches in Table 4-16 seem dominated by poultry sources, and then we switch to dog sources. I realize that's based on contributing sources to each subwatershed, but are we able to make any statements about how far downstream we can expect bacteria concentrations to remain problematic, etc.?)	Lark Weller	Mississippi National River and Recreation Area - NPS	We aren't able to make any statement regarding how far downstream we can expect bacteria concentrations to remain problematic.
General		For mainstem LDC Section and Figure names, I suggest including relevant river miles in the reach's title. This is currently done for some, but not all.	Lark Weller	Mississippi National River and Recreation Area - NPS	As discussed, we will add river miles in the TMDL report for mainstem Mississippi River reaches.
General		In LDCs, I found myself wanting discussion of why we see some sites whose major exceedances happened awhile ago, some where major exceedances are more recent, what may have driven some of these changes (major ag outreach? CSO elimination?), and why they're so different from location to location), but I think I'm missing the point of this particular document....	Lark Weller	Mississippi National River and Recreation Area - NPS	We will add information to the Implementation Plan for each TMDL and Protection Subwatershed explaining if there is a data trend that will help target types of implementation efforts. For example, if we mostly see exceedances during high flows for a certain reach, we will state that and provide more information on best management practices that would be most helpful in reducing bacteria concentrations during high flows.
General		Not sure there's ever discussion of how many data collection locations are likely to be in each reach--find myself wondering how representative of a stretch/subwatershed the data are, or whether a few data points are driving the stretch's outcome.	Lark Weller	Mississippi National River and Recreation Area - NPS	Please refer to Appendix C-1 for a summary of monitoring stations.
General		I recommend that the proposed reductions for the unnamed stream (07010206-552 North Branch of Bassett Creek) be reconsidered. The watershed of the stream is highly urbanized and flow in the stream is principally urban storm water so the standards that were used to develop the reductions are inappropriate. In the past the stream was significantly altered by human activity that is irreversible, most of it is channelized, it has no opportunities for swimming, fishing or boating, and it has long periods of no flow almost every year. Please contact me or Laura Jester (952 270 1990), administrator for Bassett Creek Watershed Management Commission for additional information.	Len Kremer	Barr Engineering on behalf of the Bassett Creek Watershed Management Commission	The proposed bacteria reductions for the unnamed stream (07010206-552 North Branch of Bassett Creek) are appropriate. <i>E. coli</i> standards are based on aquatic recreation which includes wading. We are not certain how channelization would impact bacteria concentrations.
184	1	Implementation Strategies -The literature review presented at the first Stakeholder meeting in Elk River indicated a wide range of effectiveness of BMPs in reducing the bacteria loading. The data also indicated BMP's may be a sink, releasing large quantities of retained bacteria. Implementation should not be part of the discussion at this time in my opinion. I liken it to going to the doctor for a sinus infection and he insists on giving you pills for acid reflux. The pills he prescribed are effective for the problem they are intended, however they do not address your problem. When you receive the proper medication your infection goes away. Implementation of the BMP's for the TMDL should not be undertaken until a toolbox of BMP's effective for bacterial removal in all flow regimes and conditions is available. All levels of government are struggling with shrinking budgets. Spending money on unproven practices or practices with a spotty track record must be avoided at all cost. The graphs in the document show the bacteria loading varies significantly in a reach within each flow regime and across reaches for the same time. Most BMPs are not effective across such widely varying conditions. More research must be conducted on treatment before requiring implementation of BMPs.	Leonard Linton	City of Ramsey	It is true there is variability in the effectiveness of stormwater Best Management Practices (BMPs) to remove bacteria. This is the case with many parameters, not only applicable to bacteria. We will provide more guidance in the Implementation Plan about appropriate BMPs for each subwatershed and an update about their known effectiveness.
184	1	The rules must be changed to require non-regulated entities to install BMP's to help with the reduction once a toolbox is created. Expecting the regulated (MS4) communities to do all of the cleanup will not work. The presentation on March 22 showed that many watersheds do not have an MS4 that can be pressured to install BMP's so the untreated water will continue to flow out of the watershed.	Leonard Linton	City of Ramsey	We will add information about entities that need to conduct clean-up and protection activities in the Implementation Plan to achieve water quality standards.



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43	21-31	REPLACE the 1st paragraph under the subheading, " <i>Aging Infrastructure</i> " with the following: " <u>Sanitary Sewer Overflows</u> (rename the section) WWTF bypasses, also called sanitary sewer overflows (SSOs) are emergency discharges of partially treated or untreated sewage. They occur during periods of heavy precipitation, when WWTFs become overloaded due to illicit stormwater connections and/or inflow and infiltration (I&I). Inflow typically is from a structure or device that collects stormwater and drains to the sanitary sewer. Infiltration is the seepage of groundwater into sanitary pipes through cracks and joints. They occur during periods of heavy precipitation, when WWTFs become overloaded due to illicit stormwater connections and/or I&I. SSOs typically last from a few hours to a few days. Violations are recorded if a WWTF's effluent exceeds the 200 cfu/100 ml fecal coliform bacteria. Bypasses occur in separated and combined sewer systems. CSOs, in contrast to SSOs, are specific to combined sewer systems. Table 4-3 identifies the subwatersheds that have experienced more than five SSO events of water that has not received secondary treatment during the period 2002-2011 (according to WWTF bypass reports submitted to MPCA)."	Lois Eberhart	City of Minneapolis	We will revise the text as suggested.
43	33-37	COMMENT on " <i>According to Future Wastewater...standards (MPCA 2012a)</i> ": The City of Minneapolis typically assumes a 100-year life for its sanitary sewer pipes, not a 50-year life. The system is televised (closed-circuit TV) to inspect for cracks and other problems, and an annual repair and rehabilitation program is carried out. A common rehabilitation method is lining, and original construction dates do not reflect whether or not pipes have been lined. As an example, 8.1 miles of sanitary pipes were lined in 2012. CIPP lining (Cured-in-place-pipe) is a method to address pipes that are leaking or are structurally unsound. Because it is a trenchless process, little or no excavation needs to occur. The result is a corrosion-resistant replacement pipe with no joints. (The Metropolitan Council Environmental Services also owns and operates sanitary sewer infrastructure in Minneapolis. MCES also has a rehabilitation program.)	Lois Eberhart	City of Minneapolis	We will add information to the report that mentions that every city has a routine operation and maintenance plan for sanitary sewers and some have ongoing rehabilitation efforts to address sanitary sewer pipes that are leaking or structurally unsound and that a common method used is lining. We will add a footnote to Table 4-3 that notes that some of the older sewer systems have been lined or rehabilitated.
44	7	Comment on " <i>Considering the age of some...system.</i> " COMMENT 1 As described above, the age of a sewer does not necessarily indicate its condition. COMMENT 2 Seepage from leaking sanitary sewers is unlikely to enter storm sewers through cracks or joints because sanitary sewers are nearly always deeper than storm sewers.	Lois Eberhart	City of Minneapolis	In response to your first comment, we will clarify in the TMDL report in this section that the age of infrastructure is only one of the risk factors for sanitary sewers to leak and that newer pipes could leak due to tree roots, etc. In response to your second comment, we will add language to the TMDL report similar to the following: "Generally accepted engineering practices are to site sanitary sewers below water mains and stormsewers to minimize leakage. However, the number of sanitary sewers that are sited below stormsewers in our project area is unknown." We will also reduce the estimated contribution from this source in Table 4-15.
56	10-12	Comment on " <i>Absent of stormwater BMPs...system networks</i> ": Add "runoff" to sentence -- "... loads in urban stormwater runoff are directly conveyed . . ."	Lois Eberhart	City of Minneapolis	The change will be made as suggested.
56	12-15	Comment on " <i>As a result of aging infrastructure...Sercu et al. 2011</i> ": The first paragraph of Sauer, 2011, talks about "failing infrastructure and illicit cross connections between the stormwater and sewage systems." Replacing this language with "as a result of aging infrastructure" is not the same. Please be sure to concentrate on failure and illicit cross connections as valid concerns, not age.	Lois Eberhart	City of Minneapolis	Language will be added that clarifies that failure of infrastructure is the issue rather than simply the age.
56	24-27	Comment on " <u><i>Aging Infrastructure -Leakage from sanitary sewers, inflow and infiltration, combined sewer overflows</i></u> ": REPLACE WITH <u>Bypasses/Overflows (rename)</u> Inflow and infiltration Sewer failure Illicit connections Combined sewer overflows	Lois Eberhart	City of Minneapolis	The listed factors will be reordered to match the categories in the potential bacteria sources section.

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71	Table 4-9	<p>Comment on "<i>Data Sources and Assumption column</i>":</p> <p>COMMENT 1 As stated above, we suggest that leakage from sanitary sewer into storm sewer is unlikely if sanitary sewer is deeper (seepage instead may impact groundwater).</p> <p>COMMENT 2 As stated above, we suggest that age not be used as a surrogate for pipe failure or illicit connections. Age of pipe is not a predictor of failure or illicit connections, because failure or illicit connections can occur at any age. Data about pipe condition, and/or dry weather flow screening information may instead be available from sewer communities.</p>	Lois Eberhart	City of Minneapolis	<p>In response to your first comment, we will add language to the TMDL report similar to the following: "Generally accepted engineering practices are to site sanitary sewers below water mains and stormsewers to minimize leakage. However, the number of sanitary sewers that are sited below stormsewers in our project area is unknown." We will also reduce our estimated contribution from this source in Table 4-15. In response to your second comment, we will clarify in the TMDL report in this section that the age of infrastructure is only one of the risk factors for sanitary sewers to leak and that newer pipes could leak due to tree roots, etc. We will add language Tables 4-9 and 4-15 that indicates this source includes Combined Sewer Overflow (CSO)/Sanitary Sewer Overflow (SSO)/Illicit connections too.</p>
187	footnote 3	This is another instance that may be misleading as to aging infrastructure and transport of sanitary sewer seepage.	Lois Eberhart	City of Minneapolis	Footnote 3 will be revised to replace the word "aging" in the second line with the word "leaking".
197	Table A-1	<p>Comment on "City of Minneapolis, City of Minneapolis Public Works, City of Minneapolis Water Treatment and Distribution Services"</p> <p>This should read (only) "City of Minneapolis". Or if you are attempting to show the two divisions that have been involved, then you could state as: "City of Minneapolis Public Works Surface Water &amp; Sewers Division" and "City of Minneapolis Public Works Water Treatment &amp; Distribution Division"</p>	Lois Eberhart	City of Minneapolis	Text will be updated as stated in comment (second option): "City of Minneapolis Public Works Surface Water & Sewers Division" and "City of Minneapolis Public Works Water Treatment & Distribution Division".
42 and 43	7-26 and 1-19	<p>REPLACE 5 paragraphs of existing text under the subheading "<i>Combined Sewer Overflows</i>" with the following: [paragraph 1] A combined sewer overflow event, or CSO, is a discharge of untreated sewage mixed with stormwater runoff (from buildings, parking lots, streets and so on) to the Mississippi River. The occurrence of a CSO can result in adversely affecting downstream use of the resource. Combined sewer systems were designed to collect sanitary sewage and stormwater runoff in a single pipe system. These systems were designed to overflow in the event of heavy rain, if the combined total of wastewater and stormwater exceeded the capacity of the sewer system, to protect property and prevent sewer backups into homes and other buildings. [paragraph 2] Minneapolis, Saint Paul and Metropolitan Council Environmental Services have been actively working on sewer separation since the construction of the first wastewater treatment plant in the 1930s. The City of Minneapolis and the Metropolitan Council hold a joint CSO Permit and are actively working to minimize CSO events to the river as well as other system requirements. CSOs have become relatively rare in the Twin Cities. There were zero overflow events in the years 2007, 2008, 2009, 2011 and 2012. In 2010 there were two overflow events that lasted a total of 2 hours with an estimated 211,000 gallons of combined stormwater and sewage being discharged 1. By comparison, in 1984 there were 77 overflow events in the Twin Cities, with over 1 billion gallons of overflow.</p>	Lois Eberhart	City of Minneapolis	We will revise the text as suggested.
42 and 43	7-26 and 1-19	<p>[paragraph 3] There are nine CSO regulator locations remaining, one in Saint Paul, and the others in Minneapolis. The locations in applicable TMDL and Protection Subwatersheds are shown in Table 4-3. The elimination of overflow structures may not be feasible in every case without causing a public health or safety hazard. Some overflow regulators may need to remain operational for emergency bypasses necessitated by extreme storm or flood events, or to minimize damage due to accidents or system failures. [paragraph 4] Typical CSO concentrations for total coliforms are reported as 105 to 107 MPN/100 mL (Novotny et al., 1989), or about 1 order of magnitude greater than treatment plant effluent. Raw sewage entering a WWTF typically has a total coliform count of 107 to 109 most probable number2 (MPN) per 100 mL (Novotny et al., 1989). Associated with raw sewage are proportionally high concentrations of pathogenic bacteria, viruses, and protozoans. A typical plant reduces the total coliform count by about three orders of magnitude, to the range of 104 to 106 MPN/100 mL. The magnitude of pathogen reduction, however, varies with the treatment process employed. [1] [footnote] The 2010 events occurred after a breach between the downtown Minneapolis storm and sanitary sewer systems. The breach was identified during a routine July 2010 inspection. It had not been visible during a May 2010 inspection. Once identified, plans and special provisions were completed, construction started in September 2010 and was completed in January 2011.</p>	Lois Eberhart	City of Minneapolis	We will revise the text as suggested.

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45-46	Table 4-3	Comment on column heading, "% Area Having Sewers Over 50 Years Old" REVISIT -- This is not necessarily a predictor of a problem	Lois Eberhart	City of Minneapolis	A footnote will be added to the table stating that infrastructure failure is the key issue and that age of infrastructure is used as an indicator of potential for failure per <i>Future Wastewater Infrastructure Needs and Capital Costs: FY 2012 Biennial Survey of Wastewater Collection and Treatment</i> which states that sewers installed over 50 years ago are typically beyond their useful life due to the materials used at the time of construction. We recognize that some of these sewers have been lined and will make a note of that. Rankings described on page 71 will be revised so that if the area has >50% sewers over 50 years old, these will be ranked as medium-low and all other age classes will be ranked as low.
45-46	Table 4-3	Comment on Column Heading, "Number of Locations where CSOs are Known to Occur" REPLACE WITH "Number of Locations where CSOs Could Still Occur"	Lois Eberhart	City of Minneapolis	We will revise the test as suggested.
82-86	Table 4-15	Comment on column heading "Raw Sewage Leakage from Sanitary Sewer to Storm Sewer": REVISIT - I suggest changing column to "Illicit Connections or Leakage of Raw Sewage from Sanitary Sewer to Storm Sewer", and I suggest revisiting the ranking of "high"	Lois Eberhart	City of Minneapolis	The change will be made as suggested and we will revisit the ranking.
182		The following listed MS4s are not within the Rice Creek Watershed and should be removed from the TMDL list for Rice Creek: Ham Lake City (MS400092), Minneapolis Municipal Storm Water (MN0061018), North Oaks City (MS400109), Pine Springs City (MS400044)	Matt Kocian	Rice Creek Watershed District	The regulated areas of Ham Lake (0.03 acres) and Pine Springs (0.24 acres) appeared to be within the RCWD (Rice Creek Watershed District) boundary, but aerial photography shows that it is, in fact, not serviced by stormsewer conveyance in this area so Ham Lake and Pine Springs will not receive a WLA in this TMDL. Based on the MS4 boundary file on record with MPCA and the watershed boundaries received from RCWD and a review of aerial photography, North Oaks and Minneapolis do have some regulated area (area served by stormsewer conveyance) within the Rice Creek TMDL Subwatershed so will receive a WLA in this TMDL.
28, 92, 169		There appear to be inconsistencies in the TMDL listing vs. data and analysis related to Rice Creek. The reach listed as impaired (07010206-584; pg 28, 169) does not match the reach listed as having data (07010206-586; pg 92). Does the data shown in Figure 6-70 match the listing data used on page 92?	Matt Kocian	Rice Creek Watershed District	07010206-584 will be on the draft 2014 impaired waters list (page 28, Table 2-3, is correct), which has data at Station S003-049 (Appendix C is correct). Figure 6-70 on page 169 is correct; however, the language preceding the figure needs to be updated to be essentially the same as that for Shingle Creek (for example): "Shingle Creek (AUID 07010206-506) is a tributary of the Mississippi River and is impaired for aquatic recreation due to <i>E. coli</i> . This reach received a TMDL as a part of this study (Table 7-1 in Section 7)." The down-stream most reach that directly discharges to the Mississippi River is 07010206-586, for which data was collected in 2010 and 2011 (station S006-141, refer to page 92). However, there was insufficient data to assess the impairment of the reach; this report does not include any data analysis for reach 07010206-584. Samples collected per the table on page 92 (Table 5-1) does not imply the stream was listed as impaired. Data collected previous to this special effort (at additional sites) are not listed here, but are included in the summaries in report appendices. We will also update Table 2-3 so the last column for Rice Creek, 07010206-584, will be listed as T2.
82-89		According to Table 4-15 in the TMDL, the primary potential bacteria sources in the Rice Creek Watershed are individual septic systems, pet waste from impervious runoff, and wildlife. The Rice Creek Watershed District (RCWD) does not regulate individual septic systems, wildlife, or pet waste. Further, the RCWD has no legal authority over land use, and cannot legally deny access to the public drainage system. The RCWD MS4 system consists solely of public ditches and tiles authorized under M.S. 103E. Stormwater discharge containing bacteria that enters the RCWD system originates in other regulated MS4 systems (i.e. city stormsewer). For these reasons, we suggest that the RCWD should not be listed as an MS4 in this TMDL.	Matt Kocian	Rice Creek Watershed District	RCWD still needs to be included in this study and given a WLA. The WLA allows the watershed district to discharge from their MS4. The absence of a WLA is the same as a WLA equal to zero, and as such any discharge from Rice Creek Watershed District's MS4, regardless of the origination, containing bacteria would not be allowed.

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General		Bacteria monitoring data are lacking in all stream reaches (AUIDs) above the Rice Creek TMDL reach (07010206-584). All upstream reaches flow through lakes and/or wetlands before discharging to the TMDL reach. In the absence of monitoring data, and the high level of uncertainty regarding fate and transport mechanisms for bacteria in lentic systems (Section 4.2.7), we suggest removing the watershed area above (i.e. upstream of) 07010206-584 from the TMDL. Correspondingly, we suggest removing all MS4s that do not have regulated conveyances that drain to 07010206-584 from the TMDL.	Matt Kocian	Rice Creek Watershed District	We need to include all areas that drain to an impaired stream reach. We do not have enough technical information to support using lakes, wetlands, or ponds as boundary conditions for <i>E. coli</i> . However, we agree that additional monitoring should be conducted in the Rice Creek Watershed to determine if upstream reaches are meeting water quality standards for <i>E. coli</i> . We will work with the Rice Creek Watershed District to conduct additional <i>E. coli</i> monitoring upstream of Rice Creek (07010206-584, Long Lk to Locke Lk) in the next few years. We will recommend sampling the three reaches upstream of 07010206-584 which are (1) Rice Creek (07010206-583, Unnamed lk (02-0041-00) to Long Lk), (2) County Ditch 2 (07010206-521, Pike Lk to Long Lk), and (3) Unnamed creek (07010206-605, Lk Valentine outlet to Long Lk). We recommend sampling <i>E. coli</i> over at least a two-year period with the result of having at least five samples for each month from April through October (e.g. 3 <i>E. coli</i> samples each month from April through October in 2014 and 2 <i>E. coli</i> samples each month from April through October in 2015). Note that our MPCA water quality guidance for assessing surface waters ( <a href="http://www.pca.state.mn.us/index.php/view-document.html?gid=16988">http://www.pca.state.mn.us/index.php/view-document.html?gid=16988</a> ) states that "At least five values for each month is ideal, while a minimum of five values per month for at least three months, preferably between June and September, is necessary to make a determination."
General		Thank you for this opportunity to submit comments on the Draft Upper Mississippi Bacteria TMDL Study and Protection Plan, dated February 21, 2013. The City of Sartell is a small MS4 that has been identified in the report as draining to an impaired reach of the Mississippi River. After carefully reviewing the draft report and attending stakeholder meetings, we respectfully request that the following comments be addressed before issuing the Study to the EPA for approval. 1. The study should further evaluate the extent that farmland could be solely contributing to the bacteria impairment within the Sartell area. There are five reaches and associated subwatersheds studied that eventually drain to the Watab River and through Sartell. All of these subwatersheds have a high percentage of agricultural land use and have been assigned a TMDL as a part of this study. Based on this finding, it is apparent that the dominant, agricultural land use is largely and perhaps completely, responsible for the bacteria impairment. Until the sources of bacteria from these agricultural areas have been identified and addressed, it will be nearly impossible to determine if the Sartell MS4 may be exceeding the water quality standards for bacteria. Recommendation: Perform additional testing to determine the extent that agricultural bacteria sources may be leading to the impairment.	Patti Gartland/Mike Nielson	City of Sartell	Additional monitoring efforts to help pinpoint the primary contributing areas, such as in a specific subwatershed area, is generally a good idea and can greatly help in guiding implementation planning efforts. In the case of the City of Sartell, conducting monitoring and/or setting up a monitoring station(s) at or near the city limits may be beneficial in determining bacteria loads entering the Watab River from outside the city. At this time the MPCA does not have additional monitoring planned for this project. However, additional monitoring can be completed by project partners and the MPCA can provide technical assistance in helping determine an appropriate monitoring strategy for this effort. It is recommended that the City work with the Stearns County Soil & Water Conservation District to see what opportunities exist in cooperatively working with the applicable agricultural community to implement practices to reduce bacteria contributions.
		Wondering how this effects the City of Bowlus?	Phil Rudolph	City of Bowlus	The City of Bowlus WWTF will receive a Wasteload Allocation (WLA) as part of this TMDL project. The WLA establishes the quantity of bacteria your facility will be permitted to discharge to surface water. The WLA will be equivalent to the facility's permitted fecal coliform bacteria effluent limit so you will not be required to change your current treatment practices or permit limits. In general, stakeholders throughout the project area are all affected by this project as their cooperation and involvement is a critical component in the overall effort to restore and protect the water quality of the Mississippi River and its tributaries.
96	5.5.1	In Section 5.5.1., there is discussion of "the area that falls under MS4 regulation". This discussion should include specific information regarding the fact that only areas within MS4 permitted cities that are served by their stormwater conveyance systems are included in the WLA and covered under their MS4 permit requirements. Areas within MS4 permitted cities that are not served by their stormwater conveyance systems are included in the LA and are not covered under their MS4 permit requirements. This distinction is significant and should be clearly explained in the text of the TMDL report. Areas not served by an MS4 conveyance system may include, but not be limited to: <ul style="list-style-type: none"> <li>Surfaces of waters of the State (lakes, wetlands, etc.)</li> <li>Land that drains directly to receiving waters without running through any components of the MS4 conveyance system (land immediately adjacent to waters of the State)</li> <li>Large-lot residential areas that are not served by the MS4 city's conveyance system.</li> </ul>	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Municipal Separate Storm Sewer System (MS4) is defined both federally and in state rule. An MS4 includes any conveyance or system of conveyances owned or operated by a public entity that is designed or used for collecting or conveying stormwater, is not a combined sewer, and is not part of a POTW (Public Owned Treatment Work). Permits for MS4s apply to all areas draining to the system and the discharges from the system. The use of the National Land Cover Dataset (NLCD) provided an appropriate approximation of developed areas for determining the Wasteload Allocation (see Section 5.5.1) based on the assumption that developed land uses are served by stormsewers. Note that it was a significant effort just to obtain more accurate subwatershed boundary information from cities based on their stormsewer information.

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99		Page 99 includes this text: "any expansion of a non-regulated source will need to comply with the LAs provided in this report". This statement is confusing or misleading. Is there any method to compel compliance with the LA for any expansion of a non-regulated source? If yes, an explanation should be provided. If not, this statement should be revised.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Sentence beginning on page 99 line 24 will be revised to delete the language referred to in the comment.
180	Table 7.3	There may be portions of the MS4 permitted cities listed in Table 7-3 that are landlocked and do not contribute bacteria loading to the Mississippi River or its tributaries. These areas should be identified, mapped, and removed from the WLA. The cities should be able to provide information about these areas.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	The level of effort involved in developing the TMDL for this large area did not allow for a detailed determination of the presence of landlocked areas. The use of the National Land Cover Dataset (NLCD) provided an appropriate approximation of developed areas for determining the Wasteload Allocation (see Section 5.5.1) based on the assumption that developed land uses are served by stormsewers. Note that it was a significant effort just to obtain more accurate subwatershed boundary information from cities based on their stormsewer information. In the case where a given area is included in the TMDL (given a WLA) and it is determined to be landlocked, the given community will be able to demonstrate compliance will be able to demonstrate compliance with the conditions of their MS4 permit as it relates to the WLA by providing this information to the MPCA.
180	Table 7.3	There should be maps showing the boundaries of the MS4 cities listed in Table 7.3 in relation to the boundaries of the WLA area. These maps could be part of the supporting documentation on the project Web site. These maps should be in sufficient detail to show the affected cities which parts of their jurisdiction they should focus on during implementation. These maps should include boundaries related to Comments 5 and 6 above.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	There will be a total of 22 maps with NLCD, Municipal and TMDL subwatershed boundaries. The maps will show municipalities which part of their jurisdiction are included in the Wasteload Allocation for each impaired waterbody.
188		8.C. Page 188 of the TMDL report includes this text: "It is important to note that the urban stormwater cost estimate does not account for large-scale capital projects such as replacing existing wastewater and stormwater collection systems due to age and/or failure. Note that resolving underground breaches in sanitary sewer that results in the leakage of raw sewage into stormsewer would likely require these large-scale efforts. <underlining added>" This language is inappropriate, insufficiently supported, and dangerously irresponsible in the context of the TMDL report. It should be deleted.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Language will be added that clarifies that none of the TMDL subwatersheds have >50% aging infrastructure. We have not been able to estimate the cost of sewer replacement or rehabilitation because it is so dependent on the size, site, type, etc. However, we will work with a few cities and Met Council to provide examples of the costs to include in our TMDL Report. We will also note in the TMDL Report that aging infrastructure was not a primary concern in any of the TMDL subwatersheds.
184-188		10. All of Section 9: Implementation Strategies should be revised significantly.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	See specific responses to comments 68-74
184-189		10.A. This section includes the following text: "Source reduction is the initial focus for implementation efforts. Limiting bacteria sources is expected to lower the concentration of bacteria entering a BMP and increase the likelihood that the outflow from the BMP will support surface water quality standards. Treatment BMPs should be implemented to provide bacteria reduction in support of source control efforts." Source reduction is the appropriate initial focus for implementation. The term "source reduction" should be consistently paired with "pollution prevention", as per Section 9.1.8. Source reduction should be elevated in importance and prominence throughout this section. Education and maintenance should be consistently included as source reduction and pollution prevention strategies. In Section 9.1, there should be a special subsection for source control and pollution prevention strategies. All of the strategies that fall into this category should be addressed within this section.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Language will be adjusted throughout the section to emphasize source reduction and pollution prevention as a strategy. Additional detail will be provided in the Implementation Plan.
184-190		10.B. Street sweeping should be consistently listed as a source control strategy. Street sweeping should be included as a subsection in Section 9.1. Street sweeping should be consistently listed as a high priority implementation strategy.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Street sweeping is listed in section 9.1.8 as a source control strategy. As with other practices, street sweeping effectiveness can vary widely depending on equipment and other conditions. Street sweeping was not included in the literature review completed as part of this project, therefore a subsection is not included in the report. Additional detail on street sweeping will be provided in the Implementation Plan.
184-191		10.C. Public education about water quality issues in general, including mass media campaigns, should be consistently listed as a source control strategy.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Public education will be added to the discussion of source control strategies and additional detail will be provided in the Implementation Plan.
184-192		10.D. There should be a discussion of the fact that some source control strategies are not connected to specific bacteria sources. This does not diminish the value of these strategies.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Language will be added stating that in some cases source control strategies are not directly connected to a specific bacteria source but are still recommended as a strategy.

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184-193		10.E. There should be a prominent discussion about the lack of knowledge and understanding of the effectiveness of many types of implementation BMPs. The wide range of BMP effectiveness, including negative removal rates, should be presented and discussed. The implications of this should be considered and discussed. The need for adaptive management should be further emphasized, in this context. The implications of this lack of knowledge for tempering the regulation of the permitted MS4 cities within this TMDL should be considered and discussed in the implementation section of the TMDL report.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	The report will be revised to include a link to the 2012 International Stormwater BMP Database report <i>BMP Performance Summary</i> which provides information on bacteria removal effectiveness as well as information on nutrient, metals, and TSS (total suspended solids) removal. In addition, the report will refer to the Implementation Plan which will include additional detail.
184-194		10.F. The paper titled "Effectiveness of Best Management Practices for Bacteria Removal" includes the following text: "Three studies evaluated not only the overall removal of pollutants by the best management practices but also whether or not the resulting outflow concentration was low enough to meet a recreational contact standard. These three studies found that few practices will provide the reduction needed to meet standards." and "The study by Schueler and Holland (2000) stated that most practices discharge in the range of 2,500 to 5,000 colonies per 100 mL, well above a recreational contact standard. The study asserts that even if stormwater practices are implemented throughout a watershed, bacteria concentrations may exceed the standard." Studies appear to indicate that it is likely that the implementation of known BMPs will probably not result in reducing the bacteria loading sufficiently to meet water quality standards. This text should be included in the implementation section of the TMDL report. The implications of these studies should be considered and discussed in the implementation section of the TMDL report. The need for adaptive management should be further emphasized, in this context. The implications of these studies for tempering the regulation of the permitted MS4 cities within this TMDL should be considered and discussed in the implementation section of the TMDL report.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	The statements in the cited paper may be misleading. The MPCA is primarily concerned with meeting water quality standards in the receiving water. The outflow concentration of BMPs is only really useful to determine removal efficiency. It could be that reducing the bacterial counts by several orders of magnitude to the concentrations cited could be sufficient for some reaches in this study to meet the standard. However, there likely will be reaches that do not get to the standard in a first phase of action, but do show measureable improvement. That would still be viewed as important progress. Further progress could be achieved in the future as stormwater management and technologies are improved/developed. The implementation section of the TMDL is written broadly and does acknowledge the need for adaptive management, but does not lay out how compliance/progress will be evaluated for permitted MS4s. As with all TMDLs we feel that is most appropriately addressed separately within the framework of the stormwater permit program.
184-195		10.G. The supporting documentation for this TMDL lists sump manholes as possible sources of bacteria. Underground infiltration devices should be included as a possible source, similar to sump manholes. The fact that these BMPs are likely sources of bacteria should be included in the implementation section of this TMDL. There should be a discussion of the fact that these types of BMPs may be useful for reducing sediment loads but may contribute to bacteria loads. This contradiction should be discussed in the implementation section of this TMDL. The implications for reducing both sediment and bacteria TMDL load reductions should be considered, presented, and discussed.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Sump manholes should not have been described as a source. That will be corrected. We will consider including in the Implementation Plan (IP) an explanation that BMPs treat more than one pollutant. The IP could include cleanout for sumps and underground infiltration as BMPs.
44,90 & 104		In the draft TMDL report, the following text appears at least three times: "Bacteria concentrations along the Mississippi River mainstem peak around the metropolitan area." (pages 44, 90, and 104). On page 44, this language is listed as one of a set of "the following conclusions were reached with respect to water quality associated with stormsewer discharges".	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We will revise the text to delete "associated with stormsewer discharges" as this first bullet point was referring to water samples from the Mississippi River.
44,90 & 104		In the draft TMDL report, there are at least three references to "data were available from only four sites out of hundreds of outfalls to the Mississippi River and tributaries" (pages 44, 90, and 104). On pages 44, this language is included in a short list of "following conclusions". On page 90, this language is listed as part of a "key finding" asserting that "storm sewer data exhibit high <i>E. coli</i> concentrations". On page 104, this language is included as part of a "compilation of trends and findings". There are other possible (even likely) explanations for this peaking of bacteria concentrations that are not related to stormsewer discharges. One of these is the probability that there are bacteria in the river sediments in the Metro area and regrowth and/or resuspension from these sediments is contributing to the high concentrations. The TMDL report repeatedly states that regrowth and sediment contributions are not addressed in this study. In light of these items, this text should be removed entirely and the related text revised appropriately.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We note in the TMDL that bacteria is from a large variety of sources (e.g. humans, pets, livestock, and wildlife) and conveyed to the streams and river in various manners. It is unclear from your comment what other explanations for peaking bacteria concentrations may be from other than these sources. On page 99, the report states that, "The load duration analysis does not address bacteria re-growth in sediments, die-off, and natural background levels. The MOS helps to account for the variability associated with these conditions." so therefore the report does address the factors of re-growth and die-off but uses the margin of safety rather than the load duration curve to address these components. We did not find any references in the TMDL report that states we would not address regrowth and sediment in this report.
44,90 & 104		This sample size (4) is absurdly small. It is totally inappropriate, irresponsible, and unprofessional to cite data from such a small number of samples as sufficient support for "conclusions", "key findings", or "trends and findings". These references should be removed entirely and the related text revised appropriately.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Note that stormsewer outfall data is not used for listing a stream/river as impaired, but where this data was available we included it to help us better understand the possible sources of bacteria so we can prioritize implementation efforts. We will add additional clarification in the report about data from the stormsewer outfalls.

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General	<p>11. There should be a separate and fairly lengthy section in the TMDL report listing the research needs to better and adequately understand various aspects of bacteria loading and load reduction. It should be clearly stated that the work supporting the development of this TMDL has exposed and identified these flaws and deficiencies in our understanding and knowledge. The development of future bacteria TMDLs should be linked to addressing these research needs. These research needs should include, but not be limited to:</p> <ul style="list-style-type: none"> <li>• Growth, regrowth, and/or resuspension in and bacteria contributions from sediments, ditches, storm sewer pipes, soils, sump manholes, and infiltration BMPs</li> <li>• Die-off in streams, lakes, and other places</li> <li>• Natural background</li> <li>• Study results showing negative removal rates for many types of stormwater BMPs</li> <li>• Sanitary sewer leakage reaching stormwater sewer piping systems</li> <li>• Street sweeping as a source control BMP</li> <li>• The appropriateness of using the flow duration curve methodology to develop WLAs and LAs for land areas draining to large river systems</li> <li>• The influence of flooding on bacteria loading</li> <li>• Establishing a track record (demonstration and pilot projects) showing that bacteria load reductions sufficient to meet water quality standards are achievable, in both rural and urban land areas</li> </ul>	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Language will be added to the Implementation Plan that suggests the areas where further research would help inform-implementation efforts.
General	<p>4. Load reduction percentages are not required components of TMDLs. When there is as much uncertainty about multiple elements of the TMDL, including the effectiveness of many implementation strategies, listing the load reductions is not useful and just results in greater and poorly supported permit burdens on regulated parties. The following adjustments should be considered for this TMDL (listed in order of preference):</p> <p>4.A. Delete the load reduction percentages from the TMDL. These estimated load reduction percentages belong in the Implementation Plan, not the TMDL report.</p> <p>4.B. Separate the load reduction percentage listings from the TMDL section (Section 7) and Table 7.1. Move the load reduction percentage information to the implementation section and include text that qualifies these listings in light of all the relative uncertainties and the lack of knowledge or demonstrated success in achieving load reductions to meet water quality standards.</p> <p>4.C. Change the heading of the last column of Table 1 from "Required Reduction in Watershed Runoff" to "Estimated Reduction in Watershed Runoff". Also, include text that qualifies these listings in light of all the relative uncertainties and lack of knowledge or demonstrated success.</p>	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	The heading of the last column of Table 1 from "Required Reduction in Watershed Runoff" will be changed to "Estimated Reduction in Watershed Runoff".
General	Effort should be made to clarify which elements of the TMDL allocations are supported by the additional monitoring done in 2010 and 2011.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	Language will be added that describes where additional monitoring was conducted in 2010 and 2011.
General	Flooding is a well-known factor in the spread of bacteria throughout landscapes. Once spread, the bacteria remaining in the soils and other landscape features are a source of regrowth and contribution to receiving waters. Flooding should be addressed and discussed in this TMDL.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We're not sure what is meant by your statement that floods spread 'bacteria throughout landscapes.' Floods basically occur in floodplains. Sediment and accompanying pollutants do get deposited in floodplains, but we don't believe we really can say anything beyond this that will advance the understanding of addressing bacteria impairments.
General	This commenter had problems with printing some of the project documents. When the pdf files are printed, there are many places where the text or numbers are printed as just empty squares. This occurred on a sophisticated computer system with many types of available fonts. Our IT staff has indicated that this type of problem is usually the result of using non-standard fonts in the pdf files. This problem should be resolved and the documents revised to fix this problem.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	This issue will be resolved in next draft of the document.
General (Sanitary Sewers)	8. Very significant revisions are appropriate for all the text related to leakage from aging sanitary sewer systems.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We will revise text as appropriate.

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General (Sanitary Sewers)		8.A. This source is listed as having high or medium-high potential for comparable contribution of bacteria loading (Tables 4-9 and 4-15). There is not sufficient scientific support for this assertion. Two studies in California and one in Milwaukee are not sufficient. There should be research done in Minnesota and the physical processes should be described and understood before such an assertion is made. If any assertions are made regarding this possible type of source, these statements should be thoroughly qualified and explained. The footnote for Table 4-9 is not sufficient.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We will reduce our estimated contribution from this source in Tables 4-9 and 4-15. We currently do not have the project funding to conduct a research study as you have suggested, but we may be interested in partnering or supporting your organization if you pursue other grant funds to conduct this type of study. We will consider revising our footnote for Table 4-9.
General (Sanitary Sewers)		8.B. There should be information gathered and discussed, at length, in the TMDL report regarding the cities' efforts to line older sanitary sewer pipes. These efforts have been ongoing for a number of years, driven largely by the Met Council's I & I surcharge fees. The cities should be able to provide a wealth of information about the extent and nature of their lining programs. Lining is a very cost-efficient method of addressing the deterioration of older sanitary sewer pipes.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We will add information to the report that mentions that every city has a routine operation and maintenance plan for sanitary sewers and some have ongoing rehabilitation efforts to address sanitary sewer pipes that are leaking or structurally unsound and that a common method used is lining. We will add a footnote to Table 4-3 that notes that some of the older sewer systems have been lined or rehabilitated.
General (Sanitary Sewers)		8.D. Any discussion of possible leakage from sanitary sewer systems must include analysis and discussion of the Met Council interceptor system.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We will note that that the percentages of Imminent Threat to Public Health (ITPH) systems may not apply at the same rate to areas in the Twin Cities served by the Metropolitan Council's Metro WWTP. A link we will consider adding to our TMDL report and/or Implementation Plan is the Metropolitan Council Environmental Services web page that specifies the communities served by each of their 7 WWTPs: ( <a href="http://www.metrocouncil.org/Wastewater-Water/Services/Wastewater-Treatment-(1)/Communities-Served-by-7-MCES-Treatment-Plants.aspx">http://www.metrocouncil.org/Wastewater-Water/Services/Wastewater-Treatment-(1)/Communities-Served-by-7-MCES-Treatment-Plants.aspx</a> ).
General (Sanitary Sewers)		8.E. The discussion of possible leakage from sanitary sewer system should resolve and discuss the differences between "chronic" leakage and "sewage originating from breaches". These are different types of phenomena and should not be grouped together.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We will add language to the TMDL that differentiates the difference between chronic leakage and a breach.
General (Sanitary Sewers)		8.F. It is widely known that, in most installations, storm sewer pipes are placed several feet above sanitary sewer pipes. This makes it highly unlikely that leakage from the sanitary sewer pipes is entering the storm sewer systems. The discussion of sanitary sewer leakage as a possible source should address this understanding directly. It should be demonstrated or proven that this leakage is actually occurring in multiple Minnesota installations. Otherwise, this assertion lacks credibility.	Randy Neprash	Stantec on behalf of the MN Cities Stormwater Coalition	We will add language to the TMDL report similar as follows: "Generally accepted engineering practices are to site sanitary sewers below water mains and stormsewers to minimize leakage. However, the number of sanitary sewers that are sited below stormsewers in our project area is unknown." We will reduce our estimated contribution from this source in Table 4-15.
181	Table 7-3	The report concludes pet waste is a major contributor to the bacterial impairments and provide categorical WLA to MS4s. North Hennepin Technical College MS4 and the other MNSCU colleges to be evaluated later on in the separate study of the Coon Creek watershed do not have pet populations, nor do they have significant wildlife populations. Therefore, lumping the MNSCU MS4s into a categorical WLA requiring load reductions equivalent with other MS4s who do have large pet populations does not seem appropriate.	Rebecca Kluckhohn	Wenck Associates on behalf of Anoka Ramsey Community College and Anoka Technical College and North Hennepin Community College	We do not have any data that indicates there is less pet and/or wildlife waste in these areas.
General		Will Robbinsdale receive a reduced WLA for the Shingle Creek portion of the TMDL, given that Crystal Lake does not have a natural outlet into Shingle Creek ?	Richard McCoy	City of Robbinsdale	The level of effort involved in developing the TMDL for this large area did not allow for a detailed determination of the presence of landlocked areas. In the case where a given area is included in the TMDL (given a WLA) and it is determined to be landlocked, the given community will be able to demonstrate compliance with the conditions of their MS4 permit as it relates to the WLA by providing this information to the MPCA.



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55	Section 4.1.4	<p>Section 4.1.4 on Page 55 discusses wildlife sources of bacteria. In addition to the areas already listed, it should be noted that Waterfowl Production Areas, RIM easement lands, lands under CRP contracts and urban stormwater ponds may also be potential sources of bacteria. In some areas of the TMDL area, historic wetlands in urban areas have been previously drained for a variety of purposes, such as housing and commercial developments. With development, urban stormwater ponds are constructed, which can provide some habitat for wildlife and waterfowl species. As an example, a map of the City of Sartell is included that illustrates wetlands that have been previously drained. Upon viewing the map, several stormwater ponds can be seen within the urban landscape, which eventually drain to the Mississippi River. Due to the numbers of waterfowl and wildlife species that populate the areas mentioned above for feeding, nesting, brooding and resting purposes, it is reasonable to expect some bacteria contributions from these areas as well. Waterfowl species can fluctuate in a given location based on time of the year due to annual migration patterns, weather conditions and the type of habitat conditions that are available for feeding, nesting, brooding and resting. Also, earlier springs and late falls may make it more conducive for waterfowl species to arrive earlier and to stay later in Minnesota. Regarding resident waterfowl populations, some consideration should be given to bacterial contributions from goose populations that reside the entire year in certain regions of the TMDL area. As an example, the Mississippi River just below the Sartell dam is usually open during the winter, with resident goose populations occupying the open water frequently during this time. The MDA recommends some additional discussion and need for more information about the potential impacts from resident waterfowl populations and the inclusion of the other habitat areas mentioned above. The MDA realizes that it is difficult to obtain data in the short-term, but it may warrant additional study by the MPCA or more discussion within the draft TMDL Study and Protection Plan.</p>	Rob Sip	MDA	<p>While this is an excellent point it is well beyond the level of effort of the current study to provide greater refinement to various habitat areas where waterfowl populations may be higher. Language will be added to the first paragraph of section 4.1.4 to describe these areas and this point will be carried through into the Implementation Plan.</p>
70		<p>Table 4.8 on Page 70 lists bacteria production by animal type. The MDA recommends using data that is more recent than the 1991 data that is provided if it is available. Given the large body of water quality scientific research that has occurred since 1991, it is reasonable to expect more recent data and information. The MDA realizes that more recent data simply may not exist and that the use of the 0.5 conversion factor listed within Table 4.8 is the best method to calculate bacteria production rates.</p>	Rob Sip	MDA	<p>Metcalf and Eddy 1991 is typically a trusted resource even today. If you are aware of a more recent, more reliable source that has different conclusions, please feel free to provide it to us. We will review the source and evaluate whether or not to use it instead.</p>
189 & 190		<p>Section 10 on Pages 189 and 190 discuss regulatory programs. There are several counties within the TMDL area that have had feedlot ordinances for many years. In addition, there are many townships that have specific requirements for feedlots, manure storage structures and manure management. Some cities may also have regulations and zoning standards for sites with less than 10 animal units. There should be additional discussion about the various local ordinances that regulate feedlots, manure management, pastures and livestock operations. While data may not be readily available, the MPCA may want to contact the local units of government to determine what types of regulations exist, including city ordinances.</p>	Rob Sip	MDA	<p>The draft report contains information on applicable state regulatory programs. Local regulations/ordinances were not specifically mentioned in the report as that is an effort which can be more efficiently and effectively addressed in local implementation and land use planning efforts. The MPCA agrees that local regulations can be an effective strategy and may be necessary in some cases in helping to reduce bacteria loading into surface waters. The MPCA is willing to provide technical assistance in working with communities to discuss land use planning considerations. In general, effective communication between project stakeholders will be an essential component in achieving positive results in the implementation phase of this project.</p>

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General	<p>The draft document should consider discussion about furthering voluntary initiatives, such as the use of:</p> <ul style="list-style-type: none"> <li>• Enhanced use of precision ag and GIS/GPS technologies. While adoption of technology in agriculture has been widely adopted and accepted by many agricultural producers, there may be additional opportunities to further encourage the voluntary use of technology in various agricultural settings of the TMDL area.</li> <li>• Cover crops, when appropriate, can be beneficial for soil quality improvements, erosion control and soil fertility. The use of cover crops may not be conducive to every crop rotation or landscape setting and individual producers may have specific reasons for not utilizing cover crops.</li> <li>• Enhanced and innovative residue management techniques that are crop rotation appropriate and designed to fit the needs of individual farming operations.</li> <li>• Enhanced promotion of buffer strips, filter strips, water and sediment and control basins and grassed waterways in areas with steep slopes, coarse soils and other high priority areas. The MDA realizes that staff and financial resources are needed to accomplish promotional and educational initiatives to encourage the adoption of these types of practices. The local units of government in within the TMDL area may want to partner with other local units of government in promoting higher levels of adoption for the above mentioned practices.</li> </ul> <p>Thank you for the opportunity to comment. If you have any questions, I can be reached at 651-201-6487.</p>	Rob Sip	MDA	The practices described will be considered as we develop the Implementation Plan.
General	<p>The MDA recommends additional focus on pasture management plans, reducing livestock access to surface water bodies and heightened awareness of proper land application of nutrients including fertilizers and manure. BWSR and NRCS have traditionally had technical assistance and incentive payments available to bring feedlots and manure storage structures into compliance. While great success has been made by local units of government in the area of correcting open feedlot runoff, the MDA recommends additional prioritization of feedlots and manure storage structures that are need of structural updates to meet current standards. There are also NRCS incentives and technical assistance to install alternative water sources for livestock that are pastured if a permanent water source is not available. Local livestock organizations may be interested in partnering in these efforts and outreach should be conducted to gain farmer and landowner support in these areas.</p>	Rob Sip	MDA	The MPCA appreciates your comments and will work with stakeholders to the extent possible to follow up on your recommendations, as they are important considerations when moving forward in the implementation phase of this project. Key stakeholders in cooperatively working together to implement these suggested recommendations will be the applicable Soil & Water Conservation Districts and Natural Resources Conservation Service offices and the Minnesota Agricultural Resources Coalition. The Minnesota Department of Agriculture is encouraged to contact these organizations to discuss potential cooperative efforts in this regard during the implementation phase of this project.
General	<p>The MDA recommends that SWCDs, watershed districts and counties within the TMDL area determine and prioritize what agricultural areas would benefit from Drainage Water Management (DWM) implementation within the watershed. The NRCS and BWSR currently have incentives for landowners to develop DWM plans to address agricultural water management issues. When properly implemented, these practices are beneficial in keeping soil in place on the landscape. DWM practices may include but not be limited to bioreactors, saturated buffers, water control structures for subsurface tile, etc. Regarding tile inlets, it may not be possible to remove all tile inlets due to slope and landscape setting. However, efforts should be made to convert or eliminate open tile inlets when feasible and possible. The local governmental units may want to consider inventories in select areas to determine regions where tile inlets can be removed and/or converted to alternative intakes to reduce the potential for bacteria transport. Water and sediment control basins are another practice that can keep soil in place on the landscape. There should be discussion about this practice in the implementation section of the draft report if it is not already listed.</p>	Rob Sip	MDA	Thank you for your recommendations and comments. You bring up some excellent points that should be considered in the local implementation planning efforts for this project and for water quality protection in general. The stakeholder involvement process is a vital component of these projects. Addressing bacteria issues relating to agricultural land uses will take a cooperative effort between stakeholder agencies and citizens. Your comments provide valuable feedback in highlighting priority considerations in the agricultural regions of the project. See Section 9.1.2 Detention and Retention Ponds & 9.1.3 Biofiltration/Filtration for general discussion information on water and sediment control basin practices.
97	<p>I believe the connection between <i>E. coli</i> WLAs and WWTF fecal coliform permit limits needs to be clarified. It's my understanding that 126 <i>E. coli</i> org/100 ml equals 200 fecal coliform org/100 ml.</p>	Ron LaFond	Stantec on behalf of the City of Albany	Yes, that is the case with respect to WWTF permit limits and the water quality standard. We will add clarifying language to Section 5.5.2.
99 and 100	<p>For expanding WWTFs, is it correct to state that the WWTF is likely to receive an increased bacterial WLA since the standard permit limit of 200 fecal/100 ml is protective of the water quality standard of 126 <i>E. coli</i>/100 ml?</p>	Ron LaFond	Stantec on behalf of the City of Albany	Yes. That is correct.

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General	Comment #10: Part IV.C.4. of the permit states that inlet protection may be removed for a particular inlet if a specific safety concern (street flooding/freezing) has been identified and the Permittee(s) have received written approval from the jurisdictional authority. Requiring an individual determination of every inlet and written permission from the jurisdictional authority for each inlet is unreasonable and is an unfunded administrative task. We request that the permit language be revised to require that the permittee(s) obtain written permission from the MPCA for each inlet, with notification to the jurisdictional agency.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater (CSW) General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #11: Appendix A.B.b.ii. of the permit states that the permittee(s) must include in the SWPPP "BMPs identified in the TMDL and any other construction related implementation activities identified in the TMDL". Some USEPA approved TMDL Implementation Plans identify rather vague BMP's, such as " <i>construct 200 rain gardens to meet the phosphorous reduction target</i> ". Please clarify the expectations if a project is proposed within a drainage area of a water body with a vague TMDL Implementation Plan (e.g. is the permittee required to install all 200 rain gardens, a pro-rated share based on land area, or a pro-rated share based on drainage contribution)? Please provide clear and specific permit language. In addition, we request that the MPCA acknowledge that the efficiency of infiltration methods like rain gardens do not work well in tight soil conditions like those that exist in St. Michael and as such are not as efficient or practical to utilize these methods.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #12: Provision C.3. in Appendix A requires a permanent undisturbed buffer zone of not less than 100 linear feet from special waters. A construction stormwater permit is not the appropriate means for establishing permanent buffer requirements. We request that this language be deleted from the permit.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #2: On January 3, 2013 a federal court ruled that the EPA had exceeded its authority in establishing a flow-based TMDL and ordered that the Accotink Creek TMDL is vacated. The MPCA has stated in various stakeholder meetings that it considers volume as a surrogate for pollutants, which was specifically challenged in this court case. Based upon this decision, we request that the MPCA reconsider all portions of the permit that regulate the flow of stormwater and the volume of stormwater.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #3: Please provide a definition for the term "routine maintenance" as it applies to the definition of "construction activity" in Part 1.A.1. of the permit.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #4: Part III.A.2. of the permit requires that "the owner must identify a person knowledgeable and experienced in the application of erosion prevention and sediment control BMP's who will oversee the implementation of the SWPPP, and the installation, inspection and maintenance of the erosion-prevention and sediment control BMP's before and during construction". For public improvement projects, the Contractor ultimately determines his means and methods, his phasing schedule, and is responsible for coordinating his sub-contractors. Please revise this language to allow the Permittee(s) to identify the knowledgeable person.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #5: Part III.D. of the permit states "The permittee(s) shall design the project so that all stormwater discharged from the project during and after construction activities does not cause a violation of state water quality standards, including nuisance conditions, erosion in receiving channels or on downslope properties, or inundation of wetlands causing a significant adverse impact to the wetlands". It is unreasonable to require that the permittee design the project for all stormwater discharges, as most designs are based on particular rainfall events. It is also unreasonable to expect the designer to design for future (possibly unknown) stormwater discharges or downstream receiving channels that are located off-site and may have been unstable prior to the project. Please revise the permit language accordingly.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.

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General	Comment #6: Part III.D. of the permit requires the Permittee to make a reasonable attempt to obtain right of way during the project planning process and further that the permittee document those attempts in the SWPPP. We disagree with the language that requires the Permittee to document the attempts of obtaining right-of-way in the SWPPP and further request that "other treatment methods" be allowed for linear projects without first proving infeasibility. Please revise the language to allow for other treatment methods (i.e. grassed swales, filtration systems, smaller ponds, or grit chambers) for linear projects without requiring the documentation of infeasibility and remove the language requiring the documentation of easement acquisition attempts.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #7: Part III.D.1.b requires that infiltration basins cannot be graded until the entire contributing area has been constructed and fully stabilized. This requirement will increase project costs and will require multiple mobilizations. We request that this provision be revised to allow the infiltration basin to be graded simultaneous with the other grading activities and protected.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #8: Part III.D.1.k.viii. requires soil to be amended when the infiltration rate exceeds 8.3 inches per hour. In certain soils, infiltration may occur naturally at a rate that exceeds 8.3 inches per hour in areas that are outside of a designed infiltration practice – please clarify the intent of this permit language. Further, we request that the permit be revised to allow (designed) infiltration practices where the soil is conducive without amending when sufficient separation to the water table is present to provide the desired treatment. We also request that the MPCA address the fact that the efficiency of infiltration BMP's do not work well in tight soil conditions like those that exist in St. Michael and as such Cities with tight soils should not be expected in infiltrate as much as those with more favorable soils.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	Comment #9: Part IV.B.3. of the permit requires the permittee(s) to "design stormwater conveyance channels to route water around unstabilized areas on the site and to reduce erosion". While it is possible to design stormwater conveyance channels to re-route the stormwater, it seems to be irresponsible. Grading will be required to construct the "by-pass" conveyance channels, thus directing concentrated run-off to newly graded channels without vegetation. Please reconsider this requirement.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.
General	In addition, we offer the following comments regarding the specific language of the proposed TMDL: Comment #1: The revisions to the Construction Stormwater General Permit should be closely aligned with the federal Construction and Development (C & D) rule. In general, the language in the draft Construction Stormwater General Permit substantially expands on the C & D rule. We request that the permit be revised to closely align with the federal C & D rule, including the anticipated revisions included in the related settlement agreement.	Steve Bot	City of St. Michael	This is not a comment related to this TMDL. It relates to the Draft Construction Stormwater General Permit. Bacteria is not an impairment included in the CSW permit; therefore, this comment does not apply.

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General		<p>Please consider the ramifications that this study may have on MS4 permit holders. If the comments above are addressed, it will be much easier to understand the extent that our MS4 may be responsible for the bacteria impairment. We are especially concerned about the financial burden that could be transferred our MS4 due to the limited monitoring that was used to establish this Study. The MS4 would prefer to expend its resources on water quality improvement projects guided by a TMDL rather than on bureaucratic exercises to demonstrate compliance for a problem that may not originate within the MS4. Please contact me if you have any questions or would like to discuss these comments in greater detail.</p>	<p>Steve Bot; Paul Hudalla; Jay Hartman; Patti Gartland/Mike Nielson</p>	<p>City of St. Michael; WSB &amp; Associations on behalf of the City of Circle Pines, City of Grant, City of Hugo, City of Lino Lakes, City of Sunfish Lake, and City of Mahtomedi; City of St. Anthony Village; City of Sartell</p>	<p>As mentioned in the response to other comments, additional monitoring will be conducted in the Rice Creek Watershed. In addition, we will add language in the Implementation Plan that mentions this monitoring will occur and that implementation strategies should be prioritized first for areas closest to the impaired reach. We have also been in contact with Mendota Heights/Lilydale about the high concentrations of <i>E. coli</i> in Interstate Valley Creek (07010206-542, Unnamed Creek to the Mississippi River) and they are looking into the potential bacteria sources to see if it is a more local problem. For Unnamed Creek (07010203-528), the Watab River (07010201-528), and County Ditch 13, the <i>E. coli</i> data is sufficient to determine the impairment; however we will work with you and other local entities to help prioritize implementation actions in the Implementation Plan that best address the potential sources of bacteria to these subwatersheds. The MS4 General Permit requires all TMDLs approved prior to the effective date of the permit be included in the Stormwater Pollution Prevention Program (SWPPP) Document at the time of application. The new permit will become effective August 1, 2013; therefore, this TMDL and associated Wasteload Allocations will not be included in the upcoming five-year permit term. Additional guidance is being developed to assist Permittees with TMDL requirements in the upcoming permit, and guidance will continue to be developed for subsequent permits. Additionally, updates to the Minnesota Stormwater Manual related to Best Management Practices will provide additional information on BMP selection, design and effectiveness. The intent of the MS4 permit section related to TMDLs is to focus on making progress toward necessary pollutant reductions through the implementation of and/or progress on the implementation of BMPs.</p>
General		<p>The study should account for the decay / growth of bacteria Research documents presented throughout the stakeholder process indicate that bacteria can rapidly decay in natural systems, particularly when exposed to ultraviolet light. It is also suggested that bacteria populations can rapidly decline in large lakes / basins, and that these basins could reasonably serve as a boundary condition for bacteria loads in streams. The TMDL and allocations presented in the study do not account for these scientific observations. If the study does not account for the decay of bacteria, it is difficult to justify the numeric thresholds presented in the study, including the TMDL (vs. protect) classifications and the load / wasteload allocations. Recommendation: Determine a reasonable decay rate (if any) to use for the purposes of this TMDL and provide supporting documentation in the study. Determine if large basins / lakes can reasonably be expected to serve as a boundary condition for reaches and provide supporting documentation in the study. If large basins / lakes are found to be a reasonable boundary condition, then we recommend that Table 7-3 only display the MS4s that discharge directly to an impaired stream segment without passing through a large basin / lake. This will make it more clear which communities may work together to address TMDL impairments for each reach.</p>	<p>Steve Bot; Paul Hudalla; Jay Hartman; Patti Gartland/Mike Nielson; Paul Hudalla</p>	<p>City of St. Michael; WSB &amp; Associations on behalf of the City of Sunfish Lake; City of St. Anthony Village; City of Sartell; WSB &amp; Associations on behalf of the City of Circle Pines, City of Grant, City of Hugo, City of Lino Lakes, and City of Mahtomedi</p>	<p>The question concerning decay/growth of bacteria is a very good one and one that (at this time) comes with a degree of uncertainty in all bacteria TMDLs. These projects operate with limited public funding; thus there comes a point in the project where the project team has to move forward based on the best available data (and in the case of this project) the significant additional data that was collected. Unfortunately, there is no feasible way to address the various uncertainties in this project. Thus a MOS factor is built into the TMDL equation to help address uncertainty. The MOS factor can be increased further if it is felt that the uncertainty is extraordinary. Increasing the MOS factor would in turn increase the reductions required for NPDES permit holders. An explicit MOS equal to 10% of the loading capacity was used for this TMDL report. Please see Section 5.7 Margin of Safety. We need to include all areas that drain to an impaired stream reach. We do not have enough technical information to support using lakes, wetlands, or ponds as boundary conditions for <i>E. coli</i> conditions. However, we agree that additional monitoring should be conducted in the Rice Creek Watershed to determine if upstream reaches are meeting water quality standards for <i>E. coli</i>. Future monitoring activities could be strategically performed to help demonstrate boundary condition considerations. Generally speaking, high concentrations of <i>E. coli</i> in our lakes also poses a risk to public health thus negatively impacting aquatic recreational activities, as demonstrated by occasional beach closures in the project area. Best management practices (BMPs) designed to protect all surface waters is recommended. In most cases BMPs designed to reduce the contributions of one contaminant (e.g. <i>E. coli</i>) positively impacts another (e.g. phosphorus, turbidity etc.) and vice versa.</p>

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General		<p>The study does not clearly demonstrate the extent that MS4s may be responsible for impairments. The study identifies very few bacteria sources that could be regulated under the MS4 permit (mostly dog waste and raw sewage received by the MS4). In contrast, a wide variety of unregulated sources have been identified including livestock, manure application, and wildlife. It will be difficult for MS4s to justify expending efforts to address bacteria loads unless the study clearly and reasonably shows the extent that MS4 discharges are responsible for the bacteria impairment. Although we understand that a categorical waste load allocation may meet EPA's requirements, we do not feel that enough information is provided to determine the extent that impairments can be attributed to the regulated (MS4) area vs. unregulated areas. Furthermore, we are concerned that the lack of research and monitoring performed under this Study will result in the need for significant research and monitoring by MS4s. This will be a financial burden to MS4s and if it is found that MS4s discharges do not contribute to the impairment, the monitoring data will serve no purpose for the MS4 other than to demonstrate compliance. Without this information, it is difficult to understand the impacts that this TMDL may have on MS4s. In addition, it seems unreasonable and not feasible to expect a MS4 to regulate agricultural properties in their City when an adjoining township farm has no regulation requirements. As such, if your numbers show that agriculture is a major form of pollutants, then the MPCA should deal with the agriculture community through state requirements and not through the MS4's.</p> <p>Recommendation: Additional monitoring work should be performed as a part of the TMDL study to quantify the extent that bacteria sources are coming from MS4s (vs. non-regulated runoff). If the MPCA is not willing to accommodate this request, then additional language should be incorporated into the TMDL specifically noting that the available monitoring data is not available to determine the extent that bacteria may be coming from MS4s vs. unregulated areas. Include additional information in the report related to monitoring efforts that will be needed to determine if MS4s are contributing to the impairment(s). Additional information should include the estimated costs, identified funding sources, and regulatory responsibilities for these monitoring efforts.</p>	Steve Bot; Paul Hudalla; Jay Hartman; Patti Gartland/Mike Nielson; Paul Hudalla	City of St. Michael; WSB & Associations on behalf of the City of Sunfish Lake; City of St. Anthony Village; City of Sartell; WSB & Associations on behalf of the City of Circle Pines, City of Grant, City of Hugo, City of Lino Lakes, and City of Mahtomedi	As mentioned in the response to other comments, additional monitoring will be conducted in the Rice Creek Watershed. In addition, we will add language in the Implementation Plan that mentions this monitoring will occur and that implementation strategies should be prioritized first for areas closest to the impaired reach. We have also been in contact with Mendota Heights/Lilydale about the high concentrations of <i>E. coli</i> in Interstate Valley Creek (07010206-542, Unnamed Creek to the Mississippi River) and they are looking into the potential bacteria sources to see if it is a more local problem. For Unnamed Creek (07010203-528), the Watab River (07010201-528), and County Ditch 13, the <i>E. coli</i> data is sufficient to determine the impairment; however we will work with you and other local entities to help prioritize implementation actions in the Implementation Plan that best addresses the potential sources of bacteria to these subwatersheds. MS4 Permittees are required to address pollutants and discharges from their MS4. The permit applies only to the areas of a jurisdiction that drain to a regulated MS4. Monitoring is not a requirement or expectation of Permittees; however, should a Permittee choose to monitor their discharge(s) to demonstrate they are meeting a WLA, it is an option. MPCA encourages Permittees to select BMPs proven to reduce the pollutants of concern – for bacteria, a focus on source reduction, pollution prevention and volume control is encouraged.
44	13-18	If sewage originating from breaches in sanitary sewage infrastructure is making its way to storm sewers, how can a non-traditional MS4 that does not maintain a sanitary sewer system, reduce this source of contamination?	Tara Carson	MnDOT	We acknowledge that some Municipal Separate Storm Sewer Systems (MS4s) do not maintain sanitary sewers. If the source of contamination is from a regulated NPDES discharge (i.e. sanitary sewer), then your MS4 does not have a regulatory obligation to address it.
98	22	If a CSW permittee is discharging ONE microorganism without a WLA, are they in violation? The MOU does not provide a rationale for <u>not</u> establishing a WLA. Why was the MOU mentioned?	Tara Carson	MnDOT	Bacteria is not one of the pollutants identified in the Construction Stormwater General Permit. Only waters identified as impaired for phosphorus, turbidity, dissolved oxygen or aquatic biota are cited in the General Permit, and only discharges to waters listed as impaired for these parameters must incorporate additional BMPs, as defined in Appendix A of the permit; therefore, a construction site with a discharge of ONE microorganism of bacteria would not be considered out of compliance with the conditions of the permit. The MOU being referenced applies to MnDOT's MS4 permit, not the construction stormwater permit, and as such, does apply to the MS4. We will delete the later part of sentence in Section 5.5.3 that refers to the MOU.
99	19	Does the ongoing source investigation include looking into sediment regrowth, die off and natural background levels?	Tara Carson	MnDOT	Refer to Section 5.7 MOS on page 99: "The load duration analysis does not address bacteria re-growth in sediments, die-off, and natural background levels. The MOS helps to account for the variability associated with these conditions"
99	19-21	Is a 10% MOS really enough to cover extrapolating stream gage data, bacteria re-growth in sediment, die-off, and natural background levels?	Tara Carson	MnDOT	The 10% MOS is a generally accepted level to account for the uncertainty. We will consider adjusting the MOS to a higher level.
184	9-11	What would MnDOT have to do outside of our urbanized boundary?	Tara Carson	MnDOT	Related to coverage under the MS4 General Permit, MnDOT's regulated area is only that which falls within the Urbanized Area, as defined by the U.S. Census Bureau and that is the area where MnDOT would be required to achieve their Wasteload Allocation.
189		The Draft MS4 NPDES General Permit requires permittees to show how they are in compliance with TMDL WLAs in their SWPPP. If this is a <u>categorical</u> WLA, will we need information from MPCA on what our percentage reduction is in order to update our SWPPP?	Tara Carson	MnDOT	An individual load is not necessary to complete the permit application or annual report. Applicants requesting permit coverage will be required to develop a compliance schedule for any WLAs that are not met at the time of application, including interim milestones for the five-year permit term that can be expressed in the form of best management practices.

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175-178		It is understandable that Straight Pipes should get a WLA of 0, but why are MS4s or WWTFs given a WLA of 0 for some reaches? I assume this occurs where there are no MS4s or WWTFs present. Would it be more appropriate to refer to these situations as Not Applicable to avoid legal confusion?	Tara Carson	MnDOT	We will revise the text in the table to note that those are NA (not applicable) instead of 0 for the WLA where these regulated sources are not currently present in that subwatershed.
		When you removed the city of Eagan from the TMDL list, I believe you in essence should also removed the city of Inver Grove Heights as a contributor to the impaired Unnamed Creek 07010206-542( Interstate Valley Creek) if I read the map correctly. IGH drains into Eagan with a control rate of 1 CFS from the Southern Lakes area which is served by sanitary sewers .	Thomas Kaldunski	City of Inver Grove Heights	We reviewed the Inver Grove Heights (IGH) subwatershed boundaries for the area in question (the very northwest corner of IGH along Hwy 494). The case here is that if the area were to overflow, it appears that it would discharge in the direction of the impaired reach (07010206-542). This is different than the neighboring City of Eagan where, if it were to discharge, it would discharge away from the impaired reach. Note that we are not excluding landlocked areas as part of this project; therefore you will receive a WLA as part of this TMDL project. However, this could be addressed through the permitting process if you can demonstrate you are essentially meeting the WLA because there is not a discharge from your stormsewer system.
42	2	3M believes the facility design flow of the 3M Cottage Grove Center, Permit MN0001449, is 12.9 mgd as listed in previous NPDES permits. The design flow is based upon 6.1 mgd at SD001 and 6.8 mgd at SD002 or a total combined flow of 12.9 mgd to the Mississippi River. 3M believes Table 4-2 lists the daily average flow for SD001 at 3.6 mgd.	Tina Berg	3M	We discussed your comment about this design flow issue for SD001 with MPCA permit staff. The design flow value used to calculate 3M's wasteload allocation (WLA) should remain at 3.6 mgd. The 3M Cottage Grove Center wasteload allocation of 17.169 billion organisms/day is correctly calculated based on a maximum process and sanitary effluent waste stream design flow of 3.6 mgd. Past National Pollutant Discharge Elimination System (NPDES) permits for 3M Cottage Grove Wastewater Treatment Facility have indeed listed a combined SD001 - Effluent to Surface Water (Process and Sanitary Effluent) and SD002 - Effluent to Surface Water (Noncontact Cooling and Stormwater Runoff) maximum design flow as 12.9 mgd. The permit's Fecal Coliform bacteria effluent limit has only been applicable to the SD001 waste stream. The NPDES permit reissued on 2/1/2003 authorized the installation of Granular Activated Carbon (GAC) filters to treat SD001 waste streams. SD001 maximum design flow was reduced from 6.1 mgd to 3.6 mgd in order to account for the design capacity of the GAC filter system. The SD002 waste stream, including noncontact cooling water and stormwater runoff, is not subject to the permit's 200 organism/100 mL effluent limit and therefore should not be included in the calculation of the wasteload allocation. Using the 3.6 mgd design flow value for calculating 3M's wasteload allocation is also consistent Minnesota's nondegradation for all waters: 7050.0185 NONDEGRADATION FOR ALL WATERS. Subp. 6. Baseline quality. If an existing discharge to a water of the state is eliminated or significantly reduced, baseline quality for purposes of this part shall be adjusted to account for the water quality impact associated with that particular discharge. However, regardless of the Total Maximum Daily Load's (TMDL) wasteload allocation, the permit's Fecal Coliform bacteria effluent limit will continue to be expressed as a concentration of 200 organisms/100 mL which ensures that the SD001 discharge does not cause or contribute to violations of the applicable water quality standard.
		I am the City Engineer for Ham Lake, and I am trying to determine why Ham Lake is included in the Rice Creek reach subwatershed. At one time there was a 40 acre parcel, the very southeast corner of Ham Lake that was in the Rice Creek Watershed District. The City petitioned the Coon Creek Watershed District to take over jurisdiction of this 40 acre parcel, since hydraulically it was in the Coon Creek Watershed District. The jurisdictional boundary amendment was completed in 2006 or 2007. Ham Lake is participating in a WRAPP project with the Coon Creek Watershed District and all other cities in the Coon Creek Watershed District to address TMDL's. The WRAPP project is including this 40 acres. I believe that this 40 acres is the only reason that Ham Lake is identified as to receive a WLA, since adjacent cities that are in the Coon Creek Watershed District are shown as to no longer receive a WLA.	Tom Collins	RFC Engineering Inc./City of Ham Lake	The Rice Creek Watershed District boundary that we received in 2011 still included less than 10 acres of Ham Lake. However, we looked into these 10 acres, it looks like it is not serviced by storm sewer infrastructure. Therefore, Ham Lake will not receive a WLA for AUID 07010206-584.