Response to Comments to the
Lower Minnesota River Dissolved Oxygen TMDL Report

The Lower Minnesota River Dissolved Oxygen TMDL Report (TMDL Report) was placed on a forty-five day public review from February 2 , 2004, through March 18, 2004. Eleven people commented on the draft TMDL Report. The comments or questions, paraphrased in some instances for clarity, and the MPCA responses are provided below. The TMDL Report was edited based on many of the suggestions provided by commenters.

1. Jim Jones, City of Waseca
   Comment 1-1: The city would like the MPCA to pursue point-point phosphorus trading as a method to reduce phosphorus from wastewater treatment facilities. This was identified as "Option B" in the letter and in presentations to point sources.

   Response 1-1: Point-point phosphorus trading is identified in the TMDL Report as a way to reduce phosphorus from point sources. The specific methods to reduce phosphorus from wastewater treatment facilities will be determined as a part of the TMDL implementation plan and ultimately a watershed permit. The implementation plan and watershed permit will be drafted after the TMDL Report is submitted to the EPA.

2. Colleen Thompson, City of Willmar
   Comment 2-1: The City of Willmar prefers Option B (a 35 percent reduction in phosphorus by 2009 using pollutant trading) over Option A (in the first five years facilities plan to meet a 1 mg/l goal and achieve the effluent limits in the second five years).

   Response 2-1: See response 1-1 above.

   Comment 2-2: Is there language in the draft TMDL Report that discusses five and ten-year options for wastewater treatment facilities?

   Response 2-2: Yes, in Section 8, the implementation section of the TMDL Report.

   Comment 2-3: The draft TMDL Report refers to 3 phases. Is the third phase included in the document?

   Response 2-3: A brief description of phase 3 is included in the introduction.

   Comment 2-4: Who will the watershed permit be issued to? Will there be language in individual NPDES permits that will regulate this TMDL? Will the watershed permit include the details of nutrient trading?

Response 2-4: The MPCA's current thinking is the watershed permit will apply to all discharging wastewater treatment facilities discharging phosphorus within the modeled area for this TMDL. The modeled area is from Lac qui Parle to Jordan. Phosphorus management at point sources will be the focus of the watershed permit. Details will be included in the nutrient trading agreements if trading is selected.

3. Don Mead

Comment 3-1: The Minnesota River has improved in recent years, in contrast to a report which showed little or no improvement in numbers of game fish. Fish populations in the Mankato area have improved.

Response 3-1: Comment noted.

Comment 3-2: Phosphorus levels have always been high. In the last few years, low water levels have decreased phosphorus inputs. However, this does not cure the problem, as I see a lot of runoff in the Blue Earth River whenever there is a heavy rain.

Response 3-2: We agree that runoff is limited during low flow conditions. Phosphorus sources such as agriculture and urban stormwater depend on runoff to transport the nutrient to surface water. Direct sewage discharges and continuously discharging wastewater treatment facilities; however, discharge constantly, and thus, the TMDL Report requires preventative measures be in place so that impacts (low oxygen and fish kills) do not happen during low flow conditions.

Comment 3-3: We do not worry about rivers in winter. This is an important time because of the deicing chemicals used. These chemicals contain phosphorus.

Response 3-3: The MPCA is concerned with protecting all designated uses of Minnesota's waters. However, this TMDL Report concerns the lower Minnesota River summer dissolved oxygen problem. The critical period for the dissolved oxygen problem is August and September, due to low flow conditions.

4. Rebecca Flood, Metropolitan Council

Comment 4-1: Table 4.1 is not referenced in the text, and some of the numbers are not explained in this section. Note that the phosphorus reduction goal of 32,000 is missing its units (pounds).

Response 4-1: Comment noted and text added.

Comment 4-2: Under point 3 in Section 8.0, please add a clarifying comment that new data from Metropolitan Council modeling will be available in 2007, depending funding and other resources.

Response 4-2: Comment noted and text added.

5. Keith Buttleman, Metropolitan Council

Comment 5-1: The Metropolitan Council supports the proposed load allocations in the draft TMDL Report with the understanding that the MPCA is committed to monitoring the effectiveness of the allocations and refining them as needed to meet the BOD reduction goal.

Response 5-1: The allocation and land use changes in the TMDL Report are based on modeling. Effectiveness monitoring will be important to validate the model and to determine the effectiveness of phosphorus reductions. If the BOD or phosphorus targets needed to meet the dissolved oxygen standard change based on water quality monitoring, it may be necessary to adjust the allocations in the TMDL Report.

Comment 5-2: Despite upgrades of the Blue Lake and Seneca wastewater treatment facilities, the problem of the low oxygen in the lower Minnesota River still exists. Last summer's dry weather produced low river flows and the opportunity to monitor water quality under these critical conditions. Field crews from both the U.S. Geological Survey and Metropolitan Council recorded dissolved oxygen concentrations less than 5 mg/L in August. Wastewater treatment at Blue Lake and Seneca was much better than required in the NPDES permits.

Response 5-2: Comment noted.

Comment 5-3: By upgrading the Blue Lake and Seneca wastewater treatment facilities, the Council met the Metro Area's obligations from the waste load allocation study. However, the 40 percent reduction goal for BOD at Shakopee has not been met, so the problem of low oxygen continues, nearly twenty years later. Action toward this goal is long overdue. It is clear from scientific investigations that high BOD concentrations in the Minnesota River at Jordan and Shakopee are related to high algal levels, and these high algal levels are related to high phosphorus concentrations. The key to reducing BOD loads at Shakopee during summer low flow periods is to reduce upstream phosphorus loads.

Response 5-3: Comment noted.

Comment 5-4: The TMDL Report proposes a reasonable, attainable, and fair solution to the low oxygen problem in the lower Minnesota River during low flow conditions. It targets reductions from the largest contributors; wastewater treatment facilities and noncompliant septic systems and urban stormwater.

Response 5-4: Comment noted.

Comment 5-5: Agriculture was not allocated a phosphorus load because, during the dry conditions that produce low river flows, agricultural runoff and associated phosphorus loads are low.

Response 5-5: The agricultural sector did receive a phosphorus allocation. However, it was not a reduction in phosphorus load from the modeled period. This lack of anticipated reduction in phosphorus load is because phosphorus inputs from this sector are limited during low flow conditions due to dry soil moisture conditions (allowing the soil to hold and store more water). The agricultural BMPs in the TMDL Report (i.e. crop residue and protection of open tile intakes) decrease runoff and lead to more ground water storage, which in the long term increases base flow in the river.

Comment 5-6: The Council supports the ten-year phased approach to implementing phosphorus removal at treatment facilities, allowing municipalities additional time and flexibility.

Response 5-6: Commented noted.

Comment 5-7: While we remain concerned about specific areas of uncertainty in the Minnesota River Basin Model, the model has been improved to the degree possible given the available data and our current state of knowledge, and the model's simulation of the river and watershed is adequate for this phase of decision-making.

Response 5-7: Comment noted.

Comment 5-8: The BOD, chlorophyll, and phosphorus goals for the Minnesota River at Jordan were derived from the results of the 1985 wasteload allocation study, which is now outdated. The study was based on data from 1971-1980 before upgrades at the major WWTPs and before efforts to improve land-use practices to reduce pollutant loads.

Response 5-8: The MPCA is planning to update the 1985 Waste Load Allocation study in 2008. The goals and TMDL Report may be adjusted following the update.

Comment 5-9: Much of the uncertainty in the current model can be traced to inadequate or incompatible data such as:

- Insufficient BOD data, specifically ultimate BOD.
- Loss of point-source records prior to 1990, and
- Differences between the variables and cross-sectional areas simulated by the model and measured by monitoring, notably sediment and chlorophyll.

Response 5-9: The MPCA has considered this uncertainty by including the issues mentioned in comment 5-12.

Comment 5-10: Compared to monitoring data, the model overestimates phosphorus and sediment and underestimates chlorophyll in the Minnesota River at Jordan. This may be due to incompatible data but this has not been confirmed.

Response 5-10: The MPCA has considered this uncertainty by including the issues mentioned in comment 5-12.

Comment 5-11: To track the major elements in algal biomass, the model uses constant stoichiometry, or a set ratio of carbon to nitrogen to phosphorus. Research has shown that algal stoichiometry varies as a function of the available nutrient. Modern eutrophication models, such as the Mississippi River-Lake Pepin model, use variable stoichiometry. The use of constant stoichiometry may overestimate the reduction in algal biomass that results from reduced phosphorus loads.

Response 5-11: The MPCA has considered this uncertainty by including the issues mentioned in comment 5-12.

Comment 5-12: Some amount of uncertainty is expected in any model. The MPCA adequately addresses concerns about the model and data with its commitments to the following:

- Revise the wasteload allocation study for the lower Minnesota River;
- Support the Council's efforts to develop a lower Minnesota River Model;
- Monitor the adoption rates and effectiveness of the implementation activities;
- Monitor water-quality changes in major tributaries and the Minnesota River;
- Use information from monitoring to reevaluate assumptions used in the TMDL; and
- Apply an adaptive management approach, in which steps are taken to collect more information and refine the solutions as indicated.

Response 5-12: Comment noted.

Comment 5-13: A river's influence does not stop at its mouth. The Minnesota River is the state's largest tributary to the Mississippi River. Metropolitan Council Environmental Services and its predecessors have monitored the two rivers since the 1920s, and the monitoring data bear out the fact that poor water quality in the Minnesota River depresses water quality in the Mississippi River. For example, during an intensive survey of water quality during the 1988 drought, average DO concentrations in the Mississippi River decreased from 7.7 mg/L at the Ford Dam to 6.13 mg/L downstream of the Minnesota River. The Council conducted in-depth studies of the effects of phosphorus on the Mississippi River and Lake Pepin in the 1990s and concluded that the Minnesota River was a major source of phosphorus and algae. During the 21-year period from 1976 to 1996, the Minnesota River contributed 45% of the total phosphorus load and 42% of the total chlorophyll *a* load to the Mississippi River upstream of Lake Pepin.

Lake Pepin, an impoundment of the Mississippi River between Red Wing and Wabasha, has experienced severe nuisance algal blooms due to excess nutrients, namely phosphorus. The lake was added to the state's list of impaired waters in 2002. As in the lower Minnesota River, the impairment in Lake Pepin occurs under low flow conditions; however, unlike the Minnesota River, a large portion of the phosphorus entering Lake Pepin under these conditions is from the sediment bed,

which contains phosphorus deposits from other seasons and other years. The solution to Lake Pepin's impairment will involve year-round reductions of phosphorus loads from all sources, point and nonpoint, urban and rural.

The subject draft TMDL is necessarily restricted to addressing the low oxygen problem in the lower Minnesota River, so it targets phosphorus load reductions only at times of low river flows. However, with the MPCA's phased approach, the opportunity exists to introduce new activities for the Minnesota River Basin accordingly. Based on the Council's studies of Lake Pepin, reductions of phosphorus loads from all sources under all flow regimes should be expected with these refinements. Year-round reductions of phosphorus loads will also benefit the Minnesota River. While the oxygen problem may be confined to summer low flow conditions, eutrophication of the Minnesota River is not. During 1976-96, the mean flow-weighted concentration of total chlorophyll *a* at Jordan fall into the eutrophic range on an annual basis (60 ug/L), in the summer (80 ug/L), and even in the winter (50 ug/L).

Response 5-13: The Minnesota River contributes phosphorus to Lake Pepin. Information from other TMDLs, such as Lake Pepin, may require additional upgrades of wastewater treatment facilities, year round limits, changes in land use from nonpoint sources, etc. This TMDL Report may be updated based on other TMDLs. Solutions to the Lake Pepin phosphorus problem will likely involve a wide variety of sectors at various flow conditions. This TMDL Report was limited to low flow conditions because that is when the dissolved oxygen problem occurs.

6. Joe McCabe, City of Madelia
Comment 6-1: In the event the MPCA allows point-point trading, the MPCA needs to be the agency which controls the points and monitors the method of the trading so that if a community decides that this is in their best interest. The community should not put in a future financial position that is detrimental to them or to the basin.

Response 6-1: Comment noted.

7. Nick Tiedeken, Minnesota Department of Transportation
Comment 7-1: The 30% reduction goal for phosphorus in MS4 permits is from what baseline?

Response 7-1: The baseline used in the model was from a typical urban land use assuming no current BMP adoption. The implementation plan and effectiveness monitoring plan will address this in more detail.

Comment 7-2: It would help to clarify the TMDL to state the construction and industrial stormwater permit goals are a 30% removal in the TMDL document.

Response 7-2: Comment noted.

Comment 7-3: Clearly state in the TMDL document that the implementation timeline for retrofitting urban stormwater permitted areas is 20 years.

Response 7-3: Comment noted.

Comment 7-4: Does the Stormwater Pollution Prevention Plan certification requirement begin after EPA approves the TMDL, or after the MPCA develops and approves the Implementation plan?

Response 7-4: The certification will be required after the implementation plan is approved.

Comment 7-5: The TMDL should indicate that the numbers presented were developed from a Land use Generation Model and not monitoring data from the land uses. It would be good to document how the general land use numbers are generated

Response 7-5: Comment noted. The TMDL Report now states that the tables are model result tables and not monitored results.

Comment 7-6: Tetra Tech reports should be included in the reference documents list.

Response 7-6: Comment noted the addition will be made.

Comment 7-7: Who decided which land uses/sources received an allocation and which ones did not?

Response 7-7: The EPA TMDL policy is that all NPDES sources will be tracked in the waste load allocation of the TMDL Report. All diffuse non-permitted NPS sources remain in the load allocation. However, the EPA further recognizes sources such as permitted stormwater may be hard to individually quantify and will allow grouping of sources in the same category.

Comment 7-8: The stormwater certification process in the construction permit and spelled out in the MS4 general permit for impaired waters will require certifications for permits in the watershed from Lac Qui Parle down to Jordan? Above Lac Qui Parle? Below Jordan?

Response 7-8: The stormwater certification process will not apply for permitted sites outside of the modeled area. The modeled area extends from Lac Qui Parle to Jordan.

Comment 7-9: Section 4 in the text and table 4.1 references BOD goals of 3.7 mg/L. Other places mention CBOD-5 and BOD-u so we should check and confirm what the specific parameter is for the goal.

Response 7-9: The Lower Minnesota River Waste Load Allocation Study (MPCA, 1985) used a goal of a 40% reduction in stream organics, representing a target of 3.7 mg/L BOD5 (total 5-day biochemical oxygen demand) needed to maintain the downstream dissolved oxygen standard. References to CBOD5 (carbonaceous 5-day biochemical oxygen demand) in the TMDL Report are in discussions relating to point source discharges. For purposes of regulating point source effluents, oxygen demand is measured using the CBOD5 test. The complete oxidation of organics in water over time is referred to as the ultimate biochemical oxygen demand (BODu) and is the measure used in many water quality models for internal calculations.

Comment 7-10: Regarding the 30% reduction goal from urban or construction land uses, an example would help to explain the thought process on why it is possible.

Response 7-10: Comment noted.

8. Steve Colvin, Minnesota Department of Natural Resources
Comment 8-1: DNR is very concerned about the relationship between phosphorous(P) and DO concentrations in many of our public waters; therefore, the strategies provided in the Draft Lower Minnesota DO TMDL Report are unquestionably steps in the right direction.

Response 8-1: Comment noted.

Comment 8-2: Overall, DNR views the report's intentions as very positive. We remain concerned, however, about some of the changes presented in "Scenario 7" and the realistic implementation of some proposed strategies. One of the most notable differences between modeling scenarios 6 and 7 is the change in strategy for the Wastewater Treatment Plants (WWTPs). Pollution Control Agency staff, with the gratitude of DNR staff in the Minnesota River basin, have been working hard to establish year-round P limits for those WWTPs with outputs of 200,000 gallons per day; however, scenario 7 includes a provision for low-flow triggers, and averaging processes. DNR staff have expressed two concerns about this change.

The first concern is that although the report provides rationale for utilizing low-flow triggers and P-limit averaging during the identified critical flow period, these logical arguments are not clear. It was indicated that the Lake Pepin model indicated that year-round effluent limits were needed. In addition, P loads prior to the low-flow/ critical period are likely contributing significant amounts of P that are catalyzing the algal growth that decays during the low-flow periods. In addition, year-round P limits with out averaging (using a maximum monthly allowance of 1 mf/L) is an ecologically responsible goal. Based on the information provided, P loading from point sources outside of the critical period is not as significant as the loading that occurs within the critical period; however, P management should be a priority year round to reduce P concentrations throughout the Minnesota River basin and the transport of excessive nutrient loads into the Mississippi River and the Gulf of Mexico.

Response 8-2: The methods to reduce phosphorus for this particular TMDL apply to low flow conditions, which is when the dissolved oxygen impairment occurs. Other impairments such as Lake Pepin nutrients and Minnesota River turbidity tend to be problematic during other flow conditions. Other TMDLs will consider medium and higher flow conditions and may call for year round effluent limits.

Comment 8-3: Second concern…We presume that while non-expanding WWTPs would be given 10 years to reduce their phosphorus loading to 1 mg/L, any new or expanding facilities above the *de minimus* would be required to include phosphorus treatment with the expansion. We would like to encourage faster development of phosphorus controls than the 10-year requirements, and would like to see this possibility discussed as permits are renewed.

Response 8-3: The comment is correct. The phosphorus strategy, which requires year-round phosphorus limits, still applies to new or expanding facilities discharging over 1,800 pounds of phosphorus per year. For non-expanding facilities, the TMDL provides ten years to facilitate planning, funding, and construction. During this period, the update of the 1985 Waste Load Allocation, the Minnesota River turbidity TMDLs, and the Lake Pepin nutrient TMDL may adjust this TMDL. This approach is intended to prevent wastewater treatment facilities from having to upgrade their construction more than once to reduce phosphorus in response to the lower Minnesota River and Lake Pepin.

Comment 8-4: It is presumed that plants discharging less than 1,800 pounds of phosphorus per year would be required to develop phosphorus management plans consistent with the MPCA's phosphorus strategy. Where treatment technology allows, smaller plants should be encouraged to include phosphorus treatment.

Response 8-4: Wastewater treatment facilities discharging less than 1,800 pounds of phosphorus per year will develop phosphorus management plans. A part of these plans will be to assess the feasibility of 30 percent and 50 percent phosphorus reductions. Where feasible, the phosphorus reductions will be implemented. In terms of treatment for small communities, they have smaller populations which would increase the treatment cost per household considerably.

Comment 8-5: On behalf of the DNR, we applaud the agricultural and individual sewage treatment system (ISTS) strategies. The goal to have 100% compliance of ISTS is lofty, but worth the effort

Response 8-5: Comment noted. The goal in the allocation is to have 90 percent of the noncompliant systems, direct discharges, reach compliance.

Comment 8-6: The various strategies to address the significant agricultural P source are important. DNR is concerned, however, about the reality of implementing the agricultural strategies. Manure management plans, soil nutrient evaluations, and tile inlet protections have been in operation for many years. Although implementation of these efforts varies by county, the common theme of an inability to enforce these nutrient management strategies has been predominant.

Response 8-6: Manure management plans are now enforceable components of permits and have standards in rules. This change occurred with the 2000 revision of feedlot rules. However, working with local partners still remains a key to achieving the agricultural BMPs. Strategies to meet these goals will be developed as a part of the implementation plan for this TMDL. Effectiveness monitoring, including BMP adoption tracking, will be used to adjust the BMPs or the TMDL allocation if practices are not effective or are not adopted.

Comment 8-7: Although we are concerned about the implementation of the agricultural strategies, we are also fully supportive of your intentions. Is there a plan in place to monitor and assign responsibility for these varied efforts? Who will be responsible for completing and reviewing soil nutrient tests? Who will monitor manure management plans and tile buffers?

Response 8-7: The implementation plan for this TMDL Report will include additional details on activities to solve the problem. A tracking system will be established to track progress of phosphorus reductions. Those currently responsible for soil tests, manure management plans, and tile buffers will continue to have those duties. Implementation of this TMDL Report will involve working with them.

Comment 8-8: Another agricultural strategy that should be discussed in more detail is the occasional use of nutrient stripping crop options in soil with excessive residual P and nitrogen (N). For example, periodic plantings of alfalfa worked into a soybean-corn rotation can remove significant levels of P and N from the soil – much greater amounts of corn and proportionally more then soybeans. If soil N becomes limiting for alfalfa growth, but P levels were still excessive, an inoculation of rhizobia bacteria would facilitate the alfalfa's capacity to fix atmospheric nitrogen.

Response 8-8: Alternative crops are a solution available in the TMDL Report. They are included under the "or equal BMPs" mentioned in the Report. The TMDL Report does not cover all the possible practices to reduce phosphorus from agricultural land. It provides a set of practices that will achieve the agricultural goals (e.g. protection of open tile intakes and use of crop residue). Alternative crops are considered an equivalent BMP when the practices reduce erosion rates and runoff volumes.

Comment 8-9: Another tactic mentioned in the report was the increased use of native grass buffers and wetland restoration. This strategy has tremendous ecological value and would be favored by many in the DNR. This strategy has the potential to be implemented concurrently with buffer strips around tile intakes, or the elimination of tile intakes all together. The utility of buffer strips receives considerable discussion, but we need to work with local governments to implement ordinance that establishes effective buffer requirements.

Response 8-9: Comment noted.

9. George Rosati, City of Mankato

Comment 9-1: Under the ten-year approach where, in the first five years facilities plan to meet a 1 mg/l goal and achieve the effluent limits in the second five years, point sources have considered the following concerns:

1. Possibility of long-term 1 mg/L phosphorus limits that may or may not result in the Lower Minnesota River achieving the 5.0 dissolved oxygen standard.
2. Uncertainty of success for an interim program of 30-50% reductions by 2009.
3. Threats of legal action from environmental interests who believe the TMDL is not strict enough.
4. Weak technical basis in the 1985 Wasteload Allocation Study (WLA)
5. Once limits are set in the TMDL, they become difficult to amend in the future based on updated information.

Response 9-1: Comment noted.

Comment 9-2: The nutrient trading volunteers prefer Option B (a 35 percent reduction in phosphorus by 2009 using pollutant trading), for the following reasons:

1. Point-point trading will provide real, documented reductions in point source phosphorus in half the time period contemplated by Option A, which we hope will result in improved water quality in the Lower Minnesota River.
2. Point- point trading allows point source to achieve these reductions in a least-cost manner, and will hopefully reduce the need for expensive treatment upgrades to meet 1 mg/L effluent limits that may or may not result in improved water quality.
3. Given the uncertainties of the TMDL study's basis in the 1985 WLA, point- point trading allows real progress in phosphorus reduction in the short term while the WLA and related studies are updated and more water quality information is gathered.

Response 9-2: See response 1-1.

Comment 9-3: In order for a point- point trading program to work, however, it is critical that such a grogram be constructed on the 1999 baseline year used in the modeling conducted at Jordan. If the baseline were set in 2004, facilities making substantial phosphorus reductions would have no credits to trade, and there would be no point- point trading. A 2004 baseline would in fact be improper, because it would not give credit for phosphorus reductions achieved since 1999. Therefore, the volunteers strongly recommend that the MPCA adopt 1999 as the baseline year from which reductions will be counted.

Response 9-3: Comment noted. See response 1-1.

10. Kris Sigford, Minnesota Center for Environmental Advocacy

Comment 10-1: MCEA believes that the Tetra-Tech model used in development of the TMDL is valid.

Response 10-1: Comment noted.

Comment 10-2: The document states that the required limits will not be applied in NPDES permits, or is silent on NPDES permit coverage, or is vague about which cities will need NPDES permit coverage and the content of those permits.

Response 10-2: The comment does not accurately reflect what the TMDL Report contains. NPDES facilities affected by this TMDL Report are listed in the waste load allocation. Continuously discharging wastewater treatment facilities discharging over 1,800 pounds of phosphorus per year are targeted for the reductions.

Detailed implementation plans are required of the MPCA within one year following the approval of the TMDL Report by the U.S. EPA. The specific methods by which wastewater treatment facilities will reduce phosphorus will be decided as a part of the implementation plan and watershed permit. The communities in the waste load allocation will either receive a 1 mg/l effluent limit in ten years or an equivalent offset via point-point trading. This may be modified based on an update of the 1985 Waste Load Allocation or other TMDLs.

Comment 10-3: The facilities subject to this requirement are listed in the draft report. Yet the report states that these facilities will not receive the required limit in their NPDES permits. Rather, a "basin-wide watershed permit" will be issued whereby these facilities evaluate the *feasibility* of achieving phosphorus *goals*. In 2009-2014, the subject facilities will be required to meet the 1 mg/L limit.

Response 10-3: Again, the permitting issues raised by MCEA will be addressed in the more detailed implementation process following the EPA's approval of the TMDL. See response 10-2. The first phase of the watershed permit involves a feasibility study of 30 and 50 percent phosphorus reductions. This involves all point sources. Where feasible, these reductions must be achieved in the second phase of the watershed permit. In addition to the feasibility study, all continuously discharging facilities discharging more than 1,800 pounds of phosphorus per year will have a 1 mg/l limit in ten years or pollutant trading offsets. The implementation plan will, as noted previously, will contain the details.

Comment 10-4: The draft TMDL identifies 23 communities without proper sewage treatment. The draft TMDL is silent on any type of process or plan to apply NPDES coverage to these illicit discharges of longstanding duration. Based on the law as set forth above, these 23 communities need to have NPDES permits that contain effluent limits that are consistent with the requirements of the waste load allocation.

Response 10-4: The draft TMDL Report indicated that, since the year 2000, 15 of 38 cities have been moved to compliance. Upon a closer examination of unsewered communities, 20 of the 38 have been moved to compliance with five in the process of construction. After construction is completed, 25 of the 38 will have been moved to compliance. As part of the implementation plan, the MCPA will develop a strategy to move the unsewered communities into compliance.

Comment 10-5: The draft TMDL states that the cities of Fairmont, Mankato, Marshall, New Ulm, North Mankato, and Willmar may or may not be treated as

MS4s. MCEA argues that these growing regional centers discharging to impaired waters must be included in the MS4 permitting process. If these six cities are represented in the waste load allocation as NPDES permitted MS4s achieving a discharge 30% below current loads, they must be treated as such by receiving an NPDES permit that contains effluent limits derived from the waste load allocation.

Response 10-5: The MPCA plans to go to rulemaking to designate additional MS4 communities for NPDES permit coverage, including these six cities. They were included in the waste load allocation because they will likely become MS4 communities via the rulemaking process. If they are not designated for permit coverage, they will be moved to the load allocation of the TMDL Report. The TMDL Report is not the appropriate vehicle to designate these cities as MS4s.

Comment 10-6: The draft TMDL states that in order to adapt the Stormwater Pollution Prevention Plans (required in MS4 NPDES permits) to the waste load allocation requirement, guidelines will be developed. The only potential guidelines noted are that "MS4 communities will evaluate stormwater system BMP coverage and BMP treatment effectiveness." MCEA believes that, to comport with 40 C. F. R. 122.44, these guidelines must include pre-and post-BMP effectiveness monitoring to demonstrate progress toward the required 30% load reduction. Further, the permits and SWPPPs must contain maintenance requirements for the measures used in securing the 30% reduction.

Response 10-6: MCEAs position is noted. Specific terms in permits will be developed as a part of the implementation plan for the TMDL Report. See response 10-5.

Comment 10-7: Section 6.9 of the draft TMDL outlines "reasonable assurances," but MCEA believes that some of the assumptions presented are shaky, and do not meet EPA's description of reasonable assurances as "specific to the pollutant of concern, implemented according to an expeditious schedule and supported by reliable delivery mechanisms and adequate funding."

Response 10-7: Comment noted. The MPCA believes adequate reasonable assurance has been provided in the document and will leave it to the ultimate decision to the EPA.

Comment 10-8: Non-MS4 community discharges – The load allocation for non-MS4 community discharges is 20 percent below current levels, or 8,999 pounds over the critical low flow period. The draft TMDL provides absolutely no reasonable assurance that these reductions will occur. In fact, the document contains no discussion anywhere of how, when, or by whom these reductions will occur.

Response 10-8: The implementation stage is separate from the TMDL Report.

Comment 10-9: The load allocation for non-compliant ISTS – in this case illegal straight-pipe systems discharging to surface waters – is based on 90% compliance. There exists neither a "reliable delivery mechanism" nor "adequate funding" to accomplish this reduction. The draft TMDL offers as reasonable assurances that 1) 15 of 37 Minnesota River counties have maintenance and pumping programs; 2) 24 counties require point of sale inspections; and 3) implementation of the MPCA's 10 year plan for 100% statewide septic compliance will speed the rate of compliance.

Regarding the first point, maintenance and pumping programs are irrelevant to straight-pipe systems and therefore cannot supply reasonable assurance that illegal ISTS systems will be eliminated. Straight-pipe systems are not pumped or maintained. They are illegal point sources discharges. If a county happens to become aware of such a system, it must be upgraded within 10 months. According to a 2002 survey of Minnesota Counties by MCEA, 56 of 60 responding counties had never conducted a systematic survey to locate straight-pipe septic systems. Of the remaining four counties, only one had a systematic county-wide identification program, the other three had conducted limited surveys around one or more high-value lakes.

Regarding the second point, the MPCA itself estimates that it will take 25 years to inventory septic systems through point-of-sale inspections. This is unacceptably long given that these systems are health threats and have already been illegal under the Clean Water Act for over 30 years.

Regarding the third point, the MPCA's 10-year Plan for 100% ISTS compliance is highly unlikely to be implemented in the foreseeable future. The plan does not include a funding source. A bill currently before the Minnesota Legislature would implement the plan and provide funding to do so, but is extremely unlikely to pass this session, in part because the MPCA (administration) does not support it. Without the support of a program and necessary funding, MPCA's statements in this area are groundless.

Response 10-9: The MCEA's comment goes to implementation. Methods to deal with direct discharges of sewage will be developed as a part of the implementation plan. Additionally, while not yet completely successful, counties in the Minnesota River Basin have been active in a variety of approaches to eliminating these systems. The implementation plan will build upon the creative and successful approaches being developed by counties. The goal in the TMDL is 90 percent ISTS compliance.

Unsewered communities are a similar problem in southeast Minnesota. As a result of the Regional Fecal Coliform Bacteria TMDL, wastewater facilitators were hired to work with unsewered communities on the process of wastewater treatment. Additionally, a grant has provided funding to local government to double the number of direct discharges coming into compliance each year.

Comment 10-10: This ambitious level of BMP utilization did not result in consistent modeled reductions in phosphorus load, so the load allocation for agriculture is appropriately based on modeled current loading levels. The reasonable assurances

provided for these agricultural practices do not meet EPA's general criteria. None refer to residue management on row-cropped acres. None address the 50% tile intake protection. No programs or requirements exist that require agronomic rates for commercial fertilizer applications. The MPCA does not have the resources to oversee land application of manure from feedlots. The implementation plan for agriculture only states what the BMPs are, not how they will be implemented.

Response 10-10: To the extent the MCEA's concerns involve reasonable assurance, the determination will be made by the EPA. The MPCA believes the TMDL Report adequately meets the reasonable assurance test, particularly due to the efforts of watershed projects in the basin. Considerable progress is starting to be realized with practices and programs such as terraces, grassed waterways, CRP, and CREP.

Comment 10-11: Although the draft TMDL is not based on reductions from agriculture, there is no guarantee that agricultural loadings will not increase. CAFOs are already dense and increasing in the Minnesota River Basin. New drainage tile is being laid in Minnesota at the rate of 130 million feet per year. Conservation tillage rates are dropping.

Response 10-11: The MPCA receives no new authority under the TMDL Report related to regulation of nonpoint sources. CAFOs are required to obtain NPDES permits. Permit requirements include a no discharge standard except under a 25-year 24-hour storm event. Additionally, the manure management plans for each of these facilities require evidence that sufficient acreage is available to land apply at proper agronomic rates for the soil conditions and crop needs. The manure management plans account for all nutrient sources including commercial fertilizers.

Comment 10-12: The Reserve Capacity and Margin of Safety are not quantified. Assumptions are presented to demonstrate that they exist. Some assumptions are solid and are likely to provide a "pad" in meeting the TMDL. These include allocations aimed at achieving a 3.61 mg/L average concentration of $CBOD_5$ when the water quality goal is actually 3.7, and use of the 70% average wet weather design flow when drought condition flows will likely be less. Other assumptions presented do not demonstrate any extra margin. These include reliance on a watershed pollutant trading pilot project not currently in existence and reliance on adoption of agricultural BMPs. As discussed above, there is little reasonable assurance that these will actually happen. Still other assumptions built into the waste load and load allocations *actually reduce* the margin of safety considerably. Among the largest of these are: failure to assign a 1 mg/L limit to larger waste water treatment facilities; non-existent efforts to effect the non-MS4 stormwater discharge reduction; and lack of any program or funding to secure the required 90% reduction in illicit septic systems.

Response 10-12: While the details of the implementation plan and the watershed permit and other components of the TMDL Report are to follow, the MPCA has indicated that the watershed permit will either involve 1 mg/l effluent limits in ten years or point-point trading to achieve equivalent reductions. Although the TMDL Report does not select the option, there will be a phosphorus reduction with either method.

The implicit margin of safety (MOS) is based on conservative assumptions used to develop the waste load allocation. The MPCA estimates the MOS to be at least 10 percent. This is further explained in the TMDL report.

The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)). EPA's 1991 TMDL Guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified. (Source: "Guidelines for Reviewing TMDLs under Existing Regulations issued in 1992", U.S. EPA, May 20, 1992).

Comment 10-13: Immediately apply the 1 mg/L phosphorus limit in NPDES permits to wastewater treatment facilities discharging 1,800 pounds or more annually as required by the waste load allocation.

Response 10-13: See response 8-3.

Comment 10-14: Include a plan for applying NPDES permit coverage for the 23 communities without proper wastewater treatment.

Response 10-14: The implementation plan will address how the 23 communities currently without proper wastewater treatment will be covered under an NPDES permit or the discharge will be eliminated. It is presumptuous to assume that all will require an NPDES permit prior to the proper analysis is completed.

Comment 10-15: Clarify which cities will be treated as MS4s and develop permit guidance for demonstration through effectiveness monitoring of the 20% reductions and maintenance requirements.

Response 10-15: See response 10-5 regarding cities to be treated as MS4s. Permitted MS4 communities are assigned a 30 percent phosphorus reduction in the TMDL Report. According to Minnesota's stormwater general permit, if an implementation plan has been developed for a USEPA-approved TMDL, the permittee must review the adequacy of their Stormwater Pollution Prevention Program to meet the TMDL's load allocation set for stormwater sources. Consequently, this will happen as a part of the implementation process.

Comment 10-16: Provide reasonable assurances that reductions from non-MS4 stormwater dischargers, non-compliant ISTS and agricultural BMPs will occur expeditiously through a reliable delivery mechanism, and that adequate funding is available.

Response 10-16: The MPCA believes that the reasonable assurance provided in the TMDL Report is adequate. The EPA will make the final decision.

Comment 10-17: Demonstrate and quantify the margin of safety factoring out the assumptions that do not result in a quantifiable margin and factoring in those assumptions that actually reduce the margin.

Response 10-17: See response 10-12.

11. Joel Albrecht, City of New Ulm

Comment 11-1: The Phosphorus Rule should not be used as justification for 1 mg/L limits. The Phosphorus Rule applies where a point source discharges directly to, or whose discharge is shown to have a measurable effect on algal growth in, a lake or reservoir. As stated in the City's previous correspondence to the MPCA, the Phosphorus Rule does not apply because 1) New Ulm discharges to the Minnesota River (SD 002) and the Cottonwood River (SD 003), not to any lake or reservoir; and 2) MPCA has provided no data or analysis to demonstrate the effects of New Ulm's phosphorus discharge on any lake or reservoir downstream.

Response 11-1: The MPCA is not using the phosphorus rule as justification for effluent limits in this TMDL Report. The MCPA has the legal authority to require effluent limits as part of a TMDL. Continuously discharging wastewater treatment facilities, such as New Ulm, cumulatively contribute a large part of the phosphorus loading during low flow conditions.

Comment 11-2: If the MPCA believes that New Ulm contributes to impaired downstream conditions due to phosphorus, then the appropriate permit condition is a PMP as provided for in the draft TMDL report, rather than a costly and unjustified limit that would likely produce little environmental benefit.

Response 11-2: This TMDL Report requires that continuously discharging facilities discharging over 1,800 pounds of phosphorus per year reduce phosphorus enough to meet the waste load allocation. For this TMDL Report, seasonal and flow triggered limits are being considered. The 1985 Waste Load Allocation will be updated in 2007-2008. The lower Minnesota River will be monitored during future low flow conditions. Both of these tasks will provide information to further validate the model. Additional information is available through the Tetra Tech modeling reports.

Comment 11-3: The City objects to the characterization of the present TMDL as a "Phase II TMDL" or a "TMDL re-do." That the WLA is 19 years old, and the subsequent Blue Lake and Seneca upgrades along with other changes have resulted in substantial reductions in phosphorus and other problem conditions in the Minnesota River since the WLA was completed. As the result of these improvements average effluent BOD for these facilities hovers around 2-3 mg/L- in other words, dramatically better than called for by the WLA. Assuming the WLA model calculations are correct, no low –DO condition should now exist.

Response 11-3: The first phase of this TMDL was the 1985 Waste Load Allocation, which called for a 40 percent reduction of BOD at Shakopee during summer low flow conditions and advanced secondary treatment requirements for the Blue Lake and Seneca wastewater treatment plans. Phase II involves phosphorus reductions from wastewater treatment facilities and other sectors in the basin to achieve the 40 percent reduction. Water quality data collected in August 2003 from the lower Minnesota River indicated that dissolved oxygen levels were starting to move below the standard despite excellent effluent quality from the Blue Lake and Seneca facilities. This shows there is still a problem. As stated by the Metropolitan Council in a monitoring update report, "The quality of water entering the lower Minnesota River at Jordan was poor during August and September 2003. BOD5 concentrations ranged from 4.8 to 5.6 mg/L on four sampling dates, compared to the TMDL goal of 3.7 mg/L. Chlorophyll-a concentrations were 70-140 ug/L, indicating hypereutrophic conditions."

Comment 11-4: The draft report provides for an update of the WLA in 2007 before the start of Phase II, and the City supports this approach, but in the short term this shaky foundation for the TMDL throws the model into doubt. It would be inappropriate for MPCA to impose limits on the basis of an outdated WLA that was neither designed nor intended to serve as a basis for phosphorus limits on remote discharges. Given the old data in the WLA, the MPCA has a responsibility to update the modeling and the loadings for the Minnesota River before seeking to impose any further reductions. Even if the model is valid, at most it may be used to set a seasonal phosphorus limit, as DO concerns are not identified outside of the June-through-September growing season. Moreover, any change in phosphorus and CBOD performance by the City since 1985 must be credited to determine if the objectives of the model recommendations are met.

Response 11-4: The 1985 Waste Load Allocation used seasonally-based design parameters for the river that represented conditions critical to water quality. For the critical summer season, design parameters included low river flow, summer water temperature, and background water quality derived from monitoring data available at the time. The model was systematically calibrated; validated; and peer reviewed prior to its use as a predictive tool for the waste load allocation. It is true that the waste load allocation model was not initially "designed nor intended to serve as a basis for phosphorus limits on remote discharges." However, that did not diminish its usefulness in analyzing the sensitivity of dissolved oxygen concentrations in the lower 25 miles of the Minnesota River in response to various loading stressors, including the quality of water entering from upstream. Plans are to update the 1985 Waste Load Allocation with model enhancements, recent water quality data, and the ability to interface with the Minnesota River Basin model. Also, see response 11-3.

Comment 11-5: Regarding the various loads, both the Blue Lake and Seneca facilities operate at a fraction of their design load, accounting for about a 25,000 lbs/day reduction in CBODu loadings compared to the 1985 model and permitted conditions. In short, based upon the 1985 model, the assumed load of CBOD and NOD that justified the imposition of phosphorus limitations to address DO concerns has already been met. In-stream DO has also substantially improved in comparison to

previously modeled conditions. The August 2003 data indicate that DO levels remained above standards down to river mile 8.5 and that the DO levels only decreased from an average of 4.8 mg/L to 4.5 mg/L between RM 8.5 and RM 3.5. This is a much better condition that projected to exist by that modeling effort, accounting for the higher in-stream flows. This is a rather minor exceedance of the applicable average DO criteria of 5 mg/L. Such a minor exceedance of the DO standard does not justify the broad imposition of restrictive phosphorus limits. A major reduction in upstream phosphorus sources is not required to achieve the DO standards, given the existing conditions that vary significantly from 1985 expectations.

Response 11-5: The water quality standard for dissolved oxygen in this reach of the river is 5.0 mg/L as a daily average. This standard is to be maintained at all river flows exceeding the 7Q10 low flow. Despite excellent wastewater treatment at the Blue Lake and Seneca plants, dissolved oxygen concentrations during August 2003 still dropped below the standard at river flows greater than the 7Q10, contravening our protection objective. The lower Minnesota River's flows in 2003 were similar to 1987 but not as low as 1988. This TMDL Report is based on flows from summer 1988. Also see response 11-3.

Comment 11-6: The 2003 data indicate that the 1985 model is not an accurate indicator of in-stream impacts. Despite the fact that municipal loadings have been dramatically reduced and that upstream CBOD concentrations have decreased most likely due to decreases in phosphorus loadings from the upstream point sources, DO exceedances persist in the lower segment of the river. It is not apparent whether or not the residual DO decrease occurring in the lower segment of the river is due to algal oxidation or SOD. While these factors are likely related, it is also not apparent how the model reduced SOD impacts in conjunction with reductions in algal levels. Thus, it failed to account for a benefit of reducing algal levels. Moreover, the dredging of the river in its lower segments has probably contributed to the lowering of DO in that area. Whether, and how algal reductions may further alter that condition is somewhat uncertain, because such SOD may be a function of longer term inputs to the system, not simply low flow conditions. That condition may not be remedied by the algal reductions intended to be achieved by this TMDL, which has focused on low flow sources.

Response 11-6: The MPCA does not agree with the conclusion that the "2003 data indicate that the 1985 model is not an accurate indicator of in-stream impacts." To our knowledge, the 1985 model has not been applied to specifically simulate the 2003 loading and ambient river conditions in an effort to validate its accuracy as a prediction tool. The fact that monitoring data from August and September 2003 at Jordan showed BOD5 concentrations ranging from 4.8 mg/L to 5.6 mg/L, as compared to the protection goal of 3.7 mg/L, likely has a major role in the persistence of dissolved oxygen problems observed downstream under low flow conditions. The dynamics of linkages between phosphorus, algae, BOD, and SOD are complex interactions and the object of continued study.

The point source contributions of phosphorus have increased since the 1985 Waste Load Allocation was established (1971-1980 data were used). In fact, the loading from point sources have dramatically increased from the 1986-1992 basin model calibration period to 2000. Added to this issue the phosphorus to chlorophyll-*a* to BOD relationship is an asymptotic curve. That is to say, the chlorophyll-a concentrations climb at constant rate up to a given concentration, and then level off as phosphorus no longer is the limiting factor in the growth of algae. In the Minnesota River's current day situation, the sources must reduce significantly before any reduction in algal populations will occur. This is demonstrated in Figure 5.3 provided in the TMDL Report. The 1985 Waste Load Allocation model did take into account the dredged portion of the channel as it existed at that time. Because the 1985 Waste Load Allocation model does not internally simulate the accumulation of benthic sediments, the SOD rates were manually reduced by an amount commensurate with the reduction in headwater organics expressed as BOD5.

Comment 11-7: The TMDL attempts to use a 7/Q/10 flow for predicting algal conditions in the river. This flow does not appear to be appropriate for algal modeling, and there is no indication that the various factors influencing algal growth were considered by MPCA.

Response 11-7: The river must be protected down to the 7Q10 condition. Low flow conditions below this return frequency are not protected by the numeric standards. The HSPF model is a nationally-used model promoted by EPA and has been calibrated to monitoring data, validated with a different period of record, and the model documentation from Tetra Tech has been made available. The development of the model has been formally reviewed by the USGS, peer reviewed by state experts and effectiveness monitoring will provide further validation to the projections. The MPCA believes the August and September 2003 low flow monitoring data compares favorably with the August and September 1987 hydrology in scenario 1 (current day land use). Therefore, the MPCA is comfortable and will defend this model's current projections given current day monitoring results.

Comment 11-8: Assuming high algal levels will coincide with minimum flow conditions is not supported by the data. Moreover, algal levels were not correlated to phosphorus levels as assumed in MPCA's analysis; some other factors must be limiting algal growth at different times. Until a true algal model is developed considering the wide range of factors influencing algal growth in rivers, the projections for algal improvement and DO benefits are simply speculative.

Response 11-8: The HSPF model is a well-documented model that adequately projects several independent data sets (Met Council, USGS, and MPCA) with high algal concentration records in the Minnesota River during low flow conditions. Normally, Chlorophyll-*a* concentrations up to 100 ug/l are considered highly eutrophic. The monitored and modeled average concentrations are approaching 120 ug/l. Collected data indicates individual concentrations from grab sample monitoring as high as 200 and 400 ug/l.

Comment 11-9: The algal/CBOD relationship is speculative and the 2003 in-stream data do not indicate that CBOD levels are as dramatically influenced by algal levels as MPCA assumes. More work needs to be done on this issue to ensure that the benefits intended to be achieved by the phosphorus reduction program will be achieved and are necessary to achieve DO objectives.

Response 11-9: This data does not reflect any change in the asymptotic relationship between phosphorus and chlorophyll-*a*, which would reflect a phosphorus limiting regime. Therefore, model projections conform to what occurred in the river in late summer of 2003. See response 11-3.

Comment 11-10: Not unexpectedly, some environmental interests do not agree with MPCA's approach toward implementing this TMDL, and have urged the MPCA to immediately impose 1 mg/L phosphorus limits, at least during the August/September period. By identifying a more aggressive interim program, the MPCA and the point sources may lessen the need for significant additional future reductions, improve water quality more rapidly, and avoid the application of Clean Water Act (CWA) permit modification restrictions that could apply if 1 mg/L limitations were imposed upon some of the communities. A trading program would also have the benefit of establishing a network to achieve load reductions in the least-cost manner possible, regardless of the future limitations imposed.

Response 11-10: Comment noted. Point-point trading is being considered as a more aggressive approach prior to updating the 1985 Waste Load Allocation.

Comment 11-11: The TMDL should acknowledge that the primary concern of the TMDL is DO levels in the Lower Minnesota River.

Response 11-11: Comment noted. The TMDL discusses dissolved oxygen and makes the linkage between BOD, dissolved oxygen, and phosphorus.

Comment 11-12: To further reduce in-stream CBOD levels, the available modeling predicted that significant phosphorus reductions (about 60%) would be needed to meet DO levels in this segment of the River.

Response 11-12: Comment noted.

Comment 11-13: Subsequent information indicates that the model needs to be updated to account for various factors that influence algal growth that the prior model was incapable of addressing.

Response 11-13: The TMDL Report is based on readily available and reliable data that provide enough certainty to establish the allocations. In an effort to provide even more certainty, future monitoring will be used to validate the information.

Comment 11-14: Since the 1988 model projections, the actual in-stream CBOD loadings to the Lower Minnesota River are dramatically less then expected from the major treatment facilities, and within the range that should have allowed DO standard compliance. While these reductions have improved DO levels significantly, DO concerns remain.

Response 11-14: Comment noted. Dissolved oxygen concentrations in August of 2003 did fall during the lower flow conditions. Flows in August 2003 were not as low as in 1988.

Comment 11-15: Nutrient reductions achieve from 1988 to 1999 have also caused a decrease in algal levels, but further reductions are needed to meet DO objectives.

Response 11-15: Comment noted. Many phosphorus reductions have been made since 1988. By working together, additional progress can be made to achieve the standard in the lower Minnesota River during low-flow conditions.

Comment 11-16: A 35% decrease in nutrient levels at Jordan associated with point sources (indexed to 1999 loadings) should significantly contribute to DO standard achievement while the additional studies are ongoing. The degree of treatment required beyond this level is not known at this time and will be resolved with the scheduled modeling efforts.

Response 11-16: Comment noted. The MPCA will select the method and timeline for phosphorus reductions from wastewater treatment facilities as part of the implementation plan and watershed permit.

Comment 11-17: Achieving such objectives through a point-point source trading program that accounts for the geographic factors influencing nutrient transport into the Lower Minnesota River is an acceptable and cost effective means for achieving interim objectives.

Response 11-17: Comment noted. See response 11-16.

Comment 11-18: All point sources that engage in trading will not be required to demonstrate the achievement of the 35% reduction target over the next five years on an individual basis, so long as the group achieves the specified load reduction level.

Response 11-18: Comment noted. See response 11-16.

Comment 11-19: Dischargers that are not part of a trading network will have their permits reissued to require achievement of the 35% load reduction (seasonal) over the life of their permit but no later than 2009.

Response 11-19: See response 11-16.

Comment 11-20: It is understood that other TMDL activity in progress (e.g., Lake Pepin) may require the implementation of more restrictive limitations to protect downstream waters. This program will also provide benefits to those waters while those TMDLs are being developed.

Response 11-20: Comment noted. The allocations in this TMDL Report may need to be adjusted based on additional information from other TMDLs provided in the years to come. This is important because of the hydrologic connection between the Minnesota River, its tributaries, and Lake Pepin.