Appendix P: Response to Preliminary Comments

Appendix P provides a summary of the comments received during the preliminary comment period held February 21 through April 23, 2018. While not required, this preliminary comment period was conducted to allow stakeholders an additional opportunity to review and comment on the TMDL study.

The actual comments are followed by a response and have been grouped by category. The commenter is identified in parentheses.

General Comments:

1) We would first like to commend the Department staff who have worked on the development and implementation of this TMDL. It's the largest project of its kind in Wisconsin, rich with vast amounts of data from monitoring and modeling, and Department staff have showed innovation, commitment, and transparency throughout the process of its development. Their good work has resulted in a plan they should be proud of. *(Stewards of the Dells and River Alliance)*

Response: Thank you, the draft TMDL is the result of the collective efforts of the department and stakeholder groups.

2) Even though I have a few questions, I still want to thank the department for all the work they did on this massive project. *(City of Marshfield)*

Response: Thank you, the draft TMDL is the result of the collective efforts of the department and stakeholder groups.

3) I live on the Big Eau Pleine. We bought our waterfront home and retired to this area. I was looking forward to having family and future grandchildren come and enjoy the waterfront with us. We bought our home in the winter. We were informed about the fluctuating water levels, which we researched further, and were ok with. Not informed about the algae problem and had no reason to suspect anything that required further checking. The only time the water is good seems to be early spring and late fall. The summer, when you want to use it more, is terrible. The algae gets so thick it is the consistency of pudding. And the smell is bad. (I am attaching some pictures). We can't use our waterfront most of the summer. We have to boat around to find spots that are not thick algae to fish or even maybe clear enough to swim. We pay more in property taxes to have a waterfront home. We follow the rules of living on the water, (from our Shoreland Owners Guide we received when we bought our home). But we can't use our waterfront. Doesn't seem right.

We realize this is a problem we all need to work together to solve. (Unfortunately, we can't make the meetings due to previous engagements). We belong to the Big Eau Pleine Citizens Organization and attend those meetings to be kept informed.

Thank you for allowing me to give you my input and for your effort to address this problem. *(Julie MacDonald)*

Response: DNR will be holding additional stakeholder meetings in the future including the official public hearing. This TMDL lays out the reductions needed to meet water quality standards, which once implemented, will substantially reduce the algae blooms you experience on the Big Eau Pleine reservoir.

4) I very much favor funding and programs to reduce phosphorus pollution. I would do my part on donating but also feel some agricultural people have gone way too far polluting water in many areas of the state. Certainly, some financial help from the public is warranted but so are more enforced restriction needed. *(Mark Beilfuss, New London, WI)*

Response: Thank you for your comment.

5) I do believe the department did a very good job on the TMDL. I've been involved since the start of the modeling in 2013 and have watched the process struggles and triumphs. It was very challenging to complete the project with the budget constraints and so many staff members leaving. I understand the TMDL process and generally agree with most of the allocations, but not ours. *(Marshfield WWTF)*

Response: Thank you for your comment. Modifications to allocations have occurred due to updates to the bias correction and merging of two subbasins to account for the proper point of standards application due to limited aquatic life classification. (See #11 below.)

6) NCWSC is a coalition of 13 municipalities that have Wisconsin Pollutant Discharge Elimination (WPDES) stormwater permits that cover their Municipal Separate Storm Sewer Systems (MS4s). These WPDES stormwater permits require compliance the Wisconsin River Basin TM DL. NCWSC is thus interested in a TMDL with equitable wasteload (point source) and load (nonpoint source) allocations feasible implementation plan, cost-effective compliance options, and sustainable funding sources. *(Northcentral Wisconsin Stormwater Coalition)*

Response: Thank you for your comment.

TMDL Allocations and General Development Comments:

7) MEG requests additional information regarding development of point source allocations. In particular, it is unclear where DNR derived the "Baseline Flow" data used in Appendix J, and why DNR is using this data rather than average daily design flow. For some municipal permittees, the difference in "Baseline Flow" data used and average daily design flow could result in significant changes in TMDL allocations. MEG requests that DNR recalculate allocations using average daily

design flow or provide an explanation as to why it is not using this data. It is also not clear what percent reduction the allocations represent for each point source. Please provide additional information on this topic. *(Stafford Rosenbaum on Behalf of League of Wisconsin Municipalities)*

Response: The Department released the draft wastewater baseline data along with additional modeling information in a 13 August 2015 GovDelivery message and subsequent "electronic chat". As noted in Section 4.3.2.1 of the draft TMDL, the baseline flows for municipal facilities were set equal to the annual average design flow. This approach is consistent with the approach in NR 217.13(2)(c)1; "maximum effluent flow, expressed as a daily average that is anticipated to occur for 12 continuous months during the design life of the treatment facility." In a limited number of cases there were municipal facilities with actual annual flows higher than their recorded design flow, in those cases the highest average annual flow over five years (2012-2016) was used to establish the baseline flows for the TMDL. Facilities were given opportunities to submit adjusted flows based on current or updated data.

8) It was brought to my attention that the sampling in places for the TMDL was done every 15 days, which does not represent what is really happening in those streams, rivers and lakes. And furthermore, they have no way of separating what is run off, and what is already in the stream getting kicked up again during high flows. Recent high flows that we had over our design flow had our effluent still looking crystal clear, but the stream that we go to looked like chocolate milk. We also have plenty of life in our Baraboo river, and the DNR says it will not support life. If that is the case, how does it have invertebrates, fish, water spiders and insects in it? The science is not sound for the TMDL. You also have the wrong info. On our plant. Our Avg. Design flow is .333 MGD and our Max is over .800MGD *(City of Elroy)*

Response:

- *The water quality sampling was done every 15 days, but flow was measured continuously, and then used to estimate water quality every day based on a regression model (Appendix D, Section 5.2). This is a standard method in water quality monitoring, used by a wide variety of agencies, including USGS.*
- *The SWAT model simulates runoff of P into surface waters (Appendix D, multiple sections); transient storage and release in stream channels was simulated with the tributary routing model (Appendix D, Section 5.10).*
- *Phosphorus is not always associated with turbidity, so the appearance of the water is not always a reliable indicator of its effects on aquatic life.*
- *Sections of the Baraboo River are not attaining their aquatic life use, which does not mean that the river will not support any life, but rather that it is not meeting its full potential.*
- *Thank you for the correction of your design flow. The baseline flow for the City of Elroy has been updated to reflect the 0.333 MGD design flow, this has resulted in changes to the draft wasteload allocations.*

9) All of the reaches through Wisconsin Rapids are governed by the load into Petenwell (note that Table K-4 lists Lake Wisconsin as the downstream reservoir which must be a mistake?). If I'm reading this correctly, the SSC based allocations will result in lower percent reductions required for Wisconsin Rapids. What is the timeframe for approval of this SSC process and/or implementation of the lower requirements? *(MSA)*

Response: Allocations based on current criteria are controlled by Petenwell; however, the SSC allocations are controlled by Lake Wisconsin because the recommended SSC criteria of 47 µg/L controls. The changes in criteria result in the change of the controlling reservoir. The SSC must be adopted by rule before they become effective. The scope statement for the proposed SSC, the first step in the rulemaking process, was approved by the Natural Resources Board in June 2018. Accounting for the required steps in the rule development process, the earliest the SSC can be codified is 2019.

10) In appendix K1 the sum of WLA + LA + reserve capacity comes to 99.7% of Loading Capacity. Since the MOS is implicit why isn't it 100%? (*Paul La Liberte)*

Response: According to our calculations, the difference is 21 lb., or 0.003%, which is due to rounding.

Model Calibration Comments:

11) Section 4.2.3 of the Draft TMDL Report indicates that Mill Creek did not meet the calibration benchmarks for TSS. Table 11 also shows that Mill Creek had the highest PBIAS of all the stations for TP. Have modifications been considered to provide a better fit for Mill Creek? How do the model inputs that result in these calibration benchmark values effect the required reductions and subsequent wasteload allocation for the City, which is the largest point source discharger to Mill Creek? (City of Marshfield)

Response: The final TMDL watershed model was bias-corrected upstream of monitoring stations where site-specific loads were estimated. Mill Creek had a monitoring station and site-specific loads were calculated at that location, however the Mill Creek monitoring station was not used to correct bias on upstream reaches. The bias correction process was intended to correct errors in nonpoint source loads, which are less accurate than point source load estimates. Because TP loading on Mill Creek reaches were predominantly point source, the bias correction process did not work well at that location—the empirical bias correction model, which estimated monthly nonpoint loads, was deemed unfit for load estimation.

The model inputs that result in the calibration benchmark values referenced in the question result in an over-estimated TP load on Mill Creek reaches and lowered TP allocations for Mill Creek dischargers. The department has conducted an alternative nonpoint load calculation method that fixes the bias for nonpoint sources in this watershed. Instead of using the original, monthly-scale bias correction model, we uniformly reduced annual average nonpoint TP loads in upstream watersheds until the annual average instream TP load estimate matched that which was estimated at the monitoring station. This was done only for nonpoint source TP loads upstream of the Mill Creek monitoring station.

Point Source - Wastewater Comments:

12) I attended one the seminars in Portage and during that presentation Pat Oldenburg mentioned that he would be releasing more information on the statistical calculations for permit limits,

including how the CV value is calculated. Has this information been posted or can it be sent to the seminar attendees? *(Town and Country Engineering)*

Response: The presentation is posted online (https://dnr.wi.gov/topic/TMDLs/WisconsinRiver/). The approaches for converting wasteload allocations to water quality-based effluent limits is addressed in detail in the November 6, 2013 TMDL Development and Implementation Guidance, Edition No. 3. (https://dnr.wi.gov/topic/tmdls/implementation.html) As the phosphorus wasteload allocations in this TMDL are expressed as annual maximums, the limit derivation approach should be similar to that outlined in Section 4.6.1 for continuous discharges and 4.6.5 for non-continuous discharges.

13) If a WWTP has the TMDL mass limit in their permit (and the plant had a permit limit of 1.0 mg/L previously), and the flows to the plant decrease (maybe an industry leaves or drops production) such that they could discharge the permitted mass as a concentration greater than 1.0 mg/L, would discharging at >1.0 mg/L be allowed or would that be considered anti-backsliding? *(Strand Associates)*

Response: The concentration limit of 1.0 mg/l would remain in the permit, to prevent backsliding. The permittee is required to comply with both the 1.0 mg/l and the mass limit derived from the TMDL WLA. The anti-backsliding provisions of ch. NR 207, Wis. Adm. Code, will apply.

14) Can we make sure that this number (design flow) gets changed on the TMDL, to 0.333 MGD?

The City of Elroy wastewater treatment facility was constructed for a design flow of 333,000 gallons per day and a design biochemical oxygen demand (BOD) loading of 529 pounds per day. Table 1 shows the average volume of

Also from the 1993 Wastewater Disinfection System Evaluation Report:

The Elroy WWTF was designed for an average daily flow of 0.333 mgd and a peak day flow of 0.812 mgd, the forecast flow rates for the year 2000. The

(Elroy WWTF)

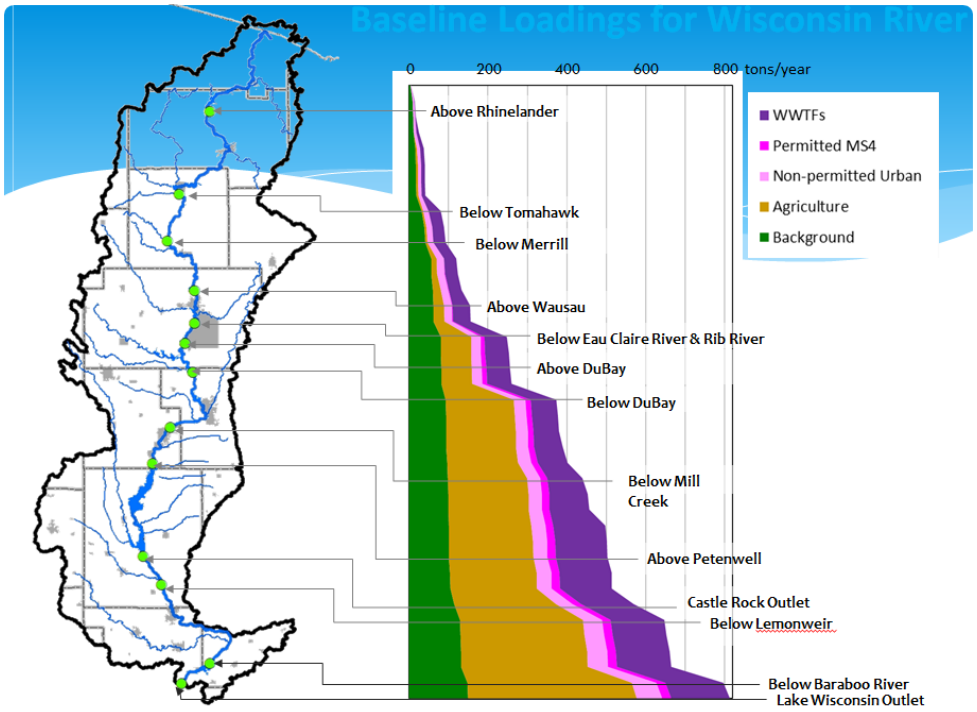
Response: The baseline flow for the City of Elroy has been updated to reflect the 0.333 MGD design flow, this has resulted in changes to the draft wasteload allocations.

15) The permit holders that discharge to the Wisconsin River Basin have made vast improvements in reducing the pollution they send to the river - improvements that we have not seen made on the nonpoint source side. Wastewater permit holders have ratcheted down their phosphorus contributions to the river. They are not the dominant source of phosphorus to the river, but they will be asked to make financial sacrifices as if they are. We encourage the Department to think creatively in utilizing and adapting existing phosphorus compliance tools (such as trading) to make compliance with these TMDL-derived permit limits manageable. *(Stewards of the Dells)*

Response: It is true that many wastewater discharges have been subject to technology-based limits (TBELs) of 1.0 mg/l (or alternate TBELs > 1.0) since the initial promulgation of ch. NR 217, Wis. Adm. Code, in 1992. Those discharging less than 60 pounds per month (industry) or less than 150 pounds per month (municipal) were not subject to TBEL requirements and many are still discharging well above the 1.0 mg/l level. As shown in the figure below, wastewater treatment facilities are still a significant source of phosphorus in the Wisconsin River Basin with the exact percent varying based on rainfall. For example, in 2012 wastewater treatment facilities became the largest source of phosphorus in the Wisconsin River Basin.
Revisions to NR 217 in 2010 established water quality based effluent limits (WQBELs) for wastewater dischargers based on new water quality standards for phosphorus. WQBELs calculated according to s. NR 217.13, Wis. Adm. Code, can be stringent when local or downstream waters are impaired and water quality criteria are low. In many cases, the WQBELs derived from draft TMDL WLAs are less stringent than WQBELs derived from s. NR 217.13, because the TMDL takes contributions from nonpoint and other point sources into account.

Chapter NR 217 WQBEL requirements are accompanied by allowances for extended compliance schedules of up to 9 years, where needed, and alternative compliance options such as adaptive management, which may give a wastewater discharger up to 20 years to achieve compliance with their WQBEL. Water quality trading is another compliance option that is available to point sources. The multi-discharger variance (MDV) for phosphorus also extends the timeline for complying with low-level phosphorus limits. The trading, adaptive management, and MDV options are available to qualifying wastewater dischargers that must meet phosphorus WQBELs, including those derived from a TMDL.

Figure: Contribution of Different Sources at Various Points Along the Wisconsin River Mainstem:



Point Source - Permitted MS4 Comments:

16) Please provide background information explaining why the No Controls Unit Load (lbs TP/acre) for Marshfield (0.83 to 0.85) is higher than the other MS4 communities (0.56 to 0.75). *(City of Marshfield)*

Response: The no controls load varies based on soil conditions and rainfall files. Soil conditions vary across the basin and the dominant soil type and nearest rain gage data were used for each municipality in the modeling analysis. The soils and rainfall files result in higher loadings for Marshfield.

17) No Controls Unit Load-Please provide background information explaining why the No Controls Uni t Load (lbs. TP/acre/year) for the City of Baraboo (0. 78 to 0.98) and the City of Marshfield (0.83 to 0.85) are higher than the other MS4 communities (0.56 to 0.75). *(Northcentral Wisconsin Stormwater Coalition)*

Response: The no controls load varies based on soil conditions and rainfall files. Soil conditions vary across the basin and the dominant soil type and nearest rain gage data were used for each municipality in the modeling analysis.

18) As far as the required reductions for MS4's, please concur with my assumption that they will be based on percent reduction, not on mass loads. *(MSA)*

Response: As outlined in the TMDL report and TMDL MS4 guidance the TMDL allocations can be implemented using the percent reduction framework.
http://dnr.wi.gov/news/input/documents/guidance/ms4guidancefinal.pdf

19) Assuming that's the case, also please concur that an 80% TP reduction from baseline equates to an 83.0% reduction from "no controls"; and that a 64% TP reduction from baseline equates to a 69.4% reduction from "no controls". *(MSA)*

Response: The baseline condition for permitted MS4s in the TMDL reflect implementation of the NR 151 20% TSS reduction requirement and the estimated corresponding 15% reduction in TP. The percent reductions used to implement the TMDL allocations should be applied to the baseline load. Details can be found in the guidance:
http://dnr.wi.gov/news/input/documents/guidance/ms4guidancefinal.pdf

20) Table 8 in TMDL Document-The City of Mosinee, City of Stevens Point, City of Wausau and the City of Wisconsin Rapids are missing from this list of MS4s. *(Northcentral Wisconsin Stormwater Coalition)*

Response: Tables have been updated.

21) Figure 18 in TMDL Document-The Village of Weston is missing from the list of MS4s on the map. *(Northcentral Wisconsin Stormwater Coalition)*

Response: The figure has been corrected.

22) Please consider providing a table in the TMDL showing Tables F-3, J-3, and K-3 side-by-side that relate the baseline, TMDL wasteload allocation, and Site-Specific Criteria wasteload allocations to a percent reduction from a No Controls Condition for each MS4. Percent reduction from a No Controls Condition gives a better sense of the scale of reduction needed in each MS4 TMDL reach. *(Northcentral Wisconsin Stormwater Coalition)*

Response: The tables are formatted so that the allocations resulting from the current criteria and the recommended SSC are not on the same table to avoid confusion over which allocations should be used. The percent reductions contained in the TMDL are all measured from the baseline condition in the TMDL. To avoid confusion, DNR has stuck with expressing reductions from the baseline condition. Please refer to the "TMDL MS4 Implementation Guidance" and "Addendum A: Percent Reduction" for guidance for converting between the required percent reductions. https://dnr.wi.gov/topic/stormwater/standards/ms4_modeling.html

23) Marshfield Wasteload Allocations-There appears to be no change between the TMDL wasteload allocation and Site-Specific Criteria wasteload allocation in the City of Marshfield. Is this because local water quality criteria controls or should these numbers be adjusted downward similar to other MS4s upstream of Petenwell and Castle Rock Flowages? *(Northcentral Wisconsin Stormwater Coalition)*

Response: The reason that the wasteload allocation were the same was because the reductions were driven by local water quality. However, note that this has changed based on changes related to the evaluation of Mill Creek. Based on current criteria, downstream water quality controls the total reduction, with the site-specific criteria, local water quality controls the total reduction. See responses to #11 and #40.

24) Using the WDNR's preferred Site-Specific Criteria (SSC) percent reductions, it appears that the City's (*Marshfield*) reductions will be around 80 percent TP reduction which borders on the technologically infeasible, unless stormwater Best Management Practices (BMPs) such as wet detention basins with chemical treatment, infiltration basins with high infiltration rates of in-situ soils, or stormwater filtration (that is best suited to smaller source areas) are constructed at virtually all outfalls. This will be cost-prohibitive. By default, this forces the City to consider water quality trading (with potential feasibility issues because of credit thresholds) and watershed adaptive management (with potential feasibility issues because of watershed size and WWTP location). *(City of Marshfield)*

Response: Permitted MS4s have extended compliance schedules to address reductions stemming from a TMDL so that as opportunities arise such as through redevelopment, management practices can be installed. Permitted MS4s can use a combination of structural and other management measures to meet reductions and should target drainage basins with higher loadings or larger reductions first.

Due to the extended compliance schedule for permitted Ms4s, water quality trading may not be the best option until all redevelopment and municipal controls have been exhausted. Permitted MS4s are not eligible to initiate adaptive management; only a permitted wastewater discharger can initiate adaptive management. However, permitted MS4s can join a permitted wastewater discharger in implementing an adaptive management plan. Note that the two compliance benefits of adaptive management are the extended compliance schedule and interim permit

limits. Permitted MS4s already have an extended compliance schedule and permitted MS4s do not have numeric permit limits or outfall monitoring requirements; however adaptive management would bring those requirements into their permits.

25) Please provide commentary on the feasibility of MS4s meeting the Site-Specific Criteria (70 percent to 87 percent TP reduction from an MS4 No Controls condition) solely within the MS4 boundary considering the capability and scalability of current stormwater treatment technologies. Given likely obstacles to doing so, NCWSC requests that TP reductions from streambank restoration projects within an MS4 boundary be given credit toward meeting the TMDL wasteload allocations. The WDNR 's MS4/TMDL Modeling Guidance document currently does not allow credit for streambank restoration within an MS4 boundary. *(Northcentral Wisconsin Stormwater Coalition)*

Response: DNR considers streambank stabilization activities an important step in reducing the discharge of sediment and phosphorus. However, TMDL baseline modeling using WinSLAMM (http://www.winslamm.com/) already assumes that drainage systems are stable; therefore, it is not appropriate to take credit against the WLA or percent reduction in the TMDL for stabilization of a drainage ditch or channel of the MS4. However, stabilization projects should be identified in the TMDL implementation plan and can serve as a compliance benchmark toward meeting overall TMDL goals.

Nonpoint Source Comments:

26) Wisconsin was a leader in establishing technology-based effluent limits on phosphorus back in 1992 at 1.0 mg/L. As a result, Wisconsin municipal treatment plants have already removed approximately 90% of the phosphorus in their discharges, and many have removed upwards of 97%. It is thus not surprising that most of the phosphorus impairments in Wisconsin's waters do not come from municipal treatment plants, but from nonpoint sources.

The TMDL seeks to impose extremely restrictive limits on point source dischargers, despite the fact that baseline phosphorus loadings in the Wisconsin River TMDL are dominated by nonpoint agriculture sources. Point sources have already removed a substantial amount of phosphorus from their discharges. Reducing phosphorus discharges from point sources to the level proposed in the TMDL will not result in significant water quality improvement.

Chapter 7 of the TMDL discusses reasonable assurances for reduction of phosphorus from nonpoint sources. Such efforts have, however, been historically ineffective. The League requests further explanation from the DNR as to how the DNR plans to achieve the proposed reductions in nonpoint source phosphorus pollution. *(Stafford Rosenbaum on Behalf of League of Wisconsin Municipalities)*

Response: See response to #15 to address paragraphs 1 and 2. TMDL modeling identifies the contribution of point and nonpoint sources to current conditions and estimates the proportioned reductions needed to meet water quality standards. Modeling indicates that the proportion of phosphorus loads between point and nonpoint sources can vary significantly from year to year and within individual subbasins, so to ensure attainment of water quality standards point sources reductions are needed.

TMDLs do not create new regulatory requirements but rather rely on existing rules for implementation. Section NR 151.005, Wis. Adm. Code, does allow for the adoption of more stringent performance standards, if necessary to meet a load allocation in a US EPA approved TMDL. As part of the analysis for this TMDL, the DNR has expressed the load allocation for agricultural areas in a pound per acre format to better integrate with existing performance standards, such as s. NR 151.04 and modeling tools such as SnapPlus, to facilitate implementation of nonpoint reductions.

27) My comments are for strong support for the Wisconsin River TMDL. I had kept a sailboat at Barnum Bay Marina on Lake Petenwell for 10 years. Petenwell would be great lake for sailing except for the algal blooms from mid to late summer. I became discouraged about the poor water quality in the Lake and 5 years ago I moved my boat and now sail on the clean waters of Lake Superior. I volunteered myself and a boat to help complete water monitoring for 3 summers. I have followed the development of the TMDL since 2010 and am impressed by the progress to date. My main concern is for the ability to implement a program to reduce nonpoint Phosphorus. Agriculture will need more assistance and financial support than is now available to do their part to reduce Phosphorus. I am in support of Phosphorus trading and adaptive management to help agriculture do their part. I hope that someday my grandchildren will have a clean Lake Petenwell to sail on. *(Wayne Gjersvig)*

Response: Thank you for your comment. The allocations prescribed in the TMDL will allow Petenwell to meet water quality standards; however, the allocations do need to be implemented. DNR can only use available funds and regulations to address agricultural nonpoint sources. Any increased enforcement authority or funding needs to be initiated and authorized through the state legislature.

28) Permit holders that discharge to the Wisconsin River Basin have made improvements in reducing the pollution they send to the river. The majority of the phosphorous pollution enters our river via nonpoint sources. PACRS has been working with the Farmers of Mill Creek Watershed Council for over two years. Your section 7.3.9 states Mill Creek is the fourth highest TP loading tributary watershed upstream of Petenwell Reservoir. We feel it is important to understand the issues that farmer's face and have attended several farm field tours. Mill Creek and other area farmers were invited to a meeting on Lake Petenwell in August 2016. The farmers were able to witness algae blooms on the lake and openly discuss their concerns. One of the complaints noted at the time was that DATCP has old regulations and technical standards. The Nutrient Management Plan (NMP) was developed 15 years ago. The NMP should be more site specific for soil types. The farmers claimed the current plan has uniform phosphorous application times the same throughout the state. Perhaps section 7.3.8 of the TMDL Implementation Plan will provide the county with more local control based on soil type. *(PACRS)*

Response: Information of this nature has been included in the form of Appendix N: Agricultural Phosphorus Targets for the Wisconsin River TMDL, where each TMDL subbasin has a yield allocation for cropland, expressed in pounds per acre based on SnapPlus (Wisconsin's nutrient management software program). Nutrient management plans can and typically are developed for specific soil types. Neither the TMDL nor its corresponding implementation plan can create any new regulatory requirements or grant additional regulatory authority.

29) The permit holders that discharge to the Wisconsin River Basin have made vast improvements in reducing the pollution they send to the river—improvements that we have not seen made on the nonpoint source side. Wastewater permit holders have ratcheted down their phosphorus contributions to the river. They are not the dominant source of phosphorus to the river, but they will be asked to make financial sacrifices as if they are. We encourage the Department to think creatively in utilizing and adapting existing phosphorus compliance tools (such as trading) to make compliance with these TMDL-derived permit limits manageable. (*River Alliance of Wisconsin*)

Response: See responses to comments #15 and #26.

30) The implementation of the TMDL will require WDNR, DATCP and the county Land Conservation Department to work with landowners to implement agriculture, and non-agriculture performance standards and manure management prohibitions to address sediment and nutrient loadings in the TMDL area. We have believed from the very beginning it will take trust and partnerships to make a positive change in water quality. We have worked closed with our area County Conservationists. It is a concern that our counties land and water departments may be inadequately staffed to take on added responsibilities that implementing the TMDL will require. Their departments have had to cut staff in recent years. Implementation of the TMDL will require more of their time and resources. DNR, DATCP and county staffs should be allocated to support the implementation team. The DNR 2019-21 biennial department budget should reflect financial and staff commitment to implementing the Wisconsin River TMDL. *(PACRS)*

Response: DNR, DATCP, and the County Conservationists can only use available funds and regulations to address agricultural nonpoint sources. Any increased enforcement authority or funding needs to be initiated and authorized through the state legislature.

31) Adequate implementation of the TMDL is essential. First, and most importantly, we support continued Department resources being allocated toward implementation of the TMDL. The "Implementation" part of the plan (Section 7) is disappointing and shows very little commitment or vision on the Department's part, in seeing this plan through to action. Department staff played a key leadership role in the development of the TMDL, meeting with county land conservation department staff, wastewater permit holders, agricultural producers and groups, and advocacy organizations. Some might argue that the responsibility for TMDL implementation falls with other partners, outside the agency. While that may in part be true, it does not mean there isn't a critical role for agency staff to play in implementing the TMDL. Staff can and should be allocated to help support the organization of implementation team (or teams, if targeting finer geographic sub-basins); assisting with development of the Nine Key Element plans that will be derived from TMDL load allocations; supporting municipalities and counties with the implementation of phosphorus compliance tools such as trading or the multi-discharger variance, both of which will be used to meet TMDL goals. To that end, the 2019-21 biennial Department budget 2019-21 should reflect a financial and staff commitment to implementing the Wisconsin River TMDL. *(Stewards of the Dells and River Alliance of Wisconsin)*

Response: DNR can only use available funding and resources to implement the TMDL. Any increased enforcement authority or funding needs to be initiated and authorized through the state legislature.

DNR has dedicated a full-time position to assist and coordinate implementation activities for the TMDL. The TMDL coordinator will work with wastewater staff and the runoff management program, along with stakeholders and partners, to implement the TMDL.

32) Two technical adjustments will improve the TMDL and position it for wider implementation, as well as ultimate success. First, TMDL phosphorus reduction objectives should be presented in ways they can be translated and incorporated into nutrient management plans. Generating total phosphorus yields (pounds per acre, per year) and load allocation yields by sub-basin, in easily-readable spreadsheet format, will increase the likelihood of adoption on agricultural lands that contribute nonpoint source phosphorus. A simple comparison between current phosphorus yields and TMDL-derived target phosphorus yields would be a practical and useful implementation tool for agricultural producers and professionals. *(Stewards of the Dells and River Alliance of Wisconsin)*

Response: Appendix N contains information that provides agricultural land managers with target export rates (lbs/acre/yr) generated through SnapPlus, which will allow them to directly compare their nutrient management plans against the TMDL load allocation goals. Appendix N was still under development when the preliminary draft was released. The baseline for agricultural sources have since been translated to a phosphorus yield per acre along with a translation of the load allocation which can be applied to each field in its corresponding subbasin. To accomplish this, SnapPlus was run for each combination of subbasin, soil type (the critical soil was replaced with the predominant soil to represent average rather than critical conditions), topographic slope, and land management combination, which totaled 36,296 SnapPlus runs. Details can be found in Appendix N.

33) Nonpoint Source Wasteload Allocations/Reductions-Given that the Wisconsin River's baseline TP loadings are dominated by agriculture (nonpoint) and that historic large-scale nonpoint pollutant reductions have been ineffective due to lack of funding and issues with enforceability, NCWSC would like to see WDNR focus on a realistic implementation plan (that is continued throughout implementation) for attaining nonpoint reductions through an aggressive, enforceable program with a sustainable funding source. It is understood that Section 7 provides WDNR's discussion on providing reasonable assurances that wasteload allocations (point sources) and load allocations (nonpoint sources) are achievable. However, NCWSC would like to see additional information on the nonpoint source strategies. *(Northcentral Wisconsin Stormwater Coalition)*

Response: DNR can only use available funds and regulations to address agricultural nonpoint sources. Any increased enforcement authority or funding needs to be initiated and authorized through the state legislature.

DNR has dedicated a full-time position to assist and coordinate implementation activities for the TMDL. To better facilitate nonpoint source reductions, the load allocation has been expressed using implementation tools such as SnapPlus when coupled with tools such as EVAAL should help target nonpoint implementation activities.

34) The report lists the baseline annual phosphorus loads for land use categories for each sub-basin in table F1 and annual loads at the loading capacity in table K4. There is insufficient information in the document to convert these annual average loads to the sub-basin yield values needed for TMDL implementation. This document could move more smoothly into implementation if the key information relating to cropland was more accessible. Perhaps in an additional appendix, the baseline and load allocation phosphorus yield values for each sub-basin should be numerically listed in one place. A beneficial additional inclusion, if possible, would be the average cropland Wisconsin Phosphorus Index value for each sub-basin under baseline and load allocation conditions.

It has been my experience when developing two separate TMDL implementation plans for large watersheds, that it is very difficult to get modelers to go back and generate additional outputs once the initial modeling reports have been finalized. It is human nature to want to move on to the next task after a big effort. For this reason, it is important that the unit area load and phosphorus index data for each sub-basin be generated in spreadsheet format as part of the TMDL process. Don't put it off until implementation plan development or it likely will not get done. *(Paul La Liberte)*

Response: Please see the response to comment #32 and Appendix N. Please note that the P-Index is different from the baseline and load allocation phosphorus yield. While both can be expressed in a mass per acre, the P-Index is calculated using the steepest slope and more erodible soil on the field while the phosphorus yield values are calculated using average slope and soil conditions.

35) Since NPS implementation of TMDL goals is voluntary, land managers do not need to wait until the document is approved by EPA or promulgated into administrative rule or developed into an implementation plan to consider them in their decision process. They can be used immediately by motivated individuals. *(Paul La Liberte)*

Response: As discussed in the report, there are numerous nonpoint implementation projects already active within the basin. Furthermore, Appendix N contains information that provides agricultural land managers with target export rates (lbs/acre/yr) generated through SnapPlus, which will allow them to directly compare their nutrient management plans against the TMDL load allocation goals. Reductions are summarized at both the subbasin and HUC12 scale.

Phased TMDL Implementation Comments:

36) The League requests that DNR strongly consider a phased (or adaptive or staged) TMDL implementation. A phased TMDL would allow for achievement of interim milestones and waste load allocations while allowing time for achieving important nonpoint source reductions. A phased implementation process could include initial load reductions followed by monitoring and modeling and resulting modifications to the TMDL. Without a phased approach, point sources would be forced to meet final allocations over a short timeframe as compared to nonpoint sources. And, as discussed above, such allocations will not result in significant water quality improvements.

The authority to implement a phased TMDL approach exists under the Clean Water Act. The U.S. EPA has issued several guidance documents that discuss the permissible use of phased or staged TMDLs. See *Guidance for Water Quality-Based Decisions: The TMDL Process,* Environmental Protection Agency (1994); *Memorandum: Clarification Regarding "Phased" Total Maximum Daily Loads*, Environmental Protection Agency (2006). The League requests that DNR provide further evaluation of a phased approach to the 'Wisconsin River TMDL. *(Stafford Rosenbaum on Behalf of League of Wisconsin Municipalities)*

Response: Please see response to comment #37 below.

37) A stepped approach to implementation of the TMDL has been briefly discussed at past meetings with WDNR. Has WDNR considered staged implementation of the TMDL? This type of approach could include interim milestones and wasteload allocations to allow the TMDL implementation plan to be written and to be implemented over time, with provisions for monitoring and modification. This could provide time for NPS loads to be reduced before or on a similar schedule as PSs to be more equitable to all controllable sources and to provide data on the response of water quality to the reductions. The process would be envisioned to include initial PS and NPS load reductions followed by monitoring and modeling, and assessment of water quality response to load reduction. The initial projects would be selected based on cost and water quality benefit. Without a staged implementation approach, point sources will be forced to meet 'final' allocations in a very short timeframe compared to nonpoint sources, and anti-backsliding rules would apply to the point sources even if it is later found that a more moderate allocation would have been appropriate for them or primarily NPS reductions were appropriate. USEP A has issued guidance documents that discuss the permissible use of staged implementation. See Guidance for Water Quality-Based Decisions: The TMDL Process, Environmental Protection Agency (1991); Memorandum: Clarification Regarding "Phased" Total Maximum Daily Loads, EPA (2006).

The USEPA Region 5 has approved a similar conceptual approach for the East Branch DuPage River and Salt Creek dissolved oxygen TMDLs in Illinois, where municipal wastewater treatment plants are allowed to participate in other water quality improvements instead of having more stringent BOD and ammonia limits placed in NPDES permits, which was the original plan. Water quality improvements are being made at a lower total cost in these watersheds. We believe a staged implementation approach to the Wisconsin River TMDL is appropriate and approvable by USEP A, and WDNR should strongly consider it. (*City of Marshfield*)

Response: Phased or staged TMDL implementation of wasteload allocations (WLAs), as described in the comment, is not supported by the memo referenced (Memorandum: Clarification Regarding "Phased" Total Maximum Daily Loads, U.S. EPA 2006) in that WLAs are unable to be phased in the way envisioned in the comment as outlined below. However, implementation of wasteload load allocations and other water quality based effluent limits can be "phased" through use of adaptive management or the multi-discharge variance (MDV).

U.S. EPA's memo also clearly states that all TMDLs must be set to meet water quality standards:

> *"Under the phased approach the TMDL has LAs (load allocations) and WLAs (wasteload allocations) calculated with margins of safety* ***to meet water quality standards****" (emphasis added by U.S. EPA*).

TMDLs do not create new regulatory requirements but rather are implemented through existing regulations. For Wisconsin, ch. NR 217, Wis. Adm. Code sets out the requirements for implementation of the wasteload allocation from a TMDL. Specifically, s. NR 217.16(2):

> *If the phosphorus limitation based on an approved TMDL is less stringent than the water quality based effluent limitation calculated in s. NR 217.13, the department may include the TMDL based limit in lieu of the limit calculated in s. NR 217.13 if the limit calculated under s. NR 217.13 has not yet taken effect. If the department includes the TMDL based limitation for phosphorus in the WPDES permit in lieu of the limit calculated in s. NR 217.13, the TMDL based limit may remain in the permit for up to two permit terms to allow time for implementation of the TMDL, or the implementation period specified in the TMDL, whichever is less. The department may include a schedule of compliance to achieve a TMDL based limit if the department determines a schedule of compliance is necessary.*

Please note that NR 217.16(2) is consistent with a phased TMDL approach as laid out in U.S. EPA's memo from 2006:

> *In such cases, the Guidance recommends that some additional provision in the TMDL, such as a schedule and description of the implementation mechanisms for nonpoint source control measures, be included to provide reasonable assurance that the nonpoint source measures will achieve the expected load reductions. Such additional provisions also assure compliance with federal regulations 40 CFR 130.2(i), which provide that in order for the wasteload allocations to be made less stringent, more stringent load allocations must be "practicable".*

To bolster the reasonable assurance section of the TMDL, the department is utilizing new modeling capabilities to express the load allocation as an edge of field yield consistent with output from SnapPlus and has conducted analysis to show that the load allocations in the TMDL, which give point sources relief from NR 217.13 limits, are achievable with reasonable implementation of agricultural management practices.

U.S. EPA's memo also clearly states that all TMDLs must be set to meet water quality standards:

*"Under the phased approach the TMDL has LAs (load allocations) and WLAs (wasteload allocations) calculated with margins of safety **to meet water quality standards**" (emphasis added by U.S. EPA*).

The East Branch and Salt Creek TMDLs are being taken out of context in their relevance to the Wisconsin River Basin TMDL. The TMDLs for the DuPage River and Salt Creek in Illinois were for chlorides and total dissolved solids (TDS), and the "phased implementation" was related to NPDES permit requirements to reduce phosphorus, for which Illinois has not adopted numeric criteria. However, it can be used as a hypothetical for comparison. If a state does not have numeric promulgated water quality standards for the pollutants in question, then water quality targets can be used in setting allocations. The lack of numeric water quality standards allows more flexibility for so called phased or adaptive approaches such that targets are set in the TMDL and once reached compared to water quality monitoring and then targets can be adjusted as needed. Wisconsin has promulgated numeric phosphorus criteria which prevents this approach for phosphorus TMDLs in Wisconsin; however, through negotiations with U.S. EPA the department was successful in gaining elements of a phased or adaptive approach for point sources through NR 217.18, the watershed adaptive management option.

While the East Branch and Salt Creek TMDLs contain phased implementation for BOD and dissolved oxygen, this was due to a unique circumstance and involving the removal of a dam. Subsequent TMDL approvals (for example, the Ottawa River, Ohio, TMDL Decision Document) explicitly state that timelines and milestones included in the TMDL regarding the implementation of WLAs permits are not part of the EPA decision document. EPA approval is for the allocations; permit conditions and compliance schedules are laid out in administrative code and set during the permitting process.

38) Phased or Staged TMDL: Given the concerns noted above, and that MS4s are a relatively small percentage of the current loading. NCWSC would like the WDNR to consider a phased, or staged, TMDL. With this approach the MS4s would be given interim wasteload allocations or goals that are technically achievable at a reasonable cost while nonpoint sources work on reducing their loadings. Without this type of approach, the NCWSC believes this TMDL will fail and MS4s will spend millions of dollars on compliance without a corresponding overall improvement in water quality. *(Northcentral Wisconsin Stormwater Coalition)*

Response: See responses to comments #24 and #37. In addition, as outlined in guidance (https://dnr.wi.gov/topic/stormwater/standards/ms4_modeling.htm) and permit requirements, permitted MS4s have an extended compliance schedule in which under each permit term a municipality must show progress toward meeting the TMDL allocations.

Standards and Site-Specific Criteria Comments:

39) Limited Aquatic Life Reaches 147 and 331: Please provide the water quality criteria used in the SWAT model by reach. TMDL reaches 147 and 331 are both listed as Limited Aquatic Life segments in NR 104, in which TP water quality criteria do not apply. However, it appears that a TP water quality criterion was used for these segments in the TMD L development. Reach 14 is listed in Appendices J and K as requiring an 84% reduction for local water quality while reach

331 is listed as requiring a 57% reduction for local water quality. Reach 331 is also shown as requiring a reduction for downstream reservoir of 23% without the SSC and 7% with the SSC. This suggests that these two reaches were not modeled as having no water quality criteria for TP. *(City of Marshfield)*

Response: The TMDL has been updated to correctly reflect the Limited Aquatic Life portion of Mill Creek and the point of compliance for phosphorus criteria by merging subbasins 147 & 331 as part of the allocation development process.

40) The League supports DNR's decision to pursue site-specific criteria (SSC) for lakes Petenwell, Castle Rock, and Wisconsin. However, the TMDL Report is not clear as to the process DNR plans to use to develop SSC. In particular, it is not at all clear from the report whether DNR plans to secure an SSC prior to finalizing the TMDL. To the extent that DNR is proposing to move forward on finalizing the TMDL prior to successful completion of the SSC process, the League strongly objects to that process.

An SSC must be adopted by rule in Wisconsin. This process can take a number of years. If DNR were to move forward on the TMDL without first securing SSC, point sources could face implementation of extremely stringent TMDL allocations. It makes little sense and could result in significant expenses to point source dischargers if the TMDL were to proceed prior to finalization of SSC. The TMDL should not move forward unless and until completion of the SSC. *(Stafford Rosenbaum on Behalf of League of Wisconsin Municipalities)*

Response: The SSC must be adopted through a rulemaking process. Given the required steps in the process, it is estimated that the SSC rules covering Castle Rock, Petenwell, and Lake Wisconsin may be adopted in 2019. The TMDL will move forward with the current criteria because a significant portion of the wastewater discharges are already facing stringent phosphorus limits based on s. NR 217.13 Wis. Admin. Code, and the TMDL provides relief for many of these facilities. Therefore, delaying the TMDL to wait for the adoption of the site-specific criteria would also result in additional expenses to point source dischargers.

41) While we are cognizant of the fact that the development of two sets of TMDL allocations (one based on current phosphorus water quality criteria, and one based on site-specific criteria (SSC)) may cause consternation with wastewater permit holders who need to make phosphorus compliance decisions, we do think the SSC approach is appropriate, and is based on good science. Basing decisions on the downstream impacts to Lake Wisconsin, at the bottom of the watershed, and then "moving up" to determine appropriate and protective SSC for the other major impoundments is the approach that will most positively impact the people of Wisconsin. It also shares the burden equitably among the entire basin, as opposed to disproportionately affecting the upper section of the basin. *(Stewards of the Dells and River Alliance of Wisconsin)*

Response: The department has included both sets of allocations to provide better transparency on what allocations are required for Castle Rock, Petenwell, and Lake Wisconsin to meet water quality standards.

Reserve Capacity and Margin of Safety Comments:

42) The League requests that reserve capacity allocations should be specifically noted in the TMDL for use by point sources and not for nonpoint sources. In order to achieve water quality improvements, nonpoint source reductions from the baseline conditions must be met. Changes to point source allocations, on the other hand, would have an insignificant impact on water quality. Thus, the reserve capacity should be limited to use by point sources. *(Stafford Rosenbaum on Behalf of League of Wisconsin Municipalities)*

Response: Reserve capacity is for point sources to address new or expanding discharges or to account for sources not originally allocated in the TMDL. Reserve capacity is not available to nonpoint sources.

43) Secondly, access to the five percent "reserve capacity" phosphorus should be restricted to municipalities—not industry—as we've traditionally done with TMDLs in Wisconsin. Allowing industry to use reserve capacity has been considered in past TMDLs such as the Red Cedar River, and just as quickly reconsidered, as an industrial permit holder proposed to withdraw from municipal wastewater treatment and build their own treatment facility, proposing to use up the reserve capacity for the whole TMDL in one proposed expansion. What's to stop this from happening again, this time in the Wisconsin River TMDL? Industry has better control of its growth (and associated wastewater discharge needs) than do municipal wastewater treatment plants, many of which in smaller communities provide a centralized wastewater processing service to industry. For these reasons, we request more detail on how reserve capacity decisions would be made. *(Stewards of the Dells and River Alliance of Wisconsin)*

Response: Restricting access to reserve capacity to make it unavailable to industry could result in limiting economic growth in the basin. More discussion has been added to the reserve capacity section of the TMDL report to provide details related to how point sources may qualify for reserve capacity. Reserve capacity will only be available to new or expanding point sources that can show need and that can demonstrate they will be using conservation measures, recycling measures, and other pollution minimization measures. New dischargers will have to evaluate current available treatment technologies and expanding dischargers will evaluate optimization of their existing treatment system and evaluation of alternative treatment technologies.

44) Margin of Safety (MOS) and Reserve Capacity (RC)-Please provide a table and narrative showing how MOS and RC are being applied for the other State of Wisconsin TMDLs and a comparison to how they are being applied to the Wisconsin River Basin TMDL. NCWSC is in receipt of Kevin Kirsch 's March 16, 2018, response to NCWSC's March 16, 2018. e-mail regarding this matter but would like additional information as described above. It seems that there may be an overabundance of collective safety factors on the modeling side (implicit) and the water quality trading side (trade ratios, delivery factors). This overabundance of safety factors appears to provide impediments to the water quality trading compliance option due to over-complicating the process and driving up costs. *(Northcentral Wisconsin Stormwater Coalition)*

Response: MOS has been implicit for TMDLs developed thus far in Wisconsin and the Wisconsin River TMDL is consistent with this approach. The calculation of reserve capacity is consistent with the approach used in the US EPA approved Milwaukee Basin TMDL and the Upper Fox-Wolf Basin TMDL, which is currently under development. The Rock River and Lower Fox TMDLs did not have reserve capacity assigned and this has proven problematic when addressing new or expanding dischargers.

The implicit MOS for the Wisconsin River Basin TMDL is broken into two categories; the MOS for the tributaries and river reaches and the MOS for the reservoirs. The loading capacity for the reservoirs requires load reductions from most tributaries beyond what is needed to meet local stream criteria. The difference between these two levels of loading capacity provides a MOS for tributary and river reaches. Across the entire basin, approximately half of the required load reduction is attributable to a downstream reservoir. For the reservoirs, DNR did not make overly conservative assumptions but rather the strong empirical relationships and multiple lines of evidence used in the loading capacity estimates show that they are accurate and will result in the attainment of designated uses in the reservoirs. Please see section 6.5 of the report for additional discussion.

The MOS and trade ratios are for separate processes. MOS is for the TMDL and covers the calculation of allocations. The trade ratios cover uncertainty related to implementation and performance of management practices implemented through water quality trading. The trade ratio is comprised of several factors of which the delivery factor is one of the factors. In a TMDL, the delivery factor is based on the modeling methodologies used in the TMDL. In the case of the Wisconsin River Basin, delivery fractions were calculated for five reservoirs, which are reported in Appendix O of the report. Appendix O also outlines how to apply delivery factors. Trading between point sources has a minimum trade ratio of 1.1:1 and several nonpoint practices can result in a trade ratio of 1.2:1; both ratios are the minimum allowed.

Water Quality Trading, Adaptive Management, and Multi-Discharger Variance Comments:

45) Also, my company has questions about how long-term trades will be affected by the need to bring agricultural land below the TMDL threshold before credits can be generated. Will this applied on a field by field basis, or will phosphorus index be averaged over a land-owner's cropland? Is there more information available on how the TMDL will affect water quality trading options? *(Town and Country Engineering)*

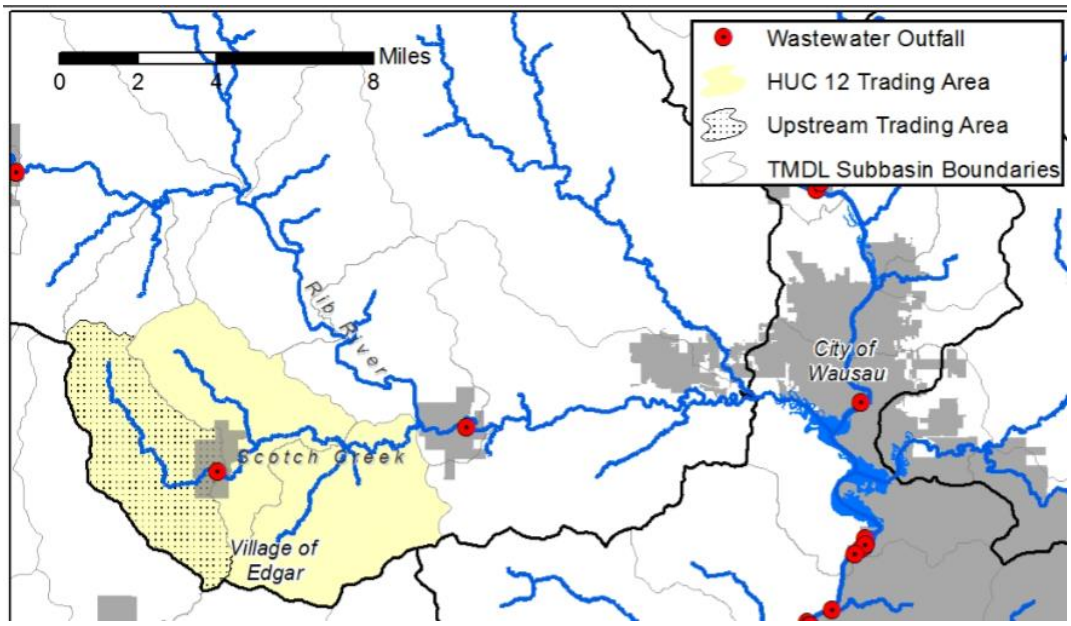
Response: The credit threshold is applied on a per field basis. Please note that the P-Index is different from the credit threshold and phosphorus yield used in water quality trading. While all of them can be expressed in a mass per acre, the P-Index is calculated using the steepest slope and more erodible soil on the field while the credit threshold and phosphorus yield are calculated using average slope and soil conditions. Please see Appendix N for calculation of agricultural baselines and credit thresholds. Direct questions related to specific projects to local or statewide Water Quality Trading Coordinators.

46) The Village WWTP outfall discharges to Scotch Creek in TMDL Reach 105. Since the TMDL reach ends at the Village outfall, there are no potential downstream water quality trades available to the Village within the reach. Could reaches 105 and 106 be combined to include the entire

segment that is listed in NR104 and allow additional downstream trading partners within the TMDL reach? A similar situation appears to recur for several small point source dischargers on small streams in western Marathon and Wood counties where combining these reaches may improve their ability to use trading as a compliance tool. *(Stand Associates on behalf of the Village of Edgar)*

Response: Downstream trading is allowed within the same HUC 12. Records indicate that the map shown below was created in 2016 and consistent with water quality trading requirements it shows that the allowable downstream trading area for Edgar already includes reaches 105 and 106. The area highlighted as the "HUC 12 Trading Area" corresponds with the downstream trading area. Please refer to the trading guidance for more details: https://dnr.wi.gov/topic/surfacewater/documents/WQT_guidance_Aug_21_2013signed.pdf

Map Showing the Trading Area (in yellow) for the Village of Edgar:



47) With municipal dischargers potentially facing extremely stringent TMDL based limits, the limited availability of practical compliance options becomes even more of challenge. DNR should reevaluate implementation of trading and adaptive management in order to provide more flexible compliance options for point sources. Without such flexibility, municipal dischargers are likely to face substantial costs for facility upgrades well into the future that will not result in significant water quality improvement. *(Stafford Rosenbaum on Behalf of League of Wisconsin Municipalities)*

Response: Portions of water quality trading and watershed adaptive management are either codified or in guidance. The portions in guidance have balanced flexibility against meeting the codified requirements including the Clean Water Act. Please refer to Appendix O for a discussion of the geographic extent of trades and for setting the adaptive management compliance point in the Wisconsin River TMDL area.

48) The WDNR's previous water quality trading guidance indicates point sources can trade with downstream sources if they are in the same TMDL reach. However, the City's TMDL reach ends near the City's WWTP outfall, potentially making downstream trades impossible even if they are in the same HUC 12. We suggest that reaches 147 and 331 be combined to cover the entire HUC 12 and the NR 104 variance portion of Mill Creek, allowing the City to pursue trades within the entire HUC12. *(City of Marshfield)*

Response: In this case, reaches 147 and 331 can be combined because the bottom of reach 331 is the point of standards application. Portions of reach 331 and all of reach 147 are classified as limited aquatic life and do not have applicable phosphorus criteria. The phosphorus criteria apply toward the bottom of reach 331. The remainder of the Wisconsin River Basin was checked, and this does not occur anywhere else.

49) When will the water quality trading delivery factors in the TMDL areas be determined? *(City of Marshfield)*

Response: The delivery factor accounts for the distance between trading partners and the impact that this distance has on the fate and transport of the traded pollutant in surface waters. Delivery factors are mainly relevant if the trading partners are separated by a reservoir and is discussed in the report and Appendix O.

50) Because the new credit thresholds are so low, it appears that no long-term trade credits will be available. Please provide a discussion of the impact of the significantly lower credit thresholds on the feasibility of water quality trading as a compliance option for PS dischargers. *(City of Marshfield)*

Response: Credit thresholds are dependent on location. In some subbasins, the reductions needed to meet local water quality goals are substantial and may impact the viability of some trading projects. However, in many cases the bulk of the reductions are based on achieving downstream water quality goals which expands the area in which trading can occur, including the entire Basin for reductions incurred by Lake Wisconsin, thus increasing the pool of potential trading partners. The viability of trading alternatives needs to be addressed on a case-by-case basis and as such is beyond the scope of the TMDL.

51) Can eminent domain be used as a tool to acquire land for trading credits if voluntary cooperation cannot be reached? *(City of Marshfield)*

Response: This is outside the scope of the TMDL and best discussed with your legal counsel.

52) Are there plans to streamline the trading process in the future to eliminate steps and time delays currently in the Water Quality Trading How-To Manual? We would like to use this compliance option but are concerned the credit thresholds will be too low and steps too onerous. *(City of Marshfield)*

Response: It is not clear what steps need to be eliminated or what time delays have been experienced. The trading protocols laid out in departmental guidance are designed to ensure consistency with the Clean Water Act, United States Environmental Protection Agency guidance

and s. 283.84, Wis. Stats. DNR has a regional trading coordinator and the Wisconsin River Basin Implementation Coordinator that can assist you through the trading process.

53) Please provide commentary on the feasibility of water quality trading with agricultural lands given the likely low credit thresholds that appear to limit credits to 5-year life non-renewable interim credits rather than permanent credits. Is there a possibility that interim credits could become permanent credits? It is our understanding that WDNR is planning to include credit threshold calculations on a sub-basin scale in the TMDL document to be released for public comment in May or June 20 I 8. NCWSC will be interested in seeing those calculations and providing feedback to WDNR in advance of the WDNR releasing the TMDL documents for public comment. *(Northcentral Wisconsin Stormwater Coalition)*

Response: Per Federal requirements, credits need to be below the credit threshold to be permanent. The concept of interim credits was negotiated with US EPA. Prior to DNR's negotiations, the only credits allowed were those below the credit threshold. Nonpoint credit thresholds can be found in Appendix N.

54) Please provide commentary on the feasibility of watershed adaptive management given the size of the Wisconsin River TMDL basin because the two feasibility issues discussed above point to watershed adaptive management as the alternative that appears more feasible. The NCWSC requests that an example framework of a single or multiple watershed adaptive management project(s) be included in the TMDL document based on actual point and nonpoint partners in the Wisconsin River Basin. *(Northcentral Wisconsin Stormwater Coalition)*

Response: The development of a hypothetical trade or adaptive management plan is beyond the scope of the TMDL; however, the DNR has outlined in Appendix O the applicable target concentrations that need to be attained for adaptive management considering downstream waters. For example, if the criteria for stream in the subbasin is 75 µg/L but additional reductions are needed to meet downstream water quality, DNR has calculated and provided in Appendix O the resulting concentration that allows attainment of both local and downstream water quality criteria. Attainment of this concentration is deemed as meeting adaptive management; the point source does not have to bring the downstream water body into final compliance but rather the point source must meet the concentration in its subbasin that allows the attainment of both local and downstream water quality criteria. To accomplish this, the adaptive management action area must address the point source's subbasin and contributory upstream subbasins.

55) Multi-Discharger Variance (MDV) for Total Phosphorus: With the understanding that the MDV is currently an interim compliance option only for certain wastewater treatment facilities, NCWSC requests that the MDV be expanded as a permanent compliance option also available for use by all MS4s. In doing so, WDNR would be building upon an existing initiative that promotes cost-effective phosphorus reduction while generating additional funding for the nonpoint source program. The NCWSC would be interested in assisting the WDNR in development of this option. (Northcentral Wisconsin Stormwater Coalition)

Response: The multi-discharger variance is not a compliance option; it is a temporary change (variance) to the water quality standard. Variances are allowed by the Clean Water Act and Wisconsin Statute (ss. 283.15 and 283.16) when a facility can demonstrate that it is unable to meet the water quality standard due to economic hardship. In most cases, this requires an

economic analysis by the facility that demonstrates meeting the final WQBEL would cause substantial and widespread economic hardship. A variance is available to the permittee for a single permit term; in the case of the MDV for phosphorus, the variance can be renewed at permit reissuance for up to 4 terms or a total of 20 years. During the term of the variance, the permittee must continue to take steps towards meeting the water quality standard – for the MDV, steps can include making payments to counties or taking other steps to implement nonpoint practices. Once the variance term is over, the permittee must comply with the WQBEL.

Implementation of TMDL for permitted MS4s already has an extended compliance schedule that extends beyond that allowed under the MDV and without the interim limits and payments required under the MDV. Details can be found in the guidance: https://dnr.wi.gov/topic/stormwater/standards/ms4_modeling.html.

56) Do you expect the trading process to be more streamlined in the future? Meaning submit a letter of intent, submit final strategy, approval and go. Thus, eliminating the additional steps and time delays currently in the Water Quality Trading How-To-Manual? *(Marshfield WWTF)*

Response: It is not clear what steps need to be eliminated or what time delays have been experienced. The trading protocols laid out in departmental guidance are designed to ensure consistency with the Clean Water Act, United States Environmental Protection Agency guidance and s. 283.84, Wis. Stats. DNR has a regional trading coordinator and the Wisconsin River Basin Implementation Coordinator that can assist you through the trading process.

57) When will the delivery factors be determined for trading downstream of our HUC12 because there is not enough land or cooperation currently to get the full amount we need? *(Marshfield WWTF)*

Response: See response to comment 49. Delivery factors account for the fate and transport of a pollutant and are not adjusted based on land availability. In most cases, a credit generator will be able to trade with other dischargers within the drainage area of the impaired segment that resulted in the allocation being assigned to it. Trades may occur both upstream and downstream of the generator's subbasin provided that the potential for localized water quality standard exceedances is adequately addressed (see downstream trading factor).

When meeting local water quality, the ultimate extent of the area available for trading is limited to the drainage area contributing to the impaired segment or the HUC-12 (See Appendix O). In the case of this TMDL, the geographic extent for trading can be expanded for the portion of the reductions needed to meet water quality standards for downstream reservoirs. Information is provided in Appendix O on how much of the specified allocations are related to protecting water quality in the local reach and how much is related to protecting a downstream waterbody. For example, if a facility intends to trade on a TMDL reach, and 50% of the reduction is needed to meet local water quality criteria on this reach, and the other 50% of the reduction is needed to meet water quality criteria in a downstream reservoir, 50% of the credits toward local reductions must be applied in the TMDL subbasin, but the remaining 50% can be applied anywhere upstream of the downstream reservoir. Please see Appendix O for details.

58) If I find a parcel of land that the farmer is willing to work with us on, and if I start 3 to 4 years ahead with the paperwork, and if it's approved and fully implemented, I would then get the interim credits for up to a five-year permit term, which would be great for us. Then the farmer could plow it up for one year and then I could start the process over. Would I then be able to get the same interim credits for the same practices on the same land again? This way I could keep a revolving land base to meet the limits every year without long term credits! *(Marshfield WWTF)*

Response: This was not the intent of interim credits when negotiated with US EPA. The intent was to bring fields into ongoing or permanent compliance with the agricultural performance standards and TMDL requirements while providing point sources with the opportunity to have interim credits for the additional work that may be needed to bring a field down to and below the credit threshold for long-term credits. Deviating from this intent runs the risk of US EPA rejecting the use of interim credits and only allowing credits to be generated below the credit threshold.

Watershed Modeling (SWAT) Report Comments:

59) Section 4.3: The report discusses soil phosphorus data received from the UW Soil Testing Laboratory from Bray 1 test results, suggesting that data used was plant available phosphorus rather than total phosphorus. Was this data adjusted upward before it was entered into SWAT, or does SWAT use plant available phosphorus as an input parameter? If it was adjusted, what ratios were used? *(City of Marshfield)*

Response: Initial soil phosphorus concentration in the SWAT model is comprised of two parameters: labile (soluble) and organic phosphorus concentration. The initial labile phosphorus concentrations were estimated as half of the reported phosphorus using the Bray-1 method measured with a spectrophotometer. Organic phosphorus concentrations were estimated by assuming that phosphorus constitutes 0.85% of organic material measured by loss of weight upon ignition. This default concentration is assumed to equilibrate over the 12-year model spin-up period. Soluble phosphorus concentrations were estimated as half of the reported phosphorus using the Bray-1 method measured with a spectrophotometer (Vadas & White, 2010). Organic phosphorus concentrations were estimated by assuming that phosphorus constitutes 0.85% of organic material measured by loss of weight upon ignition (Havlin, Beaton, Tisdale, & Nelson, 2005). SWAT allows soil phosphorus values to be set at every soil horizon, in our case we changed the soil phosphorus values only for the first horizon, the rest were left at the default values.

60) Section 4.3: Was a sensitivity analysis done for the assumption that half of the soil phosphorus is soluble? Was the 0.5 ratio based on information from the UW-Madison Soils Department or other studies? This ratio can vary significantly depending on manure applications and other factors. (City of Marshfield)

Response: A qualitative sensitivity analysis was carried out one-at-a-time for 45 different parameters including the initial soil labile phosphorus concentration and four additional parameters related to soil phosphorus. The SWAT model was run for 36 years using typical, not

necessarily recommended, manure and commercial fertilizer applications so that the soluble and organic P fractions in the soil could be accurately simulated.

61) Section 5.6: It appears crop yields were averaged over the entire modeled period. Is this appropriate, considering cash crop pricing and practices have changed during this time? How sensitive is this parameter? *(City of Marshfield)*

Response: Crop yields are independent of crop prices, rather the inter-annual variability of crop yields is driven by weather patterns. The model assumed constant agricultural practices over the model simulation period. Accurate simulation of runoff is strongly dependent on the accurate simulation of plant growth; therefore, crop yields were calibrated early in the model development process. While the report summarized the data over the model simulation period, annual results were evaluated as part of the calibration process, and although annual simulated crop yields did not always match reported yields exactly year-to-year, the overall average and standard deviations of crop yields did.

62) Section 5.9: It is noted that FILTERW (filter strip width from edge of field) was used to simulate TP deposition and was not used according to the literal specifications in the SWAT model documentation and that after "setting FILTER W to appropriately buffer streams from TP delivery", the simulated TP was still too high during low flow periods. To correct this, the groundwater soluble phosphorus parameter was adjusted in some watersheds. Will the approach of not using the literal SWAT model specifications for filter strip width affect the ability to model a future scenario that employs this BMP? Language should be added to the implementation section stating that the FILTER W parameter values used in the model will not prohibit trading of this BMP because the model values were set at a large, region-wide scale. *(City of Marshfield)*

Response: Modeling of implementation practices takes place at the field scale level with different tools depending on the selected best management practice (BMP). The department does not intend to use the SWAT model to evaluate BMPs, so these model adjustments will not impact the use of appropriate BMP modeling tools.

Nonpoint and SnapPlus Implementation Comments:

63) In order for cropland managers to know how phosphorus loss from their operations relate to average conditions in their vicinity, and any appropriate water quality goals, their nutrient management plans must include phosphorus loss values that can be related to the results of watershed modeling. Since watershed water quality goals are expressed as watershed average values, nutrient management plans need to also include the farm-wide average lbs./ac of phosphorus being lost from all cropland and pastures (as estimated with the Wisconsin P Index equations) as well as the weighted average values for the agronomic soil test phosphorus concentration. These numbers are easily derived from data already in current SnapPlus nutrient management plans but are not included because the SnapPlus software provided by the State does not report them. This can be rectified with a very simple modification to the software. To better allow consideration of water quality impact when land management decisions are being made the land manager must first have access to the appropriate information. This includes the average values described above. Therefore, the following should be pursued:

I. The Snap Plus software should be modified to calculate the weighted average 1) estimated unit area phosphorus load in lbs./acre/yr., using the Wisconsin Phosphorus Index equations and the predominant field soil, 2) Bray P1 soil phosphorus level and 3) soil loss in tons/acre for every nutrient management plan.

Response: SnapPlus can calculate phosphorus loss (pounds/acre) using the predominant soil and average slope. This modification was made several years ago to better estimate phosphorus loads for the evaluation of water quality trading and watershed planning. The Wisconsin P Index equations are used, and soil phosphorus levels are also required. Sediment loss is also calculated.

II. Education should be provided to crop consultants and land managers as to why these numbers were added to Snap Plus and how they can be used.

Response: Supporting documentation already exists.

III. Land managers should be encouraged to track these yardsticks of water quality over time and consider the values as they make land management decisions.

Response: Successful implementation of the load allocation requires that the numbers outlined in Appendix N be considered and met by agricultural producers.