TMDL: Token Creek, Wisconsin
Final TMDL Submittal Date: May 30, 2002
Decision Document Date: June 26, 2002

DECISION DOCUMENT FOR THE APPROVAL OF TOKEN CREEK TMDL

Section 303(d) of the Clean Water Act (CWA) and EPA's implementing regulations at 40 C.F.R. Part 130 describe the statutory and regulatory requirements for approvable TMDLs. Additional information is generally necessary for EPA to determine if a submitted TMDL fulfills the legal requirements for approval under Section 303(d) and EPA regulations, and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation. Use of the term "should" below denotes information that is generally necessary for EPA to determine if a submitted TMDL is approvable.

1. Identification of Waterbody, Pollutant of Concern, Pollutant Sources, and Priority Ranking

The TMDL submittal should identify the waterbody as it appears on the State's/Tribe's 303(d) list. The waterbody should be identified/georeferenced using the National Hydrography Dataset (NHD), and the TMDL should clearly identify the pollutant for which the TMDL is being established. In addition, the TMDL should identify the priority ranking of the waterbody and specify the link between the pollutant of concern and the water quality standard (see section 2 below).

The TMDL submittal should include an identification of the point and nonpoint sources of the pollutant of concern, including location of the source(s) and the quantity of the loading, e.g., lbs/per day. The TMDL should provide the identification numbers of the NPDES permits within the waterbody. Where it is possible to separate natural background from nonpoint sources, the TMDL should include a description of the natural background. This information is necessary for EPA's review of the load and wasteload allocations, which are required by regulation.

The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as:

(1) the spatial extent of the watershed in which the impaired waterbody is located;
(2) the assumed distribution of land use in the watershed (e.g., urban, forested, agriculture);
(3) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources;

(4) present and future growth trends, if taken into consideration in preparing the TMDL (e.g., the TMDL could include the design capacity of a wastewater treatment facility); and (5) an explanation and analytical basis for expressing the TMDL through *surrogate measures*, if applicable. *Surrogate measures* are parameters such as percent fines and turbidity for sediment impairments; chlorophyl *a* and phosphorus loadings for excess algae; length of riparian buffer; or number of acres of best management practices.

Comments:
The Wisconsin Department of Natural Resources (WDNR) developed a TMDL for two segments of Token Creek, segment 1 (impoundment and upstream, mile 4 to mile 6.5) and segment 2 (Highway 51 to Dam, mile 2 to mile 4). The TMDL addresses the sedimentation and habitat degradation impairments which were identified on the Wisconsin 1998 303(d) list. Both segments were ranked as high priority on the Wisconsin 1998 303(d) list.

Token Creek is located within Dane County, in the Lake Mendota Watershed. Token Creek originates in the township of Windsor and flows south to Cherokee Marsh. Token Creek is 10 miles long with a drainage area of about 25.3 square miles. The primary land use in Token Creek's watershed is agriculture. The land cover for the entire length of Token Creek is approximately:

- *Agriculture 73%*
- *Residential 7%*
- *Transportation 4%*
- *Wetlands 4%*
- *Other 12%*

There are no point sources on Token Creek that contribute to the sedimentation and habitat degradation impairments. Non-point sources are identified in the Nonpoint Source Control Plan for the Lake Mendota Priority Watershed Project (Watershed Plan), Chapter 2. The Watershed Plan is an attachment to the TMDL. Nonpoint sources identified in the Watershed Plan as contributing to the impairments include agricultural field run-off, construction site run-off, streambank erosion, storm water run-off from urban areas, and an impoundment. The TMDL identifies the existing annual sediment load of 1416 tons to Token Creek from the following sources:

- *Crop and other uplands 752 tons*
- *Stream Banks 146 tons*
  (primarily agricultural)
- *Existing Urban 148 tons*
  (residential and transportation)
- *Transitional Urban 370 tons*
  (agricultural land in transition to urban, mostly residential)

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The growth of the City of Sun Prairie is extending into the headwaters of Token Creek. Therefore, this TMDL contemplated increased loadings due to the urban development. An annual sediment load of 1559 tons was projected for the year 2020 as follows:

- *Crop and other uplands 660 tons*
- *Stream Banks 146 tons*
  (primarily agricultural)
- *Existing Urban 383 tons*
  (residential and transportation)
- *Transitional Urban 370 tons*
  (agricultural land in transition to urban, mostly residential and assumes 62 acres per year of development)

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable State/Tribal water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the antidegradation policy. (40 C.F.R. §130.7(c)(1)). EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

The TMDL submittal must identify a numeric water quality target(s) – a quantitative value used to measure whether or not the applicable water quality standard is attained. Generally, the pollutant of concern and the numeric water quality target are, respectively, the chemical causing the impairment and the numeric criteria for that chemical (e.g., chromium) contained in the water quality standard. The TMDL expresses the relationship between any necessary reduction of the pollutant of concern and the attainment of the numeric water quality target. Occasionally, the pollutant of concern is different from the pollutant that is the subject of the numeric water quality target (e.g., when the pollutant of concern is phosphorus and the numeric water quality target is expressed as Dissolved Oxygen (DO) criteria). In such cases, the TMDL submittal should explain the linkage between the pollutant of concern and the chosen numeric water quality target.

Comments:
The State identified the narrative standard set forth at Section NR 102.04 (1) intro and (a) of the Wisconsin Administrative Code (WAC) as the applicable standard. This standard states in part, "Substances that will cause objectionable deposits on the shore or in the bed of a body of water, shall not be present in such amounts as to interfere with public rights in waters of the state." The designated uses applicable to each segment are set forth at Section NR 102.04(3) intro, (a) and (b) of the WAC. Segment 1 has been designated a warm water sport fish community and

segment 2 has been designated a cold water community. In 1996 segment 1's existing use was determined to be indicative of a limited forage fishery. Segment 2's existing use has been determined to be indicative of a warm water fishery. WDNR believes that both segments can achieve a potential use of cold water community.

The state established a water quality target for both segments as meeting a potential use of cold water community. More specifically, the goal of establishing a cold water community, Class II trout fishery as described in NR 1.02(7)(b) of the WAC has been established. WDNR considered defining a water quality target as a condition of substrate however, due to native peat substrate with sand lenses, WDNR determined it would be difficult to assess improvements in the substrate using presently available physical habitat metrics.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

A TMDL must identify the loading capacity of a waterbody for the applicable pollutant. EPA regulations define loading capacity as the greatest amount of a pollutant that a water can receive without violating water quality standards (40 C.F.R. §130.2(f)).

The pollutant loadings may be expressed as either mass-per-time, toxicity or other appropriate measure (40 C.F.R. §130.2(i)). If the TMDL is expressed in terms other than a daily load, e.g., an annual load, the submittal should explain why it is appropriate to express the TMDL in the unit of measurement chosen. The TMDL submittal should describe the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In many instances, this method will be a water quality model.

The TMDL submittal should contain documentation supporting the TMDL analysis, including the basis for any assumptions; a discussion of strengths and weaknesses in the analytical process; and results from any water quality modeling. EPA needs this information to review the loading capacity determination, and load and wasteload allocations, which are required by regulation.

TMDLs must take into account *critical conditions* for steam flow, loading, and water quality parameters as part of the analysis of loading capacity. (40 C.F.R. §130.7(c)(1)). TMDLs should define applicable *critical conditions* and describe their approach to estimating both point and nonpoint source loadings under such *critical conditions*. In particular, the TMDL should discuss the approach used to compute and allocate nonpoint source loadings, e.g., meteorological conditions and land use distribution.

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Comments:
WDNR will consider that Token Creek is meeting the narrative water quality standard when a cold water community is established in both segments of Token Creek. To achieve a cold water community, WDNR has determined a total load capacity of sediment for both segments to be no greater than 746 tons/year. Additionally, the TMDL requires removal of the impoundment as a necessary action to reach a cold water community. Removal of the impoundment is critical to achieving the water quality targets. Once the impoundment is removed, naturally occurring cold water springs can be preserved and aid in the establishment of a cold water community.

WDNR established a total load capacity of 746 tons/year of sediment. The total load capacity of 746 tons/year represents a 47% reduction of sediment entering Token Creek for existing conditions (based on 1996 information) and a 53% reduction for projected conditions (through 2020). WDNR has determined that these reductions of sediment, along with removal of the impoundment, will achieve the water quality target of establishing a cold water community in both segments. Establishment of a cold water community has been determined by WDNR to be an adequate surrogate for the narrative water quality standard. The TMDL includes a monitoring plan which is appropriate for demonstrating whether or not progress has been made towards establishment of the cold water community.

4. Load Allocations (LAs)

EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity attributed to existing and future nonpoint sources and to natural background. Load allocations may range from reasonably accurate estimates to gross allotments (40 C.F.R. §130.2(g)). Where possible, load allocations should be described separately for natural background and nonpoint sources.

Comments:
WDNR allocated 746 tons/year to nonpoint sources. Specific allocations were determined for the various land uses within Token Creek's watershed. The category specific load allocations based on 1996 conditions are as follows.

category	*load allocation (tons/year)*
croplands and other uplands	*481*
stream banks	*73*
existing urban	*118*
transitional urban	*74*

Since Token Creek is located in a developing area, WDNR also determined specific load allocations based on the projected 2020 conditions. These load allocations are as follows.

category	*load allocation (tons/year)*
croplands and other uplands	*422*
stream banks	*73*
existing urban (based on 1996 conditions)	*118*
existing urban (based on projected growth between 1996 and 2020)	*59*
transitional urban	*74*

5. Wasteload Allocations (WLAs)

EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to individual existing and future point source(s) (40 C.F.R. §130.2(h), 40 C.F.R. §130.2(i)). In some cases, WLAs may cover more than one discharger, e.g., if the source is contained within a general permit.

The individual WLAs may take the form of uniform percentage reductions or individual mass based limitations for dischargers where it can be shown that this solution meets WQSs and does not result in localized impairments. These individual WLAs may be adjusted during the NPDES permitting process. If the WLAs are adjusted, the individual effluent limits for each permit issued to a discharger on the impaired water must be consistent with the assumptions and requirements of the adjusted WLAs in the TMDL. If the WLAs are not adjusted, effluent limits contained in the permit must be consistent with the individual WLAs specified in the TMDL. If a draft permit provides for a higher load for a discharger than the corresponding individual WLA in the TMDL, the State/Tribe must demonstrate that the total WLA in the TMDL will be achieved through reductions in the remaining individual WLAs and that localized impairments will not result. All permitees should be notified of any deviations from the initial individual WLAs contained in the TMDL. EPA does not require the establishment of a new TMDL to reflect these revised allocations as long as the total WLA, as expressed in the TMDL, remains the same or decreases, and there is no reallocation between the total WLA and the total LA.

Comments:
There are no point sources on either segment of Token Creek therefore, the waste load allocation is zero. The TMDL does include three options if a point source were proposed for Token Creek. The first option is an effluent limit of zero sediment would need to be included in the WPDES permit. The second option is an offset would need to be created through some means such as pollutant trading and the third option is to develop a new allocation for sediment subject to U.S. EPA review and approval.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety (MOS) 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.

Comments:
WDNR included an implicit margin of safety by using conservative assumptions in the modeling. Efficiencies for best management practices can usually be expressed as a range. The range provides a high and low percentage of pollutant control. WDNR used the low end of the range where appropriate. Control of sediment from construction sites used in determining the allocation for transitional urban used 80% effectiveness which WDNR determined to be the low end of the acceptable range. Additionally, WDNR did not consider any pollution control from riparian vegetative buffers in the modeling used to determine the load allocation. WDNR estimates that installation of buffers will result in a 10% to 15% greater control of sediment. This 10% to 15% greater control was not considered in the TMDL.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The TMDL must describe the method chosen for including seasonal variations. (CWA §303(d)(1)(C), 40 C.F.R. §130.7(c)(1)).

Comments:
Sediment enters Token Creek through rainfall and snowmelt runoff events throughout the year. Most of the sediment enters during spring runoff and intense summer rainstorms. Weather data for a period of 10 years was included in the modeling efforts. Therefore, the seasonal highs and lows were considered.

8. Reasonable Assurances

When a TMDL is developed for waters impaired by point sources only, the issuance of a National Pollutant Discharge Elimination System (NPDES) permit(s) provides the reasonable assurance that the wasteload allocations contained in the TMDL will be achieved. This is because 40 C.F.R. 122.44(d)(1)(vii)(B) requires that effluent limits in permits be consistent with "the

assumptions and requirements of any available wasteload allocation" in an approved TMDL.

When a TMDL is developed for waters impaired by both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur, EPA's 1991 TMDL Guidance states that the TMDL should provide reasonable assurances that nonpoint source control measures will achieve expected load reductions in order for the TMDL to be approvable. This information is necessary for EPA to determine that the TMDL, including the load and wasteload allocations, has been established at a level necessary to implement water quality standards.

EPA's August 1997 TMDL Guidance also directs Regions to work with States to achieve TMDL load allocations in waters impaired only by nonpoint sources. However, EPA cannot disapprove a TMDL for nonpoint source-only impaired waters, which do not have a demonstration of reasonable assurance that LAs will be achieved, because such a showing is not required by current regulations.

Comments:
Reasonable assurance that the impoundment will be removed includes the fact that WDNR purchased the dam and the land upstream of the dam in 1998. Currently, WDNR's design includes relocating the channel so the stream will flow approximately 200 yards to the east of its current location. WDNR anticipates the rechannelization to occur sometime in 2003.

With respect to the necessary nonpoint source reductions, WDNR has various programs in place which provide reasonable assurance that the water quality targets established for Token Creek can be achieved. First, Token Creek is part of a larger priority watershed project, Lake Mendota Priority Lake Project. A copy of the approved Watershed Plan is included as an attachment to the TMDL. Financial planning has already begun for the Watershed Plan. The concepts of long-term state cost sharing and local staff funding was anticipated and included in the resolutions adopted by Dane County and Columbia County regarding the Watershed Plan. The approval of the Watershed Plan by WDNR allows for the availability of grants through Wisconsin's nonpoint source program. Chapter four of the approved Watershed Plan includes an implementation plan for rural and urban nonpoint sources, anticipated project costs, cost-share budgets, and staffing needs.

WDNR has an approved 319 Management Plan (approved by U.S. EPA in 2000). This 319 Management Plan describes a variety of financial, technical and educational programs in the state which support nonpoint source programs. Wisconsin's Nonpoint Source Water Pollution Abatement Program set forth in Section 281.65 of the Wisconsin Statutes and Chapter NR 120 of the WAC is described in the 319 Management Plan. Specific sites within the Token Creek

watershed have been designated as critical sites for enforcement under the provisions of Wisconsin's Nonpoint Source Abatement Program. If landowners do not enter into cost share agreements within a specified time, WDNR may take an enforcement action to order the installation of needed best management practices (BMP).

Additionally, as discussed in the Margin of Safety section of the TMDL, in October 2001 the Conservation Reserve Enhancement Program was approved for portions of Wisconsin. The Token Creek watershed is included in the approved portions. This program can provide assistance to farmers and land owners for the installation of additional vegetative buffers along Token Creek.

Lastly, WDNR discusses the fact that the City of Sun Prairie, by no later than 2003, will come under the storm water discharge permit program in Wisconsin. Sun Prairie is already implementing storm water management practices on new developments which are more stringent than those required by the Dane County ordinances.

9. Monitoring Plan to Track TMDL Effectiveness

EPA's 1991 document, *Guidance for Water Quality-Based Decisions: The TMDL Process* (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL should provide assurances that nonpoint source controls will achieve expected load reductions and, such TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

Comments:
WDNR included an outline for a monitoring program for the Token Creek watershed. The monitoring program includes continuous temperature monitoring through 2005, continuous flow monitoring, continuously recording rainfall, continuous weather station recordings, and stream surveys. Stream surveys include wadeable baseline monitoring at five locations within the Token Creek watershed, fish surveys, and macro invertebrate sampling. The stream surveys will be repeated every two to three years. The monitoring program outlined in this TMDL should provide WDNR with the necessary information to determine if the water quality targets identified in the TMDL are being met.

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10. Implementation

EPA policy encourages Regions to work in partnership with States/Tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired by nonpoint sources. Regions may assist States/Tribes in developing implementation plans that include reasonable assurances that nonpoint source LAs established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. In addition, EPA policy recognizes that other relevant watershed management processes may be used in the TMDL process. EPA is not required to and does not approve TMDL implementation plans.

Comments:
Token Creek is part of the Watershed Plan. The Watershed Plan, Chapter 4 discusses implementation for urban and rural nonpoint source pollution control for Token Creek and other waterbodies included in the Watershed Plan. Implementation includes the following:

- *BMPs necessary to control nonpoint source run-off*
- *cost containment policies*
- *cost share agreement procedures*
- *schedules for implementation, including a critical site notification and appeal process*
- *storm water management ordinances and their relationship to the Federal storm water permit program*
- *estimated project budget*

11. Public Participation

EPA policy is that there should be full and meaningful public participation in the TMDL development process. The TMDL regulations require that each State/Tribe must subject calculations to establish TMDLs to public review consistent with its own continuing planning process (40 C.F.R. §130.7(c)(1)(ii)). In guidance, EPA has explained that final TMDLs submitted to EPA for review and approval should describe the State's/Tribe's public participation process, including a summary of significant comments and the State's/Tribe's responses to those comments. When EPA establishes a TMDL, EPA regulations require EPA to publish a notice seeking public comment (40 C.F.R. §130.7(d)(2)).

Provision of inadequate public participation may be a basis for disapproving a TMDL. If EPA determines that a State/Tribe has not provided adequate public participation, EPA may defer its approval action until adequate public participation has been provided for, either by the State/Tribe or by EPA.

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Comments:
There was public participation in the development of the elements of the Token Creek TMDL consistent with Wisconsin's continuing planning process in Sections NR 120.08 and NR 121.07(1) of the WAC. The load allocations set out in the Token Creek TMDL were established as part of the objectives in the Watershed Plan for reducing the overall amount of sediment delivered to Lake Mendota. Public meetings were held during the development of the Watershed Plan and a public hearing on the Watershed Plan was held on March 25, 1997. Public comments were received and, where pertinent, were incorporated into the final Watershed Plan. WDNR approved the final Watershed Plan on June 3, 1997.

12. Submittal Letter

A submittal letter should be included with the TMDL submittal, and should specify whether the TMDL is being submitted for a *technical review* or *final review and approval*. Each final TMDL submitted to EPA should be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under Section 303(d) of the Clean Water Act for EPA review and approval. This clearly establishes the State's/Tribe's intent to submit, and EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final review and approval, should contain such identifying information as the name and location of the waterbody, and the pollutant(s) of concern.

Comments:
U.S. EPA received the Token Creek TMDL on June 4, 2002, accompanied by a submittal letter dated May 30, 2002. The submittal letter states, ". . . for your review and approval is the final TMDL for Token Creek . . .".

13. Administrative Record

While not a necessary part of the submittal to EPA, the State/Tribe should also prepare an administrative record containing documents that support the establishment of and calculations/allocations in the TMDL. Components of the record should include all materials relied upon by the State/Tribe to develop and support the calculations/allocations in the TMDL, including any data, analyses, or scientific/technical references that were used, records of correspondence with stakeholders and EPA, responses to public comments, and other supporting materials. This record is needed to facilitate public and/or EPA review of the TMDL.

Comments:
WDNR did not include an administrative record with the Token Creek TMDL. However, the Token Creek TMDL does include documents that support the establishment of the allocations in

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the TMDL. These documents are included as attachments to the TMDL. These attachments to the TMDL include the following:

- *Lake Mendota Priority Watershed Surface Water Resource Appraisal Report,*
- *Water Resources Atlas for Token Creek,*
- *Nonpoint Source Control Plan for the Lake Mendota Priority Watershed Project, and*
- *Token Creek Monitoring Plan.*

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TMDL Review Checklist

State/Tribe: Wisconsin
§303(d) Segment(s): Token Creek stream mile 2-4
Token Creek stream mile 4-6.5
Pollutant(s): sediment and loss of in-stream habitat

Date of Submittal: May 30, 2002
Date of EPA Action: July 1, 2002
Date Entered into Tracking System:
R5 tracking: 6/24/02; 6/26/02; 7/02/02
EPA Reviewer: Julianne Socha

Review Element	Adequate?	Recommendations/ Comments
Submittal Letter	adequate, but did not include all the information suggested in HQ guidelines	The cover letter did state that is was a final TMDL for our review and approval. The cover letter did not include location of the waterbody, the pollutants or the priority ranking. However, all this information is included in the TMDL.
Identification of Waterbody, Pollutant of Concern, Pollutant Sources, & Priority Ranking	adequate	
Applicable Water Quality Standards & Numeric Targets	adequate	
Loading Capacity	adequate	
Load Allocations (LAs)	adequate	
Wasteload Allocations (WLAs)	adequate	
Margin of Safety (MOS)	adequate	
Seasonal Variation	adequate	
Reasonable Assurances: through NPDES permits or if WLAs depend on LAs	adequate	
Public Participation	adequate	
Technical Analysis/Supporting Documentation	adequate	This information was submitted as attachments to the TMDL.
Information entered into TMDL Tracking System	adequate	Information entered into R5 TMDL tracking database
Other Comments	none	