TMDL Outline

With Instructions and Canned Language

DRAFT

Version: June 26, 2017[i]

General Instructions

Department of Ecology TMDLs follow the order and structure in this outline. We understand that every implementation plan is unique, so you may rearrange Chapter 3 if you clearly identify where each piece of the outline is in your TMDL.

In this outline:

- → Chapter and section headings are in **bold**.
- → Instructions for each chapter and section are included. They are *italicized*.
- → This document contains canned language for your use. It is in normal font.

Do not format the TMDL (font, margins, list of figures, table of contents, layout, etc.). Administrative staff will format the document when the internal draft is complete. (It is easier and faster to format an unformatted document than an improperly formatted one.)

In Chapters 1 and 2, focus on the answer (the WLA for ABC Facility is XX pounds/day), not the process. Details go in the appendices, or cite external documents.

Number the chapter and sections (1.4, 2.6, etc.) to aid in cross referencing and help the reader find their location.

You can collapse or expand each section by hovering over the section heading and clicking on the little triangle to the left.

Development of this Outline

This outline was developed by Helen Bresler, Mark Peterschmidt, Dave Knight, Karin Baldwin, Ralph Svrjcek, and Andrew Kolosseus with input from many TMDL practitioners.

It is available at http://teams/sites/WQ/TMDLDEVAJ/TMDL%20Template%20Redesign/TMDL%20Outline%20with%20Instructions%20and%20Canned%20Language.docx.

It was developed October 2016 through 2017.

The goal of the outline was to make TMDLs simpler, shorter, better, more comprehendible, easier to review, more likely to be approved, and one document.

Reference Materials

- → Ecology's TMDL sharepoint: http://teams/sites/WQ/TMDLDEVAJ/default.aspx.
- → Overview of Ecology's TMDL process (dated) in Appendix E of the Permit Writers Manual: https://fortress.wa.gov/ecy/publications/parts/92109part1.pdf
- → EPA R10 draft checklist
- → EPA: https://www.epa.gov/tmdl
- → EPA national TMDL guidance: https://www.epa.gov/tmdl/impaired-waters-and-tmdls-tmdl-information-and-support-documents
- → EPA's Permitting to Meet a TMDL: https://www.epa.gov/npdes/permitting-meet-total-maximum-daily-load-tmdl

Chapter 1: Introduction

Keep this chapter brief (4-15 pages). Introduce the TMDL, explain why Ecology is writing the TMDL and why it is important. Describe the goal of the TMDL is to meet water quality standards.

1.1 Overview

Introduce TMDLs, this specific TMDL, any other introductory material, and sell the importance of the TMDL (why are we writing a TMDL?). Refer to Appendix A, focus sheets, and website for more background information. {1-2 pages}

1.2 Scope

Identify the waterbodies and pollutants addressed in TMDL and corresponding 303d and unlisted-but-impaired listings. Include a map. {1 page}

Table 1. Water bodies on the current (20__) 303(d) list addressed by TMDL

Listing ID	Waterbody Name	Pollutant	Medium	Reach Code (Assessment Unit ID)

If there is only one medium, delete that column. If the pollutant is addressed by a surrogate (e.g. pH or dissolved oxygen impairments are addressed by limiting phosphorus), identify the surrogate here and reference the explanation in Section 1.5.

While conducting this study, additional waterbody segments were found that do not meet state water quality standards (see Table xx). These segments are also addressed by this TMDL.
Add another table with the same information as Table 1.

There are other 303(d) listed segments in the watershed, but this report does not address them:
List pollutants that are not addressed, and state why not.

1.3 Uses of the Waterbodies

Identify all applicable uses (designated and existing) impacted by the pollutants. Identify all downstream uses that may be impacted by the pollutants and briefly describe how they are considered in the TMDL – Appendix A.4 has the details. {½ -3 pages}

Add map of uses, as appropriate.

1.4 Water Quality Criteria

Identify all relevant numeric and/or narrative criteria needed to support all uses. Highlight the water quality criteria that are used to develop the TMDL. Describe antidegradation briefly if not using it or in more detail if it is a driver in the TMDL. {½-4 pages}

Add map of water quality criteria, as appropriate.

1.5 Targets

0-4 pages. Identify the numeric water quality target(s) – a quantitative translation of a water quality standard used to measure whether or not the applicable water quality standard is attained. Often, the numeric water quality criterion is the same as the pollutant of concern. Sometimes, the pollutant of concern is different from the pollutant that is the numeric water quality standard (e.g., when the numeric water quality standard is dissolved oxygen and the pollutant of concern is phosphorus). In such cases, the TMDL submittal should explain the linkage between the numeric water quality standard and the pollutant of concern.

See the Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program (EPA, 1998) for more details on surrogates. EPA regulations [40 CFR 130.2(i)] allow "other appropriate measures" in a TMDL.

Example: In the Lake Whatcom DO TMDL, phosphorus targets were developed in order to address DO and aesthetic use impairments. Ecology determined that phosphorus loading was directly correlated to land development (i.e. effective developed acres) and the final TMDL contained phosphorus loading allocations as well as implementation targets expressed as "effective developed acres."

Example: Clarks Creek DO and Sediment TMDL, December 2014 (TMDL Allocation Targets, p. 16-17)

Chapter 2: TMDL Allocations

Focus on the answer, not the process. The "why" of the allocations and how they were determined go in the appendix. This chapter should be 8-17 pages long. Include seasonality and the critical condition throughout this chapter.

2.1 TMDL Formula

Define TMDL terms and equation LC=∑WLA+∑LA+MOS. State the seasonality and the critical condition (the detail of how we derived it is in Appendix E). The TMDL may also include a reserve capacity for future growth – this is optional. It can be a stand-alone allocation or included in the WLA or LA. This section is 1 page.

A water body's loading capacity is the amount of a given pollutant that a water body can receive and still meet water quality standards. The loading capacity provides a reference for calculating the amount of pollution reduction needed to bring a water body into compliance with the standards.

The portion of the receiving water's loading capacity assigned to a particular source is a wasteload or load allocation. If the pollutant comes from a discrete (point) source subject to a

National Pollutant Discharge Elimination System (NPDES) permit, such as a municipal or industrial facility's discharge pipe, that facility's share of the loading capacity is called a wasteload allocation. If the pollutant comes from diffuse (non-point) sources not subject to an NPDES permit, such as general urban, residential, or farm runoff, the cumulative share is called a load allocation.

The TMDL must also consider seasonal variations, and include a margin of safety that takes into account any lack of knowledge about the causes of the water quality problem or its loading capacity. A reserve capacity for future pollutant sources is sometimes included as well.

Therefore, a TMDL is the sum of the wasteload and load allocations, any margin of safety, and any reserve capacity. The TMDL must be equal to or less than the loading capacity. The short-hand formula that describes the TMDL is:

$$LC=\sum WLA+\sum LA+MOS.$$

Loading Capacity equals Sum of Wasteload Allocations plus Sum of Load Allocations plus Margin of Safety.

2.2 Loading Capacity

Identify the loading capacity for all waterbodies and all pollutants as a daily load (in addition to alternative, non-daily load expressions, as needed to facilitate implementation of the applicable water quality standards). This section is only the answer in 1 page. Refer reader to Appendix E1 for details.

Waterbody Name	Pollutant	Loading Capacity (pounds / day)	Other Load Capacity	Critical Condition Period

2.3 Wasteload Allocations

Identify all permitted discharges in stand-alone tables. Include all permitted stormwater sources. Establish numeric WLAs for each point source for all pollutants as a daily load.

If you are not setting WLAs as a daily load, explain why they are not necessary. Note, in most instances WLAs are assumed zero for permitted sources having an undetermined or unquantified WLA. Express WLAs as daily loads. The TMDL may also include non-daily load limits such as monthly averages to inform NPDES permits or facility implementation. The TMDL may set aside a reserve for new or newly identified point sources.

This section is 2-6 pages. It only contains the answer – refer reader to Appendix E2 for details.

This table can be in either landscape or portrait orientation. One table per permittee.

Table X. Wasteload allocations.

Permittee Name					
Permit Number					
Permit Type					
Waterbody Names					
Listing ID of Receiving Water					
Wasteload Allocation	WLA	Unit	Pollutant	Critical Period	Additional Information
		Pounds / day			
		Pounds / day			
		Pounds / day			
Other Load Limits and Requirements	*Any TMDL requirement that needs to be incorporated into the permit must be included in this cell.* *For each limit, specify the numeric limit, unit, pollutant, critical period, any other requirement, and any other relevant information. As appropriate, include targets, flow-based limits, and other limits.* *Include any non-numeric limits as well. Non-numeric limits are monitoring requirements, required implementation actions, requirements to develop plans, or any other required action.* *For all requirements, include timeframes and, if appropriate, compliance schedules.*				

One source of information for stormwater WLAs is https://www.epa.gov/tmdl/establishing-total-maximum-daily-load-tmdl-wasteload-allocations-wlas-storm-water-sources-and.

2.4 Load Allocations

Identify all nonpoint sources of pollution in stand-alone table(s). Establish numeric LAs for each waterbody for all nonpoint sources for all pollutants. Calculate the reduction needed from existing loads to meet the LA. Establish natural background as a separate LA.

Express LAs as a daily load. The TMDL may also include NPS loads for other periods (e.g. monthly, annually), as needed to inform TMDL implementation for NPS sources.

This section is 2-6 pages. It only contains the answer – refer reader to Appendix E3 or the implementation plan in Chapter 3 for details. This table can be in either landscape or portrait orientation.

Waterbody Name	Nonpoint Source	Load Allocation (pounds / day)	Other Load Limit and Requirements	Critical Condition Period	Reductions Needed to Meet Allocation
	Natural background				

2.5 Margin of Safety

Describe the implicit or explicit Margin of Safety (MOS) for all pollutants. 1-2 pages.

An implicit MOS is established by using conservative assumptions in project design and analysis. An explicit MOS is established by setting aside a specific allocation as a margin of safety.

2.6 TMDL Calculation

For all pollutants, verify TMDL elements are consistent with the equation LC=∑WLA+∑LA+MOS. 1 page.

For non-conservative pollutants that are not additive in LC=∑WLA+∑LA+MOS, explain the relationship between allocations and loading capacity. Verify that water quality standards will be met if the allocations are met.

Chapter 3: Implementation Plan

The prescriptive implementation plan should be at least 15 pages long, unless the TMDL addresses only point sources. While EPA does not approve the implementation plan per se, there are required elements for EPA approval within this chapter. Every implementation plan is unique, so you may rearrange Chapter 3 if you clearly identify where each piece of the outline is in your TMDL.

While none of these examples follows this structure or contain all of these required elements, they may be helpful:

- → *Palouse: https://fortress.wa.gov/ecy/publications/SummaryPages/1510029.html*
- → *Puyallup: X:\ECYSafe\WQP\Draft Puyallup Workplan*

3.1 Introduction

Briefly introduce the implementation plan and identify highest-priority actions.

This implementation plan was developed jointly by Ecology and interested and responsible parties. It describes what needs to be done to improve water quality. It explains the roles and authorities of cleanup partners (those organizations with jurisdiction, authority, or direct responsibility for cleanup), along with the programs or other means through which they will address these water quality issues. It prioritizes specific actions planned to improve water quality and achieve water quality standards. TMDL reductions should be achieved by 20__.

3.2 Land Distribution

Describe the distribution of land uses (e.g. urban, forested, agriculture).

3.3 Nonpoint Sources of Pollution

For nonpoint, identify all potential causes and sources of pollutant loads in the waterbodies. Describe them by source type (e.g. row crops, feedlots, residential areas). Describe the nonpoint source management measures that need to be implemented by source type to achieve load reductions. Describe the areas in which those measures will be needed. Describe the costs of implementation of nonpoint actions.

This section must show all implementation activities necessary to achieve compliance with water quality standards, not just those that have a willing implementer.

Discuss current and agreed-to future implementation activities and discuss needed implementation actions that are not yet assigned to, or being done by a particular entity. Provide details of who will do what, where, and by when.

If in the coastal zone, consider CZARA guidance when identifying implementation activities.

If applicable, include the following Forest and Fish standard language:

The state's forest practices regulations will be relied upon to bring waters into compliance with the load allocations established in this TMDL on private and state forest lands. This strategy, referred to as the Clean Water Act Assurances, was established as a formal agreement to the 1999 Forests and Fish Report (www.dnr.wa.gov/Publications/fp_rules_forestsandfish.pdf).

The state’s forest practices rules were developed with the expectation that the stream buffers and harvest management prescriptions were stringent enough to meet state water quality standards for temperature and turbidity, and provide protection equal to what would be required under a TMDL. As part of the 1999 agreement, new forest practices rules for roads were also established. These new road construction and maintenance standards are intended to provide better control of road-related sediments, provide better stream bank stability protection, and meet current best management practices.

To ensure the rules are as effective as assumed, a formal adaptive management program was established to assess and revise the forest practices rules, as needed. The agreement to rely on the forest practices rules in lieu of developing separate TMDL load allocations or

implementation requirements for forestry is conditioned on maintaining an effective adaptive management program.

Consistent with the directives of the 1999 Forests and Fish agreement, Ecology conducted a formal 10-year review of the forest practices and adaptive management programs in 2009: www.ecy.wa.gov/programs/wq/nonpoint/ForestPractices/CWAassurances-FinalRevPaper071509-W97.pdf.

Ecology noted numerous areas where improvements were needed, but also recognized the state's forest practices program provides a substantial framework for bringing the forest practices rules and activities into full compliance with the water quality standards. Therefore, Ecology decided to conditionally extend the CWA assurances with the intent to stimulate the needed improvements. Ecology, in consultation with key stakeholders, established specific milestones for program accomplishment and improvement. These milestones were designed to provide Ecology and the public with confidence that forest practices in the state will be conducted in a manner that does not cause or contribute to a violation of the state water quality standards.

The success of this TMDL project will be assessed using monitoring data from streams in the watershed.

If applicable, include the following planning language:

State Environmental Policy Act and Land Use Planning

Consider TMDLs during State Environmental Policy Act (SEPA) and other local land use planning reviews. If the land use action under review is known to potentially impact temperature and dissolved oxygen as addressed by this TMDL, then the project may have a significant adverse environmental impact. SEPA lead agencies and reviewers are required to look at potentially significant environmental impacts and alternatives and to document that the necessary environmental analyses have been made. Land-use planners and project managers should consider findings and actions in this TMDL to help prevent new land uses from violating water quality standards. Additionally, the TMDL should be considered in the issuance of land use permits by local authorities.

3.4 Organizations that Implement TMDL

Identify the entities (e.g. federal, state or local authorities) that need to implement the control measures. Describe what they do and how it is relevant – this could take as little as two lines or as much as a couple paragraphs. Identify other plans being implemented in the watershed and their geographic and content scope (e.g. ESA-listed fish).

3.5 Priorities and Timeline

Prioritize by sources or river stretches. Identify the timeframe for implementation. Describe how the proposed reductions should or could occur on-the-ground during the proposed timeframe.

Permit compliance timeframes should be discussed with permit managers and articulated in the TMDL.

3.6 Technical Feasibility

Describe how the proposed reductions are technically feasible at a level required to meet allocations.

3.7 Costs

Estimate the amount of technical and financial assistance needed, their costs, and sources of the assistance.

Identify potential funding sources. Multiple sources of financial assistance for water cleanup activities are available through Ecology's grant and loan programs, local conservation districts, and other sources. Refer to http://www.ecy.wa.gov/programs/wq/tmdl/TMDLFunding.html for a list and descriptions of funding sources.

3.8 Outreach

Describe the information and education efforts to increase public participation in the implementation of nonpoint actions.

3.9 Tracking Progress

Describe how implementation progress will be tracked and communicated with stakeholders and the public. Include:

- → *Interim measurable milestones to track implementation.*
- → *A monitoring plan to evaluate effectiveness of implementation.*
- → *A description of how we will evaluate progress.*
- → *Our use of adaptive management.*

Effectiveness Monitoring:

Effectiveness monitoring determines if the interim targets and water quality standards have been met after the measures described in the water quality implementation plan are functioning (i.e. the in-stream water quality monitoring). Effectiveness monitoring of TMDLs is usually conducted by EAP. This plan includes monitoring that will be done by other entities if there is any planned. EAP technical lead makes general recommendations, and negotiates and reviews content with WQP lead for final draft. Set minimal monitoring to be done – targets to see if meeting goals. Monitor the implementation actions and how they are maintained. Monitoring to determine the quality of water after implementation has occurred will be needed when water quality standards are believed to be achieved. Entities with enforcement authority will be responsible for following up on any enforcement actions. Stormwater permittees will be responsible for meeting the requirements of their permits. Those conducting restoration projects or installing BMPs will be responsible for monitoring plant survival rates and maintenance of improvements, structures, and fencing.

Adaptive Management

Natural systems are complex and dynamic. The way a system will respond to human management activities is often unknown and can only be described as probabilities or possibilities. Adaptive management involves testing, monitoring, evaluating applied strategies, and incorporating new knowledge into management approaches that are based on scientific findings. In the case of TMDLs, Ecology uses adaptive management to assess whether the actions identified as necessary to solve the identified pollution problems are the correct ones and whether they are working. As we implement these actions, the system will respond, and it will also change. Adaptive management allows us to fine-tune our actions to make them more effective, and to try new strategies if we have evidence that a new approach could help us to achieve compliance.

TMDL reductions should be achieved by 20__. Partners will work together to monitor progress towards these goals, evaluate successes, obstacles, and changing needs, and make adjustments to the implementation strategy as needed. Ecology will use adaptive management when water monitoring data show that the TMDL targets are not being met or implementation activities are not producing the desired result. If water quality standards are achieved, but wasteload and load allocations are not, the TMDL will be considered satisfied.

Ecology will use adaptive management when water monitoring data show that the TMDL targets are not being met or implementation activities are not producing the desired result. A feedback loop (Figure xx) consisting of the following steps will be implemented:

Step 1. The activities in the water quality implementation plan are put into practice.
Step 2. Programs and (best management practices) BMPs are evaluated for technical adequacy of design and installation.
Step 3. The effectiveness of the activities is evaluated by assessing new monitoring data and comparing it to the data used to set the TMDL targets.
Step 3a. If the goals and objectives are achieved, the implementation efforts are adequate as designed, installed, and maintained. Project success and accomplishments should be publicized and reported to continue project implementation and increase public support.
Step 3b. If not, then BMPs and the implementation plan will be modified or new actions identified. The new or modified activities are then applied as in Step 1.

Additional monitoring may be necessary to better isolate the bacteria sources so that new BMPs can be designed and implemented to address all sources of bacteria to the streams. It is ultimately Ecology's responsibility to assure that implementation is being actively pursued and water standards are achieved.

{{Insert figure here}}
Figure xx. Feedback loop for determining need for adaptive management. Dates are estimates and may change depending on resources and implementation status.

3.10 Reasonable assurance.

Provide a brief description of reasonable assurance that non-point reductions will be implemented. Example language:

Ecology believes that the activities identified in this chapter already support this TMDL and add to the assurance that {*pollutant}* in the {*water-body name*} will meet criteria in the Washington State water quality standards. This assumes that the identified activities are continued and maintained.

Ecology is authorized under Chapter 90.48 RCW to impose strict requirements or issue enforcement actions to achieve compliance with state water quality standards. However, it is the goal of all participants in the TMDL process to achieve clean water through cooperative efforts.

Additional example language:
When establishing a TMDL, reductions of a particular pollutant are allocated among the pollutant sources (both point and nonpoint sources) in the water body. TMDLs must show "reasonable assurance" that these sources will be reduced to their allocated amount. Education, outreach, technical and financial assistance, permit administration, and enforcement will all be used to ensure that the goals of this TMDL are met.

Appendix A: Background

Any necessary details to support Chapter 1 can be included in Appendix A. Note that sections A.2, A.3, and A.4 are required elements of a TMDL.

A.1 Clean Water Act and TMDLs

Provide a more in-depth description of the Clean Water Act and TMDLs (or cite stand-alone focus sheets or other materials)

What is a Total Maximum Daily Load (TMDL)?
A TMDL is a numerical value representing the highest pollutant load a surface water body can receive and still meet water quality standards. Any amount of pollution over the TMDL level needs to be reduced or eliminated to achieve clean water.

Federal Clean Water Act Requirements
The Clean Water Act (CWA) established a process to identify and clean up polluted waters. The CWA requires each state to develop and maintain water quality standards that protect, restore, and preserve water quality. Water quality standards consist of (1) a set of designated uses for all water bodies, such as salmon spawning, swimming, and fish and shellfish harvesting; (2) numeric and narrative criteria to achieve those uses; and (3) an antidegradation policy to protect high quality waters that surpass these conditions.

The Water Quality Assessment and the 303(d) List

Every two years, states are required to prepare a list of water bodies that do not meet water quality standards. This list is called the CWA 303(d) list. In Washington State, this list is part of the Water Quality Assessment (WQA) process.

To develop the WQA, Ecology compiles its own water quality data along with data from local, state, and federal governments, tribes, industries, and citizen monitoring groups. All data in this WQA are reviewed to ensure that they were collected using appropriate scientific methods before they are used to develop the assessment. The WQA divides water bodies into five categories. Those not meeting standards are given a Category 5 designation, which collectively becomes the 303(d) list.

Category 1 – Meets standards for parameter(s) for which it has been tested.
Category 2 – Waters of concern.
Category 3 – Waters with no data or insufficient data available.
Category 4 – Polluted waters that do not require a TMDL because:
- 4a – Have an approved TMDL being implemented.
- 4b – Have a pollution control program in place that should solve the problem.
- 4c – Are impaired by a non-pollutant such as low water flow, dams, culverts.

Category 5 – Polluted waters that require a TMDL – the 303(d) list.

Further information is available at Ecology's Water Quality Assessment website (www.ecy.wa.gov/programs/wq/303d/).

The CWA requires that a TMDL be developed for each of the water bodies on the 303(d) list.

TMDL Process Overview
Ecology uses the 303(d) list to prioritize and initiate TMDL studies across the state. The TMDL study identifies pollution problems in the watershed, and specifies how much pollution needs to be reduced or eliminated to achieve clean water. Ecology, with the assistance of local governments, tribes, agencies, and the community, then develops a plan to control and reduce pollution sources, as well as a monitoring plan to assess effectiveness of the water quality improvement activities. The implementation plan identifies specific tasks, responsible parties, and timelines for reducing or eliminating pollution sources and achieving clean water.

After the public comment period, Ecology addresses the comments. Then, Ecology submits the TMDL to EPA for approval.

A.2 Watershed Hydrology

Describe the watershed hydrology. Include location, climate (precipitation and temperature), geology (as it pertains to water quality), streamflow, and water use patterns.

A.3 Water Quality Issues

Describe current and historic water quality issues.

A.4 Protection of Designed Uses

Describe how the allocations for the parameters in the TMDL protect all designated uses (see Anacostia*)*.

Appendix B: Public Participation

B.1 Public Comment

Describe the public involvement in the TMDL process, including outreach and education activities. Describe the public comment process and how it follows Washington's public participation rules.

Example text:

Ecology held a 30-day public comment period for this TMDL from __ through __, 20__. Ecology sent a news release to all local media in the watershed. Ecology placed advertisements in the following publications: _____

B.2 Comments and Response

Provide either the full text or a summary of comments Ecology received and Ecology's responses to comments. Responses to comments should contain a thorough explanation of the basis for Ecology's decision

Appendix C: References, Glossary, Acronyms, and Acknowledgements.

References Examples:

EPA. 2001. Overview of Current Total Maximum Daily Load - TMDL - Program and Regulations. U.S. Environmental Protection Agency. www.epa.gov/owow/tmdl/overviewfs.html

EPA. 2001. Impaired Waters and Total Maximum Daily Loads - Glossary. U.S. Environmental Protection Agency. http://www.epa.gov/owow/tmdl/glossary.html

Acknowledgement Example:

The authors of this report thank the following people for their contribution to this report:

Glossary and Acronyms: See {insert link} for a starting point.

Appendix D: Analytical Framework

EAP usually writes this appendix. This appendix includes all of the modeling documentation up to the point of setting allocations; this appendix may be written as allocations are developed. For multi-pollutant TMDLs, Appendix D can be organized one pollutant at time or multiple pollutants can be discussed simultaneously. The first approach may be more appropriate for unrelated pollutants and the second approach for related pollutants. Be clear on how you are organizing the appendix. EAP is free to add additional headings or sub-headings as appropriate.

D.1 Approach

For each pollutant, describe the approach used to develop the TMDL.

D.2 Model Overview

Describe the model and rationale for the use of the model (if a model is used).

D.3 Model Inputs

Explain key data inputs and key model assumptions (if a model is used).

D.4 Seasonal Variation and Critical Conditions

Discuss seasonal variation considerations and critical conditions (e.g., low flow).

Appendix E: TMDL Analysis

EAP usually writes this appendix. For multi-pollutant TMDLs, Appendix E can be organized one pollutant at a time or multiple pollutants can be discussed simultaneously. The first approach may be more appropriate for unrelated pollutants and the second approach for related pollutants. Be clear in how you are organizing the appendix. EAP is free to add additional headings or sub-headings as appropriate. Repeating information found in Chapter 2 is discouraged unless it is essential for readability.

E.1 Loading Capacity

Describe how the Loading Capacity was developed (time period chosen, the data, and the analytical method)

E.2 Waste Load Allocations

Describe how WLAs were developed.

E.3 Load Allocations

Describe how LAs were developed. Include discussion of natural background.

Appendix F+

Additional appendices as needed for EAP's technical work and WQP policy work. Examples include (but are not limited to) data quality assessment, data tables / plots, and model documentation (setup, calibration, quality assessment, sensitivity, and uncertainty analysis).

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[i]The June 26, 2017 version is the internal use draft.
The June 6, 2017 version includes Laurie's comments.
The March 21 version includes comments from the 3/21/2017 work group meeting.
The March 6, 2017 version is the first version. It used content from the TMDL Straw Draft Template and the currently-used TMDL template.

Status as of 9/15/2017:
1. Any TMDL that would be submitted to EPA after December 31, 2018 must use this new template.
2. TMDLs prior to that date should use this new template if they haven't been mostly written yet in the old template.
3. This template is in draft until the next TMDL is ready to go. We will use that TMDL to modify the template as appropriate, and then call the template official.