

Appendix B

DEQ and EPA Response to Public Comments Received on the Volume I and Volume II Lake Helena TMDL Documents

**Framework Water Quality Restoration Plan and Total
Maximum Daily Loads (TMDLs) for the Lake Helena
Watershed Planning Area:**

Volume II – Final Report

August 31, 2006

***Prepared for the Montana Department of
Environmental Quality***

*Prepared by the U.S. Environmental Protection Agency,
Montana Operations Office
With Technical Support from Tetra Tech, Inc.
and PBS&J, Inc.*

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Volume I Response to Comments

The formal public comment period on the Lake Helena Volume I document extended from February 28, 2004 to March 30, 2005. Two individuals submitted formal written comments. In addition, several people voiced concerns and/or raised questions at the March 15, 2005 public informational meeting in Helena on the Volume I report. These formal and verbal comments and questions have been summarized below. Responses prepared by EPA and DEQ follow each of the individual comments. The original comment letters are located in the project files at DEQ and may be reviewed upon request.

- 1. Comment:** I own private property with frontage along Sevenmile Creek. My property includes obvious sediment sources to the stream and I'm interested in working cooperatively to address these problems. Who should I contact?

Response: DEQ and EPA staff will be happy to meet with you on site to discuss management alternatives and sources of assistance. You can also contact the local office of the Natural Resources Conservation Service and the Lower Tenmile Watershed Group.

- 2. Comment:** How much consideration is given within the TMDL development process to natural gaining or losing reaches of streams, particularly with regard to how these factors may affect pollutant concentrations, loads and allocations?

Response: Spatial variations in streamflow, whether natural or man caused, are always considered when TMDLs are established because of their influence on pollutant concentrations and loads. TMDLs must provide a means of attaining and maintaining water quality standards throughout the stream segment of concern despite variations inflows which may be present.

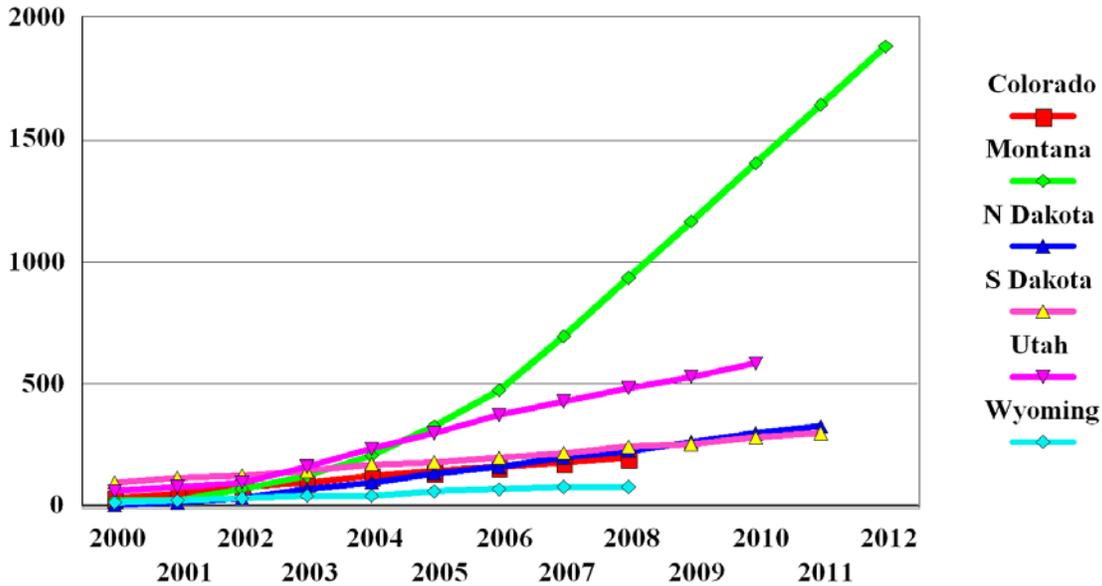
- 3. Comment:** What has been done to date to engage Jefferson County officials in the Lake Helena watershed restoration planning process?

Response: Jefferson County representatives are included on the Lake Helena project technical and policy advisory committees, including the county commissioners, planning director, planning and zoning office, environmental health office, the disaster and emergency services coordinator, the Jefferson County weed district, and the Jefferson Valley Conservation District. In addition, Lake Helena project staff has frequently attended Jefferson Valley Conservation District meetings to provide updates on the project and answer questions.

- 4. Comment:** How does Montana's 303(d) List compare to those compiled for adjacent states?

Response: In general, Montana has as many or more listed streams than adjacent states due to its headwaters location, abundant surface water resources, protective

water quality standards, and rigorous assessment process. A comparison of all the EPA Region VIII states showing the total number of 303(d) listed waters and approximate number of TMDLs to be completed on an annual basis (i.e., cumulative) is shown below:



- Comment:** How are water use support determinations made? Do the same standards and expectations apply to all streams? How are the various data interpreted relative to water quality standards attainment?

Response: Montana’s water use support decisions are based on the relevant state water quality standards, directives contained in 1997 amendments to the Montana Water Quality Act, and internal agency guidance known as the “Sufficient Credible Data/Beneficial Use Support” procedures. This process is described in detail on the Montana DEQ website at:

<http://www.deq.state.mt.us/wqinfo/datamgmt/PDF/SufficientCredibleData.pdf>

- Comment:** Please provide an explanation of and background on the TMDL lawsuit that was filed in 1997.

Response: EPA was sued by the Friends of the Wild Swan, American Wildlands, the Montana Environmental Information Center, the Ecology Center and the Alliance for the Wild Rockies in 1997 and in 2002 over the efforts of Montana to develop a list of waters not meeting water quality standards and establishment of TMDLs for those impaired water bodies. This resulted in a court imposed schedule requiring the completion of all necessary TMDLs (based on the 1996 303(d) list) by May 5, 2007.

EPA and DEQ successfully convinced the groups that more time was needed to take a watershed-based approach to development of TMDLs. A joint Motion to Amend Judgment was filed in U.S. District Court in Missoula on November 18, 2004 settling these two lawsuits related to the State of Montana's Total Maximum Daily Load (TMDL) program. The Montana TMDL schedule has been extended until December 2012.

7. **Comment:** How can the TMDL water quality restoration process possibly be successful when most problems result from non-point source pollution and considering that the Montana approach to dealing with non-point sources is voluntary cooperation?

Response: You are correct that the majority of the water quality problems represented on the 303(d) list stem from non-point source pollution. On a stream or lake specific basis, the problems frequently result from the cumulative effects of many individual diffuse sources emanating over large geographical areas. The individual contributing sources may be relatively unimportant, but collectively they create problems. It is difficult to solve these kinds of problems using regulatory approaches because cause and effect relationships may be unclear and supporting data are oftentimes limited. Montana has learned from past experience that cooperative approaches, coupled with on-the-ground monitoring and adaptive management, is the only practical way to deal with non-point source pollution on a statewide basis. Local watershed groups and conservation districts that build coalitions and engage landowners in the restoration process have key roles in this process.

8. **Comment:** Can we anticipate that non-point source pollution controls will become mandatory (and thereby enforceable) rather than voluntary at some point in the future?

Response: In our opinion, we don't anticipate that this will happen in the foreseeable future. The voluntary approach seems to be working well in Montana and the voluntary cooperative components of TMDLs are being implemented with a high degree of success. Successful implementation virtually assures that mandatory approaches won't be required. An exception might be voluntary non-point source controls on federal lands. Recent lawsuits have resulted in court orders blocking development activities pending completion of TMDLs and associated monitoring plans that can demonstrate compliance.

9. **Comment:** I am fearful that the Lake Helena plan cannot be effective at restoring water quality if it's primarily a voluntary, cooperative plan.

Response: See response to comment number 7 above.

- 10. Comment:** Based on your experiences in other states, how frequently do watershed TMDLs lead to local ordinances or other local regulations to control various source categories?

Response: There are a wide variety of local measures that have been adopted in other states to address water quality impairment issues, either as a part of TMDLs or other initiatives. Many of these address urban growth related sources. In Montana's Clark Fork watershed, local ordinances have been adopted to ban the sale of high phosphate content detergents which were found to be a significant source of nutrient loading contributing to nuisance algae growth. Local building set-back requirements have also been adopted to protect lakes such as Flathead Lake. In most of these cases, the TMDLs were not the primary incentive, per se, for adopting the controls.

- 11. Comment:** Why are Montana DEQ TMDL staff people not present at tonight's meeting if they are charged with implementing the TMDL program?

Response: Montana DEQ and EPA have joint responsibilities and a cooperative plan for implementing the TMDL provisions of the Montana Water Quality Act and the federal Clean Water Act. Each agency is taking a lead role in completing a share of the required TMDLs, while both agencies must approve the final plans. EPA has assumed a lead role in the Lake Helena TMDL development effort.

- 12. Comment:** The Lewis and Clark Water Quality Protection District (WQPD) is a major stakeholder representing Lewis and Clark County residents and two watershed groups. We are interested in having an opportunity to participate more actively in the planning process. As this document has been finalized and no changes are being made based on the comments provided, the opportunity for meaningful input is minimized.

Response: The steps taken by EPA and DEQ to involve watershed stakeholders in the Lake Helena TMDL process are summarized in Section 5.0 of Volume II. Also, comments received on Volume I and throughout the process have resulted in a number of changes that are now reflected in the Volume II document. Comments have resulted in an expanded source assessment effort and reconsideration of the draft water quality targets. For example, largely in response to stakeholder comments on Volume I, the nutrient targets presented in Section 3.2 of Volume II are considered interim targets and include a strategy to revise them in the future if necessary.

- 13. Comment:** The Volume I report represents a tremendous research effort and clearly reflects the complexity of the Lake Helena Watershed. One area that is not adequately covered by the report is the interaction of surface water and ground water, particularly in the lower basin and Helena Valley. It has been shown that the principal surface and groundwater discharge point is Lake Helena.

At the same time, the county health department has identified approximately 5500 homes in the Helena Valley that dispose of their household wastewater to subsurface treatment systems or community systems that discharge to groundwater. This source category may be an important contributor to surface water quality impairments and given a countywide growth rate of 17% over the last decade, we can only expect increases in pollutants from septic systems and non-point sources related to urban and suburban development. As work progresses on the restoration plan and development of TMDLs for the area, we respectfully request a more in-depth look at surface-groundwater interactions in the Helena Valley.

Response: We acknowledge the paucity of data and information pertaining to groundwater-surface water interactions in the Helena Valley and share your concerns and recommend collecting additional data to address this issue (see Appendix H).

The modeling tools that have been developed to date to support the analysis of nutrients do, in fact, allow for consideration of loading from septic systems and urban/suburban development. A plan to enhance these modeling tools in the future is proposed in Appendix H. Further, it is acknowledged that nutrient loading from septic systems and urban/suburban development is likely going to increase in the future. A plan to address these future sources is presented in Volume II, Section 4.5.4

- 14. Comment:** An ecoregion-based and modeling approach drawing from reference conditions in other water bodies was used to establish in-lake nutrient concentration targets for Lake Helena. This may not be appropriate since Lake Helena is man-made and shallow. Water quality targets based on so called “natural” lake conditions may not be attainable for Lake Helena and it may not be possible to develop a practical TMDL to meet unattainable water quality targets. Additionally, the report acknowledges that Lake Helena does not continuously discharge water to Hauser Reservoir but may, on occasion, receive inflow from Hauser Reservoir depending on the respective water levels of the two reservoirs. This interaction most certainly affects water quality in Lake Helena, but is not discussed in Volume I. Setting targets without consideration of this fact seems premature.

Response: We agree with your concern about the appropriateness of the Lake Helena nutrient targets proposed in Volume I. As a result, no in-lake nutrient targets are proposed and a strategy to establish targets in the future is presented in Volume II, Section 3.2.3. However, Volume II does acknowledge that water quality in Lake Helena is degrading and actions are necessary to reduce nutrient loading. Since no concentration targets have been proposed for Lake Helena at this time, on an interim basis, it is assumed that the load reductions for Prickly Pear Creek (the largest tributary to Lake Helena) adequately approximate the necessary load reductions for Lake Helena.

15. **Comment:** The water quality targets for nutrients, sediment and water temperature selected for Prickly Pear Creek above Tenmile Creek may be inappropriate and unattainable due to intensive land uses, historical disturbances, and chronic stream dewatering.

Response: We agree relative to nutrients and have, therefore, presented the nutrient targets in Volume II as “interim” targets in association with an adaptive management strategy to revise them in the future, as appropriate. Flexibility is also provided in Volume II to revise the temperature and sediment targets in the future if necessary.

16. **Comment:** The Volume I report indicates that Sevenmile Creek is impaired for metals and in need of TMDLs for copper and lead. However, in the narrative section for this stream on page 158 under metal concentrations it is stated, “This evidence suggests this segment does not meet the human health criterion for arsenic.” Therefore we believe that a TMDL for arsenic is necessary for Sevenmile Creek.

Response: This was an error in the draft Volume I report. Copper, lead and arsenic TMDLs have been developed for Sevenmile Creek (see Volume II, Section 3.3 and Appendix A).

17. **Comment:** In reviewing the suspended sediment data for Sevenmile Creek that were included in the Volume I report, the extreme amount measured during the March 2003 flooding event seems to have skewed the statistics regarding the suspended sediment concentrations. We are not suggesting that Sevenmile Creek is not impaired due to sediment, but limited sampling from the stream during one flooding event should not be the deciding factor in those decisions.

Response: We acknowledge that the suspended sediment data were skewed due to the presence of extreme values associated with a large scale flood event. However, the sediment impairment determination for Sevenmile Creek was based on a weight-of-evidence approach that considered other data types, including channel measurements, inter-gravel fine sediment concentrations, macroinvertebrate and periphyton community structure variables, fish populations, and a sediment source survey. All of the available data supported a conclusion that sediment related impairments are present in Sevenmile Creek.

18. **Comment:** Evaluation of lower Tenmile Creek for siltation and sediment problems relied on channel surveys from two field investigations near the confluence with Sevenmile Creek and above Green Meadow Drive. These sites are located within a mile of each other or closer, and are in the center of a 16-mile long reach. The high degree of variability present within this reach raises questions about the appropriateness of making reach-long determinations based

on limited sampling data. This comment can be extended to many other stream segments in the watershed that have limited sampling and field data.

Response: Data limitations are a common occurrence in Montana's water body assessment process, given the thousands of miles of streams and hundreds of thousands of lake acres. For this reason, many waters have not yet been assessed.

DEQ begins the stream assessment process by delineating separate reaches or segments along a stream. These are based on a number of considerations, including stream order/size, adjacent land uses, water quality classifications, the level of water quality, and the presence of impairment sources. As more data become available over time, these reach delineations are refined to represent more homogeneous segments.

In the case of Tenmile Creek, a large amount of water quality data is available for the stream as a whole, but the spatial coverage tends to be somewhat patchy. To be conservative (i.e., protective of water quality) it was decided to consider the stream impaired due to sediment.

- 19. Comment:** Reference stream data from other areas of the state were used to establish nutrient concentrations and other stream criteria for Tenmile Creek. The use of these reference streams, and of small data sets in general, may not be appropriate. While we may hope to achieve an undisturbed or minimally disturbed status in the upper reaches of Tenmile Creek, it is unlikely that the Helena Valley with its (increasing) population of 45,000 people can attain such goals.

Response: Attainment of water quality standards and full support of designated beneficial water uses, as defined in the Montana water quality standards, are the end goals of the TMDL process. These uses include coldwater fisheries and associated aquatic life, waterfowl and fur bearers, body contact recreation, drinking water, and agricultural and industrial water supply.

It is clear from the Volume I assessment that these uses are not presently fully supported in Tenmile Creek. Population growth and urban impacts are contributing factors that will need to be addressed in the restoration plan. We cannot lower our water quality expectations for Tenmile Creek merely because of local population trends and land use intensity.

- 20. Comment:** Stormwater runoff from numerous subdivisions and two incorporated towns is certainly a contributing factor to surface water quality in the Lake Helena watershed area and is a frequent source of water quality complaints. However, Volume I does not cite any stormwater sampling results including those contained in the "Total Maximum Daily Load Development (TMDL) and Assessment of Wetland Treatment of Stormwater Runoff for the City of Helena, Montana" (WQPD, 1999).

Response: We concur that urban stormwater runoff is a potentially significant source of nutrients, sediment, metals and other pollutants in the Lake Helena watershed. The relative importance of this source category in each of the water bodies considered in Volume II is presented in the tables in Appendix A.

21. **Comment:** We are somewhat fearful of the program that appears to be developing. While the science behind the restoration plan is important, it is vital to acknowledge the role of local community. EPA addresses this in nationally released documents and on their website, but the exclusion of public input during the development of the Lake Helena Volume I report would indicate this is not a priority and that stakeholders will continue to see the creation of rules and regulations for goals that are most likely unattainable, ineffective and unaffordable.

Response: The Lake Helena project team has expended a considerable amount of effort in providing opportunities for public participation. These efforts are described in Volume II, Section 5.0.

22. On a local level, we are bracing for compliance with complex and expensive programs like the Phase II stormwater requirements and the Groundwater Rule for 50 small public water systems. Implementation of these programs may ultimately drive some small water systems and communities to the brink of bankruptcy. The local municipalities make high-profile “end-of-pipe” targets and often bear the bulk of the responsibility, but they too face severe fiscal restraints. These are important programs and our resources are already directed at dealing with them. To add a new and potentially unachievable water quality program based on the use of rather small data sets and an unproven protocol of using reference reaches does not seem prudent.

Rather than investing resources in setting unreachable targets and then trying to achieve them, we propose a comprehensive, long-term watershed management approach that balances technologically feasible solutions with the economics of the region. We would propose a locally driven program that includes all stakeholders, with the goal of developing sustainable use of water resources for growing communities.

Response: This comment is addressed in Volume II, Section 4.0.

23. **Comment:** As you proceed with Lake Helena planning process, we urge you to support funding for public education, which is critical to changing behaviors that cause pollution of surface and groundwater. We strongly support the investment of resources in both broad-based and targeted education programs for residents. Targeted educational programs should be developed for the development community. State and federal support must be provided to local government as it struggles with increasingly difficult growth and planning issues. We believe that water quality protection begins with the way we use our land rather than in setting

goals that try to mimic conditions that exist in dissimilar and sometimes pristine settings.

Response: We wholeheartedly agree that a strong public educational component and adequate implementation funding will be key to the success of the Lake Helena water quality restoration plan. We look forward to working closely with the local watershed groups and the water quality protection district, and all watershed stakeholders, to develop a plan that is both implementable and effective at restoring and maintaining water quality. See Volume II, Section 4.0.

Volume II Response to Comments

The formal public comment period on the draft Lake Helena Watershed Water Quality Restoration Plan and TMDLs extended from December 27, 2005 to February 28, 2006. Eight parties or individuals submitted formal written comments. Responses prepared by EPA and DEQ follow each of the individual comments. The original formal comment letters and tape recordings of the two public meetings have been archived at the Montana DEQ offices in Helena.

1. **Comments:** The City of East Helena is opposed to the preliminary TMDL nutrient limits for Prickly Pear Creek because it will cause undue burden on the city and its residents. East Helena constructed a new treatment facility in 2003 at a cost of \$4 million dollars. The design for the new plant was reviewed and approved by MDEQ with no mention that it may not meet future treatment requirements such as nutrient removal. Modifying the plant to accommodate nutrient removal would cost an additional \$2 to \$4 million, would need to be borne by the city's ratepayers, and would affect the city's ability to grow and prosper.

Response: The wastewater discharge from the City of East Helena comprises 17% and 7% percent of the total nitrogen and total phosphorous loads, respectively, to Prickly Pear Creek. At the Prickly Pear Creek Watershed scale, it has been determined that TN and TP loads will need to be reduced by approximately 80 and 87 to attain full beneficial use support in Prickly Pear Creek and to ensure that water quality does not degrade further in Lake Helena and Hauser Lake. Not only do current TN and TP loads need to be reduced to attain water quality standards, but loads will need to be maintained at reduced levels to ensure that water quality standards are met in the future as well. This is especially important given the rapid pace of population growth in the watershed.

The fact that there will be increased costs associated with population growth cannot be avoided. In recognition of the potential economic impact and uncertainty, a phased wasteload allocation approach has been proposed for the City of East Helena (see Appendix I) providing the City with approximately eight years to: 1) conduct facility optimization and feasibility alternatives studies, 2) conduct the necessary engineering design, 3) implement necessary facility changes/upgrades, and 4) raise funds to cover the costs of the necessary upgrades. Further, it should also be noted that adaptive management will be relied upon throughout the permitting process to ensure that limits are based on:

- The best available data,
- Attainable based on technology, and
- Economic feasibility.

2. **Comment:** East Helena is currently considering accepting wastewater from several additional developments and proposed subdivisions. Increased sewer rates may dissuade developers from connecting to the city sewer and could lead to additional septic systems. Septic tank effluent is the largest source of nutrient discharges to Prickly Pear Creek, according to information presented at the Lake Helena TMDL public meeting. This nutrient source is unlikely to be decreased in the future since improved treatment can only be accomplished on a voluntary basis.

Response: The two largest anthropogenic nitrogen sources for Prickly Pear Creek are effluent from municipal wastewater treatment facilities and septic systems. Municipal wastewater treatment facility effluent is the largest anthropogenic source of phosphorus, followed by agriculture. We agree that both wastewater treatment facility discharge and septic systems (and all non-point sources) will need to be addressed to attain and maintain water quality standards.

Additionally, when considering acceptance of wastewater flows from additional development and proposed subdivisions, it is recommended that this only be done after conducting a watershed scale analysis in which it is determined to result in improved water quality conditions. At current treatment levels for the City of East Helena (3.6 mg/l and 23.2 mg/l for TN and TP), routing subdivision wastewater through the treatment facility may actually result in poorer water quality in Prickly Pear Creek than that which may be achieved with septic systems. As stated in Section 4.5.4: *“It is imperative...that future decisions regarding land use changes be made with full knowledge and understanding of future water quality implications. It is also imperative that cumulative effects are considered and all actions are evaluated at the watershed scale.”*

Finally, while TMDLs are not self implementing and there are currently no regulatory controls specifically in place at the state or federal level to require implementation of non-point source controls, counties and other local units of government are urged to put zoning regulations, policies, or guidelines in place to direct future growth such that water quality standards can be attained and maintained.

3. **Comment:** Lastly, the nutrient effluent limits proposed in the Lake Helena plan for the East Helena wastewater treatment plant are not achievable by current technology.

Response: Feasibility and alternatives analyses are proposed in Phase I of the phased wasteload allocation for the City of East Helena to determine what is, or is not achievable in light of technological and economic constraints (see Appendix I).

4. **Comments:** Several minor inconsistencies were noted in the Lake Helena document. The Helena Valley Irrigation District is identified as a source of sediment loading to Lake Helena, but Lake Helena is not identified as sediment impaired water body nor is a sediment allocation established. Data or other information should be included in the report to substantiate this conclusion.

Response: The December 30, 2004 Impairment Status Report (MDEQ, 2004) concluded that there is currently insufficient data to make a sediment impairment determination for Lake Helena. Funding has been procured to collect additional data starting in September 2006. However, it is recognized at this time that there are anthropogenic sediment loads in the Lake Helena watershed, and some of those loads may be impairing beneficial uses in Lake Helena itself. Anthropogenic sediment loads, including sediment from the Helena Valley Irrigation District, should be considered in the future as part of the phased approach for attaining and maintaining sediment water quality standards in Lake Helena.

5. **Comment:** The Lake Helena report should make a clearer distinction between the Helena Valley Irrigation District and agriculture in general as sources of impairment in Lake Helena. It is unclear why the irrigation system is identified as a source of nutrients, both as an individual entity and an agricultural entity. Nutrient inputs to Lake Helena are likely to be the result of irrigation runoff and return flows resulting from on-farm practices. Voluntary on-farm soil testing to match nutrient needs with application rates would be the likely one means of reducing nutrient inputs into the system. This is likely to be clarified through future monitoring and adaptive management.

Response: Agriculture and the system of canals and ditches associated with the Helena Valley Irrigation District were treated separately by the GWLF model used to estimate pollutant loads. GWLF specifically calculates nutrient loads from precipitation/runoff from agricultural land, but, does not directly consider any water/loads from irrigation. Irrigation loading, then, is considered separately in the model. A summary description of all of the source categories (e.g., Helena Valley Irrigation District, agriculture, forest harvest, etc.) has been added to Appendix C in the final document.

6. **Comment:** The Bureau of Reclamation is interested in participating in the implementation phases of the Lake Helena plan, including formal watershed meetings, education and outreach programs, and adaptive management decision making.

Response: As stated in Section 4.0, *“there are 11 unique sources that will need to be addressed and 24 watershed stakeholder groups/entities that will likely need to participate to effectively implement this plan”*. We support and encourage the participation of all watershed stakeholders.

7. **Comment:** MDT has no comments at this time.

Response: Comment acknowledged.

8. **Comment:** The report ignores efforts made by local entities to improve water quality.

Response: We disagree. We strongly support local efforts to improve water quality and suggest in the Conceptual Implementation Strategy (Section 4.0) that the only means by which water quality standards will be attained and maintained is through a collaborative, watershed scale effort including and involving all watershed stakeholders. While it is acknowledged that a number of measures have been implemented at the county and local level to protect water quality, the most recent water quality data and information available suggest that the subject water bodies are currently impaired and conditions will likely degrade further if additional measures are not employed to reduce, and maintain reduced, levels of pollutant loading.

9. **Comment:** The report provides no financial support for local governments to increase water quality protection efforts.

Response: As summarized in Table 2-1 (from Section 2.0 of the document and shown below), a phased approach has been developed for establishment of the TMDLs and their implementation.

Table 2-1

2003 – 2004	2005	2006 →
Phase I – Information Gathering	Phase II - Planning	Phase III – Proposed Implementation
<ul style="list-style-type: none"> • Developing an understanding of the water quality problems. • Determined which water bodies needed TMDLs. • Solicited public comments. • Completed Volume I 	<ul style="list-style-type: none"> • Revised some of the conclusions reached in Volume I based on public comments. • Identified the pollutant sources and relative importance of each. • Established water quality goals • Developed a pollutant load reduction plan to attain the water quality goals. • Completed Volume II 	<ul style="list-style-type: none"> • Implement a coordinated effort at the watershed scale to reduce pollutant loading from both point and non-point sources. • Conduct follow-up and/or supplemental studies to address uncertainties identified in previous phases. • Revise, adjust, and manage adaptively as appropriate based on new information.

This document provides a framework plan for restoring water quality in the Lake Helena Watershed. Implementation of the plan and securing funding for implementation are the next steps and are above and beyond the scope of this document. However, once implementation is initiated, there are a number of

sources of funding through EPA, DEQ and other sources that may be available to support locally lead water quality restoration efforts. Finally, this is a watershed scale problem that is having an affect on all watershed residents. Attaining and maintaining water quality standards and a high quality of life for residents within the watershed will ultimately be the responsibility of all affected units of government as well as all of the residents with the watershed.

10. **Comment:** The report provides no regulatory support for local governments and will fail to improve water quality in the watershed by failing to regulate non-point sources.

Response: It is a fact that neither the federal Clean Water Act nor the Montana Water Quality Act provides a regulatory mechanism for requiring implementation of non-point source control measures. The document does, however, clearly point out the various sources and causes of water quality problems and provides direction regarding what needs to be accomplished to achieve water quality standards. Given the current regulatory framework, success or failure of this plan will be determined by the watershed stakeholders. As mentioned in the response to comments # 2, counties and other local units of government are urged to put zoning regulations, policies, or guidelines in place to direct future growth such that water quality standards can be attained and maintained. It should be noted that we will provide technical support, as requested and appropriate, regarding any local efforts to develop effective policies or guidelines to protect water quality.

11. **Comment:** This plan targets sources that are in compliance while ignoring those sources which may contribute the greatest share.

Response: We disagree. This document and TMDL process targets all sources that likely contribute a controllable pollutant load. For example, quantified load reductions are proposed for phosphorous for the following source categories in Prickly Pear Creek:

1. Current timber harvest
2. Dirt roads
3. Non-system roads
4. Paved roads
5. Urban areas
6. Anthropogenic streambank erosion
7. Abandoned mines
8. Septic systems
9. Agriculture
10. Point source discharges

A similar comprehensive consideration of sources was applied to all other water bodies and pollutants addressed in this document.

12. **Comment:** Acknowledgement within the plan of deficiencies in the presently available data suggests that the plan is based on inadequate information and requires regulated entities to invest money in collecting the needed information without any provisions for funding. We are not convinced that investments need to be made in continued studies, but instead favor on the ground projects and enforceable development regulations that are more protective of water quality. For example, the agencies could provide funding to Lewis and Clark County for the implementation of a county wide septic system maintenance program.

Response: As mentioned in comment # 9, funding may be available for locally lead water quality restoration efforts. We recommend contacting Robert Ray with the DEQ Water Quality Protection Section to explore funding options for on-the-ground projects. Regulations are discussed above in Comment # 10.

13. **Comment:** The natural reference condition for Lake Helena was as a wetland. Table 38 on page C-58 of the Lake Helena plan indicates that wetland acreages were the same historically as presently when considerably more wetland acreage was present in the natural condition. Also, the extent of historic wetlands most likely provided a higher level of treatment to water leaving the Helena Valley and entering the Missouri River than we see today. Table 38 should be amended to reflect the loss of wetlands, and existing and natural acres of water should be modified to reflect less water in the past than exists now.

Response: In accordance with MCA 75-5-306 the term natural: *“refers to conditions or material present from runoff or percolation over which man has no control or from developed land where all reasonable land, soil, and water conservation practices have been applied. Conditions resulting from the reasonable operation of dams at July 1, 1971 are natural.”*

The earthen causeway and control structure (i.e., dam) impounding Lake Helena was constructed in 1945. In accordance with MCA 75-5-306, conditions that may have existed prior to construction of the dam are no longer considered natural.

14. **Comment:** Paving roads reduces but does not entirely eliminate sediment, nutrient, and metals contributions to streams. Paved roads should be included as an anthropogenic source category for sediment loading to streams similarly to how it is treated as a nutrient source category. Paved roads could be included as a component of the “urban area” source category but this is not clearly stated.

Response: Paved roads were included as a sediment source, but the relative contribution from this source category is so low that it is insignificant compared to other sources (often less than 0.1% of the load). For this reason, paved roads were not included in the sediment TMDL tables. As noted in the response to

Comment # 5, a summary description of all of the source categories (e.g., paved roads, urban, Helena Valley Irrigation District, agriculture, forest harvest, etc.) has been added to the final document.

15. **Comment:** The stated assumption that no BMPs are currently in place for unpaved roads is incorrect, although we agree it is not realistic to expect that all BMPs will be employed and routinely maintained on a watershed-wide basis. Paving is planned for the Marysville and Rimini Roads, while other areas like Skelly Gulch are not maintained. BMPs have been put in place in numerous areas, including riparian planting projects on upper and lower Tenmile Creek, construction BMPs associated with new roads and subdivisions, and stormwater management requirements for subdivisions and the City of Helena.

Response: While it is acknowledged that BMPs have been employed in many areas for many source categories, to be conservative and in the absence of site specific data regarding each individual source, it was assumed that no BMPs are currently in place. This assumption provided a means to estimate the maximum level of pollutant load reduction that could potentially be achievable.

Volume II is intended to provide pollutant load reduction targets or goals at the watershed scale. In other words, it is intended to answer the question: By how much do pollutant loads need to be reduced to attain water quality standards? The specific means by which these goals will be achieved will need to be determined as one of the first steps in implementing this plan. In simple terms, for each source category (e.g., unpaved roads), the first step would involve an inventory/evaluation of existing BMPs to determine what additional control measures would need to be employed.

16. **Comment:** The Helena Valley Irrigation System is a source of sediment resulting from Helena and East Helena stormwater discharges to the canal during high runoff events. Table 3-2 should be amended to reflect this source of sediment loading.

Response: See response # 4.

17. **Comment:** Streams in the lake Helena watershed are subject to frequent flooding and associated streambank erosion. Is streambank erosion considered under anthropogenic or natural background sediment source categories? Flood events should be specifically included under one of these source categories in Table 3-2.

Response: Streambank erosion is a natural phenomenon. However, human-caused increases in water yield (e.g., flooding resulting from increased impervious areas), stream channel modifications, riparian degradation and other human influences can cause and/or exacerbate stream bank erosion. As described in Appendix D, observed stream bank erosion was stratified into two categories

(natural or human-caused) to focus future implementation efforts on anthropogenic stream bank erosion.

18. **Comment:** Interim nutrient targets are appropriate for Lake Helena since it was historically a wetland. The loss of these wetlands and the resulting effect on water quality should be considered in the development of Lake Helena nutrient targets. This could be accomplished through modeling and the information could help justify the need to protect and expand existing wetland acreage.

Response: See the response to comment # 13.

19. **Comment:** Efforts to resolve the nutrient problem in Lake Helena should include a reexamination of the non-degradation and mixing zone regulations administered by MDEQ. Unless non-point sources receive more attention in the Lake Helena plan, water quality will continue to degrade. The focus on point source controls does not adequately address the problem.

Response: The document and associated TMDLs do not focus on point source controls. Pollutant load reductions are proposed for all significant sources (see response to comment # 11). However, we do agree that both point and non-point source load reductions will be necessary to attain and maintain water quality standards.

20. **Comment:** We agree with the assessment of the metals problem in the Lake Helena document and support a top-down metals allocation approach for mining related sources. The Lewis and Clark Water Quality Protection District will continue to provide public education about non-mining related anthropogenic sources of metals.

Response: As mentioned in our response to comment #6, we support, encourage and appreciate locally lead water quality restoration efforts.

21. **Comment:** Discussion of attaining and maintaining state water temperature standards for Lake Helena watershed streams must address the dewatering issue. Can we effectively set temperature targets for streams when we have no control over streamflows? Should we focus our efforts on other TMDL issues until the water rights adjudication process is completed? Are there certain reaches of Prickly Pear Creek that we should prioritize at this time? Please consider adding language to the discussion on temperature problems that addresses inadequate construction setbacks to streams in urban areas as a source of temperature impairment. Lewis and Clark County has building setback requirement along streams but the City of Helena does not. When properties are annexed, there are no controls over what can happen on the banks of streams. Vegetation can be stripped and replaced with lawns.

Response: As stated previously, this is a “framework” water quality restoration plan in which the sources and causes of water quality impairment have been identified and water quality goals have been defined. This plan is intended to be a starting point for water quality restoration. We feel that it is appropriate to set temperature targets based on the best available information. However, it is fully recognized that neither the Clean Water Act nor the Montana Water Quality Act provides any regulatory means to address stream flows. Ideally, stream flow issues that may be contributing to increased temperatures will be addressed voluntarily. If, in the future, it is determined that stream flow issues cannot be addressed, the temperature targets may need to be revised.

22. **Comment:** In the discussion on Institutional Framework and Watershed Stakeholders on page 47, please add the following entities under Lewis and Clark County: Board of County Commissioners, Public Works/Roads, Water Quality Protection District, Lower Tenmile watershed Group, Prickly Pear Watershed Group, City-County Health Department, and Community Development and Planning. Also, the Lewis and Clark Conservation District is not affiliated with the county. Other stakeholders that should be involved with the restoration plan include: Montana Department of Transportation, ASARCO, Ash Grove Cement, Helena Sand and Gravel, and Montana Tunnels. Please add the Lewis and Clark Water Quality Protection District to the list of abandoned mines stakeholder list for addressing sediment and metals sources.

Response: The stakeholders have been added.

23. **Comment:** EPA and MDEQ are identified as the lead agencies for addressing remaining data gaps. There is no alternative identified if funding doesn’t materialize. Other interim methods of collecting data should be identified and provisions made for other agencies to assume the lead if necessary.

Response: Funding for implementation of the tasks described in Section 2.0 of Appendix H regarding data gaps monitoring and assessment has been acquired and it is anticipated that work will begin in late 2006. Once contracts are in place,

the first step will involve preparation of a detailed Sampling and Analysis Plan and coordination with watershed stakeholders.

24. **Comment:** Although TMDL effectiveness monitoring is the primary responsibility of MDEQ, the responsibility for a “much more thorough” assessment is passed to unidentified stakeholders. What level of assessment is required? Is it reasonable to spend money on assessment rather than on implementing BMPs, mitigating and restoring wetlands, and providing other support for water quality improvement?

Response: The level of assessment required to determine beneficial use support is described in Appendix A of the 2004 Water Quality Integrated Report for Montana (DEQ, 2004). It is reasonable to spend money on effectiveness monitoring since that provides one of the only means of determining if implementation of the plan is successful. If such monitoring reveals that water quality goals are not being met, it also provides the necessary data for adaptive management.

25. **Comment:** Lewis and Clark County agrees with the discussion in the Lake Helena plan pertaining to future sources of pollution and the need to make future land use decisions with full knowledge and understanding of the water quality implications. We would like to see MDEQ pursue and support legislation addressing cumulative impacts through changes to the non-degradation and mixing zone regulations. At present, the regulations do not address cumulative effects except within individual subdivisions.

Response: The premise behind this “framework” water quality restoration plan is to identify sources and issues that degrade water quality from a cumulative effects perspective and to address them at the watershed scale. MDEQ has not proposed any specific agency-sponsored legislation that would address cumulative impacts through changes to the non-degradation and mixing zone regulations. We are talking to stakeholders (cities, counties, developers, etc) about what types of legislation might effectively address some of the water quality issues in high growth areas of the state. Rule making may be another effective tool to address issues of growth, and the ongoing task force can help with this process. Although MDEQ is not drafting specific agency bills that address growth, the department may support bills introduced by others, and it is working closely with other agencies to provide support for and collaboration on their efforts.

26. **Comment:** Modeling tools are helpful in decision-making but can be misleading. Over-reliance on models is as questionable as using poor models. If we are to move to modeling as a water quality pollution prevention tool, the model should be reviewed and approved by the stakeholders that will be required to use it.

Response: We agree and will provide a means for stakeholder review, involvement, and training as appropriate.

27. **Comment:** Lewis and Clark County has an existing GIS system with extensive modeling capabilities. This system should be evaluated for potential use that would allow local government to actively participate in water quality protection measures without reliance on other agencies that may or may not have adequate funding.

Response: Without first-hand knowledge or experience with the County’s GIS system, it is not possible to respond directly to this comment. We would be happy to meet with County modeling staff to explore means by which the GIS tools could be used to their full advantage. However, it should be noted that the modeling tools used, and to be developed as described in the document have and/or will be specifically tailored and calibrated to Prickly Pear Creek and the Lake Helena Watershed. Further, it is envisioned that models developed by EPA or DEQ as part of this effort will be made available to watershed stakeholders as appropriate and training will be provided.

28. **Comment:** The approach outlined in the Lake Helena plan implementation phase is fragmented and is inconsistent with the watershed approach concept. The size and diversity of the proposed Lake Helena watershed oversight committee will lead to fragmentation of the process and divides responsibility for water quality improvements among too many agencies. There is a need for a strong state role, which is not addressed in the plan.

Response: We believe that the very premise of this watershed scale plan is to address the fragmentation concern. The plan addresses all pollutants and significant sources contributing to the impairments of beneficial uses in the subject water bodies. It also recognizes and acknowledges the need for issues to be addressed at the watershed scale, which in turn results in the involvement of a diverse and vast group of stakeholders. This approach is no different than the “watershed group” approach currently applied to this and other watersheds across Montana. Established watershed groups share the goal of this plan to achieve water quality. This plan, however, goes a step further and sets specific goals and targets that will specifically attain and maintain State Water Quality Standards.

Finally, MDEQ believes that all governmental entities have a role and a responsibility in the process. Federal agencies have the role of including a regional perspective, oversight of delegated authorities, and funding for programs and research. State agencies have the role to regulate and participate at the state level. Local governments have the role of governing at the local level, which in turn can result in site-specific practices. We acknowledge the limited resources of all entities, including the state. Therefore, it is imperative that collaborative efforts occur in setting priorities and addressing financial shortcomings. The watershed cannot achieve its water quality goals without collaboration among the various public and private entities.

29. **Comment:** We have some concerns with how the GWLF model was used to estimate the impact of septic systems on nutrient loading to surface waters. Septic system waste treatment efficiency can be quite variable depending on many factors, including density and lot sizes, soils, and system type. We have spent considerable time determining problem areas within our watershed. A septic maintenance program would address each site on an individual basis, rather than making assumptions at the watershed scale.

Response: We agree that septic system treatment efficiency can be quite variable. However, without site-specific data for each failing system, assumptions were required (i.e., 7% failing, level of treatment, etc). As stated in our response to Comment #21, this is a “framework” water quality restoration plan intended to be a starting point for water quality restoration. We feel that the methods employed to estimate the relative importance of nutrient loading from septic systems are adequate/appropriate, especially at the watershed scale. This plan is intended to point out and put into perspective the water quality problems and sources at the watershed scale. Site specific details will need to be worked out during the next phases of this effort (i.e., implementation).

30. **Comment:** The Lake Helena plan acknowledges the need for more accurate GWLF model input numbers for the number of septic systems in the watershed. Lewis and Clark County is committed to improving our understanding of the numbers and condition of systems in this county. However, state commitment to obtaining this information on a statewide basis is necessary for this to occur in the upstream Jefferson County portion of the watershed. Again, a strong state role is suggested.

Response: We agree that the information described in comment 30, is vital to the success of the plan. We also acknowledge that similar information is needed throughout the state, but especially in the high growth areas where groundwater is most likely to be impacted by development. As previously stated, limited resources and priorities are real issues that need to be addressed. The state needs to better understand the impacts of septic systems on groundwater in areas like the Helena Valley, and as funding allows, DEQ will update the model as more data becomes available.

31. **Comment:** Septic systems are indicated as a major source of nutrient loading in the watershed yet they are targeted for a 0% reduction in the allocation strategy. These systems are permitted in accordance with minimum standards set by MDEQ. A statement in Volume II of the Lake Helena plan (Appendix A, p. A-119) indicates that citizen education pertaining to proper septic system operation and maintenance will likely reduce phosphorus and bacterial loading from septic systems, but nitrogen reductions are unlikely because even properly functioning septic systems have poor nitrogen removal. If this is true, these systems are failing to protect the quality of surface and groundwater and MDEQ should develop alternative standards for on-site wastewater systems that do protect this resource.

Response: In response to this, and several other comments, considerable additional work has been completed relative to septic systems. A new technical appendix (i.e., Appendix K) has been prepared in which the state and county septic system regulations and the available literature regarding the pollutant removal efficiency of conventional and “alternative/enhanced” septic systems have been summarized. The information in the technical appendix was then used to reevaluate the allocations (i.e., load reduction targets) for septic systems presented in Appendix A.

In spite of all of this additional focus on existing septic systems, the conclusions haven’t changed substantially. Previously, it was assumed that fixing the failing septic systems in the Lake Helena Watershed would not result in any (i.e., 0%) reduction in the overall total nitrogen (TN) load. Based on further analysis, it has been estimated that repairing all of the failing septic systems in the Lake Helena Watershed such that they meet current design standards for conventional septic systems would only reduce the overall TN load from septic systems by 0.5 percent. At the scale of the Lake Helena Watershed, this reduction in septic system TN load would only result in a net, watershed scale load reduction of 0.1 percent. Even if all of the failing septic systems were replaced with “Level 2” (enhance treatment) systems, the overall TN load from septic systems would only be reduced by an estimated 1.7 percent. Again, at the Lake Helena Watershed scale, the net affect would be negligible (i.e., the overall TN load would only be reduced by 0.5 percent if all the failing systems were replaced with Level 2 systems).

Based on the literature, the treatment efficiency for nitrogen from conventional septic systems is poor with typical effluent concentrations of approximately 60 mg/l TN. As a result, merely repairing/replacing the failing systems with conventional systems will not have a significant affect on water quality. Even enhanced treatment systems (i.e., “Level 2”) result in relatively poor nitrogen treatment (2 to 60 mg/l effluent TN concentration. See Appendix K).

In the end, with the exception of connecting the existing septic systems to a wastewater treatment facility (with advanced treatment for both nitrogen and

phosphorus), there is little that can be done to reduce loading from existing septic systems significantly. Even this potential solution should only be considered after the cumulative effects are considered at the watershed scale. It is not a “given” that municipal wastewater treatment is superior to that which can be provided by septic systems.

Finally, while addressing current nutrient loads from the existing septic systems presents a challenge, proper land use planning and local regulation can easily address potential adverse impact from **future** septic systems. As stated in Section 4.5.4: *“It is imperative...that future decisions regarding land use changes be made with full knowledge and understanding of future water quality implications. It is also imperative that cumulative effects are considered and all actions are evaluated at the watershed scale.”*

32. **Comment:** Wastewater lagoons are treated in the Lake Helena plan as point sources (Appendix E, p. E-9-10) but are not permitted under the NPDES system. The plan identifies lagoons as sources of nutrients and one lagoon in the Helena Valley has received notification of water quality violations for leakage. While MDEQ approved the original construction of these lagoons, it does not currently permit, regulate or monitor their performance or ongoing maintenance. These sources are assigned a load reduction of 0% even though the problem has been acknowledged for years and few if any improvements have been made to these problem systems. The county believes the Lake Helena plan should address this situation by allocating a load for this source category.

Response: Nutrient loads from lagoons were included in the Prickly Pear Creek and Lake Helena nutrient TMDLs as part of the “point source loads.” Additional language has been added to the tables in Appendix A to clarify this issue. Therefore, the necessary point source load reductions apply to both lagoons and municipal facilities. Nutrient load reductions (i.e., allocations) have been added for Treasure State Acres, Tenmile and Pleasant Valley Subdivisions, and Leisure Village Mobile Home Park lagoon facilities. Lagoon load reductions were not further discussed in the report because: (a) they are a very small percentage of the pollutant load (e.g., 0.6% of the TN load for the entire Lake Helena Watershed - see Appendix A, Table 6-5 and 6-7), and (b) there is no regulatory authority to require reductions under the MPDES or TMDL programs. Lagoon inspections and enforcement are coordinated through several departments at MDEQ including the Enforcement Division, Water Pollution Control State Revolving Fund, and the Planning, Prevention and Assistance Division. For example, at the time of this report, the Montana DEQ Enforcement Section is investigating the Tenmile/Pleasant Valley Lagoons because of excessive leakage from the system. It is anticipated that lagoon load reductions identified in this report will be achieved through coordination with the appropriate Montana DEQ divisions and watershed stakeholders.

33. **Comment:** The Lake Helena plan lists channel encroachment or sinuosity reduction related to transportation infrastructure as a primary cause of sediment from eroding stream banks. This includes interstate highways, city/county roads, forest roads, and railroads. The Montana Department of Transportation and the railroads should be listed as stakeholders in the Lake Helena plan and held equally accountable for addressing some of these problems.

Response: The Montana Department of Transportation and Montana Rail Link have been added to the list of watershed stakeholders.

34. **Comment:** Various models, assumptions and reference reach approaches were used to develop numeric targets and load estimates for sediment. The discussion of these techniques in Appendix D raises questions about the precision of the targets and allocations. Since TMDL allocations for individual (point) sources must be incorporated into NPDES permits, we believe these methods and the lack of precision in the targets and allocations are inappropriate.

Response: Although there is uncertainty in each of the individual components of the analysis, when combined in a weight of evidence approach, we feel that the conclusions reported in this document are adequately supported. Further, uncertainty has been acknowledged throughout the document, and a follow-up monitoring strategy and an adaptive management approach have been developed to address the identified uncertainties.

35. **Comment:** It is not possible within the context of this plan to understand how streams in the Lake Helena watershed have adapted to the loss of wetlands, infringement of floodplains, removal of beavers, and restriction of channel migrations due to human settlement over the past 150 years. Methodologies used in the plan employ gross assumptions, including the assumption of no current BMPs, “coarse filters”, and admitted over- and under-estimations to justify targets. These should not be used as anything but guidance in the process to address sediment and nutrient impairments.

Response: See response to comment # 34.

36. **Comment:** I would like to see specific data included in the plan that addresses groundwater pollution from the Treasure State Acres and Tenmile Estates/Pleasant Valley sewage lagoons and its overall effect on nitrogen and phosphorus loading in Prickly Pear Creek. The lagoons are severely out of compliance and are contaminating the groundwater. Monitoring wells placed around these lagoons would provide information on groundwater contamination and potential loading to Prickly Pear Creek

Response: See response to comment # 32.

37. **Comment:** Table 3-2 of the Lake Helena report outlines a proposed sediment load reduction approach for urban areas that includes BMPs for lawn fertilizer applications. The logic is not clear and this seems more relevant to nutrient rather than sediment controls.

Response: The reference to lawn fertilizers in Table 3-2 was an error. This has been corrected.

38. **Comment:** The projected average removal efficiency of 80% for BMPs aimed at controlling sediment and metals loading does not take into account or give credit for BMPs already implemented by Helena's stormwater utility for purposes of preventing sediment and metals from entering streams.

Response: At the time of this report, no data or information were available regarding the pollutant removal efficiency of Helena's storm water system. The extent to which the system is functioning from a water quality perspective is unknown at this time. To be conservative, it was assumed that no BMPs are in place (i.e., it is better to assume no treatment than to assume that the levels of treatment are adequate when there is no data or information).

Appendix J has been added to the final document in which stormwater permitting is discussed. The City of Helena stormwater systems is currently authorized to discharge under Montana's General Permit for Small Municipal Separate Storm Sewer Systems. With the exception of a recommendation to evaluate the pollutant removal efficiency of the storm sewer system, this TMDL does not impose any requirements upon the City of Helena regarding stormwater management at this time. This TMDL recognizes and supports the efforts that will be implemented under Montana's General Permit.

39. **Comment:** Fort Harrison is listed in the Lake Helena plan as a point source for nutrients. What load was calculated for this source? Fort Harrison has been connected to the City of Helena wastewater system since 2002.

Response: No loads or reductions were calculated for the Fort Harrison lagoons. Data from the lagoons were only used to calibrate the GWLF model for conditions and data collected prior to 2002.

40. **Comment:** The component nutrient loading from septic systems in the Lake Helena plan does not reflect waste from septic tank pumping received by the City of Helena wastewater treatment plant. The contribution of nutrient loading to Lake Helena watershed streams should be revised upwards in the plan and the city's contribution revised downward to reflect this practice. If the city is required to provide and pay for additional nutrient loading reductions at the wastewater treatment plant, and it is not given credit for treating waste generated outside the city limits, it will have to consider discontinuing this good neighbor practice.

Response: We agree that uncontrolled increases in septic system loading will result in an increased burden on the City’s wastewater treatment plant. That is why we stated: *“It is imperative that cumulative affects are considered and all actions are evaluated at a watershed scale”* (see Section 4.5.4).

The concept of “credit” is not especially relevant in this phase of the TMDL process, but may become important in the future when this plan is implemented. This was addressed in Figure 3-1 of Appendix I, where future increased loading from point sources may be allowed if it is demonstrated that it results in a net-watershed scale nutrient load reduction (i.e., “trading”).

Also, an alternatives/feasibility analysis is recommended in Appendix I. It is recommended that the fate of septic system sludge be one of the issues considered in the alternatives analysis.

41. **Comment:** We believe that the nutrient targets proposed for the Lake Helena streams are too low. They were arbitrarily selected based on low order streams located high in the watershed. We appreciate the proposed adaptive management approach by which the targets may be adjusted in the future. However, we feel it’s in everyone’s best interest to set realistic and achievable targets at the outset.

Response: The targets that have been selected are based on the best data and information currently available and are being implemented as interim targets. They were independently derived by two separate studies based on review and evaluation of available reference stream information. These interim nutrient targets will not be enforced and will not be used directly in establishing MPDES permit limits. However, they are intended to provide a starting point (based on the best information currently available) for nonpoint source reductions and may be revised based on the alternative analysis/feasibility study for point source dischargers recommended in Appendix I.

42. **Comment:** The nutrient reduction goals give every appearance that point source dischargers, and the City of Helena in particular, are targeted to compensate for the lack of expectation that anything can be done about non-point sources.

Response: The City of Helena is not being targeted for the lack of expectation that anything can be done about non-point sources. Rather, the City of Helena’s wastewater treatment discharge represents the largest non-natural source of both phosphorus and nitrogen to Prickly Pear Creek. The estimated maximum attainable load reductions are proposed for all potentially significant nutrient sources in the watershed, not just the City of Helena (see Table 8-7 and 8-8, Appendix A). For example, the TMDL recommends 97 percent nutrient reductions from timber harvest, 60 percent reductions from dirt roads, 90 percent reductions from anthropogenic streambank erosion, and 90 percent reductions from agriculture. Further, in recognition of the fact that the City’s discharge will

- be regulated under the MPDES permit system and upgrades may have an economic impact, we: 1) developed a phased approach providing the City with approximately 8 years to comply with water quality-based limits; 2) provided opportunity for the City to have input on the final limits based on the results of alternatives analyses and feasibility studies, and; 3) featured adaptive management to facilitate increased loading if it can be demonstrated that it will result in a net, watershed-scale nutrient load reduction.
43. **Comment:** The Lake Helena plan indicates that both point and non-point source nutrient reduction measures should be implemented immediately. This is inconsistent with Table 6-4 in Appendix, A which allocates a load reduction for septic systems, (the largest contributor of nitrogen to Lake Helena) at 0%.
- Response:** Nitrogen loads from septic systems have been revised in Appendix A. See response to comment # 31.
44. **Comment:** The actions requirements of Phase I, II, and III of the nutrient reduction strategy place all the burden for solving water quality issues on point source dischargers and ignore the greater combined impact of non-point sources. As such, the plan is unworkable.
- Response:** We disagree. As stated in our response to Comment # 42, the estimated maximum attainable load reductions are proposed for all potentially significant nutrient sources in the watershed, not just point sources (see Table 8-7 and 8-8, Appendix A).
45. **Comment:** The percent reduction targets for urban areas for metals appears to originate from the assumption that 80% sediment removal efficiency can be obtained with the application of BMPs. This assumption does not give credit for the existing BMPs that the City of Helena already has in place for collecting sediment and metals in stormwater detention/treatment facilities.
- Response:** See response to Comment # 38.
46. **Comment:** If the state wishes local governments to fund and regulate TMDL implementation efforts, then the state needs to empower local governments through appropriate legislation that enables new taxes and fees, full land use regulatory authority, and the ability to create special districts for environmental improvements that cannot be defeated by property owner petition. If MDEQ is to assume a lead role in the proposed TMDL implementation stakeholder group, an equal commitment for funding and regulatory authority targeting both point and non-point sources will be needed to ensure success in this endeavor.
- Response:** We believe that local governments are already empowered to require restrictions that deal with many of these issues at the local level. Currently, MDEQ can only impose such restrictions on a statewide level. The problem is

that many issues are local in nature and require local solutions. What works in Helena, may not work in Plentywood. Therefore, proactive approaches at the local level are often more realistic and achievable than statewide solutions. However, the Department is working with other state agencies on draft legislation that may provide additional tools for addressing growth in Montana. Additionally, the Department is looking for ways to modify the current protocols by which we conduct subdivision approvals, in order to address the concerns raised in this comment. Finally, as stated previously, funding, or lack of it, remains an issue. MDEQ receives considerable support through federal funding, which has been consistently declining in recent years. The State Legislature has provided some additional support, but over the long term, adequate funding needs to be pursued at all levels.

47. **Comment:** Appendix A of the Lake Helena plan indicates that it may not be possible to attain the 80% TN load reduction. Since septic systems alone contribute almost 30% of the TN and no reductions are proposed for this source category, it is clear that the 80% load reduction will be impossible to achieve.

Response: See response to comment # 31.

48. **Comment:** The rationale for the proposed metals reduction strategy is unclear. Abandoned mines are responsible for about two-thirds of the documented metals loading and the proposed metals reduction goal for this source category is 67.8%. At the same time, the reduction goal for metals loading from urban areas is 80% while this source category only accounts for 1% of the total.

Response: As with nutrients, current metals levels are often so high that all sources will need to reduce loading to the maximum extent possible to attain water quality standards. The proposed reductions, therefore, are the estimated maximum attainable load reductions. For urban areas, the metals loads and reductions are also based on the required sediment reductions as described in the sediment TMDLs in Appendix A.

49. **Comment:** The load reductions assigned to existing lagoon systems is 0%. Given that several of these lagoons are leaking as noted in Appendix E and are under a compliance order by MDEQ, it seems inappropriate that no load reduction is assigned. Further, lagoon systems are prohibited by law and design standards from contributing loading to state waters, therefore their reductions should set at 100%, not 0% as shown in the Lake Helena plan.

Response: See response to comment #32. Lagoon loads and load reductions were included in the TMDLs in Appendix A for the respective watersheds. Furthermore, Montana DEQ is currently taking action to address the lagoons at Treasure State and Tenmile/Pleasant Valley.

50. **Comment:** The anticipation of zero load reduction from septic systems and lagoons sets the stage for the continued propagation of rural small lot subdivisions. If these systems are not held accountable for any load reduction, then the burden for solving the problem falls almost entirely to the municipalities. Not only is this unfair, it cannot solve the problem due to the quantity of nutrient loading contributed by septic systems and the incentive this provides to continue the current land use practices.

Response: See response to comment # 31.

51. **Comment:** The rationale for the proposed percentage reduction in loading from each point source is unclear. For example, the City of Helena wastewater plant is targeted for a 92% reduction, the City of East Helena facility is targeted for a 97% reduction, and the Tenmile Estates lagoon system is targeted for 0% reduction. For all point sources combined, the total proposed reduction is 88% while the goal is 80%. This means that point sources as a group are carrying the burden for septic systems, which are a non-point source. Within the point source group, only the municipalities are slated for reductions.

Reductions in loading from septic systems can be achieved through a program of reasonable land, soil and water conservation practices, which MDEQ is required by law to support. Through education and voluntary measures, attainment of at least a 10% reduction from this source category seems entirely reasonable.

Response: See response to comment # 31 and 32.

52. **Comment:** The Lake Helena plan indicates that the City of Helena stormwater system was not specifically accounted for within the watershed loading modeling exercises due to a lack of information. The city's 2003 Stormwater Master Plan is available as a reference and it describes the existing facilities and treatment structures. However, the city's stormwater computer model is limited by license and cannot be shared.

Response: See response to comment # 38.

53. **Comment:** The units of measure in Table 13 of Appendix C are undefined. Is "g" intended to mean gallons, grams, or something else?

Response: Grams. Table 13 of Appendix C has been modified in the final document.

54. **Comment:** The figures and conclusions presented in Section 2.4.6, Sewer System Expansion, in Appendix C are misleading and inaccurate. Given that a properly constructed septic system in good working order may produce a discharge containing 50 mg/L of nitrogen as compared to an average wastewater treatment plant effluent concentration of 7.7 mg/L, the net reduction achieved by converting

septic systems to centralized sewer is in the range of 84%, not 2.3% as stated in the report. This statistical manipulation of the data distorts the nutrient reduction potential of municipal wastewater treatment versus individual septic tanks and drainfields or failing community lagoon systems. The results also do not recognize the role of the city wastewater treatment plant in accepting septic tank maintenance waste.

Response: The above assumption does not take into account the volume of water discharged from each system – rather, only concentrations are considered. In our loading estimates from each system, we considered the number of people served, the per capita flow rate, and the discharge concentration. We did state that the reductions were conservative because 1) on-site system failure rates in the expansion areas are likely higher than the assumed 7% due to the small lot sizes and poor soils and 2) future upgrades at the WWTP may further reduce the TN concentration in the effluent. The results do inherently reflect the WWTP acceptance of septic tank maintenance wastes because we used the plant’s DMR data to estimate the concentrations and loads from the plant. .

Also, see comment # 55 below.

55. **Comment:** The City of Helena has no plans to annex properties not currently served by city utilities, including the 5.3 square miles referenced in the Lake Helena plan. These decisions are at the choice of the individual property owner and under current policy unless the owner agrees to accept full municipal services and provisions for city standard infrastructure, the city likely would not be interested in annexation. However, the urban planning area for Helena includes areas well beyond the city limits. It is recognized that as population density in the outlying areas increases, there will be a demand for city services that may result in annexation.

Response: Section 2.4.6 in Appendix C has been modified to feature a hypothetical sewer system expansion for demonstration purposes only.

56. **Comment:** The discussion pertaining to the City of Helena’s stormwater permit in Appendices C and E of the Lake Helena plan is inaccurate. The city has applied for but does not presently have an MS4 stormwater permit (Appendix C). There is no present or past litigation between the city and MDEQ relative to stormwater permitting (Appendix E). Additionally, the comment that the city illegally discharges stormwater to the Helena Valley Irrigation Canal is wholly incorrect and mischaracterizes the problem Appendix E. In fact, the Davis Gulch drainage was truncated decades ago by the construction of I-15. This natural drainage has nowhere to go and backs up and overtops the irrigation canal during extreme runoff events.

Response: Appendix C and E have been amended to correct the inaccuracies. In addition, Appendix K has been added to the document, in which stormwater permitting is discussed.

57. **Comment:** The City of Helena has been proactive in addressing stormwater issues for many years. In 1988, Helena was one of the first cities in the state to develop a stormwater utility. In advance of NPDES regulations, Helena developed stormwater detention/retention facilities for flow and water quality control and implemented other best management practices for stormwater infrastructure.

Response: See response to comment # 38.

58. **Comment:** The City of Helena supports efforts to improve water quality in both surface and ground waters and we share your recognition and concerns of the many sources of pollution affecting our waters. While the Lake Helena report is a recommendation for future action and carries no regulatory elements, it is intended to guide future regulatory action, particularly those targeting point source generators.

Response: As stated in Section 4.0, “*there are 11 unique sources that will need to be addressed and 24 watershed stakeholder groups/entities that will likely need to participate to effectively implement this plan*”. We support and encourage the participation of all watershed stakeholders.

59. **Comment:** The implementation plan discussion in Chapter 3 suggests additional monitoring, studies and analysis by point source generators, as well as enhanced treatment and reduced load limits. For non-point source generators, little is offered except undefined voluntary measures. At present, the plan does not and cannot solve the problems it is intended to address.

Response: The current plan merely establishes the foundation and an overall framework for attaining and maintaining water quality standards. While the plan addresses the formal requirements of the TMDL process in the short term, the real work, and the ultimate success of the plan in restoring and maintaining water quality, lies in the future. Water quality problems in the Lake Helena Watershed are highly complex and result from more than a century of human development and a host of land use activities. Despite diligent planning and the application of pollution preventing measures, present water quality in the basin is changing as water and land uses change, pollution sources increase, and competition for the available water supply accelerates.

The ultimate ability of the Lake Helena Water Quality Restoration Plan to achieve improved water quality throughout the watershed will depend on commitment and participation by many local stakeholders, ongoing monitoring and research, and the previously described adaptive management approach.

60. **Comment:** Imposition of nutrient reductions on point source dischargers without corresponding reductions by non-point source generators will encourage the continuing proliferation of small rural lot developments served by on-site septic systems. Septic systems outside the city limits are a major cause of water quality degradation, and even appropriately constructed and maintained septic systems cannot treat wastewater to the level achieved by the city's treatment plant. The Lake Helena plan does not satisfactorily address this issue.

Response: We absolutely agree that water quality standards can only be attained and maintained by addressing both point and nonpoint sources.

Septic system reductions have been revised throughout the document (see response to comment # 31). However, as stated previously, conventional septic systems, by nature, have poor nitrogen treatment. Additional nitrogen treatment can be achieved with Level 2 systems, but at this point in time, neither the county nor state requires Level 2 treatment for most situations.

The long-term solution will likely only be resolved through watershed scale land use planning with a focus on water quality. This will require the combined efforts of the State, County, and all of the municipalities in the watershed. This plan is not intended to provide the long-term solutions. Rather, as described in the response to comment # 59, the current plan merely establishes the foundation and an overall framework for attaining and maintaining water quality standards.

61. **Comment:** Not only does the plan fail to describe a mechanism for reducing loading from existing septic systems, it also falsely assumes that there will no new septic systems. For this assumption to be true, the plan would need to propose a moratorium on all new septic system permits.

Response: The plan makes no assumption that there will be no new septic systems. To the contrary, an analysis is presented in Section 4.5.4 in which it is estimated that TN and TP loads may increase by as much as 43 and 78 percent, respectively, if population growth continues at current rates. Additionally, see response to comment # 31.

62. **Comment:** The City of Helena has been proactive in attaining compliance with water quality regulations. A recent \$12 million upgrade to the wastewater treatment plant was undertaken to address ammonia-nitrogen effluent limits and the city consistently meets or exceeds discharge permit requirements. The Lake Helena TMDL plan would require the city to reduce nitrogen by another 92%. At the same time, no reductions are required for on-site septic systems and drainfields that are the largest contributor of nitrate pollution in the watershed. This constitutes an unfunded mandate that is unfair to the city residents and does not address the real problem. The components of the Lake Helena plan

addressing sediment, metals, and temperature also unfairly target point source discharges over non-point source controls.

Response: See response to comment # 11 and 31.

63. **Comment:** The Lake Helena plan's proposed pollutant load reductions have no viable legal basis in the applicable state statutes.

Response: The basis for the proposed pollutant load reductions and TMDLs is articulated in the Montana Water Quality Act (Montana Code Annotated 75-5-703).

64. **Comment:** Comments on volumes I and II of the Lake Helena TMDL document provided by city staff have largely been ignored. I hope you take this opportunity to incorporate appropriate revisions to address the city's concerns and comments.

Response: Responses to comments received on Volumes I and II are provided throughout this appendix.

65. **Comment:** The Lake Helena plan indicates that Silver Creek is impaired due to both arsenic and mercury, and yet only a TMDL for arsenic is presented. DEQ's research indicates that between 50 and 75 tons of mercury may have been discharged to Silver Creek along with the mill tailings from the Marysville 50-stamp mill. DEQ sampling showed elevated levels of mercury in stream bottom sediments throughout Silver Creek from Marysville to the Helena Valley. However, we did not find mercury in the water column. Arsenic is not a primary concern with DEQ abandoned mine cleanup plans for Silver Creek because levels are well below thresholds. Is it possible that the TMDL confused mercury with arsenic?

Response: At this time, no TMDLs were completed for any mercury-impaired streams in the Lake Helena watershed. As stated in the Phase I impairment status report, "[In Silver Creek] The project team evaluated a total of four in-stream water chemistry samples taken between August 2001 and August 2003. Arsenic concentrations in three out of four samples exceeded the human health criterion. The average concentration of all samples was 42 percent higher than the human health criterion. The highest concentration was 2.3 times higher than the human health criterion. The evidence suggests that this segment does not meet the human health standard for arsenic." The arsenic TMDL presented in Appendix A is correct.