APPENDIX F – RESPONSE TO PUBLIC COMMENTS

As described in **Section 11.2**, the formal public comment period for the Flathead-Stillwater Planning Area Nutrients, Sediment, and Temperature TMDLs extended from October 10, 2014 to November 12, 2014. Formal written comments were received from three organizations and a municipality. DEQ evaluates all comments and related information to ensure no critical information was excluded from the document. Particularly for stakeholders selected to help advise the TMDL development process, early and active involvement and feedback with DEQ enhances the ability for collaboration and dialogue about the process. All commenters were involved in the stakeholder advisory group for the project.

Excerpts of the public comments received are organized by category, with most comments pertaining to a specific pollutant (i.e., nutrients, sediment, and temperature). The original comment letters are located in the project files at DEQ and may be reviewed upon request. Responses follow each comment, and because this project was a joint effort between DEQ and the EPA Region 8 Montana Office, the responses were jointly prepared.

F1.0 GENERAL COMMENTS

Comment 1.1: We think the level of communication with watershed stakeholders during the development of this TMDL was commendable. The periodic meetings of the TAG and WAG, and use of the Flathead Wiki website all served to ensure that everyone was in the loop.

> **Response 1.1:** Thank you for the positive feedback. DEQ has sought to keep stakeholders informed of work progress throughout the TMDL development process. We appreciate the time and information stakeholders have contributed to this project and believe that the final document has been improved as a result.

Comment 1.2: In Section 4.5, Par. 1, the document states that nonpoint source reductions "...*are primarily implemented through voluntary measures*." Actually, a key control mechanism for nonpoint forestry sources is the regulatory Streamside Management Zone (SMZ) Act of 1991. This law regulates forestry along hundreds of miles of perennial and intermittent streams in the watersheds covered by these TMDLs. Because of this, I recommend that the text be revised to state that nonpoint source reductions "…*are implemented through a combination of voluntary and regulatory measures*."

> **Response 1.2:** We agree with your comment and the importance of the SMZ law in addressing nonpoint source pollution. The text within **Section 4.5** has been modified per your suggestion.

Comment 1.3: Due to Ashley Creek's impairments (naturally and human caused alike) and the lower flows the WWTP will always have a challenge meeting Water Quality Standards for Ashley Creek. What are DEQ's thoughts about relocating Kalispell's outfall to the Flathead River? Would MDEQ consider viewing the non-degradation requirements on a basin-wide basis or would non-degradation criteria apply in the new outfall location?

> **Response 1.3:** DEQ supports the evaluation of alternate discharge options. Any discharge to the Flathead River would require consideration of non-degradation, which could be influenced by the discharge location to Flathead River (i.e., upstream or downstream of the Ashley Creek

confluence with the Flathead River). Although this alternative discharge approach addresses the Ashley Creek WLA requirements, the nutrient loading from the City of Kalispell WWTP will still be a potential concern for Flathead Lake. Therefore, it is difficult to endorse this alternative discharge location until the Flathead Lake Phase II nutrient wasteload allocations are developed for the Kalispell WWTP.

Comment 1.4: The TMDLs do not identify what nonpoint source load reductions are necessary to attain water quality standards. Instead they estimate what load reductions might be achieved if BMPs were applied in impaired segments. This is probably the best that can be done given the nature of nonpoint sources. However, to be effective, this approach requires that further assessments be done as BMPs are implemented and that additional BMPs be applied when found necessary – then "adaptive management." In order to be complete, the TMDLs should specify in detail follow-up monitoring and assessment that must be done to determine needed changes to the TMDLs. This would be very helpful for defining monitoring and assessment strategies for the watershed. We encourage you to include this information in the final TMDLs.

Response 1.4: As you stated, an effective adaptive management approach requires monitoring after BMPs are in place and any restoration work completed to determine if water quality targets are being achieved, water quality is improving, or if revisions to water quality goals are necessary. **Sections 10.3** and **10.4** outline suggested monitoring to expand knowledge of existing water quality conditions, to refine source assessments, and to provide nutrient, sediment, and temperature data for possible future impairment status evaluations. These document sections specify the most useful parameters to be collected during future monitoring efforts and provide suggested monitoring locations. DEQ does not specify exact locations where restoration projects would be beneficial or where specific BMPs should be implemented; these decisions are best left to the local stakeholders and landowners, based on stakeholder-determined priorities, landowner interest, and available funding. DEQ will again perform water quality assessments where there have been sufficient activities to warrant an evaluation of current stream conditions. Through this process, we may find that a TMDL(s) should be adjusted or simply that additional time is needed to achieve water quality goals. However, DEQ does not provide a specific list of BMPs or where they should be implemented, as nonpoint source protection measures are not legally required for most activities. Flexible decision-making by stakeholders is part of the adaptive management approach.

Comment 1.5: Implementation of the TMDLs for nonpoint sources is left to other government agencies and local stakeholders. The document would be much more useful to them if, for each impaired segment, there was a clear summary of what BMPs are needed and where they should be applied. Please include such a summary in the final TMDLs document.

Response 1.5: The source assessment information provided in the nutrients, sediment, and temperature sections of the document (**Sections 5.5, 5.6, 6.5**, and **7.6**) provides detailed information on pollutant sources, and **Section 9.4** provides restoration approaches applicable to each of the source categories. As explained above in response to **Comment 1.4**, decisions on where to conduct these restoration measures and apply BMPs are best determined by stakeholders.

Comment 1.6: Information about the relationships among the TMDLs for sediment, nutrients and temperature for the same stream segments would be useful since the implementation of the

recommended BMPs will often address multiple impairments. An integrated summary of needed BMPs for each source would be very helpful for planning an implementation strategy.

> **Response 1.6:** Although this is not an EPA-required TMDL approvability item, DEQ agrees that it would be ideal to provide this type of detailed information in the TMDL document. However, staff resources are limited. These types of planning steps should be incorporated during development and implementation of a watershed restoration plan (see **Section 9.2** for additional information). As noted above in response to **Comment 1.5**, **Section 9.4** provides BMPs and restoration approaches for source categories.

Comment 1.7: Section 9 of the TMDL document is very well done and will be useful to stakeholders in implementation of the TMDLs through watershed restoration planning. It would also be very helpful if DEQ would identify what it is prepared to do to help implement TMDLs in the watershed.

> **Response 1.7:** Thank you for the positive feedback. Although point source pollutant reduction efforts are driven by discharge permit requirements, nonpoint source pollution reduction efforts are largely voluntary. DEQ does not conduct nonpoint source pollution reduction projects; however, DEQ staff is available to assist stakeholders with their project planning and implementation efforts. As outlined in **Section 9.3**, DEQ may provide the following resources and assistance:
>
> - Review of and technical feedback on draft watershed restoration plan(s)
> - Assistance with applying for DEQ 319 funding for restoration projects, education and outreach projects, and volunteer monitoring (see **Section 9.6**)
> - Review of sampling and analysis plans for sampling design and objectives, completeness, and required sampling procedures and analytical methods
> - Training for volunteer monitors on DEQ's field and sampling procedures and methods, data quality assurance and control, record keeping, and data reporting
> - Advisory role for watershed groups or other organizations and entities undertaking watershed planning efforts and developing restoration plans/projects

F2.0 NUTRIENTS COMMENTS

Comment 2.1: Section 5.4.2. In this section, nutrient targets are developed for Nitrate, TN, TP, Chl-a, Ash-Free dry weight, and HBI. It is unclear why with EPA's pending adoption of TN and TP standards in Montana, that six nutrient "targets" are needed. Most of these are captured in DEQs Nutrient Assessment Method, and are subject to change over time as new information becomes available. I recommend that the targets are simply the standards for TN and TP. Going beyond that to list a whole host of other related parameters would only seem to confuse future re-assessment.

> **Response 2.1:** DEQ evaluates nitrate-nitrite concentrations for impairment using an approach consistent with the evaluation of TN and TP. The rationale for this is articulated in the main technical support document for the numeric nutrient standards (see page 1-4 of Suplee and Watson, 2013). Consumption of nutrients by algae in surface waters, referred to as nutrient uptake, makes it inappropriate to only focus on TN, TP or nitrate-nitrite concentrations when trying to determine water quality impairment for nutrients. Chl-*a* provides a measure of the algal uptake, which can otherwise mask elevated nutrient concentrations, and Ash-free dry weight (mass) provides a measure of excess Chl-*a* after die-off. The addition of targets such as

periphyton and HBI help with impairment determinations under conditions when more information is desired due to a higher level of impairment uncertainty. Though these targets/measures can be subject to change over time as pointed out in the comment, the DEQ thinks that it is important to provide the full suite of targets that were applied toward nutrient impairment determinations identified within this document. Through a continuous improvement process, DEQ will routinely evaluate nutrient and other pollutant assessment methods and may update them as more tools and information become available and as the science improves. Any future assessments would apply the updated or revised method. Language has been added to **Section 5.4.3** to acknowledge the potential for assessment method refinement which could result in the application of refined targets for future assessments.

Comment 2.2: Section 5.4.3.1. It is unclear why DEQ is recommending that upper Ashley Creek remain listed for Chlorophyll-a, when the stream segment meets the state guideline of 120 mg/m2 for Chl-A, and passes the assessment method (See Table 5-4). Text in this section states that perhaps high chl-a levels were "missed." If this is DEQ's logic – which has been repeated in numerous TMDLs across western Montana - that the sampling protocol is not sufficient to capture chl-a values in streams, then perhaps this is not warranted as a water quality target. There is further confusion because Middle Ashley Creek is not listed for Chl-a as an impairment, even though the mean chl-a value is the same as for Upper Ashley (50 mg/m2). Per DEQ's logic, shouldn't Middle Ashley be listed as impaired for Chl-a also? DEQ should adhere to its current assessment method and delist Upper Ashley for this pollution metric.

Response 2.2: DEQ believes that focusing on TN, TP and nitrate-nitrite for the purpose of controlling nutrient loads will address the potential for Chl–*a* problems since this represents a response variable to elevated levels of TN, TP and/or nitrate-nitrite. Many of the Chl-*a* impairment cause determinations were made prior to the application of the 120 mg/m2 target value, as is the case for the upper and lower segments of Ashley Creek. Because of the limited amount of Chl-*a* data collected for assessment purposes, DEQ has decided to retain historical Chl-*a* impairment determinations whenever there is also a determination that the waterbody segment is impaired for nutrient concentration parameters of TN, TP and/or nitrate-nitrite. This approach applies even if there were no recent values greater than 120 mg/m2. Alternatively, Chl-*a* is not identified as a new impairment cause unless it exceeds the 120 mg/m2 value, which is the situation for the middle segment of Ashley Creek. Once a waterbody segment is no longer considered impaired for all three of the nutrient concentration parameters, then Chl-*a* will be removed as an impairment cause since Chl-*a* (and ash free dry mass) must both be at acceptable levels prior to concluding that there are no TN, TP or nitrate-nitrite impairment causes.

Comment 2.3: We greatly appreciate DEQ's efforts to refine the Ashley Creek nutrient TMDLs to better account for the complexities posed by the Smith Lake Area wetland complex. While I suspect that the nutrient criteria adopted by Montana might not be physically attainable in Ashley Creek, the efforts made to adjust the modeling to factor in the wetland complex effect serves as a reasonable starting point. We hope that DEQ – in cooperation with the Basin Commission and others – undertakes the necessary scientific investigations to improve our understanding of nutrient dynamics in the Ashley Lake watershed, and any need for site specific nutrient standards. I do note that DEQ discusses the possible need for a site-specific nutrient standard in **Section 5.8.2** of the draft document.

Response 2.3: DEQ recognizes that there is uncertainty regarding the applicability of the nutrient criteria used to develop the nutrient TMDLs for Ashley Creek. DEQ will continue to work

with stakeholders to investigate nutrient loading and the applicability of the nutrient criteria for the Northern Rockies ecoregion to Ashley Creek.

Comment 2.4: Section 10 – Monitoring and Adaptive Management. I suggest that some of the language in the nutrient section regarding Ashley Creek and the Smith Lake area wetland be brought forward into this section. This includes the question of whether the Northern Rockies ecoregion nutrient standards are attainable in Ashley Creek. Also, if DEQ modelers have specific suggestions on what next steps should be taken to better understand nutrient dynamics in the drainage, that could be captured in this section.

Response 2.4: In recognition of this comment, we have added language to **Section 10.3.1** that reiterates the uncertainty regarding the applicability of the Northern Rockies nutrient criteria to Ashley Creek. In **Section 10.4.1** we have added language describing the need for: "Synoptic sampling at locations upstream, within, and downstream of all lakes and wetland complexes in upper Ashley Creek and all tributaries to this segment."

Comment 2.5: Upon development of the Flathead lake TMDL, will the same variance process be utilized in Circular 12B, or will the City have a lb/day load associated with the lake?

Response 2.5: DEQ intends to develop numeric nutrient standards for Flathead Lake prior to completion of the Phase II nutrient allocations for Flathead Lake. When lake standards are adopted, the Flathead Lake numeric standards will incorporate a variance process for point source discharges consistent with the adopted variance process in Circular 12-B and with the new variance rules which will soon be published in ARM 17.30 subchapter 6. This would then provide a template for staged WLA implementation consistent with the approach used for the Ashley Creek nutrient TMDLs. The need for staged WLA implementation could ultimately be a separate determination for each individual WLA within the Flathead Lake Phase II TMDL, taking into consideration the location within the watershed and existing discharge characteristics. During Phase II TMDL development, DEQ will determine if the Flathead Lake WLAs will be based on discharge concentration limits, discharge load limits, or some combination of both.

Comment 2.6: Why is MDT's MS4 permit not addressed in the TMDLs?

Response 2.6: The LSPC model was set up to produce output explicitly from the geographic area included within the boundaries of the City of Kalispell Small MS4 (MTR040005), to which the City of Kalispell and Montana Department of Transportation are co-permittees. This language has been added to **Section 5.5.3.7** to acknowledge that the MDT is an MS4 co-permittee with the City of Kalispell. Additional language has also been added to several locations throughout the document (e.g., **Section 5.6.3.3.1**) to clarify that both the City of Kalispell and MDT are responsible for MS4 WLA implementation.

Comment 2.7: Suggest also adding an estimate for Stormwater related loads from Flathead County. Evergreen is a high density area in the county, immediate adjacent to the city, but has not recourse for development.

Response 2.7: Most of the stormwater sources in the Ashley Creek and Spring Creek watersheds fall within the Kalispell/MDT MS4 permit area. The Evergreen area is outside of the Ashley Creek watershed, and is not applicable to the analysis at this time. However, future assessments at the

Flathead Lake watershed scale could include loads for stormwater sources that occur outside of the MS4 area (such as Whitefish, Columbia Falls, Evergreen, etc.)

Comment 2.8: It is disappointing that after considerable effort and resources were expended on developing a world class model for the Flathead watershed, it is used only to estimate current loadings. Why wasn't the model also used to predict the effects of the proposed point and nonpoint source load reductions on the attainment of water quality targets/standards along the length of Ashley Creek?

Response 2.8: The model was used for its primary intended purpose, that is to provide reasonable estimations of pollutant loading from identified source areas to inform the TMDL. Model scenarios were thus, not required to complete TMDLs for Ashley Creek. The model, however, could be used to inform implementation plans and strategies in the future.

Comment 2.9: We strongly recommend that the TMDLs include load allocations for each nonpoint source. The composite load allocation approach will require that allocations to each nonpoint source be made at the local level. This is unrealistic. There is no incentive for stakeholders associated with any source to step up and assume responsibility for a share of a composite load allocation nor is it required by either law or regulation. In our view, restoration planning and BMPs implementation is very unlikely to occur with the composite load allocation approach. We believe the TMDLs must include allocations to specific sources in order to have any hope of implementation.

Response 2.9: The use of a composite allocation approach provides stakeholders with the opportunity to develop a customized restoration approach to achieve the TMDLs. A single TMDL can be achieved via different combinations of reductions. For example, if a TMDL is 10 lbs/day nitrogen and the existing load is 14 lbs/ day and 3 lbs are from fertilizer, 3 lbs are from grazing, and 2 lbs are from roads, fertilizer could be reduced by 1.5 lbs, grazing by 1.5 lbs, and roads by 1 lb. Alternatively, fertilizer could be reduced by 2 lbs, grazing by 1.25 lbs, and roads by 0.75 lb. Although, DEQ does not provide allocations to specific nonpoint nutrient sources, the source assessments for Ashley Creek and Spring Creek contain pie charts that detail the relative contribution of specific nonpoint and point sources. These charts can inform stakeholders during the process of developing a watershed restoration plan and determining which sources to address and to what extent they need to be reduced to achieve the TMDLs. The TMDL document provides a framework for stakeholders to develop a watershed restoration plan and DEQ believes that using a composite allocation approach provides flexibility for stakeholders in developing an effective plan.

Comment 2.10: We are pleased that on Page 5-64, a statement is made that the TMDL for Ashley Creek may not be enough to protect Flathead Lake. The statement should be broadened to include the possibility that TMDLs may be needed for other tributaries to protect Flathead Lake. A commitment needs to be made for when the Flathead Lake TMDL will be completed. We are also pleased that you recognize that an annual loading to the lake may also need to be established.

Response 2.10: We have broadened **Section 5.9** to include the following language: *In addition to Ashley Creek and Spring Creek, Flathead Lake Phase II TMDL allocations would also be applied to other tributaries throughout the Flathead Lake watershed. There are several approaches that could be used for setting these allocations. This could include allocations to multiple pollutant sources within a specific tributary, or application of load reductions to specific pollutant sources*

types across multiple tributaries. Note that tributary allocations can be developed for a downstream lake's TMDL without writing a TMDL specific to each tributary.

As stated in the above language, Flathead Lake TMDL allocations applicable to tributaries can be accomplished without writing TMDLs for each tributary. DEQ normally writes TMDLs for impaired waterbodies, and recently updated assessments and a review of water quality data throughout the watershed suggests that Ashley Creek and Spring Creek may be the only tributaries to Flathead Lake with nutrient impairment causes. DEQ is committed to completion of the Flathead Lake Phase II TMDL project and is in the process of defining the individual tasks and corresponding time frames for this work.

Comment 2.11: We strongly object to a statement made repeatedly in the TMDL document that "a staged WLA implementation via the variance process is justified" for the Kalispell Waste Water Treatment Plant (WWTP). No justification is provided. This determination should not be made in the TMDL.

Response 2.11: It is not the intent of the TMDL document to make the variance determination for the City of Kalispell's wastewater discharge. Instead, the TMDL document allows for staged WLA implementation via the variance process. The determination regarding variance applicability will be made outside the TMDL document during MPDES permit renewal. If the variance can be justified, then WLA implementation will be staged consistent with the DEQ MPDES permit and variance requirements. Allowing this type of staged WLA implementation consistent with Montana law and DEQ's permitting is logical, and **Sections 5.6.1.1**, **5.6.4.3.1** and **5.6.4.4.1** provide ample justification for staged implementation.

Within **Section 5.6.1.1**, language has been added (in underline here) to clarify that the final variance determination is outside the TMDL document: *"If the variance is granted, the city of Kalispell will have 20 years from the time they receive the variance to meet the numeric nutrient standards."* Also, in **Sections 5.6.4.3.1** and **5.6.4.4.1** similar language modifications are applied as follows (in underline and cross-out here using **Section 5.6.4.3.1** language): "*Yet, a 95% reduction is still required to meet the WLA concentration, thus justifying a staged WLA implementation if a ~~via the~~ variance is granted ~~process…~~".*

Comment 2.12: Perhaps the most troubling aspect of the nutrient TMDLs is the way requirements are established for point sources. The so-called waste load allocation for the Kalispell WWTP is not an allocation of load at all. The TMDL proposes that limitations in the NPDES permit for the WWTP based on a concentration at the end of its discharge pipe equal to the water quality standard for Ashley Creek would constitute a waste load allocation. This is not a legitimate approach. In effect it allows an unlimited nutrient load to be discharged to Ashley Creek from the Kalispell WWTP. It also shifts the entire burden for increased loading caused by growth to nonpoint sources (which are totally unregulated). This burden of controlling loading from future growth should be allocated among both point and nonpoint sources. This approach also fails to recognize that Flathead Lake is downstream of Ashley Creek. The quality of Flathead Lake is significantly impacted by nutrient loadings. The TMDL must establish maximum allowable nutrient loads for both point and nonpoint sources.

Response 2.12: The Kalispell WLA can be defined as a load using Equation 4 within **Section 5.6.1.1**. **Figure 5-4** provides an example curve for TP showing that the load can be determined for any WWTP discharge. The text below **Figure 5-4** states: "*For the purpose of setting MPDES*

discharge permit conditions, Equation 4 is always satisfied if the discharge concentration is equal to or less than the target concentration during the applicable time period (in this case, the summer growing season). Therefore, the permit WLA can be satisfied by applying a concentration-based requirement on the discharge as opposed to establishing a load. If a concentration-based approach is not used for MPDES permit integration, then the WLA should be based on the target concentration multiplied by the existing WWTP discharge flow (as opposed to the design flow). Using a concentration-based approach does not result in a load cap and can be used to simplify MPDES permit development." This language allows for either a load based or concentration based approach to setting permit requirements for the WLA. Applying a concentration based approach is practical because the load from a WWTP discharge cannot measured directly, it is instead calculated by multiplying the measured WWTP discharge flow by the measured WWTP discharge concentration. It does not matter what load comes from the WWTP since meeting the target concentration ensures protection of Ashley Creek, with the WWTP discharge flow providing the downstream dilution capacity.

By setting a concentration that is equal to the target, this approach addresses both present and future loading from the WWTP and it is done in a manner that is independent of existing and future upstream nonpoint source loading. No burden is shifted to upstream nonpoint sources. The upstream nonpoint source are addressed within composite nutrient load allocations which are set to satisfy the applicable TMDL target in all upstream segments and reaches of Ashley Creek. They are applicable to existing and future loading from all the nonpoint sources covered by each composite allocation. One advantage to using a concentration based approach is that it can help accommodate future sewering of septic systems. This is because the septic load, once transferred through the Kalispell WWTP, will be treated to meet target concentrations. An arbitrary load limit could hinder this type of water quality improvement.

We do acknowledge that a load limit may ultimately be required for the Kalispell WWTP for the purpose of future Flathead Lake TMDL development. That is outside the scope of this TMDL document since the Kalispell WLAs are written only for protection of Ashley Creek at this time. This is discussed in **Section 5.9**.

F3.0 SEDIMENT COMMENTS

Comment 3.1: Section 6.4.2.4. We are pleased that Fish Creek was found to be meeting physical and biological targets, and is no longer impaired for sediment. We collaborated with the Flathead National Forest on a road sediment inventory several years ago in the watershed, which supports DEQs findings.

Response 3.1: Thank you for your comment.

Comment 3.2: 6.5.4.2 Kalispell Small MS4, Establishing the Total Allowable load. Please provide the numbers, equations, and calculations used to determine Kalispell's determined contributions to upper and lower Ashley Creek and the Stillwater River?

Response 3.2: The Kalispell Small MS4 does not contribute to upper Ashley Creek. The contribution of sediment to middle and lower Ashley Creek and the Stillwater River were calculated by the Flathead Lake LSPC model. Information describing how these values were calculated is contained within the model report.

Comment 3.3: Please add a sentence in 6.5.4.2 indicating the w ide variability in stormwater samples. The paragraph presents the data without proper context.

> **Response 3.3:** A sentence describing the potential variability of TSS values in stormwater samples has been added.

Comment 3.4: Why is MDT's MS4 permit not addressed in the sediment TMDL?

> **Response 3.4:** **Section 6.5.5.2** states that MDT is a co-permittee to the Kalispell Small MS4 and as such the sediment TMDLs do address MDT's contribution to the MS4.

Comment 3.5: NOTE: Sections of this comment have been removed while retaining the key points.

While BMPs may be effective in limiting sediment to streams from roads they have limitations. First and foremost is regularly maintaining BMPs on roads. For the most part the Flathead National Forest and Dept. of Natural Resources and Conservation apply BMPs when they have a timber sale and need the roads for hauling. So when there is no logging going on, most roads are not maintained to BMP standards.

The Flathead National Forest has 3,519 miles of roads and had a road operation and maintenance budget of approximately $895,000 for fiscal years 2012 and 2013. However, the estimated funding needed to maintain roads to standard is approximately $1,300,000 annually. (Note that not all of this goes directly to road maintenance). The Flathead prioritizes road maintenance funds for roads open to public travel to administration and high use recreation sites.

In the Flathead's Draft Travel Analysis Report ~3,465 roads were slated to remain on the landscape because they are identified as "likely needed for future use"; 55 miles of road were identified as "likely not needed for future use"; 2,051 miles of roads that remain will be classified Maintenance Level 1.

Maintenance Level 1 roads allow use as a motorized trail and do not require that culverts be removed. It does place an emphasis on maintaining drainage facilities and runoff patterns. (Guidelines for Road Maintenance Levels, 7700-Transportation Management 1177 1811-SDTDC, June 2012, page 37) However, it is unclear how that can be accomplished when "planned road deterioration may occur" and motorized vehicles can be allowed to cause rutting and erosion.

So for the Flathead National Forest the majority of their roads will be in a maintenance category that does not require BMPs or that culverts be removed to protect water quality. Furthermore, in the draft Travel Analysis Report they didn't even raise the question of whether water quality and fish habitat would be protected.

The Flathead plans to keep all the current road system in the Sheppard and Logan Creek watersheds. The sediment TMDL cannot rely on the application of BMPs or maintenance of culverts for Forest Service roads unless it is a mandatory, non-discretionary term of the TMDL in order to protect and restore beneficial uses.

Also, appendix C shows roads that had BMPs applied in the Sheppard Creek watershed since 2004. This map is pretty meaningless since BMPs need to be continually maintained so roads that had BMPs applied ten years ago are probably not effective now.

DNRC's Northwest Land Office has 1,669 miles of roads of which 363 miles are in the Stillwater Block. DNRC assesses roads in the Stillwater Block every 5 years; other roads on scattered sections are not always inventoried every 5 years. (Habitat Conservation Plan Final Environmental Impact Statement 2010) This strategy does not seem to comply with the TMDL's reliance on maintaining BMPs.

Forest roads cause unacceptable impacts to water quality, fish habitat, secure wildlife habitat and native plants. The Sullivan Creek landslide (in the Hungry Horse reservoir area) is the most recent illustration of why it is dangerous to leave roads without adequate drainage features, maintenance and monitoring. The sediment TMDL needs a mechanism to ensure that the Forest Service and DNRC actually apply and maintain BMPs and either maintain or remove culverts on closed roads – otherwise beneficial uses will not be restored.

> **Response 3.5:** DEQ concurs that in addition to implementing BMPs, maintaining them is essential to achieving TMDLs. In recognition of this we have mentioned maintaining BMPs on pages 6-45, 6-46, and 9-7, as you have pointed out in your comment, as well as on page 9-5. We have also added language indicating the need for BMP maintenance on pages 6-45, 6-46, 6-53, 9-7, 9-12, and 10-2 to make it clear that both implementation and maintenance of BMPs are necessary to achieve the TMDLs within the document. In reference to your concern regarding culvert removal and maintenance, the words "regardless of road use status" have been added to sentences on pages 9-5 and 9-14. The language in the document now conveys that culverts should be properly sized, installed, and maintained regardless of how a road is used and managed. While DEQ provides specific actions that can be performed to decrease pollutant loading to impaired stream segments and encourages land managers to develop and implement forest plans consistent with TMDL allocations, the TMDL document does not give DEQ or EPA the authority to require these BMPs for nonpoint sources.

F4.0 TEMPERATURE COMMENTS

Comment 4.1: Section 7.6. If I understand this section correctly, the TMDL for temperature for the Whitefish River is calling for a 0.5^{o}F decrease in stream temperature. What concerns me is that the model error as demonstrated in the calibration is greater than 0.5^{o}F in the lower reaches of the River. This does not appear to make any sense – encumbering landowners and the local community to take steps to decrease stream temperature to such a trivial amount when it is within the model error.

> **Response 4.1:** The 1.4% model error described in **Section 7.6** is between the observed temperatures measured in the Whitefish River in 2008 and the baseline scenario (i.e., the model error is the observed temperature minus the simulated temperature). It is not a measurement of the error between the baseline and shade model scenarios. These two model scenarios (and not baseline versus observed data) were used to determine the temperature differences due to shading and whether the water quality standard for temperature is being exceeded. For this reason, the model error has little influence on the determination of whether the standard is being met.

The observed data used to construct and test the model (instream temperature measurements, riparian shading assessments, and flow measurements), was also used to determine that the Whitefish River has temperatures greater than 66.5°F in the summer and that it has been impacted to some degree by human sources due to reduction of streamside shading. The shade conditions used in the shade scenario were based on measurements made at locations on the Whitefish River where shade appears to be at potential. Although the accuracy of measured shade values and the application of them to other areas that are not currently meeting the potential for shade represent potential factors that can introduce model scenario uncertainty, DEQ is confident in the shade values used for both the baseline and shade models. If future sampling indicates that the potential for shade is less than, or greater than, that used in the current shade scenario, it could be adjusted accordingly and the impairment status re-evaluated.

Comment 4.2: Smith Lake is mislabeled on E-26.

Response 4.2: The map has been changed and now correctly identifies Smith Lake.

Comment 4.3: Section 7.4.2.5 … The following sentences don't make sense in relationship to temperature BMPs. *The target for the City of Kalispell MS4 permit will be to follow the minimum control measures provided in the MPDES permit authorization for permit MTR04005, or any update runoff reduction or initial flush stormwater capture control measures in subsequent permit renewals. Renewed permits must contain initial flush mitigation measure. As long as all BMPs are effectively implemented as described in the permit, discharge will be consistent with naturally occurring conditions.*

Initial flush BMPs don't correlate or mitigate temperature controls, the following sentences are recommended for substitutions. *The target for the City of Kalispell MS4 permit will be to follow the minimum control measures in the MPDES permit authorization for permit MTR04005. As long as all BMPs are effectively implemented as described in the permit, discharge will be consistent with naturally occurring conditions.*

Response 4.3: The language has been removed as suggested with "or any subsequent renewals" retained and now appears as: *The target for the City of Kalispell MS4 permit will be to follow the minimum control measures provided in the MPDES permit authorization for permit MTR04005, or any subsequent permit renewals. As long as all BMPs are effectively implemented as described in the permit, discharge will be consistent with naturally occurring conditions.*

Comment 4.4: Table 7-2 City of Kalispell Small MS4 Target Value for Ashley Creek and Whitefish River. Same comment as above, remove the following: *or any update runoff reduction or initial flush stormwater capture control measures in subsequent permit renewals. Renewed permits must contain initial flush mitigation measure.*

Response 4.4: The language has been edited and now appears as: *Follow the minimum control measures provided in the MPDES permit authorization for permit MTR04005, or any subsequent permit renewals.*

Comment 4.5: 7.6.1.1.3 Shade with no Kalispell WWTP Discharge Scenario. Please provide the numbers used to calculate the 61.95 average. From the graphs and table in appendix E, only maximums are provided which makes referencing material used for the calculation confusing.

Response 4.5: The 61.95°F value is the average temperature at 13.39 miles from the mouth of Ashley Creek (at the approximate location of the Kalispell WWTP) calculated by the QUAL2K model with all portions of Ashley Creek meeting the potential shade values listed in the "Shade Scenario" column of **Attachment EF** of **Appendix E** and the Kalispell WWTP discharge removed as a model input (i.e., the "Shade with no Kalispell WWTP Discharge Scenario"). **Table E2-13** has been added to **Appendix E** and lists the average temperatures for locations from ASHL-17 (17.11 miles from the mouth) to the mouth of Ashley Creek.

Comment 4.6: 7.6.1.1.5 Kalispell WWTP Point Source Assessment. Please provide the numbers used to calculate the 62.01 average. From the graphs and table in appendix E, only maximums are provided which makes referencing material used for the calculation confusing.

Response 4.6: The 62.01°F value is the average temperature at 15.25 miles from the mouth of Ashley Creek (upstream of the Kalispell WWTP and between ASHL-17 and ASHL-18) calculated by the QUAL2K model with all portions of Ashley Creek meeting the potential shade values listed in the "Shade Scenario" column of **Attachment EF** of **Appendix E** and the Kalispell WWTP discharge removed as a model input (i.e., the "Shade with no Kalispell WWTP Discharge Scenario"). **Table E2-13** has been added to **Appendix E** and lists the average temperatures for locations from ASHL-17 (17.11 miles from the mouth) to the mouth of Ashley Creek.

Comment 4.7: Because there is evidence, as provided in the report, that at times the Kalispell WWTP is not exceeding the narrative temperature standard, and will only exceed the standards when the modeled shade scenario upstream of the WWTP discharge is about 66 to 66.5 degrees; with that being established a WLA should not be implemented until such time as the WWTP discharge effects the stream temperature enough to exceed the narrative standard. Since the WWTP is currently the only contributor regulated by a permit, it would place an unwarranted requirement on the municipality to meet a modeled standard that may not be achieved due to no regulatory control on the non-point source contributors. Therefore, it is unreasonable to place a WLA onto the City before the upstream reaches are meeting the shade scenario (natural background) temperatures, and should be stated as such in the report.

Response 4.7: There is evidence that there may be times when the Kalispell WWTP is not causing the standard to be exceeded; however, **Figure 7-8** demonstrates that the WWTP has the potential to exceed the standard when the Ashley Creek temperature is around 66.5°F and when it is below about 66°F. Temperature data collected by DEQ in 2008 shows that on August 1 the temperature at ASHL-18 (upstream of the WWTP) ranged from 62.75 – 68.26°F. On this particular day, during about 13 hours the temperature was below 66°F and during an additional hour the temperature was 66.52°F. This means that during more than half of this particular day there was the potential that the WWTP could be causing the standard to be exceeded using *existing temperatures* (i.e., not accounting for any cooling that may result from upstream shade improvements. Even if shade could not be improved on Ashley Creek there would still be the potential for the WWTP to cause the standard to be exceeded. The goal of the sampling and analysis described in **Section 7.6.3** "Achieving Temperature Allocations" is to determine exactly when the standard is being exceeded. At this time we believe that the data collected as outlined in **Section 7.6.3** and mixing calculations will be sufficient to determine when the standard is being exceeded and additional modeling will not be necessary.

Comment 4.8: The City of Kalispell would like MDEQ to consider a development of a variance process for temperature similar to the nutrient variance for situations like this discharge; where temperature standards are only exceeded for a limited distance downstream of a discharge and exceeds the standard for minimal parts of the day and year.

> **Response 4.8:** The staged approach described in **Section 7.6.3** is intended to emulate a process that is similar to the intent of the nutrient variance process.

Comment 4.9: Do the narrative standards meet the intent of beneficial use for Ashley Creek? Can DEQ perform a more scientifically valid site specific study to assess and determine the natural background temperature for Ashley Creek?

> **Response 4.9:** Because the standard for temperature is narrative there is room for the interpretation of the naturally occurring temperature. For this reason we developed the staged implementation process and adaptive approach described in **Section 7.6.3**.

Comment 4.10: Would MDEQ write the temperature WLA going into the City WWTP permit? Or could the City propose alternative ways to mitigate its effect on temperature in Ashley Creek? See comment 12, below.

> **Response 4.10:** The WLA in **Table 7-8** is an example for a specific set of conditions and is not intended to be a number in the WWTP permit. The actions outlined in **Section 7.6.3** will be written into the permit in lieu of a discreet WLA value. Meeting these permit requirements will meet the intent of the WLA. As written in **Section 7.6.3,** DEQ will allow up to 20 years to meet the WLA. If appropriate, mitigation could be part of the staged implementation.

Comment 4.11: MDEQ should consider the addition of a benefit to cost analysis of meet the proposed Temperature WLA.

> **Response 4.11:** A benefit to cost analysis has already been incorporated into STEP 3 of the staged implementation process described **in Section 7.6.3**. The word “benefit” has added to the section for clarity.

Comment 4.12: Did the modelling performed for the shading scenarios accurately reflect the temperature decrease. Are there inputs that ca n be evaluated that would generate an increase in the temperature for the shaded scenarios?

> **Response 4.12:** Given the field data collected in 2008, we believe that the modelling performed for the shade scenario accurately reflects the temperature decrease. If in the future, we determine that the shade targets cannot be achieved in some locations, then the temperature decrease would be less than described under the current shade scenario. However, if we determine that greater shade values can be achieve then a larger temperature decrease would occur.

Comment 4.13: MDEQ has developed this temperature allocation and model based on one software package and a limited dataset. We would like MDEQ to consider alternative ways to better understand

Response 4.13: DEQ is open to consider other models. However, QUAL2K has been well-studied, is used around the world to model water quality, and is recommended by EPA for TMDL development. In addition to the QUAL2K model, mixing equations were used (with limited data as you point out) to demonstrate the potential effect of the WWTP on temperature in lower Ashley Creek under varying conditions. The synoptic data collected in Step 1 of the staged process will facilitate DEQ performing a robust analysis of the WWTP effect on lower Ashley Creek temperature via mixing equations in Step 2. The staged process outlined in **Section 7.6.3** does allow for DEQ to consider 1) additional methods for data analysis and 2) how the standard is to be applied in this specific situation.

Comment 4.14: Achieving the Waste load Allocation for the Kalispell WWTP. Achieving the step requirements is more practicable to achieve and plan for if it is associated with the permit cycles. Below is a recommended layout for achieving the step implementation.

- First permit cycle (5yrs) -Step 1data collection
  - Bullet 3. Real-time discharge is already being recorded at the WWTP, however collecting rea l-time data *just* before it enters into Ash ley Creek will provide multiple challenges, due to the physical location of the discharge pipe. Because of the layout of the pipe, we suggest removal of the word *just* from the sentence, and allow the installation at a more practical location suggested by Kalispell and approved by DEQ.
- Next permit cycle (5yrs)- Step 2 and 3 can be achieved
  - Please explain the intent of the second bullet in step 2, and who is responsible to determine the target for exceedance for elimination or reductions. What will the target be based from? Will modelling need to be performed to update the scenarios, and if so is DEQ able to perform the task.
- Next permit cycle (5yrs)- Step 4 can be achieved.
  - Document the actions that will be taken by the WWTP to improve water temperature in Ashley Creek *downstream of the discharge to the extent it was affected by the discharge*, timeline for implementation, and monitoring that will occur. By adding *downstream of the discharge* it defines the area of mitigations for step 4 second bullet. As written, it could be assumed the WWTP would be looking at all of Ashley Creek.
  - It should be stated that if the analysis proves the WWTP discharge is not creating an exceedance of the temperature standard at current temperatures, implementation to mitigate to natural modeled shade scenarios temperatures will only be required at such time as the upstream temperature are constantly meeting the shade scenario targets.
- Next permit cycle (5yrs)- Step 5 implement the plan; It should be stated that Step 5 should only be implemented if warranted.

Response 4.14: In general, DEQ agrees with your suggestions and we have made the appropriate changes to **Section 7.6.3**. The section now states the permit cycle during which each step will be completed as well as clarification as to whether the City of Kalispell or DEQ will be responsible for specific tasks.

Comment 4.15: 7.8 Uncertainty and Adaptive Management. It's stated, "As further monitoring and assessment is conducted, uncertainties with present assumption and consideration may be mitigated via periodic revision or review of the assessment that occurred for this document." Adaptive management techniques are a great management tool when utilized and acted upon. What guarantees will DEQ enact to ensure they will be reviewing this temperature TMDL, allocations, and supporting analysis that are

subject for periodic modifications and adjustments as new information and relationships are understood?

> **Response 4.15**: The role of DEQ in reviewing the temperature TMDL and associated WLA for lower Ashley Creek and performing supporting analyses will be written into the permit for the Kalispell WWTP as described in **Section 7.6.3**.

Comment 4.16: Why is MDT's MS4 permit not addressed in the Temperature TMDL?

> **Response 4.16**: In **Section 7.4.2.5** we acknowledge that MDT is a co-applicant (changed to "co-permittee" in the document) to permit MTR040005. As such, MDT's contribution to the Kalispell Small MS4 is addressed by the temperature TMDL.

Comment 4.17: No mention is made in the TMDLs of the relationship between temperature and increased biological activity, e.g., production of algae. We recommend addressing this in the TMDL document.

> **Response 4.17**: Language describing how increased temperature can affect primary production and dissolved oxygen content has been added to **Section 7.1**.

Comment 4.18: On Page 7-11, the statement is made that the targets include an implicit margin of safety (MOS). Why, then, do some of the TMDL calculations include the use of an explicit MOS and some do not, e.g., Lower Ashley Creek?

> **Response 4.18**: An explicit MOS was used on both upper and middle Ashley to ensure that the temperature of Ashley Creek will be at naturally occurring when all reasonable land, soil, and water conservation practices are applied and shade potential is achieved along all of Ashley Creek. By doing this, the temperature increase allowed by the water quality standard is reserved for use by the Kalispell WWTP in lower Ashley Creek. An explicit MOS was used in the Whitefish River temperature TMDL in recognition that the point sources are currently using only a small portion of the temperature increase allowed by the water quality standard and that our goal is for reaching the shade potential for riparian vegetation along the entire Whitefish River.

Comment 4.19: In Section 7.4.2.2, information is provided on the recommended width of a riparian buffer. Why wasn't a 75 foot buffer chosen as suggested by at least one of the references cited?

> **Response 4.19**: The 50 ft buffer was recommended as a minimum because that is the distance that appears to give the greatest benefit to water quality given the trade-offs to landowners that might graze or raise crops on their land. While increasing the width does increase the overall effectiveness of the buffer, the benefit per foot of buffer is decreased. DEQ supports any landowner that wants to implement riparian buffers and encourages them to use the widest buffer that they are comfortable with.

Comment 4.20: How was shade potential determined (Section 7.4.2.2)? The locations where there is "no potential" to achieve shade targets should be identified.

> **Response 4.20**: Shade potential was determined using field data collected from each of the streams and best professional judgment by environmental science professionals familiar with

riparian vegetation and its potential for growth when BMPs are applied and maintained. DEQ solicited stakeholder feedback regarding the temperature modeling and shade potential values incorporated into the models throughout the TMDL development process. The first draft of the model report was posted to the project website on 10/13/2011 and a new draft version of the model report was posted to the project website on 5/20/2014 with a notice of the update also being posted on the "Announcements and Updates" section on the project outreach page. The final QUAL2K model report was posted to the project website on 7/15/2014 and an email was sent to watershed advisory group members on 7/16/2014 notifying them of this action. The locations where there is "no potential" are locations where the riparian vegetation is already meeting its potential for producing shade; these locations could be healthy areas where there is lots of shade or an area where there is a road directly adjacent to the channel and there is nowhere for vegetation to grow. These locations are identified in **Attachment EF** of **Appendix E** and contain "yes" in the column labeled "Currently Meeting Potential Shade Conditions."

Comment 4.21: What limits the potential to reduce stream channel width? Do these conditions exist throughout the watershed?

Response 4.21: Stream discharge and hydrograph, topography, and channel type affect the width of a stream. Reducing the width of a stream can cause it to become deeper and/or faster and if the width is reduced too much can cause detrimental effects to the stream channel such as downcutting and excessive bank erosion. Site visits on Ashley Creek and the Whitefish River indicated that these streams are overall at the appropriate width. Aerial photos corroborate this finding. However, there may be some locations on either of these streams where localized overwidening is present; these locations could be targeted for restoration that would give the stream channel an appropriate width. Passive restoration via improved vegetation was suggested in **Section 7.4.2.3** of the draft document. Additional language has been added to this section mentioning active restoration to reduce stream width.

Comment 4.22: Does groundwater withdrawal have an effect on stream temperature? If so, is there a way to incorporate this variable into the TMDL determination?

Response 4.22: Groundwater withdrawal could have an impact on stream temperatures especially if it resulted in less cool water contributing to the discharge of a stream. The effects of existing groundwater quantity on instream temperature were incorporated into the QUAL2K models via the measured flow data used to construct the model and the temperature data used to calibrate the model. Water (and thus temperature) inputs and losses due to groundwater movement could be explicitly incorporated into the QUAL2K model and as such could be incorporated into the TMDL. However, gaining an understanding of the groundwater dynamics could require extensive research and was not considered given the time and resources available for this project. Groundwater studies could be incorporated into the watershed restoration plan for Ashley Creek and/or the Whitefish River if stakeholders deem this information to be of interest. As part of the adaptive management approach, new groundwater information could be used to further refine the temperature TMDLs.

Comment 4.23: Why is the shade target for the Whitefish River so much less than that for Ashley Creek (Table 7-2)?

Response 4.23: The shade targets for both the Whitefish River and Ashley Creek are the average shade values measured at sites that were deemed to be meeting potential for a given vegetation type. How much shade a stream receives from vegetation is a function of the type of vegetation, the height it can achieve, and the width of the stream. The Whitefish River tends to be wider than Ashley Creek (**Attachment EC** in **Appendix E**) and thus will receive less shade even if the same vegetation type and height are present on both streams.

Comment 4.24: In the last paragraph of page 7-20, the statement is made that the WLA was determined using design flows, thus addressing future growth. We believe this to be a legitimate way of providing for future growth. Why wasn't the same approach used in the nutrient TMDLs?

Response 4.24: The design flow was not used for the nutrient TMDLs because there are specific numeric criteria for nutrients. The goal for nutrients is to achieve these concentration values in the effluent discharge (see the response to Comment 2.12). However, design flows are used during staged implementation of the nutrient TMDLs which incorporates the nutrient variance process (Department Circular DEQ-12). Once the WWTP discharge concentration is equal to or less than the target concentration, then application of design flow is unnecessary since no matter what volume of flow is being discharged, it will not be causing or contributing to impairment. The standard for temperature is narrative and therefore provides for different options when calculating the wasteload allocation depending on the temperature and volume of effluent discharged and the temperature and volume of the stream discharge. Because the two point sources that discharge to the Whitefish River have so little effluent relative to the discharge of the Whitefish River, and even when they are discharging at their maximum temperature they do not seem to substantially affect the temperature in the Whitefish River, we opted to calculate the wasteload allocation using the design flow.

Comment 4.25: On page 7-21, it says that no explicit MOS was applied to the TMDL for the Kalispell WWTP. Why? How does this satisfy the provision of the Clean Water Act that requires a MOS?

Response 4.25: No explicit MOS was applied to the TMDL for lower Ashley Creek (which includes the Kalispell WWTP wasteload allocation) to allow for the Kalispell WWTP to use the entire temperature change allowed by the water quality standard. The TMDL for lower Ashley Creek has an implicit MOS incorporated into it. As described in **Section 7.7**, the implicit MOS for lower Ashley Creek includes the adaptive management approach that relies on future data collection and analysis to evaluate the effectiveness of targets and TMDL implementation and the recommendation that all reasonable water conservation measures be implemented to increase instream flow. Improving water quality via water management and irrigation practices are discussed in **Section 9.5.1.3**.

Comment 4.26: In Section 7.6 it says that the TMDL varies depending on specific temperature and "discharge conditions." We assume that "discharge conditions" means stream flow. It would be inappropriate to use WWTP discharge flows. This should be clarified.

Response 4.26: The "discharge conditions" in **Section 7.6** refer to both those of the stream and point source effluent and were used to calculate example TMDLs, allocations, and reductions. Language has been added on pages 7-22 and 7-28 to clarify this. You are correct that the TMDL is calculated based on the instream flow and temperature (see Equation 7-1). However, if a

point source enters a stream upstream of where the TMDL is calculated, the flow from that point source is part of the instream flow. Point source effluent flow and temperature are used to determine specific effects on instream temperature relative to the water quality standard and calculate existing loading, wasteload allocations, and reductions.

Comment 4.27: In the last paragraph, it is stated that the Kalispell WWTP will have 20 years to comply with the temperature TMDL for Lower Ashley Creek. It is not appropriate to include a point source compliance schedule in a TMDL, especially without the development and negotiation of a detailed schedule. The compliance schedule should be determined in the NPDES permit and variance process with an opportunity for public comment. No basis for a 20-year schedule is provided.

Response 4.27: The temperature wasteload allocation for the Kalispell WWTP is expected to be achieved through a staged implementation process. The variance process is currently applied to nutrients per state law. In developing staged implementation for the temperature WLA, the variance process concept as well as EPA guidance on staged TMDL implementation were both taken into consideration. The 20 years given in this document is the same amount of time given to the WWTP to achieve the nutrient wasteload allocations via the variance process. DEQ TMDL program personnel worked closely with both DEQ Permitting and representatives from the City of Kalispell toward the development of this staged implementation and an appropriate compliance schedule. In the final document (**Section 7.6.3**), we have incorporated permit cycles in the staged approach and the 20 year time period corresponds to four permit cycles. Public comments regarding the TMDLs were accepted during the October 10 – November 12, 2014 comment period. Implementation of the TMDL in the permit can be commented on during subsequent permit public comment periods.