

The Best Watershed-Based Plans in the Nation

Final Report
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I. Introduction and Purpose.

The purpose of this study was to review the “best” watershed-based plan from each State and Territory to evaluate how well stakeholders are tackling the challenge of developing high-quality watershed-based plans. Beginning in FY 02, EPA published a series of grants guidelines culminating in October 2003 with a Federal Register Notice titled “Nonpoint Source Program and Guidelines for States and Territories for FY 04 and Future Years” which outlined nine essential elements for effective watershed-based planning. These guidelines were designed to assure that States and local communities could develop watershed-based plans that, upon implementation, would succeed in meeting water quality standards. To assess national progress toward implementing these elements, OWOW asked each Regional Office in early Fall 2005 to coordinate with their States and submit the “best” recent example of watershed-based planning for nonpoint source pollution. These plans were provided to HQ with the understanding that EPA would use the information for internal evaluation purposes only. This report is the culmination of that evaluation. It is intended to help the Agency:

- 1.) Gain an understanding of how well the country is developing watershed-based plans that meet the Agency’s expectations - as reflected in the nine elements - and thereby help assure that water quality standards are attained.
- 2.) Identify common areas of weakness so EPA can initiate targeted efforts to help address those deficiencies;
- 3.) Uncover innovative techniques and approaches to share with stakeholders throughout the country who may be facing similar challenges.

A total of 44 plans were submitted to EPA out of a possible 56. Two Regions (Regions 1 and 7) submitted only one plan each, while 3 Regions submitted plans for each State and Territory. Over the 6-month project period, a total of 30 plans were analyzed. Plans were strategically reviewed to provide the most balance in terms of regional coverage and overall planning quality. As such, this review will provide analysis of some excellent plans, many plans that need improvement, and a few plans in need of significant improvement.

II. An Evaluation Method

EPA devised a simple scoring method to help guide the analysis. This is a MS Excel evaluation spreadsheet, and is attached to this report as Appendix I. EPA recognized that an analysis of this nature is inherently subjective, and therefore established discrete evaluation criteria to maintain the greatest level of objectivity possible. This scoring method forces the analyst to make specific determinations for each evaluation parameter, dampening the human element of preference as much as possible. As such, this evaluation tool provides a reasonable basis to inform observations of national trends in watershed-based planning.

Evaluation Criteria

Specific evaluation criteria help EPA assess whether or not a specific element was fully, partially, or inadequately addressed for a particular plan. We segmented language from the Federal Register Notice (FRL-7577-6) into discrete statements that can be simply evaluated with a “yes” or “no” answer. In addition, after reviewing examples of particularly well-done watershed management plans, EPA included some “extra” criteria. These weren’t necessarily required by the Federal Register guidance, but nevertheless are good components to consider in the planning process. For example, element D asks for an estimate of technical and financial assistance, including the sources and authorities needed to implement the plan. Many of the better plans not only address these criteria, but take an additional step by providing an economic analysis of potential benefits. Accordingly, EPA added an evaluation criteria asking whether or not benefits relative to expenditures have been discussed. While this is beyond the scope of the nine elements, EPA believes it can be important part of effective watershed planning.

Scoring Performance

The evaluation criteria were scored in two ways. First, a simple “yes” or “no” to determine if the criteria has been met. Then, to better assess the degree to which the criteria is satisfied, a 0-4 score (“yes” is 2 or above) is assigned based on the following guidance:

- **0: Not Satisfied:** Criteria is completely inadequate.
- **1: Partially Satisfied:** Criteria incomplete but awarded partial credit for some evidence of effort.
- **2: Satisfied:** Criteria is addressed at the minimum level and has weaknesses that should be improved
- **3. Fully Satisfied:** Criteria is addressed and meet expectations with no overwhelming weaknesses.
- **4: Exceeds Expectations:** The plan goes above and beyond expectations, providing extraordinary analysis and/or unique components.

A “good” plan that addressed all of the nine elements would get a score of “3” for each element. If the plan has particularly innovative components that should be

shared with the rest of the country, those components would receive a score of “4”. Plans with significant data or analytical gaps and lacking the necessary level of detail would likely have a majority of criteria scored “2” or below. After each evaluation criteria has been assessed, the individual scores are tallied to calculate a Total Score for the plan.

Evaluating Performance

The Total Score calculation provides a good measure of the quality of individual watershed management plans. On a national scale, the individual scores help distinguish outstanding plans from those lacking in one or more areas. This method alone, however, does not provide insight into which elements the States are most challenged to implement. In other words, more detail is needed to provide the pertinent information presented in Figure 1 on page six.

To tackle this objective, a separate scoring method was developed. This adjusted method calculates the level of satisfaction as the percentage of points achieved relative to the total points available. This formula, summarized below, divides the total points awarded for each element by the number of evaluation criteria multiplied by 4 (i.e., the greatest possible amount of points that can be earned). This is a more accurate measuring stick than an unadjusted “points” score because some elements have more evaluation criteria, providing more opportunity to earn points. This method calculates an adjusted score for each element, which allows EPA to analyze performance for each element and quickly identify superior approaches for satisfying certain elements.

Formula 1 Level of Satisfaction (%) = Total Points Earned / [# of Evaluation Criteria * 4]

Evaluating National Trends

To evaluate trends in watershed-based planning across the nation, each plan’s adjusted performance values for each element are compiled in one central database. The data for all reviewed plans is used to calculate the national “mean” and “median” score for each element. Depicted in Figure 1 below, this analysis allows EPA to easily assess the most challenging elements. The centralized database also allows EPA to display trends for a number of different search parameters, including Regional Performance for individual elements. This data will help EPA discover not only which elements are most challenging, but how well States in each Region are succeeding in developing effective watershed-based plans.

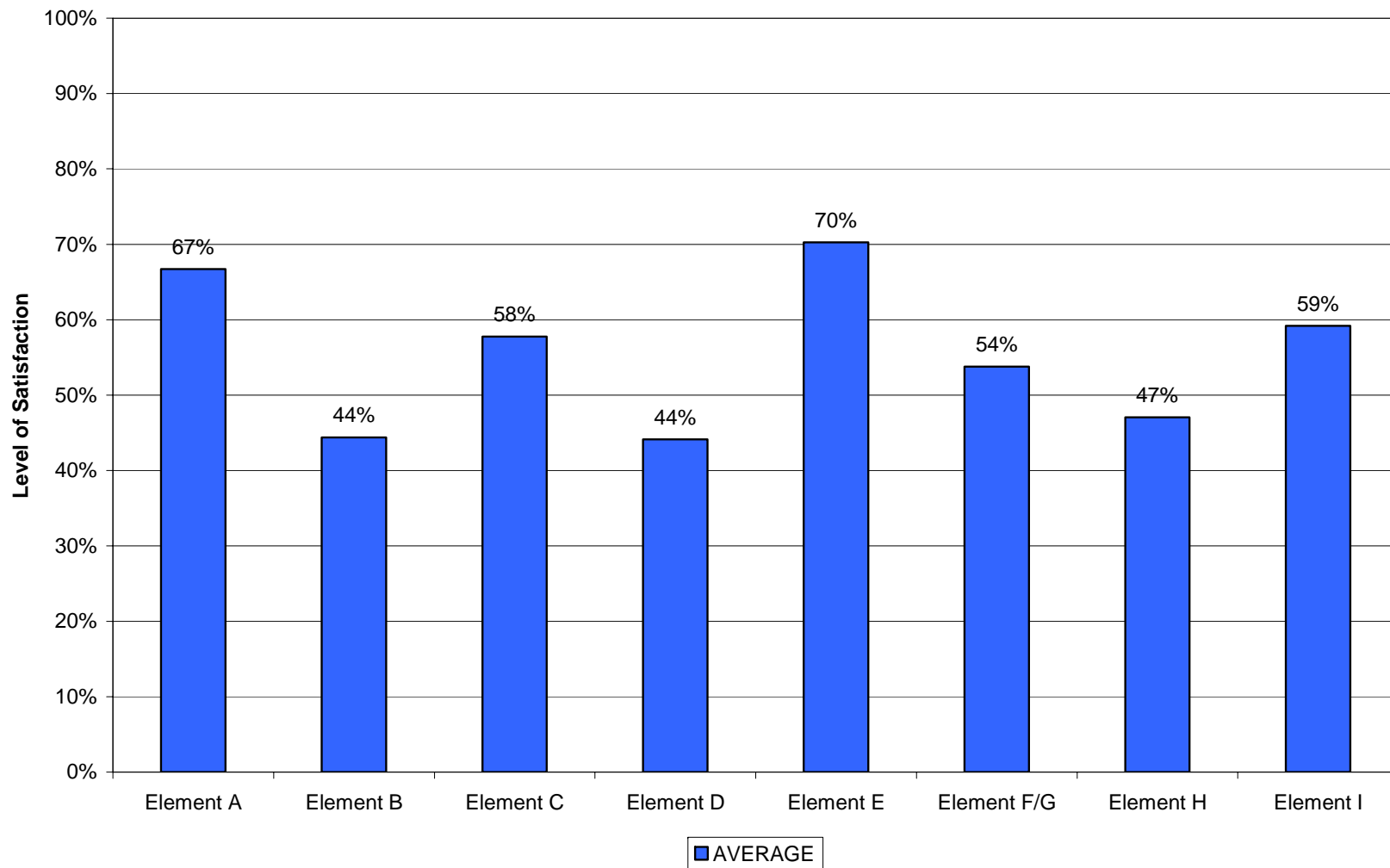
III. Aggregate Data Trends

After reviewing 30 watershed plans – balanced across the 10 EPA Regions to the greatest extent possible – some clear trends in watershed planning are evident. The data indicates that while most States are fulfilling certain planning elements very well, many have struggled to adequately address other components. In most cases, stakeholders are having the most difficulty with more technical, quantitative elements while doing well with more straightforward requirements. This is a logical outcome, so we expect this trend to continue but hopefully improve. (EPA’s newly released Watershed Planning Handbook and numerous training sessions are focused on enhancing practitioners’ capabilities in conducting the more sophisticated analyses needed to successfully develop more quantitative elements and thereby implement plans effectively.)

Figure 1 below presents aggregate data for the 30 watershed-based plans that have been reviewed. The average adjusted performance score for each element is graphed to determine the most challenging elements to implement. (Median scores were also calculated, but were negligibly different from the average score for each element). It is clear that most plans have done very well with Elements A and E, while many have struggled with Elements B, C, D, and H. This trend is not necessarily unexpected since Elements A and E – source identification and education campaign, respectively – are fundamental components of watershed-based planning (including TMDL development) and provide the foundation for more detailed implementation planning. A monitoring plan (Element I) is also a basic watershed planning component, which partly explains the higher scores for this element. Elements B, C, D, and H are more challenging and may involve a significant amount of quantitative analysis and technical skill.

Many States seem to be especially struggling with Element B - load reduction calculations. It is not surprising that stakeholder groups are having more trouble addressing this particular element, given the need for complex tools and technical skills that often transcend the layperson. EPA recognizes the difficulty in completing this component at an adequate level of quality. Calculating load reductions is a time consuming procedure and inexact science at best. Often times, the necessary data is not easily accessed or a water quality model is too sophisticated for all but very highly trained users. There are, however, methods for estimating load reductions that are less resource-intensive that nonetheless will tremendously assist in the planning process. Many of the plans analyzed during this project have successfully adopted such methods. It is important for States to fully appreciate the utility of this process, and make every attempt to calculate the expected water quality impact of their management plan. This will allow for the most effective utilization of resources, and help ensure that appropriate management measures are implemented that will achieve water quality standards in the most cost-effective manner.

Figure 1: EPA Watershed Planning Elements: National Trends



**Table 1: Regional Scoring Summary
Average Performance Level and Total Score**

	Region 1 *	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7 *	Region 8	Region 9	Region 10
Plans Reviewed	1	3	4	3	4	4	1	3	3	3
Element A		50%	76%	72%	81%	74%		62%	55%	65%
Element B		13%	59%	77%	73%	38%		27%	29%	31%
Element C		39%	73%	72%	73%	56%		53%	49%	50%
Element D		2%	55%	47%	58%	48%		32%	45%	53%
Element E		63%	72%	69%	83%	56%		73%	71%	77%
Element F/G		43%	74%	70%	35%	71%		47%	45%	42%
Element H		19%	50%	60%	65%	49%		39%	26%	65%
Element I		56%	63%	47%	81%	52%		61%	36%	72%
Average Score		51	101	95	98	82		71	67	82

* Regions 1 and 7 submitted only 1 plan and therefore are excluded from the Table

IV. The Best from Across the Nation

The following plans are the best examples of watershed-based plans that have been reviewed. They demonstrate the level of detail necessary to achieve success in nonpoint source mitigation efforts. These plans have addressed all nine elements to some degree, failing to meet only a few minor evaluation criteria if any at all. In some cases, they fulfill certain elements with innovative techniques that deserve to be shared with stakeholders throughout the country facing similar water quality challenges. While most of these examples benefit from hearty financial resources, impressive community support, or less complex water quality challenges, they are all fine examples of how diligent watershed-based planning can help guide effective non-point source pollution control strategies. Evaluation sheets for the plans can be found in Appendix II, and internet links for each complete plan are listed below on page 9.

The excellent quality of these plans shows that it is possible to develop plans that address all nine watershed planning elements set forth in EPA's guidelines, and that by doing so a more effective watershed management strategy will be the result. It is true that some of these plans have the benefit of significant resources and broad institutional support. In most cases, however, their methods for completing the nine elements are relatively simple and easily replicated. It seems that the most important factors contributing to the quality of these plans are diligence, dedication and creativity.

The *Corsica River Watershed on the Eastern Shore of Maryland* may be the best watershed-based plan submitted to EPA for review. The Corsica has a relatively large watershed area (approximately 40 square miles) and has benefited from substantial financial resources, impressive community activism, and public visibility in the form of media coverage. The plan had an impressive format where each recommended management measure was discussed in the context of evaluation criteria, milestones, implementation needs, and expected load reductions. It was a simple management strategy to follow and should be relatively straightforward (though costly) to implement. An especially innovative component of this plan was an extensive G.I.S. database used to inventory pollution sources, track progress, evaluate needs, and suggest plan alterations.

The *Crab Orchard Creek Watershed in Tennessee* is an Acid Mine Drainage (AMD) remediation effort with outstanding watershed-based planning. This is also a large watershed area (approximately 47 square miles) that benefited from a relatively straight-forward pollution problem. They have an impressive spreadsheet modeling approach for estimating expected load reductions that could be a good model for other AMD plans. The plan is also easy to follow since the format is based around the nine elements.

The *South Branch Yellow Medicine River Watershed in Minnesota* is another sound example of effective watershed-based planning. There are parts of this plan that are excellent, including the use of models and literature-based assumptions to inform target-setting. Other sections – including the schedule and expected load reductions – could be improved but nonetheless meet the basic EPA guidelines.

The *Millers Creek Watershed in Michigan* is the only urban nonpoint source watershed plan in the “best” section of this report. The plan has a very impressive scenario analysis approach for estimating load reductions. Their method “builds” off current conditions to gradually meet water quality objectives. This is different from traditional scenario analysis where different suites of management measures are modeled until goals are achieved.

The *Yellow Bank Creek Watershed in Alabama* is a short plan that nevertheless provides a fine example of watershed-based planning. This is a good case of how the SWAT model can be used to develop pre and post BMP implementation scenarios to estimate expected pollution reductions. Since SWAT is such a widely-used tool, this method could be easily adapted by other watersheds. They also have a particularly excellent budget section that estimates current and future management needs.

The *Fort Cobb Watershed in Oklahoma* is the final plan in the “best” category of this report. This plan did an excellent job evaluating current loads, identifying the primary sources, and establishing an effective management scheme for reaching mitigation goals. Particularly impressive was their use of the PRedICT model (GWLF companion model) to estimate implementation costs. This user-friendly tool is something that can be easily replicated by other watershed groups that may lack sophisticated technical resources.

Corsica River Watershed, Maryland:

http://dnrweb.dnr.state.md.us/download/bays/cr_strategy.pdf

Crab Orchard Creek Watershed Plan, Tennessee

http://www.discoveret.org/chota/COC_Watershed_Plan.pdf

South Branch Yellow Medicine River Implementation Plan, Minnesota

<http://www.pca.state.mn.us/publications/wq-iw7-01c.pdf>

Millers Creek Watershed Implementation Plan, Michigan

<http://www.aamillerscreek.org/Findings.htm>

Yellow Bank Creek Watershed, Alabama (for more information)

<http://www.swcc.state.al.us/madison/watersheds.htm>

Fort Cobb Watershed, Oklahoma (for more information)

<http://www.okcc.state.ok.us/>

V. Plans In Need of Improvement

The majority of watershed-based plans that were reviewed for this project fell into a “middle” category of average quality. These plans fulfilled certain elements very well but struggled to completely satisfy other, more challenging elements. Since they have been constructively criticized in one or more areas, we have removed any identifying information from the review sheets in Appendix III. Most plans showed clear effort to engage in comprehensive watershed planning, but were ultimately insufficient because the plans creators didn’t have appropriate technical skills, did not gather all necessary information, or followed an alternative format that excluded key elements. In certain cases, particularly innovative approaches were nonetheless developed to address more challenging elements, and EPA may well share specific portions of these plans with the rest of the country. Nevertheless, since all nine elements are necessary to ensure successful implementation, all of these plans are in need of modification to increase the probability that they will succeed.

Plan 21 could be considered the typical “average” quality plan. They make an attempt to address all of the nine elements, but seem to have encountered certain technical deficiencies that could not be overcome. This was especially apparent in the expected load reduction section. This seems to be a good effort to write a quality plan, and may be the perfect example of where “good” examples from other plans can be used to improve the level of detail and overall effectiveness.

Plan 16 is the typical example of a plan with certain elements that are great, but other elements are missing or not detailed enough. This is a short document with one of the best adaptive management schemes we’ve seen. It starts with voluntary implementation of management measures and eventually ratchets to regulatory restrictions if WQ goals are not met. However, as is common with many of the “mid-level” plans, this plan struggles to calculate expected load reductions and fails to provide a detailed budget.

Plan 19 is a larger, more detailed plan, but nevertheless seems to struggle with similar components as the others discussed in this section. It has a great discussion of implementation authorities and the influence of local values. However, there is little effort to calculate expected load reductions and the evaluation criteria are not very robust.

Plan 15 is a good example of why a TMDL cannot be modified to serve as a watershed-based plan without a considerable amount of additional data gathering, BMP analysis, and other features of a good plan. Since this large plan tried to do both in one document, the overall quality suffers. Certain elements are done very well, while others – like load reduction estimates, schedule, and financial assistance - are not addressed very well if at all. It seems as though this plan may have tried to accomplish two requirements in one shot, which is not what EPA had in mind.

Plan 4 fails to adequately address most of the nine elements as a result of a decision to incorporate a huge (six-digit HUC) watershed area into one plan. Scale is an important issue here, and makes it nearly impossible to develop a plan with an adequate level of detail. Instead, this plan describes WQ issues in general terms and provides a “how- to” guide for local watershed groups in developing plans for sub-watersheds throughout the basin. It seems as though a separate plan for a sub-watershed would have enabled better focus on the level of detail needed for an effective plan.

Plan 14 employed a unique and interesting approach. They compiled details from a number of existing watershed documents (e.g. TMDL, Environmental Analysis, etc.) into an easy-to-read matrix that followed the nine elements format. They also provided a narrative supplement to provide more background information. However, because they didn’t seem to have enough data available, this plan struggled to estimate load reductions, account for management measures, and identify financial assistance.

Despite an unorthodox format, *Plan 5* scored pretty well in this evaluation. A particularly strong component of this plan were the appendices which included maps, schedules, budgets, a monitoring plan, and an example of how modeling software was used to target priority areas. This supplemental information was vital to this plan receiving a good score. In fact, other states might want to take this approach if they have multiple, short documents that can be combined to serve as one comprehensive watershed-based plan.

Plan 2, *Plan 10*, and *Plan 23* are examples that barely missed the cut to be included in the “best plan” section above. These plans are well-written and thorough, with obvious attention to strategic planning and assessment. These plans have certain components that are done very well, but fail to complete one or more key planning elements. *Plan 10* had a very good schedule and milestone section, with easy-to-follow graphics and sensible timeframes for implementation. *Plan 2* had a particularly impressive assessment of technical and financial assistance, including a great discussion of community benefits relative to implementation costs. *Plan 23* scores very high on every element except schedule and milestones, where it earned almost zero credit. This one deficiency kept it just short of the “best” plan section above.

VI. Plans in Need of Significant Improvement

While the majority of plans fulfilled at least some of the nine elements requirements, the plans in Appendix IV failed to adequately measure up against the EPA guidelines. Some plans were well written and the level of effort was clear, but the necessary content was absent. In other cases, the document was lacking any effective management scheme or thoughtful discussion, calling into question the utility of promoting such a document as the “plan” for mitigating pollution in that watershed. Still others seemed to take a bare bones approach by addressing multiple TMDLs over a huge watershed area to apparently avoid the burden of writing multiple management plans at a reasonable scale.

While it isn’t necessarily fair to equate the more thoughtful but less robust plans with those that appear to simply reflect a low level of effort, we can take an important lesson from this analysis. Although stakeholders might devote considerable time and effort into developing management strategies, this is not always enough to achieve effective watershed-based planning. This point illustrates the importance of national guidelines - like EPA’s nine elements - that can assist stakeholders from the outset and ensure certain vital components are included in the watershed-based plan.

Plan 18 is a very short plan that appears to be incomplete. Developing many of the nine elements have been deferred as future activities. The Water Quality challenges are not clearly identified, and the management scheme is not linked to any strategic goal. This plan seems to be a strategy to head off the effect of future development as opposed to mitigating current pollution problems.

Plan 17 was a relatively difficult plan to evaluate, as some components are very well done while others are completely missing. They used a particularly innovative application of the AnnAGNPS model to identify priority watersheds, but surprisingly didn’t apply their method to estimate pollution loads and management needs. These elements seem to have been completely ignored in the planning process. In addition, no detailed monitoring plan is discussed.

Plan 22 scarcely pays lip service to EPA’s guidelines while including very little data or analysis. This unorganized document attempts to “plan” implementation activities for 24 TMDLs, making it impossible to evaluate the utility of recommended management measures relative to water quality goals. This plan will therefore not serve a useful purpose in facilitating pollution reduction strategies.

Plan 12 is missing an actual load reduction goal, which may be the most essential part of any watershed-based plan. There is no assessment of needs and pollution sources; thus, no expected load reductions have been calculated and there are not estimated implementation costs.

VII. Conclusions and Recommendations

This analysis of the “best” watershed-based plans from around the country indicates that while some States or local/Regional agencies or groups have met the challenge of developing high-quality watershed-based plans, many plans are still not sufficiently well-designed or do not contain sufficient information to support a full successful implementation effort to restore the waterbody to meet water quality standards. In some cases, this may be due to a lack of technical resources and knowledge. For others, the problem may well be more fundamental, including inadequate institutional effort and administrative support. In either case, it is clear that EPA must continue to work with States and local communities to promote and provide training for watershed-based planning across the nation, providing tools, resources, and expert analysis where and whenever possible.

Based on the results of this analysis, there are a few specific recommendations for moving forward with efforts to improve the quality of watershed-based plans across the nation, including:

- *Share the results of this review with EPA Regional Offices and the States.* This report will not identify by name particular States or watershed plans that are poorly done -- the purpose of this report is not to point fingers, but rather to inform Regions and States as to what problems have generally appeared in plans and how to address them. It would be useful for Regions, States, and local communities to have a better understanding of which specific elements many States and other planning entities are struggling with, as well as how some are successfully addressing them. Individual planning groups would also benefit from some feedback on the level of detail EPA believes is necessary to assure a successful implementation effort following completion of the plan.
- *EPA Regions should exercise greater oversight to assure that watershed-based plans are adequate to direct implementation efforts that will achieve water quality standards.* EPA’s guidelines do not require plans to be approved by the Agency and instead rely on the expertise of the States in developing and implementing the plans. Regions are authorized by the CWA and the grants guidelines to require States to submit copies of 319-funded watershed plans upon request. This analysis conclusively shows that the majority of watershed-based plans are not fully meeting the guidelines. As such, the Regions should consider reviewing watershed-based plans more frequently and thoroughly to ensure they provide a good basis for successfully achieving water quality standards.
- *Develop a guidance document providing “best” examples for each Element.* This could be one of the most useful tools for on-the-ground watershed planners. Provided with an array of innovative approaches – including both low-cost and high-budget scenarios – planners can draw from similar experiences to craft unique implementation schemes for their watersheds. This guidance could be used for

watershed planning training courses throughout the country, and therefore should be available in both report and presentation format.

- *Provide better training and guidance that demonstrates the level of detail needed to assure water quality standards are achieved in a particular watershed context.* Ultimately, EPA's expectations are for the plan to be based upon sufficient data and analysis to assure that water quality standards will be achieved upon full implementation. It is very difficult, however, for EPA to suggest a specific, universally applicable level of detail because these details will vary depending on the unique characteristics of the particular watershed. The best way for the Agency to communicate the necessary level of detail could be to share "good" examples that demonstrate a reasonable level of assurance that water quality standards will be achieved.
- *Distribute the "best" plans to the Regions as examples of the level of detail required.* The Regional staff charged with reviewing individual plans from the States should have a clear understanding of what a "good" plan looks like. While the "best examples" guidance document will aid in this process, some examples of complete plans that have satisfied EPA's requirements might help even more.
- *Establish an institutionalized system for sharing well-done plans between the Regions and Headquarters.* There should be an established process for sharing successful and innovative approaches for overcoming common challenges. If Regional staff comes across a recent plan that satisfies the nine elements, this document should be shared with NPS program staff throughout the country. This process could perhaps involve submitting the plan to Headquarters for verification and subsequent distribution to each Region. The evaluation sheet developed for this project could help determine if certain plans actually meet the level of detail EPA expects.
- *Continue to evaluate high priority plans that have been submitted to EPA.* The 6-month period available to review State plans was sufficient to review 30 States' plans. There was not sufficient time to review all 50 States's plans, and some significant States's plans were therefore not reviewed such as California, Florida, New Mexico, and New York. In addition, it was unfortunate that very few plans were submitted from Regions 1 and 7. Therefore, we were unable to review plans from some states. With an established evaluation method in hand, these plans can now be easily reviewed if needed.

Appendix I:
Nine Elements Evaluation Sheet

State	
Watershed	
Region	
Date	
Author(s)	

Primary Pollutants	
Land Uses	
Pollution Sources	

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.						
b. Specific sources of impairment are geographically identified (i.e. mapped)						
c. Pollution loads are attributed to each source of impairment and quantified						
d. Data sources are accurate and verifiable, assumptions can be reasonably justified						
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)						
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)						
b. Desired load reductions are quantified for each source of impairment identified in Element 1						
c. Expected load reductions are estimated for each management measure identified in Element 3						
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified						
3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)						
b. Proposed management measures are strategic and feasible for the watershed						
c. Proposed management measures achieve load reduction goals						
d. Critical/Priority implementation areas have been identified						
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)						
f. Adaptive management process in place to evaluate effectiveness of management measures						
4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs						
b. Cost estimates are provided for each management measure						
c. All potential Federal, State, Local, and Private funding sources are identified						
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)						
e. Economic and environmental benefits are discussed and weighed against implementation costs						
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed						
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process						
b. Public meetings and forums have been/are scheduled to be held						
c. Educational/Outreach Materials will be/have been disseminated						

6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments						
b. Implementation schedule follows a logical sequence						
c. Implementation schedule covers a reasonable time frame						
d. Measurable milestones with expected completion dates are identified to evaluate progress						
e. A phased approach with interim milestones is used to ensure continuous implementation						

8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal						
b. Evaluation criteria are measurable and quantifiable						
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)						
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)						
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications						

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations						
b. Monitoring plan has an adequate sampling frequency						
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8						

Score 0/144

Overall Comments and Recommendations

Individual Element Subtotal	Score	% Satisfied
Element 1	0	0%
Element 2	0	0%
Element 3	0	0%
Element 4	0	0%
Element 5	0	0%
Element 6/7	0	0%
Element 8	0	0%
Element 9	0	0%

Appendix II:
Evaluations for Plans in Section IV

State	Alabama
Watershed	Yellow Bank Creek Watershed
Region	Region 4
Date	Jan-05
Author(s)	Madison County Soil and Water Conservation District

Primary Pollutants	Organic Enrichment, Low Dissolved Oxygen
Land Uses	Forest, Row Crops, Pastureland, Some Development
Pollution Sources	Nutrients and Sediment

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.	yes		3 pgs. 4-7			
b. Specific sources of impairment are geographically identified (i.e. mapped)	no	0		No map is provided to indicate land use or priority areas for mitigation activities	GIS data was used in modeling, create a map from that data to display the watershed and identify areas of concern/pollution sources.	
c. Pollution loads are attributed to each source of impairment and quantified	yes	3	pgs. 5-7, Tables 1-3; SWAT results			Overall organic reduction needed and pre-BMP simulation results
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4				Excellent use of modeling software and data
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	4				61.6% total organic load reduction from TMDL, including allowable CBOD and NBOD loads
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	2	pgs. 7-8			Good scenario analysis, but not clear linkage to mitigation goal. Assume estimated load reduces meet goal
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	4	pgs. 7-8			Excellent use of SWAT to estimate pre and post BMP implementation scenarios and loadings from each important pollution source.
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	2	pgs. 7-8			
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	4	pgs. 7-8			Excellent scenario analysis
3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3	pgs. 7-12			
b. Proposed management measures are strategic and feasible for the watershed	yes	4	pgs. 7-12			Good assessment of current budget and future needs.
c. Proposed management measures achieve load reduction goals	yes	2	pgs. 7-8			see 2a
d. Critical/Priority implementation areas have been identified	yes	2	pgs. 7-8			Row crops identified as major NPS contributor. Could take the analysis further to identify critical/priority areas either through GIS analysis or other appropriate method
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	4	Table 4, 5			For both planned/budgeted activities and future needs.
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	3	throughout document			Adaptive Management concepts resonate throughout the document.

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	yes	3	Tables 4, 5; pgs. 12-14		Needs more about planning costs		
b. Cost estimates are provided for each management measure	yes	4	Tables 4, 5; pgs. 12-14				Good assessment of what is budgeted for now and what is needed in the future.
c. All potential Federal, State, Local, and Private funding sources are identified	yes	3	pgs. 13-14				
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	1	Tables 4, 5; pgs. 12-14	No linkage drawn between planned management measures and sources of funding. Discusses how Federal and State programs allocate money	Add a column to Tables 4 & 5 which indicates potential sources of funding.		
e. Economic and environmental benefits are discussed and weighed against implementation costs	no	0		No discussion of benefits, including WQ or community values	Briefly - at least - discuss expected payoffs and benefits to the watershed community.		
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes	3	pgs. 14-16				Excellent strategy with goals and potential projects activities.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3	throughout document				
b. Public meetings and forums have been/are scheduled to be held	yes	3	pgs. 14-16				
c. Educational/Outreach Materials will be/have been disseminated	yes	3	pgs. 14-16				Good identification of all relevant outreach documents and authorities in the Watershed area.
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes	3	pgs. 16-18, Table 6				
b. Implementation schedule follows a logical sequence	yes	2	pgs. 16-18, Table 6				
c. Implementation schedule covers a reasonable time frame	yes	3	pgs. 16-18, Table 6				
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	3	pgs. 16-18, Table 6				
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	3	pgs. 16-18, Table 6				
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes	3	pgs. 18-19				Water quality parameters
b. Evaluation criteria are measurable and quantifiable	yes	3	pgs. 18-19				
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	yes	2	pg. 19				
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	2	pgs. 18-19				Includes discussion of process for gathering stakeholder feedback and input on developing environmental indicators
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	3	pgs. 18-19				

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	yes		2	pgs. 18-19	Cites existing monitoring stations and frequency, hard to evaluate effectiveness, but obviously has a monitoring component
b. Monitoring plan has an adequate sampling frequency	yes		2	pgs. 18-19	
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3	pgs. 18-19	

Score 101/144

Overall Comments and Recommendations

This plan was short, but obviously written in a format to address each of the nine elements. In that sense, it was very easy plan to evaluate. This plan is another good example of how SWAT can be used to develop pre and post BMP implementation scenarios to estimate expected pollution reductions. It's hard to assess - in this plan - whether the actual planned BMPs were the scenario inputs in SWAT. If so, this was a very good approach, but it needs to be made clear. This plan also needs improvement in the monitoring component. They mention different monitoring approaches and current programs - including voluntary monitoring and modeling - but fails to go into specifics. Criteria are good, but less than optimal.

Individual Element Subtotal	Score	% Satisfied
Element 1	14	70%
Element 2	12	75%
Element 3	18	75%
Element 4	11	55%
Element 5	12	75%
Element 6/7	14	70%
Element 8	13	65%
Element 9	7	58%

APPENDIX II

State	Maryland
Watershed	Corsica River Watershed
Region	Region III
Date	Jan-06
Author(s)	Town of Centreville, MD

Primary Pollutants	Nutrients - Phosphorus and Nitrogen
Land Uses	Cropland, Sprawl Development, Urban
Pollution Sources	Agricultural Runoff, Failing Septic Systems, WWT Discharges/Overcapacity, Urban Runoff,

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.	yes	3	pgs. 23-24; section III, Figures 9, Tables 3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	4	Figures 9, Tables 3			Excellent use of GIS to identify critical needs and priority areas. Each specific pollution source is mapped and ranked to determine severity.
c. Pollution loads are attributed to each source of impairment and quantified	yes	3	pgs. 23-24; section III, Figures 9, Tables 3			
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4				Excellent use of GIS data and field monitoring the characterize watershed and develop a thorough strategy
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3	pgs. 23-24			
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	3	Section IV			
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	2	Section III, IV			Linkage with water quality goals is not clear
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	3	Section IV, Table 4, 5			Used GIS data and env. assessment data to estimate needs. Set goal and used basic arithmetic to estimate expected outcomes for desired level of implementation.
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	4				Excellent use of data to make estimates
3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3	Section IV, Table 4			Great discussion of how, why, expected outcomes, funding options, and cost
b. Proposed management measures are strategic and feasible for the watershed	yes	3	Section IV, Table 4			
c. Proposed management measures achieve load reduction goals	yes	2	Section IV			No direct linkage made, but assumed
d. Critical/Priority implementation areas have been identified	yes	4	Section III, Section IV, Table 4, B Plan			Excellent use of GIS to identify critical needs and priority areas. Each specific pollution source is mapped and ranked to determine severity.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	4	Section IV, Table 4, B Plan			Excellent use of GIS and other data to estimate needs relative to critical areas.
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	3	Section IV, B Plan			

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	yes		3	Section IV, B Plan, Table 5			
b. Cost estimates are provided for each management measure	yes		3	Section IV, B Plan, Table 5			
c. All potential Federal, State, Local, and Private funding sources are identified	yes		4	Section IV, Table 4			Federal, State, Local grants discussed, new ways to leverage funds without re-allocation of current funds.
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes		4	Section IV			Each specific management measure is discussed in the context of where funding will come from
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes		2	Section I			
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes		3	Section IV, Table 4			
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		4	pgs 2-3			Excellent use of parcel data to identify relevant stakeholders and maintain database for future mailings, meetings, etc.
b. Public meetings and forums have been/are scheduled to be held	yes		3	Section IV, Table 4			
c. Educational/Outreach Materials will be/have been disseminated	yes		3	Section IV, Table 4			
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes		3	Section IV, Table 4			
b. Implementation schedule follows a logical sequence	yes		3	Section IV, Table 4			Good sequencing - surveying to outreach to implementation to monitoring.
c. Implementation schedule covers a reasonable time frame	yes		3	Section IV, Table 4			
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes		3	Section IV, Table 4			For some implementation measures, yearly implementation percentages, population contacted, and other milestones are provided.
e. A phased approach with interim milestones is used to ensure continuous implementation	yes		3	Section IV, Table 4			see 6/7d.
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes		3	Table 4			Criteria include both WQ sampling and tracking of BMP implementation
b. Evaluation criteria are measurable and quantifiable	yes		3	Table 4			
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no		1	Section IV	Goals do not include interim WQ goals, only interim implementation goals.	Relate interim implementation to expected WQ payoff at each level of implementation as a measure of how well plan is leading to WQ improvements	
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes		4	Table 4			Includes measures of outreach recipients, tracking of voluntary implementation along with WQ criteria.
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes		3	B Plan, pg. 7			

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes		3	Section II, pgs. 62-63, Table 4		Developing a monitoring plan for the main stem of Corsica is addressed as a BMP, still needs funding. Discussion of monitoring procedures to assess water quality and compliance/implementation monitoring
b. Monitoring plan has an adequate sampling frequency	yes		3	Section II, pgs. 62-63, Table 4		see 9a
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		4	pgs. 62-63, Table 4		Table 4 clearly lays out different monitoring programs throughout state and how they are linked to different evaluation criteria. Very well done and clear.

Score 116/144

Overall Comments and Recommendations

This is one of the best watershed-based plans in the country. Although, unlike some others, it is not formatted around the nine elements, it does a good job satisfying each at some point throughout the document. Particularly impressive is their inclusion of evaluation criteria, milestones, implementation needs, and expected load reduction for each management measure discussed. The plan's access to and utilization of available data is unparalleled. The G.I.S. database - though not necessarily required - is second to none and will continue to be a valuable resource for this watershed group for years to come. It will help track implementation progress and re-evaluate needs and goals as interim WQ measures come through. As such, the Corsica River seems poised for continued, sustained success in this Watershed-Based restoration effort.

Individual Element Subtotal	Score	% Satisfied
Element 1	17	85%
Element 2	12	75%
Element 3	19	79%
Element 4	16	80%
Element 5	13	81%
Element 6/7	15	75%
Element 8	14	70%
Element 9	10	83%

APPENDIX II

State	Michigan
Watershed	Millers Creek Watershed
Region	Region 5
Date	Jan-06
Author(s)	Huron River Watershed Council

Primary Pollutants	Phosphorus and E. Coli
Land Uses	Urban/Suburban
Pollution Sources	Urban and Suburban Stormwater Runoff

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.	yes		3	section 4, 5		
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes		4	Figures 5.1-5.5		Series of GIS maps culminating with Figure 5.5 that maps out specific problem areas and streambank conditions.
c. Pollution loads are attributed to each source of impairment and quantified	yes		2	Sections 4, 5 (pg. 55)		
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes		3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes		3	pgs. 95-97		TMDL goals of 50% P reduction and fulfillment of WQ standards.
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes		2	Section 4		Scenarios Analysis doesn't reach env. Goal for Phosphorus but provides solutions to achieve goal that are beyond current workplan. E.Coli reductions not modeled but assumed to be achieved through Huron River TMDL implementation efforts.
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes		2	Section 4		Desired pollution loads for primary pollutants only, not specific sources.
c. Expected load reductions are estimated for each management measure identified in Element 3	yes		3	Section 4		
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes		4	Section 4		Scenarios approach that adds layers of additional management strategies, starting from complete "build out" in scenario 1 to comprehensive management in scenario 5
3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes		3	pgs. 65-70		
b. Proposed management measures are strategic and feasible for the watershed	yes		4	pgs. 65-70, 85-95		Management measures well justified with qualitative and quantitative assessment, on-ground needs analysis of 16 focus areas.
c. Proposed management measures achieve load reduction goals	yes		2	section 4		see 2a
d. Critical/Priority implementation areas have been identified	yes		4	pgs. 85-96, figure 5.5, 8.1		Excellent use of GIS to identify problem areas and focus areas. Detailed analysis of management measures for focus areas.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes		3	pgs. 85-96, figure 5.5, 8.1		Figure 5.5 provides detailed analysis using GIS of target areas.
f. Adaptive management process in place to evaluate effectiveness of management measures	yes		3	pgs. 97-99		

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	yes		3	Table 7.1 (pg. 105), Table 8.2			monitoring, planning, and implementation
b. Cost estimates are provided for each management measure	yes		3	Table 7.1 (pg. 105), Table 8.2			
c. All potential Federal, State, Local, and Private funding sources are identified	yes		4	Table 8.3			Long table detailing many potential sources of funding, including maximum grant amount, activities, and other relevant information
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes		3	Table 8.3			
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes		2	pgs. 84-105			Discussion of benefits in context of targetted areas, no thorough discussion of economic benefits versus costs
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes		3	pgs. 29-30			
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		3	pgs. 29-30			
b. Public meetings and forums have been/are scheduled to be held	yes		3	pgs. 29-30			3 public workshops, Business Breakfast, 2 walking tours
c. Educational/Outreach Materials will be/have been disseminated	yes		3	pgs. 29-30			website, hotline, 5 direct mailings.
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes		2	pgs. 85-86. Table 7.1 (pg. 105)			
b. Implementation schedule follows a logical sequence	yes		3	pgs. 85-86. Table 7.1 (pg. 105)			
c. Implementation schedule covers a reasonable time frame	yes		3	pgs. 85-86. Table 7.1 (pg. 105)			
d. Measurable milestones with expected completion dates are identified to evaluate progress	no		1	pgs. 85-86. Table 7.1 (pg. 105)	No measurable milestones and expected completion dates are provided.		
e. A phased approach with interim milestones is used to ensure continuous implementation	no		1	pgs. 85-86. Table 7.1 (pg. 105)	Not a phased approach with distinct implementation components. No adaptive management process		
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes		2	pgs. 97-99			Water quality monitoring for Phosphorus and E.Coli
b. Evaluation criteria are measurable and quantifiable	yes		2	pgs. 97-99			50% for P and WQS for E.Coli
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no		0		No interim WQ milestones.		
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes		3	pgs. 97-99			
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes		3	pgs. 97-99			

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes		3	pgs. 97-99, Table 8.2		Table lays out stations for all monitoring plans
b. Monitoring plan has an adequate sampling frequency	yes		3	pgs. 97-99, Table 8.2		
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3	pgs. 97-99, Table 8.2		

Score 101/144

Overall Comments and Recommendations

Michigan presented a pretty good plan with a complex method for measuring load reductions. Their scenarios approach is very much logical and builds off current conditions as opposed to simply applying a suite of BMPs until water quality goals are achieved. Although the modeling does not result in the needed load reductions, they provide a reasonable explanation of further actions that can be taken to easily achieve them. Also, the plan provides a justification of why this is a "conservative" estimate only. Overall, this plan may be a little too focused on hydrology as opposed to water quality, but still does a pretty good job of fulfilling each of the 9 elements, thus providing a very good overall score.

Individual Element Subtotal	Score	% Satisfied
Element 1	15	75%
Element 2	11	69%
Element 3	19	79%
Element 4	15	75%
Element 5	12	75%
Element 6/7	10	50%
Element 8	10	50%
Element 9	9	75%

APPENDIX II

State	Minnesota
Watershed	South Branch, Yellow Medicine River
Region	Region 5
Date	Nov-05
Author(s)	Minnesota DNR

Water Quality Issue	Fecal Coliform
Land Uses	Agriculture, Livestock
Pollution Sources	Livestock, Wildlife

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.	yes	4	pgs. 2-6			Excellent characterization
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	3	pg. 3			Good use of GIS
c. Pollution loads are attributed to each source of impairment and quantified	yes	4	pgs. 4-6, Tables 1.1-1.4			Method used is a bit confusing, but sources of data are well documented and excellent. Bacteria Matrix spreadsheet is a great tool
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4	pgs. 4-6			Assumptions are well-documented and based on verifiable sources. Excellent model for other watersheds.
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3	pg. 12			TMDL
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	4	pgs. 12-15			Bacteria Matrix spreadsheet approach accounts for all sources, wet and dry conditions.
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	4	pgs. 12-15			For both Wet and Dry conditions as well
c. Expected load reductions are estimated for each management measure identified in Element 3	no	1	pgs. 16-28, 42, Table 5.1	A good discussion of management measures, but more is needed to quantify expected outcome. Sampling analysis good to measure progress, but modeling can be used as a planning tool. Average attempt on page 42, but no real link to load reduction goals	Develop a spreadsheet approach or use a different model to get estimates. Can re-evaluate at a later date. Evaluation monitoring will assess progress, but won't tell you if more planning is needed up front.	Have efficiencies in Table 5.1, chart on page 42 seems out of place
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	4	pgs. 12-15			Data and assumptions well documented. Good use of Bacteria Matrix spreadsheet model
3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3	pgs. 16-28			
b. Proposed management measures are strategic and feasible for the watershed	yes	4	pgs. 16-28			
c. Proposed management measures achieve load reduction goals	no	1	pgs. 16-28, 34-36, 42	see 2c - sampling analysis good to measure actual progress, but modeling can be used as a planning tool. Good assumptions in budget section.	see 2c	
d. Critical/Priority implementation areas have been identified	yes	4	pgs. 18-20			Excellent analysis to determine priority sub-watershed. Excellent use of prioritized succession, GIS to identify area
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3	Table 5.2, Figure 4.2			
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	3	pgs. 27-28			

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	yes	3	Table 5.2 pgs. 36-42				Good consideration of staff time, ODC's, etc.
b. Cost estimates are provided for each management measure	yes	4	pgs. 34-42				Excellent break down by activity, supplies, etc.
c. All potential Federal, State, Local, and Private funding sources are identified	no	1	pgs. 7-10	No discussion of this in the budget section. Some discussion of coordination with other programs in section 2.	Add just a chart to identify sources of funding.		
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	0	NA	see 4c	see 4c		
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	2	pgs. 2-6, 36-42	No explicit analysis of cost vs. benefits, willingness to pay.			
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes	4	pgs. 7-10				Partnerships with other relevant organizations, public meetings, one-on-one surveys.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	4	pgs. 7-10				help understand important socio-political, economic, and natural resource aspects
b. Public meetings and forums have been/are scheduled to be held	yes	3	pgs. 7-10				
c. Educational/Outreach Materials will be/have been disseminated	yes	4	pgs. 7-10				mailings and watershed tours
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	no	1		Needs a schedule laid out for when certain projects will be completed. This could be a simple as a chart	Add schedule		Has a monitoring calendar
b. Implementation schedule follows a logical sequence	yes	2	pgs. 18-20, 29-33, 36, 41				prioritized succession focusing on priority watersheds
c. Implementation schedule covers a reasonable time frame	yes	2	pgs. 29-33, 36, 41				15 years of continuous implementation and monitoring.
d. Measurable milestones with expected completion dates are identified to evaluate progress	no	1		Along with the schedule, there is a need for milestones to evaluate progress.	incorporate milestones into newly-created schedule		
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	3	pgs. 18-20				prioritized succession focusing on priority watersheds
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes	3	pgs. 18-19, 27-34				Fecal coliform concentrations
b. Evaluation criteria are measurable and quantifiable	yes	4	pgs. 18-19, 27-34				
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	1	pgs. 16-34				Aware of need for public buy-in, but no actual performance measures for this.
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	4	pgs. 18-19, Figure 4.2				notes that changes may need to be made after intense year 5 monitoring

9. Monitoring Component						
a. Monitoring plan includes and appropriate number of monitoring stations	yes	4	pgs. 27-34			30 sites
b. Monitoring plan has an adequate sampling frequency	yes	4	pgs. 27-34			Phased approach: less at the beginning as implementation is intense, more in year 5 to evaluate progress, then repeat schedule
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	3	pgs. 27-34			

Score	106/144
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Overall Comments and Recommendations

The parts that were completed were done excellent. Especially impressive was the use of models and literature-based assumptions to inform target-setting. Just needs to add a calendar/schedule with milestones, improve efforts in quantifying the expected outcomes from implementation of management measures, and develop some more qualitative measures of success.

Individual Element Subtotal	Score	% Satisfied
Element 1	18	90%
Element 2	13	81%
Element 3	18	75%
Element 4	10	50%
Element 5	15	94%
Element 6/7	9	45%
Element 8	12	75%
Element 9	11	92%

APPENDIX II

State	Oklahoma
Watershed	Fort Cobb Watershed
Region	Region 6
Date	Jan-06
Author(s)	Oklahoma Conservation Commission

Primary Pollutants	phosphorus, pathogens, low DO, sediment, nitrogen
Land Uses	Agricultural Fields, Cattle Operations, Rural Communities, One Hog Farm
Pollution Sources	Primary Agricultural Runoff, septic tanks, 2 CAFOs

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.	yes		3 pgs. 7-14			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes		4 Figure 2, 4, 6; Table 2, 3			Priority watersheds determined with SWAT, Primary land use for each subbasin
c. Pollution loads are attributed to each source of impairment and quantified	yes		3 Table 2, 3, pgs 8-14			TMDL modeling process with SWAT
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes		4			Excellent use of data and SWAT model, excellent display/organization of data, output accounts for change from peanuts to cotton production
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes		3 pgs. 4, 7-9, throughout			TMDL
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes		4 pgs. 15-19			Scenario analysis with SWAT determines least cost management scheme to achieve TMDL goal. Expected load reductions from each management measure provided.
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes		3 pgs. 15-19, Table 5			Focus on land use - agricultural runoff is 90% of load
c. Expected load reductions are estimated for each management measure identified in Element 3	yes		4 pgs. 15-19			Scenario analysis with SWAT provides expected reductions for each recommended management measure.
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes		4 pgs. 15-19			
3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes		3 pgs. 17-19			
b. Proposed management measures are strategic and feasible for the watershed	yes		3 pgs. 17-19			
c. Proposed management measures achieve load reduction goals	yes		4 pgs. 17-19			
d. Critical/Priority implementation areas have been identified	yes		4 pgs. 17-19, Figure4, Figure 6			SWAT analysis for highest loading subbasins, FY 2001 319 Project targeting exercise identifies high and medium priority erosion areas.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes		3 pgs. 17-19			At the watershed scale (e.g. 70% riparian buffers, 90% nutrient management plans)
f. Adaptive management process in place to evaluate effectiveness of management measures	yes		2 pg. 7, throughout			Calls for constant re-evaluation, but no threshold criteria to induce change.

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	yes		4	pgs. 20-23, Tables 6-8			Costs estimated for technical assistance, planning, BMP implementation and monitoring.
b. Cost estimates are provided for each management measure	yes		4	pgs. 20-23, Tables 6-8			Use PRedICT to estimate costs, very detailed
c. All potential Federal, State, Local, and Private funding sources are identified	yes		3	pgs. 20-23, Tables 6-8			
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes		3	pgs. 20-23, Tables 6-8			Projects broken down by Federal funding source and also indicates State funding cost-share. Results also provided for each separately funded management project
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		0		No discussion of anticipated benefits in terms of improved farming viability, human health impacts, recreational opportunities, etc.	Include short analysis of expected payoffs for the community, in terms of payoff on investment in management measures.	
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes		3	pgs. 27-31			
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		3	pgs. 27-31			Plan lists different organizations and current activities/roles in communicating with and engaging the public
b. Public meetings and forums have been/are scheduled to be held	yes		3	pgs. 27-31			
c. Educational/Outreach Materials will be/have been disseminated	yes		3	pgs. 27-31			
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes		3	pgs. 23-26, Table 9, 10			Each BMP broken down by funding source and suggested evaluation period.
b. Implementation schedule follows a logical sequence	yes		3	pgs. 23-26, Table 9, 10			
c. Implementation schedule covers a reasonable time frame	yes		3	pgs. 23-26, Table 9, 10			
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes		4	pgs. 23-26, Table 9, 10			Table 10 breaks down each individual project with specific milestones, responsible org.'s, and target dates
e. A phased approach with interim milestones is used to ensure continuous implementation	yes		3	pgs. 23-26, Table 9, 10			
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes		3	pgs. 32-33			
b. Evaluation criteria are measurable and quantifiable	yes		3	pgs. 32-33			
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no		0		No interim WQ milestones provided, or benchmarks for determining whether plan is working and needs to be revised.	Develop specific WQ benchmarks that help evaluate progress and trigger modification	
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes		4	pgs. 32-33			Measures for WQ, BMP implementation, and Behavioral changes
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no		1	pgs. 32-33			

9. Monitoring Component						
					OVERALL COMMENT FOR ELEMENT IX: A larger section of this document is devoted to monitoring. However, very few details are provided. This plan seems to focus on maintaining a centralized effort to collect and organize data, deferring to other organizations in carrying out actual monitoring procedures. Also, it is unclear whether this plan will rely on actual water sampling or advanced modeling processes.	
a. Monitoring plan includes an appropriate number of monitoring stations	no		1	pgs. 31-35		
b. Monitoring plan has an adequate sampling frequency	no		1	pgs. 31-35		
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		2	pgs. 31-35		

Score 108/144

Overall Comments and Recommendations

This was a very good plan and scored among the best in the nation. It does an excellent job of evaluating current loads, sources of those loads, and an effective management scheme for reaching mitigation goals. The employed a simple scenario analysis, which seems to be one of the most effective and popular ways to fulfill this criteria. Also, the use of PRedICT to estimate implementation costs, displayed in a very organized table format with other relevant information, helps this plan perform above expectations for the two "hardest" elements to fulfill. The schedule and milestones were also displayed very well -very easy to read. This plan just needs to pay some more attention to the monitoring component and could be considered the "best" in the nation.

Individual Element Subtotal	Score	% Satisfied
Element 1	17	85%
Element 2	15	94%
Element 3	19	79%
Element 4	14	70%
Element 5	12	75%
Element 6/7	16	80%
Element 8	11	55%
Element 9	4	33%

APPENDIX II

State	Tennessee
Watershed	Crab Orchard Creek Watershed
Region	Region 4
Date	Dec-05
Author(s)	TE Vally Authority, TE DEC, Emory River Watershed Association

Primary Pollutants	Acid Mine Drainage
Land Uses	Forest, Agriculture, Pine Plantations, Abandoned Mines
Pollution Sources	Abandoned Surface Mines

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.	yes		pgs. 5-9, Figures 1.1, 2.1-2.3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes		pgs. 8-9, Figure 1.1, 2.3			Excellent use of GIS and Topo maps to delineate the subwatersheds and map the four high-priority abandoned surface mines. Sub-watershed delineation allows for easier targeting of high priority reaches
c. Pollution loads are attributed to each source of impairment and quantified	yes		pg. 8, Table 2.1, Figures 1.1, 2.1-2.2			Excellent use of GIS to display impaired streams and link to high priority pollution sources. Data in tables is presented in a logical format to distinguish high-priority reaches.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes		3			Excellent analysis and use of data to plan mitigation activities
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes		3 pg. 3			Proposed new pH standard for subecoregion, 5.5-8.0 for 1st-3rd order streams, 6.0-9.0 for 4th order +
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes		pgs. 15-20, Figures 3.1-3.6			pH standards based on reference subwatershed (COC-4)
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes		pgs. 15-20, Figures 3.1-3.6			Modeling process estimates loads reductions for each priority subwatershed. Excellent display - easy to visualize trends and impact of management measures.
c. Expected load reductions are estimated for each management measure identified in Element 3	yes		pgs. 12-20, Figures 3.1-3.6			Modeling process is simple but effective and could be a model for other AMD plans. Good use of literature to develop load reduction efficiency estimate (93%).
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes		4			see 2a.

3. Proposed Management Measures							
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes		3	pgs. 11-12, Table 3.1			passive treatment, other management measures to enhance degraded habitat.
b. Proposed management measures are strategic and feasible for the watershed	yes		3	pgs. 11-12, Table 3.1			TMDL recommendations and considerations of habitat
c. Proposed management measures achieve load reduction goals	yes		4	pgs. 15-20, Figures 3.1-3.6, Table 3.1			reference sub-watershed, modeling process are excellent (see 2b)
d. Critical/Priority implementation areas have been identified	yes		4	pgs. 8, 15-20, Figures 2.3, 3.1-3.6, Table 3.1			excellent analysis to determine priority areas, sources of impairment. Excellent use of topo maps to plot areas.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes		4	Table 3.1			
f. Adaptive management process in place to evaluate effectiveness of management measures	yes		3	pg. 24, 26-27, Tables 8.1-8.2			Phase III analysis to determine if additional reclamation is needed and/or old projects need to be reassessed
4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	yes		3	pgs. 24-25	Overall "reclamation" costs, but not individualized costs for each management measure	Include breakdown of costs per management measure to better justify budget and ensure less cost overruns.	
b. Cost estimates are provided for each management measure	yes		2	pgs. 24-25			
c. All potential Federal, State, Local, and Private funding sources are identified	yes		3	pgs. 24-25			State, Federal, Local, Nonprofit
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no		1	pgs. 24-25	Little discussion of this. Mentions 319 funds for additional planning efforts and NRCS funds for mitigation projects.	Develop a table to get a better idea of where funds should be directed. Link to cost breakdown information discussed in 4a.	
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		0		No discussion of potential benefits to the watershed and/or community	Include a community economic profile that talks about the potential benefits of restoration. Useful in "selling" the project.	
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes		2	pgs. 21, 27; Table 8.2	Could be more robust. Devotes only one 3-sentence paragraph, but has specific education milestones in Table 8.2	Embellish more. How to advertise meetings, how to get community groups engaged, etc.	
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		3	pgs. 2-3, 21, 27; Table 8.2			Good mix of state, local and NGO organizations involved in process.
b. Public meetings and forums have been/are scheduled to be held	yes		2	pgs. 21, 27; Table 8.2	see 5a.	see 5a.	
c. Educational/Outreach Materials will be/have been disseminated	yes		3	pgs. 21, 27; Table 8.2			Newspaper articles, brochures, display housed at local schools and other public places.
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes		3	pgs. 26-27, Table 8.1			good schedule with specific time frames and phased implementation
b. Implementation schedule follows a logical sequence	yes		3	pgs. 26-27, Table 8.1			
c. Implementation schedule covers a reasonable time frame	yes		3	pgs. 26-27, Table 8.1			
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes		4	pgs. 26-27, Table 8.2			Milestones are excellent, include measures for reclamation, education, and assessment - the main elements of the plan
e. A phased approach with interim milestones is used to ensure continuous implementation	yes		4	pgs. 26-27, Tables 8.1-8.2			good schedule with specific time frames and phased implementation

8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes	4	pg. 24			pH, net alkalinity, biological health
b. Evaluation criteria are measurable and quantifiable	yes	3	pg. 24			good measures of water chemistry and overall stream health
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	1	Table 8.2	No discussion of this, but milestones for education component, which indicates public buy-in is a main priority	Include measures of public buy-in based on EPA Guidance or other document	
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	3	pgs. 24, 26-27, Tables 8.1-8.2			

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes	3	pgs. 21-22, Figure 1.1			A number of monitoring sites, indicated in Figure 1.1 plus more sites not pictured
b. Monitoring plan has an adequate sampling frequency	yes	3	pgs. 21-22			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	4	pgs. 21-22			monitoring of mine site reclamation projects, instream water chemistry, biological community, and a long-term assessment component

Score 110/148

Overall Comments and Recommendations

This is an excellent plan that has obviously been written to use the nine elements as a model. An especially good part is the model used to estimate pollution reduction from management measures. Without the benefit of a specific model or good data to develop input parameters, they devised a simple spreadsheet approach and relied on justifiable assumption to develop a reasonable plan. This will certainly guide future implementation activities and ensure funding is spent wisely. The schedule is also very good, with specific milestone for each of the three major components of the plan.

Individual Element Subtotal	Score	% Satisfied
Element 1	17	85%
Element 2	15	94%
Element 3	21	88%
Element 4	9	45%
Element 5	10	63%
Element 6/7	17	85%
Element 8	11	69%
Element 9	10	83%

Appendix III:
Evaluations for Plans in Section V

Plan 1

Primary Pollutants	Bacteria, Sediment, Nutrients, Pesticides
Land Uses	Primarily Agriculture, Urban Encroachment
Pollution Sources	Failing Onsite Septic Systems, CSOs, Geese, Livestock, Agricultural Runoff, Stream Alterations, Construction, Gravel Mining

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Good discussion for bacteria (major pollutant). Could have more detail for sediment
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	3			Critical areas are mapped
c. Pollution loads are attributed to each source of impairment and quantified	yes	2			Good for sediment/nutrients, could be better for bacteria.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4			A wealth of monitoring data, including WQ monitoring and stream conditions.
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			6 overarching goals with sub-objectives, specific measures, and/or pollution reduction goals
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	2			It is unclear whether the expected load reductions result in attainment of water quality standards.
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3			Excellent chart provided that links management objectives to specific WQ goals
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	4			Scenario analysis approach for estimating sediment/nutrient reductions under alternative management schemes using SWAT. Scenarios are compared against target rate. Limitations are acknowledged and accounted for. The Bacteria Indicator Tool Spreadsheet is used to estimate bacteria reductions from treatment of failing septic systems.
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			Good use of available modeling tools to develop "rough" estimates for planning purposes.
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	yes	2	Hard to determine whether estimated pollution reductions will lead to attainment of WQ standards	Include a chart that presents a cumulative pollution reduction estimate to compare against the WQ standard.	
d. Critical/Priority implementation areas have been identified	yes	4			Excellent use of modeling software to determine areas where loadings are especially high. Scenario analysis.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3			
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			Standards and measurement criteria in place, but no method for adaptation if fulfillment of plan fails to attain WQ standards

4. Technical and Financial Assistance Needs						
					Estimates of costs for each management measure by "unit" are provided. Cost estimates don't include planning costs and total implementation costs. Estimate is too "rough."	Provide a more detailed budget including staffing costs, contractor rates, expected implementation.
a. Cost estimates reflect all planning and implementation costs	no		1			
b. Cost estimates are provided for each management measure	yes		2			
c. All potential Federal, State, Local, and Private funding sources are identified	no		1		Some mention of 319, CSR, NRCS, and CRP projects, but no link is drawn between planned activities and specific sources of funding	Provide a list of sources of funding, including State, Federal and private sources
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no		0		see 4c	see 4c
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		1		Some discussion of harmonizing economic feasibility with environmental concerns, but no detailed narrative of values and/or local economics	
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes		3			
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		4			All relevant stakeholders were brought together to air concerns and set management priorities. This process helped frame the management plan
b. Public meetings and forums have been/are scheduled to be held	yes		3			
c. Educational/Outreach Materials will be/have been disseminated	yes		3			
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	no		1		No detailed implementation schedule is provided. Partial credit is given for indicating a broad time frame and some general milestones, but this is not nearly as detailed as needed.	Develop a summary implementation chart that includes milestones for each management measure.
b. Implementation schedule follows a logical sequence	no		0		see 6/7a	see 6/7a
c. Implementation schedule covers a reasonable time frame	no		1		see 6/7a	see 6/7a
d. Measurable milestones with expected completion dates are identified to evaluate progress	no		1		see 6/7a	see 6/7a
e. A phased approach with interim milestones is used to ensure continuous implementation	no		0		see 6/7a	see 6/7a
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes		3			
b. Evaluation criteria are measurable and quantifiable	yes		3			
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes		4			Excellent measures of community understanding/buy-in. They are qualitative yet measurable
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes		2			

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	yes		4		Two primary monitoring plans: one is a typical WQ monitoring plan - the other is the Bacterial Source Tracking System which uses innovative techniques to pinpoint sources of contaminants
b. Monitoring plan has an adequate sampling frequency	yes		3		
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3		

Score 87/148

Overall Comments and Recommendations

This plans does very well with using modelng techniques to estimate expected pollution loads. However, it fails to link the expected load reductions to desired WQ standards for bacteria, sediment, and nutrients. The modeling process used here - where scenario analysis using two readily available tools (SWAT and Bacteria Indicator Spreadsheet) is employed to esimate pollution reductions - can be considered a good example that other states might copy. However, unless these pollution reduction estimates are coordinated with the WQ goal, it fails to meet the true purpose of Element B which is to estimate the expected efficiency of the proposed action strategy.

Individual Element Subtotal	Score	% Satisfied
Element 1	15	75%
Element 2	12	75%
Element 3	17	71%
Element 4	5	25%
Element 5	13	81%
Element 6/7	3	15%
Element 8	12	75%
Element 9	10	83%

APPENDIX III

Plan 2

Water Quality Issue	Benthic Aquatic Organisms and Fecal Coliform
Land Uses	Agriculture, Livestock
Pollution Sources	Livestock in Streams, Failing Septic Systems, Agriculture Runof, Wildlife

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2	TMDL needed to gather necessary information. TMDL document should be considered part of the WM plan.	Better summary of the TMDL findings, including sources and location of pollution sources.	See TMDL for specific information
c. Pollution loads are attributed to each source of impairment and quantified	yes	2	Through the TMDL modeling process and Load Allocation calculations	Better summary of the TMDL findings, include LAs in WM plan for ease of reference	See TMDL for specific information
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			Good modeling process, scenario analysis
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3		More specific reduction goals	Good to include performance-based goals and implementation-based goals
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	3	TMDL modeling process		TMDL drives pollution reduction goals
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3	TMDL modeling process		TMDL drives pollution reduction goals
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0	There is no attempt to quantify expected load reductions from recommended management practices. Instead, it is assumed that full implementation will achieve goals. No modeling to support this planning process	The Watershed-Based plan should include some kind of analysis which shows the Management Measures will achieve desired load reductions. This may be achieved through monitoring, but the planning process should consider expected impact.	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	1	It is assumed that complete implementation will achieve goals, and phased milestones for implementation will achieve certain levels of reduction. No modeling and/or justification to support this	The Watershed-Based plan should include some kind of analysis which shows the Management Measures will achieve desired load reductions.	The chart on pg. 16 shows expected load reductions to correspond with a implementation milestones.
d. Critical/Priority implementation areas have been identified	yes	3	GIS maps, assesment of stream banks, etc.		
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	4			excellent analysis
f. Proposed management measures will achieve water quality goals with the least environmental impact, implementation effort, and investment	yes	3			Analysis weighs costs versus expected benefits to justify investment
g. Adaptive management process in place to evaluate effectiveness of management measures	yes	3			

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	yes	3				
b. Cost estimates are provided for each management measure	yes	4				
c. All potential Federal, State, Local, and Private funding sources are identified	yes	4				
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	2		Not specifically addressed, but some discussion of where certain funding sources might be allocated	Include an extra column to indicate where each management measure might draw funding from.	
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	4				Excellent analysis here. Should be a model for other states. Includes specific, quantitative measures that are generally not "common sense" measures.
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	4				
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	2			Could do a better job of describing the expected role of each agency and/or organization. Only describes roles in general terms (e.g. EPA is responsible for....).	
b. Public meetings and forums have been/are scheduled to be held	yes	4				
c. Educational/Outreach Materials will be/have been disseminated	yes	3				
6/7. Schedule and Milestones						
a. Implementation schedule includes dates and expected accomplishments	yes	4				Overall good job with this, could have included more specifics.
b. Implementation schedule follows a logical sequence	yes	3				
c. Implementation schedule covers a reasonable time frame	yes	4				
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	3				
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	4				
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	no	1		The plan sets goals and milestones for management practice implementation. These can be measurable, but are not necessarily a true measure of environmental progress. LA's are consistent with WQ standards, and should be a good monitoring criteria	Think about developing some more measurable and observable criteria, including qualitative and quantitative. This might include habitat and benthic measures. Recording the level of MM implementation will not measure progress.	
b. Evaluation criteria are measurable and quantifiable	yes	2				Proposed criteria, though weak, are measurable
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	0		Only quantitative water quality parameters and management measure implementation milestones	Try to link some of the benefits discussed on pg. 12 to some qualitative measures. (e.g. housing prices, incidence of disease among livestock, feeding costs)	
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	2				In place, but needs better criteria

9. Monitoring Component					
a. Monitoring plan includes and appropriate number of monitoring stations	yes	3			12 fixed stations
b. Monitoring plan has an adequate sampling frequency	no	1	No discussion of frequency, no system in place to make sure the JMU-monitored stations are kept up-to-date	Lay out a schedule with estimated monitoring frequency. Make monitoring a more integral part of the plan, as opposed to focusing only on implementation with no process for monitoring progress.	
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	1	It will be easy to keep track of implementation, but the criteria are not adequate in general	Better criteria will help develop a more thorough monitoring strategy.	

Score 100/148

Overall Comments and Recommendations

There are parts of this plan that are very well done. Specifically, the public outreach and education components are well thought out and thorough. Also, there is a good discussion and rationalization of potential management measures, and a good assesment of needs. The TMDL document should accompany this strategy to better lay out how the LA's were calculated. This plan falls short in that it does not attempt to quantify the impact of suggested management measures. It appears that no modeling has been done in this regard, and therefore it is not possible to fully analyze the impact of this strategy. Also, this plans needs more tangible evaluation criteria and a more intense monitoring plan to evaluate progress. It is insufficient to rely only on the level of implementation if the expected effect of management measures has not been quantified.

Individual Element Subtotal	Score	% Satisfied
Element 1	13	65%
Element 2	9	56%
Element 3	17	71%
Element 4	13	65%
Element 5	10	63%
Element 6/7	14	70%
Element 8	3	19%
Element 9	4	33%

APPENDIX III

Plan 3

Primary Pollutants	Sediment, Temperature, Nutrients/DO, Pathogens
Land Uses	Timber Production, Grazing, Recreation, Agriculture, Small Urban
Pollution Sources	grazing, timber harvest, croplands, urban runoff

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			TMDL-targetted pollutants and other suspected impairments
b. Specific sources of impairment are geographically identified (i.e. mapped)	no	1	NA - The table of contents indicates a map is included, but there is no map with draft submitted to EPA		follow up with region
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			Percent reductions for each source are suggested
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			TMDL percent reduction for each pollution source
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	0	This plan fails to satisfy any criteria for element 2. Management Measures - including current and future - are described and quantified, but there is no attempt to model the expected impact of these BMPs.	Use modeling software in a scenario analysis or spreadsheet calculator approach to estimate the expected impact of mitigation efforts. Use widely-published reduction efficiency estimates to calculate impact of planned management measures	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	0	see 2a	see 2a	
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0	see 2a	see 2a	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	0	see 2a	see 2a	
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			Good description of current management efforts and planned/funded projects
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	0	No attempt to model expected reductions associated with current and planned management measures	Use modeling process - scenario analysis or spreadsheet calculator - to estimate pollution load reductions	
d. Critical/Priority implementation areas have been identified	yes	2			Upland portion of the watershed is targetted for the majority of implementation.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3			Good data here - Miles of streambank restoration, treatment acres, etc.
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			Phased approach

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	yes	3					
b. Cost estimates are provided for each management measure	yes	2					Budget includes one total cost of all BMP implementation.
c. All potential Federal, State, Local, and Private funding sources are identified	yes	3					
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	4					Good use of State, USDA, and EPA grants to fund different aspects of the project. Very strategic in allocation of funds
e. Economic and environmental benefits are discussed and weighed against implementation costs	no	1		No discussion of benefits to the community other than restoration of beneficial uses.			
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes	3					Stakeholder Outreach and Education is a vital component of each Implementation sub-project
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3					
b. Public meetings and forums have been/are scheduled to be held	yes	3					
c. Educational/Outreach Materials will be/have been disseminated	yes	3					
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	no	1		NA - In the document submitted to EPA, a "project schedule" section is referenced and allocated page space, but the text and/or schedule was not present.	Contact Region for more information.		
b. Implementation schedule follows a logical sequence	no	1					
c. Implementation schedule covers a reasonable time frame	no	1					
d. Measurable milestones with expected completion dates are identified to evaluate progress	no	1					
e. A phased approach with interim milestones is used to ensure continuous implementation	no	1					
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes	2					TMDL targetted pollutants with linkage to monitoring objective (trend analysis, BMP effectiveness, etc.)
b. Evaluation criteria are measurable and quantifiable	yes	3					
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	1		No discussion of measuring community involvement and/or buy-in.			
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	2					Phased approach

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes		3			Each sub-project and/or funding source has a monitoring component. Good coverage of all mangement measures, stream reaches, pollution sources.
b. Monitoring plan has an adequate sampling frequency	yes		3			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3			

Score 73/144

Overall Comments and Recommendations

This plan appears to be more of a draft than a final document. Certain elements are completely missing, while others are referenced - with sections allocated - but not included in the the document submitted to EPA. This analysis cannot be considered complete until further communication with the State finalizes the document.

Individual Element Subtotal	Score	% Satisfied
Element 1	13	65%
Element 2	0	0%
Element 3	13	54%
Element 4	13	65%
Element 5	12	75%
Element 6/7	5	25%
Element 8	8	50%
Element 9	9	75%

APPENDIX III

Plan 4

Primary Pollutants	Metals, Selenium, Organics, Sediment
Land Uses	Pasture, Forest, Mining, Desert, Development
Pollution Sources	Abandoned and Active Mines, Grazing, Eroding Streambanks.

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	4			Excellent use of GIS to characterize and prioritize watersheds. The "Fuzzy Logic" methods utilizes many data sets to prioritize subwatersheds.
c. Pollution loads are attributed to each source of impairment and quantified	no	1	Sub-watershed are prioritized for each major pollutant, but no specific pollutant loads are provided. Scale might be an issue here.	For priority watersheds, obtain loading data and/or TMDL. Complete WB plans for smaller sub-watersheds to reduce the constraints of scale	
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4			Excellent use of existing data
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	no	0	Specific pollutants are identified and sub-watersheds are prioritized, but no load reduction goals are provided.	Develop TMDLs and/or plans for each sub-watershed to avoid scale issues.	
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	1	Specific load reductions are not provided and therefore not linked to any mitigation goal	Develop specific load reduction goal - WQ standard or TMDL - and link to expected reductions	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	1	Good description of impairments and prioritization of sub-watersheds, but expected load reductions are not quantified.		
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	2			Reduction potential expressed as "high", "moderate", etc - no specific load reduction estimates. Scale issues again in play
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			Fuzzy logic and GIS
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	1	Specific load reductions are not provided and therefore not linked to any mitigation goal	Develop specific load reduction goal - WQ standard or TMDL - and link to expected reductions	
d. Critical/Priority implementation areas have been identified	yes	4			Excellent use of multiple parameters in fuzzy logic model to identify priority watersheds for each pollutant
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no	0			
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	no	1		Expected costs are included for each management measure, but not education/outreach, monitoring, and planning.		
b. Cost estimates are provided for each management measure	yes	2				Expected costs expressed as "low", "high", etc., with ranges provided for what each category might be.
c. All potential Federal, State, Local, and Private funding sources are identified	yes	3				good mix of federal, state, local and private
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	0		No discussion of how different funding sources might be strategically deployed.	Add a column to the treatment matrices in section 7 to indicate expected funding sources.	
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	4				Excellent discussion in section 5 of important biological resources, including water resources, habitat, and recreational values.
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	3				NEMO and the Gila Watershed Partnership
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				
b. Public meetings and forums have been/are scheduled to be held	yes	2				Gila Watershed partnership meetings
c. Educational/Outreach Materials will be/have been disseminated	yes	2				newspaper articles, county fair booth
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	yes	2				This is a hard element to evaluate for this plan. Section 8 has an "example" schedule for local stakeholder groups to follow. Not truly a schedule for this watershed plan, but does include all of the necessary elements. Therefore, it gets a "2" for everything
b. Implementation schedule follows a logical sequence	yes	2				see 6/7a.
c. Implementation schedule covers a reasonable time frame	yes	2				see 6/7a.
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	2				see 6/7a.
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	2				see 6/7a.
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	no	1		No overall load reduction goal, and document provides guidance to local watersheds on "how to" develop effective criteria and measure progress.	This document should provide specific evaluation criteria and goals or submit sub-watershed plans with more specifics to EPA. This is only a guidance document.	
b. Evaluation criteria are measurable and quantifiable	no	1			see 8a.	
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no	0		No interim milestones provided, mostly due to the large scale multiple WQ issues throughout the basin		
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	1		No measures of overall SH/community buy-in.		
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	2				

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	no		1	Also difficult to evaluate this element. More of a how-to manual for local watershed planning efforts than a plan for this watershed.	Provide details on current DEQ and NEMO monitoring efforts or provide information on local volunteer monitoring efforts, if available.
b. Monitoring plan has an adequate sampling frequency	no		1	see 9a	see 9a
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no		1	see 9a	see 9a

Score 70/144

Overall Comments and Recommendations

This is not a good example of what EPA had in mind when writing the watershed planning elements. Scale is a huge issue here, and makes it nearly impossible to develop a plan with an adequate level of detail. Instead, this plan describes in general terms the WQ issues seen throughout the basin and general management measures that can be implemented to mitigate pollution. It also serves as a kind-of how-to guide for local watershed groups in developing plans for sub-watersheds throughout the basin. In my estimation, it is one of these smaller plans that should be submitted for consideration. This seems like an attempt to circumvent the new 319 guidelines by developing a large basin plan without providing the specifics necessary. It can be used as an example of what states might attempt to do in order to meet the guidelines with less work.

Individual Element Subtotal	Score	% Satisfied
Element 1	12	60%
Element 2	7	44%
Element 3	13	54%
Element 4	10	50%
Element 5	10	63%
Element 6/7	10	50%
Element 8	5	25%
Element 9	3	25%

APPENDIX III

Plan 5

Primary Pollutants	Nutrients, Sediment, Fecal Coliform
Land Uses	Animal Feeding Operations, Cropland, Rangeland
Pollution Sources	Agricultural Runoff, Grazing, AFO Runoff

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	4			Excellent use of AGNPS to determine high priority, critical areas. Cells with high susceptibility to nutrient/sediment. High priority Afo's as well.
c. Pollution loads are attributed to each source of impairment and quantified	yes	2			
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			73% total P and 10% total N
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	1	Expected load reductions from potential management measures are not provided.	Use AGNPS to estimate the impact of planned management measures	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3			
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0	see 2a	see 2a	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	1			
d. Critical/Priority implementation areas have been identified	yes	4			Excellent use of AGNPS to determine high priority and critical areas. Cells with high susceptibility to nutrient/sediment. High priority Afo's as well.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3			
f. Adaptive management process in place to evaluate effectiveness of management measures	no	1			

4. Technical and Financial Assistance Needs							
							Excellent Tables in Appendix C detailing complete budget - including planning and administrative cost - over the entire project period
a.	Cost estimates reflect all planning and implementation costs	yes	4				
b.	Cost estimates are provided for each management measure	yes	3				
c.	All potential Federal, State, Local, and Private funding sources are identified	yes	3				
d.	Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	3				
e.	Economic and environmental benefits are discussed and weighed against implementation costs	no	1		No discussion of benefits to the community, partial credit for efforts to enhance public understanding.	Add a brief section on expected community benefits/values enhanced.	
5. Information, Education, and Public Participation Component							
a.	A Stakeholder outreach strategy has been developed	yes	3				
b.	All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				
b.	Public meetings and forums have been/are scheduled to be held	yes	3				4 workshops, four demonstrations, five informational meetings
c.	Educational/Outreach Materials will be/have been disseminated	yes	3				Min. 10 newsletters, 25 news releases, six Dmailings, annual, semi-annual reports
6/7. Schedule and Milestones							
a.	Implementation schedule includes specific dates and expected accomplishments	yes	4				Appendix C is a schedules for a number of different project components, include costs per year, funding sources, BMP implementation, etc. Excellent job.
b.	Implementation schedule follows a logical sequence	yes	3				
c.	Implementation schedule covers a reasonable time frame	yes	3				
d.	Measurable milestones with expected completion dates are identified to evaluate progress	yes	3				
e.	A phased approach with interim milestones is used to ensure continuous implementation	yes	3				
8. Load Reduction Evaluation Criteria							
a.	Proposed criteria effectively measure progress toward load reduction goal	yes	2				Evaluation criteria assumed to be nutrients, sediments, and organics, but not clear. Also, speaks more about evaluating with models rather than monitoring.
b.	Evaluation criteria are measurable and quantifiable	yes	2				
c.	Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no	1		No intertime WQ milestones are provided, only implementation and administrative milestones	Include schedule of expected WQ milestones in Appendix C	
d.	Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	0		No measures of community involvement, buy-in.		
e.	An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no	1				

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes		3			Attached QAPP which outlines monitoring procedures, frequency, sampling points, and quality assurance. Very thorough.
b. Monitoring plan has an adequate sampling frequency	yes		3			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3			

Score 95/144

Overall Comments and Recommendations

This was a funny plan to evaluate. However, the evaluation sheet shows that this plan does a pretty good job of meeting the nine elements. A particularly strong portion of this plan were the appendices which included maps, schedules, budgets, a monitoring plan, and an example of how modeling software was used to target priority areas. This supplemental information was vital to this plan receiving a good score - other states might want to take this approach - where multiple, short documents are combine to serve as one WB plan. This plan needs some improvement in calculating expected reductions from planned management measures, perhaps employing a scenario analysis with AGNPS. Also, the evaluation criteria need to be spelled out better and linked in some way to the monitoring plan. Also, an adaptive management process should be included.

Individual Element Subtotal	Score	% Satisfied
Element 1	16	80%
Element 2	7	44%
Element 3	15	63%
Element 4	14	70%
Element 5	12	75%
Element 6/7	16	80%
Element 8	6	30%
Element 9	9	75%

APPENDIX III

Plan 6

Primary Pollutants	Fecal Coliform
Land Uses	Developed Residential and Commercial
Pollution Sources	Stormwater Runoff, Illicit Connections, Pet Waste, Septic Tanks

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	no	0			
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			Annual loadings presented in table format with the percentage of total load for each source. R5 Watershed Treatment Model
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			TMDL - 19% reduction of fecal coliform
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	3			
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	2			Estimated for each management measure only
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	3			Simple Method and Watershed Treatment Model used to calculate load reductions. Assumptions are explained
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	2			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	yes	3			
d. Critical/Priority implementation areas have been identified	no	0	No identification of priority areas through mapping or other survey process. No evidence of any ground-level analysis	Survey watershed area to develop a true inventory of needs and determine priority areas.	
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	2			Extent of implementation provided at watershed level, but no survey results to help justify estimates.
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			Not explicitly discussed. The need for updating as more information becomes available is mentioned.

4. Technical and Financial Assistance Needs							
							Itemized budget for each primary management measure, including personnel hours and contractual (construction, etc.)
a.	Cost estimates reflect all planning and implementation costs	yes	3				
b.	Cost estimates are provided for each management measure	yes	3				
c.	All potential Federal, State, Local, and Private funding sources are identified	no	1		No real discussion of potential sources of funding, only "federal" and "non-federal"	Add list of potential funding sources, including Federal, State, and Local	
d.	Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	1		No indication of how different funding sources will be used to fund different activities.	Add column to Table D that indicates the source of funding.	
e.	Economic and environmental benefits are discussed and weighed against implementation costs	no	0		No discussion of payoffs and expected benefits.	Include discussion of benefits, relative to expenditures.	
5. Information, Education, and Public Participation Component							
a.	A Stakeholder outreach strategy has been developed	yes	3				Meetings, publications, events, demonstrations, promotional materials, etc.
b.	All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	2				
b.	Public meetings and forums have been/are scheduled to be held	yes	3				
c.	Educational/Outreach Materials will be/have been disseminated	yes	3				
6/7. Schedule and Milestones							
a.	Implementation schedule includes specific dates and expected accomplishments	yes	2				Overall, the schedule and milestones are very vague and not precise. It covers 21 tasks over 36 months, providing only 5 months for BMP implementation.
b.	Implementation schedule follows a logical sequence	yes	2				
c.	Implementation schedule covers a reasonable time frame	yes	3				
d.	Measurable milestones with expected completion dates are identified to evaluate progress	yes	2				
e.	A phased approach with interim milestones is used to ensure continuous implementation	yes	2				
8. Load Reduction Evaluation Criteria							
a.	Proposed criteria effectively measure progress toward load reduction goal	yes	3				
b.	Evaluation criteria are measurable and quantifiable	yes	3				
c.	Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	yes	2				
d.	Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	1		No discussion of measures of overall community buy-in and/or acceptance.		
e.	An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no	0		No discussion of adaptive management nor indication of threshold criteria.	Enhance the discussion of criteria to include threshold levels to trigger adaptation.	

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	no		0	No monitoring program discussed, especially in the context of evaluating criteria in element 8. This is a vital component of watershed planning that is lacking from this document.		
b. Monitoring plan has an adequate sampling frequency	no		0			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no		0			

Score 74/144

Overall Comments and Recommendations

Overall, this plan just isn't at the level of detail necessary. They do some things very well - including estimating expected load reductions and quantifying relative contributions from pollution sources. However, while the document was written around the 9 element format, it seems to only appease each element with the least amount of effort possible. The bare bones are there - and seemingly the hardest parts (load reductions and budget) are complete. Now the authors need to take the next step and add the necessary detail to make this a complete and highly effective watershed planning document.

Individual Element Subtotal	Score	% Satisfied
Element 1	12	60%
Element 2	10	63%
Element 3	13	54%
Element 4	8	40%
Element 5	11	69%
Element 6/7	11	55%
Element 8	9	45%
Element 9	0	0%

APPENDIX III

Plan 8

Primary Pollutants	Fecal Coliform
Land Uses	Largely Rural, few Urban Areas - forestry, residential, small farms
Pollution Sources	on-site sewage systems, stormwater runoff, wildlife

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2			Map does not depict all sources, but major areas (e.g. landfill) and monitoring stations
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			By monitoring station with necessary level of pollution reduction (as a %)
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	2			For each monitoring station only in DIP.
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	2			No indication of how the expected load reductions were calculated
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3			
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	2			No indication of how the expected load reductions were calculated
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	1	Monitoring data seems very accurate and thorough for baseline numbers. However, there is no description of how the expected reductions were calculated in the memo nor a justification of how the 34% goal is reasonable for the watershed as a whole	Describe the process by which expected load reductions were quantified - be it with a model or through a simple arithmetic process.	

3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	2				Types of management measures discussed in the context of the major pollution problems, current projects underway, and major organizations with WQ responsibilities
b. Proposed management measures are strategic and feasible for the watershed	yes	2				Types of management measures discussed in the context of the major pollution problems, current projects underway, and major organizations with WQ responsibilities
c. Proposed management measures achieve load reduction goals	yes	2				No indication of how the expected load reductions were calculated
d. Critical/Priority implementation areas have been identified	no	1		The memo indicates generally where the most critical areas are for each type of management measures, but the assignments are extremely vague and not rationalized.	Provide more in-depth information on where the critical/priority areas exist, and why certain management measures will be favored in these areas.	
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no	0		No calculation at all of the expected needs, treatment acres, septic upgrades, etc.	An estimate of this information is vital. Plan indicates this information will be tracked, which is a good start.	
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	3				Great process utilizing routine monitoring and interim water quality standards to make/suggest revisions. Interesting that despite such an institutionalized process, there was no estimate of implementation
4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	no	1		General cost estimates include huge ranges and doesn't seem to account for all potential expenditures. Very vague and not rationalized.	Detailed planning of expected implementation needs and costs will help avoid problems down the road and should be included in this analysis, even if they are revised through the very good adaptive management scheme described in the DIP	
b. Cost estimates are provided for each management measure	no	1		see 4a	see 4a	
c. All potential Federal, State, Local, and Private funding sources are identified	yes	4				Excellent chart discussion all potential sources of funding.
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	0		see 4a	see 4a	
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	2				WQ benefits in terms of drinking water supply - 65% of drinking water to City of Bremerton.
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	3				
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	4				Great discussion of different organizations involved and potential activities/projects to be implemented
b. Public meetings and forums have been/are scheduled to be held	yes	3				
c. Educational/Outreach Materials will be/have been disseminated	yes	3				
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	no	1		Implementation schedule lists all current projects and expected completion range only. Not enough specifics to determine feasibility of schedule	Develop a more detailed schedule that includes both current and future planned activities.	
b. Implementation schedule follows a logical sequence	no	1		see 6/7a	see 6/7a	
c. Implementation schedule covers a reasonable time frame	yes	3				Water Quality Standards met by 2007
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	2				Interim WQ milestones
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	2				Adaptive management process to evaluate progress and modify the plan if necessary.

8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes	3				WQ standards, not just load allocations
b. Evaluation criteria are measurable and quantifiable	yes	3				
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	yes	4				Interim WQ standards based on 90th percentile trendline to ensure targets are met by 2007.
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	2				tracking of BMP implementation as well.
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	3				

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes	3				Utilize existing monitoring programs with adequate stations and good sampling frequency
b. Monitoring plan has an adequate sampling frequency	yes	3				
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	3				4 types of monitoring: baseline, trends, effectiveness, and source ID

Score **85 /144**

Overall Comments and Recommendations

Not a bad plan, but not a good one either. Generally, an incomplete plan. The TMDL and Detailed Implementation Plan do well to satisfy certain elements, but seem to completely ignore others. For the elements that are inadequate, the supplemental memo provides a short justification that ultimately is not satisfactory. Specially, the funding and load reduction estimates do not meet the level of detail I've come to expect from these plans. However, this plan does very well is laying out a monitoring plan with specific evaluation criteria and a robust adaptive management process. This scheme - in and of itself - will prove to be an effective tool as the Union River moves toward attainment of WQ standards for bacteria. These sections could serve as a good model of how by utilizing existing monitoring programs and conducting a simple analysis to calculate interim water quality standards, your plan can have a really great evaluation component.

Individual Element Subtotal	Score	% Satisfied
Element 1	13	65%
Element 2	8	50%
Element 3	10	42%
Element 4	8	40%
Element 5	13	81%
Element 6/7	9	45%
Element 8	15	75%
Element 9	9	75%

APPENDIX III

Plan 9

Primary Pollutants	E. Coli
Land Uses	Rangeland, Agricultural Fields, Development
Pollution Sources	Agricultural Runoff from Pastures, Wildlife

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Community and WQ issues well described.
b. Specific sources of impairment are geographically identified (i.e. mapped)	no	1	Map of watershed provided illustrating land holdings, not land use or potential major sources of pollution	Add GIS map of land use indicating problem areas, especially rangeland and animal operations.	
c. Pollution loads are attributed to each source of impairment and quantified	no	0	No current pollution loads provided, only indication that E.Coli exceeds state WQ standards for beneficial use attainment.	Watershed plan was developed in lieu of TMDL, thus the watershed plan should undergo some modeling exercise to quantify current loads and estimate load reduction goal.	
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	no	1	No modeling, no presentation of monitoring data, no indication of how plan will lead to beneficial use attainment.	This document cannot be considered an effective remediation plan unless verifiable data sources are provided. At least monitoring results and some kind of arithmetic calculation should be used to set goals based on baseline conditions.	
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	2			Attainment of beneficial use standards, but no indication of how far to go and how to get there.
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	0	No modeling process or calculations have been attempted to quantify either the needed load reductions OR the expected environmental impact from the management plan. As such, there is nothing in this document to suggest that any environmental progress will be made as a result of this planning effort.	In order to plan an effective mitigation strategy - and justify forgoing the TMDL process - it is necessary to calculate expected load reductions from current pollution loading levels	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	0			
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0			
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	0			

3. Proposed Management Measures							
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes		2				Management measures focus around education and information dissemination. Mentions BMP implementation, but not very specific
b. Proposed management measures are strategic and feasible for the watershed	yes		2				
c. Proposed management measures achieve load reduction goals	no		0		see 2a	see 2a	
d. Critical/Priority implementation areas have been identified	no		0		No mapping or identification of critical areas.	Add GIS maps that indicate specific pollution sources and critical areas for mitigation	
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes		2				Some discussion of the number of projects, but discussion of context within the broader strategy.
f. Adaptive management process in place to evaluate effectiveness of management measures	no		0		No feedback loop or reevaluation process indicated, no interim criteria, milestones, or benchmarks.	Develop an effective adaptive management process, including feedback loops and threshold criteria to trigger modification.	
4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	no		1		Cost estimates for each management measure seem vague, no planning costs, monitoring plan costs seem too low.	Provided a detailed analysis of expected costs in a chart format.	
b. Cost estimates are provided for each management measure	yes		2				
c. All potential Federal, State, Local, and Private funding sources are identified	yes		2				
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no		0		In describing the different management measures, the narrative did not indicate what funding source might be used.	Add potential funding to above-suggest chart.	
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		0		No discussion of benefits versus costs		
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes		3				The bulk of the implementation portion of this plan is education and outreach.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		3				
b. Public meetings and forums have been/are scheduled to be held	yes		3				public meetings, workshops, etc.
c. Educational/Outreach Materials will be/have been disseminated	yes		3				website, publications, manuals, etc.
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes		3				Decent schedule with each management measure laid out with implementation dates
b. Implementation schedule follows a logical sequence	yes		2				
c. Implementation schedule covers a reasonable time frame	yes		3				
d. Measurable milestones with expected completion dates are identified to evaluate progress	no		1		Implementation schedule lays out each management measure by year, but doesn't include milestones to help gauge progress or trigger modification	Indicate specific milestones, including at least a certain number of planned BMPs for each year.	
e. A phased approach with interim milestones is used to ensure continuous implementation	no		0		No phased approach, each management measure is implemented on the same 5-year timescale.		

8. Load Reduction Evaluation Criteria					
				OVERALL COMMENT: No evaluation criteria provided. Assume monitoring will be for E. Coli concentrations, but no interim WQ goals or specific criteria to monitor against. Also, no measure for how this wide-ranging information campaign is resonating among the community	
a. Proposed criteria effectively measure progress toward load reduction goal	no	0			
b. Evaluation criteria are measurable and quantifiable	no	0			
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no	0			
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	0			
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no	0			

9. Monitoring Component					
				OVERALL COMMENT: Plans call for "continued" monitoring. However, no indication of how monitoring will proceed, including justification for how the monitoring process will effectively measure progress.	
a. Monitoring plan includes an appropriate number of monitoring stations	no	1			
b. Monitoring plan has an adequate sampling frequency	no	1			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no	1			

Score 42 /144

Overall Comments and Recommendations

This is a pretty poor plan, especially considering that it was completed "in lieu" of a TMDL. The plan focuses entirely around information dissemination and educational activities, and not surprisingly was not able to estimate expected load reductions. It seems as though they are waiting to secure funding before planning actual management measures, which is a backwards approach. This watershed group needs to first estimate current pollution loads, identify critical sources, plan and quantify needed management measures, calculate expected load reductions, identify potential sources of funding, then apply for grant money. The typical watershed planning process. This plan seems only to recognize the E.Coli problem and write down some easy ways to reduce concentrations. Not ideal to say the least.

Individual Element Subtotal	Score	% Satisfied
Element 1	7	35%
Element 2	0	0%
Element 3	6	25%
Element 4	5	25%
Element 5	12	75%
Element 6/7	9	45%
Element 8	0	0%
Element 9	3	25%

APPENDIX III

Plan 10

Primary Pollutants	Acid Mine Drainage
Land Uses	Forest, Agriculture, Urban, Mined Land
Pollution Sources	Bond Forfeiture Sites, Abandoned Mine Lands

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	4			Excellent use of maps to identify problem areas and high priority sources. This helps put subwatersheds in geographic context and helps evaluate downstream effects of AMD
c. Pollution loads are attributed to each source of impairment and quantified	yes	4			Good use of TMDL and other available data to set targets. Good display-easy to reference and attribute specific loads to each sources/subwatershed. Effective discussion of pollution sources in each subwatershed.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	2	Load reduction goals for each sub-watershed, but no overall goal is provided.		Overall goal may not be available/appropriate.
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	2			No discussion of how load reduction impact was quantified to achieve goals
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	4			Excellent use of data to estimate necessary pollution reductions from each source and maps to identify high priority problem areas
c. Expected load reductions are estimated for each management measure identified in Element 3	no	1	No estimate of how specific management measures will result in desired pollution reductions. Set targets based on reducing 90% of controllable sources, but no arithmetic to justify this.	Need to use modeling software to calculate pollution reduction estimates for planned management activities.	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			Good mix of Federal, State, and NGO sources.

3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3				Good discussion of passive versus active treatment. Good rationalization for use of RAPS, land reclamation, wet seals, and OLCs
b. Proposed management measures are strategic and feasible for the watershed	yes	3				see above
c. Proposed management measures achieve load reduction goals	no	1		Plan estimates that reducing 90% of loads from controllable/priority sources will achieve targets. No modeling and/or arithmetic to back this up.	Need to add a chart that shows how specific management measures will result in desired load reductions	
d. Critical/Priority implementation areas have been identified	yes	4				Excellent Prioritization of problem areas/pollution sources. Provides for a logical and sequential plan. Very thorough.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	2				Quantified for only 8 high priority areas, the rest are extrapolated to estimate costs
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2				Plans calls for the re-evaluation of plan at yearly meetings, but lays out no process for constant evaluation and feedback loops.
4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	yes	2				Cost estimates are made for only 8 of 17 high priority remediation areas. Costs for the other 9 are extrapolated based on average costs
b. Cost estimates are provided for each management measure	yes	2				
c. All potential Federal, State, Local, and Private funding sources are identified	yes	2				Table indicates which organizations might be part of the procurement process - and identify sources like NRCS, etc - but not detailed enough. Also, does not mention 319 funds.
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	0		No discussion of how certain organizations might fund specific implementation projects	Indicate which funding pool will be used for each of the 4 management measures.	
e. Economic and environmental benefits are discussed and weighed against implementation costs	no	0		No discussion of environmental or social benefits of water quality protection. No cost/benefit analysis	Include section on benefits of improving water quality to the community, economic profile of the watershed community, etc.	
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	3				
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				State Agencies, Restoration Teams, Community Members
b. Public meetings and forums have been/are scheduled to be held	yes	3				Quarterly Meetings, WVDEP annual meetings, annual festival
c. Educational/Outreach Materials will be/have been disseminated	yes	3				website, newsletter, natural history brochures, reports
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	yes	4				Good graphic to indicate timeframe/schedule, measurable/observable milestones that ensure continuous improvement
b. Implementation schedule follows a logical sequence	yes	3				
c. Implementation schedule covers a reasonable time frame	yes	3				Implementation by 2010, Goals reached by 2013
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	4				Good, measurable criteria to evaluate performance and continuous improvement
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	3				See Figure 20

8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes		3			water quality standards, improved benthic macroinvertebrate communities, improved fish communities
b. Evaluation criteria are measurable and quantifiable	yes		3			measurable and observable through monitoring programs in place
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no		1	No qualitative measures of community buy-in, but overall program success measured through aquatic species monitoring.	Include measures of community buy - in.	
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes		2			Plans calls for the re-evaluation of plan at yearly meetings, but lays out no process for constant evaluation and feedback loops.

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes		2			13 existing monitoring stations through FODC Clean Creek Program
b. Monitoring plan has an adequate sampling frequency	yes		2			Every five years by WVDEP Watershed Assessment Program, Clean Creek four times per year
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3			benthic and water quality monitoring part of Clean Creek Volunteer monitoring

Score 92/148

Overall Comments and Recommendations

Overall, a pretty good job. Could stand to improve the budget breakdown to consider all sources of funding. Also, needs to a better job estimating/justifying the expected pollution reduction from the implementation of management measures. This will help in the planning process and provide a good strategy for moving forward through an adaptive management process.

Individual Element Subtotal	Score	% Satisfied
Element 1	16	80%
Element 2	10	63%
Element 3	15	63%
Element 4	6	30%
Element 5	12	75%
Element 6/7	17	85%
Element 8	9	56%
Element 9	7	58%

APPENDIX III

Plan 13

Primary Pollutants	Acid Mine Drainage
Land Uses	Forest, Mining, Some Agriculture and Homesites
Pollution Sources	Former Mining Sites, Smaller Seeps

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			10 discharges
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	3			Good topographic map
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			Accounts for data discrepancies due to dry and wet weather sampling differences.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			WQ standards for FE, AL and pH
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	2			
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	2			
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	2			
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	1	Expected load reductions are estimated in Table 5, but there are no details on how these estimates were calculated.	Without the details of the arithmetic or modeling process used, it is impossible to determine if the load reductions are worth while	
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	4			Each discharge and seepage is analyzed. Rationalizations are provided for each management measure.
c. Proposed management measures achieve load reduction goals	yes	2			
d. Critical/Priority implementation areas have been identified	yes	3			
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3			Management measures for each discharge/seepage
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	4			

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	yes	3				
b. Cost estimates are provided for each management measure	yes	3				
c. All potential Federal, State, Local, and Private funding sources are identified	yes	3				
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	0		No discussion of how funding sources will be strategically allocated among specific management measures. However, this may not be necessary with an AMD mitigation effort.		
e. Economic and environmental benefits are discussed and weighed against implementation costs	no	0		No discussion of expected benefits relative to costs of implementation.		
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	3				landowners, local and state agencies, legislators, conservation districts, watershed groups, volunteers.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				meetings, clean-ups, events, etc.
b. Public meetings and forums have been/are scheduled to be held	yes	3				website, media articles.
c. Educational/Outreach Materials will be/have been disseminated	yes	2				
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	yes	3				Good schedule with all the information needed.
b. Implementation schedule follows a logical sequence	yes	3				Well designed to make the biggest impact first, then addresses smaller sources later.
c. Implementation schedule covers a reasonable time frame	yes	3				
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	2				Milestones are less concrete, though expected completion dates are included.
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	2				Adaptive management process in place to evaluate water quality achievements and revise plan if necessary.
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes	3				
b. Evaluation criteria are measurable and quantifiable	yes	3				
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no	1		No interim water quality standards proposed, but assume there will be some standard to measure progress against for the adaptive management process.		
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	1		No measure of overall watershed acceptance, though vast network of volunteer efforts indicated broad community support.		
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	3				re-evaluation if performance measures aren't up to par

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	yes		3		2 sample sites quarterly; inflows and outflows from treatment measures at least quarterly;
b. Monitoring plan has an adequate sampling frequency	yes		3		
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3		

Score 94 /144

Overall Comments and Recommendations

Although this is a very short document, this plans does a pretty good job of addressing at least parts of each element. The monitoring and evaluation component is pretty strong, as are the costs, proposed management measures, and analysis of pollution sources. However, although expected pollution reductions are presented in Table 5 (which could be confused for an attachment) there is no discussion of the method used to calculate those reductions. It seems as though the watershed group has strategically planned their implementation efforts to achieve the greatest reductions before moving on to lower-priority discharges, however it is difficult to determine if the loading reductions are completely accurate.

Individual Element Subtotal	Score	% Satisfied
Element 1	15	75%
Element 2	7	44%
Element 3	19	79%
Element 4	9	45%
Element 5	11	69%
Element 6/7	13	65%
Element 8	11	55%
Element 9	9	75%

APPENDIX III

Plan 14

Primary Pollutants	Temperature, Bacteria, Sediment, DO
Land Uses	Agriculture, Animal Operations, Forestry, Urban
Pollution Sources	Agricultural Runoff, Riparian Degradation, Livestock in Streams, Stormwater Runoff

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Matrix provides a good list of pollutants and potential sources, supplement provides goals and more details. Matrix also lays out data needs.
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2			Only 303d listed streams and 319 projects mapped. More in terms of land use could be included
c. Pollution loads are attributed to each source of impairment and quantified	yes	2			Necessary reductions only
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	1	Expected load reductions are not quantified, therefore not possible to determine if management plan will achieve WQ goals	As mentioned in the matrix, obtain necessary data to estimate expected load reductions.	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3			goals for each pollutant
c. Expected load reductions are estimated for each management measure identified in Element 3	no	1	Plan acknowledges data limitations and plans for load reduction calculations in the future if possible.	Provide at least a general estimate using a spreadsheet format or use a scenario analysis with modeling software to estimate management needs	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	2			could do more with modeling
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	1	see 2a	see 2a	
d. Critical/Priority implementation areas have been identified	yes	2			priority pollutants and areas - including agr. Riparian zones urban stormwater BMPs - are unidentified
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	2			milestones indicate measurable implementation goals that can be considered part of element c. Also, supplement tracks existing projects.
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			tracking of WQ improvements due to BMP implementation to reflect and modify plan

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	yes	3				management measures, training, and enforcement costs
b. Cost estimates are provided for each management measure	yes	3				
c. All potential Federal, State, Local, and Private funding sources are identified	yes	4				Federal, State, and local sources.
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	1		Mangement measures not clearly linked to sources of funding	Indicate how different program funds can/will be used in supplement and/or matrix	
e. Economic and environmental benefits are discussed and weighed against implementation costs	no	0		Benefits not explicitly discussed	Include discussion of benefits in supplement	
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	3				Future plans to target K-12 env.education and develop University degree program
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				
b. Public meetings and forums have been/are scheduled to be held	yes	3				
c. Educational/Outreach Materials will be/have been disseminated	yes	3				
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	yes	2				expressed as long-term, mid-term, short-term: milestones includes some yearly, but mostly full implementation period goals
b. Implementation schedule follows a logical sequence	no	1		sequence inconsistent with implementation priorities in element c. Livestock exclusion and farm management plans are long-term projects.	Plan for priority actions to be taken in the near term.	
c. Implementation schedule covers a reasonable time frame	yes	3				2010
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	3				Good measurable milestones of implementation goals, including environmental outcomes (e.g. acres of wetland restored)
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	2				some implementation goals have yearly benchmarks and rates.
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes	3				
b. Evaluation criteria are measurable and quantifiable	yes	3				
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	yes	3				Good examples here - trends in bacteria loads, 25% reduction in days out of compliance every 4 years
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	3				Indicators include habitat and environmental progress indicators along with WQ parameters. Nicely done.
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	2				

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	yes	3			6 - indicated by G.I.S. map
b. Monitoring plan has an adequate sampling frequency	yes	2			yearly assessments - no indication of sampling frequency
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	3			

Score 89/144

Overall Comments and Recommendations

This format was different than any other plan reviewed to date, but could be a good way to approach this task if multiple documents together make up the nine elements. In this case, the score was just average - mainly because not enough information was provided. The supplemental "case study" served to fill in some details (e.g. G.I.S. maps) but could have provided more "meat" to bump some "2's" up to "3's." Overall, this plan indicates a need to obtain more data for load reduction estimations, but could have gone farther with some kind of scenario analysis approach to estimate needs and expected payoffs. This matrix approach makes it easy for EPA to review, but could be enhanced a bit to provide better details and thus score higher

Individual Element Subtotal	Score	% Satisfied
Element 1	13	65%
Element 2	7	44%
Element 3	13	54%
Element 4	11	55%
Element 5	12	75%
Element 6/7	11	55%
Element 8	14	70%
Element 9	8	67%

APPENDIX III

Plan 15

Primary Pollutants	Sediment
Land Uses	Livestock, Forest, Agriculture, Mining
Pollution Sources	livestock grazing, logging, mining, agriculture, streambank erosior

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2			Map not found, but good description of water quality impairments in each branch. Very good breakdown
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			Appendices not included, assuming appropriate information is there since the plan says it is
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4			good use of bank retreat rate and human influence index. Good use of GIS Sediment Source and Delivery Model
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	2			No overall load reduction goal, but good water quality goals and TMDLs for each branch
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	1	No expected load reductions have been calculated, though there seems to have been some effort to strategize management measures at each branch. Also the TMDLs are very specific and well done	Take the extra step and model the expected outcomes for implementation of management measures	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3			Appendices not included, assuming appropriate information is there since the plan says it is
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0	see 2a.	see 2a	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	2			Well-documented data sources but no modeling to estimate expected load reductions.
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	1	No expected load reductions have been calculated. Mangement measures were identified and quantified (i.e. how much) but no modeling/calculations to determine the load reduction outcome.		
d. Critical/Priority implementation areas have been identified	yes	4			Excellent job of prioritizing reaches for implementation
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	2	Not fully quantified and the charts are a bit confusing, but there are definite numbers in terms of miles of stream/acres of land needing remediation.	Take all of the charts and combine into one, easy to reference chart that lays out the extent of implementation. This data can then be easily used to calculate the expected impact	
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	4			Great Discussion of theory and application in this watershed. Good identification of sources of uncertainty

4. Technical and Financial Assistance Needs						
					This strategy contains no budget at all. There are no considerations/estimates of cost, or consideration of where/how to obtain funding. This is a serious shortfall in this plan and needs to be corrected	Go back and add this section, including estimates for: BMP implementation, man hours, etc. Also a need to research funding options and present.
a. Cost estimates reflect all planning and implementation costs	no		0			
b. Cost estimates are provided for each management measure	no		0		see 4a	see 4a
c. All potential Federal, State, Local, and Private funding sources are identified	no		0		see 4a	see 4a
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no		0		see 4a	see 4a
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		0		No discussion of potential environmental benefits to offset costs which also aren't estimated.	see 4a
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes		3			mailings, press releases, public forums, internet
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		2		The Blackfoot Challenge seems to be dedicated to involving all relevant stakeholders. However, this plan does not specifically identify which organizations have been engaged in the process.	Provide a list of the major "player" organizations.
b. Public meetings and forums have been/are scheduled to be held	yes		3			
c. Educational/Outreach Materials will be/have been disseminated	yes		3			good use of multiple medias (internet, press, mailings.)
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	no		1		The plan does not include a specific schedule for implementation. It does prioritize reaches for recovery, which could be considered a sequential strategy. However, this plans lacks important milestones to help evaluate progress. It also mentions that monitoring will be performed every 5 years as part of an adaptive management process, but this hardly amounts to a specific schedule.	A specific schedule with timeframes and milestones needs to be developed. This will help drive the implementation progress and ensure work is actually getting done in a logical sequence.
b. Implementation schedule follows a logical sequence	no		1		see 6/7a. Partial credit for a discussion of priorities	
c. Implementation schedule covers a reasonable time frame	no		0		see 6/7a	see 6/7a
d. Measurable milestones with expected completion dates are identified to evaluate progress	no		0		see 6/7a	see 6/7a
e. A phased approach with interim milestones is used to ensure continuous implementation	no		1		see 6/7a. Partial credit for adaptive management monitoring	
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes		4			Many criteria measuring not only water quality parameters, but relative implementation progress, change in watershed conditions, and changes in key values
b. Evaluation criteria are measurable and quantifiable	yes		3			
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes		4			Excellent model for other watersheds. Measure of community values such as rural intactness, demographics, economics, etc. Also Agricultural values.
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes		3			Key part of this plan

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes	3				All relevant reaches identified, prioritized
b. Monitoring plan has an adequate sampling frequency	yes	3				Five-year intervals of intensive monitoring
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	4				Excellent, thorough criteria have been established.

Score 75/148

Overall Comments and Recommendations

Overall, this plan suffers from the fact that it attempts to lump both TMDL development and watershed restoration plan into one document. Much of the effort is spent developing TMDL end points, and less is spent on developing a budget and schedule for implementation. Certain elements are satisfied very well - monitoring and evaluation, management measures (to a certain extent), education and outreach - while others previously mentioned are not addressed at all. Thus, while this plan has certain examples other watersheds might learn from, it cannot be considered a "good" plan since it's completely missing many important elements.

Individual Element Subtotal	Score	% Satisfied
Element 1	14	70%
Element 2	6	38%
Element 3	17	71%
Element 4	0	0%
Element 5	11	69%
Element 6/7	3	15%
Element 8	14	88%
Element 9	10	83%

APPENDIX III

Plan 16

Primary Pollutants	Atrazine
Land Uses	pastureland, row crops, rangeland
Pollution Sources	Agricultural Nonpoint Sources

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Good analysis to determine which subwatersheds are likely the major sources of atrazine.
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2	Good identification of sub watersheds, but no map provided.	Use G.I.S. or other applicable mapping system to help plan.	
c. Pollution loads are attributed to each source of impairment and quantified	yes	2	Indicates all loading comes from non-point sources.	Better description of the types of nonpoint sources would make this a great component of this plan	
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			Good use of land use coverage analysis
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	4			25% - hard to do in this context (concentration is the controlling factor) appreciate the effort
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	1	No analysis performed to estimate the expected outcome from current and future implementation of management measures. Indicates that monitoring will help inform these assumptions and estimates.	Modeling software should be used in this watershed to determine how far they've come in order to make wise management decisions in the future. Especially important here since many management measures have already been implemented - need to make wise decisions with future funds.	
b. Expected load reductions are quantified for each source of impairment identified in Element 1	no	1	See 2a - "All nonpoint sources" so this is pretty easy.	Better discussion of types of sources - e.g. row crops? Eroding stream banks? Etc.	
c. Expected load reductions are estimated for each management measure identified in Element 3	no	1	see 2a	see 2a	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			Good tracking of current implementation though applications for different sources of funding
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	1	No analysis to evaluate the expected results of implementation.	This is especially necessary since so much work has been done already. Need to make strategic implementation decisions in light of the current level of conservation effort.	
d. Critical/Priority implementation areas have been identified	yes	2	Identification of priority sub-watersheds		
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no	0	This is completely missing from this plan. This analysis is necessary to make wise planning decisions	Needs assessment should be carried out to better estimate expected costs and payoffs	
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	4			This is an excellent example of an adaptive management process. It starts with the least regulatory solutions, and plans for contingencies to gradually ratchet up the "stick" if WQ goals aren't achieved. This should be a model for other pesticide-based plans.

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	no	0					
b. Cost estimates are provided for each management measure	no	0					
c. All potential Federal, State, Local, and Private funding sources are identified	yes	4					Excellent tracking of applications for EQIP, CRP, WRP, and 319 funding applications
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	3					Good mix of federal funds.
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	4					Study underway to analyze the farm-level profitability implications of management measures and the effectiveness of alternative BMPs.
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes	2					Progress reports at CEU meetings, stakeholder surveys, TCE public education campaign.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	2					
b. Public meetings and forums have been/are scheduled to be held	yes	3					
c. Educational/Outreach Materials will be/have been disseminated	no	1		No indication of document dissemination, but may be implicit in the educational outreach campaign.		If they haven't already, develop informational pieces and mass mailings.	
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes	3					
b. Implementation schedule follows a logical sequence	yes	4					Excellent use of adaptive management. Start with voluntary measures and slowly ratchet up to cancellation of the product if water quality goals are met.
c. Implementation schedule covers a reasonable time frame	yes	3					
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	4					Good monitoring criteria that will be evaluated at the two-year benchmark
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	4					Excellent phased approach that allows time to evaluate the water quality impacts while allowing for adaptive management if goals aren't achieved.
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes	2					Atrazine concentrations and effectiveness/implementation of BMPs
b. Evaluation criteria are measurable and quantifiable	yes	2					
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	3					Monitor both programmatic and environmental progress
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	4					Excellent - lauded above

9. Monitoring Component						
a. Monitoring plan includes and appropriate number of monitoring stations	yes	2				Number of monitoring stations is not indicated, only says "will monitor reservoir"
b. Monitoring plan has an adequate sampling frequency	yes	3				Monthly, then quarterly if goals are achieved
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	2				atrazine concentrations

Score 88/148

Overall Comments and Recommendations

This is a short plan, but it surprisingly addresses many of the nine elements very well. The content is very rich with information, wasting little space on theory or other nonsense considerations. This plan would benefit immensely from a collection/analysis of the information submitted to the State and NRCS through funding applications/reports. This would provide the majority of information it's missing, including an estimate of management practices needs and expected costs. Also, there is a need to use a simple model to estimate the extent to which BMPs implemented will achieve water quality goals.

Individual Element Subtotal	Score	% Satisfied
Element 1	14	70%
Element 2	6	38%
Element 3	13	54%
Element 4	11	55%
Element 5	8	50%
Element 6/7	18	90%
Element 8	11	69%
Element 9	7	58%

APPENDIX III

Plan 19

Water Quality Issue	sediment, nutrient, bacteria
Land Uses	Residential, Commercial
Pollution Sources	WW treatment spills, cesspools, urban runoff, irrigation and poorly planned drainage

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Good use of maps
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	4			Good use of maps
c. Pollution loads are attributed to each source of impairment and quantified	yes	2	There is no strong linkage between specific pollution sources and actual pollution loads. This is discussed briefly in a later section, but only to the extent that management measure will change the current state. GWLF modeling is used to achieves this	Add a table that lists pollution contributions from each source so this information is clear to the reader.	Make tables more apparent.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	no	0	This is not quantified as far as I can tell. There is acknowledgement of sources and water quality problems, but not specific goal for the watershed as a whole.	Set a watershed-wide - or perhaps basin-wide - pollution reduction goal as the overall water quality goal for the plan.	
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	1	Since there is no quantifiable environmental goal (e.g. load reduction goal), it is hard to say whether the expected load reductions will achieve the desired results. Instead, the load reductions are only what can be expected from the implementation of management measures.	This plan needs to set a load reduction goal against which the effect of management measure implementation can be compared.	Use GWLF to model loads then use the reference watershed approach.
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	2			Numbers are there for each basin, not necessarily each source
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	1		Model all suggested management practices for expected load reductions with PRedICT	Only for riparian buffers and septic systems
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			GWLF - good application of model here
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			Great discussion of potential options
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	yes	1	Modeling has been used to quantify expected load reductions, but there is no load reduction goal to compare the expected reductions to.	Must establish a TMDL or other applicable load reduction goal.	Use GWLF to model loads then use the reference watershed approach.
d. Critical/Priority implementation areas have been identified	yes	4			Good use of GIS for this.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	1	Implementation is only modeled for riparian buffers and septic systems, need to develop estimates of implementation for each proposed management measure.	Less theoretical and more specific discussion is needed. Less on "why" this specific management measure, and more on "what" you're going to do.	
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	3			

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	yes	3				Chart is a useful tool to visualize how dollars will be allocated.
b. Cost estimates are provided for each management measure	yes	3				
c. All potential Federal, State, Local, and Private funding sources are identified	yes	2				Good review of the literature, could include more state and local sources (if available). Tends to focus on Federal dollars.
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	0		No real discussion of how funds will be strategically used. This goes back to the point above which suggests they should research more options first. The literature review talks about how different federal sources "should" be used, but not how this plan will use them.	More research on different state and local funding options. Better attempt to allocate monies to relevant restoration strategies.	
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	2			needs more specific measures to estimate costs	good characterization of local economy. Recreation benefits a good discussion of willingness to pay.
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	3				Education/outreach is a major component of this restoration strategy. Incorporated Ahupua'a concepts - a good way to leverage local culture
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				
b. Public meetings and forums have been/are scheduled to be held	yes	3				
c. Educational/Outreach Materials will be/have been disseminated	yes	3				
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	yes	3				
b. Implementation schedule follows a logical sequence	yes	3				
c. Implementation schedule covers a reasonable time frame	yes	3				
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	1		Milestones are not as robust as would be preferred. It is lacking specific criteria to help evaluate progress. Too much reference to "ongoing implementation"	Develop measurement criteria that can be evaluated on a periodic basis to assess progress.	
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	3				
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	no	1		Without a quantified load reduction goal, it is hard to say whether the criteria measure progress. The criteria are partial measures of implementation progress, though not all management measures are covered	The best thing would be to develop specific load reduction goals. Failing that, develop more specific evaluation criteria that effectively measure the level of implementation.	
b. Evaluation criteria are measurable and quantifiable	no	1		Some are measurable (e.g. number of people involved, etc.) but fail to truly measure progress	Develop criteria that more clearly link to load reductions or implementation progress.	
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	2				Both kinds, but not "great" criteria
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	3				

9. Monitoring Component					
a. Monitoring plan includes and appropriate number of monitoring stations	yes	3			Use of volunteers a good way to extend limited resources.
b. Monitoring plan has an adequate sampling frequency	yes	3			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no	0	Monitoring plan is not link toed measurable criteria. Monitoring will be used to collect more data, which can help to develop better criteria	Collect more data and establish evaluation criteria based on data collected/available.	

Score 82/148

Overall Comments and Recommendations

A lot of effort when in to completing this plan, and that is certainly obvious. Overall, this plan deals too much in the abstract. There should have been more effort to develop the data collected during Phase I and II into measurable targets and load reduction goals. There is good identification of sources and potential management measures, but no real end point in sight. This plan is basically missing a section that says: 1. This is where we need to get to, and 2. This is what we expect our management measures to achieve. Once this is done, it would be possible to develop better evaluation criteria, measurable milestones, and a monitoring plan that measures progress toward water quality goals

Individual Element Subtotal	Score	% Satisfied
Element 1	12	60%
Element 2	7	44%
Element 3	15	63%
Element 4	10	50%
Element 5	12	75%
Element 6/7	13	65%
Element 8	7	44%
Element 9	6	50%

APPENDIX III

Plan 21

Primary Pollutants	Nutrients and Sediment
Land Uses	Animal Operations, Forest, Suburban
Pollution Sources	Urban Development, Nutrient Runoff from Animal Operations

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	3			Maps of impaired waterways (listed waterways) and land use
c. Pollution loads are attributed to each source of impairment and quantified	yes	2			historical loadings provided, but not attributed to specific sources
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			historical monitoring data
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	2			"fully restored" watershed with other programmatic-related goals (e.g. contact 1,200 persons)
2. Expected Load Reductions					
			OVERALL COMMENT: There is a section "devoted" to calculating load reductions, but no actual calculations are made. This portion of the 9 elements is present in title only and not addressed at all. Therefore, this section gets 0 credit		
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	0			
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	0			
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0			
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	0			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			Current projects and "typical" farm-level projects are discussed
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	0	see 2a		
d. Critical/Priority implementation areas have been identified	yes	3			Use of Decision Support system to prioritize sub-watersheds
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	2			Table 3 is the "typical" farm plan for each sub-watershed, but overall implementation is not provided.
f. Adaptive management process in place to evaluate effectiveness of management measures	no	1	Decision Support System to be developed, but specific details are not provided.	Include details of DSS including threshold criteria to trigger modification of strategy.	

4. Technical and Financial Assistance Needs							
	a. Cost estimates reflect all planning and implementation costs	yes	2				Cost estimates are for "typical" farm in each watershed. Also, there is a total cost estimate of approximately \$44 million
	b. Cost estimates are provided for each management measure	yes	3				
	c. All potential Federal, State, Local, and Private funding sources are identified	yes	3				Good discussion of potential fundings options and details of obtaining funds. Also discussion of why state, private, and local funds are not viable.
	d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	2				By watershed and "Resource of Concern"
	e. Economic and environmental benefits are discussed and weighed against implementation costs	no	0		No discussion of benefits relative to costs.		
5. Information, Education, and Public Participation Component							
	a. A Stakeholder outreach strategy has been developed	yes	3				
	b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				
	b. Public meetings and forums have been/are scheduled to be held	yes	3				
	c. Educational/Outreach Materials will be/have been disseminated	yes	3				
6/7. Schedule and Milestones							
	a. Implementation schedule includes specific dates and expected accomplishments	yes	3				Thorough, broken down by type of activity with specific goals and anticipated completion dates
	b. Implementation schedule follows a logical sequence	yes	2				Sequenced, but not necessarily "logical"
	c. Implementation schedule covers a reasonable time frame	yes	3				
	d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	3				
	e. A phased approach with interim milestones is used to ensure continuous implementation	no	1		No interim milestones or adaptive management process details in place. Partial credit for plans to develop a DSS mentioned above		
8. Load Reduction Evaluation Criteria							
	a. Proposed criteria effectively measure progress toward load reduction goal	yes	3				WQ Standards
	b. Evaluation criteria are measurable and quantifiable	yes	3				WQ Standards
	c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no	0		No interim water quality criteria or goals provided to evaluate load reduction progress.	part of what is lacking from an effective adaptive management process	
	d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	0		No qualitative measures of overall plan acceptance and/or community support		
	e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no	1		see discussion of adaptive management above		

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	yes	4			10 stations - good map of sampling locations and chart of sites
b. Monitoring plan has an adequate sampling frequency	yes	3			monthly
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	3			good parameters will measure progress toward "attainment"

Score 76/144

Overall Comments and Recommendations

The quality of this plan is pretty much in line with the majority of submissions I've reviewed to this point. They try to address all of the nine elements - even making headings for each - but fall way short with the load reductions estimates. Obviously this was a good-faith effort to write a quality watershed-based management plan, however they seem to have encountered certain technical deficiencies that could not be overcome. This plan is the perfect candidate for where "good" examples from the better plans can be shared to enhance this plan to a level that is in line with EPA's standards as reflected in the nine elements

Individual Element Subtotal	Score	% Satisfied
Element 1	13	65%
Element 2	0	0%
Element 3	12	50%
Element 4	10	50%
Element 5	12	75%
Element 6/7	12	60%
Element 8	7	35%
Element 9	10	83%

APPENDIX III

Plan 23

Primary Pollutants	sediment and nutrients
Land Uses	Rural, agricultural, animal operations, urban
Pollution Sources	Upland Stormwater runoff, streambank erosion, barnyard runoff, construction sites, urban stormwater runoff

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	4			Watershed-level maps indicating potential pollution sources.
c. Pollution loads are attributed to each source of impairment and quantified	yes	4			Excellent tables indicating pollution loads from by watershed and priority pollution source.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			Goals for each priority pollution source, including both sediment and phosphorus.
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	4			Expected results based on 75% participation of "critical" and "eligible" landowners.
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3			
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	2			Load reductions calculated based on participation levels in "critical" and "eligible" areas. Landowners assumed to chose practices eligible for cost-share assistance. Implementation needs quantified in Table 4.4a-b.
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	2			Unclear what modeling process was used to determine expected load reductions
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			Management measures listed for rural and urban areas.
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	yes	2			Load reductions are not linked to specific management measures. Expected reductions estimated based on participation rates.
d. Critical/Priority implementation areas have been identified	yes	3			"critical" areas identified. Also, areas "eligible" for cost-share assistance identified.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3			good table
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			Annual evaluation and monitoring to determine if any lower level of implementation will achieve load reduction goals. Or, if goals need to be revised to meet WQ standards.

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	yes	3				staff hours, implementation costs, cost-share investment
b. Cost estimates are provided for each management measure	yes	3				
c. All potential Federal, State, Local, and Private funding sources are identified	yes	3				Cost-share investment is fully accounted for, cost-share rates provided for each management measure, discussion of federal programs provided.
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	3				cost-share rate provided for each management measure.
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	4				Excellent economic benefits analysis focused on real estate values.
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	4				all activities linked to watershed goals and objectives, i.e. specific outreach project designed for each watershed objective.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				state, local government, private groups, etc.
b. Public meetings and forums have been/are scheduled to be held	yes	3				workshops, tours, presentations, trainings, one-on-ones
c. Educational/Outreach Materials will be/have been disseminated	yes	3				media, success stories, fact sheets.
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	no	1		Implementation schedule is not specific or neatly defined. Expected accomplishments are not linked to interim dates.	Develop a schedule in a table format that clearly lays out expected accomplishments and interim evaluation dates.	
b. Implementation schedule follows a logical sequence	yes	2				all "critical" and "eligible" landowners notified. The highest ranks will be notified in the first 6 months.
c. Implementation schedule covers a reasonable time frame	yes	3				10 years - all projects finished by 2007
d. Measurable milestones with expected completion dates are identified to evaluate progress	no	0		see a	see a	
e. A phased approach with interim milestones is used to ensure continuous implementation	no	0		see a	see a	
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes	3				Annual reporting from conservation districts and local governments on progress, including many measurable indicators of implementation progress and WQ achievements.
b. Evaluation criteria are measurable and quantifiable	yes	3				Use of models and/or inventory to measure load reduction achievements.
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no	0		No interim WQ milestones provided to help evaluate progress		
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	4				Annual reporting includes measures of overall community acceptance, projects implementation/awareness.
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	2				annual evaluation of goals and WQ progress.

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes	3				in-stream monitoring for 12 stations and signs of success monitoring at specific BMP implementation sites.
b. Monitoring plan has an adequate sampling frequency	yes	3				12 years for in-stream and two years for S.O.S.
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	3				modeling, monitoring, inventory of management measures.

Score 100/144

Overall Comments and Recommendations

Overall, this was a pretty strong plan. The authors did an especially good job in analyzing the sources of pollution, identifying critical areas, suggesting specific management measures, and developing a detailed budget to include both technical assistance needs and budgetary needs. Their analysis of expected load reductions seemed reasonable based on a 75% participation rate, however, they did not provide the modeling method used to calculate these estimations. If provided, this plan would have scored higher with this element. There was also a strong discussion of performance measures, reporting standards, and monitoring protocols which will ensure continued success in Lake Mendota. A specific schedule with milestones is the only area of great weakness, which could be easily fixed by developing a table format with interim milestones and/or water quality criteria.

Individual Element Subtotal	Score	% Satisfied
Element 1	17	85%
Element 2	11	69%
Element 3	16	67%
Element 4	16	80%
Element 5	13	81%
Element 6/7	6	30%
Element 8	12	60%
Element 9	9	75%

Appendix IV:
Evaluations for Plans in Section VI

Plan 7

Primary Pollutants	Sediment
Land Uses	Forest, Grassland, Badlands
Pollution Sources	Stormwater Runoff, Grassland Encroachment, Fires

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			
b. Specific sources of impairment are geographically identified (i.e. mapped)	no	0	No G.I.S. maps provided. May be resource-limited.	Add G.I.S. or other land use maps so readers have a better picture of the vegetative stratification of the watershed, which is described as an important factor in sediment loading problems.	
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			Good table of highest contributors per acre and per year, indicating the most vulnerable land is not necessarily the largest yearly contributor.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			Three different environmental assessments/reports provide baseline information.
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	no	0	Watershed plan indicates TMDL is being developed for sediment, which would provide a load reduction goal. TMDL was not provided or easily accessible via World Wide Web.	Include TMDL as an attachment of section that summarizes TMDL.	
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	0	OVERALL COMMENT: This plan does not estimate baseline loads and thus does not attempt to model expected load reductions as the result of management measures.	Since this is listed as a NPS "Success Story" it is interesting that there are no initial loadings and expected load reductions as the result of management measures. Perhaps this plan was intended to prevent future degradation in this "high" priority watershed (drinking water supply)	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	0			
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0			
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	0			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	0	See 2a	See 2a	
d. Critical/Priority implementation areas have been identified	yes	2			
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	2			Good chart indicating specific reforestation needs on page 8.
f. Adaptive management process in place to evaluate effectiveness of management measures	no	0	No Adaptive management process - or other review process - in place.	Develop an adaptive management process to re-evaluate goals and strategies if monitoring/other reviews yield unacceptable results.	

4. Technical and Financial Assistance Needs							
					Costs only provided for those management measures (reforestation only) that require CWAP funding).	Other projects will require staff time and other resources and should be accounted for in some way.	
a.	Cost estimates reflect all planning and implementation costs	no	1				
b.	Cost estimates are provided for each management measure	no	1		see 4a	see 4a	
c.	All potential Federal, State, Local, and Private funding sources are identified	no	0		see 4a	see 4a	
d.	Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	2				Indicate where CWAP funding will be utilized.
e.	Economic and environmental benefits are discussed and weighed against implementation costs	yes	3				Discussion of value of watershed in terms of water supply.
5. Information, Education, and Public Participation Component							
a.	A Stakeholder outreach strategy has been developed	yes	3				
b.	All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				
b.	Public meetings and forums have been/are scheduled to be held	yes	3				
c.	Educational/Outreach Materials will be/have been disseminated	yes	3				
6/7. Schedule and Milestones							
a.	Implementation schedule includes specific dates and expected accomplishments	yes	2				Some vague dates provided, but no specific timetable with milestones.
b.	Implementation schedule follows a logical sequence	no	0		No sequence at all. No master plan for implementing the different management measures, only an eclectic mix of estimated implementation dates.		
c.	Implementation schedule covers a reasonable time frame	yes	2				
d.	Measurable milestones with expected completion dates are identified to evaluate progress	no	0		Measurable milestones are not provided, with no timetable for implementation or process for evaluation progress.	Milestones and evaluation process are important parts of WB planning, and should be included. Hard to figure how this is a "success story"	
e.	A phased approach with interim milestones is used to ensure continuous implementation	no	0		see above	see above	
8. Load Reduction Evaluation Criteria							
a.	Proposed criteria effectively measure progress toward load reduction goal	no	1		OVERALL COMMENT: No specific evaluation criteria indicated. Monitoring plan on page 8 indicates will monitor for water quality, agr. Plans, tree planting, biological integrity, climate, and drinking water quality. Partial credit for a and d as a result.		
b.	Evaluation criteria are measurable and quantifiable	no	0				
c.	Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no	0				
d.	Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	1				
e.	An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no	0				

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	no	1		OVERALL COMMENT: Monitoring plan is not specific and does not rationalize monitoring procedure. Perhaps another document - if provided - would fill in these details.	
b. Monitoring plan has an adequate sampling frequency	no	1			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no	2			

Score 48/144

Overall Comments and Recommendations

Overall, it seems as though this submission was incomplete. If the watershed plan and TMDL the document mentions are provided, these might fill in some of the holes. However, without this information, this plan is completely inadequate and hard to figure how a 319 "success story" has been submitted for this watershed.

Individual Element Subtotal	Score	% Satisfied
Element 1	9	45%
Element 2	0	0%
Element 3	10	42%
Element 4	7	35%
Element 5	12	75%
Element 6/7	4	20%
Element 8	2	10%
Element 9	4	33%

APPENDIX IV

Plan 11

Primary Pollutants	Fecal Coliform
Land Uses	Pasture, Urban, Cropland, Forest
Pollution Sources	Livestock, Point Source Discharges

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Loadings from NPS calculated with the Watershed Treatment Model. Monitoring data also used for PS.
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2	Land use maps are provided and PS discharges are mapped, but no NPS critical areas are depicted.	Use GIS analysis to determine priority areas of NPS loadings	
c. Pollution loads are attributed to each source of impairment and quantified	yes	2			Need to distinguish between NPS and PS loadings. Also, distinguish between NPS urban, cattle, and cropland
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			Good monitoring data and use of Watershed Treatment Model
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			TMDL based on existing standards and proposed future standards
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	1	Plans targets NPS loadings, but there is no calculation of management measures necessary to achieve the goal.	Perform a needs assessment of NPS management measures and calculate expected reductions based on literature-based reduction efficiencies.	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	2			At the sub-watershed level only
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0	The report suggests management measures for NPS sources, and provides literature-based reduction efficiencies, but includes no analysis of needs and subsequent expected load reductions	Perform a general needs assessment and use a simple spreadsheet format to calculate expected load reductions. Or, use the WT Model to do a scenario analysis of different management schemes to plan for the best mix of management measures.	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	3			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	2			Laundry list of BMP descriptions
b. Proposed management measures are strategic and feasible for the watershed	yes	2			
c. Proposed management measures achieve load reduction goals	no	0	No attempt to quantify needs or expected load reductions	Develop a spreadsheet model or use the WTM for a scenario analysis to estimate pollution reductions and management needs.	
d. Critical/Priority implementation areas have been identified	yes	2			Sub-watershed basis
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no	0	The plan does not provide this level of detail. This is a necessary first step to effectively estimate pollution loads	Implement a visual survey or using WTM scenario analysis to estimate needs	
f. Adaptive management process in place to evaluate effectiveness of management measures	no	0	No management plan in place, therefore no adaptive management process. Indicates the need for adaptive management once BMPS are in place		

4. Technical and Financial Assistance Needs						
					No assessment of management measure needs, therefore no cost estimate. Also, no discussion of sources of funding.	Add needs assessment and estimate costs along with potential funding sources.
	a. Cost estimates reflect all planning and implementation costs	no	0			
	b. Cost estimates are provided for each management measure	no	0		see 4a	see 4a
	c. All potential Federal, State, Local, and Private funding sources are identified	no	0		see 4a	see 4a
	d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no	0		see 4a	see 4a
	e. Economic and environmental benefits are discussed and weighed against implementation costs	no	0		see 4a	see 4a
5. Information, Education, and Public Participation Component						
						Good elements of stakeholder outreach and education, including distinguishing between approaches for urban and agricultural areas
	a. A Stakeholder outreach strategy has been developed	yes	2			
	b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	2			
	b. Public meetings and forums have been/are scheduled to be held	yes	2			
	c. Educational/Outreach Materials will be/have been disseminated	yes	2			
6/7. Schedule and Milestones						
						Schedule is a really a monitoring schedule. Addresses necessary elements, including BMP implementation, monitoring, data collection, BMP assessment.
	a. Implementation schedule includes specific dates and expected accomplishments	yes	2			
	b. Implementation schedule follows a logical sequence	yes	3			
	c. Implementation schedule covers a reasonable time frame	yes	3			
	d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	2			
	e. A phased approach with interim milestones is used to ensure continuous implementation	yes	2			
8. Load Reduction Evaluation Criteria						
					Measurement criteria are only suggested monitoring components, including fecal coliform and habitat. No assessment criteria to evaluate implementation progress or BMP effectiveness	Develop objective criteria to measure mitigation progress in the watershed.
	a. Proposed criteria effectively measure progress toward load reduction goal	no	1			
	b. Evaluation criteria are measurable and quantifiable	no	1		see 8a	see 8a
	c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	0		see 8a	see 8a
	d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no	0		see 8a	see 8a

9. Monitoring Component					
a. Monitoring plan includes an appropriate number of monitoring stations	yes	3			14 instream stations, paired watershed approach
b. Monitoring plan has an adequate sampling frequency	yes	3			2x per month for five years
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes	2			

Score 55/148

Overall Comments and Recommendations

This document is not truly a watershed-based management plan. It is a TMDL, and therefore fails to satisfy many of the nine elements. There is potential for developing a good watershed management plan, including the use of the Watershed Treatment Model to evaluate needs and estimate pollution loads. With some additional work, this could be one of the best plans we've seen. However, much more analysis is needed that will only help guide mitigation efforts in this watershed.

Individual Element Subtotal	Score	% Satisfied
Element 1	13	65%
Element 2	6	38%
Element 3	6	25%
Element 4	0	0%
Element 5	8	50%
Element 6/7	12	60%
Element 8	2	13%
Element 9	8	67%

APPENDIX IV

Plan 12

Primary Pollutants	Fecal Coliform, Nutrients (P&N), Sediment, Metals, Organic Chemicals
Land Uses	Primarily Urban
Pollution Sources	Impervious Surfaces, Stormwater Runoff, Illicit Sewer Connections, Illicit Dumping, Storm Drains, Commercial and Household Chemicals

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	2	"probable" causes identified, but plan calls for more monitoring and evaluation. Plan lists theoretical sources based on literature.	Needs a better assessment to strategically plan remediation activities. Plan does identify needs assessment as key activity in the first two years of implementation.	
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2		After needs assessment, identify priority areas of concern with GIS	stormwater drainage patterns, former Superfund Site, and urban/commercial landuse.
c. Pollution loads are attributed to each source of impairment and quantified	no	0	No loading estimates are provided. Better monitoring data and/or modeling is needed to estimate pollution loads. This will allow for the more immediate implementation of management measures	Use GIS modeling software to estimate pollution loads, then	
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	3			Restore designated uses, protect water quality, outreach and education, enhance habitat
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	1	The Restoration Strategy identifies water quality goals in the form of designated uses - and strategies to improve water quality - but does not quantify a load reduction goal or expected load reductions from management measures.	They have GIS layers - use these layers to model the current loadings and expected load reductions from management measures to develop a measurable load reduction goal and corresponding management strategy.	Restoration Strategy indicates that more monitoring will occur to measure current loadings - might provide data needed to set measurable goals and expected outcomes.
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	0	see 2a	see 2a	
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0	see 2a	see 2a	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	1	see 2a	see 2a	
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			Good mix of structural measures, regulatory analysis/modification, and educational/outreach
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	0	No effort to quantify expected load reductions from management measures or load reduction goal. Also, no estimation of needs and expected implementation levels.	Use modeling software to develop a basic inventory of needs and current loadings. This will allow for effective planning of management measures.	
d. Critical/Priority implementation areas have been identified	yes	2			Prioritization of specific management measures - Highest, High, Priority
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no	1	Lists the kinds of management measures needed to address pollution problems. However, extent of implementation is not quantified at an acceptable rate.	Fully assess all pollution sources and determine needs (i.e. x stormwater retrofits) or use modeling software with GIS interface to assess and estimate.	
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			

4. Technical and Financial Assistance Needs					
a. Cost estimates reflect all planning and implementation costs	yes	2	Cost estimates are good for the first two years - where funding is already secured - but only includes planning, monitoring, and outreach work.	Better assessment of implementation cost needs should be provided	
b. Cost estimates are provided for each management measure	no	0	One cost - only \$344 - for "Water Quality Protection Activities." This is not only an insufficient estimate of implementation costs, but is not detailed enough at the management measure level	Need to provide estimates of implementation needs and projected costs. Could be a table that links to the information still needed for elements 2 and 3.	
c. All potential Federal, State, Local, and Private funding sources are identified	yes	2			Coordination with local government activities, matching funds from NGOs, leveraging of 319 funds
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	2			see 4c
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes	3			Good discussion of recreational values, home property costs, insurance costs (flood mitigation), human health, and environmental values
5. Information, Education, and Public Participation Component					
a. A Stakeholder outreach strategy has been developed	yes	3			
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3			
b. Public meetings and forums have been/are scheduled to be held	yes	3			
c. Educational/Outreach Materials will be/have been disseminated	yes	3			
6/7. Schedule and Milestones					
a. Implementation schedule includes specific dates and expected accomplishments	yes	2			Specific task for years 1&2; expected accomplishments with dates for some management measures; Near-Term, Mid-Term, Long-Term Tasks for each MM
b. Implementation schedule follows a logical sequence	yes	2			
c. Implementation schedule covers a reasonable time frame	yes	2			
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	3			Good Long-Term targets in Appendix B with specific actions and target dates.
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	3			
8. Load Reduction Evaluation Criteria					
a. Proposed criteria effectively measure progress toward load reduction goal	yes	2			Good measures for each Designated Use, though no threshold criteria provided
b. Evaluation criteria are measurable and quantifiable	yes	3			
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes	3			Good measures of how much "citizens know" and how many specific management measures have been implemented, along with WQ measures
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes	2			

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes		3			Good monitoring plan with schedules, monitoring criteria, and suggested procedures.
b. Monitoring plan has an adequate sampling frequency	yes		3			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3			

Score 75/148

Overall Comments and Recommendations

This plan, which consists of three documents, was obviously not written to satisfy the nine elements. It is difficult to determine if one specific document addresses certain elements. Missing from this plan is an actual load reduction goal - a key part to any Watershed-Based Plan. There needs to be loading reduction goals for each primary pollutant that will lead to the current WQ goal of meetin designated uses. Also, there is a lack of assessment of needs and pollution sources which seriously hurts this plan because no expected load reductions have been calculated. There is no concrete assessment of needs for management measures, which hurts in estimated costs and securing funding. These are necessary elements that must be satisfied if this plan is to be successful

Individual Element Subtotal	Score	% Satisfied
Element 1	10	50%
Element 2	2	13%
Element 3	11	46%
Element 4	9	45%
Element 5	12	75%
Element 6/7	12	60%
Element 8	10	63%
Element 9	9	75%

APPENDIX IV

Plan 17

Primary Pollutants	Dissolve Oxygen, Nutrients, Sediment
Land Uses	Grazing, Forest, Agriculture, Marsh, Urban
Pollution Sources	Forest Harvest, Agriculture, Grazing

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			water quality trends, TMDL analysis, description of sources, modeling for priority areas.
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2			subwatershed basis - high priority areas plus areas of highest loading.
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			by subwatershed and overall reduction goal for DO
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	4			67% reduction of nonpoint load
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	0	No expected load reductions are calculated based on needs, expected implementation.	Use modeling software to generate a rough estimate of management measures needed.	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	1	Priority loading areas are identified with AnnAGNPS, but no desired load reductions for each priority sub-watershed.	Estimate levels of necessary pollution control to achieve TMDL goal for each priority sub-watershed.	
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0	Management measures are identified and rationalized, but no quantification of expected implementation or anticipated pollution reduction.	Use AnnAGNPS to estimate level of management needed and expected load reductions.	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	2			Good modeling process.
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	0	Management measures are identified and rationalized, but no quantification of expected implementation or anticipated pollution reduction.	Use AnnAGNPS to estimate level of management needed and expected load reductions.	
d. Critical/Priority implementation areas have been identified	yes	4			Excellent use of AnnAGNPS to identify critical areas based on different evaluation criteria, including k-factor, steepness, etc.
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no	0	see 3c	see 3c	
f. Adaptive management process in place to evaluate effectiveness of management measures	no	0	No process described for phased implementation and re-evaluation.	Develop an adaptive management process to evaluate the progress of implementation and revise as necessary	

4. Technical and Financial Assistance Needs							
a. Cost estimates reflect all planning and implementation costs	no		0	No discussion of cost and/or implementation needed	Along with estimates of expected management measures, this plan needs to estimate the expected cost of implementation.		
b. Cost estimates are provided for each management measure	no		0	see 4a	see 4a		
c. All potential Federal, State, Local, and Private funding sources are identified	yes		3				Description of different Federal and State programs/funding options.
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no		0	see 4a	see 4a		
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		0	see 4a	see 4a		
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	no		1	Mentions briefing the outreach component in the "Mast Farmers" state program, but not many specific details	Develop an outreach and education strategy for communicating effectively with watershed stakeholders.		
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		3				Inter-parish coordination, involvement of various federal and state agencies.
b. Public meetings and forums have been/are scheduled to be held	no		0	see5a	see5a		
c. Educational/Outreach Materials will be/have been disseminated	no		0	see5a	see5a		
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes		2				Yearly breakdown with broad milestones such as "implement plan"
b. Implementation schedule follows a logical sequence	yes		3				
c. Implementation schedule covers a reasonable time frame	yes		3				
d. Measurable milestones with expected completion dates are identified to evaluate progress	no		1	No real measurable milestone. Schedule lays out the different elements -including developing the TMDL - but no milestones for implementation (e.g. x miles of streambank restored)	Enhance the "implementation" part of the schedule to include more tangible milestones that can help evaluation progress along the way.		
e. A phased approach with interim milestones is used to ensure continuous implementation	yes		2				
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes		3				Water quality parameters measure water health and pollutant levels of those contributing to low DO
b. Evaluation criteria are measurable and quantifiable	yes		3				
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no		0	No discussion of monitoring implementation progress or public support and buy-in			
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no		0	No on-going monitoring process is discussed - evaluation criteria are for the initial water quality testing and assumed to be the same for ongoing monitoring			

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes	2				9 stations maintained by LA DEQ
b. Monitoring plan has an adequate sampling frequency	no	1		No specific monitoring plan in place for evaluating progress. Assume LADEQ will continue efforts, but no indication of specific monitoring for implementation progress and/or revision.		Needs a monitoring plan that addresses the goals and objectives of this Watershed Plan. If continuing LA DEQ monitoring, provide specific details and how results might result in the alteration of the plan.
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no	1				
		Score	56/144			

Overall Comments and Recommendations

This was a hard plan to evaluate. There were some very good things done in developing the plan, especially using the AnnAGNPS model to determine priority subwatersheds. However, more needs to be done toward estimating management needs and expected pollution reductions. Also, there needs to be more done toward developing a monitoring plan, which is not explicitly described in this document. Additionally, this document lacks any cohesive education and outreach strategy, a rare characteristic among the plans I've read so far.

Individual Element Subtotal	Score	% Satisfied
Element 1	15	75%
Element 2	3	19%
Element 3	10	42%
Element 4	3	15%
Element 5	4	25%
Element 6/7	11	55%
Element 8	6	38%
Element 9	4	33%

APPENDIX IV

Plan 18

Primary Pollutants	Sediment
Land Uses	Residential Development
Pollution Sources	Unpaved Roads and Development Sites

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Both the Community perspective and Technical perspective are discussed
b. Specific sources of impairment are geographically identified (i.e. mapped)	no	0	Indicates there is a map (Figure 2), but not found in the document submitted. Mentions GIS mapping as part of implementation process.	Purse GIS mapping as a primary step in the Phase I implementation	
c. Pollution loads are attributed to each source of impairment and quantified	yes	2			Current studies at Fish Bay and Lameshur Bay compare sediment loading rates.
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	2			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	no	0	No overall mitigation goal, plan actually says there are no WQ violations and still "relatively unpolluted." This plan is more to head off the impacts of future development		
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	0	OVERALL COMMENT FOR ELEMENT II: This plan lays out no pollution reduction goals, makes not attempt to quantify management needs, estimate pollution removal efficiency, or calculate expected load reductions. Thus, the 4 zeros.	It is unclear whether, during implementation Phase I or II, a more detailed implementation plan will be developed. Nothing indicates something like this is forthcoming. As such, for planning purposes, this plan needs to perform a more thorough assessment of needs and attempt to calculate expected load reductions	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	0			
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0			
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	0			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			Obviously this plan is focused on unpaved, eroding roads and driveways, and the management measures suggested here are thorough and strategic for this "primary" pollution source.
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	0	see 2a		
d. Critical/Priority implementation areas have been identified	no	1	Plan indicates the need to target the most severely degraded roads first, but does not specifically identify them.	During subsequent phases of implementation, use G.I.S. software to identify priority/critical areas.	
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no	0	see 2a		
f. Adaptive management process in place to evaluate effectiveness of management measures	yes	2			Phase III - living document, re-evaluation

4. Technical and Financial Assistance Needs							
					OVERALL COMMENTS FOR ELEMENT IV: Since it lacks sufficient Element 2 information, this plan does not (and can not) attempt to estimate costs or identify potential sources of funding. Additionally, there is no discussion of benefits to the community in the context of implementation costs.		
a. Cost estimates reflect all planning and implementation costs	no		0				
b. Cost estimates are provided for each management measure	no		0				
c. All potential Federal, State, Local, and Private funding sources are identified	no		0				
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no		0				
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		0				
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes		3				
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		3				Table 1 identifies leads for each relevant agency/organization
b. Public meetings and forums have been/are scheduled to be held	yes		3				meetings and trainings held by different Stakeholder groups
c. Educational/Outreach Materials will be/have been disseminated	yes		3				updating and continued dissemination of documents
6/7. Schedule and Milestones							
a. Implementation schedule includes specific dates and expected accomplishments	yes		3				Schedule for phase I-III; each task charted for monthly/yearly progress. Expected accomplishments weak in some cases
b. Implementation schedule follows a logical sequence	yes		3				
c. Implementation schedule covers a reasonable time frame	yes		3				
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes		2				Milestones not necessarily provided, but monthly breakdown shows when each task will be finished.
e. A phased approach with interim milestones is used to ensure continuous implementation	yes		3				
8. Load Reduction Evaluation Criteria							
					OVERALL COMMENT FOR ELEMENT VIII: No indication of what criteria will be used to monitor progress or whether there are certain levels of sediment that will indicate a problem. Mentions one study that measures sediment loading and turbidity, but not in context of evaluating progress for this plan.	This plan will not be effective unless there are measurable, specific criteria to measure progress. Again, they might need to determine what "progress" is first.	
a. Proposed criteria effectively measure progress toward load reduction goal	no		0				
b. Evaluation criteria are measurable and quantifiable	no		0				
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no		0				
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no		0				
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no		0				

9. Monitoring Component					
				OVERALL COMMENT FOR ELEMENT IV: This plan does not have a specific monitoring component in place, but does recognize the need to develop an effective monitoring component.	Monitoring plan should be detailed with specific evaluation criteria - this plan will be a lot better when this part is done.
a. Monitoring plan includes an appropriate number of monitoring stations	no		1		
b. Monitoring plan has an adequate sampling frequency	no		1		
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no		1		

Score 45/144

Overall Comments and Recommendations

This plan is incomplete. The building blocks for an effective management strategy are there, but too many of the elements EPA looks for in WB plans have been planned for future activities. This may end up being a common theme as we go through, and subsequent companion documents may boost the overall ratings. Also, I'm not necessarily convinced this is the "best" plan for this State. The first sentence says the watershed is "relatively unpolluted" and does not indicate the violation of any WQ standards or impending TMDL. I understand they are trying to avoid future WQ problems, but wonder if there is a better, more complex watershed plan for EPA to review.

Individual Element Subtotal	Score	% Satisfied
Element 1	7	35%
Element 2	0	0%
Element 3	9	38%
Element 4	0	0%
Element 5	12	75%
Element 6/7	14	70%
Element 8	0	0%
Element 9	3	25%

APPENDIX IV

Plan 20

Primary Pollutants	Nitrogen, Phosphorus, Sediment, Fecal Coliform
Land Uses	Primarily Developed
Pollution Sources	Urban Stormwater Runoff

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Urban stormwater runoff, high development, lack of riparian buffers
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	2			By subwatershed only
c. Pollution loads are attributed to each source of impairment and quantified	yes	3			Simple method to determine pollution loads at watershed, subwatershed, and catchment level
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	3			
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	no	0	Neither document expresses a desired level of pollution control. Loads are provided with suggested management measures, but no goal to plan and/or measure performance against.	Mitigation goal is a necessary part of an effective management strategy in order to both benchmark current conditions and evaluate progress.	
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no	0	OVERALL COMMENT: Not effort made to estimate desired mitigation goals or expected pollution reductions. Management measures are discussed, but with no goal to measure progress against. No plan for evaluating expected impact of recommended actions.		
b. Desired load reductions are quantified for each source of impairment identified in Element 1	no	0			
c. Expected load reductions are estimated for each management measure identified in Element 3	no	0			
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	no	0			
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			
b. Proposed management measures are strategic and feasible for the watershed	yes	3			
c. Proposed management measures achieve load reduction goals	no	0	see 2a		
d. Critical/Priority implementation areas have been identified	yes	4			16 priority projects/areas detailed at the tail end of the implementation plan
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3			management measures for each catchment are detailed and linked to WQ impairments.
f. Adaptive management process in place to evaluate effectiveness of management measures	no	0	No adaptive management process in place. No real goal or expected load reductions.	This plan is severely lacking in all evaluation components.	

4. Technical and Financial Assistance Needs							
					OVERALL COMMENT: No discussion of expected costs, potential sources of funding, strategic allocation of funds, or benefits relative to expenditures. Completely lacking from this (these) documents.		
a. Cost estimates reflect all planning and implementation costs	no		0				
b. Cost estimates are provided for each management measure	no		0				
c. All potential Federal, State, Local, and Private funding sources are identified	no		1				partial credit for recommending sources of funding for future monitoring activities
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	no		0				
e. Economic and environmental benefits are discussed and weighed against implementation costs	no		0				
5. Information, Education, and Public Participation Component							
a. A Stakeholder outreach strategy has been developed	yes		3				publications, outreach effectiveness survey, distribution of CDs, website demonstrations
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		3				Citizen groups, local government.
b. Public meetings and forums have been/are scheduled to be held	no		1		No public meetings or other events mentioned	Vital component to ensure residents are fully engaged	
c. Educational/Outreach Materials will be/have been disseminated	yes		3				
6/7. Schedule and Milestones							
					OVERALL COMMENT: No proposed schedule or milestones provided. This is consistent with this plans lack of clear goals and expected outcomes.		
a. Implementation schedule includes specific dates and expected accomplishments	no		0				
b. Implementation schedule follows a logical sequence	no		0				
c. Implementation schedule covers a reasonable time frame	no		0				
d. Measurable milestones with expected completion dates are identified to evaluate progress	no		0				
e. A phased approach with interim milestones is used to ensure continuous implementation	no		0				
8. Load Reduction Evaluation Criteria							
a. Proposed criteria effectively measure progress toward load reduction goal	yes		3				water quality database for fecal coliform and other parameters
b. Evaluation criteria are measurable and quantifiable	yes		3				water quality database for fecal coliform and other parameters
c. Interim WQ indicator milestones are clearly identified. (The indicator parameters can be different from the WQ standard violation)	no		0		see 6/7a		
d. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes		3				NPS Outreach survey results measures residential awareness, acceptance and attitudes
e. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no		0		No adaptive management process in place		

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes		3			Monitoring is presented as a key component of this strategy, including securing sources of funding for future activities and piggy-backing on current/past efforts
b. Monitoring plan has an adequate sampling frequency	yes		3			
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		3			

Score 53/144

Overall Comments and Recommendations

This was not a very well-written plan for a number of reasons. To begin with, many of the nine elements were not fulfilled. It did a good job of targetting magement measures for specific pollution sources, establishing WQ evaluation criteria, education and outreach, and a monitoring plan. However, this plan lacks any mechanism for evaluating progress and implementing modifications based on progress. There is not specific WQ goal, no evaluation of the expected impact of management measures, no estimation of costs, no schedule or milestones for evaluating progress, and - perhaps most importantly - no adapative management proces for implementing changes if needed.

Individual Element Subtotal	Score	% Satisfied
Element 1	11	55%
Element 2	0	0%
Element 3	13	54%
Element 4	1	5%
Element 5	10	63%
Element 6/7	0	0%
Element 8	9	45%
Element 9	9	75%

APPENDIX IV

Plan 22

Water Quality Issue	Sediment, BOD, Nitrogen, Phosphorus
Land Uses	Agriculture, Livestock, Urban
Pollution Sources	Ag. Fields, Livestock, Stream Banks, Urban Runoff

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (if Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment					
a. Sources of impairment are identified and described.	yes	3			Good inventory
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes	1	Good use of maps, but scale is an important issue. This is too large of a study area to get into the specifics needed here. Hard to say where the sources are geographically	Break out each priority watershed identified on page 2 into a plan of it's own. This will allow for more specific planning efforts and will better fulfill the elements	
c. Pollution loads are attributed to each source of impairment and quantified	no	1	Not quantified for each source, only expected reductions. Need to have a baseline assessment, which I think might be impossible at this scale	Break out each priority watershed identified on page 2 into a plan of it's own. This will allow for more specific planning efforts and will better fulfill the elements	
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes	4			Excellent sources of data, provides the flexibility to be updated
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes	1	TMDLs have been developed for each watershed, but no overall goal for this huge area. TMDLs need to be individualized and plans need to be completed for each TMDL	Break out each priority watershed identified on page 2 into a plan of it's own. This will allow for more specific planning efforts and will better fulfill the elements	
2. Expected Load Reductions					
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	yes	1	Hard to evaluate this. There are so many TMDLs in this implementation area.	Again, this needs to be many little plans and not one big one.	
b. Desired load reductions are quantified for each source of impairment identified in Element 1	yes	3			
c. Expected load reductions are estimated for each management measure identified in Element 3	yes	2			Assume the management measures identified in section 2 lead to the reductions calculated in section 3.
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes	4			Excellent sources of data, Good use of the Region 5 Model provided by EPA
3. Proposed Management Measures					
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes	3			Good descriptions in the PIPs on needs and plans
b. Proposed management measures are strategic and feasible for the watershed	yes	1	Hard to assess without expected outcomes and load reduction goals		
c. Proposed management measures achieve load reduction goals	no	1	Unclear as to what the load reduction goals are. The PIPs identify the problems and solutions for those problems, but does not quantify the effect of the Management measures or propose a water quality/load reduction goal	Need to lay out the specific load reduction goals and attempt to quantify how far the management measures will move the watershed toward the goal	
d. Critical/Priority implementation areas have been identified	no	0	No identification of Critical Areas or Priority Implementation areas	Use GIS or other mapping software to identify critical areas, used a phased approach to target critical areas	
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	yes	3			
f. Adaptive management process in place to evaluate effectiveness of management measures	no	0	No process identified for re-assessing plan	This is a vital component	

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	yes	3				Good detailed budgets in PIPs
b. Cost estimates are provided for each management measure	yes	3				Good detailed budgets in PIPs
c. All potential Federal, State, Local, and Private funding sources are identified	yes	3				Good analysis of potential funding sources
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes	3				Good allocation of resources for intended use
e. Economic and environmental benefits are discussed and weighed against implementation costs	no	0		No attempt at cost-benefit analysis or willingness to pay for water quality	Add section that characterizes the local economy and weighs the importance of water quality in the local community	
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes	3				Outreach and education a major strategy in all PIPs
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes	3				Good list of participants at the end of each PIP
b. Public meetings and forums have been/are scheduled to be held	yes	2				Outreach and education a major strategy in all PIPs
c. Educational/Outreach Materials will be/have been disseminated	yes	2				Outreach and education a major strategy in all PIPs
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	yes	1		Yes, there are dates and expected accomplishments, but they seem arbitrary. For example, 50% by 2005, 100% by 2010 is not specific enough.	Schedule needs to be more detailed. Perhaps provide the TMDL schedule with the plan to give more context.	
b. Implementation schedule follows a logical sequence	yes	2				Based on TMDL schedule apparently
c. Implementation schedule covers a reasonable time frame	yes	3				Based on TMDL schedule apparently
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes	1		Milestones are too arbitrary and too few and far between. Milestones are not linked to water quality goals, standards, etc.	Need to set even more interim milestone to ensure continuous assessment of progress	
e. A phased approach with interim milestones is used to ensure continuous implementation	yes	1		see immediately above	see immediately above	
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes	1		I don't understand how some of these criteria will be tracked. If monitoring will be occurring, why use a model? Why not use the model to plan an effective strategy? Also, how is 303 (d) listing a criteria. Don't you need criteria evaluate whether a waterbody should be delisted?	Develop specific concentration levels and link to your extensive monitoring program	
b. Evaluation criteria are measurable and quantifiable	yes	2				Quantifiable, yes, measurable, yes. But don't really serve the intended purpose. See immediately above.
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	no	0		No qualitative measures	Need some measure of public buy-in and support	
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	no	0		No process identified for re-assessing plan	This is a vital component	

9. Monitoring Component						
a. Monitoring plan includes an appropriate number of monitoring stations	yes	3				
b. Monitoring plan has an adequate sampling frequency	yes	2				No mention of actual frequency, assumed to be part of their established network.
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	no	0	Criteria will not be evaluated through monitoring. Criteria indirectly evaluated by delisting on 303(d).	Better linkage between criteria and monitoring needs to be thought out.		

Score 66/148

Overall Comments and Recommendations

Overall, this is not a very detailed or well-done plan. It seems as though this is an attempt to meet the "9 elements" standard with the least amount of work possible. This is evident in the fact that the watershed in question has 24 TMDLs and covers an area roughly the size of New Jersey. The scale is way too large, leading to a disjointed and unorganized plan. It is nearly impossible to evaluate the effectiveness of proposed management measures or even compare them to a water quality goal because there are 24 TMDLs being addressed through this plan. There is an obvious attempt to address each of the nine elements, yet they are not addressed very well.

Individual Element Subtotal	Score	% Satisfied
Element 1	10	50%
Element 2	10	63%
Element 3	8	33%
Element 4	12	60%
Element 5	10	63%
Element 6/7	8	40%
Element 8	3	19%
Element 9	5	42%

Addendum:

Evaluation for Aquilla Reservoir (Texas)

State	Texas
Watershed	Aquilla Reservoir
Region	Region 6
Date	Dec-05
Author(s)	TSSWCB, TNRCC

Primary Pollutants	Atrazine
Land Uses	pastureland, row crops, rangeland
Pollution Sources	Agricultural Nonpoint Sources

Elements and Evaluation Criteria	Satisfied	Level of Satisfaction	Page Reference	How Did The Plan Satisfy or Fail to Satisfy this Evaluation Criteria?	How Can The Plan Improve this Element (If Applicable) ?	Other Notes and Comments
1. Identification of Causes & Sources of Impairment						
a. Sources of impairment are identified and described.	yes		3 pgs. 3-6			Good analysis to determine the subwatersheds that are likely the major sources of atrazine.
b. Specific sources of impairment are geographically identified (i.e. mapped)	yes		2 pg. 3	Good identification of sub watersheds, but no map provided.	Use G.I.S. or other applicable mapping system to help plan.	
c. Pollution loads are attributed to each source of impairment and quantified	yes		2 pgs. 3-4	Indicates all loading comes from non-point sources.	Better description of the types of nonpoint sources would make this a great component of this plan	
d. Data sources are accurate and verifiable, assumptions can be reasonably justified	yes		3 pgs. 3-6			Good use of land use coverage analysis
e. Watershed-level estimate of necessary pollution control is provided (i.e. overall load reduction goal)	yes		4 pg. 4			25% - hard to do in this context (concentration is the controlling factor) appreciate the effort
2. Expected Load Reductions						
a. Load reductions achieve environmental goal (e.g. TMDL allocation)	no		1	No analysis performed to estimate the expected outcome from current and future implementation of management measures. Indicates that monitoring will help inform these assumptions and estimates.	Modeling software should be used in this watershed to determine how far they've come so far in order to make wise management decisions in the future. Especially important here since many management measures have already been implemented - need to make wise decisions with future funds.	
b. Expected load reductions are quantified for each source of impairment identified in Element 1	no		1	See 2a - "All nonpoint sources" so this is pretty easy.	Better discussion of types of sources - e.g. row crops? Eroding stream banks? Etc.	
c. Expected load reductions are estimated for each management measure identified in Element 3	no		1	see 2a	see 2a	
d. Data sources and/or modeling process are accurate and verifiable, assumptions can be reasonably justified	yes		3			Good tracking of current implementation though applications for different sources of funding
3. Proposed Management Measures						
a. Specific management measures are identified and rationalized (i.e. why this management measure will help achieve goals)	yes		3 pgs. 4-6			
b. Proposed management measures are strategic and feasible for the watershed	yes		3 pgs. 4-6			
c. Proposed management measures achieve load reduction goals	no		1	No analysis to evaluate the expected results of implementation.	This is especially necessary since so much work has been done already. Need to make strategic implementation decisions in light of the current level of conservation effort.	
d. Critical/Priority implementation areas have been identified	yes		2 pgs. 3	Identification of priority sub-watersheds		
e. The extent of expected implementation is quantified (e.g. x miles of streambank fenced, etc.)	no		0	This is completely missing from this plan. This analysis is necessary to make wise planning decisions	Needs assessment should be carried out to better estimate expected costs and payoffs	
f. Adaptive management process in place to evaluate effectiveness of management measures	yes		4 pgs. 8-11			This is an excellent example of an adaptive management process. It starts with the least regulatory solutions, and plans for contingencies to gradually ratchet up the "stick" if WQ goals aren't achieved. This should be a model for other pesticide-based plans.

4. Technical and Financial Assistance Needs						
a. Cost estimates reflect all planning and implementation costs	no		0			
b. Cost estimates are provided for each management measure	no		0			
c. All potential Federal, State, Local, and Private funding sources are identified	yes		4	pg. 4-5		Excellent tracking of applications for EQIP, CRP, WRP, and 319 funding applications
d. Funding is strategically allocated - activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share)	yes		3	pg. 4-5		Good mix of federal funds.
e. Economic and environmental benefits are discussed and weighed against implementation costs	yes		4	pg. 4-5		Study underway to analyze the farm-level profitability implications of management measures and the effectiveness of alternative BMPs.
5. Information, Education, and Public Participation Component						
a. A Stakeholder outreach strategy has been developed	yes		2	pgs. 4-6, 13-14		Progress reports at CEU meetings, stakeholder surveys, TCE public education campaign.
b. All relevant stakeholders (i.e. State, Federal, Local, Private) are identified and involved in outreach process	yes		2	pgs. 4-6, 13-14		
b. Public meetings and forums have been/are scheduled to be held	yes		3	pgs. 4-6, 13-14		
c. Educational/Outreach Materials will be/have been disseminated	no		1	pgs. 4-6, 13-14	No indication of document dissemination, but may be implicit in the educational outreach campaign.	If they haven't already, develop informational pieces and mass mailings.
6/7. Schedule and Milestones						
a. Implementation schedule includes specific dates and expected accomplishments	yes		3	pgs. 8-11		
b. Implementation schedule follows a logical sequence	yes		4	pgs. 8-11		Excellent use of adaptive management. Start with voluntary measures and slowly ratchet up to cancellation of the product if water quality goals are met.
c. Implementation schedule covers a reasonable time frame	yes		3	pgs. 8-11		
d. Measurable milestones with expected completion dates are identified to evaluate progress	yes		4	pgs. 8-11		Good monitoring criteria that will be evaluated at the two-year benchmark
e. A phased approach with interim milestones is used to ensure continuous implementation	yes		4	pgs. 8-11		Excellent phased approach that allows time to evaluate the water quality impacts while allowing for adaptive management if goals aren't achieved.
8. Load Reduction Evaluation Criteria						
a. Proposed criteria effectively measure progress toward load reduction goal	yes		2	pgs. 12-14		Atrazine concentrations and effectiveness/implementation of BMPs
b. Evaluation criteria are measurable and quantifiable	yes		2	pgs. 12-14		
c. Criteria include both: quantitative measures of implementation progress and pollution reduction; and qualitative measures of overall program success (including public involvement and buy-in)	yes		3	pgs. 12-14		Monitor both programmatic and environmental progress
d. An Adaptive Management approach is in place, with threshold criteria identified to trigger modifications	yes		4	pgs. 8-11		Excellent - lauded above

9. Monitoring Component				
a. Monitoring plan includes and appropriate number of monitoring stations	yes		2 pgs. 12-14	Number of monitoring stations is not indicated, only says "will monitor"
b. Monitoring plan has an adequate sampling frequency	yes		3 pg. 12	Monthly, then quarterly if goals are achieved
c. Monitoring plan will effectively measure evaluation criteria identified in Element 8	yes		2 pgs. 12-14	atrazine concentrations

Score 88/148

Overall Comments and Recommendations

This is a short plan, but it surprisingly addresses many of the nine elements very well. The content is very rich with information, wasting little space on theory or other nonsense considerations. This plan would benefit immensely from a collection/analysis of the information submitted to the State and NRCS through funding applications/reports. This would provide the majority of information it's missing, including an estimate of management practices needs and expected costs. Also, there is a need to use a simple model to estimate the extent to which BMPs implemented will achieve water quality goals.

Individual Element Subtotal	Score	% Satisfied
Element 1	14	70%
Element 2	6	38%
Element 3	13	54%
Element 4	11	55%
Element 5	8	50%
Element 6/7	18	90%
Element 8	11	69%
Element 9	7	58%