

## **Review of Watershed Restoration Action Plan for Outlet San Antonio (USFS WRAP)**

### **GENERAL COMMENTS:**

The United States Department of Agriculture Forest Service (USFS) has prepared a watershed restoration action plan (WRAP) for the Outlet San Antonio watershed. The WRAP was created under the Watershed Condition Framework, a USFS effort to provide a consistent process to classify and restore watershed health in national forests and grasslands. The WRAP is a programmatic document that describes watershed conditions, provides an assessment of relative watershed health, and prescribes possible management measures to restore or maintain the watershed. This document is similar to watershed based plans written under the Nine Key Elements of the Environmental Protection Agency's (EPA) Clean Water Act Section 319 Nonpoint Source Pollution Program. The WRAP was not written to directly address EPA's nine key elements of watershed planning, but the New Mexico Environmental Department (NMED) requested that EPA Region 6 review the WRAP to see if it could satisfy the requirements to be accepted as an EPA 319 Watershed based Plan (WBP). The WBP is concise, clearly written, contains useful data and background information on the watershed, and summarizes the watershed based planning goals and objectives.

Specific review comments and suggestions are included below in red for each of the nine key elements. This review document could potentially be used as a guide to revise the WRAP document in order to create a WBP that satisfies EPA's nine key elements. EPA Region 6 is very encouraged to see the USFS take such an active role in implementing watershed based planning into their national forests and grasslands. While the WRAP document was not written under an EPA framework and does not fully satisfy the nine key elements in its current form, it would make an excellent foundation for a future WBP document if USFS, NMED, or a watershed group were to choose to make some additions/revisions to the current document. EPA Region 6 hopes that this review will provide some guidance toward making a future WBP based on this WRAP possible.

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## Element A

*An identification of the causes and sources or groups of similar sources that will need to be controlled to achieve the load reductions estimated in this watershed based plan (and to achieve any other watershed goals identified in the watershed based plan), as discussed in item (b) immediately below. Sources that need to be controlled should be identified at the significant subcategory level with estimates of the extent to which they are present in the watershed (e.g., including a rough estimate of the number of cattle per facility; Y acres of row crops needing improved nutrient management or sediment control; or Z linear miles of eroded stream-bank needing remediation).*

Element A serves as the cornerstone for the logical development of the remaining eight elements. Good sampling data collected through an appropriate water quality monitoring program, field surveys, and land-use characterization, are necessary to identify and quantify the sources of pollution. The data serve as a baseline from which to determine whether water quality goals have been met. Sufficient time and funds should be allocated to develop good information and data before moving forward to developing element B.

### A. Causes/Sources of Pollution Identified

Causes/sources of pollution that need to be controlled to meet watershed goals should be identified.

- a. Are sources of pollution identified, mapped and described? Are causes identified?  
**Yes, sources of NPS pollution are identified, but they are not mapped in the watershed or described in significant detail to the category and subcategory level of each NPS pollutant source. The document addresses the temperature and turbidity impairments. The causes of NPS impairments are attributed to channel shape and function, poorly maintained roads, and absence of riparian vegetation as the primary sources of NPS pollutants. The sources and causes should be mapped and described in more detail in order to fully satisfy this element.**
- b. Are loads from identified sources quantified?  
**No NPS pollutant loads are given and this is required to satisfy this element. NPS pollutant loadings and necessary load reductions are not broken down at the watershed or subwatershed scales and loads attributed to specific sources are not provided.**
- c. Are there any sub-watershed areas? If so, are the sources broken down to the sub-watershed level?  
**No subwatershed areas are provided and therefore the sources are not broken down at the subwatershed level. The watershed appears to be relatively small and may be able to satisfy this element if the NPS sources and loadings are identified, mapped, and described throughout the watershed.**

- d. Are data sources, estimates and assumptions sufficient, cited and verifiable?  
 These data were collected in accordance with the USFS watershed condition framework. The plan does not report specific NPS pollutant loading values, but the information that is included is verifiable. NPS loadings and necessary load reductions to achieve water quality standards should be incorporated into this WRAP.
- e. Are existing data gaps identified? Is there a plan to address data gaps? Are data gaps significant enough to delay implementation?  
 No, data gaps are not identified in this plan and there is no plan to address data gaps. Data gaps include loadings and necessary load reductions for the NPS pollutants that have lead to the impairments of Temperature and Turbidity. The data gaps may delay implementation significantly since these data are required in order to gauge progress of management measures.

### **Element B**

*An estimate of the load reductions expected for the management measures described under paragraph (c) below (recognizing the natural variability and the difficulty in precisely predicting the performance of management measures over time). Estimates should be provided at the same level as in item (a) above (e.g., the total load reduction expected for row crops; eroded streambanks, etc.).*

Numerous models are available to determine which BMPs are more appropriate for reducing pollutant loads and to aid in selecting locations most likely to achieve greatest load reductions. All models have limitations, but the utility of models is optimized when good data are used. Sufficient allocation of time, resources and funding are necessary to achieve this element of the WBP before moving to Element C. The likelihood of achieving water quality improvements and standards attainment relies heavily on Element B.

#### **B. Expected Load Reductions for Solutions Identified**

- 1. Are expected load reductions analyzed to ensure water quality standards and/or other goals will be achieved?  
 No load reduction targets are given. The plan does provide management recommendations that will help to reduce NPS pollutants, and while these actions will likely work, they are too vague and do not address the issue of how much load reduction is required to reach the water quality standards. EPA requires more detail when analyzing load reductions and they should be broken down by subwatershed, by impairment type, and each prioritized source should be detailed by its individual loading and its required load reduction to contribute to the overall restoration target for the watershed.
- 2. Are expected load reductions linked to a pollution cause/source identified in Element A?  
 No load reduction targets are given. The plan should ultimately detail the prioritized restoration sites, their respective loadings, suggested BMPs, expected

load reductions, and potentially the timeframe and cost associated with remediating each site.

3. Is the complexity of modeling used appropriate for the watershed characteristics, the scale and complexity of the impairment, and the extent of water quality data identified in Element A?

Modeling is not used in this plan.

4. Is the basis of the load reduction effectiveness estimate(s) thoroughly explained?  
No. As no load reduction goals are given, this cannot be evaluated.

5. Are estimates, assumptions, and other data used in the analysis cited and verifiable?

See above.

### **Element C**

*A description of the NPS management measures that will be implemented to achieve the load reductions estimated under paragraph (b) above (as well as to achieve other watershed goals identified in this watershed based plan), and an identification (using a map or a description) of the critical areas in which those measures will be needed to implement this plan.*

Over the years, much research has been documented to provide the information needed to identify and target needed BMPs. If targeted at key land uses and parcels of land that are contributing significant pollutant loadings to the streams, these BMPs should achieve the load reductions needed to attain water quality standards. This is contingent on the thorough development of elements A and B. Element C is critical to achieving the load reductions needed in the waterbody to attain water quality standards. Waterbody load reductions will be dependent on the use of sufficient water quality data and appropriate modeling for determining BMP type and location.

#### C. Nonpoint Source Management Measures Identified

1. Does the plan list and describe BMPs that will address the causes/sources of pollution identified in Element A?

Yes, but not in sufficient detail to satisfy this element. The plan lists projects to improve water quality that could be achieved by implementing BMPs but very few specific BMPs are mentioned. For example, the plan states that its first recommended action is "In-stream channel restoration" and lists that the project activities will result in addressing stream morphology, increasing pool to riffle ratio, and recruitment of woody debris. These are goals and not specific BMPs to address causes/sources of pollution. Some of the projects do list specific BMPs (install livestock exclosures, plant riparian vegetation, etc.), but EPA recommends that the plan be revised to include a more detailed list of implementable, instream BMPs that will directly address the causes/sources of NPS pollution and achieve load reduction goals. Technical lists of BMPs are available online from EPA and other sources such as NRCS.

2. Are the expected BMPs mapped in the watershed? Have critical and priority areas been identified?

No. The BMPs are not explicitly mapped in the watershed. EPA recommends adding in a map or altering a previous one to show potential BMP location for nutrient impairments in priority areas. Additionally, the plan does not prioritize critical or priority areas that should be addressed first. For example, if the highest NPS pollutant loadings are due to road runoff from poorly maintained roads, then areas in the watershed with poorly maintained roads should be prioritized as “NPS hotspots” and addressed first.

3. Is the rationale given for the selection of BMPs? Are selection methods documented?

No explicit selection rationale is given as very few specific BMPs are chosen and presented.

4. Are BMPs applicable to the pollutant causes and sources? Are they feasible and can they be linked to load reductions in the impaired waterbody?

The few specific BMPs mentioned are applicable to the pollutant causes and sources. However, more information needs to be included for specific BMPs to be implemented at each priority site in order to fully satisfy this part of Element C. The goals and objectives listed in this WRAP should result in load reductions if appropriate BMPs are chosen to achieve the objectives. However, in order to satisfy this element of EPA’s watershed based planning, there needs to be more detail and description of NPS loadings, necessary load reductions, as well as a detailed list and siting of BMPs and their expected load reductions in a prioritized ranking of subwatershed-scale areas.

5. In selecting and siting the BMPs at the sub-watershed level, are the estimates, assumptions and other data used in this analysis technically sound?

BMPs are not selected and sited at the subwatershed level, so this cannot be evaluated.

## **Element D**

*An estimate of the amounts of technical and financial assistance needed, associated cost, and/or the sources and authorities that will be relied upon, to implement this plan. Expected sources of funding, States should consider Section 319 programs, State Revolving Funds, USDA's EQIP and CRP, and other relevant Federal, State, local and private funds to assist in implementing this plan.*

Thorough characterization and understanding of the baseline conditions of the watershed – as defined and identified in elements A-C – will provide the necessary basis for determining the appropriate technical and financial needs to support the implementation actions of the watershed plan. Support from various funding sources will leverage 319 funds and increase the likelihood for success. WBPs should describe available funding sources and how they will be secured. Any leveraging of funding and collaboration concerning technical and financial aspects are a plus and should be included.

### D. Technical and Financial Assistance

1. Estimate of Technical Assistance Needed

- a. Are sources of technical assistance included?

Needs for technical assistance are documented, and sources are listed.

- b. Does the WBP describe the anticipated involvement of assisting agencies, watershed groups or volunteers?  
The essential projects section lists partners and their expected financial contributions; however, the assistance sources need to be described better in terms of their expected involvement. This needs to be detailed for assistance sources that are currently committed to working in the watershed as well as what the USFS would like for potential future assistance sources to be involved with.
  - c. Are additional technical assistance needs identified?  
No additional needs are identified. EPA recommends including needs to address data gaps for NPS pollutant loadings and necessary load reductions. Technical assistance from other agencies could be recruited to address these NPS loading data gaps.
2. Estimate of Financial Assistance Needed
- a. Is a detailed cost estimate included?  
The WRAP provides a detailed budget.
  - b. Does the cost estimate include a reasonable estimate of all planning and implementation costs?  
For the most part, yes. However, the budget does not go into detail about monitoring and education/outreach costs. For both monitoring and education/outreach, a thorough breakdown of planned activities is recommended.
  - c. Are all potential funding sources listed? Is there an estimated contribution from each source?  
No. Total contributions from all partners are listed, but not broken down by each partner source. Overall, the budget provides a rough estimate of restoration costs, but the list of potential funding sources is not exhaustive. For example, OSM/VISTA volunteering, EPA's Section 319 and Clean Water SRF programs, and NRCS NWQI funds are all potential targets for funding in this watershed. The State of New Mexico also may have some additional funding sources. It is recommended that this portion of the plan be updated after consultation with NMED staff.

### **Element E**

*An information/education component that will be used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the NPS management measures that will be implemented.*

Elements A-C are critical components to provide the public with the correct and credible information needed to strengthen stakeholder support throughout the watershed. This element has three aspects: 1) generate sufficient information and support to allow voluntary implementation by targeted land-users; 2) understanding and support to maintain BMPs after the project is completed, when loadings are determined to be achieved and water quality attained; and (3) generate a stakeholder system that garners sufficient local input in the development of the WBP from the inception to conclusion of the effort.

## E. Education/Outreach

1. Does the WBP identify relevant stakeholders?  
The plan provides a list of relevant state, federal, and local agencies that are current or potential future partners. EPA recommends that the plan also include discussion of nearby private landowners and any other potential stakeholders in or near the watershed that may or not provide technical or financial assistance, but would still be considered relevant stakeholders.
2. Does the WBP educate the public? Are there mechanisms to keep the public informed as the WBP is implemented?  
No. The plan should keep the public informed through methods such as email lists, door to door, meetings, brochures, surveys, volunteer monitor training, tours, and targeted educational campaigns.
3. Does the WBP include methods to engage stakeholders and landowners in continued participation and implementation?  
No. However it is unclear if this is necessary as BMP implementation and restoration would take place on USFS national forest property. However, education and outreach for private landowners in the watershed and visitors to the national forest (which could be considered stakeholders) is important and so it would be beneficial to have educational materials on hand for national forest visitors to understand the importance of controlling NPS pollution and maintaining water quality standards and watershed health.
4. Was there active and diverse public participation in the development of the plan?  
No public participation in developing the plan is mentioned, but again it is unclear if this applicable to a plan developed on national forest property by USFS staff
5. Do the education components emphasize the need to achieve water quality standards?  
No education component is detailed. Any revision to this WRAP that includes an education component should include an emphasis on achieving water quality standards.
6. Does the education process prepare stakeholders for continued proper operation and maintenance of BMPs after project(s) is completed?  
No, this is not specifically stated, and EPA recommends that any outreach program activities should include information about how landowners/stakeholders/national forest visitors and patrons can be engaged in or educated about BMP maintenance.

### **Element F**

*A schedule for implementing the NPS management measures identified in this plan that is reasonably expeditious.*

Knowledge of where BMPs need to be applied and whether funds are available, either through local funds, grants or loans, is critical to systematic and expeditious implementation in targeted areas. A detailed schedule should be developed and documentation should be provided on how the watershed group will adhere to its schedule. Credibility of the process

depends on the thorough schedule for tasks and milestones. An estimate of when WQS will be achieved is important for inclusion, even if that date extends beyond the project period.

#### F. Implementation Schedule

1. Does the schedule/timeline present projected dates for the development and implementation of the actions needed to meet the goals of the WBP?  
**No. This element needs more detail. The schedule only lists dates at a broad, yearly scale. Each subtask within the projected activities in the plan should have a specific timeframe, even if it is a broad timeframe such as “summer 2014”. Tasks that occur monthly or weekly or yearly should also be labeled as such.**
2. Is the schedule appropriate based on the complexity of the impairment and the size of the watershed?  
**No. The schedule needs to be broken down into more detail about which individual tasks should occur, how often they will occur, and approximate dates they are expected to occur. This information is necessary to determine if the schedule is appropriate.**

#### **Element G**

*A description of interim, measurable milestones for determining whether NPS management measures or other control actions are being implemented.*

This measure is closely tied to element F – interim milestones will ensure BMPs are implemented on schedule, and in the most critical areas of the watershed, influencing water quality. Early assessment of control

1. Are the identified milestones measurable and attainable?  
**No. There are no true milestones other than re-evaluating the watershed under the watershed condition framework scoring system to evaluate whether or not the scores improve. This is not a true milestone in the sense that it does not measure the progress of individual components of the WBP process (i.e. number of BMPs implemented, number of education/outreach activities carried out, improving measurements of water quality, attainment of water quality standards). For example, a potential milestone could be “implementing X number of BMPs in subwatershed X by summer 2015”. Using specific milestones like this allows for an evaluation of whether or not the plan is on track. Education milestones such as “distribute X number of brochures or hold X number of training events by summer 2015” would be another example of effective milestones. Without clear milestones, it is difficult to effectively implement an adaptive management strategy.**
2. Does the WBP identify incremental milestones with anticipated completion dates?  
**No. The milestones does not include clear interim, incremental milestones with completion dates. For example, if the overall milestone is to implement 30 BMPs over 10 years in the entire watershed, then an associated interim milestone could be something like implementing 3 BMPs per year with anticipated completion dates for these. This level of detail is needed for all aspects of the**

implementation of this plan (i.e. assembling stakeholders, education, BMP selection and design, BMP siting, BMP implementation, writing of the plan, monitoring, etc.). The milestones should encompass all of the activities necessary to achieve restoration and in such detail that they can be used to evaluate progress.

3. Does the WBP include progress evaluations and possible “course corrections” as needed?

The progress evaluation process listed in this plan is a reassessment using the watershed condition classification technical guide every two years to determine if the watershed condition scores have improved. Ideally, monitoring would be designed to assess individual BMP effectiveness to determine if water quality criteria are being achieved and, if not, an adaptive management strategy be engaged to implement course corrections to get the plan back on track. A formal evaluation of WBP progress linked to clear interim and final milestones should be performed periodically (every two years along with watershed condition reassessment?) to gauge performance and this could also be included as a milestone.

4. Are the milestones appropriately linked with the proposed schedule in Element F?

No.

## **Element H**

*A set of criteria that will be used to determine whether loading reductions are being achieved over time and substantial progress is being made towards attaining water quality standards and, if not, the criteria for determining whether this watershed based plan needs to be revised or, if a NPS TMDL has been established, whether the NPS TMDL needs to be revised.*

Implementation should be linked with project expectations. Several components relating to element H could be included in the WBP, including (a) are timelines being met for implementation; (b) are WQS or surrogate measures being met over time; and (c) is a decision process in place to revise the work plan if progress has not been adequate. Element H is critical to gauging WBP effectiveness. The criteria for determining loadings for elements A and B will be reflected in this element.

### H. Load Reduction Evaluation Criteria

1. Are criteria measureable and quantifiable?  
No. The plan does not provide load reduction goals so this cannot be assessed.
2. Do the proposed criteria effectively measure progress towards the load reduction goal?  
No. In order to do so, the criteria need to measure water quality with the ultimate goal of achieving water quality standards in the watershed.
3. Are the types of data to be collected identified and appropriate models described?  
No.
4. Are target achievement dates identified?

- No.
5. Does the WBP include a review process to determine if anticipated reductions are being met?  
No specific review plan of load reduction achievement progress is detailed. See comments in previous section (Element G, question 3).
  6. Does the WBP include criteria to determine the need for revisions or mid-course corrections if adequate progress is not made towards the implementation schedule?  
Not explicitly. It is possible that the bi-yearly watershed condition reassessment could provide an opportunity to make revisions or mid course corrections.
  7. Is there a clear commitment to adaptive management in the WBP?  
No.

### **Element I**

*A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item (h) immediately above.*

This component is very closely linked to elements A, F, G and H. The evaluation component of BMP implementation is necessary to have credible data and information for judging the effectiveness in achieving the load reductions through modeling and water quality sampling. The element should discuss baseline (before), project-specific (during) and post-project (after) monitoring. The monitoring design should be as streamlined as possible, yet rigorous enough to conclusively assess water quality conditions. Accepted methods for monitoring include use of trends analysis, upstream/downstream comparisons and paired watershed designs. This final element provides the water quality data that will be used in supporting the criteria identified in Element H above. While these two elements are complimentary, the data collected under this element will be used to assess BMP effectiveness in reducing loads to the waterbody.

#### **I. Monitoring**

1. Explanation of how monitoring fits into Plan
  - a. Does the WBP include a description of how monitoring will be used to evaluate the effectiveness (in reducing loads to the waterbody) of the implementation efforts?  
No. The plan does mention that monitoring will be done under the CFLRP program, but it does not provide specific details about when, where, and how often the data will be collected. The plan needs to at least briefly describe the CFLRP monitoring process and whether or not it measures instream water quality. The monitoring should be designed to measure BMP effectiveness instream and be linked to load reduction measurement criteria so that monitoring can demonstrate attainment of water quality standards as a result of BMP implementation. NMED employs an effectiveness monitoring strategy where they monitor reaches upstream and downstream of BMPs before and after BMP installation. This provides an effective gauge to determine

whether or not BMPs are effective. EPA recommends this approach be considered for this plan as well.

- b. Will the monitoring plan effectively measure the evaluation criteria identified in Element H?

The monitoring plan needs more detail. This plan should include the types of data to be collected for each impairment/project, who will collect the data, the frequency of sampling, sampling site locations and number, the season of sampling, etc.

- c. Does the WBP include a routine reporting element in which progress and methodology are presented?

It is unclear. The plan does detail a bi-yearly watershed condition reassessment, but it is unclear if it will include the monitoring progress and methodology.

## 2. Monitoring Methods

- a. Are the parameters appropriate?

No parameters are mentioned so this cannot be assessed.

- b. Is the number of sites adequate?

None are mentioned. An approximate number (this can be subject to change) and location of potential monitoring sites should be detailed.

- c. Is the frequency of sampling adequate?

No frequency of sampling is mentioned. Additionally, any baseline sampling that has been completed should be included in the plan so as to evaluate progress. An effort should be made to provide the baseline data before BMP implementation. Sampling frequency during the implementation process should adequately capture seasonal variation in temperature, storm activities, and flow conditions.

- d. Is the monitoring tied to a quality assurance plan?

No QAPP is mentioned in the plan. EPA recommends factoring in the writing of a monitoring QAPP into the implementation schedule.

- e. Will the monitoring method effectively link the load reduction from implementation to improvements in the waterbody?

Not enough information about the monitoring component is given to assess this. See above in question 1a for an explanation of how NMED uses monitoring to link load reductions from implementation to waterbody improvements.

Appendix  
Watershed Based Plan Review Summary  
for:

<b>State</b>	New Mexico
<b>Watershed</b>	Outlet San Antonio Watershed
<b>Region</b>	6
<b>Date</b>	October 2013
<b>Author(s) and Organization</b>	USFS
<b>Reviewer(s)</b>	Brian Fontenot

<b>Pollutants Of Concern 303(d) listing</b>	Temperature, Turbidity
<b>Land Uses</b>	Recreation, private lands, roads and trails, rangeland, fisheries, wildlife, T&E habitat
<b>Targeted Sources of Pollution</b>	riparian vegetation loss, altered stream channel morphology, livestock grazing, road runoff, upland diversions leading to reduced flow, and streambank destabilization
<b>Watershed Size/HUC</b>	HUC #130202020204
<b>Model Used</b>	N/A