

WATERSHED BASED PLANS

These nine elements are based upon those outlined in [EPA's Handbook for Developing Watershed Plans to Restore and Protect Our Waters](#). Use the following as a guide for preparing your watershed based plan (WBP). Also included is information that the US EPA considers when reviewing and approving WBPs.

- A. IDENTIFICATION OF CAUSES AND SOURCES OF IMPAIRMENT** - Identification of the causes and sources of pollution, that will need to be controlled to achieve the load reductions estimated to fix the impairment, and to achieve any other watershed goals identified in the watershed-based plan. Sources should be identified at a significant subcategory level, with estimates to the extent to which they are present in the watershed.
1. Sources of impairment are identified and described.
 2. Specific sources of impairment are geographically identified (i.e. mapped).
 3. Data sources are accurate and verifiable, assumptions can be reasonably justified.
- B. EXPECTED LOAD REDUCTIONS** - Estimate of **all load reductions** expected for the management measures described. Modeling can be simple or quite complex depending on the application. Estimates should be provided at the same level as the above. Spreadsheets and land cover mapping are typically employed in these models to estimate load reductions.
1. Load reductions achieve environmental goal (e.g. TMDL allocations).
 2. Desired load reductions are quantified for each source of impairment (**SEE TABLE B ON PAGE 4**).
 3. Expected load reductions are estimated for each management measure described in (C) and the overall watershed (**SEE TABLE A ON PAGE 3**).
 4. Data sources and/or modeling processes are accurate and verifiable, assumptions can be reasonably justified.
- C. PROPOSED MANAGEMENT MEASURES** - Description of the nonpoint management measures that will need to be implemented to achieve the estimated load reductions; and an identification (using a map or detailed description) of the critical areas in which those measures will needed to implement the plan.
1. Specific management measures are identified and rationalized.
 2. Proposed management measures are strategic and feasible for the watershed.
 3. Critical/priority implementation areas have been identified.
 4. The extent of expected implementation is quantified (e.g. miles of streambank fenced etc.).
- D. TECHNICAL AND FINANCIAL ASSISTANCE NEEDED** - Estimate of the amounts of technical and financial assistance needed, associated costs and/or the sources and authorities that will be relied on, to implement this plan.
1. Cost estimates reflect all planning and implementation costs.
 2. Cost estimates are provided for each management measure.
 3. All potential Federal, State, Local and Private funding sources are identified.
 4. Funding is strategically allocated; activities are funded with appropriate sources (e.g. NRCS funds for BMP cost share).
- E. INFORMATION, EDUCATION AND PUBLIC PARTICIPATION COMPONENT** - 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 nonpoint management measures that will be implemented.
1. A stakeholder outreach strategy has been developed and documented.
 2. All relevant stakeholders are identified, and procedures for involving them are defined.

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3. Education/outreach materials and dissemination methods are identified.

F. SCHEDULE - Schedule for implementing nonpoint management measures that is reasonably expeditious.

G. MILESTONES - Description of interim, measurable milestones for determining whether nonpoint management measures or other controls are being implemented.

1. Implementation schedule includes specific dates and expected accomplishments.
2. Implementation schedule follows a logical sequence.
3. Implementation schedule covers a reasonable time frame.
4. Measurable milestones with expected completion dates are identified to evaluate progress.
5. A phased approach with interim milestones is used to ensure continuous implementation.

H. LOAD REDUCTIONS CRITERIA (PERFORMANCE) - Criteria to determine whether loading reductions are being achieved over time, and if progress is being made towards attaining water quality standards; and, if not, the criterion to determine if this plan, or a related TMDL, needs to be revised.

1. Proposed criteria effectively measures progress toward load reduction goals.
2. Criteria includes: (1) quantitative measures of implementation progress and pollution reduction; and (2) qualitative measures of overall program success (including public involvement and buy-in).
3. Interim water quality indicator milestones are clearly identified; note: the indicator parameters may be different from water quality standards.
4. An adaptive management approach is in place with threshold criteria identified to trigger modifications.

I. MONITORING COMPONENT - A monitoring component to evaluate the effectiveness of the implementation efforts over time.

1. Monitoring plan includes an appropriate number of monitoring stations.
2. Monitoring plan has an adequate sampling frequency.
3. Monitoring plan will effectively measure criteria identified in (H).

EXAMPLES OF LOAD TRACKING TABLES

Table A. Tracking BMPs by goal year

Goal year	BMP	BMP goals (# of units)	Units	Cost per unit	# of units implemented
2011	Fencing	500	Linear feet	\$25/foot	
	Cover crop	100	Acers	\$500/acre	
	Forest buffer	200		\$1,000/acre	
2012	Fencing	250	Linear feet	\$25/foot	
	Cover crop	1000	Acers	\$500/acre	
	Forest buffer	200		\$1,000/acre	
2013	Fencing	1000	Linear feet	\$25/foot	
	Cover crop	400	Acers	\$500/acre	
	Forest buffer	500		\$1,000/acre	
2014	Fencing	1500	Linear feet	\$25/foot	
	Cover crop	300	Acers	\$500/acre	
	Forest buffer	600		\$1,000/acre	

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Table B. Tracking load reductions by pollutant

Target pollutant	Required TMDL load reduction	Units	Goal year	WBP target load reduction	Load reduction achieved	%TMDL reduction
Sediment		Tons/year	2011			
			2012			
			2013			
			2014			
Nitrogen		Lbs/year	2011			
			2012			
			2013			
			2014			
Phosphorous		Lbs/year	2011			
			2012			
			2013			
			2014			