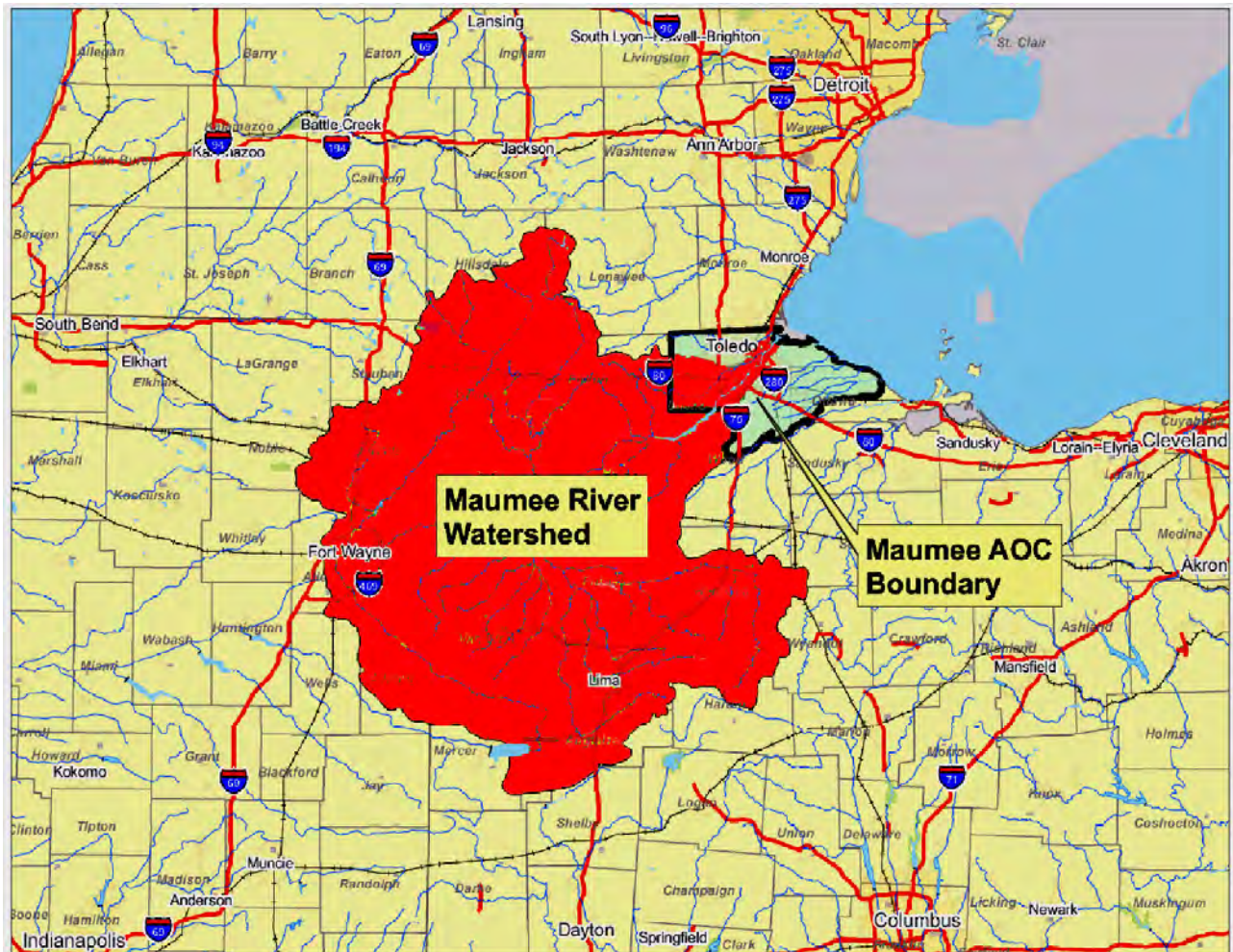


DEVELOPING A METRIC FOR PRIORITIZING RESTORATION PROJECTS WITHIN MAUMEE AREA OF CONCERN: FINAL REPORT

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EXECUTIVE SUMMARY

The purpose of this project was to develop a metric/filter tool that could be used by the Maumee RAP Committee to prioritize the several hundred recommendations contained in the DRAFT *Maumee AOC Stage 2 Watershed Restoration Plan (Jan 2006)*. The prioritization metric/filter uses six factors to evaluate each recommendation. Points are assigned for each factor to evaluate the relative ranking of each recommendation. The metric/filter also contains a relative weighting factor that can be established for the Area of Concern (AOC) as a whole or by watershed/sub-watershed area. The recommended metric/tool developed for this project was evaluated at a stakeholder workshop held on December 19, 2006. Comments from participants at the workshop were utilized to finalize the recommended metric/filter tool and prioritization process contained in this report.

The prioritization metric/filter and associated process, in conjunction with the revised organizational structure for the Maumee RAP Committee, will foster a more directed effort that will move the Maumee AOC to fishable and swimmable conditions for the benefit of current and future generations.

2.0 PROJECT INTRODUCTION AND RATIONALE

The *DRAFT Maumee AOC Stage 2 Watershed Restoration Plan (Jan 2006)* contains several hundred recommended actions for restoration of the Maumee AOC. The Maumee RAP Committee needs to have a tool that can effectively prioritize these many recommended actions as they continue moving forward in their goal of restoring the Maumee Area of Concern (AOC). This project developed a screening metric/filter that could be used by the RAP Committee to prioritize the *DRAFT Stage 2 Report* recommendations within the AOC watersheds and overall for the AOC.

The prioritization metric/filter uses six factors to evaluate each recommendation. Points are assigned for each factor to evaluate the relative ranking of each recommendation. The metric/filter also contains a relative weighting factor that can be established for the AOC as a whole or by watershed/sub-watershed area (see Appendix A).

3.0 PRIORITIZATION PROCESS

The primary objective of the prioritization process for ranking RAP recommendations is to develop groupings of recommendations rather than establishing absolute relative rankings of individual recommendations. The prioritization process will result in determining the top twenty recommendations, for example, but it will not determine which recommendation should be number fifteen versus number sixteen with an absolute degree of certainty. The prioritization process recommended to the Maumee RAP Committee is as follows:

1. Select Criteria that are applicable to all recommendations/projects in the AOC. Evaluation of the criteria during the prioritization process is more a subjective process than an objective process. The process does not involve review of studies, documents, or data during the ranking and is subjective from this perspective but technical and non-technical stakeholders who are involved in the process are generally aware of these resources and the process is therefore partially objective also.

A general guidance regarding selection of criteria for the prioritization process is the fewer criteria the better. The criteria should be general enough to allow for evaluation of all the AOC's associated Beneficial Use Impairments (BUIs)..

It is recommended that the criteria be evaluated within a numeric range of 1 to 5. This range is wide enough to provide a reasonable spread in the evaluation results without causing the confusion in the stakeholder evaluators that has been associated with the use of wider evaluation ranges in other AOCs.

2. The second step in the prioritization process is to determine the weighting factor for each criterion. The weighting factor establishes the relative importance of each of the criteria. The weighting factors can be established to distinguish the relative importance of the evaluation criteria within the entire AOC, within each watershed/sub-watershed, or to distinguish between the relative importance of accomplishing work between watersheds/sub-watersheds.
3. The next step in the process is for the RAP Committee or a technical committee to rank the RAP recommendations. If the recommendations are separated by watershed/sub-watershed area then each watershed/sub-watershed should be evaluated separately then the highest priority subset for each watershed/sub-watershed should be combined as a single set to be reevaluated or reprioritized for the entire AOC.
4. It is critical that the prioritization process results be reviewed with a cross discipline stakeholder group that represents the entire AOC. This serves as an effective ground truthing of the results and allows for minor adjustments in the final priority list based on solicited stakeholder review and input. It is equally important that all changes be carefully evaluated to assure that the final results remain essentially unbiased.
5. The last step in the process is to finalize and publish the project priority list.

The proposed metric/filter was developed based on models used successfully in other AOC watershed areas and tested in the Maumee AOC at the stakeholder workshop held on December 19, 2006.

3.1 Key Factors

The following factors were proposed as key evaluation factors for relative ranking of the recommendations in the Maumee AOC.

- Return on investment
- Actionable: Near-term versus long-term
- Ease of implementation
- Long-term maintenance
- Impact on achieving the goals of the Maumee RAP
- Impact on achieving delisting

Return on investment takes into consideration both financial and non-financial aspects associated with implementation of a given recommendation. An example of a financial return might be evaluating the increased income to the area from fish license and equipment purchases resulting from implementing a recommendation designed to increase fish habitat and fish populations. A non-financial return on investment example might be the increased enjoyment associated with a recommendation that results in better aesthetic conditions along the river. Recommendations that provide a perceived high return on investment would be assigned a high value.

Actionable: Near-term versus long-term takes into consideration the desire to celebrate short-term successes within the AOC and evaluates the amount of time needed to complete a recommendation within the AOC. Short-term is defined as less than or equal to three years and long-term as greater than three years for completion of a recommendation. Recommendations that could be fully implemented in a short period would be assigned a high value.

Ease of implementation also takes into consideration the need to celebrate success in the AOC but this factor looks at the tie-in of a particular recommendation with other activities underway in the AOC, which would allow for easier implementation. The other component of this factor is the actual physical ease of implementation of a particular recommendation from a technical perspective. Recommendations that would be easy to implement would be given a high value.

Long-term maintenance evaluates the difficulty, both technically and economically, of sustaining the maintenance generally associated with continuing success of a structural recommendation. Recommendations requiring little or no long-term maintenance would be given a high value.

The goals associated with the Maumee RAP provide a direction for the overall AOC restoration. Impact on achieving the goals of the Maumee RAP evaluates how a specific recommendation fits under these goals and if the recommendation will move implementation in the direction of achieving one or more of these RAP goals for the AOC. Recommendations that would have a

significant impact toward achieving the goals of the Maumee RAP would be assigned a high value.

One of the Maumee RAP goals, and the primary Ohio and U.S. EPA AOC program emphasis, is to achieve delisting of the BUIs within the AOC. For this reason the RAP goal of achieving delisting was included as a separate evaluation factor reflected in Impact on achieving delisting.

3.2 Non-Criteria Considerations

There are additional factors in implementation of RAP recommendations that need to be considered in the ability to implement a recommendation but are more impediments to implementation that might need to be overcome rather than criteria to be evaluated with regard to relative prioritization. These factors include:

- Barriers to success such as lack of funding and/or the need for a prerequisite activity that has not been initiated.
- Who should be the lead organization for implementing a specific recommendation and their willingness to assume that role.
- What recommendations can the Maumee RAP Committee implement themselves, or lead the implementation, versus which recommendations would have to be implemented or lead by an outside agency/organization.

None of these considerations reflect the relative or absolute merit of a recommendation and hence are considered to be non-criteria considerations rather than prioritization criteria. Rather, if a recommendation is of high relative priority, then emphasis should be placed on resolving these issues as part of the implementation planning process.

4.0 WORKSHOP

The recommended metric/filter was presented to a stakeholder technical committee during the workshop on December 19, 2006. The “Planning”, “Concept”, and “On-going” projects from the *DRAFT Stage 2 Report* recommendations for the Ten Mile Creek and Ottawa River Watersheds were used to test and evaluate the recommended metric/filter and the associated process. The stakeholder group was split into six sub-groups and each sub-group was assigned one of the six criteria to use to evaluate the recommendations. The ranking results from each sub-group were combined for each recommendation and tabulated to produce a relative overall ranking (see Appendix A).

Following the criteria evaluation process, the entire group reconvened to establish weighting factors for the six criteria. Return on investment was arbitrarily assigned a weighting factor of 1 and the other criteria were ranked in terms of relative importance compared to Return on investment.

Lastly, the entire group discussed the various aspects of the recommended metric/filter, the associated process, and offered comments relative to the pros and cons of the entire process.

Comments received at the workshop included the following:

Overall Process

1. Need to better define project descriptions
2. Need to look at criteria to be more problem specific
3. Better definition of the criteria

Weighting Factor

1. Guidelines to define range
2. Appropriate range for weighting factors
3. Fine tuning vs. gross adjusting

Criteria Ranking

1. Ok

Site Specific Criteria

1. Address phosphorus loading
2. Address sediment loading
3. Fish species/population

5.0 FINAL METRIC/FILTER RECOMMENDATION

The development team evaluated the workshop comments as follow:

1. Overall process
 - a. Need to better define project descriptions – the recommendations used in the workshop were extracted verbatim from the *DRAFT Maumee AOC Stage 2 Watershed Restoration Plan (Jan 2006)*. If the workshop was an actual ranking session the recommendations would have been expanded to better define the purpose and scope of the recommendation.
 - b. Need to look at criteria to be more problem specific – The criteria are intentionally designed to be generic and wide in scope so they can be applicable to all the AOC recommendations. The general nature of the recommended criteria can be interpreted using AOC specific problems/BUIs during the evaluation/ranking process.
 - c. Better definition of the criteria – the criteria definitions were expanded as part of this final report.
2. Weighting Factor
 - a. Guidelines to define range – the range used in the workshop was unbounded as an experiment to determine how this approach would work. Based on the workshop results it is recommended that the weighting factor range be restricted to a 0.1 to 2.0 range with the first criteria being arbitrarily set at 1.0 and the remaining criteria being weighted in relative comparison to that criterion.
 - b. Appropriate range for weighting factors – see above response
 - c. Fine tuning vs. gross adjusting – It was agreed that the weighting factor should be used for fine tuning of the relative standing of the criteria rather than a gross adjustment and the final recommended weighting factor range indicated above is reflective of this decision.
3. Criteria Ranking – No response necessary.
4. Site Specific Criteria – The specific criteria indicated below are included in evaluation of the generic criteria recommended for the metric/filter and associated process. The knowledge of the BUIs and other factors associated with the AOC are part of the ranking utilized by the stakeholders in establishing the relative recommendation rankings. It is felt that to establish a separate ranking criterion for each BUI/problem within the AOC would result in an overly cumbersome list of criteria for stakeholders to evaluate without any specific gain in the prioritization process.
 - a. Address phosphorus loading
 - b. Address sediment loading
 - c. Fish species/population

6.0 SUMMARY

It is recommended that the Maumee RAP Committee adopt the metric/filter criteria and process described in Section 3 of this report. It is recommended that the 1 to 5 evaluation range for the criteria originally proposed be used by the RAP Committee when implementing the prioritization process. The weighting factors used for the criteria should be established by the Maumee RAP Committee prior to conducting the ranking. It is recommended that the weighting factor be in the 0.1 to 2.0 range, arbitrarily establishing the weighting factor for one of the criteria and then developing relative weighting factors from there.

The Maumee RAP Committee needs to identify a stakeholder committee to participate in the recommendation ranking process. The stakeholder committee needs to be made up of both technical and non-technical people who are familiar with the Maumee AOC. Although the ranking process could be done by way of a mail-in survey or an internet survey, it is recommended that the Maumee RAP Committee hold a workshop in the AOC to conduct the prioritization process. It is also recommended that the sub-group process used at the December 19, 2006 workshop be utilized in the final prioritization workshop.

7.0 REFERENCES

Development of the Restoration Criteria in the Clinton River Area of Concern– November 2006

Maumee AOC Stage 2 Watershed Restoration Plan – January 2006 draft

APPENDIX A
Prioritization Matrix for Selected Ten Mile Creek and Ottawa River
Recommendations

PROJECTS	Criteria 1 - Return on Investment (ROI)			Criteria 2 - Actionable in near term vs. far term			Criteria 3 - Ease of Implementation			Criteria 4 - Long Term Maintenance			Criteria 5 - Impact on Achieving Goals of Management Plan			Criteria 6 - Impact on Achieving Delisting			Total Project Score
	Rank 1-5	Weight	Total Score	Rank 1-5	Weight	Total Score	Rank 1-5	Weight	Total Score	Rank 1-5	Weight	Total Score	Rank 1-5	Weight	Total Score	Rank 1-5	Weight	Total Score	
Jermain Meadow/Park Restoration (Phase 3)	3	1	3	2	1	2	1	1	1	3	1	3	1	1	1	1	1	1	11
Jermain Meadow/Park Restoration (Phase 2)	2	1	2	3	1	3	2	1	1	3	1	3	2	1	1	1	1	1	13
Continue to implement remediation activities for other sites and sources (i.e. capping, etc)	4.5	1	4.5	1	1	1	1	1	1	1	1	1	1	1	3	1	1	3	13.5
Stream restoration demonstration project	3	1	3	2	1	2	1	1	1	3	1	3	1	1	3	1	1	2	14
Reduce the impact of erosion of water quality	3	1	3	1	1	1	1	1	1	1	1	1	1	1	5	3	1	3	14
Install sewers in Berkeley	3.5	1	3.5	1	1	1	1	1	1	1	1	1	1	4	1	1	1	4	14.5
Implement Long Term Control Plan	3	1	3	1	1	1	1	1	1	1	1	1	1	4	1	1	1	4	15
Cost share to install all-weather paddocks for horse owners	1	1	1	5	1	5	2	1	1	4	1	4	1	1	1	2	1	2	15
Hoffman Road Boardwalk (Phase 2 - extend the current walk from the landfill toward Stickney Avenue)	2	1	2	4	1	4	4	1	1	2	1	2	3	1	1	1	1	1	16
PCB contaminated sediment removal	5	1	5	1	1	1	1	1	1	3	1	3	1	1	1	5	1	5	16
Pursue enforcement of existing litter or illegal dumping laws/ordinances	3	1	3	5	1	5	1	1	1	1	1	1	1	5	1	2	1	2	17
Pond Clinic	1	1	1	5	1	5	1	1	1	4	1	4	1	1	1	1	1	1	17
Educate Horse owners on proper disposal of manure	3	1	3	5	1	5	5	1	1	2	1	2	1	1	1	2	1	2	18
Extend sewer system to eliminate septic systems	4	1	4	3	1	3	1	1	1	1	1	1	5	1	4	1	1	4	18
Storm Drain Stenciling Program (Phase 2)	2	1	2	5	1	5	4	1	1	2	1	2	3	1	1	2	1	2	18
Expand Student Watershed Watch Program into additional schools	3	1	3	3	1	3	4	1	1	4	1	4	1	1	4	3	1	3	18
Install Flood Control Structure (detention/retention systems)	4.5	1	4.5	3	1	3	2	1	1	1	1	1	5	1	3	1	1	3	18.5
Develop potential project list based on Pasture Inventory Project Results	2	1	2	3	1	3	5	1	1	5	1	5	2	1	2	1	1	2	19
Incentive programs for implementation of agricultural BMPs such as filter strips, manure management, pesticide management	3	1	3	1	1	1	3	1	1	3	1	3	4	1	4	1	1	4	19
Ottawa Hills Dam Removal and Restoration Project	5	1	5	4	1	4	1	1	1	3	1	3	2	1	2	5	1	5	20
Require BMPs on smaller developments less than one acre	3	1	3	4	1	4	2	1	1	2	1	2	5	1	4	2	1	2	20
Develop potential project list based on Cropland Inventory Project Results	3	1	3	3	1	3	4	1	1	4	1	4	5	1	3	2	1	2	20
Inventory watershed for amount of acreage in pasture	2	1	2	4	1	4	5	1	1	5	1	5	3	1	3	2	1	2	21
NPDES permit GIS inventory (Phase 2)	3	1	3	5	1	5	3	1	1	4	1	4	4	1	4	2	1	2	21
Student Watershed Watch	3	1	3	5	1	5	5	1	1	5	1	5	1	1	4	3	1	3	21
Tillage Transect	2.5	1	2.5	4	1	4	5	1	1	5	1	5	2	1	3	1	1	3	21.5
Stream and Septic System Sampling Project (Phase 3)	3.5	1	3.5	5	1	5	3	1	1	3	1	3	4	1	1	5	1	5	21.5
SWW Teacher Training/Creditable Data Certification	2.5	1	2.5	4	1	4	2	1	1	2	1	2	4	1	4	1	1	4	21.5
Identify extent and benefit of BMPs used by farmers in watershed	2.5	1	2.5	2	1	2	4	1	1	4	1	4	5	1	4	4	1	4	21.5
Organic Lawn Care Clinic	2	1	2	4	1	4	4	1	1	4	1	4	5	1	4	3	1	3	22
Incentive programs for implementation of agricultural BMPs such as filter strips and conservation tillage, fertilizer/pesticide management	2.5	1	2.5	4	1	4	3	1	1	3	1	3	5	1	4	4	1	4	22.5