

Section I: Executive Summary

The Eagle Creek Watershed Management Plan: An Integrated Approach to Improved Water Quality

The Eagle Creek Watershed Management Plan is the result of combined efforts of the Eagle Creek Watershed Task Force and the Central Indiana Water Resources Partnership (a long-term research and development partnership between the Center for Earth and Environmental Science at IUPUI and Veolia Water Indianapolis, LLC). The groups have joined forces to create the Eagle Creek Watershed Alliance (ECWA), a group of citizens, researchers, and managers working together to improve water quality in Eagle Creek Watershed.

Eagle Creek Watershed is located in Central Indiana approximately 10 miles northwest of downtown Indianapolis. The watershed is relatively flat and has a 162 mi² drainage area upstream of the Eagle Creek Reservoir dam. The Eagle Creek Reservoir, which is used as a public drinking water supply for the City of Indianapolis, is located completely within Marion County, while the rest of Eagle Creek Watershed runs through parts of Marion, Hendricks, Boone, and Hamilton counties. The dominant land-cover in Eagle Creek Watershed (approximately 60%) is agriculture (mostly corn and soybean) with some portions of the watershed, particularly those close to the reservoir, undergoing urbanization.

The ECWA seeks to bring a fresh approach and new energy to solving watershed problems by increasing the scientific basis for watershed management decisions while incorporating stakeholder concerns and views. This approach is apparent in the *Eagle Creek Watershed Management Plan: An Integrated Approach to Improved Water Quality*. The development of the Plan consisted of:

1. Investigating and Assessing Water Quality Issues in Eagle Creek Subwatersheds – The investigation of water quality issues used historical and recent datasets to assess water quality conditions of subwatersheds and develop problem statements and locate critical areas. A comprehensive Subwatershed Assessment was conducted utilizing several layers of information. The subwatersheds were then ranked against each other to determine those most impacted.
2. Developing Concerns and Problem Statements – Concerns and problem statements were based on a multi-parameter, systematic process, allowing areas of greatest concern to be chosen by the degree of water quality degradation and the possible causes of such degradation. This approach led to the determination of the best course of remediation and insight into the possible outcomes of proposed remediation. Five primary areas of concern have been identified:
 - a. Streams in the Eagle Creek watershed exceed the Indiana single sample daily maximum of 235 colonies per 100 milliliters for *Escherichia coli* (*E. coli*) bacteria.
 - b. Concentrations of Atrazine in Eagle Creek watershed streams are resulting in elevated Atrazine levels in Eagle Creek Reservoir that exceed the USEPA standard of 3.0 µg/L (.003 mg/L) for drinking water supplies.

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- c. Sediment loads in the subwatersheds of Eagle Creek are high during event flows, eventually transporting large pulses of sediment to the reservoir and potentially degrading aquatic habitat.
 - d. Nutrient concentrations in all streams in Eagle Creek watershed frequently exceed the national average for watersheds with 50-75% agricultural use.
 - e. An adequate educational outreach program is not in place to inform the residents in the Eagle Creek Watershed about their role in maintaining the overall quality of the watershed.
3. Identifying and Prioritizing Critical Areas - A Critical Areas Evaluation tool was developed and a List of Priorities was created for Eagle Creek Watershed. A Subwatershed Prioritization list was then created for subwatersheds chosen for best management implementation. The Critical Area Evaluation took into consideration:
 - a. The level of water quality degradation based on benchmark assessment of water quality.
 - b. The identification of land-use/land-cover assessments that showed specific areas particularly vulnerable to on-going and future degradation (vulnerability).
 - c. The feasibility of remediation.
4. Developing Goals and Action Items - Goal achievement was parsed into short-term and long-term target outcomes with each having an associated objective, action item, and indicator(s) of success.
5. Implementing the Watershed Management Plan - A multi-pronged approach to water resource sustainability will be taken to achieve and maintain the water quality goals of the management plan. The first approach is through a series of watershed Best Management Practices and associated demonstration projects. The second approach is through several complimentary watershed education projects.
6. Determining Indicators of Success - Measuring success involves tracking several indicators which have been divided into two major categories: Water Quality Improvements and Education and Outreach Achievements.

The ECWA intends to carry out the goals of this Plan. With the assistance of implementation grants, the ECWA proposes to accomplish a series of initiatives including implementation and demonstrations of best management practices, water quality monitoring, watershed education, and public information and outreach. The ECWA believes that this Watershed Management Plan will provide a sound foundation from which more ambitious and holistic management initiatives can be developed.