

MODELING WATERSHED MANAGEMENT SCENARIO III

—Budget Cutbacks

Name _____ Date _____

1. In this scenario you have submitted a watershed management plan to the Town Board. Your plan calls for improvements in efficiency to be made to the wastewater treatment plant and for the town to give agricultural management seminars. Because of necessary budget cuts, the Town Board informs you that they can only afford to spend \$200,000 on improvements and seminars.
2. You discover that it costs \$40,000 to increase the efficiency of the wastewater treatment plant by 10%. Currently the efficiency is 25% and the town population stands at 16,000.
3. You calculate that seminars leading to one point of improved agricultural management practices cost \$20,000. The current agricultural practice is 4, and 65% of the watershed is used for agriculture.

Watershed Factor	Current Condition
Plant Efficiency	25%
Agricultural Practice	4
Percent of Watershed in Agriculture	65%
Population Served	16,000

Remedy	Cost
Plant Efficiency	\$40,000 per 10% increase
Agricultural Practice	\$20,000 per 1 point increase

4. Set the Watershed Factors to the current conditions above, and then use the model to determine the best way to allocate the \$200,000 in your budget. What mix of increased wastewater treatment efficiency and agricultural practices will maximize your goal of keeping Lake Tuscaloosa from becoming eutrophic while minimizing costs? First record your predictions in the space below, and then record the Watershed Factors and Secchi Depth results from each model run in the table below.

Plant Efficiency	Cost to Improve	Agriculture Practice	Cost to Increase	Total Cost	Day That Secchi Depth Reaches 10 M

5. Given your limited budget, what did you find to be the best mix of remedies to keep Lake Tuscaloosa from becoming eutrophic? Were you able to find a “solution” to this problem? Will it be necessary for the Town Board to spend more money? Explain your reasoning.