Onondaga Lake became increasingly polluted due to industrial and agricultural discharge and nutrient loading, and was considered the most polluted body of water in the US. In 1998, a Federal Judge issued an Amended Consent Judgment (ACJ) requiring Onondaga County to bring its Metropolitan Wastewater Treatment Plant (Metro WWTP) into compliance with the Clean Water Act. The County’s efforts resulted in dramatic reductions in ammonia and phosphorus discharges to the Lake. Even with these improvements, the County was required to perform additional efforts to further reduce effluent phosphorus discharges from 0.10 mg/L to 0.02 mg/L. If the County could not meet the 0.02 mg/L limit, the ACJ calls for the Metro effluent discharge to be diverted to the Seneca River (10 km from Metro) or any other feasible alternative. These costs would be on top of the $650 million investment already made by the County. Seventeen alternative compliance pathways were developed and evaluated for determining the resulting ACJ Compliance Plan. With recent dramatic phosphorus reductions, the recommended action for WEP that best meets protecting attainment of ACJ water quality goals in an environmentally effective and economically justifiable manner became clear – an Integrated Water Resources Planning Approach. Numerical modeling results show the recommended action will be capable of meeting the TMDL for the Onondaga Lake watershed, and provides a high level of bioavailable phosphorus reductions. This approach will result in a savings of over $200 million to the County residents due to avoiding the need to add new treatment.