

A CRITICAL REVIEW OF WATER RESOURCES DEVELOPMENT PLANS FOR GENESEE COUNTY

by

**Environmental Community Assistance Consortium
Consortium Participants in this Project:
Environment and Society Institute, University at Buffalo
Environmental Finance Center, Syracuse University
NYS Water Resources Institute, Cornell University**

Submitted to

**Martin N. Culik, Executive Director
Genesee County Cornell Cooperative Extension
420 East Main St.
Batavia, NY 14020**

as part of the

Genesee County Water Resources Planning Project

funded by the

Genesee County Legislature

April, 1998

Environmental Community Assistance Consortium Investigators

Representing:

**Environment and Society Institute
University at Buffalo
Buffalo, NY 14260**

Joseph V. DePinto, Project Coordinator
Director, Great Lakes Program
Professor, Department of Civil, Structural
and Environmental Engineering
University at Buffalo
Buffalo, NY 14260-4400
716-645-2088
depinto@eng.buffalo.edu

John Fountain, Professor
Department of Geology, UB
716-645-6800 x3996
fountain@acsu.buffalo.edu

James N. Jensen, Associate Professor
Department of Civil, Structural and
Environmental Engineering, UB
716-645-2114 x2329
jjensen@acsu.buffalo.edu

G. William Page, Professor and Chair
Department of Planning, UB
716-829-3413
page@arch.buffalo.edu

John E. VanBenschoten, Associate Professor
Department of Civil, Structural and
Environmental Engineering, UB
716-645-2114 x2330
jev@acsu.buffalo.edu

Karl Schwesinger, Graduate Student
Department of Civil, Structural and
Environmental Engineering, UB

Alison Lagowski, Graduate Student
Department of Geology, UB

Kevin Schultz, Graduate Student
Nathan Zieziula, Graduate Student
Department of Planning, UB

Representing:

**Maxwell School of Citizenship
and Public Policy
Syracuse University
Syracuse, NY 13244-1090**

M. Jae Moon, Doctoral Candidate
Department of Public Administration
315-443-9915
mjmoon@maxwell.syr.edu

Kimberly Collins, Program Manager
Environmental Finance Center
315-443-9438
kjcoll01@maxwell.syr.edu

Representing:

**Water Resources Institute
Cornell University
Ithaca, NY 14853-5601**

Mary Jane Porter, Water Specialist
607-255-5941
mjp4@cornell.edu

Steve Pacenka, Water Specialist
607-255-5941
sp17@cornell.edu

Table of Contents

Executive Summary	v
Section 1: Introduction	Page 1
Background	Page 1
Charge to ECAC	Page 2
Scope of report	Page 2
Section 2: Approach	Page 4
Overview of Approach	Page 4
Assumptions and Evaluation Framework	Page 5
Water Supply Scenarios	Page 5
Hypothetical Service Area	Page 5
Design Period	Page 6
Population Projections	Page 7
Water Use Estimates	Page 7
Review of Data and Information Resources	Page 10
Section 3: Evaluation of Source Waters, Treatability and Reliability	Page 14
Introduction	Page 14
Overview of Water Sources and Treatment Processes	Page 14
City of Batavia	Page 14
Village of LeRoy	Page 15
Erie County Water Authority (ECWA)	Page 16
Monroe County Water Authority (MCWA)	Page 16
Source Water Quality	Page 17
Turbidity	Page 17
Hardness	Page 18
Total Organic Carbon (TOC)	Page 18
Nitrate	Page 18
Treated (Finished) Water Quality	Page 18
Water Quantity	Page 20
Reliability	Page 21
City of Batavia	Page 22
Village of LeRoy	Page 24
Erie County Water Authority	Page 25
Monroe County Water Authority	Page 26
Section 4: Evaluation of Water Delivery Systems and Associated Costs	Page 27
Introduction	Page 27

Capital Costs	Page 28
Design Basis	Page 28
Costs Associated with the New Transmission System	Page 28
Costs Associated with Improvements in the Existing Transmission Systems	Page 36
Costs Associated with New Treatment Capacity	Page 36
Overall Capital Costs	Page 36
Operating Costs	Page 39
Overall Costs	Page 39
Effect of Design Horizon	Page 41
Section 5: Development Impacts	Page 44
Introduction	Page 44
Economic Implications of Sewer and Water Expansion	Page 44
Protecting Agriculture, Open Space, and Rural Lifestyle	Page 45
Economic Benefits of Agriculture and Open Space	Page 46
Social Impacts of Agriculture and Open Space	Page 46
Environmental Benefits of Agriculture and Open Space	Page 47
Techniques To Protect Agriculture And Farmland	Page 47
Conclusions	Page 49
Section 6: Conclusions and Future Considerations	Page 51
Conclusions	Page 51
Future Considerations	Page 53
Introduction	Page 53
Population growth in Genesee County	Page 53
Future water utility regulations	Page 54
Summary of Future Considerations	Page 57
References	Page 59