U.S. Department of Agriculture
NRCS Natural Resources Conservation Service
Harrisburg, Pennsylvania

In Cooperation With:
Bradford County Commissioners
Bradford County Conservation District
Village of Wellsburg
Town of Ashland
Chemung County Legislature
Chemung County Soil and Water Conservation District

BENTLEY CREEK
Draft Watershed Project Plan - Environmental Assessment

Bradford County, Pennsylvania
Chemung County, New York

August 2011

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay).

USDA is an equal opportunity provider and employer.

Bentley Creek
DRAFT Watershed Project Plan-Environmental Assessment
Pennsylvania and New York

Contents

Page

ABSTRACT 1

BENTLEY CREEK WATERSHED AGREEMENT 2

SUMMARY OF WATERSHED PROJECT PLAN 13

INTRODUCTION 17

PROJECT SETTING 19

WATERSHED PROBLEMS AND OPPORTUNITIES 22

SCOPE OF ENVIRONMENTAL ASSESSMENT 28

FORMULATION AND COMPARISON OF ALTERNATIVES 29

- Formulation Process 29
- Alternatives Eliminated from Detailed Study 29
- Description of Alternatives 31
- Effects of Alternatives 32
- Comparison of Alternative Plans 40
- Risk and Uncertainty 40
- Rationale for Plan Selection 41

CONSULTATION AND PUBLIC INVOLVEMENT 45

RECOMMENDED PLAN 48

- Purpose and Summary 48
- Measures To Be Installed 48
- Permits and Compliance 57
- Costs 58
- Installation and Financing 59
- Operation and Maintenance (O&M) 64

REFERENCES 72

LIST OF PREPARERS 74

Figures

Figure 1. Location Map – Bentley Creek Watershed 18
Figure 2. Wellsburg Dike (PA-681) with appurtenant structures 51
Figure 3. Centerville Dike (PA-680) with appurtenant structures 52

Photos

Photo 1. Flooding in Wellsburg, NY, June 1972 22
Photo 2. Flooding in Wellsburg, NY, June 1972 23
Photo 3. Flooding along Bentley Creek, Ridgebury Township, PA 23
Photo 4. Gravel deposits, Bentley Creek 25
Photo 5. Tributary Erosion, Bentley Creek Watershed 26

Tables

Table A. Identified Concerns 28
Table B. Summary and Comparison of Alternative Plans 42
Table C. Estimated Sponsor Costs by Project Measure 63
Table D. Estimated Sponsor Annual Operation and Mainenance Costs by Project Measure 64
Table 1. Estimated Installation Costs 66
Table 2. Estimated Cost Distribution 67
Table 3. Structural Data- Dikes 68
Table 3b. Structural Data- Channel Work 69
Table 4. Estimated Average Annual NED Costs 70
Table 5. Estimated Average Annual Flood Damage Reduction Benefits 70
Table 6. Comparison of NED Benefits and Costs 71

Appendices

Appendix A. Letters of Comment (reserved) 75
Appendix B. Flood Plain Maps 77
Appendix C. Investigations and Analyses Report 102
Appendix D. Location of Structural Measures Eliminated from Detailed Study 107
Appendix E. PL 83-566 Project Information 110
Appendix F. Project Map 116

Bentley Creek
DRAFT Watershed Project Plan-Environmental Assessment
Pennsylvania and New York

Prepared by:
United States Department of Agriculture,
Natural Resources Conservation Service

Project Location:
Bradford County, Pennsylvania
Chemung County, New York

In Cooperation With:
Bradford County Commissioners
Bradford County Conservation District
Village of Wellsburg
Town of Ashland
Chemung County Legislature
Chemung County Soil and Water Conservation District

For More Information:
Denise Coleman, State Conservationist
USDA-Natural Resources Conservation Service
One Credit Union Place, Suite 340
Harrisburg, PA 17110-2993
E-mail: Denise.Coleman@pa.usda.gov

Plan Designation: DRAFT

Comments Due: TBD

ABSTRACT

The Bentley Creek Watershed Plan-Environmental Assessment describes a plan for reducing flood damages and sedimentation. The plan was developed under the authority of Public Law 83-566, Watershed Protection and Flood Prevention Act, as amended (16 U.S.C.1001-1008,1010,1012). The project is located in Bradford County, Pennsylvania and Chemung County, New York.

The purpose of the project is to reduce flood damages to homes and other occupied non-residential buildings, reduce flood damage, if practicable, to roads, bridges and utilities and reduce sediment loads and stream gravel loads to further reduce flood damage and improve stream quality.

The need for the project results from recurring excessive flooding of up to 400 buildings and numerous roads, bridges and utilities. The flooding causes average annual flood damages to buildings of nearly $770,000. Excessive streambank erosion, especially in tributary streams, creates large sediment loads and gravel deposits throughout the basin which contribute to flooding and damage aquatic habitat. Stream instability results in episodic losses of land areas into the stream system.

Alternative plans developed are No Action and two alternatives with varying combinations of structural and nonstructural measures. A wide range of structural and nonstructural measures were examined.

The Recommended Plan consists of advanced flood warning system, tributary stabilization, two dikes and voluntary nonstructural measures including house acquisition and removal, house "floodproofing", mobile home elevation and house basement utility elevation. The Recommended Plan is the National Economic Development Plan which is the plan that reasonably maximizes net national economic development benefits consistent with protecting the Nation's environment. Economic benefits will exceed costs. Total project costs are estimated at $5.6 million. Local Sponsors will incur about 3% (about $180,000) of the total costs, primarily to acquire needed real property rights.

There are no significant adverse environmental impacts from this project. One house to be removed is eligible for the National Register of Historic Places. House mitigation plan will be developed in consultation with the New York State Historic Preservation Office. This document is intended to fulfill requirements of the National Historic Preservation Act of 1966, the Endangered Species Act of 1973 and the National Environmental Policy Act (NEPA) of 1969, as amended.

BENTLEY CREEK WATERSHED AGREEMENT

between the

BRADFORD COUNTY COMMISSIONERS
BRADFORD COUNTY CONSERVATION DISTRICT
VILLAGE OF WELLSBURG
TOWN OF ASHLAND
CHEMUNG COUNTY LEGISLATURE
CHEMUNG COUNTY SOIL AND WATER CONSERVATION DISTRICT
(Referred to herein as Sponsors)

and the

NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
(Referred to herein as NRCS)

Whereas, application has heretofore been made to the Secretary of Agriculture by the Sponsors for assistance in preparing a plan for works of improvement for the Bentley Creek Watershed, Commonwealth of Pennsylvania and State of New York, under the authority of the Watershed Protection and Flood Prevention Act, as amended (16 U.S.C. 1001-1008,1010,1012); and

Whereas, the responsibility for administration of the Watershed Protection and Flood Prevention Act (Public Law 83-566), as amended, has been assigned by the Secretary of Agriculture to NRCS; and

Whereas, there has been developed through the cooperative efforts of the Sponsors and NRCS a Watershed Project Plan and Environmental Assessment for works of improvement for the Bentley Creek Watershed, hereinafter referred to as the Watershed Project Plan-Environmental Assessment (Plan-EA), which plan is annexed to and made a part of this agreement;

Now, therefore, in view of the foregoing considerations, the Secretary of Agriculture, through NRCS, and the Sponsors hereby agree on this Plan-EA and that the works of improvement for this project will be installed, operated, and maintained in accordance with the terms, conditions, and stipulations provided for in this Plan-EA, including the following:

1. **Term**. The term of this agreement is for the installation period and evaluated life of the project (100 years) and does not commit NRCS to assistance of any kind beyond the end of the evaluated life.

2. **Costs**. The costs shown in this plan are preliminary estimates. Final costs to be borne by the parties hereto will be the actual costs incurred in the installation of works of improvement.

3. **Real Property.** The Sponsors will acquire with other than Public Law 83-566 funds, such real property as will be needed in connection with the works of improvement. The amounts and percentages of real property acquisition costs to be borne by the Sponsors and NRCS are as shown in the Real Property Acquisition Cost table below.

   The Sponsors agree that all land acquired or improved with Public Law 83-566 financial or credit assistance under this agreement will not be sold or otherwise disposed of for the evaluated life of the project (100 years), except to a public agency which will continue to maintain and operate the development in accordance with the Operations and Maintenance Agreement.

Real Property Acquisition Costs

Works of Improvement (Real Property Acquisition Costs)	PA Sponsors	NY Sponsors	NRCS	Estimated Real Property Acquisition Costs
Flood Warning System	50%	50%	0%	$0
Tributary Stabilization	50%	50%	0%	$25,000
Wellsburg Dike (dike footprint and induced flooding)	0%	100%	0%	$105,000
Wellsburg Dike (nonstructural house acquisition)	0%	$1000/ acquisition (~$5,000)	All, except $1000/ acquisition	$195,000
Centerville Dike	100%	0%	0%	$5,000
Nonstructural House Acquisition (Pennsylvania)	$1000/ acquisition (~$5,000)	0%	All, except $1000/ acquisition	$480,000

4. **Uniform Relocation Assistance and Real Property Acquisition Policies Act.** The Sponsors hereby agree that they will comply with all of the policies and procedures of the Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 U.S.C. 4601 et seq. as further implemented through regulations in 49 CFR Part 24 and 7 CFR Part 21) when acquiring real property interests for this federally assisted project. If the Sponsors are legally unable to comply with the real property acquisition requirements, it agrees that, before any Federal financial assistance is furnished; it will provide a statement to that effect, supported by an opinion of the chief legal officer of the state containing a full discussion of the facts and law involved. This statement may be accepted as constituting compliance.

   The cost of relocation payments in conjunction with displacements under the Uniform Act will be shared by the Sponsors and NRCS as follows:

   Relocation Payments

Works of Improvement (Relocation Payments)	Sponsors [1]	NRCS	Estimated Relocation Payments [2,3]
Wellsburg Dike	3%	97%	$16,000

[1] New York Sponsors only

[2] Estimated relocation payment costs include replacement in kind, and payments necessary to meet decent, safe, and sanitary provisions.

[3] Investigation of the project area indicates that no displacements will be involved for works of improvement (other than the Wellsburg Dike) under present conditions. However, in the event that displacement becomes necessary at a later date, the cost of relocation assistance and payments will be cost shared in accordance with the percentages shown.

5. **Voluntary Nonstructural Measures.** The Sponsors agree that nonstructural measures, including house acquisition, house floodproofing, mobile home elevation, mobile home park elevation, protection of basement utilities, but not to include houses acquired due to dike induced flooding, will be administered and implemented as a voluntary program. Consequently, compliance with the policies and procedures of the Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 USC 4601 et. seq., as further implemented through regulations in 49 CFR Part 24 and 7 CFR Part 21) is not required for the voluntary nonstructural measures. The Sponsors will obtain, prior to the acquisition of

any real property, a signed statement from the seller, as owner of the property, declaring that sale of the real property in question is a voluntary transaction.

6. **Water and Mineral Rights.** The Sponsors will acquire or provide assurance that landowners or resource users have acquired such water, mineral and other natural resources rights pursuant to state law as may be needed in the installation and operation of the works of improvement.

7. **Permits.** The Sponsors will obtain and bear the cost for all necessary Federal, State, and local permits required by law, ordinance, or regulation for installation of the works of improvement.

8. **Construction Costs.** The percentages of construction costs to be paid by the Sponsors and by NRCS are as follows:

Works of Improvement (Construction Costs)	PA Sponsors	NY Sponsors	NRCS	Estimated Construction Costs
Flood Warning System	0%	0%	100%	$35,000
Tributary Stabilization	0%	0%	100%	$650,000
Wellsburg Dike (PA-681)	0%	0%	100%	$1,755,000
Centerville Dike (PA-680)	0%	0%	100%	$605,000
Nonstructural	0%	0%	100%	$785,000
Total	**0%**	**0%**	**100%**	**$3,830,000**

9. **Engineering Costs.** The percentages of engineering costs to be paid by the Sponsors and by NRCS are as follows:

Works of Improvement (Engineering Costs)	PA Sponsors	NY Sponsors	NRCS	Estimated Engineering Costs
Flood Warning System	0%	0%	100%	$5,000
Tributary Stabilization	0%	0%	100%	$100,000
Wellsburg Dike (PA-681)	0%	0%	100%	$265,000
Centerville Dike (PA-680)	0%	0%	100%	$90,000
Nonstructural	0%	0%	100%	$65,000
Total	**0%**	**0%**	**100%**	**$525,000**

10. **Project Administration Costs.** The Sponsors and NRCS will each bear the cost of Project Administration that each incurs, estimated to be $14,000 NY Sponsors; $20,000 PA Sponsors; and $385,000 NRCS.

11. **Floodplain Management.** Before construction of any project for flood damage reduction, the Sponsors will ensure local municipal participation in and compliance with applicable Federal floodplain management and flood insurance programs. Implementation may only proceed in communities that meet this requirement.

12. **State Classified High Hazard Dams.** Prior to implementation, the Sponsors shall ensure that all state classified high hazard dams, including Miller Pond, Lake Ondawa, Ridgebury Lake, and other upstream hazards identified by state or local authorities as having a substantial risk of failure, meet all applicable safety standards or demonstrate that a failure will not adversely effect the performance of the planned works of improvement.

13. **Emergency Action Plan.** Prior to construction, the Sponsors shall prepare an Emergency Action Plan (EAP) for each Class I, high hazard, dike or similar structure where failure may cause loss of life and as required by state and local regulations. The EAP shall meet the minimum content specified in Part 500.52 of the NRCS National Operation and Maintenance Manual, and meet applicable State agency

safety requirements. The NRCS will determine that an adequate EAP is prepared prior to the execution of fund obligating documents for construction of the structure. EAPs shall be reviewed and updated by the Sponsors annually and as required by state or local law.

14. **Operation and Maintenance.** The Sponsors will be responsible for the operation, maintenance and any needed replacement of the works of improvement by actually performing the work or arranging for such work, in accordance with an Operation and Maintenance (O&M) Agreement. An O&M Agreement will be entered into before Federal funds are obligated and will continue for the project evaluated life (100 years). Although the Sponsors' responsibility to the Federal Government for O&M ends when the O&M Agreement expires upon completion of the evaluated life of measures covered by the agreement, the Sponsors acknowledge that continued liabilities and responsibilities associated with works of improvement may exist beyond the evaluated life.

15. **Land Treatment.** The Sponsors will encourage landowners and operators to operate and maintain needed land treatment conservation measures for the protection and improvement of the watershed.

16. **NRCS Assistance.** This agreement is not a fund-obligating document. Financial and other assistance to be furnished by NRCS in carrying out the Watershed Project Plan is contingent upon the fulfillment of applicable laws and regulations and the availability of appropriations for this purpose.

17. **Additional Agreements.** A separate agreement will be entered into between NRCS and the Sponsors before either party initiates work involving funds of the other party. Such agreements will set forth in detail the financial and working arrangements and other conditions that are applicable to the specific works of improvement.

18. **Amendments.** This Watershed Project Plan may be amended or revised only by mutual agreement of the parties hereto, except that NRCS may deauthorize or terminate funding at any time it determines that the Sponsors have failed to comply with the conditions of this agreement or when the program funding or authority expires. In this case, NRCS shall promptly notify the Sponsors in writing of the determination and the reasons for the deauthorization of project funding, together with the effective date. Payments made to the Sponsors or recoveries by NRCS shall be in accord with the legal rights and liabilities of the parties when project funding has been deauthorized. An amendment to incorporate changes affecting a specific measure may be made by mutual agreement between NRCS and the Sponsors having specific responsibilities for the measure involved.

19. **Prohibitions.** No member of or delegate to Congress, or resident commissioner, shall be admitted to any share or part of this plan, or to any benefit that may arise therefrom; but this provision shall not be construed to extend to this agreement if made with a corporation for its general benefit.

20. **Nondiscrimination Provisions.** The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, political beliefs, genetic information, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

    To file a complaint of discrimination, write to USDA, Assistant Secretary for Civil Rights, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, S.W., Stop 9410, Washington, DC 20250-9410, or call toll-free at (866) 632-9992 (English) or (800) 877-8339 (TDD) or (866) 377-8642 (English Federal-relay) or (800) 845-6136 (Spanish Federal-relay). USDA is an equal opportunity provider and employer.

    By signing this agreement the recipient assures the department of Agriculture that the program or activities provided for under this agreement will be conducted in compliance with all applicable Federal civil rights laws, rules, regulations, and policies.

21. **Certification Regarding Drug-Free Workplace Requirements** (7 CFR part 3021). By signing this watershed agreement, the Sponsors are providing the Certification set out below. If it is later determined that the Sponsors knowingly rendered a false certification, or otherwise violated the requirements of the Drug-Free Workplace Act, the NRCS, in addition to any other remedies available to the Federal Government, may take action authorized under the Drug-Free Workplace Act.

Controlled substance means a controlled substance in Schedules I through V of the Controlled Substances Act (21 U.S.C. Section 812) and as further defined by regulation (21 CFR Sections 1308.11 through 1308.15);

Conviction means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to determine violations of the Federal or State criminal drug statutes;

Criminal drug statute means a Federal or non-Federal criminal statute involving the manufacturing, distribution, dispensing, use, or possession of any controlled substance;

Employee means the employee of a grantee directly engaged in the performance of work under a grant, including: (i) all direct charge employees; (ii) all indirect charge employees unless their impact or involvement is insignificant to the performance of the grant; and, (iii) temporary personnel and consultants who are directly engaged in the performance of work under the grant and who are on the grantee's payroll. This definition does not include workers not on the payroll of the grantee (e.g., volunteers, even if used to meet a matching requirement; consultants or independent contractors not on the grantees' payroll; or employees of subrecipients or subcontractors in covered workplaces).

Certification:

A. The Sponsors certifies they will continue to provide a drug-free workplace by:

(1) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

(2) Establishing an ongoing drug-free awareness program to inform employees about --

(a) The danger of drug abuse in the workplace;

(b) The grantee's policy of maintaining a drug-free workplace;

(c) Any available drug counseling, rehabilitation, and employee assistance programs; and

(d) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(3) Making it a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (1);

(4) Notifying the employee in the statement required by paragraph (1) that, as a condition of employment under the grant, the employee will --

(a) Abide by the terms of the statement; and

(b) Notify the employer in writing of his or her conviction --- for a violation of a criminal drug statute occurring in the workplace no later than five calendar days after such conviction;

(5) Notifying the NRCS in writing, within ten calendar days after receiving notice under paragraph (4) (b) from an employee or otherwise receiving actual notice of such conviction.

Employers of convicted employees must provide notice, including position title, to every grant officer or other designee on whose grant activity the convicted employee was working, unless the Federal agency has designated a central point for the receipt of such notices. Notice shall include the identification number(s) of each affected grant;

(6) Taking one of the following actions, within 30 calendar days of receiving notice under paragraph (4) (b), with respect to any employee who is so convicted--

(a) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or

(b) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency; and

(7) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (1), (2), (3), (4), (5), and (6).

B. The Sponsors may provide a list of the site(s) for the performance of work done in connection with a specific project or other agreement.

C. Agencies shall keep the original of all disclosure reports in the official files of the agency.

22. Certification Regarding Lobbying (7 CFR 3018) (applicable if this agreement exceeds $100,000).

(1) The Sponsors certify to the best of its knowledge and belief, that:

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the Sponsors, to any person for influencing or attempting to influence an officer or employee of an agency, Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3. The Sponsors shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

(2) This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

23. **Certification Regarding Debarment, Suspension, and Other Responsibility Matters - Primary Covered Transactions** (7 CFR 3017).

(1) The Sponsors certify to the best of their knowledge and belief, that they and their principals:

(a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;

(b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State, or local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and

(d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

(2) Where the primary Sponsor is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this agreement.

24. **Clean Air and Water Certification** (applicable if this agreement exceeds $100,000, or a facility to be used has been subject of a conviction under the Clean Air Act (42 U.S.C. Section 7413(c)) or the Federal Water Pollution Control Act (33 U.S.C. Section 1319(c)) and is listed by EPA, or is not otherwise exempt.)

A. The project sponsoring organizations signatory to this agreement certify as follows:

(1) Any facility to be utilized in the performance of this proposed agreement is (____), is not (____) listed on the Environmental Protection Agency List of Violating Facilities.

(2) To promptly notify the NRCS-State administrative officer prior to the signing of this agreement by NRCS, of the receipt of any communication from the Director, Office of Federal Activities, U.S. Environmental Protection Agency, indicating that any facility which is proposed for use under this agreement is under consideration to be listed on the Environmental Protection Agency List of Violating Facilities.

(3) To include substantially this certification, including this subparagraph, in every nonexempt sub-agreement.

B. The project sponsoring organization(s) signatory to this agreement agrees as follows:

(1) To comply with all the requirements of section 114 of the Clean Air Act as amended (42 U.S.C. Section 7414) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. Section 1318), respectively, relating to inspection, monitoring, entry, reports, and information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, issued there under before the signing of this agreement by NRCS.

(2) That no portion of the work required by this agreement will be performed in facilities listed on the EPA List of Violating Facilities on the date when this agreement was signed by NRCS unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use their best efforts to comply with clean air standards and clean water standards at the facilities in which the agreement is being performed.

(4) To insert the substance of the provisions of this clause in any nonexempt subagreement.

C. The terms used in this clause have the following meanings:

(1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. Section 7401 et seq.).

(2) The term "Water Act" means Federal Water Pollution Control Act, as amended (33 U.S.C. Section 1251 et seq.).

(3) The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110 of the Air Act (42 U.S.C. Section 7414) or an approved implementation procedure under section 112 of the Air Act (42 U.S.C. Section 7412).

(4) The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standards, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. Section 1342), or by a local government to assure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. Section 1317).

(5) The term "facility" means any building, plan, installation, structure, mine, vessel, or other floating craft, location or site of operations, owned, leased, or supervised by a sponsor, to be utilized in the performance of an agreement or subagreement. Where a location or site of operations contains or includes more than one building, plan, installation, or structure, the entire location shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

25. **Assurances and Compliance.** As a condition of the grant or cooperative agreement, the sponsor assures and certifies that it is in compliance with and will comply in the course of the agreement with all applicable laws, regulations, Executive orders and other generally applicable requirements, including those set out below which are hereby incorporated in this agreement by reference, and such other statutory provisions as a specifically set forth herein.
State, Local, and Indian Tribal Governments: OMB Circular Nos. A-87, A-102, A-129, and A-133; and 7 CFR Parts 3015, 3016, 3017, 3018, 3021, and 3052.

Nonprofit Organizations, Hospitals, Institutions of Higher Learning: OMB Circular Nos. A-110, A-122, A-129, and A-133; and 7 CFR Parts 3015, 3017, 3018, 3019, 3021 and 3052.

26. **Examination of Records.** The sponsors shall give the NRCS or the Comptroller General, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to this agreement, and retain all records related to this agreement for a period of three years after completion of the terms of this agreement in accordance with the applicable OMB Circular.

SIGNATURE SHEET
BENTLEY CREEK WATERSHED AGREEMENT

The signing of this Public Law 83-566 Watershed Agreement by an authorized representative of the Sponsors indicates that the Sponsors have reviewed this Agreement and the Bentley Creek Watershed Project Plan-Environmental Assessment and concur with the intent and contents of each.

BRADFORD COUNTY COMMISSIONERS

The signing of this plan was authorized by a resolution of the governing body of the Bradford County Commissioners adopted at a meeting held on _____ [Date].

By: _____
Title: Chairman

Date: _____

Address: _____

_____

BRADFORD COUNTY CONSERVATION DISTRICT

The signing of this plan was authorized by a resolution of the governing body of the Bradford County Conservation District adopted at a meeting held on _____ [Date].

By: _____
Title: District Chairman

Date: _____

Address: _____

_____

VILLAGE OF WELLSBURG

The signing of this plan was authorized by a resolution of the governing body of the Village of Wellsburg, New York adopted at a meeting held on _____ [Date].

By: _____
Title: Mayor

Date: _____

Address: _____

_____

SIGNATURE SHEET
BENTLEY CREEK WATERSHED AGREEMENT
(continued)

TOWN OF ASHLAND

The signing of this plan was authorized by a resolution of the governing body of the Town of Ashland, New York adopted at a meeting held on _____ [Date].

By: _____
Title: Town Supervisor

Date: _____

Address: _____

_____

CHEMUNG COUNTY LEGISLATURE

The signing of this plan was authorized by a resolution of the governing body of the Chemung County Legislature adopted at a meeting held on _____ [Date].

By: _____
Title: Chairman

Date: _____

Address: _____

_____

By: _____
Title: County Executive

Date: _____

Address: _____

_____

CHEMUNG COUNTY SOIL AND WATER CONSERVATION DISTRICT

The signing of this plan was authorized by a resolution of the governing body of the Chemung County Soil and Water Conservation District adopted at a meeting held on _____ [Date].

By: _____
Title: District Chairman

Date: _____

Address: _____

_____

SIGNATURE SHEET
BENTLEY CREEK WATERSHED AGREEMENT
(continued)

NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

Approved by:

_____
Denise Coleman
State Conservationist

Date: _____

Watershed Project Plan - Environmental Assessment
Bentley Creek Watershed
Pennsylvania and New York

SUMMARY OF WATERSHED PROJECT PLAN

Project Name: Bentley Creek Watershed

County: Bradford, Chemung **State:** Pennsylvania, New York

Sponsors: Bradford County Commissioners
Bradford County Conservation District
Village of Wellsburg
Town of Ashland
Chemung County Legislature
Chemung County Soil and Water Conservation District

Authorities
The Watershed Project Plan is prepared under the authority of Public Law 83-566, Watershed Protection and Flood Prevention Act, as amended (16 U.S.C.1001-1008,1010,1012). The responsibility for administration of the Watershed Protection and Flood Prevention Act, as amended, has been assigned by the Secretary of Agriculture to NRCS.

Description of Recommended Plan
The Recommended Plan consists of implementation of a flood warning system, tributary stabilization, dike in Wellsburg, NY, dike in Centerville, PA and nonstructural measures for flood prone residential buildings in the 100-year flood plain not associated with a dike. Nonstructural measures in areas not associated with dikes will be voluntary and include house acquisition, house "floodproofing", house utility protection, mobile home park elevation and other mobile home elevation. This is the National Economic Development (NED) Plan.

Resource Information
Watershed Size – Land Cover

Land Cover	Acres
Agriculture	14,805
Forest	16,920
Urban	805
Surface Water	335
Miscellaneous	635
Watershed Total	33,500

Land Ownership
99% private / 1% public (state, local)

Farms and Farmland
Number of Farms – 160
Average Farm Size – 200 acres
No. of Minority Producers – 15
No. Limited Resource Farmers – 4

Project Beneficiaries:

	Watershed	Notes
Population	3,100	
Minority	45	
Unemployment	4.3%	Below U.S. Rate
Per Capita Income (1999 dollars)	$ 16,450	76% of U.S. Values
Median Home Values	$ 70,970	58% of State Values
52% of watershed flood damaged residences are mobile homes not included in home values		

[1/] Source: 2000 Census Data

Wetlands – over 200 acres within watershed

Flood Plains (Bentley Creek) – 750 acres

Threatened and Endangered Species
The Pennsylvania Natural Diversity Inventory (PNDI), New York State Department of Environmental Conservation and U.S. Fish and Wildlife Service-New York were queried to determine the project's potential to effect species of special concern, which includes federal and state recognized species. Based on the queries, no conflicts with ecological resources of special concern are known to exist in the area.

Cultural Resources
Phase 1 Cultural Resources Surveys were conducted of the project area. The Pennsylvania (PA) and New York State (NYS) State Historic Preservation Offices and the Seneca Nation of Indians were consulted regarding findings. One house to be impacted by the project is eligible for the National Register of Historic Places. This house will need to be removed from the flood plain to implement the Wellsburg dike. Mitigation of the house will be coordinated with the NYS State Historic Preservation Office. The NYS SHPO has requested additional investigation of the planned path of the Wellsburg dike diversion outlet. Although this area was investigated during the Phase I survey, a more extensive investigation will be conducted at the time of project design to confirm that unmarked graves are not located in the planned construction area and avoid any adverse impacts. Otherwise, the Phase I surveys located no prehistoric cultural material, no other cultural features and no archaeological sites.

Problem Identification
There are about 400 buildings and numerous roads and bridges subject to flood damages. Repeated flooding results in private costs, public expenditures and threats to public safety. Flood damages to buildings alone are in excess of $770,000 annually. In addition to flood damage, streambank erosion and excessive stream sediment and gravel loads are causing damages. Streambank erosion causes the loss of large areas of property, threatens homes, businesses and public facilities, degrades riparian and aquatic habitat and transports large quantities of sediment and gravel. Sediment contains nutrients which are detrimental to downstream aquatic habitats, including the Chesapeake Bay. Sediment and gravel deposits reduce bridge and stream capacity, aggravate flooding, and are costly to remove.

Alternative Plans Considered
1. No Action (future without project action) – The conditions in the watershed are not expected to change much in the next 20-25 years. There has been some new development, but the watershed is expected to remain largely rural. There are local efforts underway in both States to try to better manage stormwater runoff from any development that does occur. Flood damages are expected to remain much as they are today. Actions to reduce streambank erosion, stabilize and rehabilitate streams, and reduce sediment and gravel loads will continue; but progress is expected to be slow with few sources of adequate funding available.

2. Dikes Plus Nonstructural (Recommended Plan). Flood warning system, tributary stabilization, Wellsburg and Centerville dikes and nonstructural measures for residences not protected by dikes. This is the National Economic Development Plan.

3. Stream Rehabilitation plus Nonstructural. Same as alternative 2, except the Wellsburg dike is replaced with stream rehabilitation and the Centerville dike is replaced with voluntary nonstructural measures.

Project Purpose
Flood damage reduction, including land stabilization of tributaries.

Principal Project Measures
- Flood warning system, including rain and stream gages, repeater station and reverse 911 type system
- Tributary stabilization, about 19,000 feet in 4 tributaries
- Wellsburg dike (PA-681), about 4200 feet long with 2 road closure structures, stormwater basin, stream reconstruction and hillside diversion, 5-6 house acquisitions
- Centerville dike (PA-680), about 2400 feet long with 1 road closure structure, stormwater basin and hillside diversion
- Voluntary nonstructural, including house acquisition, house "floodproofing", house utility protection, and mobile home elevation.

Economic Evaluation [1/]

Project Costs:

	PL-83-566 Funds [2/]	Other Funds [3/]	Total
Flood Warning System	$ 42,000	$ 3,000	$ 45,000
Tributary Stabilization	810,000	28,000	838,000
Wellsburg Dike (PA-681)	2,403,000	122,000	2,525,000
Centerville Dike (PA-680)	750,000	6,000	756,000
Voluntary Nonstructural	1,415,000	21,000	1,436,000
Totals	**$5,420,000**	**$180,000**	**$5,600,000**
Average Annual Costs [4/] [5/]:	**$280,000**		

Project Benefits (average annual):

	Agricultural (including rural communities)
Flood/Sediment Damage Reduction	$570,000
Average Annual Benefits:	**$570,000**

Net Economic Benefit: **$290,000**
Benefit Cost Ratio: **2.0 : 1.0**

[1/] Price Base 2010
[2/] Includes $525,000 engineering and $385,000 project administration
[3/] Includes $34,000 project administration
[4/] Price Base 2010, amortized over 100 years at a Discount Rate of 4.125%
[5/] Includes annual operation and maintenance

Non-Monetary Benefits

- Substantial flood damage reduction to an estimated 200 buildings, including 170 residences
- Substantial reduction in threat to life from flooding
- Sediment loads reduced 50% (over 1700 tons per year)
- 19,000 feet of critically eroding tributary stream stabilized
- Moderate improvements in aquatic and riparian habitat along stabilized tributaries

Environmental Values Lost or Changed

Resource	Effect
Public Safety	Substantially improved
Flood Damages	Substantially reduced
Water Quality	Improved stream water quality due to reduced sediment loads
Land Use	Conversion of ~19 acres of mixed meadow, lawn & 1 acre of woodland to grassed dike components; conversion of ~ 5 acres of residential use to flood plain/riparian functions.
Soil	19,000 feet of land stabilized along tributaries
Aquatic Life	Moderate habitat improvement in areas stabilized. Little or no change in aquatic game species.
Wildlife	Moderate improvement to riparian habitat in areas stabilized.
Social Issues	Improved economic conditions due to reduced flood hazard; 5-6 homes displaced by dikes; access to and view of creek reduced in dike areas: reduced number and severity of raw exposed streambanks; reduced flood impacts on aesthetics
Cultural Resources	1 home (with outbuildings) that is eligible for the National Register of Historic places will be removed from flood plain
Flood Plain Management	100-year flood hazard eliminated for about 200 buildings; about 10 floodprone houses will be removed
Important Farmland	No effect
Threatened/Endangered Species	No Effect
Wetlands	No Effect
Air Quality	Minor amounts of air pollution during construction
Compensatory Mitigation:	1 building to be removed is eligible for the National Register of Historic Places & will be mitigated in consultation with the New York State Historic Preservation Office
Major conclusions:	Dikes Plus Nonstructural alternative is the National Economic Development plan and is the recommended alternative
Areas of controversy:	None known
Issues to be resolved:	Mitigation of 1 building eligible for the National Register of Historic Places; additional cultural resources survey of dike diversion outlet

INTRODUCTION

The Bentley Creek Watershed Project Plan and Environmental Assessment (Plan-EA) have been combined into a single document. The document identifies the watershed resource problems, describes plan formulation, discloses the expected impacts, and provides a basis for authorizing federal assistance. The purpose of the project is flood damage reduction and tributary stream stabilization to reduce the threat to life and property from floods, enhance stream riparian and aquatic habitat and reduce costs associated with flooding and sedimentation.

The Sponsoring Local Organizations are:

Bradford County Commissioners
Bradford County Conservation District
Village of Wellsburg
Town of Ashland
Chemung County Legislature
Chemung County Soil and Water Conservation District

The Sponsor's objectives are to:

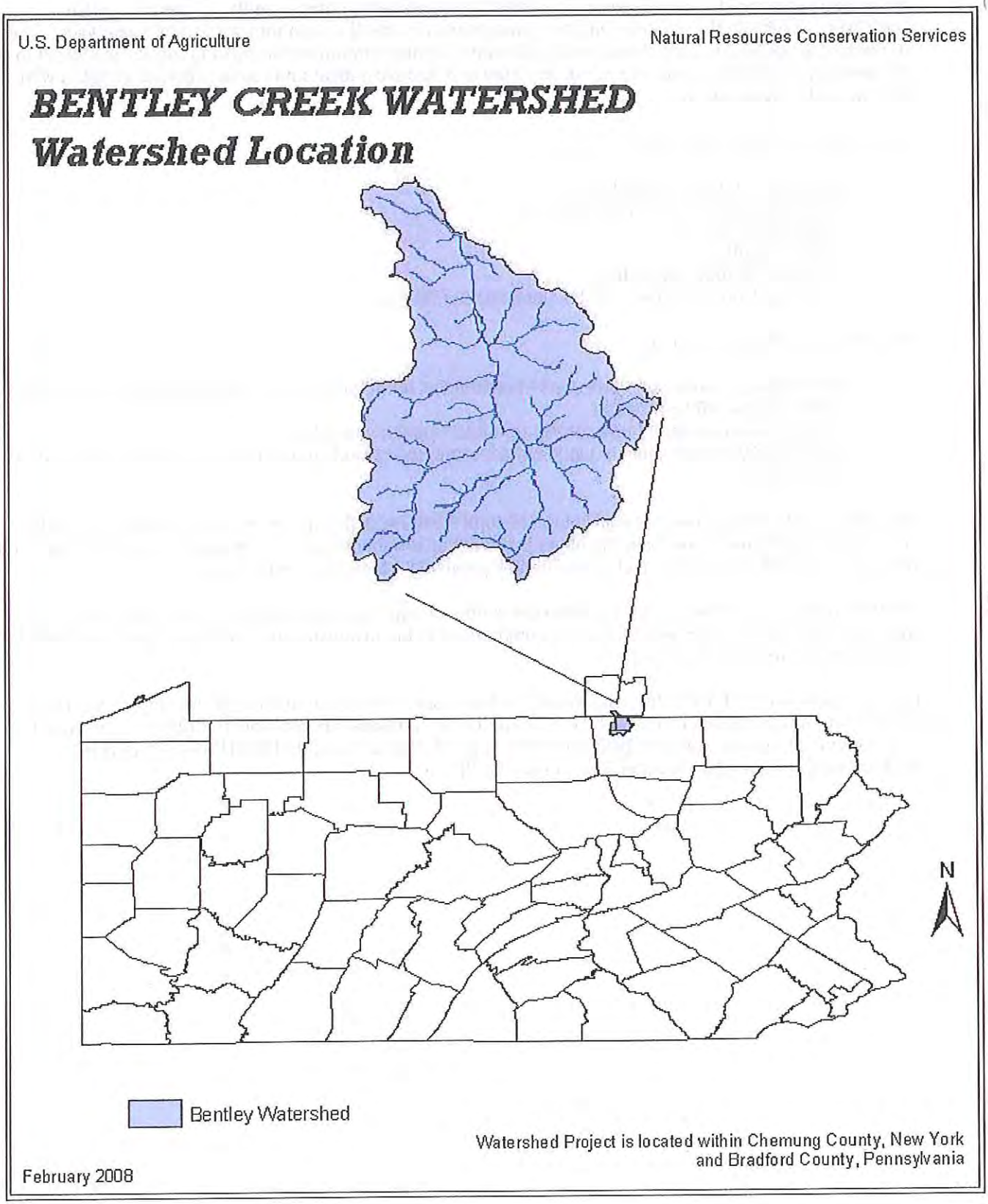
- Substantially reduce flood damages to residential, commercial and public buildings which receive up through the 100-year flood
- Reduce flood damage, if practicable, to roads, bridges and utilities
- Substantially reduce sediment loads and stream gravel loads to reduce flood damage and improve stream quality

The United States Department of Agriculture, Natural Resources Conservation Service (NRCS) provided the primary assistance to the local Sponsors in the development of this plan. Many other federal, state and local agencies and organizations also assisted by providing information and comment.

The information presented was obtained from a variety of agencies, organizations, published reports and analytical procedures. The procedures are summarized in the Investigations and Analyses Report included as an appendix to this documents.

The plan was prepared under the authority of the Watershed Protection and Flood Prevention Act, Public Law 83-566, as amended (16-USC-1001-1008) and in accordance with Section 102-(2)(c) of the National Environmental Policy Act of 1969 (NEPA), Public Law 91-190, as amended (42-USC-4321 et seq.). Responsibility for compliance with NEPA rests with NRCS.

Figure 1 - Location Map – Bentley Creek Watershed



PROJECT SETTING

Location

The Bentley Creek watershed is located in the north central part of the Susquehanna River Basin in the glaciated Allegheny Plateau region (see Figure 1). The watershed is situated in the northwestern section of Bradford County, Pennsylvania and the south central section of Chemung County, New York. Approximately 94 percent of the watershed is in Bradford County. The Bentley Creek watershed lies within Pennsylvania State Water Plan Sub-basin 4B and within Federal Geographic Data Committee hydrologic unit 02050105-06, and is more specifically defined by the following three 12-digit hydrologic units: 02050105-06-01, 02050105-06-02 and 02050105-06-03.

Land Use

Bentley Creek and tributaries drain an area of 52.4 square miles or 33,500 acres. The watershed is largely rural. Land use is distributed as 44.2 percent agricultural land (cropland, hayland, and pastureland), 50.5 percent forest lands, 2.4 percent developed land (residential, commercial, and transportation), 1.0 percent surface water, with the remaining 1.9 percent being miscellaneous land uses.

The primary agricultural land use is for the production of feed for dairy cows. Corn, feed grains, and hay are the principle crops. There are other less intensive livestock operations such as veal, sheep and beef cattle. Primary forestry uses are timber production, recreation, wildlife, and maple syrup production.

Primary developed land is in the form of strip development immediately adjacent to Bentley Creek along Pennsylvania SR 4013 (Berwick Turnpike) and Route 367 in New York. This development consists of single family homes; several small and medium sized commercial operations, and mobile home parks. The village of Bentley Creek is located near the geographic center of the watershed. The village of Centerville (sometimes known as Ridgebury) is located about two miles north (downstream) from the village of Bentley Creek. The largest populated area in the watershed is Wellsburg, New York, which is located at the confluence of Bentley Creek and the Chemung River. The remaining developed land in the watershed consists primarily of scattered homes and farmsteads.

Bentley Creek is the major water body in the watershed. In addition, there are seven or so small lakes or large ponds within the watershed.

Climate

In Bradford and Chemung Counties, the winters are cold with an average temperature of 28 degrees F and average daily minimum temperatures of 18 degrees F. The summers are moderately warm with average temperature being 69 degrees F and the daily maximum temperature of 82 degrees F.

The total average annual precipitation is 34 inches with 19 inches or 55 per cent occurring in April through September. The average annual snowfall is 48 inches. Thunderstorms occur on about 30 days each year, primarily in the summer.

Geology

The bedrock geology in the watershed is almost entirely composed of units from the Lock Haven formation of the Upper Devonian age. Younger units from the Catskill formation of the Upper Devonian age overlie a very small area at the top of the watershed to the south. The Lock Haven consists of interbedded light olive gray, very fine grained, fossiliferous sandstone, light-gray siltstone, gray silty shale, and some conglomerate beds occur near the top of the formation. The sandstone and siltstone are thin to medium bedded and the shale is thin to very thick bedded. The Catskill consists of shale, siltstone, sandstone and conglomerate. Structurally, all beds lie nearly horizontal.

The watershed has undergone at least three continental glaciations. The Wisconsin Glaciation is the last ice advance that has left a significant record of its presence. As the Wisconsin Glaciation and probably others

advanced over the area they ground down the hilltops and filled the valleys, flattening the area. Besides scouring the landscape, the Wisconsin Glaciation deposited large amounts of glacial till on the uplands and side slopes and glacial outwash and lacustrine deposits in the river valleys. These glacial materials, which were derived from the bedrock of the area, became the parent material of many of the soils of the area.

The glacial till is readily apparent when examining the profiles of the streams within the Bentley Creek watershed. Glacial till material can be easily eroded from the stream banks and bed in areas of high stream velocity, which are subsequently deposited in areas of lower stream velocity.

Soils

The soils in the Bentley Creek watershed predominantly consist of the Volusia-Mardin-Lordstown associations, which are deep and moderately deep, gently sloping to moderately steep, somewhat poorly drained to well drained soils.

Volusia soils are deep and somewhat poorly drained. They have a fragipan and a seasonal high water table. Mardin soils are deep and moderately well drained. They have a fragipan and a seasonal high water table. Lordstown soils are moderately deep and well drained.

Minor soils include Oquaga, Arnot, Wellsboro, Morris and deep Dystrochrepts on uplands; Chippewa and Medisaprists in lowlands and swamps; Wyoming, Chenango, and Rexford on terraces; and Holly, Pope and Udifluvents on flood plains.

Moderate depth to bedrock, seasonal high water table, slow and very slow permeability, and the very stony surface limit non-farm uses of the soils.

Water Resources

Bentley Creek has it source near Big Pond (Lake Ondawa) located at the 1860 foot elevation. Its mouth is located at the Chemung River in New York State at the 860 foot elevation. Its course is almost due north. Bentley Creek's length is 12.8 miles. Meander ratio is 1.08. Relief ratio is 78.1. Channel slope is 59.4 feet per mile or 1.1 percent. Drainage pattern is classified as dendritic. Channel pattern is regular. The average annual runoff is approximately 18 inches.

Bentley Creek is primarily formed by the following tributaries (Project Map - Appendix F); Trout Creek-3.4 square mile drainage area; Fall Creek-11 square mile drainage area; Miller Run-3.2 square mile drainage area; Buck Creek-10.2 square mile drainage area; Justice Run-4.25 square mile drainage area; Terwiliger Creek-4.5 square mile drainage area; and Three Falls Glen-1.9 square mile drainage area.

The watershed contains numerous small ponds. The three main impoundments (all manmade) include Miller Pond, Lake Ondawa, and Ridgebury Lake (Project Map - Appendix F). Miller Pond has a drainage area of 2.6 square miles, a surface area of 10 acres and a maximum storage of 684 acre-feet. Lake Ondawa has a drainage area of 1 square mile, a surface area of 25 acres and a maximum storage of 215 acre-feet. Ridgebury Lake has a drainage area of 2.2 square miles, a surface area of 58 acres and a maximum storage of 1230 acre-feet. Miller Pond was originally constructed for hydropower (mechanical), but is no longer used as such. Identified uses of Lake Ondawa and Ridgebury Lake are recreation, fishing, and aesthetics. There are an estimated 200 acres of wetland within the watershed.

The Pennsylvania Department of Environmental Protection, in its Chapter 93 - Water Quality Standards, lists Bentley Creek's protected use as Warm Water Fishes. This designation is in addition to other protected uses such as water supply and recreation. There are no recorded public water intakes. However, the main stem Bentley Creek has many private shallow groundwater intakes that are largely influenced by the surface waters of the creek. There are no permitted discharges (point source) in the watershed. Non-point influences are land use runoff and on-lot septic systems. New York State Department of Environmental Conservation classifies Bentley Creek and the tributaries in New York as Surface Water Class C. The New York sections are therefore not considered to be protected water bodies.

Forestland

Forested tracts account for 50.5 percent in the watershed. Forestland is diverse, consisting of mixed oaks, oak-pine, cherry-ash-poplar, oak-hickory, beech-birch-maple, white pine, hemlock, and northern hardwoods. Sites are generally moderate to high quality with 96 percent of the site indexes ranging between 60 and 80. Nearly 80 percent of the forested areas are in large, contiguous tracts greater than 80 acres. The rest are in small isolated woodlots less than 25 acres. Most of the forestland acres in the watershed are in private ownership. Of these, about 17,000 acres are non-industrial private forestlands, and about 1,400 acres are in State Game Lands, campgrounds, and golf course ownership. Ownership patterns are expected to remain stable; however, forested tracts are currently being subdivided for residential use (U.S. Forest Service, 1997).

Socioeconomic Profile

The economic base for the Bentley Creek watershed area consists of several small to medium businesses and agriculture. Much of the employment market is to the northwest in the area of Elmira, New York and other communities outside of the watershed.

There are approximately 3100 people in the watershed, with about 98.5% white and the remainder consisting of black, Hispanic, Asian and other ethnic groups. An estimated 8.5 percent of the population have a bachelor's degree or higher compared to the national average of 24.4 percent. The percentage of high school graduates is about 77.7 percent compared to 80.4 percent nationally.

Based on the criteria developed by NRCS for the Watershed Protection and Flood Prevention Program, this area essentially qualifies as an economically and socially disadvantaged community. The qualifying criteria include project housing values less than 75 percent of the state values and per capita income less than 75 percent of the national values, as follows:

Criteria for disadvantaged communities:	**Watershed**	**States**	**Percent**
1. Property Values - Median House Values (2000)	$71,000	$122,700	**58%**
2. Per Capita Income (1999)	**Watershed**	**United States**	**Percent**
	$16,500	$21,600	**76%**
3. Unemployment (2000)	**Watershed**	**United States**	
	4.3%	5.8%	

Source of data: U.S. Census Bureau - American Fact Finder

WATERSHED PROBLEMS AND OPPORTUNITIES

Watershed Problems

Three primary natural resource related problems have been identified for the Bentley Creek watershed:

Flood Damage
Streambank Erosion
Sediment Damage

Flood Damage

Bentley Creek has a long history of flooding. In 1965, the USDA-Soil Conservation Service (now USDA-Natural Resources Conservation Service) in a Preliminary Investigation Report for the Watershed Protection and Flood Prevention Program (USDA-SCS, 1965) identified five significant floods that occurred in the watershed since 1915. At that time the last major flood occurred in 1947. Since that 1965 report, significant floods have caused private property and infrastructure damage in 1972 (Hurricane Agnes), 1975 (Hurricane Eloise), 1984, June of 1994, August of 1994, and January 19, 1996. See Photos 1-3.

Wellsburg, NY has experienced multiple flooding events. This town is situated near the confluence of Bentley Creek into the Chemung River. Bentley Creek flows in this area are subject to high tail water influence from the river which can back water over the creek banks and into town.

The best documented are the floods of 1972 and January 19, 1996. The flood of 1972 is recognized as being the flood of record for this watershed and is classified as a 100-year frequency storm. The January 19, 1996 flood, according to local residents, approached or exceeded the 1972 event. The Corps of Engineers has estimated the flood of January 19, 1996 in PA to be a 75-year flood frequency event. This event resulted from rainfall onto snow covered ground which then melted producing significant runoff. Until recently, there have been no stream gages or stream monitoring locations in the Bentley Creek watershed.

Photo 1. – Flooding in Wellsburg, NY, June 1972

Photo 2. – Flooding in Wellsburg, NY, June 1972

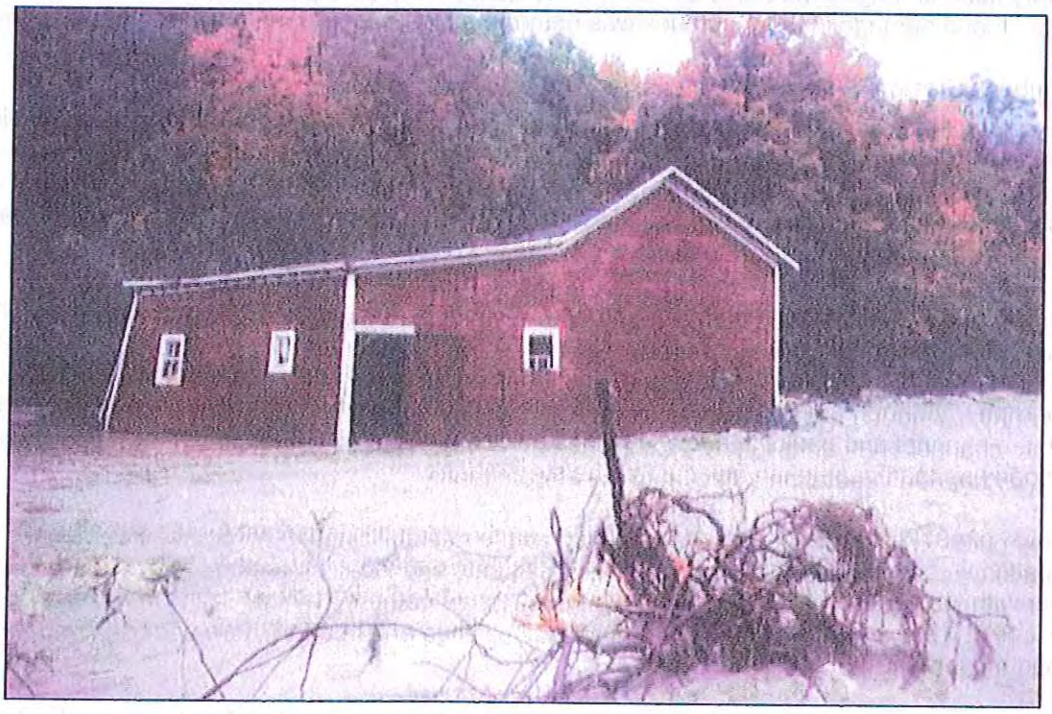



Photo 3. – Flooding along Bentley Creek, Ridgebury Township, PA