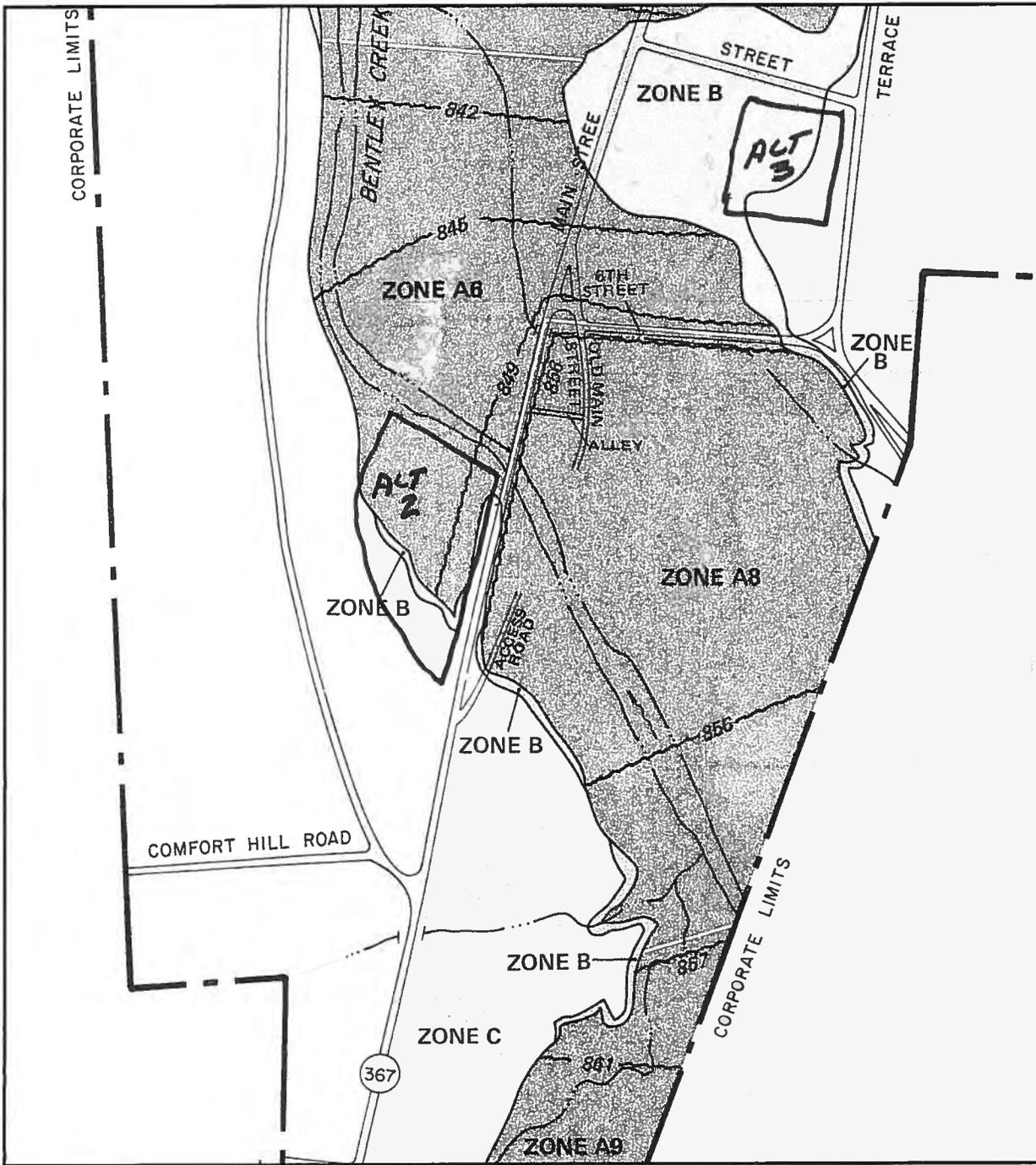


APPENDIX C
FEMA FLOODPLAIN MAPPING



APPROXIMATE SCALE



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

VILLAGE OF
WELLSBURG,
NEW YORK
CHEMUNG COUNTY

ONLY PANEL PRINTED

COMMUNITY-PANEL NUMBER

360157 0001 B

EFFECTIVE DATE:

JUNE 15, 1981



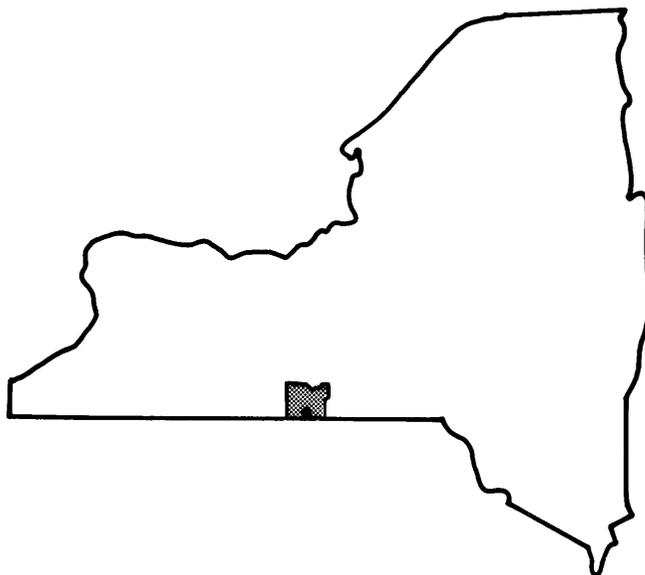
federal emergency management agency
federal insurance administration

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

FLOOD INSURANCE STUDY



VILLAGE OF
WELLSBURG,
NEW YORK
CHEMUNG COUNTY



DECEMBER 15, 1980



federal emergency management agency
federal insurance administration

COMMUNITY NUMBER - 360157

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PUBLISHED SEPARATELY:

Flood Insurance Rate Map

FLOOD INSURANCE STUDY
VILLAGE OF WELLSBURG, NEW YORK

1.0 INTRODUCTION

1.1 Purpose of Study

The purpose of this Flood Insurance Study is to investigate the existence and severity of flood hazards in the Village of Wellsburg, Chemung County, New York, and to aid in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. Initial use of this information will be to convert Wellsburg to the regular program of flood insurance by the Federal Insurance Administration (FIA). Further use of the information will be made by local and regional planners in their efforts to promote sound land use and flood plain development.

1.2 Coordination

Flood discharge information was coordinated with the Baltimore District of the U. S. Army Corps of Engineers (COE), the Ithaca District of the U. S. Geological Survey (USGS), and the New York State Office of the Soil Conservation Service (SCS). The hydraulic data were coordinated with the COE and the SCS. A final Consultation and Coordination Officer's (CCO) meeting was held on March 4, 1976. Revisions have since been made to the study as a result of the construction of the Tioga-Hammond and Cowanesque Dams. Therefore, an additional CCO meeting, held on June 9, 1980, and attended by borough officials, was necessary.

1.3 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968, as amended.

The hydrologic and hydraulic analyses for this study were prepared by the Susquehanna River Basin Commission for the Federal Insurance Administration, under Contract No. H-3824. This work, which was completed in November 1977, covered all significant flooding sources in the Village of Wellsburg.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Village of Wellsburg, Chemung County, New York. The area of study is shown on the Vicinity Map (Figure 1).

Flooding from the Chemung River and Bentley Creek was studied by detailed methods. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction for the next five years, through November 1982.

2.2 Community Description

The Village of Wellsburg is located along the southern boundary of Chemung County, in western New York. The Village of Wellsburg is bordered on the north, east and west by the Town of Ashland, and on the south by the Township of Ridgebury, Bradford County, Pennsylvania. Wellsburg was incorporated in 1872. In 1970, a total of 779 people resided within the 1.0 square mile area of the village. The population of the village increased by 21.2 percent between 1960 and 1970.

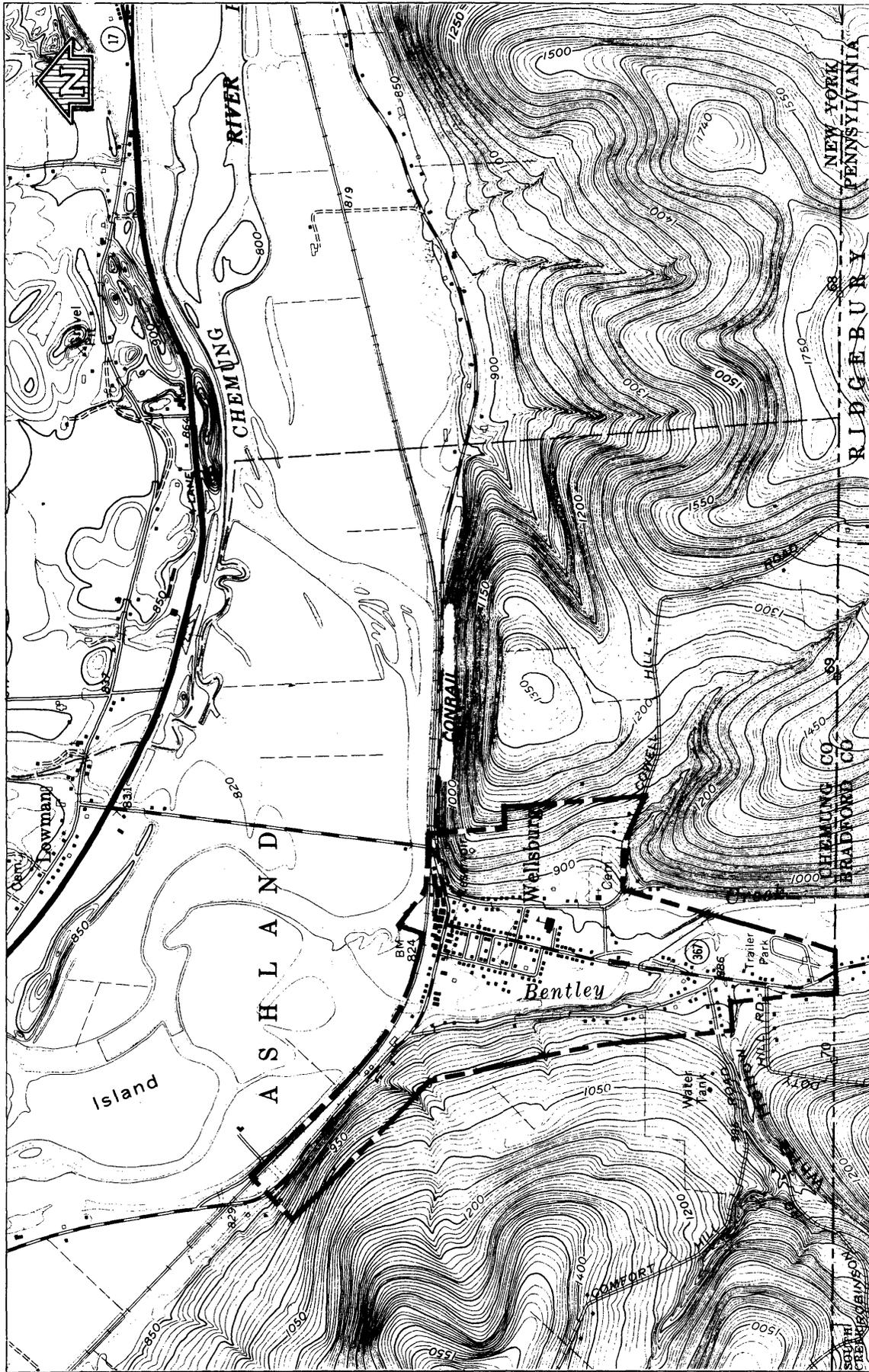
The Village of Wellsburg is situated in the narrow flood plains of Bentley Creek. The steep slopes at the confluence of Bentley creek are adjacent to the village. Wellsburg is a rural, agricultural community.

The Chemung River flows south and east past the northern boundary of the village; Bentley Creek flows north through the center of the village. Residential structures are the most predominant of the various types of development concentrated in the combined 100-year flood plain of the Chemung River and Bentley Creek.

The climate in Wellsburg is generally continental, but is modified by the effects of the Atlantic Ocean and the Gulf of Mexico.

2.3 Principal Flood Problems

Historic data and the findings of this study show that the Chemung River and Bentley Creek are the principal sources of flooding problems in the Village of Wellsburg.



FEDERAL EMERGENCY MANAGEMENT AGENCY
 Federal Insurance Administration

VILLAGE OF WELLSBURG, NY
 (CHEMUNG CO.)



FIGURE 1

Flood plain development within the Village of Wellsburg has been damaged during periodic past floods. The most notable floods occurred in 1946 and 1972. A less severe, but more recent flood in September 1975 caused damage along the Chemung River. The flood in June 1972, caused by Hurricane Agnes, was the largest of record on the Chemung River. A discharge value of 189,000 cubic feet per second (cfs) was recorded downstream of the study area at the Chemung, New York, river gage, which is located 10 miles upstream from the mouth of the Chemung River (Reference 1). The gage has been in operation for 63 years. The 1972 flood was considered to be a 500-year flooding event. The May 1946 flood, which was caused by intense rainfall on previously saturated ground, had a discharge value of 132,000 cfs, which was considered to be a 100-year flooding event (Reference 2). The recurrence intervals described above were determined without consideration of the storage capacity of the Tioga-Hammond and Cowanesque Dams and are therefore no longer valid.

2.4 Flood Protection Measures

There are no local flood protection projects existing or proposed to reduce the flood hazard to the Village of Wellsburg. Four existing upstream dams, Arkport Dam on the Canisteo River, Almond Dam on Canacadea Creek, the Tioga-Hammond on the Tioga River and Crooked Creek, and the Cowanesque on the Cowanesque River, contribute to the reduction of flood hazards in the Village of Wellsburg. The effects of these new dams are included in this study. With these dams in operation, the 1946 and 1972 discharges would be significantly reduced due to the additional storage provided by the dams.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Floods having recurrence intervals of 10, 50, 100, and 500 years have been selected as having special significance for flood plain management and for flood insurance premium rates. The analyses reported here reflect current conditions in the watersheds of the flooding sources.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail in the community.

Discharges for the Chemung River were obtained from discharge frequency curves for the stream gage at the Town of Chemung as prepared by the COE (Reference 3). This gage has been in operation for 63 years. The Town of Chemung is located about 6.3 miles downstream of Wellsburg.

Discharge values for 10-, 50-, 100-, and 500-year return periods at the gaging stations were plotted against drainage area on log-log paper. Values for the area were obtained from this plot using the appropriate drainage area.

Discharges for Bentley Creek were obtained from the regional flood frequency procedures developed by the COE (Reference 1). This method is based on the log-Pearson Type III analysis of a large number of station records in the Susquehanna River Basin, through 1972 (Reference 4). The coefficients for this method were modified in accordance with the analysis made for Newtown Creek and other smaller streams in the vicinity. The discharges for Newtown Creek were obtained from a frequency curve developed by the SCS (Reference 5). The SCS frequency curve compared closely to a frequency curve computed for the USGS stream gage on Newtown Creek (Reference 1). All flood discharges were determined by the Susquehanna River Basin Commission (SRBC).

A summary of peak discharges for the Village of Wellsburg is shown in Table 1, "Summary of Discharges." The discharges in Table 1 reflect the peak flow of floods that will occur after the completion of the dams. All discharges previously mentioned were computed without consideration of the effects of the dams and, therefore will not be consistent with the recurrence interval of flows shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

<u>FLOODING SOURCE AND LOCATION</u>	<u>DRAINAGE AREA (sq. miles)</u>	<u>PEAK DISCHARGES (cfs)</u>			
		<u>10-YEAR</u>	<u>50-YEAR</u>	<u>100-YEAR</u>	<u>500-YEAR</u>
CHEMUNG RIVER					
At State Route 367 bridge	2,506	52,500	84,000	100,000	148,000
BENTLEY CREEK					
At the downstream corporate limits	53.4	8,000	15,500	20,000	34,000

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the flooding sources studied in detail were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of these flooding sources.

Cross sections were located at regular intervals along the stream length and at significant changes in ground relief, land use or land cover. All profile starting elevations were determined by the SRBC. Ground elevations for the cross sections were interpolated from contours and spot elevations on 1:2,400 scale base maps (Reference 6). Channel bottom elevations for the Chemung River were obtained from existing profiles (Reference 7).

Water-surface elevations of floods of the selected recurrence intervals were computed through use of the COE HEC-2 step-backwater computer program (Reference 8). Starting water-surface elevations for the Chemung River and Bentley Creek were obtained from the Flood Insurance Study for the Town of Ashland (Reference 9).

Manning's "n" values were evaluated from aerial and ground level photographs, topographic maps and on-site field examinations. The "n" values were selected from tables published by Ven Te Chow and the Bureau of Public Roads, based on channel conditions and overbank vegetation or land use (References 10 and 11). Within the Village of Wellsburg the channel "n" value was 0.035 and the overbank "n" values ranged between 0.065 and 0.075.

The hydraulic computer model was tested and the "n" values were adjusted within an acceptable range to best fit known high-water marks and/or elevations at gaging stations for the Chemung River from the mouth to the confluence with Seeley Creek. All gaging station elevations were determined by the study contractor based on established rating curves. High-water marks obtained by the USGS for the June 1972 flood were used (Reference 12). The 1972 flood had a recurrence interval which was greater than 500 years. When a satisfactory model was achieved, water-surface profiles were computed for floods with recurrence intervals of 10-, 50-, 100-, and 500-years.

The procedure used to obtain the "n" values and the water-surface elevations for Bentley Creek was similar to the procedure used for the Chemung River except that it was not possible to verify the profiles using known high-water marks. The channel "n" values ranged between 0.010 and 0.040, and the overbank "n" values ranged between 0.085 and 0.095.

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals. Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway is computed (Section 4.2), selected cross-section locations are also shown on the Flood Boundary and Floodway Map (Exhibit 2).

All elevations used in this study are referenced to the National Geodetic Vertical Datum of 1929 (NGVD), formerly referred to as Sea Level Datum of 1929. Locations of the elevation reference marks used in the study are shown on the maps.

The hydraulic analyses for this study are based on the effects of unobstructed flow. The flood elevations shown on the profiles are valid only if the hydraulic structures remain unobstructed and dams and other flood control structures operate properly and do not fail.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

A prime purpose of the National Flood Insurance Program is to encourage state and local governments to adopt sound flood plain management programs. Each Flood Insurance Study, therefore, includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FIA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100- and 500-year floods have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:2,400 with a contour interval of 5 feet (Reference 6). In cases where the 100- and 500-year flood boundaries are close together, only the 100-year boundary has been shown.

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map (Exhibit 3). Small areas within the flood boundaries may lie above the flood elevations and, therefore, may not be subject to flooding. Owing to limitations of the map scale and lack of detailed topographic data, such areas are not shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain development against the resulting increase in flood hazard. For purposes of the Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood can be carried without substantial increases in flood heights. Minimum standards of the FIA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this report are presented to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

The floodways presented in this study were computed on the basis of equal conveyance reduction from each side of the flood plains. The results of these computations are tabulated at selected cross sections for each stream segment for which a floodway is computed (Table 2).

As shown on the Flood Boundary and Floodway Map (Exhibit 2), the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

Portions of the Chemung River and Bentley Creek floodway widths are located outside the corporate limits of the Village of Wellsburg.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S.)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FEET)
Chemung River	76,860 ¹	3,168 ³	33,949	2.9	824.2	824.2	825.1	0.9
	81,060 ¹	2,951 ³	30,744	3.3	826.1	826.1	827.0	0.9
	82,780 ¹	2,699 ³	24,641	4.1	827.4	827.4	828.3	0.9
Bentley Creek	1,600 ²	1,060	5,661	3.5	827.6	827.6	828.3	0.7
	2,170 ²	820	3,116	6.4	830.2	830.2	830.6	0.4
	2,760 ²	660	3,785	5.3	833.9	833.9	834.7	0.8
	3,360 ²	580	2,820	7.1	839.2	839.2	839.6	0.4
	3,960 ²	455	3,018	6.6	842.9	842.9	843.9	1.0
	4,520 ²	895	4,544	4.4	846.4	846.4	846.8	0.4
	5,115 ²	780	7,840	2.6	855.8	855.8	856.1	0.3
	5,700 ²	355	2,924	6.8	855.9	855.9	856.1	0.2
	6,321 ²	240 ³	1,800	11.1	857.2	857.2	857.6	0.4
	6,920 ²	545 ³	2,665	7.5	863.0	863.0	863.2	0.2
	7,503 ²	722 ³	3,042	6.6	868.6	868.6	868.8	0.2

¹Feet above origin of study*

²Feet above confluence with Chemung River

³This width extends beyond corporate limits

*The origin of study is located 9,425 feet downstream of State Route 427 bridge in the Township of Athens, Bradford County, Pennsylvania.

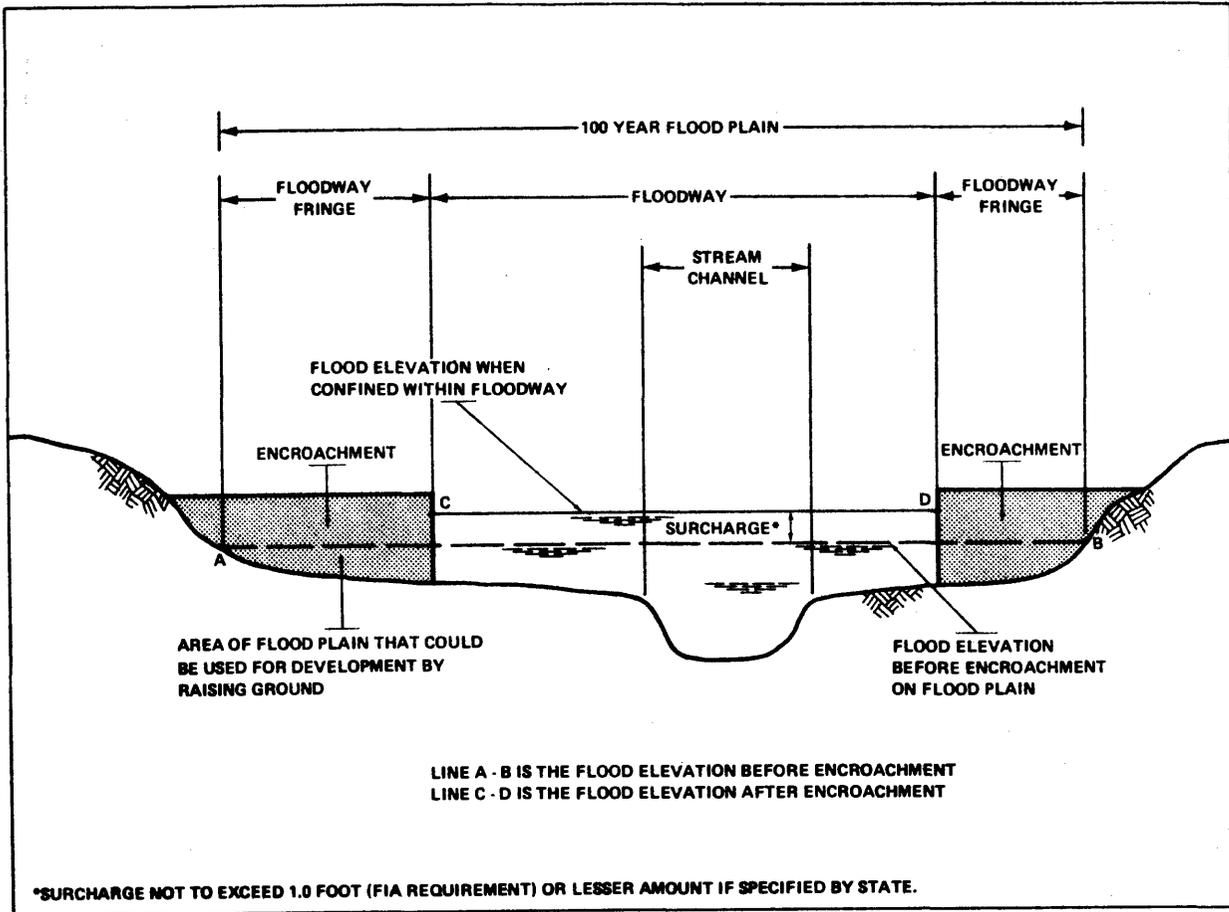
FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

VILLAGE OF WELLSBURG, NY
(CHEMUNG CO.)

FLOODWAY DATA

CHEMUNG RIVER AND BENTLEY CREEK

TABLE 2



FLOODWAY SCHEMATIC

Figure 2

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FIA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHF's), and flood insurance zone designations for each flooding source affecting the Village of Wellsburg.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

FLOODING SOURCE	PANEL ¹	ELEVATION DIFFERENCE ² BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION ³ (NGVD)
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Chemung River Reach 1	01	-4.1	-1.3	+6.6	040	A8	Varies
Bentley Creek Reach 1	01	-2.7	-0.9	+1.6	025	A5	Varies
Reach 2	01	-2.0	-0.7	+2.1	020	A4	Varies
Reach 3	01	-2.8	-0.8	+2.1	030	A6	Varies
Reach 4	01	-4.1	-1.7	+2.1	040	A8	Varies
Reach 5	01	-4.6	-0.8	+2.1	045	A9	Varies

¹Flood Insurance Rate Map Panel

²Weighted average

³Rounded to the nearest foot - see map

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

VILLAGE OF WELLSBURG, NY
(CHEMUNG CO.)

FLOOD INSURANCE ZONE DATA

CHEMUNG RIVER AND BENTLEY CREEK

TABLE 3

<u>Average Difference Between 10- and 100-Year Floods</u>	<u>Variation</u>
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The locations of the reaches determined for the flooding sources of Wellsburg are shown on the Flood Profiles (Exhibit 1) and are summarized in the Flood Insurance Zone Data Table (Table 3).

5.2 Flood Hazard Factors

The FHF is the FIA device used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their FHF's are used to set actuarial insurance premium rate tables based on FHF's from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest 0.5 foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year water-surface elevations is greater than 10.0 feet, accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHF's, the entire incorporated area of the Village of Wellsburg was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zones A4, A5, A6: A8, A9:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF.
------------------------------	---

Zone B: Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; also, areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.

Zone C: Areas of minimal flooding.

Table 3, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHF's, flood insurance zones, and base flood elevations for the flooding sources studied in detail in the Village of Wellsburg.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Village of Wellsburg is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FIA.

6.0 OTHER STUDIES

A Flood Plain Information report was prepared by the COE for the Chemung River, downstream from the junction of the Tioga and Cohocton Rivers (Reference 7). The 100-year flood profiles in this study on the Chemung River disagree with the COE Intermediate Regional Flood profile in the Flood Plain Information report. The data presented in this study were combined with data from the Centerway gage in Chemung, New York, while the COE study did not use this gage in their analyses. The data presented here were accepted by the FIA.

The information contained in the Flood Insurance Study for the Town of Ashland is in complete agreement with the information in this study (Reference 9).

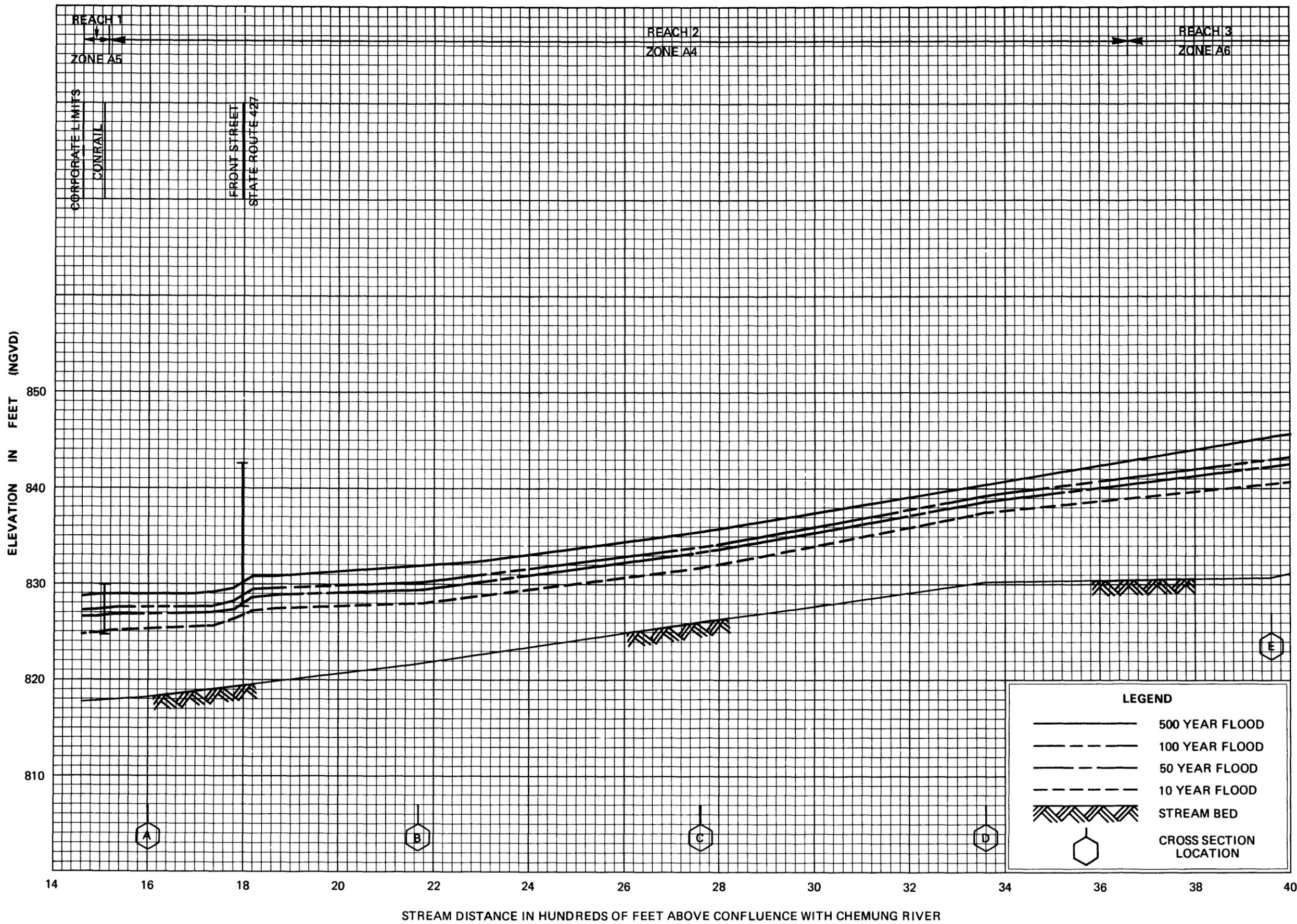
This study is authoritative for purposes of the Flood Insurance Program, and the data presented here either supersede or are compatible with previous determinations.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic, and other pertinent data used in this study can be obtained by contacting the office of the Insurance and Mitigation Division of the Federal Emergency Management Agency, Regional Director, Region II Office, 26 Federal Plaza, Room 19-100, New York, New York 10278.

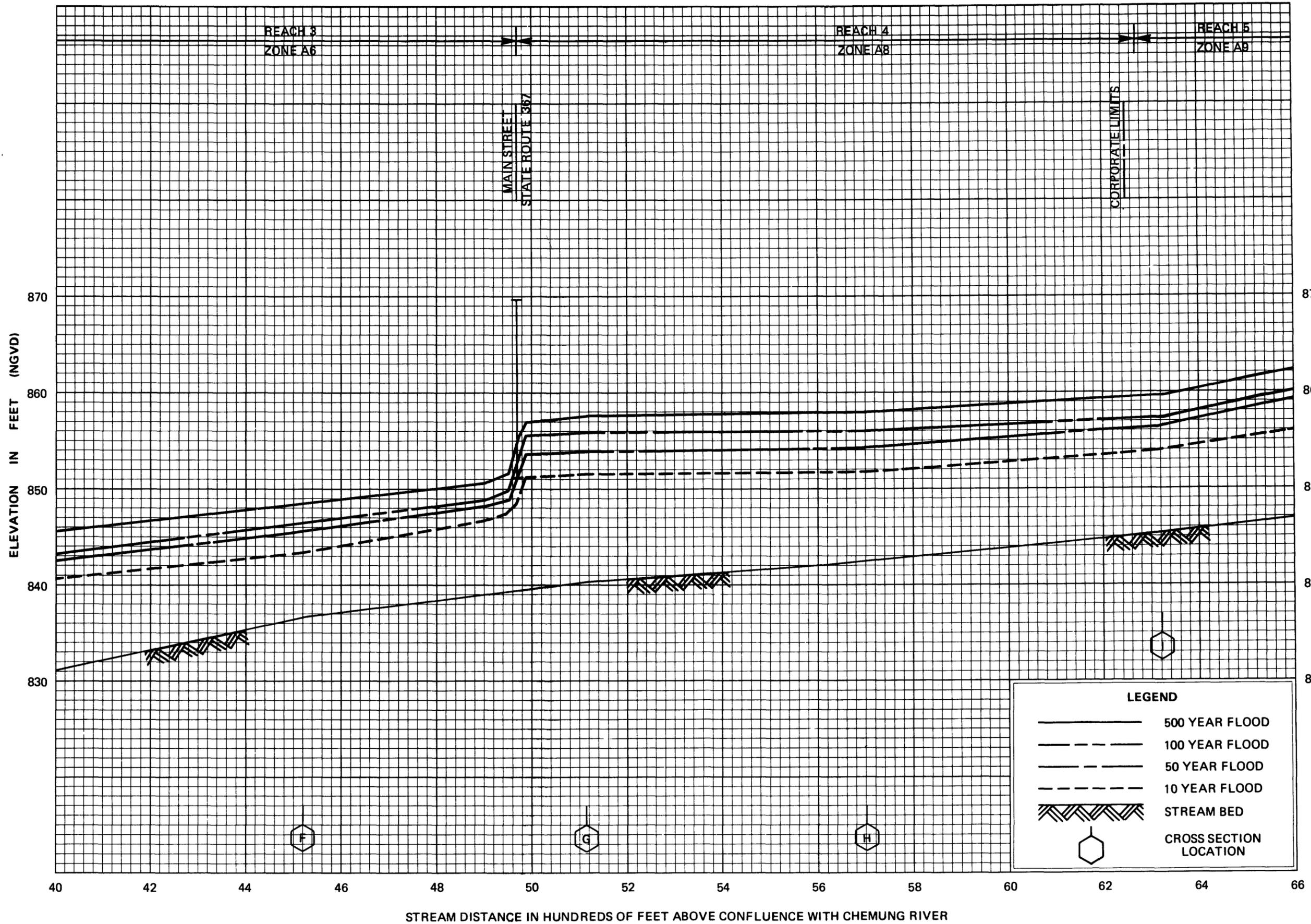
8.0 BIBLIOGRAPHY AND REFERENCES

1. U. S. Army Corps of Engineers, New York District, Hydrologic Study, Tropical Storm Agnes, New York, October 1975.
2. U. S. Department of the Interior, Geological Survey, Water Supply Paper 1672, Magnitude and Frequency of Floods in the United States, Part 1-B, North Atlantic Slope Basins, Washington, D. C., U. S. Government Printing Office, 1965.
3. Chief of the Engineering Division, Baltimore District, U. S. Army Corps of Engineers, Personal Communication, May 1975.
4. Water Resources Council, "Guidelines for Determining Flood Flow Frequency," Bulletin 17, Washington, D. C., March 1976.
5. U. S. Department of Agriculture, Soil Conservation Service, Syracuse District, Personal Communication, 1975.
6. Susquehanna River Basin Commission, Topographic Maps, Corning-Elmira Reach, Scale 1:2,400, Contour Interval 5 Feet, Harrisburg, Pennsylvania, 1974.
7. U. S. Army Corps of Engineers, Flood Plain Information, Chemung River, Steuben County, New York, New York, June 1974.
8. U. S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water-Surface Profiles, Step-Backwater Computer Program, Davis, California, October 1973.
9. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Town of Ashland, Chemung County, New York, Washington, D. C., June 16, 1979.



FLOOD PROFILES
BENTLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration
VILLAGE OF WELLSBURG, NY
(CHEMUNG CO.)

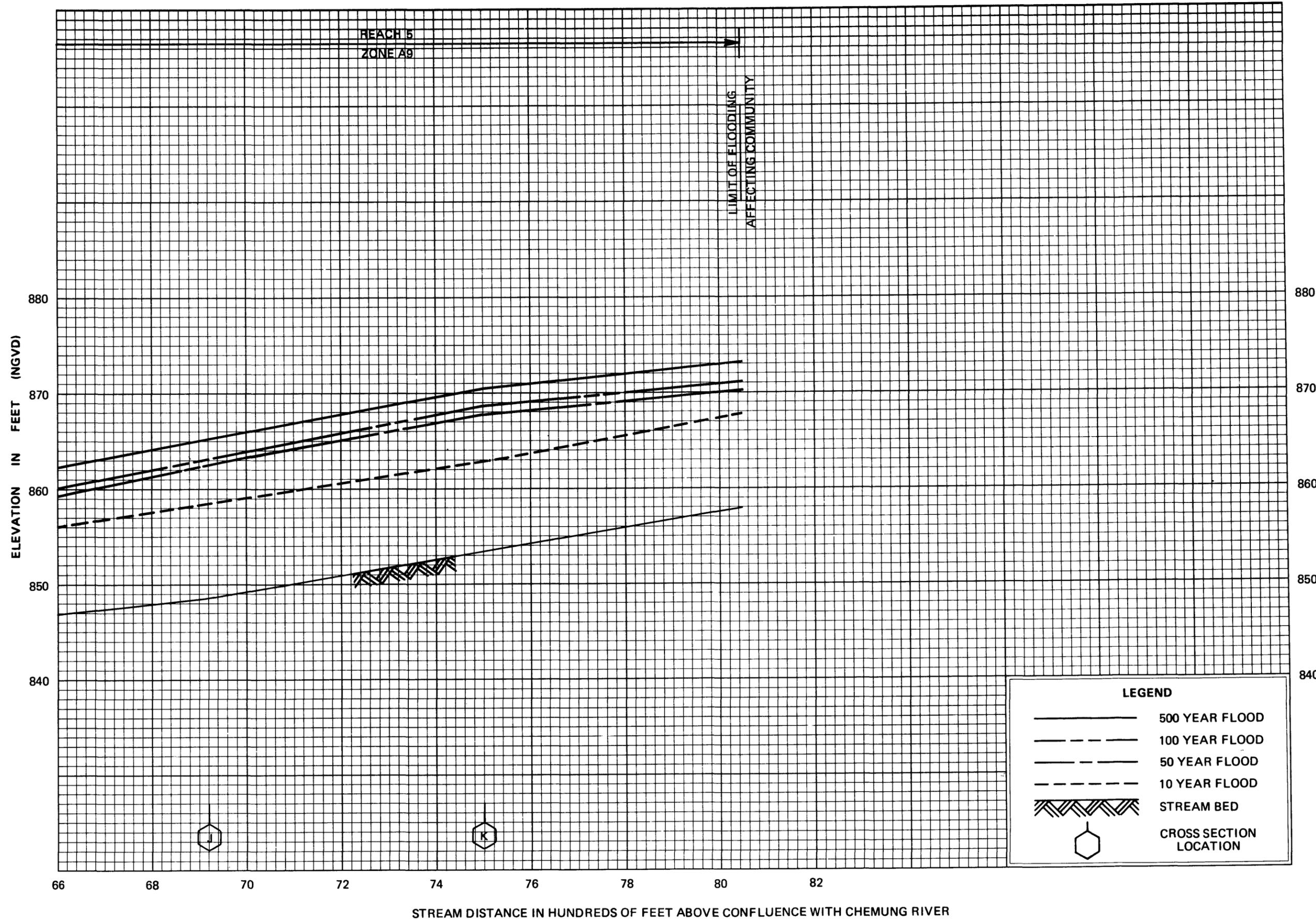


FLOOD PROFILES

BENTLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration

VILLAGE OF WELLSBURG, NY
(CHEMUNG CO.)



FLOOD PROFILES
BENTLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
Federal Insurance Administration
VILLAGE OF WELLSBURG, NY
(CHEMUNG CO.)

Flood Mitigation Action Plan

Village of Wellsburg

Flood Mitigation Action Plan

Village of Wellsburg

Chemung County, New York

July 1999

Prepared with assistance from:

Southern Tier Central Regional Planning and Development Board
145 Village Square
Painted Post, NY 14870

This Flood Mitigation Action Plan was prepared as part of the Southern Tier Central Flood Mitigation Planning Project, which was funded in part by the New York State Emergency Management Office and Federal Emergency Management Agency.

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BACKGROUND

The Village of Wellsburg is a community of 617 residents (1990 census) in a one square mile area located southeast of the City of Elmira in Chemung County, NY. The principle sources of flooding are the Chemung River (which forms part of the northern corporate limit) and Bentley Creek (which flows northward from Pennsylvania through the center of the Village). The majority of the development within the Village of Wellsburg is located within the 100-year floodplains of Bentley Creek and the Chemung River.

The Village of Wellsburg sustained severe flooding from the Chemung River and Bentley Creek in 1946, 1972 (Hurricane Agnes flood), and 1975 (Hurricane Eloise flood). Flooding from Bentley Creek caused damage within the Village in 1984, June 1994, August 1994 (Hurricane Beryl), and January 1996. The January 1996 flood caused an estimated \$1.68 million in damage within the Village. Documented high water depths inside the Wellsburg Fire Station were 87 inches in 1972, 43 inches in 1975, and 57 inches in 1996. In addition to these flood events, many additional heavy rainfall events have caused localized drainage problems, ponding, streambank erosion and other difficulties.

In 1981, Wellsburg joined the Regular Phase of the National Flood Insurance Program. Since that time, development within the areas designated as the 100-year floodplain (on the Village's Flood Insurance Rate Map) has been regulated by a local ordinance.

Flood insurance can be purchased for any building in the Village of Wellsburg. On March 3, 1999, there were 39 flood insurance policies in the Village (24 in the 100-year floodplain). Flood insurance claims since 1978 have totaled \$289,620 (17 claims). This represents only a fraction of the total flood damages because many property owners do not carry flood insurance and many damages (particularly to basements and basement contents) are not covered. No properties in the Village of Wellsburg are classified by the National Flood Insurance Program as "repetitive loss properties" (indicating that none have experienced two or more flood insurance claims within any ten year period since 1978).

In 1991, Wellsburg began participation in the Community Rating System of the National Flood Insurance Program. Participation in this program enables property owners to purchase flood insurance at reduced rates as a result of activities that reduce the flood risks within the Village. The Village presently qualifies for a 5% reduction in flood insurance premiums.

In 1965, the counties and municipalities in the Bentley Creek watershed (including the Village of Wellsburg) applied to the federal government as sponsors of a flood control project through the PL-566 Watershed Protection and Flood Prevention Program. A 1965 Preliminary Report indicated that the benefit/cost ratio for a Bentley Creek flood control project was not sufficient to be eligible for federal assistance. After the 1972 Hurricane Agnes flood, the benefit/cost ratio was reevaluated, but the results still indicated that a federal flood control project could not be economically justified. However, the local sponsors refused to withdraw the PL-566 application and asked that it be reevaluated again after a series of flooding events during

the summer of 1994. The extensive damages of the January 1996 flood were included in the benefit/cost analysis of the Preliminary Investigation Report that was completed in 1997. This report indicated a potential for viable PL-566 projects in the Bentley Creek watershed. The Natural Resources Conservation Service has initiated the process of preparing a Watershed Plan, which will include a more intense study of the watershed and evaluation of potential projects to reduce the damages from flooding and bank erosion. This work is ongoing.

In October 1996, major stakeholders in the management of the natural resources of Bentley Creek participated in a two-day Coordinated Resource Management session. Public officials, landowners, businesses, federal, state and local officials and agencies from both Pennsylvania and New York were in attendance. The purpose was to begin to address the serious flooding and stream instability in the watershed. Concerns and issues were voiced, discussed, and strategies proposed. The top elements identified during this session are listed in Table 1.

A major outcome of the Coordinated Resource Management session was formation of the Penn-York Bentley Creek Watershed Association. This open group of stakeholders meets every month to keep updated on progress and to advocate the needs of the watershed. The Village of Wellsburg is an active participant in this association.

The U.S. Fish and Wildlife Service initiated the Bentley Creek Stream Restoration Project in 1998. This project demonstrates an approach to stream restoration that incorporates the principles of applied river morphology. The primary concept behind this approach is that undisturbed streams are very stable during high water situations. Since a primary concern in the Bentley Creek watershed is the instability and resulting gravel deposition, restoration of the stream channel is a beginning goal. The river morphology approach aims to restore the natural stability of Bentley Creek by reconstructing a stream system that is matched to the physical characteristics of the stream section. A demonstration project was implemented along a Pennsylvania reach of Bentley Creek in 1998. A conceptual restoration plan for the remainder of the stream is expected to be completed in 1999.

Additional efforts to resolve flooding and drainage problems in Wellsburg are numerous. The Village has included a line item in its budget for flooding and erosion projects (\$10,000 in 1997-98; \$17,000 in 1998-99). Municipal officials provide citizens with recommendations and information about the removal of vulnerable property (especially utilities) from basements. Following the January 1996 flood, one house was elevated above the predicted height of the 100-year floodwaters. In March 1997, the Chemung County Soil & Water Conservation District prepared a "Bentley Creek Proposal" of suggested flood protection measures in the Village of Wellsburg. Stream and riverbanks have been stabilized with rock riprap. In 1998, 25,000 cubic yards of sediment were removed from the lower reach of Bentley Creek and a delta in the Chemung River at the mouth of the creek. Village officials are pursuing plans to relocate the Fire Station, Village offices, and Water Department to sites that will not be vulnerable to flood damages. This Plan presents the additional steps needed to achieve the Village's flood damage reduction goals.

Table 1. Coordinated Resource Management Recommendations, Bentley Creek Watershed

ISSUES

1. Flood damage
2. Lack of watershed specific plan
3. Watershed stabilization (land, streams, banks)
4. Gravel and debris (including trees at bridges, etc.)
5. Need for landowner education and information
6. Need for coordination
7. Loss of property
8. Funding
9. Level of stakeholder commitment
10. How to increase stakeholder commitment
11. Need for watershed information (hydrology, land use, etc.)
12. Determine areas of responsibility
13. Permit process – complexity
14. Enforcement of existing regulations
15. Cost of solutions

NEEDED INVOLVEMENT

1. All watershed landowners/businesses
2. All local government
 - * Town/Township
 - * Counties
 - * Villages/Boroughs
 - * Conservation Districts
3. State Agencies
 - * PA DEP Bureau of Land & Water Conservation
 - * PA DCNR Bureau of Forestry
 - * PA Fish and Boat Commission
 - * PA DEP Bureau of Dams, Waterways & Wetlands
 - * PA Game Commission
 - * PA DEP Bureau of Water Projects
 - * PA DOT
 - * NY DOT
 - * NY DEC Flood Control
 - * PA Emergency Management Agency
4. Federal
 - * Army Corps
 - * Natural Resources Conservation Service
 - * U.S. Fish and Wildlife Service
 - * Forest Service
 - * Federal Emergency Management Agency
 - * U.S. Geological Survey
5. Susquehanna River Basin Commission
6. Big Pond Association
7. Bradford/Sullivan Farm Bureau
8. Athens, Troy and Elmira School Districts
9. Legislators (state and federal)
10. Trout Unlimited

HOW TO GET STARTED

1. Organize a steering committee
 - * Local residents
 - * Property owners

- * Local government
2. Develop a comprehensive watershed restoration plan
 - * Damage assessment
 - * History of watershed
 - * Establish goal
 - * Develop issues
 - * Develop and evaluate alternatives
 3. Hold a public meeting
 - * Solicit volunteers
 - * Educate and inform public
 4. Form a Watershed association/organization
 5. Establish subcommittees/task forces
 - * Technical
 - * Issue identification
 - * Funding
 - * Alternative development and evaluation

INFORMATION NEEDED

1. Physical characteristics of the watershed
2. Identify sources of funding
3. Identify sources of technical, educational, etc. assistance
 - * Compile and distribute
4. Complete damage/problem inventory
5. Complete historical background of watershed
 - * Major watershed changes/impacts
 - * Past work in watershed
6. Flood plain delineation
7. Input from successful watershed organizations
8. Rules and regulations
9. Cost/benefit analysis
10. Projected costs

OPPORTUNITIES

1. Community cooperation
2. Money saved in damage prevention
3. Improved real estate values
4. Peace of mind from flooding, sense of security
5. Create local watershed association/network
6. Acquire/secure outside technical/financial assistance
7. Address identified issues in a coordinated manner
8. Develop a model watershed management plan for use by other N. Tier/S. Tier counties/regions
9. Better Life
10. Contractor profit through planned and implemented work

OVERALL RECOMMENDATIONS

1. Continue forward with the initiative
2. Keep both communities involved
3. Keep the Big Vision
4. Establish a mission statement
5. Form a steering committee
6. Continue a maintenance plan
7. Communicate with the public

HOW THIS PLAN WAS PREPARED

This Plan was prepared by the Wellsburg Flood Mitigation Planning Committee. The Committee was composed of the Mayor, two Village trustees, and the Regional Flood Specialist (who provided staff support). Village Planning Board members and members of the public were invited to participate. However, most of those contacted about participation in the flood mitigation planning process were unable to attend meetings. All decisions were reached by consensus of those present.

The Committee held a series of meetings. The information gathered and committee recommendations were documented by the Regional Flood Specialist (from Southern Tier Central Regional Planning and Development Board), who prepared drafts that were reviewed at each meeting. The following meetings were held:

- **6/16/98: Organizational meeting:** Introduction to the flood mitigation planning process. Identify planning committee members. Develop a strategy for coordinating with other agencies. Develop a strategy for involving the public. Identify individuals (agency staff and members of the public) who will be asked to participate. Define the scope of the planning process.
- **7/15/98: Assess hazards and problems:** Update on outreach activities. Compile information about flood hazards and flood problems in the Village of Wellsburg. Mark flood problem areas on a map.
- **8/19/98: Assess hazards and problems/Set community goals:** Review hazard and problem information compiled from previous meeting. Provide additional information about the hazards and problems associated with development trends, hazardous materials, and other hazards. Review other community goals for the Village of Wellsburg. Discuss the committee's vision for the future of the Village. Compile a list of community goals for addressing flooding problems, other hazards, and other community needs.
- **10/22/98: Flood Solutions Workshop:** At a joint meeting with other Flood Mitigation Planning Committees and County and State agency personnel, review and discuss possible solutions to flooding and drainage problems. Complete a flood solutions worksheet to indicate the solutions applicable to flooding problems in the Village of Wellsburg. The agencies represented at this workshop included the County Emergency Management Office, County Soil and Water Conservation District, County Planning Department, County Environmental Management Council, County Legislature, Regional Planning Board, State Department of Environmental Conservation, and State Emergency Management Office.
- **12/21/98: Prepare an action plan:** Review a map of land uses in relation to flood-prone areas. Using the flood mitigation goals and the flood solutions worksheet, prepare a list of the action items needed to implement the proposed solutions. Recommend post-disaster mitigation policies and procedures. Develop a strategy for implementation, evaluation, and revision of the Plan. Recommendation for public review of the draft Plan.

PUBLIC INVOLVEMENT

In 1997, the Village conducted a door-to-door survey of flood damages. Village Board members spoke with each flood-prone homeowner and business owner to obtain information about the extent of damages from the January 1996 flood and prior flood events. Suggestions concerning potential solutions to flooding problems were also solicited. The results of this survey were incorporated into this Flood Mitigation Planning process.

The Penn-York Bentley Creek Watershed Association was apprised of this planning effort. The planning committee incorporated the findings and recommendations of the Coordinated Resource Management session (see Table 1) into the recommendations presented in this Plan. Additional input was sought through a newsletter article in the July 1998 edition of "The Bentley Creek Watershed News," which was mailed to all watershed residents (clipping in Attachment D).

A draft of this Plan was presented to the public at the January 11, 1999 meeting of the Wellsburg Village Board. This meeting was publicized in the local newspaper. Minutes are included in Attachment D. The meeting began with a description of the planning process and a presentation by the Mayor of the Village's plans for addressing flooding problems. This was followed by discussion of flooding issues, concerns, and mitigation measures. Each participant was given a handout summarizing the flood mitigation planning process (included in Attachment D) and the Community Goals and Action Plan sections of the draft document. Copies of the entire Plan were available for review. Those in attendance were supportive of this Plan and of the Village's efforts to address flooding problems. Although a number of questions were asked, no changes to the Plan were recommended. Most of the discussion concerned relocation of the Wellsburg Fire Station (Action Item #9) and protection of the Village water supply system (Action Items #10 and 11). A television news crew attended the meeting and provided media coverage.

Approximately 60 copies of the draft Plan were distributed to businesses and residents in Wellsburg. Village Board members delivered a copy to each resident who had previously completed the flood damage survey and to other key individuals throughout the Village. Verbal responses have been overwhelmingly positive. All comments received were incorporated into this Plan.

COORDINATION WITH RELEVANT AGENCIES

At the beginning of the planning process, Committee members discussed flood mitigation planning with other Village officials (Planning Board members, Village Board members, Fire Department, and Code Enforcement Officer). Input from those unable to attend flood mitigation planning meetings was obtained through personal communications, thus insuring consistency with other community goals and activities. A draft of this Flood Mitigation Action Plan was submitted to Village officials for review and comments.

The following county, regional, and state agencies were contacted for relevant information and recommendations about this flood mitigation planning effort:

Chemung County Soil & Water Conservation District
Chemung County Emergency Management Office
Chemung County Planning Department
Chemung County Water Quality Strategy Committee
Chemung County Environmental Management Council
Chemung County Public Works Department
Bradford County, Pennsylvania, Conservation District
Southern Tier Central Regional Planning and Development Board
Sullivan Trail Resource Conservation and Development Council
New York State Emergency Management Office
New York State Department of Environmental Conservation
USDA Natural Resources Conservation Service, Bradford County, Pennsylvania
USDA Natural Resources Conservation Service, Chemung County, New York

Personnel from these agencies contributed to the planning process in a variety of ways: providing information, answering specific questions, reviewing minutes, reviewing draft sections of this document, and presenting recommendations at the Flood Solutions Workshop (at which flood mitigation alternatives were evaluated).

A draft of this Flood Mitigation Action Plan was submitted to each of these departments and agencies for additional review and comment. It was also submitted to the Federal Emergency Management Agency. All recommendations received were incorporated into this Plan.

PROCEDURE FOR REVIEW AND REVISION OF THE PLAN

The Flood Mitigation Action Plan for the Village of Wellsburg will be reviewed and updated at an annual meeting of the following officials: Village Board members, Village Planning Board members, Code Enforcement Officer, Fire Department representatives, and concerned citizens. If possible, this meeting will be facilitated by an outside party (i.e. Regional Flood Specialist). This review will be conducted in the winter (preferably January) in anticipation of the spring melt and prior to initiation of the Village budget process.

HAZARDS AND PROBLEMS

Flood hazards occur in areas that are prone to flooding, whether or not any development is affected. This Plan addresses the following flood hazards throughout the Village of Wellsburg: riverine flooding, overland flooding and ponding, ditches and other localized drainage ways, groundwater flooding, and erosion of streambanks. The Village's Flood Insurance Rate Maps and Flood Insurance Study include detailed analyses of the flood hazards from some of the principle waterways in the Village. The identified areas of 100-year and 500-year flooding are shown on the Map of Flood Hazards and Problems (Attachment A). Additional hazards due to flooding and bank erosion exist along every stream in the Village and many unmapped drainage ways. The hazard areas for overland flooding, ponding, and groundwater flooding are generally not recognized unless they contribute to flooding problems. The potential flood hazard areas are thus widespread.

Flood problems occur when development is adversely impacted by flood hazards. Numerous flood problem areas have been identified throughout the Village of Wellsburg. These problems are described below and indicated on the Map of Flood Hazards and Problems (Attachment A). This information about flooding problems was assembled from previous documentation and the knowledge of Committee members, Village officials, residents, and agency personnel familiar with flooding in the Village of Wellsburg.

The **additional hazards** addressed in this Plan include: hazardous material spills, hurricanes, earthquakes, ice storms, drought, and wildfire. These hazards are identified in the Chemung County Comprehensive Emergency Plan. The hazard areas for these risks encompass the entire Village. The areas with the highest risk for hazardous material spills are along the railroad track and other transportation routes. Information about the problems associated with these hazards was assembled from the knowledge of Committee members, Village officials, and agency personnel.

RIVERINE FLOODING AND STREAMBANK EROSION

Riverine flooding occurs when streams and rivers overflow their banks and inundate adjacent valleys. This occurs when heavy rainfall or rapid snowmelt produces water runoff that exceeds the carrying capacity of the channel. Riverine flood damages can be triggered or exacerbated by constriction or obstruction of stream and river channels. This blockage can result from undersized drainage structures, debris dams, ice jams, or accumulation of sediment within the channel. Backwater flooding occurs when a stream is unable to flow into a larger stream or river due to high water in the downstream waterbody.

The Village's Flood Insurance Rate Map (FIRM) identifies the areas expected to be inundated by the 100-year and the 500-year flood on the Chemung River and Bentley Creek. Development within the 100-year floodplain is regulated by local law. The FIRM also provides the expected water elevations for the 100-year flood. Flood profiles and supporting

documentation are provided in the Flood Insurance Study. It should be noted that the hydraulic analyses used to delineate floodplains on the FIRM were based on the assumption of unobstructed flow. The floodplains and flood elevations indicated on these maps are thus considered valid only if all channels and drainage structures remain unobstructed, operate properly, and do not fail. If these conditions do not exist, the impact of 100-year flooding could be greater.

The potential for riverine flooding from the smaller streams in the Village (Tyler Run and White Hollow Run) was not evaluated when the Flood Insurance Study and Flood Insurance Rate Map were prepared. Yet these streams have floodplains and pose flood hazards. Because there is no floodplain designated on the FIRM, development along these streams is not regulated by the Village's local law for flood damage prevention. Yet development in these areas is at risk from both flooding and streambank erosion.

Erosion of streambanks and the subsequent deposition of eroded materials are major concerns in the Village of Wellsburg. The severity of these problems is due, in part, to the widespread occurrence of poorly consolidated glacial deposits, which are particularly susceptible to erosive forces. Natural erosional processes are accelerated during flood events. Bank erosion leads to the loss of lawns and can undermine buildings, roads, and bridges. Severe erosion also degrades riparian and aquatic habitat. Accelerated erosion of banks loosens large volumes of material that are subsequently deposited within stream and river channels, limiting the capacity for carrying water. Sediment and debris accumulation can plug culverts and lodge on bridges, displacing the flow of water. Eroded material that is carried downstream contributes to increased deposition rates in downstream reservoirs and the Chesapeake Bay. Although bank erosion and channel migration are natural processes, they can be accelerated by human activities.

Chemung River

The Chemung River flows south and east past the Village forming part of the northeastern municipal boundary. The drainage area of the Chemung River upstream of Wellsburg is 2,506 square miles. Flood protection along the Chemung River is provided by four upstream dam projects: Arkport Dam on the Canisteo River (Steuben County, NY), Almond Dam on Canacadea Creek (Steuben County, NY), the Tioga-Hammond Dam Project on the Tioga River and Crooked Creek (Tioga County, PA), and the Cowanesque Dam on the Cowanesque River (Tioga County, PA). These structures reduce peak flows during flood events and prolong the period in which the river is bank full following each event.

The Front Street area of the Village of Wellsburg was flooded by the Chemung River in 1972 (Hurricane Agnes flood) and again in 1975 (Hurricane Eloise flood). The depth of water in the Wellsburg Fire Station (located on Front Street) was 87 inches during the 1972 flood and 43 inches during the 1975 flood. The Tioga-Hammond and Cowanesque Dams were constructed after these severe flood events. The Flood Insurance Rate Map indicates that the principal risk of flooding in the Front Street area is now from Bentley Creek, not the Chemung River. The 100-year floodplain for the Chemung River includes a railroad track, an undeveloped area in the northwest part of the Village, a Village water supply well, and the County Route 8 bridge across the River.

In addition to the risk of floodwater from the Chemung River is the threat of bank erosion and migration of the river channel. The Village of Wellsburg is located on the outside edge of a sharp bend in the river at a site that is naturally susceptible to bank erosion. Ongoing erosion at this site has exposed the ballast (gravel base) of the railroad track. The railroad company has placed about 92 tons of riprap on the bank in order to protect the track. Some of this large rock has been washed out. In recent years, bank erosion at this site was aggravated by the river flow pattern around a large delta at the mouth of Bentley Creek (upstream of the Village limits). This delta was removed in 1998. However, the river continues to cut into the bank, as indicated by the recently undermined trees that have fallen into the channel. This continuing bank erosion threatens the railroad tracks, the County Route 8 bridge, and the Village water supply wells. It has been estimated that stabilizing this section of riverbank with steel girders would cost about \$300,000.

PROBLEMS:

1. Village well #1: The primary water supply for the Village, well #1, is located about 60 feet from the Chemung River within the 100-year floodplain. This site is threatened by ongoing erosion of the riverbank. The well is approximately 40 feet deep and is susceptible to potential contamination by surface water when the site is flooded.
2. Railroad track: A railroad track is located right on the river bank near the northeastern boundary of the Village. This site has experienced severe bank erosion, which seriously threatens the integrity of the track. The track is elevated above the predicted level of the 100-year flood where it passes between commercial development on Front Street and the river. However, the FIRM shows that the railroad track is within the 100-year floodplain to the east and west and is thus susceptible to flooding in addition to undermining by erosion.
3. Front Street (State Route 427): The FIRM indicates that the elevated railroad bed protects Front Street development from flooding from the Chemung River (but not from Bentley Creek). However, this track is seriously threatened by riverbank erosion. Front Street area is thus susceptible to potential flooding from either the river (as occurred in 1972 and 1975) or Bentley Creek (as occurred in 1996). The development at risk includes: the Wellsburg Fire Station, Village water supply well #6, 9 businesses, 7 homes, a church, and a Post Office.
4. Lowman Crossover (County Route 8): The Lowman Crossover crosses the Chemung River just below a sharp bend in the river at the northeastern corner of the Village of Wellsburg. The bridge is threatened by bank erosion on the right (south) bank of the river. The river no longer flows under the northern span of this bridge, due to the accumulation of gravel on the inside edge of the bend. The Lowman Crossover passes through the 100-year floodplain on both sides of the river. The road is frequently closed due to flooding north of the bridge in the Town of Ashland (several times each year). The road itself is threatened by a meander in the river, which has migrated progressively closer to the road. Closure of the Lowman Crossover inhibits access and emergency operations. The Wellsburg fire station services areas north of the river in the Town of Ashland and Town of Elmira, which cannot be accessed quickly when the Lowman Crossover is closed.

5. Dam failure (not shown on map): The emergency plans for catastrophic releases of water from the Tioga, Hammond, and Cowanesque Dams indicate that such an event could inundate significant portions of the Village of Wellsburg, with arrival times of 14 or more hours. Although the possibility of such an occurrence is considered to be extremely remote, the potential damages could be quite severe.

Bentley Creek

Bentley Creek flows north through the center of the Village, flowing into the Chemung River just north of Wellsburg in the Town of Ashland. Bentley Creek and its tributaries drain an area of 53 square miles, most of which is located in Pennsylvania. The route of Bentley Creek through the northern part of Wellsburg was changed in the early 1900's. Before this diversion, the creek was located farther east between Main Street and Terrace Place.

Most of the Village of Wellsburg is situated in low-lying areas along Bentley Creek, with extensive residential and commercial development located within the 100-year floodplain. A significant portion of this development is located within the part of the floodplain designated as the floodway (indicated on the Flood Boundary and Floodway Map for the Village). The floodway is the channel of Bentley Creek plus the adjacent areas that convey most of the flood discharges. Development within the floodway contributes to increased flood elevations and can experience dangerously high water velocities. In the Church Street and Front Street areas (that sustained extensive damages during the January 1996 flood), there are 5 businesses, 25 residences, and numerous garages and sheds located in the floodway. Potentially high water velocities make this a very hazardous area for development.

There are no flood-control structures on Bentley Creek. A berm has been constructed on the right (east) bank of the stream with gravel removed from the channel. This structure extends from the Main Street (State Route 367) bridge to the Front Street (State Route 427) bridge and is intended to protect the Church Street and Front Street areas from flooding. However, this structure is an overgrown spoil bank, not an impervious flood control dike. As such, it may provide residents with a false sense of security. During small storms, this berm has effectively contained floodwaters within the channel. However, because it is located on the bank, it prevents the overflow of water onto the floodplain, which can result in increased flooding downstream in the Front Street area. During the January 1996 flood, this berm was breached at three locations (and subsequently rebuilt). This failure resulted in a very rapid rise of high velocity water in the area that the berm was intended to protect. The damages caused may have been greater than those that would have resulted from a more gradual rise of slower water if the berm were not present.

Wellsburg has experienced repeated flooding from Bentley Creek. Significant floods causing private property and infrastructure damage have occurred on Bentley Creek in 1972 (Hurricane Agnes), 1975 (Hurricane Eloise), 1984, June 1994, August 1994 (Hurricane Beryl), and January 19, 1996. The January 1996 flood was the most severe, causing an estimated \$3 million in damage to 65 properties in the Village of Wellsburg. Thirty-six residences suffered

basement flooding, with the remaining 29 properties (9 businesses, one church, and 19 houses) sustaining severe damage. Most of the damaged properties have subsequently been restored to their pre-flood condition. One house was elevated above the predicted level of the 100-year flood. During the January 1996 flood, high water in Bentley Creek washed out a gravel berm on the right (east) bank of the stream and flooded the Church Street area with high velocity water that washed away several sheds and out buildings. Trees and other debris accumulated on the center pier of the Front Street (State Route 427) bridge, impeding the flow of water beneath this structure. Out-of-bank flow in the Front Street area was unable to reach the Chemung River due to the elevated railroad track and reached depths of 4 or more feet. The surveyed high water elevation at the Wellsburg Fire Station was 57 inches. This is about 1 foot higher than the predicted elevation of the 100-year flood. However, the flood levels throughout the remainder of the Village indicate that Bentley Creek did not reach 100-year flood levels. Despite the severity of damages, the January 1996 flood was much less extensive than the predicted 100-year flood in Wellsburg.

Bentley Creek is an extremely unstable stream, which is subject to extensive streambank erosion and accumulation of erosion products (gravel and trees) within the channel. A recent survey found that 87% of the main stem of Bentley Creek (in Pennsylvania and New York) contains an unstable creek environment. Prior to 1972, these problems were relatively minor. However, streambanks throughout the Bentley Creek watershed experienced extensive damage during the 1972 (Hurricane Agnes) flood and subsequent flood recovery efforts. Streambank erosion has been accelerating since that time and remains a serious problem. Expenditures for bank stabilization projects throughout the watershed have exceeded \$1 million since 1994. The eroded soil particles and trees that are undermined by erosion accumulate within the channel and are transported downstream. This deposition contributes to reduced flow capacity within the Bentley Creek channel in the Village of Wellsburg, particularly under the Front Street bridge and the railroad bridge. When the channel is filled or blocked by debris, floodwaters inundate surrounding areas. A large delta of sediment accumulated at the mouth of Bentley Creek, reducing the flow of water into the Chemung River. In 1998, 25,000 cubic yards of sediment were removed from this delta and the lower reach of Bentley Creek. The U.S. Fish and Wildlife Service is currently preparing a restoration plan that will outline management and restoration strategies for stabilizing Bentley Creek. This plan will not address the volume of floodwater in the creek, but will recommend solutions for stabilizing the channel and sediment load.

There are seven man-made impoundments located upstream of Wellsburg in the Bentley Creek Watershed. The three largest are Ridgebury Lake (surface area of 58 acres, volume 150 million gallons), Lake Ondawa (surface area 25 acres, volume 81 million gallons), and Miller Pond (surface area 10 acres, volume 8 million gallons). None of these reservoirs were constructed or maintained for flood control purposes. The condition and safety of the dams that form these lakes is not known.

PROBLEMS:

6. Railroad bridge: The railroad bridge over Bentley Creek was built in the 1950's. Gravel accumulation beneath this bridge and the accumulation of debris on the center support have been ongoing problems. The restricted capacity beneath this bridge (and the Front

Street bridge located immediately upstream) reduces the flow of Bentley Creek into the Chemung River. The elevated tracks on either side of the bridge act as a dam, preventing out-of-channel floodwaters from flowing out of the Village. During the January 1996 flood, water backed up in this area, flooding Front Street. After the flood, the clearance beneath the bridge was only 4 feet high, with trees and debris blocking the west half of the flow channel. The previous clearance had been approximately 7 feet. The channel has since been cleaned beneath this bridge and downstream. Residents report having seen an old photograph of a highly loaded hay wagon passing beneath this bridge, indicating that the clearance was once much greater.

7. Front Street (State Route 427) bridge: The Front Street bridge was built in 1992 and has a center pier that catches trees and other debris during high water events. It replaced a bridge with no center pier and a narrower waterway opening. The State Department of Transportation reports that this bridge was designed for the 50-year discharge of Bentley Creek with a “negative freeboard.” The bridge has been overtopped by water three times since its construction. In 1993 and 1994, ice jams formed at the bridge. During the January 1996 flood, the left span of the bridge was blocked with tree debris and the right bank overflowed into the residential and commercial area along Front Street.
8. Village well #6 and chlorine room: The Village water supply well #6 is located south of the railroad tracks in the floodplain of Bentley Creek. This is the only backup for the primary well (#1) which is also susceptible to flood damage. The pump controls and chemical treatment facilities (chlorine room) are located adjacent to the Wellsburg Fire Station, also within the Bentley Creek floodplain. When the chlorine room is flooded it is necessary to shut down both wells and use only stored water. Cleanup and repairs cost the Village more than \$1,000 each time the chlorine room floods.
9. Wellsburg Fire Station: The Wellsburg Fire Station was built in 1946 and a major addition was constructed in 1975 (after flood damage from the Chemung River in 1972 and 1975). The floor of this building is approximately 4 feet below the predicted elevation of the 100-year flood. The building houses the Wellsburg Fire Department, a New York State Police substation, and the Village offices. The fire and emergency services based at this site serve the Village of Wellsburg, the Town of Ashland, and part of the Town of Elmira. During the January 1996 flood, the building was flooded to a depth of 54", causing more than \$250,000 in damage, primarily to building contents and equipment. The building was subsequently restored. The Village is pursuing alternatives for relocating the fire station to a site that is less vulnerable to flooding.
10. Front Street: The Front Street area experienced severe flooding from Bentley Creek during the January 1996 flood. In addition to the Village well and the fire station, the development at risk includes: 10 businesses, 7 homes, a church, a union hall, and a Post Office. Four of the houses have basements; one is elevated above the predicted height of the 100-year flood. Eleven buildings on Front Street are located within the floodway of Bentley Creek. The three houses located adjacent to the creek are threatened by bank erosion; all three have been protected with riprap.
11. Between Church Street and Bentley Creek (floodway): The 15 homes on the west side of Church Street (and numerous out buildings) are all located in the floodway of Bentley Creek. The majority of these houses have basements. Most of these structures sustained serious damages during the January 1996 flood. Some were subjected to dangerously

high water velocities. In addition, 4 homes are located even closer to Bentley Creek on the western end of Tannery Lane and Fourth Street. These houses experienced high velocity floodwaters during the January 1996 flood. A garage and a shed located in this area were completely washed away. Emergency personnel entered the torrent to rescue residents from two homes (in a front end loader) and to confirm that a third house was unoccupied. The location of these homes poses a hazard to the residents and to rescue workers.

12. East of Church Street: Approximately 60 homes (most with basements and some with home businesses) are located in the Bentley Creek floodplain on the east side of Church Street, Second Street, Third Street, Fourth Street, Fifth Street (west of Main Street), the northern part of Main Street (north of East Fifth Street), and the west side of Terrace Place. The January 1996 flood caused basement and first floor flooding of many of these structures. The predicted 100-year flood would inundate all of these structures and cause extensive damage.
13. Berwick Turnpike: One house on the Berwick Turnpike is located in the 100-year floodplain on the west side of Bentley Creek. Bank erosion threatens the road at one site. Several sections of the streambank have been protected with rock riprap.
14. Near Main Street bridge: The floodplain near the Main Street bridge over Bentley Creek contains about a dozen homes and the Ashland Town Hall (on Main Street, Old Main Street, and Sixth Street). About seven of these structures are located in the floodway. Some were flooded during the January 1996 flood.
15. Mobile home park: A 100-unit mobile home park is located completely within the floodplain of Bentley Creek in the Village of Wellsburg, Town of Ashland, and Ridgebury Township (in Pennsylvania). Forty-eight mobile homes are located in the Village of Wellsburg. Approximately 1/3 of these are within the floodway. No houses were flooded during the January 1996 flood. In addition, 3 businesses on State Route 367 are located in the Bentley Creek floodplain in this area.
16. Upstream dams (not shown on map): Dam failure at any of the seven man-made lakes located in the Bentley Creek watershed would send a wave of high water down Bentley Creek. The risk of failure and the potential impacts in Wellsburg are not known.

Tyler Run

Tyler Run is an intermittent tributary to Bentley Creek that enters the Village of Wellsburg from the east. The channel is usually dry and no floodplain is designated on the FIRM. A local cloudburst in 1989 resulted in a debris jam under the Terrace Street Extension bridge (upstream in the Town of Ashland) and washed out the Sixth Street culvert in the Village. The Village-owned ball field was flooded and strewn with debris. The basements of two houses (located in the 500-year floodplain of Bentley Creek) were flooded. During the January 1996 flood, Tyler Run overflowed its banks and flooded the basement of one house on Sixth Street (located in the 100-year floodplain of Bentley Creek). The stream was subsequently deepened along Sixth Street. The Village has cleaned gravel, debris, and garbage from the channel below Main Street two times between 1990 and 1996. The sediment and debris accumulation in this area is so extensive that a refrigerator was found completely buried in gravel.

PROBLEMS:

17. Sixth Street: This small, flashy tributary poses a flooding risk to the three houses on Sixth Street and an erosion threat to the street.

White Hollow Run

White Hollow Run is a tributary to Bentley Creek that enters the Village of Wellsburg from the west. The section of the creek located within the Village is unstable, with bank erosion threatening yards, a Village water main, and a gas pipeline. The sediment produced by this erosion is transported into Bentley Creek. No floodplain is designated on the FIRM.

PROBLEMS:

18. Comfort Hill Road: Bank erosion on White Hollow Run threatens approximately 12 properties located upstream of the State Route 367 bridge over White Hollow Run. All of the houses are located well above the elevation of the stream. However, approximately two garages may be susceptible to flooding from White Hollow Run.

Unnamed tributary to Bentley Creek

An unnamed intermittent tributary flows under State Route 427 and the railroad tracks, entering a wetland area that drains into Bentley Creek.

PROBLEMS:

19. Route 427: The pipe that carries this unnamed tributary under Route 427 is undersized and causes flooding of the road and deposition of debris on the road. Bank erosion threatens this culvert and two houses that are located adjacent to the normally dry channel.

DRAINAGE PROBLEMS

Overland flooding and ponding occurs when excess runoff is not carried in a defined channel. It leads to flood damages when structures are improperly sited and stormwater runoff is not properly managed at development sites. Alteration of natural drainage patterns has contributed to sedimentation and flooding problems at several locations in the Village of Wellsburg.

PROBLEMS:

20. Fifth Street: Water runoff from the hill on the east side of Wellsburg has caused flood damage to 5 houses on east Fifth Street. During the January 1996 flood, one house sustained structural damage, 3 others sustained major damage, and one sustained minor damage. These houses are located in the 500-year floodplain of Bentley Creek.
21. Fourth Street: Surface runoff drains down the south side of Fourth Street, flooding the basements of 6 houses on Fourth Street and 4 houses on the east side of Main Street. This problem is exacerbated by a shallow water table in this area.

22. North end of Berwick Turnpike: Drainage from the pasture uphill of the Berwick Turnpike is piped beneath the road and then carried in an open ditch and another pipe by adjacent houses and into Bentley Creek. The pipe under the Turnpike tends to fill with debris, flooding the road. One home is subject to flooding of the yard and basement. The main floor of this house flooded in 1972. Standing water often remains in the yard for extended periods of time.

SHALLOW WATER TABLE

Groundwater flooding results from water below the surface of the ground that seeps through basement walls or backs up through basement drains. The shallow water table contributes to basement flooding and septic system failure in several developed areas in the Village of Wellsburg. Because groundwater levels are subject to natural fluctuations, these problems are not always apparent at the time a site is developed or when a home is purchased.

PROBLEMS:

23. Main Street and Fourth Street: A shallow water table affects the basements of approximately 6 houses near the intersection of Main Street and Fourth Street. These houses pump water out of their basements regularly (for a total of about 4 months each year). During the wet spring of 1998, these homeowners were pumping water almost continually for about three months. This area is thought to be within the old stream bed of Bentley Creek, prior to its relocation in the early 1900's.
24. Main Street: One house on Main Street has problems with groundwater flooding of the basement. The adjacent houses are not affected.

FLOOD WARNING

Flood warnings in the Village of Wellsburg are provided by the Chemung County Emergency Management Office, which obtains flood warning information from the Flood Warning Service of Steuben and Chemung Counties (operated by Environmental Emergency Services, Inc.) and from the National Weather Service. These warnings are based on a network of automated rain and river-level gauges, supplemented by additional observations and reports.

Flood warnings for Chemung River flooding are based on a network of rainfall and river level gauges in the Chemung River Basin. The travel time of peak flows from the Chemung River gauge in Corning to the Chemung River gauge in Elmira is 4 to 5 hours. Greater warning times can be provided based on gauges on the three rivers that join upstream of Corning (average travel times from upstream gauges to Elmira range from 9 to 20 ½ hours), a network of rainfall gauges throughout the basin, and rainfall forecasts.

The areas expected to be inundated by various flood stages on the Chemung River are shown on River Stage Forecast Maps. These maps are used to identify areas requiring

evacuation and to designate evacuation routes. River Stage Forecast Maps have been prepared for the Chemung River in the Village of Wellsburg.

Flood warnings for tributary streams are based on rain gauge data and rainfall forecasts by the National Weather Service. There are currently no automated rain gauges located in the Bentley Creek drainage basin. Volunteers have recently been provided with rain gauges. However, procedures for the emergency reporting of high rainfall data are not yet in place.

PROBLEMS:

25. Flash flooding: Bentley Creek and its tributaries are highly susceptible to flash flooding, which can occur suddenly with little or no lead-time.
26. Stream gauges: There are no stream gauges or stream monitoring locations in the Bentley Creek watershed.
27. Rain gauges: There are no automated rain gauges in the Bentley Creek watershed. A procedure for timely reporting of high rainfall rates and amounts by volunteer rain gauge readers has not been established.
28. Flood stage maps: Flood Stage Forecast Maps are not available for Bentley Creek. The Bentley Creek floodplain in the Village of Wellsburg and Town of Ashland contains extensive floodplain development that is not protected by any flood control structures. Emergency operations would be enhanced by maps delineating the areas inundated by specified stream levels.

DEVELOPMENT TRENDS

The Village of Wellsburg is located southeast of the City of Elmira. It is a small community with only 1.0 square mile of area. Current land uses in the Village are indicated on the Map of Land Uses (Attachment B). The potential sites for new development within the Village are quite limited and most are located in the floodplain. Despite these limitations, Village officials estimate that (in addition to repair expenses for the 1996 flood damages) construction within Wellsburg has exceeded \$1 million in the last three years. This recent development includes one new business and renovations/additions to existing homes and businesses. New construction and substantial improvements to existing buildings within the 100-year floodplain are regulated by the local law for Flood Damage Prevention.

Available development sites are scattered around the Village, including several unused sites in the Village's commercial district on Front Street. Most of the potential sites for new development are located within the 100-year floodplain of Bentley Creek. One exception is the area near the old school on East 5th Street, which is located within the 500-year floodplain. A large area of the floodway (between Bentley Creek and homes near Church Street) remains undeveloped.

Potential development outside of the Village can affect the stormwater drainage and peak stream discharges in Wellsburg. Stormwater from Cowell Hill (east of the Village) drains across Terrace Street or into Tyler Run. Four new homes have recently been built on Cowell Hill;

additional development or timber harvesting is possible. West of the Village, drainage from South Mountain flows across the Berwick Turnpike or into White Hollow Run. Potential development or timber harvesting are also possible in this area. Development and restoration activities throughout the Bentley Creek Watershed can affect the sediment load and peak discharges in this creek, and thus the flood potential in Wellsburg.

PROBLEMS:

29. Floodplain development regulations: Because most potential development sites in the Village of Wellsburg are located within the 100-year floodplain, there is an ongoing need for diligent enforcement of appropriate floodplain development standards to minimize the risks of flood damage.
30. Stormwater management: Building regulations in the Village of Wellsburg and uphill in the Town of Ashland and Township of Ridgebury (Pennsylvania) do not adequately protect against increased runoff and altered drainage patterns from new development.
31. Shallow water table: The Village of Wellsburg building codes do not protect against the construction of basements below the seasonal high water table levels. The data documenting water table levels in undeveloped sites do not exist.

HAZARDOUS MATERIAL SPILLS

The Village of Wellsburg has the potential for accidents involving petro-chemicals and other hazardous materials, including radioactive materials. This risk includes in-transit releases, (e.g., railroads and highways) and fixed sites where hazardous materials are used or stored. Accidents involving hazardous materials may result in fire, explosion, or the release of toxic fumes. The risk of flooding of highways, secondary roads, railroads, and stationary sites increases both the likelihood of a hazardous material spill and the potential dispersion of contaminants.

PROBLEMS:

32. Railroad: Hazardous materials are routinely transported through the Village of Wellsburg by rail. The railroad track is located within and adjacent to the 100-year floodplains of the Chemung River and Bentley Creek. Floodwater from Bentley Creek tends to pond on the south side of the elevated track, creating the potential for overtopping and washing out of the tracks. In addition, the railroad track is threatened by severe bank erosion by the Chemung River. The risk of a train derailment thus increases significantly during high water events in either Bentley Creek or the Chemung River. Both of the Village water supply wells are located within 50 feet of the railroad track and are thus at risk of contamination if a derailment were to occur.
33. State highways: State Routes 427 (Front Street) and 367 (Main Street) carry traffic through the Village of Wellsburg. Both highways pass through the 100-year floodplain in the Village. The risk of roadway flooding increases both the likelihood of a hazardous material spill and the potential dispersion of contaminants. Truck traffic through the Village is expected to increase significantly when the Elmira Arterial South Extension is completed to Route 427 in Southport (Cedar Street). In addition, improvements to the

State Route 17 interchange with County Route 8 (Lowman Crossing) will encourage increased through traffic. Both projects are scheduled for completion in 2000.

34. Stationary sites: Several businesses in the Village of Wellsburg store, use, or sell petrochemicals or other potentially hazardous materials. These include gas stations, a hardware store, and auto maintenance sites. In addition, the Village uses chlorine gas for treating the public water supply. Many of these sites with hazardous materials are located within the 100-year floodplain. One vehicle-servicing site is located within 20 feet of White Hollow Run.

OTHER HAZARDS

The Chemung County Comprehensive Emergency Plan includes a risk analysis, in which following hazards are identified as concerns for the Village of Wellsburg:

- Ice jam
- Ice storm
- Power failure
- Severe winter storm
- Hazardous materials -- transit
- Windstorm
- Transport -- highway
- Bombing
- Gas

The Chemung County Comprehensive Emergency Plan provides general all-hazards management guidance, using existing organizations and lines of authority. It provides a comprehensive emergency management system that deals with prevention and mitigation activities, response operations, and recovery activities.

PROBLEMS:

35. Severe weather: The weather conditions that lead to flooding may be accompanied by additional emergency conditions. Hurricanes, tornadoes, or winter storms that cause flooding may also trigger transportation accidents, hazardous material releases, landslides, power failure, or water supply failure. The emergency response to these disasters may require simultaneous response to a variety of emergency conditions.
36. Earthquakes: Although the earthquake hazard in Chemung County is considered to be low, there is some risk. Earthquakes can cause buildings to collapse and disrupt utilities. In addition, an earthquake can trigger landslides, fire, flash floods, levee failure, dam failure, transportation accidents, hazardous material releases and fires.
37. Wildfire: The areas around the Village of Wellsburg have a history of wildfire. The risk of wildfire is greatest during periods of drought. Most forests fires are started by people through negligent behavior. If heavy rains follow a major forest fire, other natural disasters can occur, including landslides, mudflows and floods.

38. Gas wells: Two old private gas wells are known to be located within the Village of Wellsburg. These wells are no longer in service and it is not known if proper plugging procedures were followed. Inactive wells that have not been plugged can result in the release and migration of gas, brine, and other detrimental substances.

COMMUNITY GOALS

Although the policies of the Village of Wellsburg have included extensive efforts to mitigate flood damages, the Village does not have any written goals. The Flood Mitigation Planning Committee therefore prepared a list of Community Goals that address flood problems, other hazards, and other community objectives. Representation of the Village Board on the Planning Committee enabled these goals to encompass a broad range of concerns, problems, and objectives for the Village.

The highest priority goals for the Village of Wellsburg involve protecting the emergency center (Fire Department, State Police Substation, and Village offices) from flooding and other hazards. The second priority is to protect the public water supply from contamination and shortages. The protection of existing residential and commercial development from flood damages is another important priority. Equally important is the need to insure that future development is protected from flood damages and does not make existing problems worse.

EMERGENCY OPERATIONS

- * Protect emergency center, Village offices, and public meeting rooms from flooding.
- * Protect emergency center, Village offices, and public meeting rooms from hazardous spills.
- * Install backup power for emergency center.
- * Insure effective flood warning for Bentley Creek, the Chemung River, and feeder streams.

WATER DEPARTMENT

- * Protect public water supply from flooding.
- * Protect public water supply from hazardous spills.
- * Insure adequate water supply for present and future use.
- * Install backup power for Village Water Department.
- * Install a filtration system.

INFRASTRUCTURE

- * Install a new sewer system.
- * Provide adequate roads and sidewalks
- * Bury all utility lines.
- * Stabilize Berwick Turnpike.

- * Build a Village power generating facility.

NATURAL RESOURCES

- * Re-establish Bentley Creek as a stable trout stream without high sediment loads, floating trees, and debris.
- * Stabilize Chemung River bank from the mouth of Bentley Creek past the Route 8 bridge.
- * Replace trees throughout the Village that have been removed over the years.

FLOOD PROTECTION

- * Protect areas of existing development from flooding.
- * Provide residents with technical and financial assistance to minimize susceptibility to flood and groundwater damage.

FUTURE DEVELOPMENT

- * Insure that all future development is safe from flood hazards.
- * Insure that new development within the Village and in uphill areas does not increase runoff.
- * Contain sediment onsite for all new development.

OTHER GOALS

- * Improve cooperation with adjoining municipalities, New York state agencies, Pennsylvania state agencies, county agencies, railroad company, and utilities on:
 - ⇒ drainage issues,
 - ⇒ timber harvesting,
 - ⇒ development,
 - ⇒ stream management,
 - ⇒ stormwater management, and
 - ⇒ erosion control.
- * Organize a businessman's association.

FLOOD MITIGATION SOLUTIONS

Village of Wellsburg Flood Mitigation Planning Committee members participated in a Flood Solutions Workshop (held on October 22, 1998) with representatives of 7 municipalities, and county, regional, and state agencies. Alternative techniques for reducing flood damages were presented by agency personnel. Participants discussed and evaluated the various mitigation measures and completed a Flood Solutions Worksheet. A copy of this worksheet with the collective ideas of Village of Wellsburg participants is provided in Attachment C. All of the measures listed on this worksheet were reviewed and evaluated. Many of the activities on this list are already being implemented. The techniques that committee members recommend initiating or expanding in the Village of Wellsburg are indicated in Attachment C.

ACTION PLAN

The following activities are recommended to minimize the effects of flooding and other hazards in the Village of Wellsburg. These are action items that can be accomplished by the Village with existing staff and volunteer resources within the next couple of years. These actions will not achieve the goals set forth in this Plan, but represent the next steps that need to be taken. Additional activities will be required in future years to meet the Village's community goals. The timetable and source of funding for each activity is given in Table 2.

PUBLIC INFORMATION

1. Display floodplain maps: Maps of the 100-year and 500-year floodplains will be posted at public locations in the Village. Potential sites include the Post Office and the three churches. Digital (GIS) maps can be plotted by the Southern Tier Central Regional Planning and Development Board at a cost of approximately \$5 per map. The maps will be protected with lamination prior to posting. Village Board members will obtain permission and post the maps. Each map will include a note stating that additional information is available at the Village Hall.
2. Display map of flood hazards and problems: The map showing flood plains and flood problem areas that was prepared for this Plan will be posted in the Village Office. The Village will obtain a large plot of this map from Southern Tier Central Regional Planning and Development Board. This Plan will be referenced on the map and will be readily available.
3. Direct mailing of flood information to property owners: The Village will mail a packet of information about flood risks, emergency preparedness, and floodproofing techniques to all property owners in the Village. The Regional Flood Specialist (with Southern Tier Central Regional Planning and Development Board) will assist the Village with identifying appropriate information to be included in this mailing.
4. Display high water levels in public locations: The Village will provide one or more display of historic high water levels in the Village of Wellsburg (1946, 1972, 1975, and 1996). Possible sites include the Methodist Church and Village Water Department property near Well #6. A permanent display on the current Fire Department building will also be considered if this structure is not removed when the emergency operations are relocated to a new facility.

PREVENTIVE ACTIVITIES

5. Training for Planning Board members on flooding and drainage issues: The Village will ask the Chemung County Planning Department and Southern Tier Central Regional Planning and Development Board to conduct a training session for Planning Board members to address flooding issues as they relate to planning and development proposals. Current Village Planning Board members and potential new members will be invited.

6. Review zoning regulations: The Village Planning Board will be asked to review the current zoning regulations for the Village and evaluate the need for including additional provisions for: maximum impermeable surfaces, stormwater management, and cluster development. This will be initiated after the training indicated in Action Item #5 has been provided.
7. Update plan for inspection and maintenance of streams and drainage ways: Village Board members will review and update the Bentley Creek maintenance plan, which currently specifies that Bentley Creek will be inspected for debris accumulation. During this review, the need for inspection of riprap, sediment deposition sites (mouth of White Hollow Run and mouth of Bentley Creek), and other drainage features will be considered. The revised plan will clearly specify inspection and maintenance responsibilities. The frequency of inspection will probably be increased to four times per year and after all major high water events. The Village will request technical assistance from the Chemung County Soil & Water Conservation District Manager and the Regional Flood Specialist (from Southern Tier Central Regional Planning & Development Board) with implementation of this task.

NATURAL RESOURCE PROTECTION

8. Implement restoration measures in Bentley Creek: The ongoing Bentley Creek Stream Restoration Project of the U.S. Fish and Wildlife Service will produce a plan for stabilization of Bentley Creek based on the principles of applied fluvial geomorphology. The measures identified in the stabilization plan will not reduce the volume of flood discharges, but are expected to reduce the flood damages (Problems #6 through 15) by reducing bank erosion, debris accumulation, and sedimentation. When the Bentley Creek Restoration Plan is complete, the Village of Wellsburg plans to implement the recommendations for the Wellsburg reach of the stream as funding permits. It is expected that the restoration plan will be completed in 1999, at which time the Village will evaluate the cost of recommended measures and seek funding. It is anticipated that this project may be funded jointly by the Village of Wellsburg and the Chemung County Soil & Water Conservation District (S&WCD). The Village has included a line item in its budget for flooding and erosion projects (\$10,000 in 1997-98; \$17,000 in 1998-99), which may be applied to this effort. Because the stability of Bentley Creek in the Town of Ashland and Pennsylvania affect conditions in Wellsburg, the Village will support stream restoration efforts throughout the watershed through continued participation in the Penn-York Bentley Creek Watershed Association.

PROPERTY PROTECTION

9. Relocate Wellsburg emergency center: The Village will pursue the process already initiated to relocate the Wellsburg emergency center (Wellsburg Fire Station, State Police Substation, and Village Offices) to a site that will not be susceptible to flooding (Problem #9). The new site will be farther from the railroad tracks, and thus less susceptible to a

hazardous material spill (Problem #32). The architectural design for a new facility is in the current Village budget and is expected to be completed in the winter of 1999. Site selection is ongoing and should be finalized in 1999. The Village is currently evaluating potential sources of funding for this project through grants, bonding, or both. The anticipated cost of this project is \$650,000.

10. Relocate Village water treatment facilities: The Village has applied for funding (through the Hazard Mitigation Grant Program) to relocate the pumping controls and chemical treatment facilities for the Village Water Department to a site that will not be susceptible to flood damages (Problem #8). This project will be implemented when funding becomes available.
11. Additional well for Village water supply system: Both wells that currently supply Village water (#1 and #6) are susceptible to damage from flooding or hazardous spills (Problems #1, 8, and 32). Existing well #4 has not been used due to colloidal (fine clay) problems. Recent testing confirmed that this problem persists. The Village is currently evaluating the costs and feasibility of providing treatment (cost estimates have been requested) or developing another well (preliminary cost estimate \$80,800). The Village is in the process of selecting an appropriate course of action and applying for grant funding. This and other water system improvements will be implemented when funding becomes available.
12. Assist property owners with floodproofing measures: The Village of Wellsburg will continue to encourage floodproofing of existing structures. Members of the Village Board and the Code Enforcement Officer provide residents with recommendations for elevation of utilities and other floodproofing measures. A brochure about floodproofing measures will be included in the mailing for Action Item #3. If residents request funding assistance, the Village will help with applications for financial assistance.
13. Inform railroad company of erosion threat to tracks and inadequacy of railroad bridge: When the current change in ownership of the railroad line through the Village is complete, the Mayor will write the new owner a letter alerting them to the erosion problems that threaten the railroad track (Problem #2) and the flooding problems associated with the railroad bridge over Bentley Creek (Problem #6). The letter will express the Village's desire to work with the railroad company to resolve these problems.
14. Inform Department of Transportation of inadequacy of Front Street bridge: The Village Mayor will write a letter to the NY State Department of Transportation (DOT) alerting them to the flooding problems associated with the Front Street (State Route 427) bridge over Bentley Creek (Problem #7). The letter will express the Village's desire to work with the State to resolve these problems. Copies will be sent to elected officials.
15. Improve Community Rating System classification: The Village is working to reduce the cost of flood insurance by improving their Community Rating System classification (which currently enables a 5% reduction in the cost of flood insurance within the Village). The Village will review their participation in this program and evaluate the feasibility of qualifying for an improved rating. This Plan will be submitted after it has been approved by the Village Board. Additional efforts will be made to implement and

document activities that will improve the classification, thus enabling a greater reduction in flood insurance premiums.

STRUCTURAL SOLUTIONS

16. Evaluate and pursue alternatives for reducing flood damages from Bentley Creek: The Village of Wellsburg is among the local Sponsors of the PL 566 Bentley Creek Watershed Project of the Natural Resources Conservation Service (NRCS). The Preliminary Investigation Report (completed in December 1997) identified possible solutions to flooding and bank erosion problems. As a result of continued interest from the local Sponsors, a Plan of Work for developing a Watershed Plan and Environmental Assessment has been prepared (but not yet signed). The Village of Wellsburg will sign this Plan of Work and assist with its implementation. This effort will include an evaluation of alternative solutions to flooding and bank erosion problems and is scheduled for completion in 1999. The Village will then work closely with the other participants to implement recommended solutions to the Bentley Creek flooding problems in the Village of Wellsburg (Problems #6 through 15).
17. Install Fourth Street drainage system: The Village plans to install a stormwater drainage system to address the surface runoff and groundwater problems on Fourth Street (Problems #21 and 23). The project will be designed in 1999 and constructed when funding becomes available through CHIPS funding from New York State and the Village street budget. The estimated project cost is \$30,000.

EMERGENCY SERVICES

18. Evaluate stream gauge needs for Bentley Creek: The Village will work with the Chemung County Emergency Management Office (EMO), the Flood Warning Service of Steuben and Chemung Counties, and Bradford County agencies to address the lack of stream gauge information for Bentley Creek. It will be necessary to determine the type of gauge(s) desired (automated gauge or a painted staff gauge), identify suitable sites, and procure funding.
19. Improve emergency reporting of high rainfall amounts: The Village will work with the Chemung County Emergency Management Office, the Flood Warning Service of Steuben and Chemung Counties, and Bradford County agencies to establish procedures for emergency reporting of high rainfall events by a network of volunteer rain gauge readers throughout the Bentley Creek watershed. The feasibility of an automated precipitation gauge in the watershed will be evaluated.
20. Review and update Emergency Plan: The Village will work with the Chemung County Emergency Management Office and the Wellsburg Fire Department to review and update the Emergency Plan for the Village of Wellsburg.

Table 2. Flood Mitigation Action Items (page 1 of 3)

PUBLIC INFORMATION			
Task	Responsible Person	Time Table	Financing
1. Display floodplain maps	Village Board	1999	less than \$100, Village expense
2. Display map of flood hazards and problems	Village Board	1999	minimal expense
3. Direct mailing of flood information to property owners	Village Board	1999	approx. \$100, copying/postage expenses
4. Display high water levels in public locations	Village Board	1999 or 2000	cost unknown, Village expense

PREVENTIVE ACTIVITIES			
Task	Responsible Person	Time Table	Financing
5. Training for Planning Board members on flooding and drainage issues	Mayor will request training by County Planning Dept. and Regional Planning Board	1999	staff and volunteer time
6. Review zoning regulations	Planning Board	1999 or 2000	volunteer time
7. Update plan for inspection and maintenance of streams and drainage ways	Village Board	1999	staff and volunteer time

NATURAL RESOURCES PROTECTION			
Task	Responsible Person	Time Table	Financing
8. Implement restoration measures in Bentley Creek	Village Board (working with County S&WCD)	as funding permits	cost unknown (shared by Village and County)

Table 2. Flood Mitigation Action Items (page 2 of 3)

PROPERTY PROTECTION			
Task	Responsible Person	Time Table	Financing
9. Relocate Wellsburg emergency center	Village Board	design and site selection 1999; construction when funding is available	approx. \$650,000; seek funding through grants, bonding, Village budget
10. Relocate Village water treatment facilities	Village Board	grant application 1998; implement when funding is available	\$511,245; seek grant funding, Village funds
11. Additional well for Village water supply system	Village Board	evaluation and grant application ongoing; implement when funding is available	cost unknown; seek funding
12. Assist property owners with floodproofing measures	Code Enforcement Officer, Village Board	ongoing	staff and volunteer time
13. Inform railroad company of erosion threat to tracks and inadequacy of railroad bridge	Mayor	1999 (when sale is complete)	none
14. Inform DOT of inadequacy of Front Street bridge	Mayor	1999	none
15. Improve Community Rating System classification	Code Enforcement Officer	1999-2000	staff time

Table 2. Flood Mitigation Action Items (page 3 of 3)

STRUCTURAL SOLUTIONS			
Task	Responsible Person	Time Table	Financing
16. Evaluate and pursue alternatives for reducing flood damages from Bentley Creek	Village Board (working with NRCS, other Sponsors, and participating agencies)	Watershed Plan complete in 1999-2000; construction schedule unknown	staff and volunteer time (for Watershed Plan); implementation costs unknown
17. Install Fourth Street drainage system	Village Board	design 1999, construct when funding is available	approx. \$30,000 (NYS CHIPS funding and Village street budget)

EMERGENCY SERVICES			
Task	Responsible Person	Time Table	Financing
18. Evaluate stream gauge needs for Bentley Creek	Village Board (working with County EMO and others)	1999	staff and volunteer time
19. Improve emergency reporting of high rainfall amounts	Village Board (working with County EMO and others)	1999	staff and volunteer time
20. Review and update Emergency Plan	Village Board (working with Fire Dept. and County EMO)	1999	staff and volunteer time

POST-DISASTER MITIGATION POLICIES AND PROCEDURES

Following a flood incident, the Village of Wellsburg will examine the damage areas, evaluate the suitability of rebuilding damaged structures, and make recommendations to property owners. As part of its flood recovery efforts, the Village will intensify its ongoing effort to educate property owners about floodproofing techniques (particularly the elevation of utilities and other vulnerable property). If owners of damaged property express interest in a buyout, the Village will provide assistance with obtaining funding.

Repairs to buildings located within the 100-year floodplain will comply with the local law for floodplain development, which specifies that structures that are substantially damaged (cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred) will only be rebuilt if they are brought into compliance with current floodplain development standards.

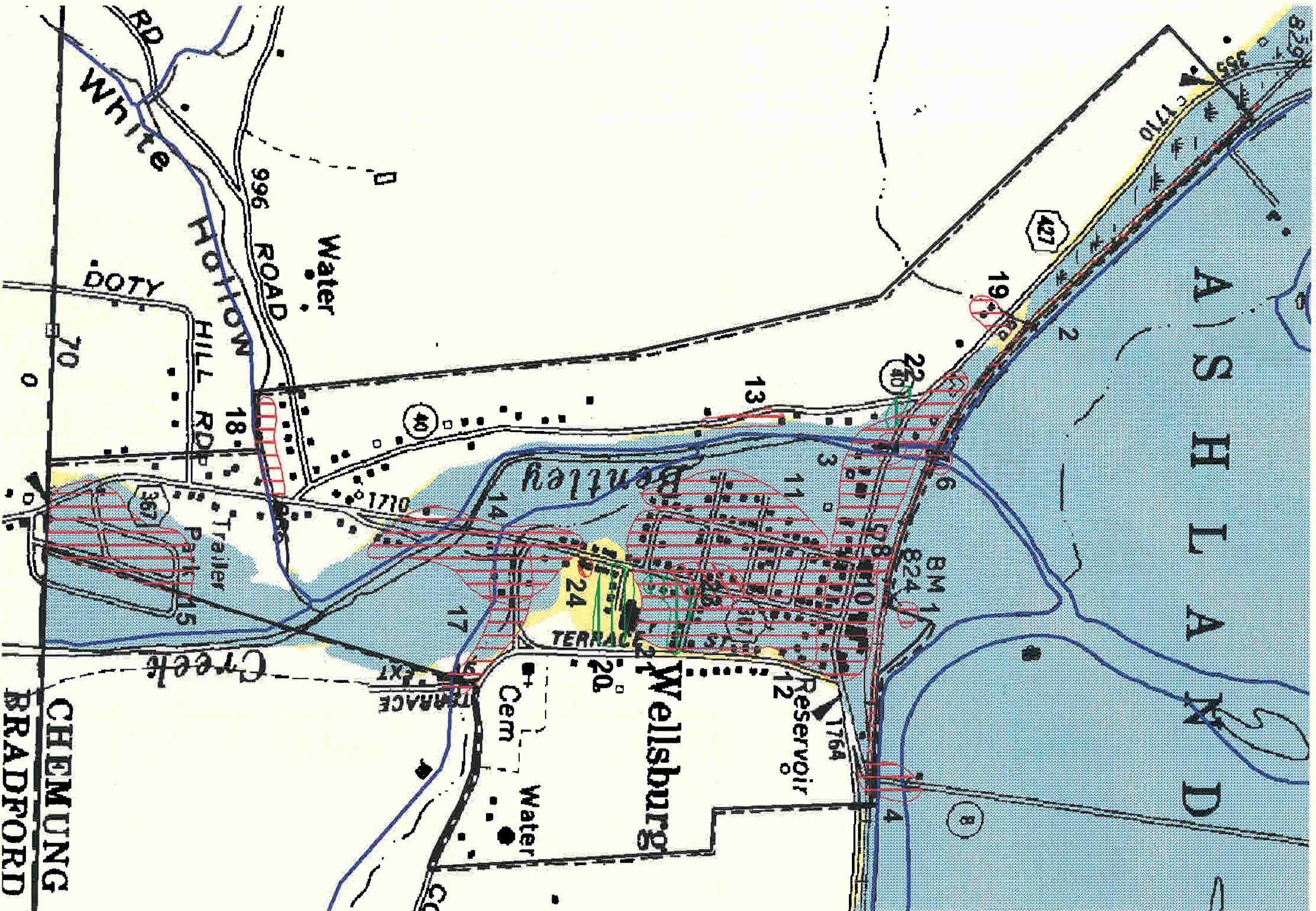
If the Wellsburg Fire Station experiences flood damages, every effort will be made to relocate the emergency facilities at that time (Action Item #9). The Village does not wish to fund restoration activities at the present flood-prone location. The Village has already initiated the process of designing a new facility, selecting a suitable site, and procuring funding for the relocation project. This process will be intensified if the present building sustains damage due to flooding or any other cause. If damage to the structure exceeds 50% of the value of the building, relocation will be required by local law (floodproofing and elevation are not viable options).

ATTACHMENT A

Map of Flood Hazards and Problems

Summary of Flooding Problems

Village of Wellsburg Flood Hazards and Problems



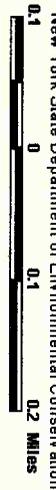
Legend

- Flooding and Bank Erosion
- Drainage Problems
- Shallow Groundwater
- Streams Rivers and Lakes
- DEC Wetlands
- 100 Year Floodplain
- 500 Year Floodplain

Flood problems are described in "Flood Mitigation Action Plan Village of Wellsburg" (available at Wellsburg Village Hall)

Note: Floodplains and Wetlands data are approximate. Not for legal floodplain or wetland determination. Does not include changes past September 1996.

Source: Wellsburg Flood Mitigation Planning Committee
 Q3 Flood data from Federal Emergency Management Agency
 New York State Department of Environmental Conservation



**SUMMARY OF FLOODING PROBLEMS
VILLAGE OF WELLSBURG**

Problem #	Stream/Drainage Basin	Problem Name	Municipality	Houses Affected	Roads/Culverts/Bridges?	Streambank/Lakeshore Erosion?	Riverine Flooding?	Stormwater Flooding?	Groundwater Flooding?	Potential Development?
RIVERINE FLOODING AND STREAMBANK EROSION										
1	Chemung River	Village Well #1	Village of Wellsburg	0		x	x			
2	Chemung River	Railroad Track	Village of Wellsburg	0	x	x	x			
3	Chemung River	Front Street (State Rt. 427)	Village of Wellsburg	7	x	x	x			
4	Chemung River	Lowman Crossover (County Rt. 8)	V. Wellsburg/T. Ashland	0		x	x			
5	Chemung River	Dam Failure	Village of Wellsburg	x	x		x			
6	Bentley Creek	Railroad Bridge	Village of Wellsburg	x	x	x	x			
7	Bentley Creek	Front Street (State Rt. 427) Bridge	Village of Wellsburg	x	x	x	x			
8	Bentley Creek	Village Well #6 and Chlorine Room	Village of Wellsburg	0						
9	Bentley Creek	Wellsburg Fire Station	Village of Wellsburg	x			x			
10	Bentley Creek	Front Street	Village of Wellsburg	7*	x		x			
11	Bentley Creek	Between Church St. and Bentley Creek	Village of Wellsburg	15			x			
12	Bentley Creek	East of Church Street	Village of Wellsburg	60			x			
13	Bentley Creek	Berwick Turnpike	Village of Wellsburg	1	x	x	x			
14	Bentley Creek	Near Main Street Bridge	Village of Wellsburg	12			x			
15	Bentley Creek	Mobile Home Park	Village of Wellsburg	48			x			
16	Bentley Creek	Upstream Dams	Village of Wellsburg	x	x		x			
17	Tyler Run	Sixth Street	Village of Wellsburg	3	x	x	x			
18	White Hollow Run	Comfort Hill Road	Village of Wellsburg	0			x			
19	Unnamed Tributary to Bentley Creek	Route 427	Village of Wellsburg	2	x	x	x			
DRAINAGE PROBLEMS										
20	Tyler Run	Fifth Street	Village of Wellsburg	5				x		
21	Tyler Run	Fourth Street	Village of Wellsburg	10				x		
22	Chemung River	North End of Berwick Turnpike	Village of Wellsburg	1				x		
SHALLOW WATER TABLE										
23	Bentley Creek	Main Street & Fourth Street	Village of Wellsburg	6					x	
24	Tyler Run	Main Street	Village of Wellsburg	1					x	

*same as problem #3

**SUMMARY OF FLOODING PROBLEMS
VILLAGE OF WELLSBURG**

Problem #	Stream/Drainage Basin	Problem Name	Municipality	Houses Affected	Roads/Culverts/Bridges?	Streambank/Lakeshore Erosion?	Riverine Flooding?	Stormwater Flooding?	Groundwater Flooding?	Potential Development?
FLOOD WARNING										
25	All	Flash Flooding	Village of Wellsburg	x	x		x			
26	Bentley Creek	Stream Gauges	Village of Wellsburg	x	x		x			
27	All	Rain Gauges	Village of Wellsburg	x	x		x			
28	Bentley Creek	Flood Stage Maps	Village of Wellsburg	x	x		x			
DEVELOPMENT TRENDS										
29	Bentley Creek	Floodplain Development Regulations	Village of Wellsburg	x			x			x
30	All	Stormwater Management	Village of Wellsburg	x	x			x		x
31	All	Shallow Water Table	Village of Wellsburg	x					x	x
HAZARDOUS MATERIAL SPILLS										
32	Chemung River/Bentley Creek	Railroad	Village of Wellsburg							
33	All	State Highway	Village of Wellsburg							
34	Chemung River/Bentley Creek	Stationary Sites	Village of Wellsburg							
OTHER HAZARDS										
35	All	Severe Weather	Village of Wellsburg							
36	All	Earthquakes	Village of Wellsburg							
37	All	Wildfire	Village of Wellsburg							
38	Bentley Creek	Gas Wells	Village of Wellsburg							

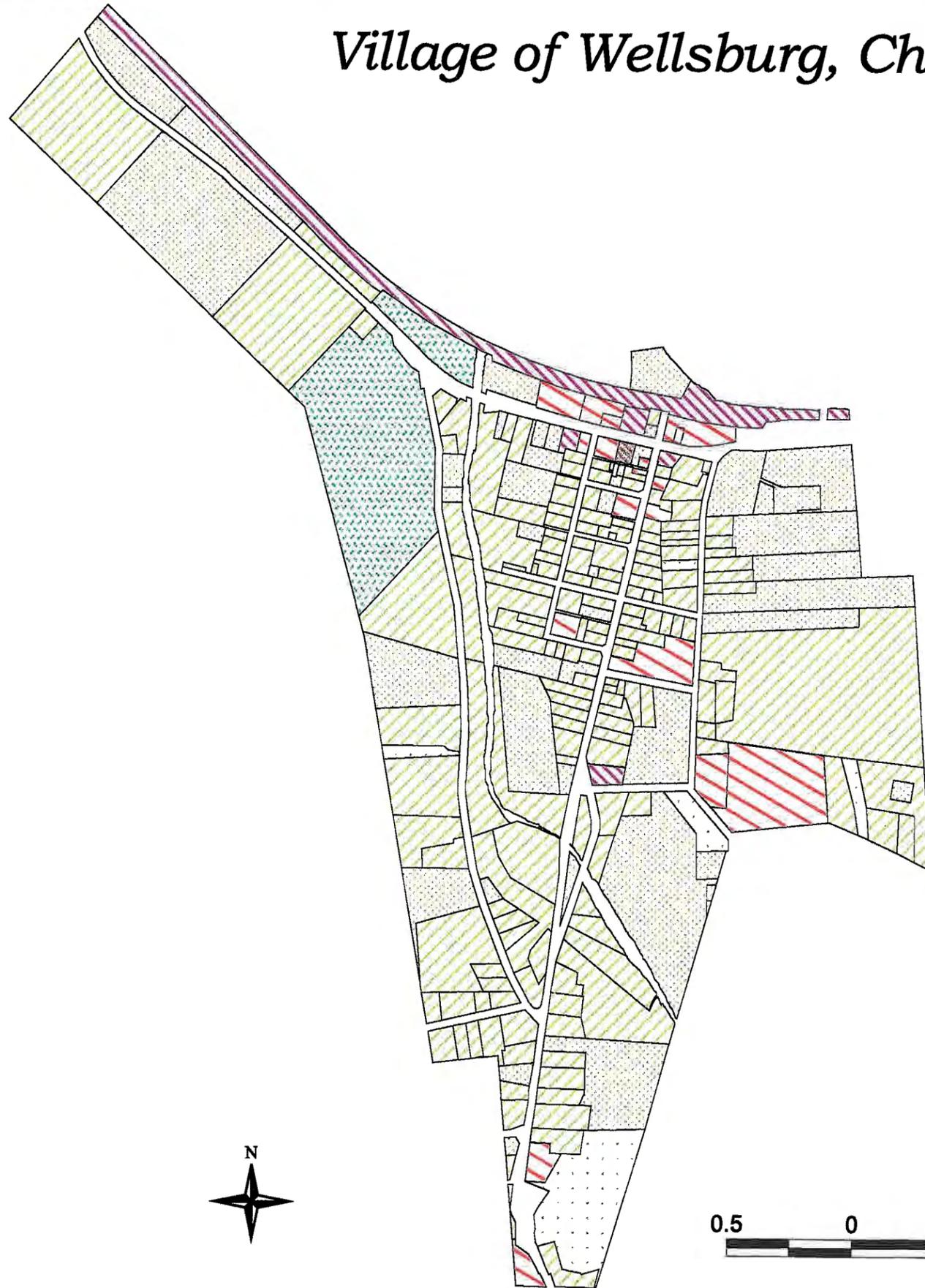
ATTACHMENT B

Map of Land Uses

**Land Use Categories Using Tax Parcel Land Use Codes
for Creating Flood Plain GIS Land Use Maps**

LAND USES BY IMPACT ON FLOOD PRONE AREAS

Village of Wellsburg, Chemung County, New York



Land Use

-  General Agriculture
-  Residential
- Commercial, Recreational, Institutional, Industrial**
-  Minimal Risk Hazardous Materials
-  Possible Risk Hazardous Materials
-  Vacant, Very Low Density Residential, and Parks
-  General Commercial
-  Not Categorized

Source:
Chemung County Office of Real Property Services, 1997 and 1998.

Prepared by Genesee/Finger Lakes Regional Planning Council, October 1998.

LAND USE CATEGORIES
FOR FLOOD PLAIN LAND USE MAPS

AGRICULTURAL - LIVESTOCK	
110 - 119	Livestock and Products, Poultry and Poultry Products: eggs, chickens, turkeys, ducks and geese, Dairy Products: milk, butter cheese, Cattle, Calves, Hogs, Sheep and Wool, Honey and Beeswax, Other livestock: donkey, goats, Horse Farms
180 - 189	Specialty Farms, Fur Products: mink, chinchilla, etc., Pheasant, Aquatic: oysterlands
533	Game Farms
555	Riding Stables
AGRICULTURAL - CROPLAND	
120 - 179	Field Crops, Acquired Development Rights, Truck Crops - Mucklands, Truck Crops, Not Mucklands, Orchard Crops, Apples, Pears, Peaches, Cherries, etc., Vineyards, Other Fruits, Nursery and Greenhouse
473	Greenhouses
RESIDENTIAL	
210 - 239	One Family Year-Round Residence, Two Family Year-Round Residence, Three Family Year-Round Residence
250 - 289	Estate, Seasonal Residences, Mobile Home, Multiple Mobile Homes, Multiple Residences
410- 418	Living Accommodations, Apartments, Hotel, Motel, Mobile Home Parks (trailer parks, trailer courts), Camps, Cottages, Bungalows, Inns, Lodges, Boarding and Rooming Houses, Tourist Homes, Fraternity and Sorority Houses
693	Indian Reservations
COMMERCIAL/RECREATION/INSTUTIONAL/INDUSTRIAL - MINIMAL RISK HAZARDOUS MATERIALS	
420 - 426	Dining Establishments, Restaurants, Diners and Luncheonettes, Snack Bars, Drive-Ins, Ice Cream Bars, Night Clubs, Bar, Fast Food Franchises
437-439	Parking Garage, Parking Lot, Small Parking Garage
450-454	Retail Services, Regional Shopping Centers, Area or Neighborhood Shopping Centers, Large Retail Outlets, Large Retail Food Stores
460 - 472	Banks and Office Buildings, Standard Bank/Single Occupant, Drive-In Branch Bank, Bank Complex with Office Building, Office Building, Professional Building, Miscellaneous Services, Funeral Homes, Dog Kennels, Veterinary Clinics
474	Billboards
480- 486	Multiple Use or Multipurposes, Downtown Row Type (with common wall), Downtown Row Type (detached), Converted Residence, One Story Small Structure, One Story Small Structure -Multioccupant, Minimart

COMMERCIAL/RECREATION/INSTITUTIONAL/INDUSTRIAL - MINIMAL RISK HAZARDOUS MATERIALS (Continued)

510- 521	Entertainment Assembly, Legitimate Theaters, Motion Pictures Theaters (excludes drive-in theaters, Drive-In Theaters, Auditoriums, Exhibition and Exposition Halls, Radio, T.V. and Motion Picture Studios, Sports Assembly, Stadiums, Arenas, Armories, Field Houses
530 - 532	Amusement Facilities, Fairgrounds, Amusement Parks
534	Social Organizations
540 - 544	Indoor Sports Facilities, Bowling Centers, Ice or Roller Skating Rinks, YMCA's, YWCA's, etc., Health Spas
546	Other Outdoor Sports
551	Skiing Centers
556 - 557	Ice or Roller Skating Rinks (may be covered), Other Outdoor Sports
560	Improved Beaches
610 - 633	Education, Libraries, Schools, Colleges and Universities, Special Schools and Institutions, Other Education Facilities, Religious, Welfare, Orphanages, Benevolent and Moral Associations, Homes for the Aged
652-653	Office Building, Parking Lots
662-670	Police and Fire Protection, Electrical Signal Equipment and Other Facilities for Fire, Police, Civil Defense, etc., Correctional
681	Cultural Facilities
691	Professional Associations
694	Animal Welfare Shelters
695	Cemeteries
720 - 723	Mining and Quarring, Sand and Gravel, Limestone, Trap Rock
822	Water Supply
830 - 839	Communication, Telephone, Telegraph, Radio, Television other than Community Antenna Television, Community Antenna Television, Telecommunications
862-867	Water, Telephone, Miscellaneous
869	Television

COMMERCIAL/RECREATION/INSTITUTIONAL/INDUSTRIAL - POSSIBLE RISK HAZARDOUS MATERIALS

430 - 436	Motor Vehicle Services, Auto Dealers - Sales and Service, Service and Gas Stations, Auto Body, Tire Shops, Other Related Auto Sales, Automatic Car Wash, Manual Car Wash, Self-Service Car Wash
440-449	Storage, Warehouse and Distribution Facilities, Gasoline, Fuel, Oil, Liquid Petroleum Storage and/or Distribution, Bottled Gas, Natural Gas Facilities, Grain and Feed Elevators, Mixers, Sales Outlets, Lumber Yards, Sawmills, Coal Yards, Bins, Cold Storage Facilities, Trucking Terminals, Piers, Wharves, Docks and Related Facilities
455	Dealerships - Sales and Service (other than auto with large sales operation)
475	Junkyards
522	Racetracks

COMMERCIAL/RECREATION/INSTITUTIONAL/INDUSTRIAL - POSSIBLE RISK HAZARDOUS MATERIALS (Continued)

545	Indoor Swimming Pools
552 - 554	Public Golf Courses, Private Golf Country Clubs, Outdoor Swimming Pools
570	Marinas
641 - 651	Hospital, All Other Health Facilities, Government, Highway Garage
660 - 661	Protection, Army, Navy, Air Force, Marine and Coast Guard Installations, Radar, etc.
692	Roads, Streets, Highways and Parkways, Express or Otherwise (if listed) Including Adjoining Land
710-719	Manufacturing and Processing
724 - 729	Salt, Iron and Titanium, Talc, Lead and Zink, Gypsum, Other
730 - 749	Wells, Oil - Natural Flow (for production), Oil - Forced Flow (for production), Gas (for production), Junk, Water used for Oil Production, Gas or Oil Storage Wells, Gas, Water, Brine, Petroleum Products, Other
810 - 819	Electric and Gas, Electric Power Generation - Hydro, Electric Power Generation - Coal Burning Plant, Electric Power Generation - Oil Burning Plant, Electric Power Generation - Nuclear Plant, Electric Power Generation - Gas Burning Plant, Gas Generation Plant, Electric Transmission and Distribution
840-849	Transportation, Motor Vehicle, Ceiling Railroad, Nonceiling Railroad, Air,, Water, Bridges, Tunnels and Subways, Pipelines
850 - 859	Waste Disposal, Solid Wastes, Landfills and Dumps, Sewage Treatment and Water Pollution Control, Air Pollution Control
861	Electric and Gas
868	Pipelines

VACANT - UNDEVELOPED VERY LOW DENSITY RESIDENTIAL (1du/10 acres or more), PARKS

105	Agricultural Vacant Land (Productive)
190	Fish, Game and Wildlife Preserves
240	Rural Residence with Acreage
310 - 359	Residential, Residential Vacant Land, Residential Land Including a Small Improvement (not used for living accommodations), Waterfront Vacant Lots, Rural Vacant Lots of 10 Acres or Less, Underwater Vacant Land, Waterfront Vacant Land Including a Small Improvement (not used for living accommodations), Rural, Abandoned Agricultural Land, Residential Vacant Land over 10 Acres, Other Rural Vacant Lands, Vacant Land Located in Commercial Areas, Vacant Land Located In Industrial Areas, Urban Renewal or Slum Clearance
580 - 593	Camps, Camping Facilities and Resorts, Camps, Camping Facilities, Resort Complexes, Parks, Playgrounds, Athletic Fields, Picnic Grounds
682	Recreational Facilities

VACANT - UNDEVELOPED VERY LOW DENSITY RESIDENTIAL (1du/10 acres or more), PARKS
(Continued)

900 - 999	Wild Forested, Conservation Lands and Public Parks, Private Wild and Forest Lands except for Private Hunting and Fishing Clubs, Forest Land Under Section 480 of the Real Property Tax Law, Forest Land Under Section 480-a of the Real Property Law, Private Hunting and Fishing Clubs, State Owned Forest Lands, State Owned Land (Forest Preserve) in the Adirondack or Catskill Parks Taxable Under Section 532-a of the Real Property Tax Law, State Owned Land Other than Forest Preserve Covered Under Section 532-b,c,d,e,f, or g of the Real Property Tax Law, Reforested Land and Other Related Conservation Purposes, State Owned Reforested Land Taxable Under Sections 534 and 536 of the Real Property Tax Law, County Owned Reforested Land, Hudson River and Black River Regulating District Land, State Owned Public Parks, Recreation Areas, and Other Multiple Uses, County Owned Public Parks and Recreation Areas, City/Town/Village Public Parks and Recreation Areas, Other Wild or Conservation Lands, Wetlands, Either Privately or Governmentally Owned, Subject to Specific Restrictions as to Use, Land Under Water, Either Privately or Governmentally Owned (other than residential -more properly classified as code 315), Taxable State Owned Conservation Easements, Other Taxable State Land Assessments, Adirondack park Aggregate Additional Assessments (Real Property Tax Law, Section 542(3)), Hudson River-Black River Regulating District Aggregate Additional Assessments (Environmental conservation Law, Section, Transition Assessments for Taxable State Owned Land (Real Property Tax Law, Section 545), Transition Assessments for Exempt State Owned Land (Real Property Tax Law, Section 545)
Flood Control	
820 - 821	Water, Flood Control

ATTACHMENT C

Flood Solutions Worksheet

Attached is a completed copy of the worksheet used to evaluate flood mitigation measures. All of the measures listed on this worksheet were reviewed and evaluated by the Village of Wellsburg Flood Mitigation Planning Committee. Recommended techniques for the Village of Wellsburg are marked in the left column of the worksheet. The number of Xs is proportional to the level of interest in each idea, with two Xs indicating 100% support. If a technique is already implemented in the Village of Wellsburg, one or more X indicates an interest in additional implementation measures. Comments applicable to the Village of Wellsburg are indicated in italics.

Name: Flood Mitigation Planning Committee Municipality: Village of Wellsburg

FLOOD SOLUTIONS WORKSHEET

As you listen to and participate in discussions of alternative techniques for reducing flood damages, record your ideas and thoughts on this worksheet. Check those ideas that might work in your community. Specify the geographic areas for applying these solutions.

Alternative Flood Damage Reduction Techniques

PUBLIC INFORMATION

Information About Flood Insurance Rate Maps

- Post floodplain maps in municipal buildings
- Map determinations (flood zone for a particular property or structure)
- Provide information about additional locations with known flood problems (riverine flooding, shallow water table, bank erosion, etc.)
- Other: _____

Flood Information Outreach Projects

- Newsletter article in _____
- Enclosure in utility bills _____
- Direct mailing to *citizens* _____
- Special outreach project _____
- Other: _____

Real Estate Disclosure

- Education of potential property buyers
- Education of real estate agents
- Mandatory disclosure of flood history by real estate agents
- Other: _____

Provide References to Public Library

- Current Flood Insurance Rate Maps
- Flood insurance information
- Information about protecting buildings from flooding
- Documents on community floodplain management and flood hazard mitigation
- Information about the natural and beneficial functions of floodplains
- Local accounts of past flood events
- Directory of sources for additional information on these topics
- Other: _____

Provide Technical Assistance

- Site-specific information about historic flood events
- Names of contractors and consultants knowledgeable or experienced in retrofitting techniques and construction
- Material on how to select a qualified contractor and what recourse people have if they are dissatisfied with a contractor’s performance
- Site visits to review flooding, drainage, and sewer problems or provide advice on contemplated development
- Advice and assistance on retrofitting techniques
- Other: _____

Environmental Education

- Education programs for children
- Education programs for adults
- Other: _____

PREVENTIVE ACTIVITIES

Floodplain Regulations

- Training for local officials (Code Enforcement Officer, Planning Board, etc.)
- Adopt updated NYS Model Law
- Revise law to require building elevation 2 feet above base flood elevation
- Revise law to include additional flood-prone areas
- Update Flood Insurance Rate Maps (restudy, amend, or revise)
- Require that all new buildings in and out of the designated floodplain be elevated above historic high water levels
- Other: _____

Conventional Zoning

- Low density zoning
- Depth restrictions for basements at _____
- Standards for private bridges
- Standards for driveways and driveway culverts
- Maximum lot coverage for impervious surfaces
- Other: _____

Subdivision Regulations

- Require that each lot includes a safe building site at an elevation above selected flood heights (either by a lot layout that enables out-of-the-floodplain construction or by filling a portion of each lot)
- Require placement of streets above selected flood protection elevations
- Require placement of public utilities above selected flood protection elevations
- Prohibit encroachment of floodway
- Require that flood hazard areas be shown on plat
- Require adequate drainage facilities
- Other: _____

Cluster Development

- Cluster development provisions
- in zoning ordinance
- in subdivision ordinance
- as a separate ordinance
- Other: _____

Open Space Preservation

- Stream setback requirement
- _____ Lake shore setback requirement
- _____ Vegetated buffer strips along _____
- _____ Conservation District or other restrictive development regulations _____
- _____ Agricultural districts
- Parks, preserves, or recreation areas _____
- _____ Transferable development rights
- Land use easements _____
- _____ Apply floodway development standards to wider area along _____
- Other: _____

Stormwater Management

- Stormwater management plan for Bentley Creek _____ watershed(s)
- Stormwater management regulations
- in zoning ordinance
- in subdivision ordinance
- as a separate ordinance
- Stormwater management regulations for timber harvesting for T. Ashland & PA
- Education and technical assistance
- Design and construction of regional stormwater management facilities
- to address existing problems at _____
- in anticipation of future development at _____
- Inspection and maintenance of stormwater management facilities
- Other: _____

Drainage System Maintenance

- Line item in budget for drainage system maintenance
- Debris removal when problems occur
- Routine inspection and removal of debris 2 or 4 times per year
- Written drainage system maintenance plan (specifying maintenance needs and responsibilities)
- Establish a drainage district
- Channel/bank stabilization on Bentley Creek _____
- Debris basin(s) on Bentley Creek _____
- Other: _____

NATURAL RESOURCE PROTECTION

Wetlands

- Protect existing wetlands at _____
- Enlarge existing wetlands at _____
- Create new wetlands at _____
- Other: _____

Erosion and Sediment Control

- Channel/bank stabilization of Bentley Creek/Tyler Run/White Hollow Run _____
- Erosion and sediment control at new development
 - through regulation
 - through education and technical assistance
- Other: _____

Best Management Practices

- Agriculture
 - education and technical assistance
 - financial incentives
- Timber harvesting
 - regulations
 - education and technical assistance
- Other: _____

PROPERTY PROTECTION

Relocation

- Relocation of building(s) from _____
- Other: Water Department/Fire Station/Village Office/State Police Substation _____

Acquisition

- Acquisition of undeveloped flood-prone property at _____
- Acquisition and demolition of buildings at _____
- Acquisition of development rights or easements at _____
- Other: _____

Building Elevation

- Elevate existing building(s) at _____
- Other: _____

Floodproofing of Buildings and Sewer Backup Protection

- Distribute information about floodproofing techniques
- Technical assistance
- Financial assistance ? Village, County, State, Federal _____
- Other: _____

Infrastructure Protection

- Design standards for new or replaced bridges and culverts
- Mitigation of existing problems at _____
- Debris removal when problems occur
- Routine inspection and maintenance
- Other: _____

Insurance

- Education of property owners
- Education of insurance agents, mortgage lenders, and real estate agents
- Community Rating System (to reduce insurance premiums)
- Other: _____

STRUCTURAL PROJECTS

Reservoirs

- _____ New water retention structures in _____ watershed
- _____ Identify and maintain existing ponds and retention structures
- Other: _____

Levees and Floodwalls

- New levee along *Tyler Run to Bentley Creek to Chemung River* _____
- Increased protection of existing levee along *Bentley Creek* _____
- Maintain existing dike system
- Other: _____

Diversions

- High flow diversion channel at *small ball diamond* _____
- Other: _____

Channel Modifications

- Removal of sand bars or islands from *Bentley Creek and Chemung River* _____
- _____ Straightening, widening, or deepening of _____
- _____ Channel paving of _____
- Other: _____

Storm Sewers

- _____ Storm sewer installation at _____
- Increased storm sewer capacity at *Terrace Street* _____
- _____ Inspection and maintenance of existing storm sewer at _____
- Other: _____

EMERGENCY SERVICES

Flood Warning

- Rain gauges
 - Automated gauges at Bentley Creek Watershed/state line
 - Volunteer reporting all of Bentley Creek Watershed
- Stream/river/lake level gauges
 - Automated gauges at _____
 - Staff gauges at _____
 - Historic information for _____
 - Stage relation information for _____
- Local flood forecast center (operated by Environmental Emergency Services)
- Other: _____

Flood Response

- Flood stage forecast maps for Village of Wellsburg
- Emergency plan for municipality (command structure, communication procedures, emergency flood proofing measures, evacuation procedures, etc.)
- Other: _____

Critical Facilities Protection

- Protection or relocation of critical facilities (sites with toxic materials, medical facilities, **emergency operation centers, utilities**) _____
- Emergency plan for critical facilities Fire Station/Water Department
- Other: _____

ATTACHMENT D

Documentation of Public Involvement:

Newsletter Article

Minutes of Public Information Meeting
(January 11, 1999 Village Board Meeting)

Handout Summarizing the Flood Mitigation Action Plan
(distributed at public information meeting)



THE BENTLEY CREEK WATERSHED NEWS

VOLUME 1 NUMBER 1

JULY 1998

PUBLISHED BY THE BRADFORD COUNTY CONSERVATION DISTRICT
with funding provided through the US Fish & Wildlife Service

FLOOD MITIGATION PLANNING

The Village of Wellsburg and Town of Ashland have formed a committee to prepare a Flood Mitigation Action Plan of ways to protect the community from flood damages. This committee will document existing flooding problems, evaluate the range of potential solutions, and identify the most appropriate measures for addressing the identified problems. This planning process will enable the Town and Village to qualify for project funding from the recently established Flood Mitigation Assistance grant program. For more information, contact Janet Thigpen at (607)737-2096.

VILLAGE OF WELLSBURG
WELLSBURG, NEW YORK 14894

January 11, 1999

The regular meeting of the Village of Wellsburg. Board members present were Mayor Coles, Trustee Blitz, Trustee Stanton. Others present were Clerk Ann Doland, Bruce Morris, Jack Knapp, Larry Lanterman, Chris Hughson, Janet Thigpen. Atty O'Brien, Channel 18 news.

[Public Hearing opened at 7:12 pm. Janet discussed the reason for the hearing: See attached. The Mayor discussed who we have to borrow money for to help with getting new fire house and water moved. May purchase 10+ acres on other side of tracks for further help with a new well. Table this public hearing to adopt later. Hearing closed at 8:32 pm.]

Motion was made by Trustee Blitz, seconded by Trustee Stanton, moved to accept the minutes of the last meeting as transcribed by the clerk. Carried.

The clerk read Justice report for December of monies received and disposition of cases in his court.

The clerk read CEO's report for December.

Motion was made by Trustee Blitz, seconded by Trustee Stanton to adopt the contract with the Town of Elmira for 1999 after Atty O'Brien makes sure the wording is right. Carried.

The following bills were presented for audit: From the General Fund payroll 8-98 and vouchers No. 126 thru No. 135 in the amount of \$3257.67 with deductions as follows: \$50.00 PEBSCO; \$75.00 FIT; \$5.00 NYS Income Tax; \$76.24 Social Security, making a net amount of \$3051.43 from the General Fund.

From the Water Fund payroll 8-98 and vouchers No. 75 thru No. 89 in a total amount of \$3628.42 FROM the water Fund.

Motion was made by Mayor Coles, seconded by Trustee Stanton, moved to pay the above mentioned bills. Carried.

There being no further business, the meeting was adjourned by motion of Mayor Coles, seconded by Trustee Blitz, at 9:10 pm.

Ann Doland
Village Clerk/Treas.

Flood Mitigation Planning

Village of Wellsburg

The Village of Wellsburg Flood Mitigation Planning Committee has evaluated the community's flooding problems and a variety of potential solutions in order to prepare a program of activities that the Village can undertake to tackle these problems.

WHY?

- Planning is a critical step toward coordinated implementation of activities that will reduce flood damages.
- Fulfill planning requirements for state or federal assistance programs (particularly the newly established Flood Mitigation Assistance Program).
- Qualify for Community Rating System credit toward reduced flood insurance premiums.

ASSESS THE FLOOD HAZARDS AND PROBLEMS

The Flood Mitigation Planning Committee identified and documented 38 flooding problems, potential flooding problems, and other hazards in the Village of Wellsburg. A map indicating the locations of flood problem areas was prepared.

SET COMMUNITY GOALS

Long range community goals for the Village of Wellsburg were proposed. These goals address emergency operations, the Water Department, infrastructure, natural resources, flood protection, future development, and cooperation with neighboring municipalities.

ASSESS POSSIBLE MITIGATION MEASURES

Committee members attended a Flood Solutions Workshop at which they reviewed a comprehensive list of possible measures for resolving flooding problems. They identified those solutions that are most applicable to the flooding problems and community needs in the Village of Wellsburg.

DEVELOP AN ACTION PLAN

The committee prepared an Action Plan, which describes 20 activities that the Village can implement to address flooding problems. Each year this Plan will be reviewed and updated to incorporate the next steps that need to be taken to reach the community's long term goals.

REVIEW AND ADOPTION OF THE PLAN

The Planning Committee is now soliciting comments and input to the Draft Flood Mitigation Action Plan. Once local input has been incorporated, the Plan will be submitted to the State Emergency Management Office and Federal Emergency Management Agency for approval. It will then be presented to the Wellsburg Village Board for adoption. Adoption of this plan will qualify the Village for Community Rating System Credit (toward reduced Flood Insurance premiums) and Flood Mitigation Assistance grant funding.

ATTACHMENT E

September 2000 Revisions

Revisions To
Flood Mitigation Action Plan, Village of Wellsburg

September 2000

PROCEDURE FOR REVIEW AND REVISION OF THE PLAN

The *Flood Mitigation Action Plan, Village of Wellsburg* was distributed to elected officials and staff of the Village of Wellsburg for review and recommendations. The following updates and revisions were agreed to at a meeting on September 26, 2000. Participants included the Mayor, a Trustee, the Code Enforcement Officer, and Regional Flood Mitigation Specialist (with Southern Tier Central Regional Planning and Development Board).

FLOOD HAZARDS AND PROBLEMS

The following information updates the description of flood hazards and flood problems in the July 1999 *Flood Mitigation Action Plan, Village of Wellsburg* (pages 7 through 19).

Village Water Supply System

Village water supply well #1 (Problem #1) has been taken offline due to bacteria contamination. The Village's water is now supplied solely by well #6, which is susceptible to flooding by the Chemung River (Problem #3), flooding from Bentley Creek (Problem #8), and hazardous material contamination from a railroad or highway accident (Problems #32 and 33). Over the years, the Village has repeatedly drilled test wells, but has been unable to locate a suitable site for another Village water supply well.

Fourth Street

The drainage problems on Fourth Street (Problem #21) are compounded by water from the Terrace Street roadside ditch, which overflows down Fourth Street.

ACTION PLAN

The following Action Items have been implemented since completion of the July 1999 *Flood Mitigation Action Plan, Village of Wellsburg*:

- **Display map of flood hazards and problems**: A color copy of the flood hazard and problem map that was prepared for the *Flood Mitigation Action Plan* is posted in the Village of Wellsburg Office.
- **Distribute flood information to property owners**: The Village hand-delivered a packet of information about flood risks, emergency preparedness, and floodproofing techniques to all homes and businesses in the Village.

- Display high water levels in public locations: High water levels from the January 1996 flood are indicated in the Wellsburg Fire Station and in a restaurant located on Front Street.
- Stormwater management plan: The Bradford County (Pennsylvania) Conservation District was awarded funding (through the Pennsylvania Growing Greener Program) to develop a stormwater management plan for the Bentley Creek Watershed, including watershed areas in New York. The Village of Wellsburg wrote a letter in support of this application.
- Riparian management plan: The Bradford County (Pennsylvania) Conservation District was awarded funding (through the Pennsylvania Growing Greener Program) to develop a riparian management plan for the Bentley Creek Watershed. This plan will outline the ongoing maintenance needs and responsibilities for the creek and bordering areas.
- Implement restoration measures in the Pennsylvania reach of Bentley Creek: The U.S. Fish and Wildlife Service developed a plan for stabilization of Bentley Creek based on the principles of applied fluvial geomorphology. Restoration has been completed for several reaches in Pennsylvania and funding has been secured for additional reaches.
- Implement restoration measures in the New York reach of Bentley Creek: The Chemung County Soil and Water Conservation District has secured funding (from the New York State Department of Environmental Conservation) for natural stream restoration of Bentley Creek in the Town of Ashland and Village of Wellsburg. This project will not reduce the volume of flood discharges, but is expected to reduce the flood damages (Problems #6 through 15) by reducing bank erosion, debris accumulation, and sedimentation. This project is scheduled for implementation in 2001.
- Relocate Wellsburg emergency center: The Village has been unsuccessful in attempts to procure funding to relocate the Wellsburg emergency center (Wellsburg Fire Station, State Police Substation, and Village Offices) to a site that will not be susceptible to flooding (Problem #9).
- Additional well for Village water supply system: The Village spent \$25,000 on an unsuccessful attempt to clear the water from Village well #4. This is a previously drilled well that has never been used due to colloidal (fine clay) problems.
- Inform Department of Transportation of inadequacy of Front Street bridge: The Village has maintained communication with the NY State Department of Transportation (DOT) concerning the flooding problems associated with the Front Street (State Route 427). Unfortunately, funding is not available for replacement of this structure.
- Evaluate and pursue alternatives for reducing flood damages from Bentley Creek: The Village of Wellsburg and the other local Sponsors of the PL 566 Bentley Creek Watershed Project of the Natural Resources Conservation Service (NRCS) have signed a Plan of Work for developing a Watershed Plan and Environmental Assessment. The Chemung County Soil and Water Conservation District has conducted floodplain surveys to provide data for this evaluation.
- Improve emergency reporting of high rainfall amounts: The Penn-York Bentley Creek Watershed Association has established a network of volunteer rain gauge readers throughout

the Bentley Creek watershed. A procedure has been established for emergency reporting of high rainfall events to the Flood Warning Service for Chemung and Steuben Counties.

The following updated list of activities replaces the action items in the Action Plan section (pages 23 through 26) and Table 2 (pages 27 through 29) of the *Flood Mitigation Action Plan, Village of Wellsburg*:

Public Information

Action Item #1. Display floodplain maps: Maps of the 100-year and 500-year floodplains will be posted at public locations in the Village. Potential sites include the Post Office and the three churches. Digital (GIS) maps will be plotted by the Southern Tier Central Regional Planning and Development Board and protected with lamination. Village Board members will obtain permission and post the maps. Each map will include a note stating that additional information is available at the Village Hall.

Action Item #2. Display flood information in Village Hall: At least once a year, the flood hazard and flood damage prevention information that is available in the Village Office will be reviewed. Appropriate brochures will be procured and maintained on display.

Action Item #3. Distribute flood information to property owners: The Village will distribute information about flood risks, emergency preparedness, and floodproofing techniques to all property owners in the Village on an annual basis.

Action Item #4. Display high water levels in public locations: The Village will provide one or more display of historic high water levels in the Village of Wellsburg (1972, 1975, and 1996). Possible sites include the Fire Station, Methodist Church, and Village Water Department property near Well #6.

Preventive Activities

Action Item #5. Training for Planning Board members on flooding and drainage issues: The Village does not currently have an active Planning Board. When new members are appointed, the Village will ask the Chemung County Planning Department and Southern Tier Central Regional Planning and Development Board to conduct a training session about flooding issues as they relate to planning and development proposals.

Action Item #6. Review zoning regulations: When the Village Planning Board members have been appointed, they will be asked to review the current zoning regulations for the Village and evaluate the need for including additional provisions for: maximum impermeable surfaces, stormwater management, and cluster development. This will be initiated after the training indicated in Action Item #5 has been provided.

Action Item #7. Stormwater management plan for Bentley Creek Watershed: The Village of Wellsburg will support the development of a stormwater management plan for the Bentley Creek Watershed. This project will be implemented by Bradford County, Pennsylvania, with funding from the Pennsylvania Growing Greener Program. When the plan is complete, the Village of Wellsburg will consider adopting stormwater management regulations consistent with the plan recommendations for the watershed.

Action Item #8. Riparian management plan for Bentley Creek Watershed: The Village of Wellsburg will participate in the development of a riparian management plan for the Bentley Creek Watershed. This plan will outline the ongoing maintenance needs and responsibilities for the creek and bordering areas. The Bradford County (Pennsylvania) Conservation District will facilitate the development of this plan, with funding from the Pennsylvania Growing Greener Program. The Village of Wellsburg will cooperate with the other municipalities in the watershed to implement the riparian management plan.

Action Item #9. Implement plan for inspection and maintenance of streams and drainage ways: The Village will strive to implement the inspection and maintenance provisions of the Bentley Creek maintenance plan, which specifies that Bentley Creek will be inspected for debris accumulation. This maintenance plan calls for sharing of the inspection and debris removal responsibilities by the Village of Wellsburg, Town of Ashland, and State Department of Transportation.

Natural Resource Protection

Action Item #10. Implement restoration measures in the New York reach of Bentley Creek: The Chemung County Soil and Water Conservation District has secured funding for restoration of the New York reach of Bentley Creek based on the principles of applied fluvial geomorphology. The plan for this restoration was prepared under the Bentley Creek Stream Restoration Project of the U.S. Fish and Wildlife Service. The measures identified in the stabilization plan will not reduce the volume of flood discharges, but are expected to reduce the flood damages (Problems #6 through 15) by reducing bank erosion, debris accumulation, and sedimentation. This project is scheduled for implementation in 2001. Project design and oversight will be provided by the Chemung County Soil and Water Conservation District. The Village of Wellsburg will provide in-kind assistance.

Action Item #11. Implement restoration measures in the Pennsylvania reach of Bentley Creek: Because the stability of Bentley Creek in Pennsylvania affects conditions in Wellsburg, the Village provides ongoing support for stream restoration efforts throughout the watershed through continued participation in the Penn-York Bentley Creek Watershed Association.

Property Protection

Action Item #12. Relocate Wellsburg emergency center: The Village will continue to seek funding to relocate the Wellsburg emergency center (Wellsburg Fire Station, State Police Substation, and Village Offices) to a site that will not be susceptible to flooding (Problem #9). It is anticipated that the new site will be farther from the railroad tracks, and thus less susceptible to a hazardous material spill (Problem #32). The site evaluation and selection process is ongoing. The anticipated cost of this project is \$650,000.

Action Item #13. Evaluate alternatives for the Village water supply system: The only remaining water supply well (well #6) and the water treatment facilities for the Village Water Department are susceptible to flood damages (Problems #3 and 8). Repeated drilling of test wells has not identified any suitable sites for development of another water supply well within the Village. A previous grant application for relocation of the pumping controls and chemical treatment facilities was denied. The Village Board will continue to evaluate the

alternatives for the Village Water Department. In particular, they will evaluate the feasibility and desirability of obtaining municipal water from the Elmira Water Board. They will also evaluate (and pursue if appropriate) funding sources for protecting the integrity of the Village water supply system. Technical assistance for this evaluation will be sought from the Environmental Facilities Corp. and the Chemung County Health Department.

Action Item #14. Assist property owners with floodproofing measures: The Village of Wellsburg will continue to encourage floodproofing of existing structures. Members of the Village Board and the Code Enforcement Officer provide residents with recommendations for elevation of utilities and other floodproofing measures. Information about floodproofing measures will be included in the packets distributed for Action Item #3. If residents request funding assistance, the Village will help with applications for financial assistance.

Action Item #15. Cultivate cooperative relationship with Norfolk Southern Railroad: The railroad line through the Village has recently changed ownership. The Village Board will write a letter to the new owner (Norfolk Southern) alerting them to the erosion problems that threaten the railroad track (Problem #2) and the flooding problems associated with the railroad bridge over Bentley Creek (Problem #6). The letter will express the Village's desire to work with the railroad company to resolve these problems. This is part of an ongoing effort to maintain communication with the railroad company about stream, flooding, and safety concerns.

Action Item #16. Cultivate cooperative relationship with State Department of Transportation: The Village Mayor and Trustees will maintain periodic communication with the NY State Department of Transportation (DOT) concerning the flooding problems associated with the Front Street (State Route 427) bridge over Bentley Creek (Problem #7). The DOT will be encouraged to implement their maintenance responsibilities in Bentley Creek (Action Item #7).

Action Item #17. Improve Community Rating System classification: The Village is working to reduce the cost of flood insurance by improving their Community Rating System classification (which currently enables a 5% reduction in the cost of flood insurance within the Village). The Code Enforcement Officer will submit the *Flood Mitigation Action Plan, Village of Wellsburg* and other documentation of the Village's flood damage reduction measures as part of the recertification process in the fall of 2000. Following this recertification, the Village will evaluate the feasibility of qualifying for an improved rating. If new credit activities are initiated or documented prior to the next recertification, a rating modification will be requested.

Structural Solutions

Action Item #18. Evaluate and pursue alternatives for reducing flood damages from Bentley Creek: The Village of Wellsburg is among the local Sponsors of the PL 566 Bentley Creek Watershed Project of the Natural Resources Conservation Service (NRCS). The Plan of Work for developing a Watershed Plan and Environmental Assessment calls for an evaluation of alternative solutions to flooding and bank erosion problems. The Village of

Wellsburg will provide support for the completion of this assessment. When it is complete, the Village will work closely with the other participants to implement recommended solutions to the Bentley Creek flooding problems in the Village of Wellsburg (Problems #6 through 15).

Action Item #19. Implement Terrace Street drainage improvements: The Village plans to implement drainage improvements on Terrace Street to prevent the existing ditch from overflowing down Fourth Street (Problem #21). This proposed project consists of ditch improvements and about 550 feet of underground piping. It will be funded by the New York State CHIPS program and the Village street budget. The estimated project cost is \$24-27,000.

Action Item #20. Install Fourth Street drainage system: After implementation of the planned drainage improvements on Terrace Street (Action Item #19), Village personnel will monitor the drainage problems on Fourth Street (Problems #21 and 23). If additional improvements are warranted, the Village will install a stormwater drainage system on Fourth Street. Funding will be from the New York State CHIPS program and the Village street budget. The estimated project cost is \$20,000.

Emergency Services

Action Item #21. Evaluate stream gauge needs for Bentley Creek: The Village will work with the Natural Resources Conservation Service, Chemung County Emergency Management Office (EMO), the Flood Warning Service of Steuben and Chemung Counties, and Bradford County agencies to address the lack of stream gauge information for Bentley Creek. It will be necessary to determine the type of gauge(s) desired (automated gauge or a painted staff gauge), identify suitable sites, and procure funding.

Action Item #22. Improve emergency reporting of high rainfall amounts: The Bentley Creek Watershed Association has established a network of volunteer rain gauge readers throughout the watershed. The procedure for emergency reporting of high rainfall amounts (to the Flood Warning Service for Chemung and Steuben Counties) will be evaluated. If necessary, volunteers will be provided with additional information about the phone number and reporting criteria for emergency reports. In addition, the Village will work with the Chemung County Emergency Management Office and the Flood Warning Service of Steuben and Chemung Counties to evaluate the feasibility of an automated precipitation gauge in the watershed.

Action Item #23. Review and update Emergency Plan: The Village will work with the Chemung County Emergency Management Office and the Wellsburg Fire Department to review, update, and distribute the Emergency Plan for the Village of Wellsburg. A copy of the River Stage Forecast Map for Chemung River flooding of the Village will be acquired and located in the Village Office for use during a flood emergency.

Table 2. Flood Mitigation Action Items (page 1 of 3)

PUBLIC INFORMATION			
Task	Responsible Person	Time Table	Financing
1. Display floodplain maps	Village Board	2000	Minimal expense
2. Display flood information in Village Hall	Village Board	Ongoing; yearly review	Minimal expense
3. Distribute flood information to property owners	Village Board	Annually	Copy/postage expenses
4. Display high water levels in public locations	Village Board	2001 or 2002	Cost unknown, Village expense

PREVENTIVE ACTIVITIES			
Task	Responsible Person	Time Table	Financing
5. Training for Planning Board members on flooding and drainage issues	Mayor will request training by County Planning Dept. and Regional Planning Board	When new Planning Board is appointed	Staff and volunteer time
6. Review zoning regulations	Planning Board	2001 to 2002	Volunteer time
7. Stormwater management plan for Bentley Creek Watershed	Village Board	2000 to 2001	Pennsylvania Growing Greener Grant
8. Riparian management plan for Bentley Creek Watershed	Village Board	2000 to 2001	Pennsylvania Growing Greener Grant
9. Implement plan for inspection and maintenance of streams and drainage ways	Village Board	Ongoing	Staff time

Table 2. Flood Mitigation Action Items (page 2 of 3)

NATURAL RESOURCE PROTECTION			
Task	Responsible Person	Time Table	Financing
10. Implement restoration measures in the New York reach of Bentley Creek	Chemung County Soil & Water Conservation District	2001	NYS; in-kind local contributions
11. Implement restoration measures in the Pennsylvania reach of Bentley Creek	Various participants in the Penn-York Bentley Creek Watershed Association	Ongoing	Various funding sources

PROPERTY PROTECTION			
Task	Responsible Person	Time Table	Financing
12. Relocate Wellsburg emergency center	Village Board	When funding is available	Approx. \$650,000; seek funding through grants, bonding, Village budget
13. Evaluate alternatives for the Village water supply system	Village Board	Ongoing	Staff and volunteer time for evaluation; seek funding for implementation
14. Assist property owners with floodproofing measures	Code Enforcement Officer, Village Board	Ongoing	Staff and volunteer time
15. Cultivate cooperative relationship with Norfolk Southern Railroad	Village Board	Ongoing	None
16. Cultivate cooperative relationship with State Department of Transportation	Village Board	Ongoing	None
17. Improve Community Rating System classification	Code Enforcement Officer	Ongoing; recertification in 2000	Staff time

Table 2. Flood Mitigation Action Items (page 3 of 3)

STRUCTURAL SOLUTIONS			
Task	Responsible Person	Time Table	Financing
18. Evaluate and pursue alternatives for reducing flood damages from Bentley Creek	Village Board (working with NRCS, other Sponsors, and participating agencies)	Watershed Plan ongoing; schedule unknown	Staff and volunteer time (for Watershed Plan); implementation costs unknown
19. Implement Terrace Street drainage improvements	Village Board	2000 to 2001	\$24-27,000 (NYS CHIPS funding and Village street budget)
20. Install Fourth Street drainage system	Village Board	After Terrace Street project; when funding is available	Approx. \$20,000 (NYS CHIPS funding and Village street budget)

EMERGENCY SERVICES			
Task	Responsible Person	Time Table	Financing
21. Evaluate stream gauge needs for Bentley Creek	Village Board (working with NRCS, County EMO and others)	2001 or 2002	Staff and volunteer time
22. Improve emergency reporting of high rainfall amounts	Regional Flood Specialist	Ongoing	Staff and volunteer time
23. Review and update Emergency Plan	Village Board (working with Fire Dept. and County EMO)	2000 to 2001; review periodically	Staff and volunteer time