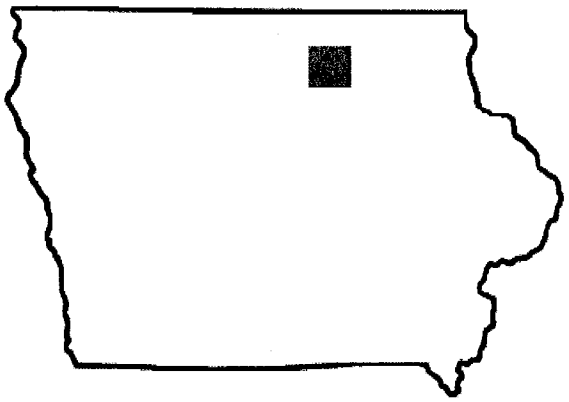
FLOOD INSURANCE STUDY

FLOYD COUNTY, IOWA

AND INCORPORATED AREAS
VOLUME 1 OF 1



COMMUNITY NAME	COMMUNITY NUMBER
CHARLES CITY, CITY OF	190128
*COLWELL, CITY OF	190154
FLOYD, CITY OF	190382
MARBLE ROCK, CITY OF	190383
NORA SPRINGS, CITY OF	190384
ROCKFORD, CITY OF	190129
RUDD, CITY OF	190385
FLOYD COUNTY UNINCORPORATED AREAS	190127

* NON FLOODPRONE

EFFECTIVE:
FEBRUARY 20, 2008

Federal Emergency Management Agency

Flood Insurance Study Number
19067CV000A

NOTICE TO

FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part or all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by a Letter of Map Revision process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS report components.

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PUBLISHED SEPARATELY

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Flood Insurance Rate Map

FLOOD INSURANCE STUDY
FLOYD COUNTY, IOWA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This FIS revises and updates information on the existence and severity of flood hazards in the geographic area of Floyd County, including the Cities of Charles City, Floyd, Marble Rock, Nora Springs, Rockford and Rudd; and the unincorporated areas of Floyd County (referred to collectively herein as Floyd County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood-risk data for various areas of the community that have been used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

Please note that the City of Colwell is non-floodprone.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal Requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgements

The sources of authority for this FIS are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This Countywide study was prepared on June 5, 2005, to combine all incorporated communities within Floyd County into a countywide Flood Insurance Study. Information concerning the authority and acknowledgements for each jurisdiction included in this countywide FIS, compiled from previously printed Flood Insurance Study reports, is detailed below. For Floyd County, the only previously printed Flood Insurance Study report was for Charles City.

City of Charles City

The hydrologic and hydraulic analyses for the original study, dated August 1976, were performed by the U.S. Geological Survey (USGS), Iowa District, for the Federal Insurance Administration (FIA) under Interagency Agreement No. IAA-H-17-75, Project Order No. 4. This work, which was completed in August 1976, covered all significant flooding sources in the City of Charles City (Reference 1).

Hyers Creek in Charles City was re-studied by detailed methods in December 2003 from Riverside Avenue to 12,000 feet upstream of Riverside Avenue (2.3 miles).

1.3 Coordination

An initial coordination meeting was held with city officials of Charles City to discuss flood problems and to determine areas to be included in the study. The 100-year flood discharges used in the Charles City study were coordinated at separate meetings with representatives of the Iowa Natural Resources Council (the regulatory agency in the state for administering the water laws regulating water use and flood plain management), the U.S. Army Corps of Engineers and the City of Charles City. A letter of confirmation was later sent to the above agencies, with a copy also going to the State Soil Conservationist. It was also agreed that an area of Shermans Creek, outside of the corporate limits, would be included at the request of Charles City officials.

Two foot contour maps provided by the City Engineer of Charles City were used as work maps to delineate the flood boundaries. These maps were at 1 inch to 100 feet or 1 inch to 200 feet scale. A map of the city also provided by the City Engineer was used as a base map. Bench marks used, were those established by the U.S. Geological Survey, except those on Hyers Creek which were furnished by the Soil Conservation Service.

The results of the countywide study were reviewed at the final Consultation Coordination Officer (CCO) meeting attended by representatives of FEMA and the communities. All problems raised at that meeting have been addressed in this study. The dates of the initial and final CCO meetings are shown in Table 1, "Consultation Coordination Officer Meeting Dates."

Table 1. Consultation Coordination Officer Meeting Dates

Community Name	Initial CCO Date	Final CCO Date
Charles City, City of	---	---
Floyd, City of	None	None
Marble Rock, City of	None	None
Nora Springs, City of	None	None
Rockford, City of	None	None
Rudd, City of	None	None
Unincorporated, City of	None	None

---Data Not Available

For this countywide FIS, the scoping meeting was held June 15, 2004. This meeting was attended by representatives of FEMA Region VII, Black & Veatch, and the following communities: Charles City, Rockford and Floyd County.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Floyd County, Iowa, including the incorporated communities listed in Section 1.1.

A major river, the Cedar River, flows through the county and through Charles City from northwest to southeast. In the northwest corner of Charles City, the river meanders over a broad flood plain, with some swamp area. Two tributaries, Shermans Creek and Hyers Creek enter the Cedar River within the corporate limits of Charles City. The three streams were studied in detail in the previous FIS. Portions of the Cedar River outside the corporate limits were also studied in detail in the previous FIS since the overflow in these areas inundated sections of the city. The part of Shermans Creek outside of the corporate limits of Charles City were also studied in detail in the previous FIS because of its easy access and susceptibility to development in the near future. All of the previous studied detail study streams floodway and flood boundaries were incorporated into this FIS by digitizing the data into this study, with the exception of Hyers Creek in Charles City which was re-studied by detail analysis. The detail analysis of Hyers Creek in Charles City was completed on October 23, 2006, and involved 2.3 miles of detail study throughout Charles City.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon, by FEMA and officials of each affected community. Approximately 556 miles of streams were studied by approximate methods throughout the county. These streams had a minimum of at least one square mile of contributing drainage area.

2.2 Community Description

Floyd County is located in north central Iowa and is bordered by Mitchell County to the north, Cerro Gordo County to the west, Butler County to the south, and Chickasaw County to the east. The county seat is Charles City. For population estimates, see Table 2, "Population Estimates."

Table 2. Population Estimates

Community Name	Population Estimate	Date	Reference
Charles City, City of	7,812	2000	2
Colwell, City of	76	2000	2
Floyd, City of	361	2000	2
Marble Rock, City of	326	2000	2
Nora Springs, City of	1,532	2000	2
Rockford, City of	907	2000	2
Rudd, City of	431	2000	2
Unincorporated, City of	5,455	2000	2
Floyd County	16,900	2000	2

The first settlement in what is now known as Charles City in Floyd County was made by Joseph Kelly in 1850. The city is built along the Cedar River, a major and scenic river, originating in Minnesota. Charles City covers an area of about 4 square miles. Shopping facilities are provided for a large agricultural area, which will probably enable Charles City to retain a relatively stable population. Charles City is also the county seat. The city and surrounding area has an average annual temperature of 46.8°F, and an average annual precipitation of 31.5 inches.

Cities of any significant size in relation to Charles City would be Mason City, 29 miles west, with a population of 32,000 and Waterloo, 50 miles south, with a population of 76,000.

Development in the flood plains without restrictions has primarily been eliminated. Continued economic expansion seems to be taking place along the highways leading from Charles City, which is exerting some pressure on residential development in the flood plain. This, however, is being kept under control with existing building restrictions.

2.3 Principal Flood Problems

This study covers three main streams in the Charles City area; the Cedar River, Hyers Creek and Shermans Creek. Flood problems in the City primarily result from high stages on the Cedar River. At high stages, the Cedar River inundates the flood plain of Hyers Creek nearly up to Grand Avenue, and the flood plain of Shermans Creek up to just east of the Wildwood Park clubhouse.

Flood stages on the Cedar River are affected by an old power dam just upstream of the Main Street bridge. This dam maintains a relatively small pool during periods of low flow and provides scenic and recreational benefits to the area.

Shermans Creek currently does not present any great flood problems during flood stages; damages would probably be limited to recreation facilities in Wildwood Park. The study of Shermans Creek was extended approximately 0.5 mile beyond the west boundary of Wildwood Park. This area is currently undeveloped, but has great development potential due to easy access and close proximity to State Highway 14.

Hyers Creek presents a rather unique flood problem in that the flood plain is very flat and rather wide and does not confine the flood waters to the proximity of the channel. Downstream from Grand Avenue the flood plain is subject to severe inundation from the Cedar River. The area upstream from Grand Avenue and to the south of Hyers Creek is very flat and poorly drained, therefore it is extremely susceptible to flooding from Hyers Creek. The area upstream from Cleveland Avenue is undeveloped and is currently in crop rotation, except for the area formerly occupied by the White Farm Equipment Company along the east side of Cleveland Avenue, to the south of Hyers Creek. Flood damages would occur primarily to the developed residential area between Grand and Cleveland Avenues.

Rainfall from locally intense thunderstorms can cause flooding along the small streams, Hyers Creek, and Shermans Creek. However, flooding along the Cedar River is usually caused by the more general storms covering all or most of the drainage basin.

2.4 Flood Protection Measures

The downtown business district of Charles City along the Cedar River, between Main and Brantingham Streets, has been redeveloped after near total destruction by a tornado in 1968. Utilizing flood profile elevations from the Iowa Natural Resources Council, 1967 Flood Plain Development Study (Reference 3), this area was filled prior to redevelopment to provide flood protection. All new businesses in this area on the east side of the river are protected from at least the 0.2-percent-annual-chance flood. Development on the west side of the river is protected from at least the 1-percent-annual-chance flood.

Present flood protection measures include a flood committee sand bagging group, which is called in time of flooding.

Non-structural flood protection measures in the form of floodplain management ordinances are employed by communities participating in the NFIP.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood-hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term, average periods between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting the community.

A stream-gaging station was in operation on the Cedar River at Charles City from 1964 through the present. In addition, flood elevation and discharge data for the 1961, 1962, and 1999 floods were obtained in Charles City. Data for the first two floods is published in the Cedar River Basin flood report (Reference 3). Data for the 1999 flood is published in the USGS report for the Wapsipincon and Cedar River Basins (Reference 4). The 1999 flood is the greatest known on the Cedar River at Charles City with a discharge of 31,200 cfs. This event has a recurrence interval of in excess of 50 years.

The Iowa Natural Resources Council Bulletin No. 11 (Reference 5) outlines regional flood frequency methods which were used to compute flood discharges for the frequencies used in this study. The discharges computed for the Cedar River were increased by 15.6 percent, so that the 100-year discharge would agree with the regulatory discharge of 37,000 cfs. This 15.6 percent adjustment falls within the limits of the standard error of estimate associated with the regional methods.

Frequency-Discharge, Drainage Area Curves for the streams studied in detail are found in Figure 1.

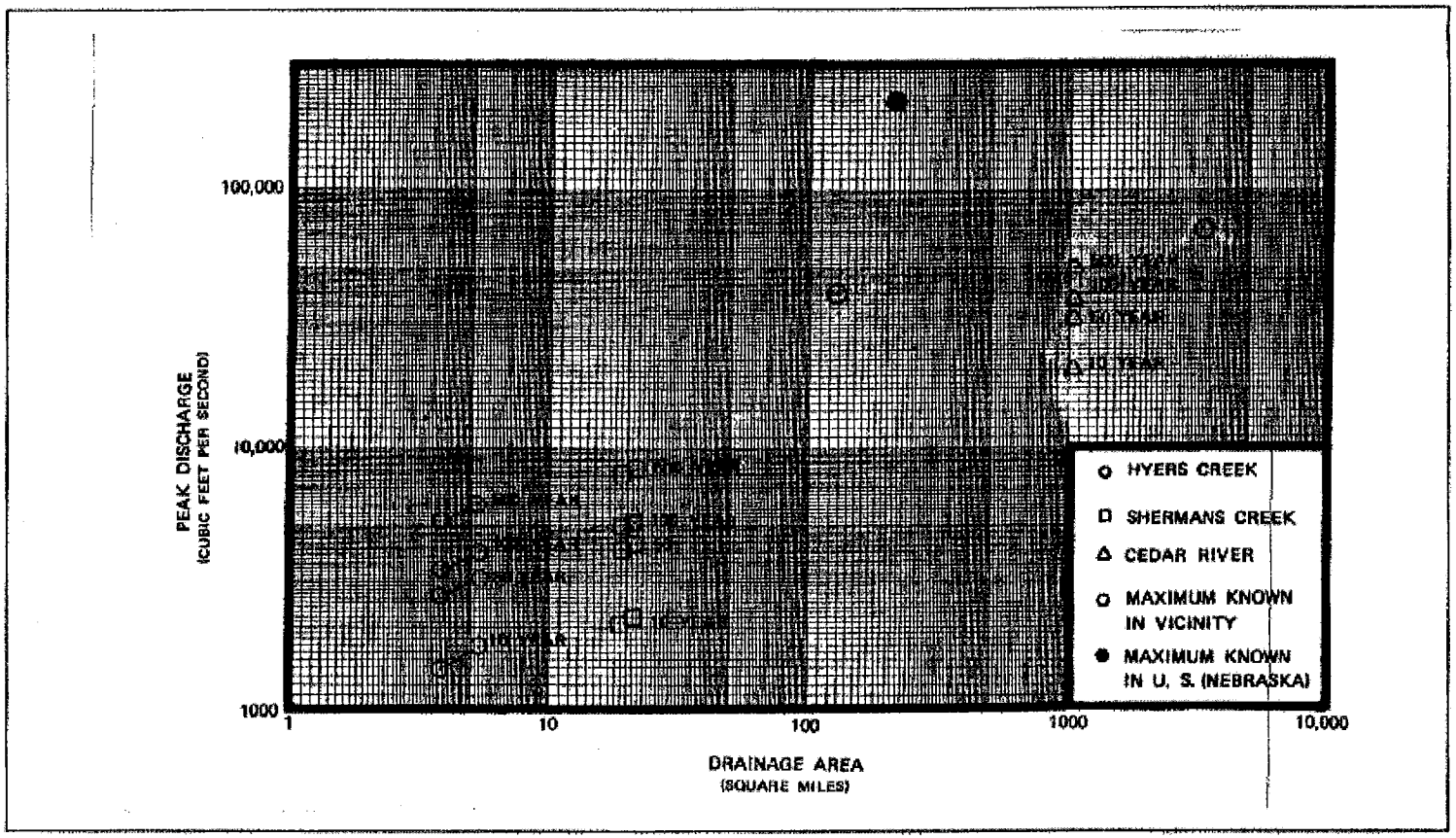

FIGURE 1	FEDERAL EMERGENCY MANAGEMENT AGENCY FLOYD COUNTY, IA AND INCORPORATED AREAS	FREQUENCY-DISCHARGE, DRAINAGE AREA CURVES CEDAR RIVER, HYERS CREEK, SHERMANS CREEK

Discharges (1-percent-annual-chance flood) for the streams studied by approximate methods were calculated using the State of Iowa Regression Equations (Reference 6) as a component of the Nebraska Department of Natural Resources N-FECT tool (Reference 7).

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in the FIS in conjunction with the data shown on the FIRM.

Flood elevation profiles were developed using the U.S.G.S. standard E-431 step-backwater computer program. The computer model for the Cedar River was calibrated to reproduce the 1961 flood profile. The model checked with the regulatory profile developed by the Iowa Natural Resources Council and was used to develop the remainder of the flood profiles for Charles City.

A flood profile of the regulatory flood (37,000 cu. ft./sec.) on the Cedar River developed by the Iowa Natural Resources Council was available for use in this study. The channel and flood plain cross sections used by the Iowa Natural Resources Council were also used in developing the remainder of the profiles for the Cedar River.

Flood profiles were drawn showing computed water surface elevations to an accuracy of 0.5 foot for floods of selected recurrence intervals.

Computations for Hyers Creek flood profiles were made with cross sections utilizing the full width across the flood plain and also with cross sections eliminating those portions of the cross section that would be used primarily for floodwater storage. These computations were done with HEC-RAS 3.1.3 (Reference 8).

Cross sections can be located on the water surface elevation profiles found in Exhibit 1.

Hydraulic analyses for the streams studied by approximate methods were performed using the Nebraska Department of Natural Resources N-FECT tool.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS reports and FIRMs was the NGVD29. With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

To accurately covert flood elevations for Floyd County from the current NGVD29 datum to the newer NAVD88 datum, the following procedures were implemented. Locations at the quadrangle corners within the county and outside the county within 2.5 miles, were evaluated using the USACE's CORPSCON (Reference 9) datum conversion software. The final average datum conversion for Floyd County was determined to be NGVD29 + 0.04 foot = NAVD 88. Because this was less than 0.1 foot, no elevation change could be made, and only the datum reference was changed.

Flood elevations shown in the FIS report and on the FIRM are referenced to the NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the NGVD29 and NAVD88, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

Spatial Referenced System Division
Vertical Network Branch, N/CG13
National Geodetic Survey, NOAA
Silver Spring Metro Center 3
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS report and FIRM for this community. Interested individuals may contact FEMA to access these data. To obtain current elevation, description, and/or location information for benchmarks shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. Therefore, each FIS provides 1-percent-annual-chance flood elevations and delineations of the 1- and 0.2-percent-annual-chance floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. This information is presented and the FIRM and in many components of the FIS report, including Flood Profiles, and Floodway Data table. Users should reference the data presented in the FIS report as well as additional information that may be available at the local map repository before making flood elevation and/or floodplain boundary determination.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the community.

For each stream studied by detailed methods, the boundaries of the 1-percent-annual-chance and 0.2-percent-annual-chance flood have been delineated using the flood elevations determined at each cross section; between cross sections the boundaries were interpolated using topographic maps at the scale of 1 inch to 100 feet or 1 inch to 200 feet with a contour interval of 2 feet. In cases where the 1-percent-annual-chance and 0.2-percent-annual-chance flood boundaries are close together, only the 1-percent-annual-chance flood boundary has been shown.

The 1-percent-annual-chance and 0.2-percent-annual-chance floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1-percent-annual-chance and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 1-percent-annual-chance flood boundary is shown on the Flood Insurance Rate Map.

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in

areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management.

Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent-annual-chance flood can be carried without substantial increases in flood heights. Minimum Federal Standards limit such increases to 1 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed for certain stream segments on the basis of equal-conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of the floodway computation are tabulated for selected cross sections (See Table 3, "Floodway Data"). In cases where the floodway and 1-percent-anncual-chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

The area between the floodway and 1-percent-annual-chance floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 1-percent-annual-chacne more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

Hyers Creek from the mouth to Grand Avenue is subject to severe inundation from the Cedar River. Floodway width was computed from Riverside Avenue to the limit of the Detail Study in Charles City. The floodway, downstream of Riverside Avenue was digitized from the present Charles City FIS. Floodway dikes in the reach below Grand Avenue would have to be built relatively high to contain floodwaters from the Cedar River.

Shermans Creek from the mouth to just east of the Wildwood Park clubhouse is subject to inundation from the Cedar River. Floodway limits shown are those computed for Shermans Creek, however, as the Cedar River flood elevations are controlling floods in this area, the floodway dikes would have to be built to the elevation required to contain the Cedar River.

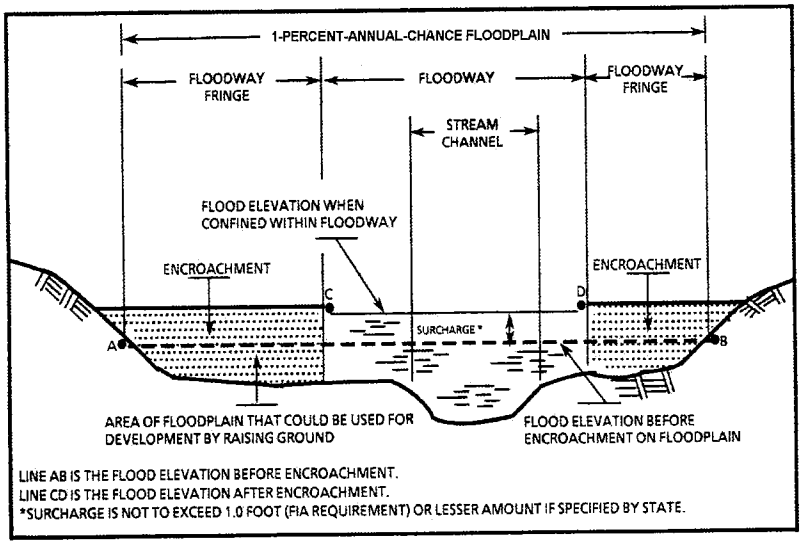

Figure 2. Floodway Schematic

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCTIY (FEET/SEC.)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE (FEET)
CEDAR RIVER								
A	251.17	530	8,380	4.4	992.6	992.6	993.6	1.0
B	251.45	530	7,000	5.3	993.0	993.0	994.0	1.0
C	251.75	720	8.460	4.4	993.9	993.9	994.9	1.0
D	251.98	680	10,100	3.7	994.6	994.6	995.6	1.0
E	252.29	600	10,300	3.6	995.6	995.6	996.5	0.9
F	252.74	660	8,590	4.3	996.2	996.2	997.1	0.9
G	252.92	550	8,130	4.6	996.5	996.5	997.4	0.9
H	253.21	460	6,810	5.4	997.0	997.0	997.9	0.9
I	253.34	450	4,900	7.6	997.4	997.4	998.2	0.8
J	253.41	230	3,740	9.9	997.8	997.8	998.5	0.7
K	253.45	330	4,860	7.6	1,001.6	1,001.6	1,002.6	1.0
L	253.71	380	7,320	5.1	1,002.8	1,002.8	1,003.7	0.9
M	253.82	440	7,970	4.6	1,003.0	1,003.0	1,003.9	0.9
N	253.97	570	9,400	3.9	1,003.3	1,003.3	1,004.2	0.9
O	254.23	480	7,780	4.8	1,003.7	1,003.7	1,004.6	0.9
P	254.41	820	11,000	3.4	1,004.1	1,004.1	1,005.0	0.9
Q	254.56	820	11,700	3.2	1,004.2	1,004.2	1,005.2	1.0
R	254.76	1,500	24,100	1.5	1,005.9	1,005.9	1,006.9	1.0
S	254.99	2,310	32,000	1.2	1,006.0	1,006.0	1,007.0	1.0

[1]RIVER MILES ABOVE THE MOUTH

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IA
AND INCORPORATED AREAS

FLOODWAY DATA

CEDAR RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCTIY (FEET/SEC.)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE (FEET)
HYERS CREEK								
A	3,440	240	1,213	0.9	1,005.8	1,005.3 [2]	1,006.2 [2]	0.9
B	4,940	105	554	2.0	1,009.3	1,009.3	1,010.3	1.0
C	6,920	195	466	2.4	1,013.5	1,013.5	1,013.9	0.4
D	8,420	70	286	3.9	1,020.2	1,020.2	1,020.2	0.0
E	9,314	95	269	4.2	1,021.7	1,021.7	1,022.6	0.9
F	11,630	320	1,082	2.5	1,033.4	1,033.4	1,034.4	1.0

[1]FEET ABOVE CONFLUENCE WITH CEDAR RIVER
[2]ELEVATIONS COMPUTED WITHOUT CONSIDERATION OF BACKWATER EFFECTS FROM CEDAR RIVER

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IA
AND INCORPORATED AREAS

FLOODWAY DATA

HYERS CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ.FEET)	MEAN VELOCTIY (FEET/SEC.)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE (FEET)
SHERMANS CREEK								
A	620	130			1,002.9 [2]	1,002.9	1,003.9	CEDAR
B	1,520	130			1,002.9 [2]	1,002.9	1,003.9	RIVER
C	2,900	270			1,002.9 [2]	1,002.9	1,003.9	ELEVA-
D	3,800	110			1,002.9 [2]	1,002.9	1,003.9	TION
E	4,400	105	870	6.2	1,005.6	1,005.6	1,006.6	1.0
F	5,400	145	1,020	5.3	1,007.7	1,007.7	1,008.5	0.8
G	7,100	145	670	8.0	1,005.1	1,005.1	1,015.9	0.8
H	7,785	115	840	6.2	1,021.3	1,021.3	1,022.3	1.0
I	8,740	75	490	10.5	1,023.8	1,023.8	1,024.5	0.7
J	9,420	140	900	5.8	1,027.0	1,027.0	1,028.0	1.0
K	10,140	110	720	7.2	1,028.9	1,028.9	1,029.7	0.8

[1]FEET ABOVE CONFLUENCE WITH CEDAR RIVER

[2]CEDAR RIVER BACKWATER ELEVATIONS DOMINATE PORTIONS OF SHERMANS CREEK ELEVATION

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IA
AND INCORPORATED AREAS

FLOODWAY DATA

SHERMANS CREEK

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designation are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base (1-percent-annual-chance) flood elevations (BFEs) or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplain that are determined in the Flood Insurance Study by detailed methods. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annual-chance flood by levees. No BFEs or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of Floyd County. Previously, FIRMs were prepared for each incorporated community and

the unincorporated areas of the County identified as flood prone. This countywide FIRM also includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps, where applicable. Historical data relating to the Maps prepared for each community are presented in Table 4, "Community Map History."

7.0 OTHER STUDIES

The computer model for the Cedar River was calibrated to reproduce the 1961 profile. The model checked with the regulatory profile developed by the Iowa Natural Resources Council and was used to develop the remainder of the discharge profiles. This report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the NFIP.

Information pertaining to revised and unrevised flood hazards for each community within Floyd County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, Flood Hazard Boundary Maps (FHBMs), Flood Boundary and Floodway Maps (FBFMs) and FIRMs for all of the incorporated and unincorporated jurisdictions within Floyd County.

As part of this revision, the format of the map panels has changed. Previously, flood-hazard information was shown on both the Flood Insurance Rate Map and Flood Boundary and Floodway Map. In the new format, all base flood elevations, cross sections, zone designations, and floodplain and floodway boundary delineations are shown on the Flood Insurance Rate Map and the Flood Boundary and Floodway Map has been eliminated. Some of the flood insurance zone designations were changed to reflect the new format. Areas previously shown as numbered Zone A were changed to Zone AE. Areas previously shown as Zone B were changed to Zone X (shaded). Areas previously shown as Zone C were changed to Zone X (unshaded). In addition, all Flood Insurance Zone Data Tables were removed from the Flood Insurance Study report and all zone designations and reach determinations were removed from the profile panels.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by containing, Federal Insurance and Mitigation Division, FEMA Region VII, 9221 Ward Parkway, Suite 300, Kansas City, Missouri 64114-3372.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISION DATE(S)	FLOOD INSURANCE RATE MAP EFFECTIVE DATE	FLOOD INSURANCE RATE MAP REVISION DATE(S)
Charles City, City of	February 2,1977	--1	February 2,1977	--1
Colwell, City of	--1	--1	--1	--1
Floyd, City of	March 19,1976	--1	February 6, 2008	--1
Floyd County Unincorporated Areas	June 3, 1977	--1	December 1,1997	--1
Marble Rock, City of	July 30, 1976	--1	February 6, 2008	--1
Nora Springs, City of	September 26, 1975	--1	September 1,1987	--1
Rockford, City of	May 3,1974	January 9, 1976	September 1,1987	--1
Rudd, City of	April 23, 1976	--1	February 6, 2008	--1

[1]Not applicable

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IA AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

9.0 BIBLIOGRAPHY AND REFERENCES

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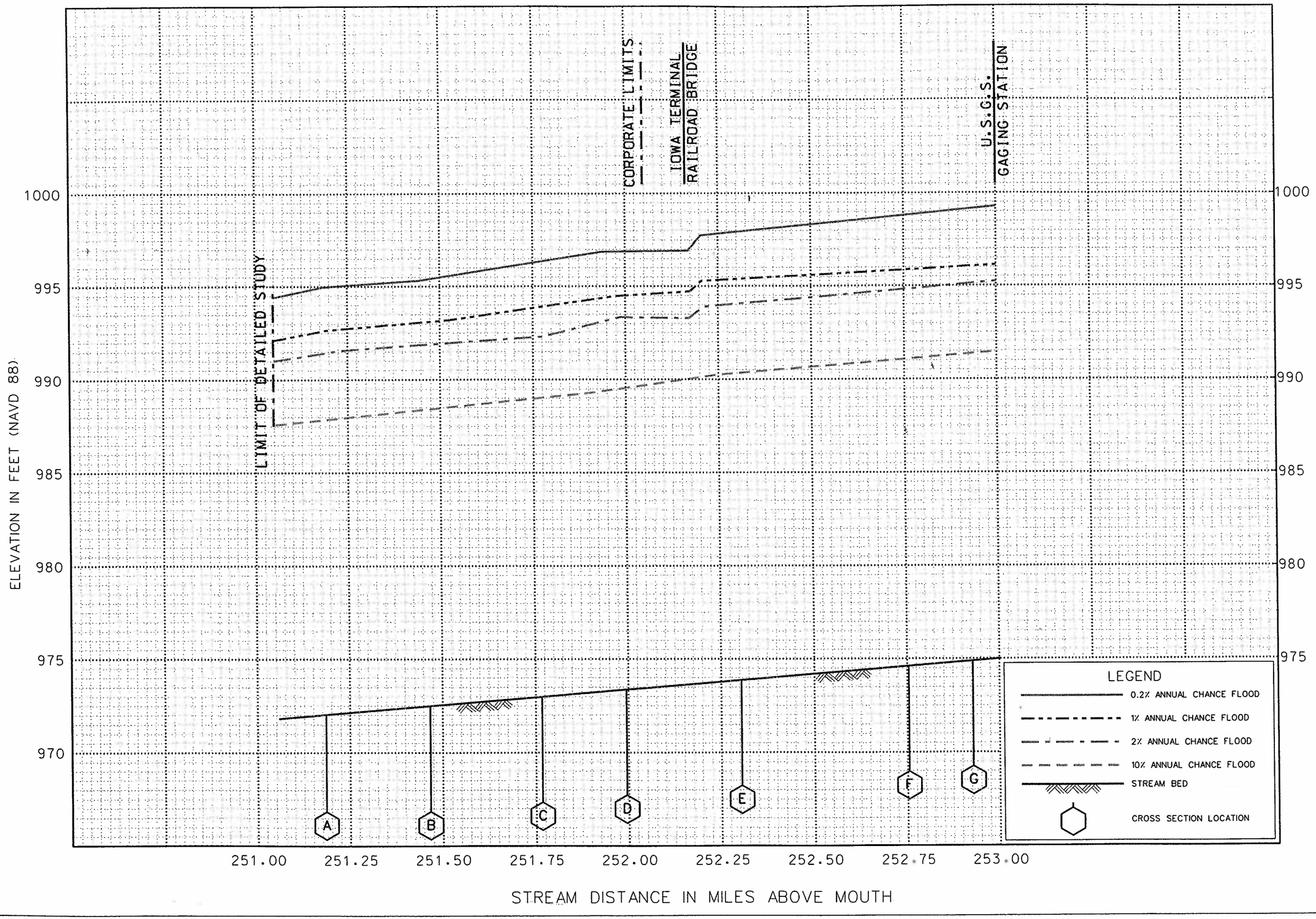


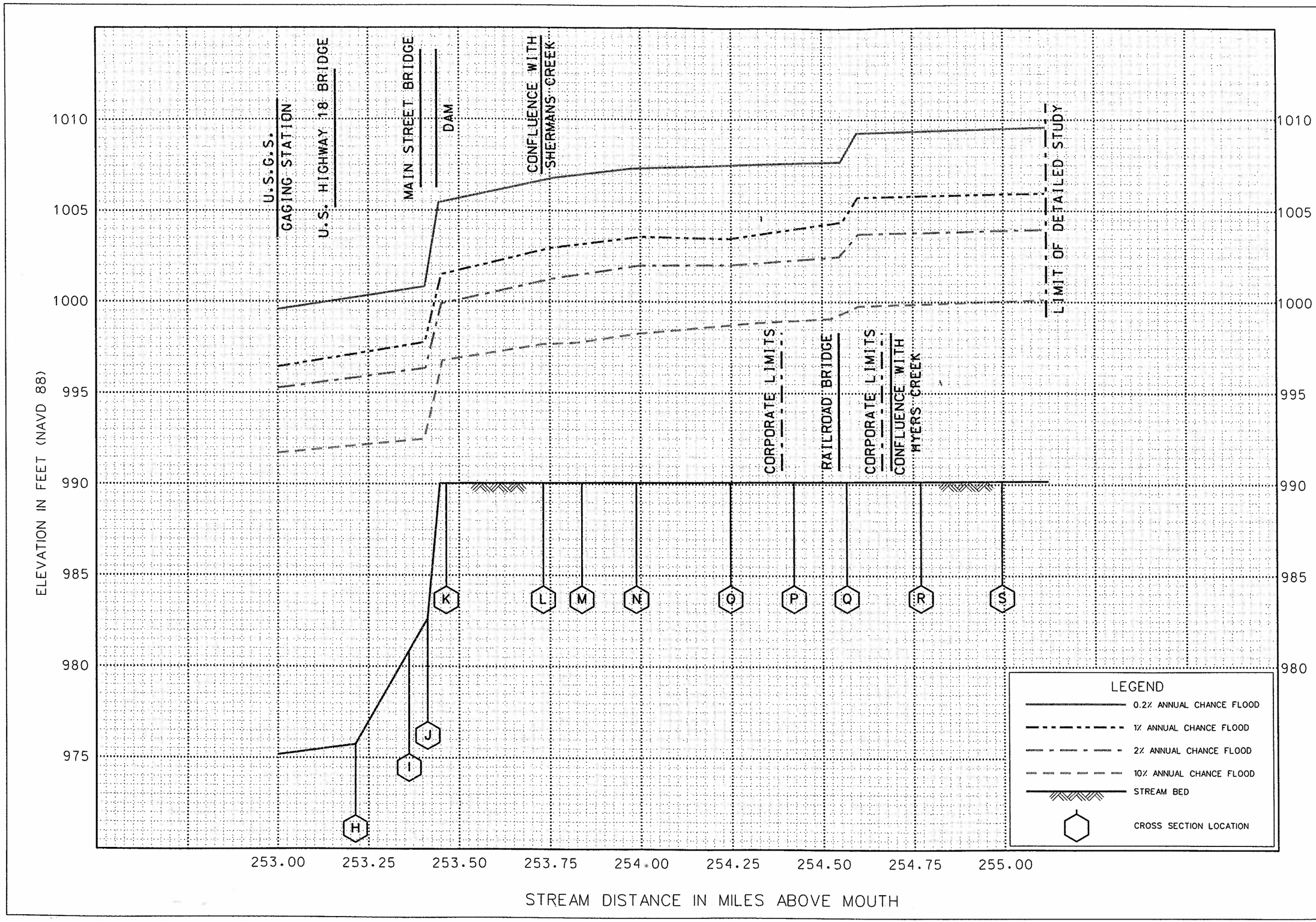
FLOOD PROFILES

CEDAR RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IOWA
AND INCORPORATED AREAS

01P



FLOOD PROFILES

CEDAR RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IOWA
AND INCORPORATED AREAS

02P

1% ANNUAL CHANCE BACKWATER FROM CEDAR RIVER

RIVERSIDE AVENUE

KELLOGG AVENUE

RAILROAD

GRAND AVENUE

CLEVELAND STREET

LIMIT OF DETAILED STUDY

ELEVATION IN FEET (NAVD 88)

1050
1040
1030
1020
1010
1000
990
980

A
B
C
D
E
F

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- A — CROSS SECTION LOCATION

0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000 10,000 11,000 12,000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CEDAR RIVER

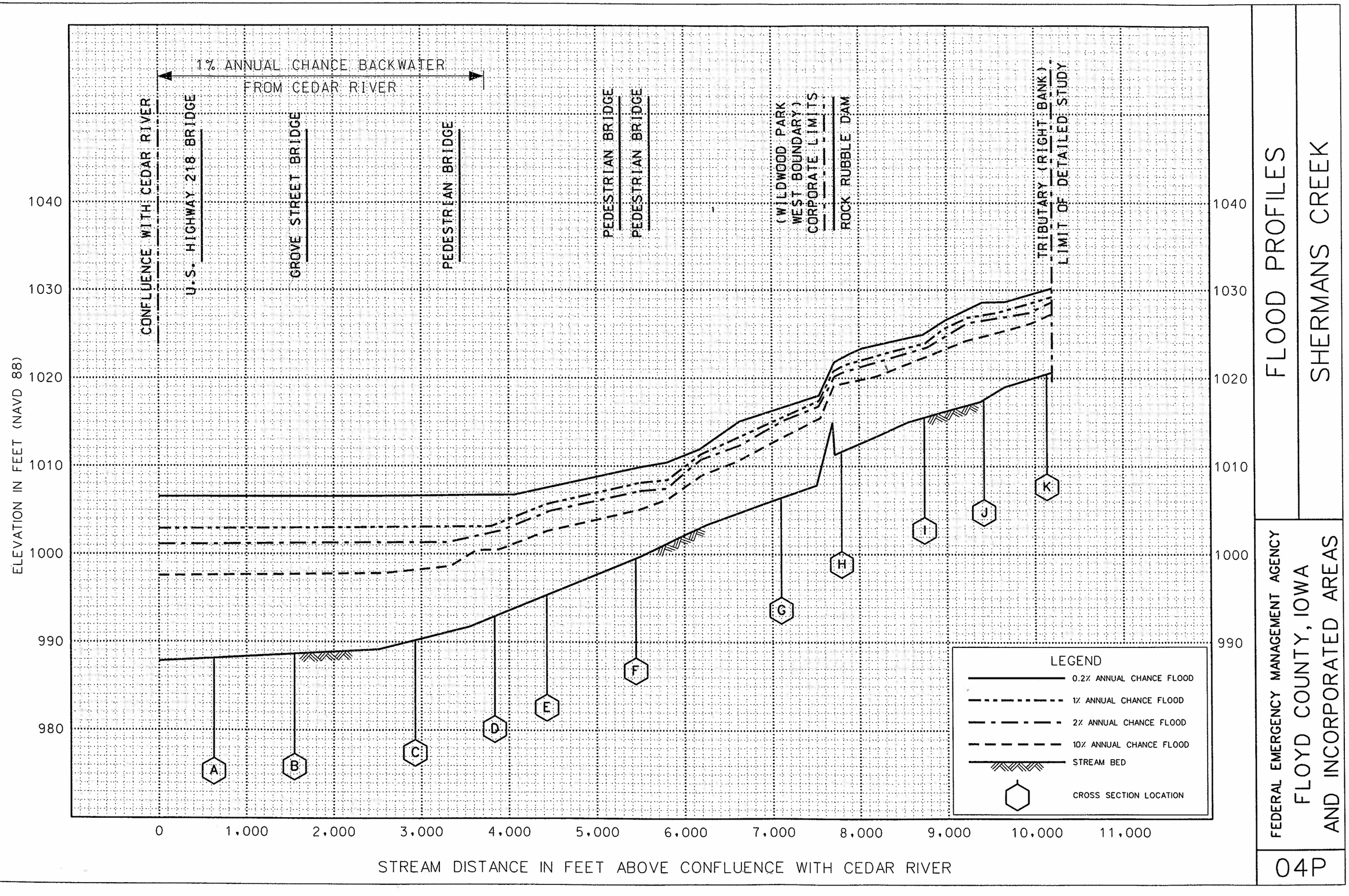
FLOOD PROFILES

HYERS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IOWA
AND INCORPORATED AREAS

03P



FLOOD PROFILES

SHERMANS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOYD COUNTY, IOWA
AND INCORPORATED AREAS

04P