

FLOODING – Hazard Description

What is flooding?

(from: Illinois Natural Hazard Mitigation Plan)

The standard definition of a flood is “A general and temporary condition of partial or complete inundation of normally dry land areas from (1) the overflow of inland or tidal waters, (2) the unusual and rapid accumulation or runoff of surface waters from any source, or (3) mudflows or the sudden collapse of shoreline land”. A simpler definition is too much water in the wrong place. Since water circulates from clouds to the soil to streams to rivers to the oceans and returns to the clouds, a scientific definition of a flood is an imbalance in the “hydrological system” with more water flowing through the system than the system can draw off.

What type of flooding occurs in Sangamon County?

The majority of flooding in Sangamon County is riverine flooding, related to the overbanking of rivers and streams. Some flooding also occurs along the shoreline of Lake Springfield. Flash flooding unrelated to bodies of water also can result from heavy rainfall over a short period of time in areas where the ground is already saturated with water or there are large expanses of impermeable surfaces, such as urbanized areas developed with buildings, concrete sidewalks, and asphalt parking lots and roadways.

How are flood alerts issued?

Urban and small stream advisory or a flash flood watch: issued when heavy rains which could inundate streams or roadways are predicted. Flash floods can be very dangerous, occurring when water accumulates so rapidly that it cannot be absorbed by the ground or accommodated by storm sewers. Flood waters can move rapidly carrying away anything in its path and can create deep areas of standing water. During a flash flood watch residents should stay aware of the weather and take necessary precautions if conditions worsen.

Flash flood warning: issued when a flash flood is occurring. In addition to the information provided during a flash flood watch, areas of greatest hazard are identified. During periods of a warning, areas subject to flooding should be evacuated and avoided.

Flood warning: issued for the Sangamon River and South Fork of the Sangamon River when heavy rains occurring in areas to the east of Sangamon County will cause local flooding. These usually provide a couple days lead time before flooding reaches our area and local weather forecasts will include this information along with predicted flood heights.

Watches and warnings are sent to radio and television stations by the National Weather Service in Lincoln, Illinois:

Local Radio Stations

WFMB 1450 AM

WTAX 1240 AM

WMAY 970 AM

NOAA Weather Radio - WXJ75 162.400 kHz

Local Television Stations

WAND Channel 17

WCIA Channel 3

WICS Channel 20

Cable Weather Channel 44

What bodies of water pose a risk in Sangamon County?

The major sources of flooding in Sangamon County are the Sangamon River and the South Fork of the Sangamon River. However, many other creeks including Black Branch, Brush Creek, Buck hart Creek, Cantrall Creek, Clear Creek, Fancy Creek, Horse Creek, Lick Creek, Panther Creek, Polecat Creek, Prairie Creek,

Richland Creek, Spring Creek, Sugar Creek, Wolf Creek, and their tributaries as well as Lake Springfield, experience major flooding events.

The extent of previous flooding in Sangamon County.

The Federal Emergency Management Agency has determined the 1% chance flood for areas of Sangamon County. These are designated as special flood hazard areas on the Flood Insurance Rate Maps and are commonly known as 100-year floodplains although this term does mislead people to believe that a flood of that magnitude would only occur once in any 100-year period. To the contrary, Figure 9-1 shows the dates and heights of 10 “100-year” floods that have been recorded on the Sangamon River at Riverton over the 92-year period from 1911-2002.

**Figure 9-1 Historically High Flooding Events on the Sangamon River at Riverton
(100-year flood elevation = 534.8’)**

Date	Elevation
5/19/1943	539.90
9/11/1926	538.53
5/14/2002	538.08
4/13/1994	536.66
4/11/1922	536.60
2/2/1916	536.41
6/6/1917	536.18
9/30/1911	535.60
8/24/1915	535.23
4/12/1979	535.16

High floods on record for the South Fork of the Sangamon River are shown in Figure 9-2.

**Figure 9-2 Historically High Flooding Events on the South Fork of the Sangamon River at Rochester
(100-year flood elevation = 545.5’)**

Date	Elevation
5/14/2002	544.87
4/14/1979	543.22
2/26/1985	542.09
11/22/1986	540.44
4/25/1973	540.14
6/18/1970	541.31

Previous flooding events.

In May 2002, major flooding occurred in the County after excessive rainfall on already saturated ground. The South Fork of the Sangamon River reached the highest level in a 50 year period and the Sangamon River exceeded the 100-year flood elevation, although did not reach the 1943 height of 5’ above the 100-year flood elevation. Many homes in Riverton, Divernon, Pawnee, and unincorporated areas of the County received substantial damage when they were inundated with flood water for up to 5 days. Buildings not located in a floodplain also were damaged due the accumulation of water in areas where the ground was saturated. Major and minor roads were made impassable for varying amounts of time with I-55 flooded north of Divernon at Brush Creek, Mechanicsburg Road flooded east of the I-72 interchange at Sugar Creek, Peoria Road flooded south of Sherman at the Sangamon River, and several country roads flooded in low lying areas. The widespread

destruction resulted in Presidential Disaster Declaration 1416. Other Presidential Disaster Declarations due to flooding were issued in 1982, 1994, and 1996.

The locations affected by flooding.

Approximately 10% of the area in Sangamon County is designated as a 100-year floodplain. A large portion of the flood-prone area is in the unincorporated parts of the County although several communities also are vulnerable to flooding. The following chart indicates which bodies of water are identified by FEMA with special flood hazard areas in each community.

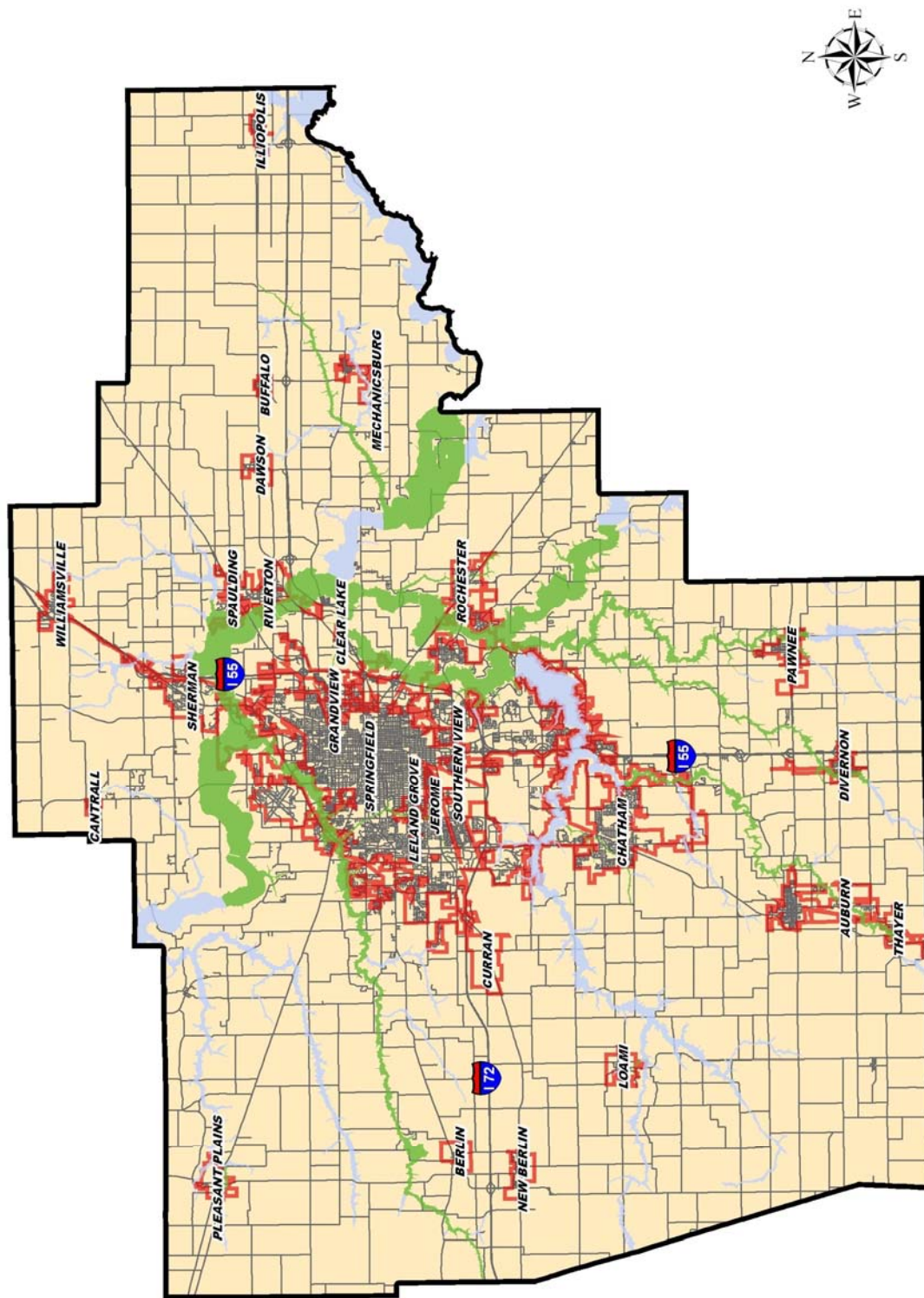
Figure 9-3 Water Bodies Subject to Flooding in Each Community

Community	Water Bodies Subject to Flooding
Auburn	Sugar Creek
Buffalo	None
Cantrall	None
Chatham	Fox Creek, Polecat Creek, Panther Creek, Lake Springfield
Curran	None
Dawson	None
Divernon	Brush Creek
Illioopolis	None
Jerome	Jacksonville Branch
New Berlin	None
Pawnee	Horse Creek, Henkle Branch
Pleasant Plains	Richland Creek, Branch of Richland Creek
Riverton	Sangamon River
Rochester	Black Branch, South Fork Sangamon River
Sherman	Sangamon River, Fancy Creek
Southern View	None
Springfield	Lake Springfield, Lick Creek, Polecat Creek, Sugar Creek, Spring Creek, Sangamon River, Jacksonville Branch
Thayer	Sugar Creek
Williamsville	Wolf Creek
unincorporated Sangamon County	Black Branch, Brush Creek, Buck hart Creek, Cantrall Creek, Clear Creek, Fancy Creek, Horse Creek, Lick Creek, Panther Creek, Polecat Creek, Prairie Creek, Richland Creek, Spring Creek, Sugar Creek, Wolf Creek, Lake Springfield

Probability of future flooding events.

FEMA calculates the elevation of a flood that has a 1% chance in any given year of occurring. Land that is located in a designated floodplain will flood at some point. Unlike other natural hazards the properties that are affected by riverine and lake flooding are mapped so the risk is more easily pinned down. Figure 9-4 shows the areas of the County that are at risk of flooding. Some water bodies have a base flood elevation, or projected height of a 1% chance flood (100-year flood), determined and these are differentiated on this map from those areas of floodplain where the base flood elevation is not determined. Of course, the graphic depiction only shows the 1% percent chance flood. Flooding can reach elevations higher than shown and flash flooding due to heavy rainfall can create water accumulation in areas not designated as floodplains.

Figure 9.4



Floodplain - 1% Annual Flood Chance Sangamon County

- A - No Base Flood Elevations Determined
- AE - Base Flood Elevations Determined

0 2.5 5 Miles
1 inch equals 5 miles

Data Source:
Sangamon County GIS
FEMA

Are there benefits to floodplains?

When left undisturbed, a floodplain provides storage area for flood waters helping to reduce the height and flow of flooding. Floodplains also provide habitat for a diverse array of plants and animals, control erosion, filter runoff, and recharge groundwater. Particularly important is the fact that when there are no buildings in a floodplain, damage by flooding to human life and property is greatly diminished.

FLOODING –Assessing Vulnerability

The following participating communities in Sangamon County have FEMA designated floodplain according to the countywide Flood Insurance Rate Map effective August 2, 2007.

Auburn, Chatham, Divernon, Jerome, Pawnee, Pleasant Plains, Riverton, Rochester, Sherman, Springfield, Thayer, Williamsville, and unincorporated Sangamon County.

Using the digitized Flood Insurance Rate Map with the County GIS map, all properties having a building shown in the floodplain were determined. Because the flood map is a graphic representation of the 1% chance flood and is not based on actual ground elevations, the data gathered is simply an estimate. The only way to know the exact number of buildings actually in the floodplain would be to determine the elevation of each of the buildings indicated below. Some property owners have done this and received a Letter of Map Amendment (LOMA) from FEMA which provides documentation that a particular building or parcel of land is above the base flood elevation and therefore not subject to the 100-year flood. These buildings have been omitted from data in the chart below.

Figure 9-5 Estimate of Buildings in a 100-Year Floodplain

Community	Buildings in Floodplain	Value of Buildings
Auburn	8	\$1,142,883
Chatham	43	\$4,409,976
Divernon	53	\$2,557,380
Jerome	15	\$1,193,775
Pawnee	41	\$1,863,918
Pleasant Plains	18	\$1,354,875
Riverton	18	\$1,376,514
Rochester	31	\$3,278,490
Springfield	247	\$51,039,669
Thayer	19	\$977,601
Williamsville	0	0
Unincorporated Sangamon County	450	\$55,303,158
TOTAL	943	\$124,498,239

How often could these buildings be at risk? The chance of a 100-year flood occurring has been established as 1% in any given year. The following chart presents what this chance means over time.

Figure 9-6 Chance of a 100-year Flood Occurring Over a 50-year Period

1 year	1%
10 years	10%
20 years	18%
30 years	26%
50 years	39%