

**Pike County
Missouri
Natural Hazard Mitigation Plan
Five Year Update**

Section 14

Pike County, Missouri Natural Hazard Mitigation Plan

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Pike County Storm History

<http://www4.ncdc.noaa.gov/cgi-win/wwcqi.dll?wwevent-storms>

247 event(s) were reported in **Pike County, Missouri** between **01/01/1950** and **03/31/2009** (High Wind limited to speed greater than 0 knots).

Mag: Magnitude
Dth: Deaths
Inj: Injuries
PrD: Property Damage
CrD: Crop Damage

Click on **Location or County** to display Details.

Missouri								
Location or County	Date	Time	Type	Mag	Dth	Inj	PrD	CrD
1 PIKE	03/05/1956	2345	Tstm Wind	0 kts.	0	0	0	0
2 PIKE	06/03/1962	1725	Tornado	F0	0	0	0K	0
3 PIKE	07/02/1964	1800	Tstm Wind	0 kts.	0	0	0	0
4 PIKE	07/17/1968	2000	Tstm Wind	0 kts.	0	0	0	0
5 PIKE	03/03/1970	2050	Hail	0.75 in.	0	0	0	0
6 PIKE	06/12/1970	1740	Tornado	F2	0	0	25K	0
7 PIKE	06/12/1970	1810	Tornado	F1	0	0	250K	0
8 PIKE	05/07/1973	1645	Tornado	F1	0	0	3K	0
9 PIKE	05/30/1974	1400	Tstm Wind	0 kts.	0	0	0	0
10 PIKE	01/10/1975	0500	Tstm Wind	0 kts.	0	0	0	0
11 PIKE	06/14/1975	2030	Tstm Wind	0 kts.	0	0	0	0
12 PIKE	07/31/1976	0130	Hail	2.75 in.	0	0	0	0
13 PIKE	08/09/1977	1445	Hail	1.75 in.	0	0	0	0
14 PIKE	05/28/1978	1500	Tstm Wind	0 kts.	0	0	0	0
15 PIKE	07/02/1980	2200	Hail	1.00 in.	0	0	0	0
16 PIKE	09/05/1980	0730	Tstm Wind	0 kts.	0	0	0	0
17 PIKE	04/12/1981	2315	Hail	1.00 in.	0	0	0	0
18 PIKE	04/13/1981	1815	Hail	4.50 in.	0	0	0	0
19 PIKE	03/15/1984	1540	Tstm Wind	0 kts.	0	0	0	0
20 PIKE	09/10/1984	1730	Hail	1.75 in.	0	0	0	0
21 PIKE	06/14/1986	1700	Tstm Wind	0 kts.	0	0	0	0
22 PIKE	07/29/1986	0100	Tstm Wind	0 kts.	0	0	0	0
23 PIKE	05/21/1987	1910	Hail	1.00 in.	0	0	0	0

24	PIKE	07/06/1987	1350	Hail	1.75 in.	0	0	0	0
25	PIKE	07/06/1987	1420	Hail	1.75 in.	0	0	0	0
26	PIKE	08/20/1987	2040	Tstm Wind	52 kts.	0	0	0	0
27	PIKE	08/20/1987	2057	Tstm Wind	0 kts.	0	0	0	0
28	PIKE	08/20/1987	2100	Tstm Wind	52 kts.	0	0	0	0
29	PIKE	09/16/1987	1700	Tstm Wind	0 kts.	0	0	0	0
30	PIKE	04/05/1988	1722	Tstm Wind	61 kts.	0	0	0	0
31	PIKE	05/08/1988	1450	Tstm Wind	0 kts.	0	0	0	0
32	PIKE	08/18/1988	1340	Tstm Wind	0 kts.	0	0	0	0
33	PIKE	05/25/1989	0810	Tstm Wind	0 kts.	0	0	0	0
34	PIKE	05/25/1989	1030	Tstm Wind	0 kts.	0	0	0	0
35	PIKE	05/15/1990	2325	Tstm Wind	61 kts.	0	0	0	0
36	PIKE	06/22/1990	1843	Tstm Wind	52 kts.	0	0	0	0
37	PIKE	11/27/1990	1315	Tstm Wind	0 kts.	0	0	0	0
38	PIKE	03/12/1991	1732	Tornado	F0	0	0	0K	0
39	PIKE	03/21/1991	1958	Tstm Wind	52 kts.	0	0	0	0
40	PIKE	06/15/1991	1740	Tstm Wind	0 kts.	0	0	0	0
41	PIKE	07/09/1991	1630	Tstm Wind	0 kts.	0	0	0	0
42	PIKE	07/09/1991	1700	Tstm Wind	0 kts.	0	0	0	0
43	PIKE	10/04/1991	1512	Hail	1.75 in.	0	0	0	0
44	PIKE	06/17/1992	1505	Tstm Wind	0 kts.	0	0	0	0
45	PIKE	07/02/1992	1658	Hail	1.00 in.	0	0	0	0
46	PIKE	07/02/1992	1840	Tstm Wind	0 kts.	0	2	0	0
47	PIKE	07/02/1992	1855	Tstm Wind	0 kts.	0	0	0	0
48	Central And	04/11/1994	0000	River Flood	N/A	0	0	5.0M	5.0M
49	Louisiana	04/11/1994	0600	Flash Flood	N/A	0	0	5K	1K
50	Clarksville And	04/11/1994	1950	Flash Flood	N/A	0	0	50K	5K
51	New Hartford	04/26/1994	2018	Tstm Winds	0 kts.	0	0	5K	0
52	MOZ001>115	06/12/1994	0000	Heat	N/A	4	55	0	50K
53	Frankford	06/22/1994	1505	Tstm Winds	0 kts.	0	0	1K	0
54	MOZ009 - 010 - 018 - 019	01/03/1995	2200	Cold	N/A	2	6	0	0

- 026 - 027 - 034>036 - 041 - 042 - 047>052 - 059>065 - 071>076									
55 Southeast	01/06/1995	0200	Ice Storm	N/A	0	0	0	0	
56 MOZ009 - 010 - 018 - 019 - 026 - 027 - 034>036 - 041 - 042 - 047>052 - 059>062 - 071	01/18/1995	1745	Heavy Snow	N/A	0	0	2.4M	1K	
57 New Hartford	04/10/1995	1745	Tstm Winds	0 kts.	0	0	0K	0	
58 Ashley	04/10/1995	1748	Tstm Winds	0 kts.	0	0	0K	0	
59 MOZ009 - 010 - 018 - 019 - 026 - 027 - 034>036 - 041 - 042 - 047>052 - 059>065 -	04/18/1995	0830	High Winds	0 kts.	0	0	700K	0	
60 Ellington	07/08/1995	1945	Hail	0.75 in.	0	0	0	0	
61 Missouri	07/17/1995	1200	Heat	N/A	20	225	75K	0.4M	
62 Frankford	07/22/1995	0920	Tstm Winds	0 kts.	0	0	0K	0	
63 MOZ009 - 010 - 018 - 019 - 026 - 027 - 034>036 - 041 - 042 - 047>052 - 059>065 - 071>076 - 083>085 - 099	07/28/1995	1200	Heat	N/A	0	120	15K	25K	
64 Central	08/01/1995	2400	Heat	N/A	9	230	0	400K	
65 Southeast Mo	12/08/1995	0800	Snow	N/A	0	0	0	0	
66 Central And East Cent	12/18/1995	2200	Winter Storm	N/A	0	0	0	0	
67 MOZ026>027 - 034>036 - 041 - 050 - 052 - 060>064	01/03/1996	04:00 PM	Winter Storm	N/A	0	0	0	0	
68 Clarksville	04/21/1996	06:30 PM	Hail	1.00 in.	0	0	0	0	
69 MOZ010 - 019 - 027 - 035>036 - 041 - 047>051 - 059>065 - 075 - 084 - 099	05/01/1996	12:00 AM	Flood	N/A	0	0	0	0	
70 Curryville	05/25/1996	04:20 PM	Tstm Wind	52 kts.	0	0	0	0	
71 Bowling Green	05/25/1996	04:40 PM	Tornado	F0	0	0	0	0	
72 MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	01/08/1997	03:00 PM	Winter Storm	N/A	0	0	0	0	
73 MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>073	01/15/1997	10:00 PM	Winter Storm	N/A	0	0	0	0	
74 MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 -	01/27/1997	04:00 AM	Winter Storm	N/A	0	0	0	0	

059>065 - 072>073									
75 MOZ009>010 - 018>019 - 026>027 - 034>036 - 052 - 060>065 - 073>075	04/05/1997	03:00 PM	High Wind	50 kts.	0	0	0	0	0
76 MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065	04/10/1997	06:00 AM	Winter Storm	N/A	0	0	0	0	0
77 Bowling Green	04/18/1997	08:40 PM	Hail	0.88 in.	0	0	0	0	0
78 MOZ009>010 - 018>019 - 026>027 - 034>036 - 052 - 060>065	04/30/1997	01:00 PM	High Wind	45 kts.	0	0	0	0	0
79 Cyrene	05/02/1997	10:10 PM	Hail	1.00 in.	0	0	0	0	0
80 Countywide	06/29/1997	03:45 PM	Flash Flood	N/A	0	0	0	0	0
81 MOZ009>010 - 018>019 - 026>027 - 034>036 - 042 - 051	12/09/1997	02:00 PM	Winter Storm	N/A	0	0	0	0	0
82 MOZ035>036 - 051>052 - 060>061 - 063 - 065	01/08/1998	08:00 AM	Winter Storm	N/A	0	0	0	0	0
83 MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075	01/12/1998	02:00 AM	Winter Storm	N/A	0	0	0	0	0
84 MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>073 - 084	03/08/1998	10:00 PM	Winter Storm	N/A	0	0	0	0	0
85 Bowling Green	03/27/1998	05:05 PM	Tstm Wind	51 kts.	0	0	0	0	0
86 Bowling Green	06/04/1998	08:00 PM	Hail	0.75 in.	0	0	0	0	0
87 Curryville	06/14/1998	02:00 PM	Tornado	F0	0	0	0	0	0
88 West Portion	07/04/1998	02:00 AM	Flash Flood	N/A	0	0	0	0	0
89 Bowling Green	11/10/1998	03:15 AM	Tstm Wind	56 kts.	0	0	0	0	0
90 Louisiana	11/10/1998	03:25 AM	Tstm Wind	56 kts.	0	0	0	0	0
91 MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	12/21/1998	12:00 AM	Winter Storm	N/A	0	0	0	0	0
92 MOZ009>010 - 018>019 - 026>027 - 034>036	01/01/1999	08:00 PM	Heavy Snow	N/A	0	0	0	0	0
93 Annada	02/11/1999	01:59 PM	Tornado	F2	0	0	200K	0	0
94 Louisiana	04/08/1999	06:34 PM	Tornado	F0	0	0	0	0	0
95 Bowling Green	04/08/1999	06:55 PM	Hail	1.00 in.	0	0	0	0	0

96	Bowling Green	04/08/1999	06:57 PM	Hail	0.75 in.	0	0	0	0
97	Bowling Green	04/20/1999	10:50 PM	Hail	1.00 in.	0	0	0	0
98	Bowling Green	04/20/1999	11:05 PM	Hail	0.75 in.	0	0	0	0
99	MOZ009>010 - 018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085	07/18/1999	12:00 PM	Excessive Heat	N/A	42	397	0	0
100	MOZ018>019 - 026>027 - 034>036	01/28/2000	06:00 PM	Winter Storm	N/A	0	0	0	0
101	Curryville	02/29/2000	07:50 PM	Tornado	F0	0	0	0	0
102	Bowling Green	03/26/2000	03:45 PM	Hail	1.00 in.	0	0	0	0
103	Curryville	03/26/2000	03:45 PM	Tstm Wind	61 kts.	0	0	0	0
104	Curryville	03/26/2000	03:47 PM	Tstm Wind	61 kts.	0	0	0	0
105	New Hartford	03/26/2000	03:47 PM	Tstm Wind	61 kts.	0	0	0	0
106	Bowling Green	04/16/2000	03:18 PM	Hail	1.00 in.	0	0	0	0
107	Bowling Green	04/19/2000	07:35 PM	Hail	1.00 in.	0	0	0	0
108	Bowling Green	04/20/2000	03:35 AM	Tstm Wind	62 kts.	0	0	0	0
109	Louisiana	04/20/2000	03:40 AM	Tstm Wind	62 kts.	0	0	0	0
110	Louisiana	05/26/2000	10:00 PM	Tstm Wind	55 kts.	0	0	0	0
111	Louisiana	06/20/2000	05:25 PM	Tstm Wind	52 kts.	0	0	2K	0
112	Louisiana	06/23/2000	05:12 PM	Hail	1.75 in.	0	0	0	0
113	Bowling Green	07/02/2000	06:15 PM	Tstm Wind	52 kts.	0	0	0	0
114	Frankford	08/07/2000	05:35 PM	Tstm Wind	51 kts.	0	0	0	0
115	Eolia	08/07/2000	05:55 PM	Tstm Wind	51 kts.	0	0	0	0
116	Eolia	08/23/2000	10:25 PM	Tstm Wind	51 kts.	0	0	0	0
117	Bowling Green	09/11/2000	09:00 PM	Tstm Wind	56 kts.	0	0	0	0
118	MOZ018>019 - 026>027 - 035>036	12/10/2000	04:00 AM	Ice Storm	N/A	0	0	0	0
119	MOZ026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	12/13/2000	06:00 AM	Heavy Snow	N/A	0	0	0	0
120	MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>050 - 050>052 - 059>065 - 072>075 - 084>085 - 099	12/16/2000	08:00 PM	Extreme Windchill	N/A	0	0	0	0

121 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	02/25/2001	12:00 AM	High Wind	40 kts.	0	0	0	0
122 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	03/13/2001	09:00 AM	High Wind	45 kts.	0	0	0	0
123 Bowling Green	04/10/2001	02:00 AM	Hail	0.75 in.	0	0	0	0
124 MOZ019 - 027 - 035>036 - 052 - 061	04/13/2001	07:45 AM	Flood	N/A	0	0	0	0
125 MOZ019 - 027 - 035>036 - 052 - 061	05/01/2001	12:00 AM	Flood	N/A	0	0	0	0
126 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	07/07/2001	11:00 AM	Excessive Heat	N/A	5	61	0	0
127 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	07/17/2001	11:00 AM	Excessive Heat	N/A	0	19	0	0
128 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059 - 061>065 - 072>075 - 084>085 - 099	07/21/2001	11:00 AM	Excessive Heat	N/A	3	71	0	0
129 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	07/29/2001	11:00 AM	Excessive Heat	N/A	0	4	0	0
130 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	08/01/2001	12:00 AM	Excessive Heat	N/A	0	34	0	0
131 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	08/07/2001	11:00 AM	Excessive Heat	N/A	1	10	0	0
132 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	08/21/2001	11:00 AM	Excessive Heat	N/A	0	14	0	0
133 Frankford	09/18/2001	05:42 PM	Tstm Wind	55 kts.	0	0	0	0
134 MOZ027 - 034>036 - 042 - 048>052 - 059>065 - 072>075	02/25/2002	08:00 PM	Winter Storm	N/A	0	0	0	0
135 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059	03/02/2002	06:00 AM	Winter Storm	N/A	0	0	0	0
136 MOZ018>019 - 026>027 - 034>036 - 041>042 - 049>052 - 059 - 061>065	03/09/2002	06:00 AM	High Wind	43 kts.	0	0	0	0

137 Frankford	04/14/2002	11:30 AM	Hail	1.75 in.	0	0	0	0
138 MOZ027 - 036 - 052 - 061	04/27/2002	11:00 AM	Flood	N/A	0	0	0	0
139 MOZ019 - 027 - 035>036 - 052 - 061 - 063>065	05/01/2002	12:00 AM	Flood	N/A	0	0	0	0
140 Countywide	05/06/2002	09:00 AM	Flash Flood	N/A	0	0	0	0
141 Bowling Green	06/11/2002	03:50 PM	Tstm Wind	60 kts.	0	0	0	0
142 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	07/08/2002	11:00 AM	Excessive Heat	N/A	1	26	0	0
143 Louisiana	07/09/2002	04:05 PM	Tstm Wind	52 kts.	0	0	0	0
144 Bowling Green	07/09/2002	04:45 PM	Tstm Wind	52 kts.	0	0	0	0
145 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	07/20/2002	11:00 AM	Excessive Heat	N/A	0	47	0	0
146 Bowling Green	12/17/2002	11:30 PM	Hail	0.75 in.	0	0	0	0
147 Bowling Green	12/18/2002	03:10 AM	Hail	0.75 in.	0	0	0	0
148 Eolia	12/18/2002	03:15 PM	Hail	0.75 in.	0	0	0	0
149 MOZ036 - 041>042 - 047>052 - 059>064	12/24/2002	04:00 AM	Winter Storm	N/A	0	0	0	0
150 Bowling Green	05/04/2003	04:50 PM	Hail	0.75 in.	0	0	0	0
151 Bowling Green	05/04/2003	04:50 PM	Hail	1.75 in.	0	0	0	0
152 Bowling Green	05/09/2003	05:00 PM	Hail	0.75 in.	0	0	0	0
153 Bowling Green	05/09/2003	05:06 PM	Hail	1.50 in.	0	0	0	0
154 Bowling Green	05/09/2003	05:25 PM	Hail	1.00 in.	0	0	0	0
155 Louisiana	05/09/2003	05:35 PM	Hail	1.25 in.	0	0	0	0
156 Louisiana	05/09/2003	05:35 PM	Tstm Wind	51 kts.	0	0	0	0
157 Bowling Green	05/09/2003	05:50 PM	Funnel Cloud	N/A	0	0	0	0
158 Louisiana	05/09/2003	05:50 PM	Funnel Cloud	N/A	0	0	0	0
159 Countywide	05/10/2003	05:50 AM	Flash Flood	N/A	0	0	0	0
160 Countywide	06/25/2003	07:00 PM	Flash Flood	N/A	0	0	0	0
161 Clarksville	07/18/2003	07:15 AM	Tstm Wind	60 kts.	0	0	0	0
162 MOZ018>019 - 026>027 - 034>036 - 041>042 -	08/15/2003	12:00 PM	Excessive Heat	N/A	2	54	0	0

047>052 - 059>065 - 072>075 - 084>085 - 099								
163 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	08/24/2003	12:00 PM	Excessive Heat	N/A	0	0	0	0
164 Curryville	08/28/2003	03:55 PM	Tstm Wind	55 kts.	0	0	0	0
165 Frankford	08/28/2003	04:00 PM	Tstm Wind	60 kts.	0	0	0	0
166 Louisiana	08/28/2003	04:00 PM	Tstm Wind	55 kts.	0	0	0	0
167 Clarksville	09/26/2003	04:15 PM	Tstm Wind	55 kts.	0	0	0	0
168 MOZ018>019 - 026>027 - 034>036 - 042 - 051	12/13/2003	12:00 PM	Winter Storm	N/A	0	0	0	0
169 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	01/25/2004	06:00 AM	Winter Storm	N/A	0	0	0	0
170 Curryville	05/24/2004	10:10 PM	Tstm Wind	55 kts.	0	0	0	0
171 Bowling Green	05/24/2004	10:15 PM	Tstm Wind	55 kts.	0	0	0	0
172 Louisiana	05/24/2004	10:15 PM	Tstm Wind	55 kts.	0	0	0	0
173 Curryville	05/27/2004	02:13 PM	Hail	0.75 in.	0	0	0	0
174 Louisiana	05/27/2004	02:35 PM	Hail	0.88 in.	0	0	0	0
175 Curryville	05/27/2004	02:52 PM	Hail	1.00 in.	0	0	0	0
176 Bowling Green	05/27/2004	03:30 PM	Hail	1.00 in.	0	0	0	0
177 Bowling Green	05/27/2004	03:30 PM	Hail	1.00 in.	0	0	0	0
178 Frankford	05/27/2004	04:52 PM	Hail	1.00 in.	0	0	0	0
179 Frankford	05/27/2004	04:55 PM	Hail	1.00 in.	0	0	0	0
180 Countywide	05/27/2004	05:00 PM	Flash Flood	N/A	0	0	0	0
181 Bowling Green	05/31/2004	05:36 PM	Tstm Wind	55 kts.	0	0	0	0
182 Eolia	05/31/2004	05:42 PM	Tstm Wind	55 kts.	0	0	0	0
183 MOZ036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	07/20/2004	12:00 PM	Excessive Heat	N/A	0	25	0	0
184 Frankford	08/09/2004	05:10 PM	Hail	0.75 in.	0	0	0	0
185 Countywide	08/25/2004	01:30 PM	Flash Flood	N/A	0	0	0	0
186 Bowling Green	08/25/2004	06:15 PM	Lightning	N/A	0	0	10K	0
187 Louisiana	10/29/2004	04:45 PM	Tstm Wind	60 kts.	0	0	0	0

188 MOZ018>019 - 026>027 - 034>036 - 041>042 - 050>051	11/24/2004	06:00 AM	Winter Storm	N/A	0	0	0	0
189 Frankford	06/08/2005	01:35 PM	Tstm Wind	54 kts.	0	0	0	0
190 Curryville	06/08/2005	01:45 PM	Tstm Wind	54 kts.	0	0	0	0
191 Bowling Green	06/08/2005	01:50 PM	Tstm Wind	54 kts.	0	0	0	0
192 New Hartford	06/13/2005	03:20 PM	Hail	2.50 in.	0	0	0	0
193 Ashley	06/13/2005	03:30 PM	Hail	1.75 in.	0	0	0	0
194 Louisiana	06/13/2005	03:40 PM	Tstm Wind	52 kts.	0	0	0	0
195 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	07/20/2005	12:00 PM	Excessive Heat	N/A	4	65	0	0
196 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	08/01/2005	12:00 AM	Drought	N/A	0	0	0	0
197 Bowling Green	08/13/2005	03:40 PM	Tstm Wind	55 kts.	0	0	0	0
198 MOZ018>019 - 026>027 - 034>036 - 041>042 - 050>052 - 060>061	09/01/2005	12:00 AM	Drought	N/A	0	0	0	0
199 MOZ018>019 - 026 - 034>036 - 042 - 052	10/01/2005	12:00 AM	Drought	N/A	0	0	0	0
200 Curryville	11/05/2005	07:05 PM	Hail	0.75 in.	0	0	0	0
201 Frankford	11/05/2005	07:15 PM	Hail	0.75 in.	0	0	0	0
202 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	12/08/2005	06:00 AM	Winter Storm	N/A	2	0	0	0
203 Frankford	03/11/2006	04:36 PM	Hail	1.00 in.	0	0	0	0
204 Frankford	03/11/2006	04:36 PM	Tstm Wind	52 kts.	0	0	0	0
205 New Hartford	03/12/2006	06:24 PM	Tornado	F0	0	0	0	0
206 New Hartford	03/12/2006	06:25 PM	Tornado	F1	0	0	0	0
207 Bowling Green	03/12/2006	06:30 PM	Hail	0.75 in.	0	0	0	0
208 Bowling Green	03/12/2006	06:32 PM	Hail	0.75 in.	0	0	0	0
209 Clarksville	03/12/2006	06:35 PM	Hail	0.75 in.	0	0	0	0
210 Clarksville	03/12/2006	06:45 PM	Hail	0.75 in.	0	0	0	0
211 Annada	03/13/2006	01:46 AM	Tornado	F0	0	0	0	0
212 Ashburn	03/30/2006	10:50 PM	Hail	0.75 in.	0	0	0	0

213 Ashburn	03/30/2006	10:50 PM	Tstm Wind	62 kts.	0	0	0	0
214 New Hartford	06/22/2006	01:00 PM	Hail	0.75 in.	0	0	0	0
215 Ashley	06/22/2006	01:15 PM	Tornado	F0	0	0	0	0
216 Estes	06/22/2006	12:50 PM	Tstm Wind	61 kts.	0	0	0	0
217 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>060 - 072>075 - 084>085 - 099	07/17/2006	12:00 PM	Excessive Heat	N/A	0	12	0	0
218 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>060	07/29/2006	12:00 PM	Excessive Heat	N/A	0	0	0	0
219 MOZ018>019 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	08/01/2006	12:00 AM	Excessive Heat	N/A	0	59	0	0
220 Ashburn	08/18/2006	06:50 PM	Tstm Wind	52 kts.	0	0	0	0
221 Bowling Green	08/18/2006	07:05 PM	Tstm Wind	52 kts.	0	0	0	0
222 Louisiana	08/18/2006	07:20 PM	Tstm Wind	52 kts.	0	0	20K	0
223 MOZ018 - 026>027 - 034>036 - 041>042 - 047	11/29/2006	22:00 PM	Winter Storm	N/A	0	0	0K	0K
224 MOZ018 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	12/01/2006	00:00 AM	Winter Storm	N/A	0	0	0K	0K
225 MOZ018 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072	01/12/2007	22:00 PM	Ice Storm	N/A	0	0	0K	0K
226 MOZ027 - 034>036 - 042	02/13/2007	00:00 AM	Heavy Snow	N/A	0	0	0K	0K
227 MOZ018 - 026>027 - 034>036 - 041>042 - 047>052 - 059>065 - 072>075 - 084>085 - 099	04/04/2007	03:00 AM	Frost/freeze	N/A	0	0	0K	0K
228 Frankford	08/12/2007	22:20 PM	Tstm Wind	52 kts.	0	0	0K	0K
229 Clarksville	08/26/2007	00:00 AM	Flood	N/A	0	0	0K	0K
230 Bowling Green	10/17/2007	23:50 PM	Tstm Wind	61 kts.	0	0	0K	0K
231 MOZ018 - 026>027 - 034>036 - 041	12/01/2007	06:00 AM	Winter Weather	N/A	0	0	0K	0K
232 MOZ018 - 026>027 - 034>036 - 041>042 - 051	12/06/2007	12:00 PM	Winter Weather	N/A	0	0	0K	0K
233 MOZ018 - 026>027 - 034>036 - 041>042 - 047>052 - 059	12/08/2007	23:00 PM	Ice Storm	N/A	0	0	0K	0K
234 MOZ036 - 052 - 060>065	12/15/2007	05:00 AM	Heavy Snow	N/A	0	0	0K	0K

- 072								
235 Louisiana	05/25/2008	17:45 PM	Hail	0.75 in.	0	0	0K	0K
236 Hope	06/03/2008	15:00 PM	Flood	N/A	0	0	285K	11.0M
237 Annada	06/19/2008	14:28 PM	Flash Flood	N/A	0	0	100K	0K
238 Frankford	06/22/2008	17:22 PM	Hail	0.75 in.	0	0	0K	0K
239 Busch	07/16/2008	23:00 PM	Flood	N/A	0	0	0K	0K
240 Louisiana	07/21/2008	21:05 PM	Tstm Wind	56 kts.	0	0	0K	0K
241 Estes	07/25/2008	03:00 AM	Flash Flood	N/A	0	0	0K	0K
242 Louisiana	07/27/2008	19:47 PM	Tstm Wind	56 kts.	0	0	0K	0K
243 Busch	07/29/2008	05:15 AM	Flood	N/A	0	0	0K	0K
244 Spencerburg	08/05/2008	19:00 PM	Flash Flood	N/A	0	0	0K	0K
245 New Hartford	08/28/2008	18:35 PM	Tstm Wind	56 kts.	0	0	0K	0K
246 Bowling Green	12/27/2008	10:37 AM	Tstm Wind	61 kts.	0	0	0K	0K
247 Annada	03/08/2009	09:38 AM	Tstm Wind	56 kts.	0	0	0K	0K
TOTALS:					95	1536	9.146M	16.881M

Flood Terminology

Floodplain

A floodplain is a land area adjacent to a river, stream, lake, estuary or other water body that is subject to flooding. This area, if left undisturbed, acts to store excess floodwater. The floodplain is made up of two sections: the floodway and the flood fringe.

100-Year Flood

The 100-year flooding event is the flood having a one percent chance of being equaled or exceeded in magnitude in any given year. Contrary to popular belief, it is not a flood occurring once every 100 years. The 100-year floodplain is the area adjoining a river, stream, or watercourse covered by water in the event of a 100-year flood.

Floodway

The floodway is one of two main sections that make up the floodplain. Floodways are defined for regulatory purposes. Unlike floodplains, floodways do not reflect a recognizable geologic feature. For NFIP purposes, floodways are defined as the channel of a river or stream, and the over bank areas adjacent to the channel. The floodway carries the bulk of the floodwater downstream and is usually the area where water velocities and forces are the greatest. NFIP regulations require that the floodway be kept open and free from development or other structures that would obstruct or divert flood flows onto other properties. Ralls County regulations prohibit development in the floodway. The NFIP floodway definition is “the channel of a river or other watercourse and adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot. Floodways are not mapped for all rivers and streams, but are generally mapped in developed areas.

Flood Fringe

The flood fringe refers to the outer portions of the floodplain, beginning at the edge of the floodway and continuing outwards. The flood fringe is defined as “the land area, which is outside of the stream’s floodway, but is subject to periodic inundation by regular flooding.” This is the area where development is most likely to occur, and where precautions to protect life and property need to be taken.

Development

For floodplain ordinance purposes, development is broadly defined to mean “any manmade change to improved or unimproved real estate, including but not limited to buildings or other structures, dredging, filling, grading, paving, excavation located within the area of special flood hazard.”

Base Flood Elevation (BFE)

The term “Base Flood Elevation” refers to the elevation (normally measured in feet above sea level) that the base flood is expected to reach. Base flood elevations can be set at levels other than the 100-year flood. Some communities choose to use higher frequency flood events as their base flood elevation for certain activities, while using lower frequency events for others. For example for the purpose of storm water management, a 25-year flood event might serve as the base flood elevation, while the 500-year flood event may serve as base flood elevation for the tie down of mobile homes. The regulations of the NFIP focus on development in the 100-year floodplain.

Characteristics of Flooding

Two types of flooding primarily affect Ralls county: Riverine flooding and flash flooding. In addition, any low-lying area has the potential to flood. The flooding of developed areas may occur when the amount of water generated from rainfall and runoff exceeds a storm water system's capability to remove it.

Riverine Flooding

Riverine flooding is the over bank flooding of rivers and streams. The natural processes of riverine flooding add sediment and nutrients to fertile floodplain areas. Flooding in large river systems typically results from large-scale weather systems that generate prolonged rainfall over a wide geographic area, causing flooding in many of the smaller streams, which then drain into the major rivers.

Shallow area flooding is a special type of riverine flooding. FEMA defines shallow flood hazards as areas that are inundated by the 100-year flood with flood depths of only one to three feet. These areas are generally flooded by low velocity sheet flows of water.

Dam Failure Flooding

Loss of life and damage to structures, roads, utilities and crops may result from a dam failure. Because of dam failure can have severe consequences, FEMA requires that all dam owners develop Emergency Action Plans (EAP) for warning, evacuation, and post-flood actions. Although there may be coordination with county officials in the development of the EAP, the responsibility for developing potential flood inundation maps and facilitation of emergency response is the responsibility of the dam owner.

The Effect of Development on Floods

When structures or fill are placed in the floodway or floodplain, water is displaced. Development raises the river levels by forcing the river to compensate for the flow space obstructed by the inserted structures and /or fill. When structures or materials are added to the floodway or floodplain and no fill is removed to compensate, serious problems can arise. Floodwaters may be forced way from historic floodplain areas. As a result, other existing floodplain areas may experience floodwaters that rise above historic levels.

Local governments must require engineer certification to ensure that proposed developments would not adversely affect the flood carrying capacity of the Special Flood Hazard Area (SFHA). Displacement of only a few inches of water can mean the difference between no structural damage occurring in a given flood event, and the inundation of many homes, businesses, and other facilities. Careful attention should be given to development that occurs with in the floodway to ensure that structures are prepared to withstand base flood events.

How Flood-Prone Areas are Identified

Flood maps and Flood Insurance Studies (FIS) are often used to identify flood-prone areas. The NFIP was established in 1968 as a means of providing low-cost flood insurance to the nation's flood-prone communities. The NFIP also reduces flood losses through regulations that focus on building codes and "sound floodplain management." (17) In Ralls County the NFIP went into effect on May 1, 1989. The city of Hannibal joined the NFIP on August 1, 1978. The city of New London joined the NFIP on August 1, 2002. NFIP regulations (44 Code of Federal Regulations, Chapter1,

Section 60.3) require that all new construction in floodplains must be elevated at or above base flood level. Communities participating in the NFIP may adopt regulations that are more stringent than those contained in 44CFR 60.3, but not less stringent. In Ralls County, all homes legally constructed in the floodplain after May 1, 1989 must be mitigated to NFIP standards with the first floor being elevated at least one foot above base flood level.

Flood Insurance Rate Maps (FIRM) and Flood Insurance Studies (FIS)

Flood plain maps are the basis for implementing floodplain regulations and for delineating flood insurance purchase requirements. A Flood Insurance Rate Map (FIRM) is the official map produced by FEMA, which delineates SHFA in communities where NFIP regulations apply. FIRMs are also used by insurance agents and mortgage lenders to determine if flood insurance is required and what insurance rates should apply.

Water surface elevations are combined with topographic data to develop FIRMs. FIRMs illustrate areas that would be inundated during a 100-year flood level. In some cases they also include base flood elevations (BFEs) and areas located within the 500-year floodplain.

Flood Insurance Studies and FIRMs produced for the NFIP provide assessments of the probability of flooding at a given location. FEMA conducted many Flood Insurance Studies in the late 1970's and early 1980's. These studies and maps represent flood risk at the point in time when FEMA completed the studies. However, it is important to note that not all 100-year or 500-year floodplains have been mapped by FEMA.

FEMA flood maps are not entirely accurate. These studies and maps represent flood risk at the point in time when FEMA completed the studies, and does not incorporate planning for floodplain changes in the future due to new development.

The used of GIS (Geographic Information System) is becoming an important tool for flood hazard mapping. FIRM maps can be imported directly into GIS, which allows for GIS analysis of Flood hazard areas. Communities find it particularly useful to overlay flood hazard areas on tax assessment parcel maps. This allows a community to evaluate the flood hazard risk for a specific parcel during review of a development request. Coordination between FEMA and local planning jurisdictions is the key to making a strong connection with GIS technology for the purpose of flood hazard mapping.

FEMA and the Environmental Systems Research Institute (ESRI), a private company, have formed a partnership to provide multi-hazard maps and information to the public via the Internet. ESRI produces GIS software, including ArcView and ArcInfo. The ESRI web site has information on GIS technology and downloadable maps. The hazards maps provided on the ESRI site are intended to assist communities in evaluating geographic information about natural hazards. Flood information for Ralls County is available on the ESRI web site. Visit <http://www.esri.com> for more information.

Acronyms

ACRONYM	
CRS	Community Rating System
DMA 2000	Disaster Mitigation Act of 2000
DNR	Department of Natural Resources
EOP	Emergency Operations Plan
ESRI	Environmental Systems Information System
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Studies
FMA	Flood Mitigation Assistance (FEMA Program)
GIS	Geographic Information System
HMC	Hazard Mitigation Committee
HMGP	Hazard Mitigation Grant Program
LEPC	Local emergency Planning Committee
MACOG	Missouri Association of Councils of Governments
MCC	Midwestern Climate Center
MDC	Midwest Drought Center
MODOT	Missouri Department of Transportation
MTRCOG	Mark Twain Regional Council of Governments
NEHRP	National Earthquake Hazards Reduction Program
NFIP	National Flood Insurance Program
NHMP	Natural Hazard Mitigation Plan
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NWS	National Weather Service
PDM	Pre-Disaster Mitigation Program
PDSI	Palmer Drought Severity Index
RPC	Regional Planning Commissions
SEMA	State Emergency Management Agency
SFHA	Special Flood Hazard Area

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