Appendix J

City of Sugar Creek
Jurisdiction Specific Information
Prerequisites

This Appendix serves to incorporate the City of Sugar Creek into the *Regional Multi-Hazard Mitigation Plan* in accordance with the requirements of 44 C.F.R. 201.6. It contains all relevant, jurisdiction specific information for these communities. Where applicable, information pertinent to the entire planning area (i.e., regional and hazard profile data, background information, methodologies, etc.) is referenced back to the *Regional Multi-Hazard Mitigation Plan* by section and page number rather than reproduced in full here. All germane tables and figures contained elsewhere in the *Regional Multi-Hazard Mitigation Plan* are amended in this Appendix to include information particular to the City of Sugar Creek. For consistency and ease of reference, all tables and figures retain their original titling and number sequencing.

The following the City of Sugar Creek is a continuing participant to the original 2004 *Regional Natural Hazards Mitigation Plan*:

As stated on page P.2, all participating jurisdictions were obligated to complete nine participation requirements which could be met through attendance at county meetings, completion of the MARC-developed survey and a review/update of the jurisdiction’s hazard mitigation strategy. ***Note: if a jurisdiction was not able to attend the county meetings, this participation component could be met by working directly with MARC staff and their county planning team representative. In these cases, MARC staff met separately with the jurisdictions in person or via teleconference to gather the required information. Jurisdictions opting for this course of action are noted in Table P.1.*** The nine participation requirements are listed below:

1.) Attended meetings or separate work sessions (see above ***Note)

2.) Submitted inventory of existing plans relevant to hazard mitigation.

3.) Submitted list of hazards that affect the jurisdiction.

4.) Submitted description of what is at risk (including local critical facilities, if different than regional profile.)

5.) Developed goals for the community.

6.) Developed mitigation actions with an analysis/explanation of why those actions were selected.

7.) Prioritized actions emphasizing relative cost-effectiveness.

8.) Reviewed and commented on draft plan.

9.) Hosted opportunities for public involvement (e.g., linking local Internet presence to a plan Web site).

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Participation Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>***X X X X X X X X X</td>
</tr>
</tbody>
</table>

***Note: Attended separate work session as described above
As seen above, the City of Sugar Creek has satisfactorily completed all participation requirements. The first requirement, to attend meetings or work sessions, was accomplished through a series of meetings and conference calls with city and MARC Staff. Table 1.1 below lists the dates these meetings were held along with their purpose. The City of Sugar Creek’s resolution adopting the Regional Multi-Hazard Mitigation plan will be signed pending approval of this Appendix.

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Date</th>
<th>Purpose of Meeting</th>
<th>Attendees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro and Information/MITIGATION STRATEGY DEVELOPMENT</td>
<td>3/14/11</td>
<td>Provide introduction, background, information and requirements regarding the planning process.</td>
<td>City of Sugar Creek Police Chief, City Administrator, Codes Administrator, MARC</td>
</tr>
<tr>
<td>Final Mitigation Strategy DEVELOPMENT</td>
<td>4/15/11</td>
<td>Review and discussion of mitigation strategy for incorporation into the plan.</td>
<td>City of Sugar Creek, MARC</td>
</tr>
</tbody>
</table>

**Section J.1: Introduction and Planning Process**

The City of Sugar Creek is located in Jackson County, Missouri within the identified planning area of the Regional Multi-Hazard Mitigation Plan. The Flood Plain Map included in Attachment 2 identifies city boundaries. The City of Sugar Creek requested addition to the plan through Mike Curry, Director, Jackson County Emergency Management and Planning Team representative for Jackson County jurisdictions. Mr. Curry then forwarded these requests via MARC to the rest of the Planning Team for review and approval in accordance with FEMA’s Local Multi-Hazard Mitigation Planning Guidance. The Planning Team, via email correspondence, approved the request. The City of Sugar Creek then worked closely with MARC and Planning Team representatives to complete and submit the required information.

**J.1.1 Review and Incorporation of Existing Plans**

Tables 1.3 and 1.4 below describe how existing plans, studies, reports and technical documents for the City of Sugar Creek were reviewed and integrated in the planning process as discussed in Section 1.3.4, pg. 1.7.
A. Hazard vulnerability analysis  
B. Floodplain management ordinance  
C. Soil and erosion control ordinance  
D. Hazard zone identification  
E. Storm water engineering studies  
F. Elevation certificates  
G. Emergency Management Plan  
H. Growth Management Plan  
I. Capital Improvement Plan  
J. Critical facilities maps  
K. Existing land use maps  
L. Missouri State Hazard Mitigation Plan  
M. Building codes

Section J.2: Regional Profile and Capabilities

All requesting jurisdictions are located within the planning area profile discussed in Section 2, pgs. 2.1 – 2.99; the information contained there remains applicable. The following jurisdiction specific information regarding local community capabilities for the City of Sugar Creek, is added to that already contained within Section 2.6, pgs. 2.81, 2.84 and 2.87.

Local Community Capabilities

<table>
<thead>
<tr>
<th>Community</th>
<th>Burning Ban</th>
<th>Water Conservation Measures</th>
<th>Soil Report Evals</th>
<th>Wind Resistance Req’s</th>
<th>Safe Room/Shelter Req’s</th>
<th>Flood Buyout Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

X = Program in place

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>2006 IBC</td>
<td>2006 IFC</td>
<td>2006 IMC</td>
<td>2006 IPC</td>
<td>Local Ordinance</td>
<td></td>
</tr>
</tbody>
</table>

Codes

IC – International Code  
ICBC – Uniform Code for Building  
Construction  
UBC – Uniform Building Code  
IFC – International Fire Code  
UHC – Uniform Housing Code  
IFGC – International Fuel Gas Code  
UMC – Uniform Mechanical Code  
IMC – International Mechanical Code  
UPC – Uniform Plumbing Code  
IPC – International Plumbing Code  
URC – Uniform Residential Code  
IPMC – International Property Maintenance Code  
USC – Uniform Sign Code  
IRC – International Residential Code  
NEC – National Electrical Code  
NFC – National Fire Code  
UBC – Uniform Building Code  
UCADB – Uniform Code for Abatement of Dangerous Buildings
Section J.3: Risk Assessment

This portion of the plan contains detailed analyses of each of the eight natural and four technological hazards that may potentially affect the Kansas City area. These hazards include tornadoes and severe thunderstorms, riverine and flash floods, severe winter weather, drought, heat waves, earthquakes, dam failures, wildland fires, hazardous materials incidents, emerging infectious disease, civil disorder and mass transportation accidents. Levee failure was also considered for this update. However, due to data limitations, levee failure analysis is discussed under section 3.2.2 Riverine and Flash Floods. Information specific to each hazard found in this section includes:

- The probable location of hazards or the areas that may be affected by them
- The severity and magnitude of hazard events
- The probability of future hazard events
- Historical occurrences of hazard events in the region

Many sources were researched for data and information relating to hazards in the Kansas City metropolitan area. Principal sources of all-hazard information included FEMA and SEMA. The National Climate Data Center (NCDC), National Oceanic and Atmospheric Administration (NOAA) and National Weather Service (NWS) were primary sources of information and statistics on weather and/or climate-related hazards. The U.S. Geological Survey (USGS), Center for Earthquake Research and Information (CERI) and the Central United States Earthquake Consortium (CUSEC) were major sources for information on earthquakes and seismic activity in the Midwest and the Kansas City region. The primary sources of information on dams and dam safety were the Missouri Department of Natural Resources (MDNR) Dam Safety Division and the U.S. Army Corps of Engineers’ (USACE) National Inventory of Dams (NID). SEMA and the Missouri Department of Conservation (MDC) were major sources of fire information related to the Kansas City metropolitan area. Other sources of information included MARC, particularly its Research Services Department; city and county Web sites and officials; existing county, regional and state plans, reports and documents; newspaper and news organization Web sites, articles and accounts of natural disasters; other state and federal agencies, such as the U.S. Census Bureau and Missouri Census Data Center (MCDC); and colleges and universities, especially the University of Missouri and University of Missouri Extension. A bibliography of research sources is contained in Appendix C: Maps and References.

J.3.1 Identifying Hazards

As part of the MARC-developed survey, participants were asked to evaluate (or re-evaluate) hazards affecting their jurisdictions, noting the overall risk each hazard posed to their governance. Table 3.2 identifies which hazards affect the City of Sugar Creek. An “X” indicates the jurisdiction is affected by the hazard; an N/A indicates the hazard is not applicable.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Tornado</th>
<th>Floods</th>
<th>Winter Weather</th>
<th>Drought</th>
<th>Heat Wave</th>
<th>Earthquake</th>
<th>Dam Failures</th>
<th>Wildland Fire</th>
<th>HAZMAT Incident</th>
<th>Emerging Infectious Disease</th>
<th>Civil Disorder</th>
<th>Mass Trans Accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>N/A</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
J.3.1.1 Hazard Analysis Summary

See Section 3.1.1, pgs. 3.5 – 3.15, Tables 3.3 – 3.7 for a summary analysis of each of the 12 hazards, detailed in this Plan, that can potentially affect Cass, Clay, Jackson, Platte and Ray counties and briefly describes (1) magnitude; (2) severity; (3) probability of occurrence; and (4) overall risk to the county.

J.3.2 Hazard Profiles

See Section 3.2, pgs. 3.16 – 3.240 for Hazard Profiles of Tornado, Floods, Winter Weather, Drought, Heat Wave, Earthquake, Dam Failures, Wildland Fire, HAZMAT Incident, Emerging Infectious Disease, Civil Disorder and Mass Transportation Accidents. The City of Sugar Creek is profiled within these areas.

J.3.3 Vulnerability Assessment

“Vulnerability” describes an asset’s level of exposure or susceptibility to damage from hazards. The vulnerability of an asset — such as residential and commercial property, critical facilities or infrastructure — depends on a variety of factors, including its construction, contents and/or economic value of its functions. Overall vulnerability is synonymous with overall risk discussed in Section 3.1, pg. 3.2, and calculated according to the methodologies outlined therein (reproduced below).

To determine overall risk, two factors were considered: probability of an event occurring and severity of that event. Probability was drawn from historic occurrences and rated Low, Medium or High. These ratings were defined as:

- **Low** — The hazard has little or no chance of happening (Less than 1 percent chance of occurrence in any given year.).
- **Medium** — The hazard has a reasonable probability of occurring (Between 1 and 10 percent chance of occurrence in any given year).
- **High** — The probability is considered sufficiently high to assume that the event will occur (Between 10 and 100 percent chance of occurrence in any given year).

Severity was determined as the potential number of deaths, injuries, or amount of damage (property or environmental) that could result from the hazard. When calculating severity, jurisdictions took into account the likely locations for each hazard. These were also ranked Low, Medium and High, defined as:

- **Low** — Few or minor damage or injuries are likely.
- **Medium** — Injuries to personnel and damage to property and the environment is expected.
- **High** — Deaths and major injuries and damage will likely occur.

Overall risk was then calculated by averaging probability with severity. Simple numeric values were assigned to the rankings of Low, Medium or High, i.e., Low = 1, Medium = 2, High = 3 for ease of calculation. For example, if a tornado has a high probability (High = 3) of occurring with a high severity (High = 3), then the overall risk is High (3 + 3/2 = 3 = High). However, if a town has a high probability of flooding, but due to mitigation measures only a low severity, then the overall risk is Medium (3 +1/2 = 2 = Medium). Based on the assumption that it was better to overestimate risk rather than underestimate it, all fractions were rounded up to the next whole number. Figure 3.1 graphically depicts this algorithm.
Table 3.32 lists the vulnerability assessment for the City of Sugar Creek.

**TABLE 3.32: VULNERABILITY ASSESSMENT (OVERVIEW, Amended)**

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Hazard</th>
<th>Tornado</th>
<th>Floods</th>
<th>Winter Weather</th>
<th>Drought</th>
<th>Heat Wave</th>
<th>Earthquake</th>
<th>Dam Failures</th>
<th>Wildland Fire</th>
<th>HAZMAT Incident</th>
<th>Emerging Infectious Disease</th>
<th>Civil Disorder</th>
<th>Mass Trans Accidents</th>
</tr>
</thead>
</table>

**Potential Loss Estimates**

Potential minimum and maximum loss estimates at the county level are discussed in Section 3.3.3, pg. 3.26. Potential Loss Estimates by Jurisdiction are found in Section 3.3.3a, pg. 3.250. This section attempts to quantify potential monetary loss from area-specific hazards (flooding, earthquake, dam failure, wildland fire) based on building valuations in the hazard area. For a full explanation of the methodology used to calculate the potential loss, see Section 3.3.3a. The potential loss calculation uses building counts derived from the HAZUS-MH software. For an explanation of how these counts were achieved, see Section 2.5.1 pg. 2.73. Table 2.11 shows the building count information for the City of Sugar Creek. Tables 3.71 – 3.74 contain the loss estimates for the City of Sugar Creek. Information regarding repetitive loss properties is discussed in Section 3.3.4 (pg. 3.278). As is shown in Table 3.58 (reproduced below), Sugar Creek has one repetitive loss property.

**TABLE 2.11: BUILDING COUNT BY TYPE (Amended)**

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Agriculture</th>
<th>Commercial</th>
<th>Healthcare</th>
<th>Education</th>
<th>Gov’t</th>
<th>Industry</th>
<th>Religion</th>
<th>Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>4</td>
<td>52</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>29</td>
<td>8</td>
<td>1869</td>
</tr>
</tbody>
</table>

**TABLE 3.58: KANSAS CITY AREA REPETITIVE LOSSES (Unmitigated)**

<table>
<thead>
<tr>
<th>Community Name</th>
<th>Comm Number</th>
<th>Building Payments</th>
<th>Contents Payments</th>
<th>Total Payments</th>
<th>Average Payment</th>
<th>Losses</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek, City Of</td>
<td>290178</td>
<td>6,618.91</td>
<td>1,622.39</td>
<td>8,241.30</td>
<td>2,747.10</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Jurisdiction</td>
<td>Overall Vuln</td>
<td>Agriculture</td>
<td>Commercial</td>
<td>Healthcare</td>
<td>Education*</td>
<td>Government</td>
<td>Industry</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td>-------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>----------</td>
</tr>
<tr>
<td>Sugar Creek</td>
<td>L 0.2</td>
<td>$11</td>
<td>2.6</td>
<td>$0</td>
<td>$0.1</td>
<td>$52</td>
<td>0.05</td>
</tr>
</tbody>
</table>

**TABLE 3.72: JURISDICTIONAL LOSS ESTIMATES BY BUILDING DAMAGE COUNT AND DOLLAR LOSS (000’s of $) FOR EARTHQUAKE (Amended)**

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Overall Vuln</th>
<th>Agriculture</th>
<th>Commercial</th>
<th>Healthcare</th>
<th>Education*</th>
<th>Government</th>
<th>Industry</th>
<th>Religion</th>
<th>Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>L 0.2</td>
<td>$16</td>
<td>3.9</td>
<td>$0</td>
<td>0.15</td>
<td>$77</td>
<td>0.075</td>
<td>$8</td>
<td>2.175</td>
</tr>
</tbody>
</table>

**TABLE 3.73: JURISDICTIONAL LOSS ESTIMATES BY BUILDING DAMAGE COUNT AND DOLLAR LOSS (000’s of $) FOR DAM FAILURES (Amended)**

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Overall Vuln</th>
<th>Agriculture</th>
<th>Commercial</th>
<th>Healthcare</th>
<th>Education*</th>
<th>Government</th>
<th>Industry</th>
<th>Religion</th>
<th>Residential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Section J.4: Mitigation Strategy

The City of Sugar Creek was a participant in the 2004 Hazard Mitigation Plan. As such, they were required to update the status of the goals and actions identified in that plan through the MARC-developed Web site database. For a complete discussion on the Web site and methodologies used to rank priority, inclusion of a cost/benefit analysis, etc. see section 4.1, pg. 4.1. The city’s completed mitigation strategy is listed in Attachment 1 to this Appendix. For the listing of corresponding mitigation goals and actions see Section 4.1.1, pgs. 4.3 – 4.15.

J.4. 2 Implementation of the National Flood Insurance Program (NFIP)

As shown in Table 4.1, the City of Sugar Creek participates in the National Flood Insurance Program. Mitigation goals and actions related to continued compliance with the NFIP are indicated by double asterisks (**) in the cities’ mitigation strategy as found in Attachment 1. Flood hazard boundary maps for the city are found in Attachment 2.

<table>
<thead>
<tr>
<th>CID</th>
<th>Jurisdiction</th>
<th>County</th>
<th>Initial FHBM Identified</th>
<th>Initial FIRM Identified</th>
<th>Current Effective Map Date</th>
<th>Reg-Emerg Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>290178#</td>
<td>SUGAR CREEK, CITY OF</td>
<td>JACKSON COUNTY</td>
<td>12/17/76</td>
<td>01/03/79</td>
<td>(NSFHA)</td>
<td>01/03/79</td>
</tr>
</tbody>
</table>

Section J.5: Plan Maintenance

Section J.5.1 Monitoring, Evaluating and Updating the Plan

Accomplished in accordance with the procedures outlined in Section 5.1, pgs. 5.1 – 5.3.

Section J.5.2 Incorporation into Existing Planning Mechanisms

Throughout the planning process information for each hazard risk assessment was requested from and provided to each jurisdiction. Utilizing this two-way approach, participating jurisdictions helped form the risk assessment section while at the same time incorporating information from it into their own local planning mechanisms. The MARC-developed survey asked jurisdictions to provide information on eight different categories:

- Ordinances related to natural hazard mitigation
- Land use planning
- Zoning
- Subdivision regulations
- Building codes
- Land acquisition
- Other community programs
- Technical documents
For each category, the jurisdiction was asked to list how their answers would be incorporated into the Hazard Mitigation Plan, which would then drive local planning mechanisms. The end goal is the establishment of a cyclical process whereby local planning mechanisms input data for the update of the Hazard Mitigation Plan, which in turn outputs strategies, goals, actions, hazard data, etc., for reincorporation back into local planning mechanisms. Table 5.1 below summarizes the information provided by the City of Sugar Creek through the survey.
<table>
<thead>
<tr>
<th>Community</th>
<th>Natural Hazard Mitigation Ordinances</th>
<th>Land Use Planning</th>
<th>Zoning</th>
<th>Subdivision Regulations</th>
<th>Building Codes</th>
<th>Land Acquisition</th>
<th>Other Community Programs</th>
<th>Technical Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar Creek</td>
<td>Through city ordinance, Used to describe local capabilities</td>
<td>Used to describe local capabilities</td>
<td>Used to describe local capabilities</td>
<td>Used to describe local capabilities</td>
<td>Used to describe local capabilities</td>
<td>Used to describe local capabilities</td>
<td>Mitigation goals and actions, hazard information incorporated into Emergency Management, Plans</td>
<td>Used to identify areas for mitigation activity</td>
</tr>
</tbody>
</table>