



*ASSOCIATION OF
STATE FLOODPLAIN
MANAGERS, INC.*



*FEDERAL
INTERAGENCY
FLOODPLAIN
MANAGEMENT
TASK FORCE*

ADDRESSING

YOUR



COMMUNITY'S

FLOOD

*A Guide
for Elected
Officials*

PROBLEMS

“This is an outstanding document — should be in every elected official’s library.”

Dr. W. J. LoPiano, former Mayor, Tempe, Arizona

“I could not set this document aside upon receipt. [It] is a very informative and useful guide. And will be of much value to elected officials such as myself.”

Frank E. Knittle, Trustee, South Holland, Illinois

“This guide is an outstanding resource that should be shared with all the key players in your community.” *Christopher C. Johnson, Mayor, Agawam, Massachusetts*

“This is a guide to help officials take action now and try to ward off problems from future flooding. After reading this document I am recommending that we as a city implement some of the actions that have not been taken for our community.”

Phillis Roberts, Councilwoman, Arnold, Missouri

I CREDIT THE SUCCESS of our floodplain management program to the very capable Federal Emergency Management Agency's National Flood Insurance Program specialists at Region VIII in Denver, Colorado, for their expert guidance; the developers who showed a genuine concern for their future tenants and residents; and, most of all, the Board of Union County Commissioners, who stood behind their ordinance, often at very tenuous times, to the betterment of Union County. By adhering to their ordinance, not only did they save countless dollars in potential disaster response and recovery operations, but they also mitigated the threat to human safety during these operations. This is truly a success story. *John LaBrune, former Floodplain Manager, Union County, South Dakota*

THE FOLLOWING ACCOUNTS of how four localities addressed their flood problems — and, in doing so, met multiple community needs and goals — are truly “success stories.” They are included to give you a chance to hear about the situations that officials in other communities faced, what they did, and how well it worked. Their experiences also reveal some of the local elements that appear to be necessary for success.

Mayor Beverly Anderson of *Darlington, Wisconsin*, describes her community’s flood mitigation efforts, which included historic preservation, economic revitalization, and land use/reuse compatible with the flood risk. Their objective was “to reflect a change in our River’s image” through flood mitigation. A mixture of projects was carried out with assistance and funding from several sources. The importance of having a previously prepared flood mitigation plan is demonstrated.

Community Affairs Manager Ann Patton of *Tulsa, Oklahoma*, shares her community’s journey from “worst to best.” From having the nation’s worst flood record in the 1980s to having one of its best programs for dealing with flood and stormwater at the present, Tulsa has a program characterized as “born of great loss, hard lessons, and tremendous political courage.” Lessons Tulsa “learned the hard way” are shared for the benefit of others.

Former *Union County, South Dakota*, official John LaBrune recounts the pressures local elected officials often face when confronted with attractive economic development proposals. Much of the land in this instance was flood-prone. The experience is described as “a *cooperative* beginning in which flood-plain management *and* economic development can survive and be beneficial to everyone involved.”

Village Manager Peggy Glassford of *Flossmoor, Illinois*, reveals the path traveled by a committee formed by governments under extreme pressure to “do something” about flooding. The group “began by looking for a quick fix to the flood problem and found instead that the only effective solution is a long, cooperative journey in multi-objective stormwater management,” involving the entire Butterfield Creek watershed. Their experience provides information that may be useful to others.

FLOODED WITH PRIDE — MITIGATION FOR REVITALIZATION**BY BEVERLY ANDERSON FORMER MAYOR, DARLINGTON, WISCONSIN**

Darlington, nestled in a valley in southwest Wisconsin, is the county seat of Lafayette County, the most agriculturally dependent county in the state. It was settled in 1836 along the banks of the Pecatonica River, which was used to transport products, provided recreation (boating, fishing, swimming), and also generated the community's electrical power until the turn of the century when the dam was removed.

Historically, the river would rise in the spring, flooding the lowlands, and approximately each 20 years when summer torrential rains caused major flooding covering the lower two-and-one-half blocks of the retail and service business sector, residences, businesses and farm lands up and down the river.

Having literally grown up on Main Street, actively involved in a family business for 42 years, it always bothered me that during flooding episodes the news media printed pictures of the "old timers" standing on the bridge watching the river rise and then of us, shirt sleeves and pant legs rolled up, wading in mud, cleaning but seemingly doing nothing to prevent the repeated damage of future flooding.

So upon becoming involved in city and county government in the mid 1970s, we began initiating an extensive land use program using Land and Water Conservation and Wisconsin local park aides' funding to relocate extensive land use businesses (lumber yards, fuel companies, agricultural supply, etc.) out of the floodway, rid ourselves of blighted areas, and use the land along the river for parkland, for recreation, and other compatible uses.

We engaged the U.S. Army Corps of Engineers to do a topographical study before allowing further development in the floodplain. The abandoned rail system, which ran adjacent to the river, was Interstate Commerce Commission railbanked and a 49-mile multi-use recreation trail was implemented.

After the major flooding of 1990, the city government immediately began organizing a task force of pertinent agencies of higher levels of government and state and federal elected officials to meet, coordinate, and collaborate as to what resources and/or financing each could offer for an acceleration of an extensive flood mitigation effort that would also include historic preservation, economic revitalization, and ultimately contamination remediation.

Wisconsin Emergency Government and the National Trust for Historic Preservation agreed to fund a flood mitigation plan. The city, Wisconsin Emergency Government, the Federal Emergency Management Agency, and pertinent agencies within the Department of Natural Resources had been meeting on flood mitigation issues for several years, so much of the groundwork had been laid and, of course, all continue to be involved. The Corps of Engineers and Soil Conservation Service furnished the personnel to provide research data and statistical information. The state historical society also provided personnel to do the necessary survey and research work to enable Darlington's designation to the state and national registry of historic places.

When the 1993 flood and second presidential declaration occurred and monies became available for grant applications, Darlington had its mitigation plan and was ready to move ahead. The Economic

historic buildings, and economic diversification from our agricultural dependency.

Recognizing the need for an intensive retention and recruitment program and long-range planning in conjunction with the flood mitigation projects, we applied for and received a Community Based Economic Development grant for \$19,000 through the Department of Development and have begun a succession of town meetings. Again the major problems encountered have been due to the changing program regulations, code, and escalated cost. Thus we will fall short in funding, even though building owners are responsible for all code requirements and building improvements not associated with flood mitigation. Many are also remodeling second stories, creating offices or badly needed living quarters. We will continue to strive to obtain funding for completion of this critical project.

ACQUISITION/RELOCATION OF SEVERAL BUSINESSES Supplement I providing \$20,500, including matches by WDEG and DOD/CDBG, for acquisition appraisal for 13 designated properties, and Supplement II providing \$798,500, including matches by WDEG and DOD/CDBG, for actual acquisition and/or relocation. When demolition is required, WEG with in-kind match by city crew and equipment, will provide funding. There are three important reasons for moving these commercial activities out of the floodplain:

- The farm implement dealership, car dealership, and mill are magnet businesses impacting other businesses and lie directly on the river bank. If lost due to flooding, customers will go elsewhere.
- By the very nature of the types of businesses that located along railroads (fuel companies, agricultural supply, chemical) contamination occurred and one fuel company is still operating just above town, thus creating a potential hazard with each flood.
- The deed restricted to green space designation all floodway land along the river. Parkland, recreation, natural plant and habitat restoration adds to the economic, ecological, and social welfare of the community.

SUPPORTING INFORMATION FOR ACQUISITION/RELOCATION PROJECT The city purchased 33 acres of land at \$330,000 on the southwest end of the city for a business park for the relocation process. The Economic Development Administration granted \$697,000 to install the utilities and a lift station. The owner donated \$100,000 of the purchase price to our library, \$50,000 toward our new ambulance, and \$5,000 to our fire department. The remaining \$175,000 was used as local match for grants. Four properties have been acquired and cleared, the papers have been signed for another four, four properties are under contamination remediation, and we will be short of funding for two properties. Again, funding will be sought to complete the work.

Contamination has been the major problem and we are now waiting for the final results of testing, determining type and extent. It has been determined that the properties are PECFA eligible. The Department of Development furnished the \$69,000 deductible for testing so if all goes well we should be able to soon acquire and relocate before another flood. The city assumed the role of agent for the affected businesses. It is our desire to relocate the businesses, do contamination remediation, then

“Commissioner!” Through phone static, he recognized the voice of the mayor. “I need you to come to the emergency operations center right away. I’ll send a truck to get you. It’s flooding.”

“No!” said the commissioner. “Where?”

“Everywhere.”

Thus began Tulsa’s worst natural disaster, our 1984 flood.

City leaders huddled in the Emergency Operations Center throughout the nightmare night, shell-shocked by volley after volley of horrifying reports of destruction all across town. They mustered all available forces to battle the flood. There were miraculous victories, such as in Holiday Mobile Home Park, where a life flight helicopter pilot braved the storm to rescue 40 people; they were plucked from their roofs, one by one, by an outstretched hand of the chopper nurse. Overall, our forces were puny by comparison to the overwhelming power of the water reclaiming its floodplains.

Before dawn, as much as 15 inches of rain had fallen. Fourteen Tulsans had lost their lives in flashing waves of water. Another 288 were hurt. Nearly 7,000 homes and businesses were ruined, and another 7,000 cars and trucks — including city fire trucks, police cars, and ambulances — were destroyed. Damage was \$183 million.

During that terrible night, the commissioner and our new young mayor vowed to do whatever they could — and the political cost be damned — to prevent Tulsa from suffering such a flood again. That commitment produced Tulsa’s comprehensive stormwater management program — a program born of great loss, hard lessons, and tremendous political courage.

BACKGROUND Floods have haunted Tulsa’s history. Tulsa was built over the past hundred years on the banks of the Arkansas River, on rolling terrain networked with floodplains. The city, now encompassing 200 square miles and 380,000 citizens, lies within the infamous “tornado alley,” where colliding weather systems often produce spectacular thunderstorms, most treacherous in the spring and fall. As we grew, lowland development was ripe for flooding that seemed worse every year.



By the 1980s, Tulsa County had garnered the worst flood record in the United States, nine federal flood disaster declarations in 15 years. Real estate markets were virtually dead in sprawling sectors of our community; and we were gaining a reputation as the nation’s flood capital, thwarting economic development.

The city’s record was transformed from “worst to best” after that flash flood on Memorial Day 1984. The program actually began in the 1970s, when Tulsa entered the National Flood Insurance Program (NFIP), but local political opposition stunted implementation. After the ‘84 flood, leaders were able to muster community-wide consensus that continues today. Since 1993, our citizens have enjoyed the lowest flood insurance rates in the U.S. because the federal government’s community rating system has ranked our program first in the nation.

- Go beyond federal requirements. Build on the NFIP, which offers flood insurance to communities who use basic floodplain management tools. But if we had stopped there, we would have cheated our citizens in the long term. Prudent floodplain management requires an extra margin of safety, going beyond the NFIP to consider, for example, the effects of future watershed urbanization. (All that paving and piping can speed runoff and increase downstream flooding. That's why we base Tulsa's floodplain maps on ultimate watershed urbanization; require upstream detention or fee in lieu of detention; require compensatory valley storage; and require new buildings to have the lowest floor at least one foot above the predicted flood level.)
- Go for the green. With good floodplain management, a community can reap great rewards. Open spaces can be used for greenway strip parks and trails, for example. Using the same land or resources to achieve multiple goals such as water quality, recreation, transportation, and flood control, all in the same project, can make every project more effective and broaden your constituency.
- Don't give out. Floodplain management is a long-term proposition, and you can't sell out the long-term for short-term gains. Getting that point across to citizens probably requires an education program. Your best friend may be your local news media; in Tulsa we are blessed with aggressive local journalists and editors who understand long-term issues and help us explain them to the public.

CONCLUSION Tulsa hasn't suffered a major flood in a decade, the longest flood-free period in our history. We have no record of flood damage to any building built in accord with our updated, comprehensive regulations. Several rains have occurred that would have caused flooding previously, but the upgraded stormwater system has handled them without significant damage.

We know that, inevitably, Tulsa will flood again. We believe, however, that flood dangers and damages have been immeasurably reduced because our leaders had the foresight to make a hard-willed commitment to progress. The greatest challenge in developing a flood program is finding the community will, the vision, the local leadership, and the political courage. If you have ideas to share with us, or if you would like more information, please contact Ann Patton, 515 City Hall, Tulsa, Oklahoma 74103; (918) 596-7808; fax (918) 596-7265.

RIDING A "WAVE" OF COOPERATION

**BY JOHN LABRUNE MITIGATION CONSULTANTS & ASSOCIATES
FORMER UNION COUNTY, SOUTH DAKOTA, FLOODPLAIN MANAGER**

Union County is a largely rural county, population 10,500 and growing, in extreme southeastern South Dakota. It is bordered on the south by the Missouri River (adjacent to Nebraska), and to the east by the Big Sioux River (adjacent to Iowa). In the late 1980s a major utility company began assembling parcels of land at the confluence of the Big Sioux and Missouri rivers. The developers acquired approximately 2,000 acres, and a formal announcement was made that they had plans to develop this raw, undeveloped piece of unproductive land into a premiere "planned development" with areas set aside for schools, churches, a

Because this was a cooperative beginning, floodplain management and economic development survived and were beneficial to everyone. I credit the success of our floodplain management program to the very capable Federal Emergency Management Agency's NFIP specialists at Region VIII in Denver, Colorado, for their expert guidance, the developers who showed a genuine concern for their future tenants and residents, and, most of all, the Board of Union County Commissioners, who stood behind their ordinance, often at tenuous times, to the betterment of Union County. By adhering to their ordinance, not only did they save countless dollars in potential disaster response and recovery, but they also mitigated the threat to human safety during these operations. This is truly a success story. For more information contact John LaBrune, 115 E. Main, P.O. Box 640, Elk Point, South Dakota, 57025; (605) 356-3242.

SEVEN COMMUNITIES TAKE A WATERSHED APPROACH

BY PEGGY A. GLASSFORD VILLAGE MANAGER, FLOSSMOOR, ILLINOIS

On June 13, 1981, it flooded in the Butterfield Creek Watershed. The rain came in torrents, sheets, buckets — it flowed across our communities, filling streets and lapping at doorways. We watched with wonder as the water flowed through our towns — both in and out of creek, ditch, channel, and street. The water's sheer strength was impressive. It was soon to be matched, however, by an equally impressive show of force — this one was political.

At the municipal Board meetings following the June storm, it was standing room only. And it was not enough for the local government to say that "God makes rain." The government was under extreme pressure to "do something" about flooding. Political pressure to end flooding resulted in the formation of the Butterfield Creek Steering Committee, a watershed group that began by looking for a quick fix to the flood problem and found instead that the only effective solution is a long, cooperative journey in multi-objective stormwater management.

The Butterfield Creek watershed is a 26-square mile area located 30 miles south of Chicago, Illinois. It is a steadily developing watershed with about 65% in typical suburban land use and 20% still agricultural. The Watershed Committee is formed by seven communities who send appointed representatives; the group is advisory to the individual communities.

When the Committee was first formed, the hope was that by working together, the communities could attract state and federal dollars for a structural solution. The state and federal governments did combine efforts to provide for a significant engineering study which was concluded in 1987. At first, the communities were extremely disappointed with the results of the study. The required benefit/cost ratio was not sufficient to attract federal or state funds for the series of huge detention basins which could bring relatively quick relief. There would be no infusion of money and no easy answers.

Although the engineering study did not provide easy solutions, it did reveal three very important facts about our watershed. First, the flood insurance maps for Butterfield Creek were inaccurate. Our recalculated 100-year flood levels are higher — by as much as 2.5 feet in some locations. Second, deten-

- We are requiring 75-foot setbacks and 25-foot vegetated buffer strips for new development along streams.
- We are requiring site permits for all development. Development is defined as “any manmade change to real estate” and includes a catch-all provision that covers “any other activity that changes the direction, height or velocity of flood or surface water” This regulation applies to the grading of all private property including residential. Improperly graded property has been a source of neighborhood flooding problems for years — this is our effort to keep this from happening in the future.
- We have assembled all regulations related to stormwater management into one code. Therefore, our code includes floodplain regulations, stormwater detention, wetlands protection, and erosion control. With stronger regulations, the residents threatened by floods have been given some insurance. We have not eliminated flooding, but it should not get any worse as long as we enforce our codes.

Over the last decade, our group has worked diligently toward our goals. We have attracted grant monies for demonstration projects illustrating improved detention and erosion techniques. We held a very successful open house to educate our residents on the advantages of floodproofing. We produced a video tape for our cable channel to explain the work of the committee. Our greenway plan has been incorporated into our region’s master greenway plan. We have created a Vision Plan which is shown graphically on a two-sided foldout publication. Most recently, we have been working through a State grant to purchase a portion of those all-important natural storage areas.

BUTTERFIELD EXPERIENCE AS A MODEL We believe there are four universally applicable lessons from the Butterfield experience. The first is that streams do not respect geographic or political boundaries. Stormwater management must have the cooperation of all the watershed communities in order to solve problems. Demonstrating a united effort also makes it much easier to get outside help.

The second lesson is that help is available. State and Federal agencies often receive criticism because of their regulatory responsibility; in fact, they are a resource of unbelievably knowledgeable and dedicated people who really want to help. We have been blessed with the help of these agencies. They cannot do all things, but if the locality is willing to work with what is possible, much can be accomplished.

The third lesson is that it is as important to know what can’t be done as what can be done. Our watershed had to accept that there would be no quick fix for flooding problems. We were going to have to help ourselves and really significant results for our stream and our residents would take years of hard work.

Finally, efforts to manage stormwater also provide an opportunity to protect the environment and provide recreation, but these efforts must be viewed in a holistic way in order to take advantage of the opportunities. A multi-objective approach is critical.

Our creek, like all streams, bears the imprint of the watershed, its geographical gathering area, in such a way that every activity on the land is registered in its waters. Flooding, erosion, and environmental degradation are the creek’s reaction to poor watershed planning. The Butterfield Committee hopes that the waters of our creek will one day bear the positive imprint of our improved planning. For further information, contact Peggy A. Glassford, (708) 798-2300 or Ralph Coglianesi, (708) 481-8373.