

# COME RAIN, COME SHINE



A CASE STUDY OF A FLOODPLAIN RELOCATION PROJECT AT SOLDIERS GROVE, WISCONSIN

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**Written by  
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### **Notice**

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### **Cover**

*The 1951 flood surged through Soldiers Grove's downtown with such force that automobiles were tumbled side-over-side. Doors and windows were blown out of buildings as though dynamited.*

# Acknowledgements

While many people were responsible for the success at Soldiers Grove, a few made particular contributions to this booklet.

Special appreciation goes to Tom Hirsch, who directed the relocation project and, through repeated readings of early drafts, made sure I adhered to the facts; Ron Swiggum and Kathy Fairchild of the Soldiers Grove Community Development Office, whose counsel proved valuable in understanding the local dynamics of the project; Larry Larson, chief of the Floodplain Management Section of the Wisconsin Department of Natural Resources (DNR), who found not only the money for this booklet but many of the resource materials I used in research; and LuAnne Hansen of the Wisconsin DNR, whose meticulous editing and proofreading repaired many small, but potentially embarrassing, misuses of the language.

# Foreword

This booklet is about a community with a very wet past, and a very sunny future. In the past, the Village of Soldiers Grove, Wisconsin, was much like the more than 20,000 other floodprone communities around the nation. But it has changed.

In the past, it was one of the many communities, perhaps like your own, living in fear of flooding; experiencing periodic damage to homes, businesses and industries; and bearing the costs of rescue and relief operations during flooding, and cleanup afterwards. Its business owners suffered a loss of trade and income during floods; its tax base was eroded by the deterioration of floodplain buildings. And its quality-of-life, enthusiasm and hopes for the future were dampened by the threat of disaster.

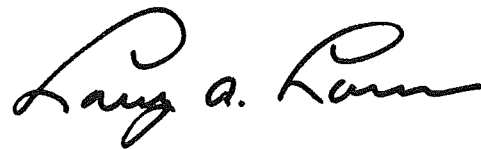
What makes Soldiers Grove different? Its people reached a point of deciding to stop being victims and to begin taking control of their future. The villagers undertook a comprehensive planning process which has ended in the successful relocation of their floodplain buildings to higher ground.

Although they used federal funds to pay for 60 percent of the project, the initiative was local. The plan was designed ultimately to save money for the national taxpayer by removing the community permanently from the rolls of flood disaster victims seeking government relief.

If your community has reached a similar point of change, we hope this booklet will help you decide what you can do. It will help you realize that the solution to flooding rests primarily in your community, and that you and your neighbors can become involved in preparing a disaster prevention plan and carrying it out. This case history will identify obstacles you may encounter along the way, and what you can do about them.

The booklet points out the need for pre-disaster planning. Don't wait for your community to be flooded. With a plan developed, you may be able to implement some parts or all of it before a disaster strikes. You'll see that a broad-based plan to solve flooding problems can also address your other community goals and needs.

Most importantly, the Soldiers Grove story will explain that solving flood problems can become the beginning of a better life for the people of your community. We hope you find the booklet useful, that it stimulates ideas and sparks your resolve to begin creating a safer, drier future.



Larry A. Larson, Chief  
Floodplain/Shoreland Management Section  
Wisconsin Department of Natural Resources

# Introduction

There are 7 million buildings prone to flooding in the United States. If you own one of them, you may want to take the following quiz. Answer "true" or "false" to each question.

1. The value of my building has declined because of flood damages in the past.  True  False
2. My building is worth less on the market than comparable buildings in flood-free areas.  True  False
3. I live or work under constant threat that a flood will disrupt my life or my business.  True  False
4. The prospect of flooding means constant danger to my life and my property.  True  False

5. The spirit of investment, growth and development in my floodplain neighborhood has been dampened by the prospect of floods.  True  False
6. There's nothing I can do about any of the above.  True  False

Most floodplain property owners would have to answer "true" to the first five statements. But for virtually all owners of floodprone buildings, the sixth statement is false. There are ways that you and your neighbors can begin to end your jeopardy to flooding.

You are aware of the reasons a flood-free future would be good for you and your neighbors. You may be less aware, however, why flooding is a problem of national dimensions. As much as



*Floods affect over 20,000 communities in the United States. Despite our ability to define floodprone areas, floods continue to claim an average of 180 lives per year and cause \$2 billion to \$3 billion in property damages.*

8 percent of the nation's land — roughly 180 million acres — is subject to periodic flooding. That acreage includes parts of more than 20,000 communities.<sup>1</sup>

During the past 50 years, the federal government has spent some \$13 billion to build dams, levees and other structures for flood protection.<sup>2</sup> But in recent years, it has become apparent that the "structural strategy" isn't working. Floods continue to cause nearly \$4 billion each year in property damages, and the cost is growing.<sup>3</sup>

Even more serious is the toll in human life. Between 1925 and 1970, floods killed 3,738 people. Currently, they kill an average of 180 people each year.<sup>4</sup> Despite our best efforts to "control" floods, flooding remains the nation's Number 1 weather-related killer.

Many floodplain building owners and communities are asking what they can do to end the danger and the economic decline caused or aggravated by floods. One such community is the small Wisconsin village of Soldiers Grove. After 75 years of chronic low-level flooding and several true disasters, the residents of the community came up with an unusual proposal. They decided to evacuate the banks of the Kickapoo River and to rebuild their floodplain neighborhood — including 10 homes and the entire central business district — on higher ground.

On the fringe of the floodplain, the villagers are floodproofing 12 additional homes by raising them atop earthen fill and new foundations. The old floodplain, strictly zoned to prevent future construction, is being developed into a large municipal park.

Conceived in 1975 and begun in 1979, the project has become a nationwide model of a new approach to preventing flood disasters — a "non-structural" approach which gives the floodplain back to the river and regulates people rather than nature.

If that seems like a simple and direct solution, it was not. It involved changing peoples' lives and habits — always a touchy business. It involved a struggle against 40 years of federal bias towards dams, levees and other engineering works.



*Soldiers Grove is located in southwestern Wisconsin. The area was not covered by the last glacier, and so has very steep hills and narrow valleys.*

But if Soldiers Grove was one of the first communities to try its approach, it will not be the last. A number of factors (described later in this booklet) indicate that a growing number of floodplain communities will try similar solutions in the future.

For the benefit of those communities and their people, this booklet describes why relocation was proposed in Soldiers Grove, how it was carried out, and the barriers the tiny community had to overcome along the way.

The booklet describes too the lessons that may be drawn from the Soldiers Grove experience. Chief among them is that flooding — the worst curse of many communities in the nation — can also be the greatest incentive for action. For the southwest Wisconsin village, a flood disaster became the catalyst that pushed the people into building a secure and exciting future.

# Chapter One: Struggling with Rivers

To understand what has happened at Soldiers Grove (and perhaps to understand the options facing your community), it's necessary to review briefly the history of flooding in the United States, and the government's response to it.

Most of this century, the nation has been engaged in a struggle with its rivers. It undoubtedly has been a struggle that no one really wanted. Nevertheless, it has grown year by year more expensive and wasteful.

It's likely that few, if any, floodprone communities consciously decided to build in the paths of rivers. There have been floods as long as there have been rivers. But a flood is not a hazard until human concerns — lives, homes, businesses, or farm crops — are disrupted.

The typical river town was founded before there was a known history of flooding; before farmers and loggers cleared upriver land to increase runoff; before the installation of roads, buildings, parking lots and other "urban" developments sent water cascading into rivers, causing more and more frequent flooding.

But gradually, a pattern of flooding could be seen. And gradually, what had been regarded as a local problem came to be seen as a national problem, requiring the involvement of the federal government. In 1917, the government took its first step to shoulder responsibility for preventing flood disasters. Congress gave the U.S. Army Corps of Engineers the job of constructing levees to protect floodprone property along the Sacramento River.

In 1927, floods along the lower Mississippi River inundated 10 million acres of land in six states, causing \$284 million in property losses and claiming 313 lives. Congress responded with the Lower Mississippi Flood Control Act of 1928, giving the federal government primary responsibility for

construction of levees and the building of diversion floodways in the region.

In the 1930s, after major floods throughout the East and Midwest, the government finally assumed nationwide responsibility for "flood control." Congress passed the National Flood Control Acts of 1936 and 1938, giving the U.S. Army Corps of Engineers the job of taming the nation's rivers to end the flooding problem.

These new laws revealed several things about how national leaders viewed the flooding problem. First, they saw rivers as adversaries. In effect, the Army was ordered to make war on riverine ecosystems. Second, they saw floods not as a people problem, but a river problem. Rather than limiting settlement of the floodplains, rivers would be controlled so people could continue living, working and building along them. Third, flooding was not an environmental problem, but an engineering problem. Rather than discovering and repairing the environmental causes of severe flooding, Army engineers would be sent to reshape and dam rivers with bulldozers.

With the flood control acts of the 1930s began the first of three eras in national flood policy — the structural era. Riverine ecosystems were "controlled" with dams, levees, channelization projects and other engineering works.

## Problems with Structures

By the mid-1960s, more than 260 flood-storage reservoirs, 6,000 miles of levees and flood walls and 8,000 miles of river-channel "improvements" had been built around the country, at a cost to taxpayers of between \$10 billion and \$13 billion.<sup>5</sup>

Yet despite this massive investment, the money paid out by the federal government in post-flood disaster assistance grew to \$237 million annually by



1965, and was climbing.<sup>6</sup> Floods continued to claim record amounts of lives and property. It became clear that the war against the nation's rivers was being lost.

Water resource experts looked into this disturbing set of facts. They predicted that flood damages would grow even if dam-building continued. The latest estimate is that federal costs related to flood disasters will climb to \$5 billion annually by 1985.<sup>7</sup>

Why? It appears that in some cases, structures actually increase flooding by altering water flows upstream and downstream. In other cases, people are lulled into a false sense of security by structures and continue building in floodplains, assuming they are protected by a nearby dam or levee. In too many cases that assumption has turned out to be false. Rain falls below rather than above a dam; or rainfalls exceed expectations so that levees and dams are topped. In other cases, structures fail because of improper design or construction, or physical deterioration, causing disasters worse than those they had been built to prevent.

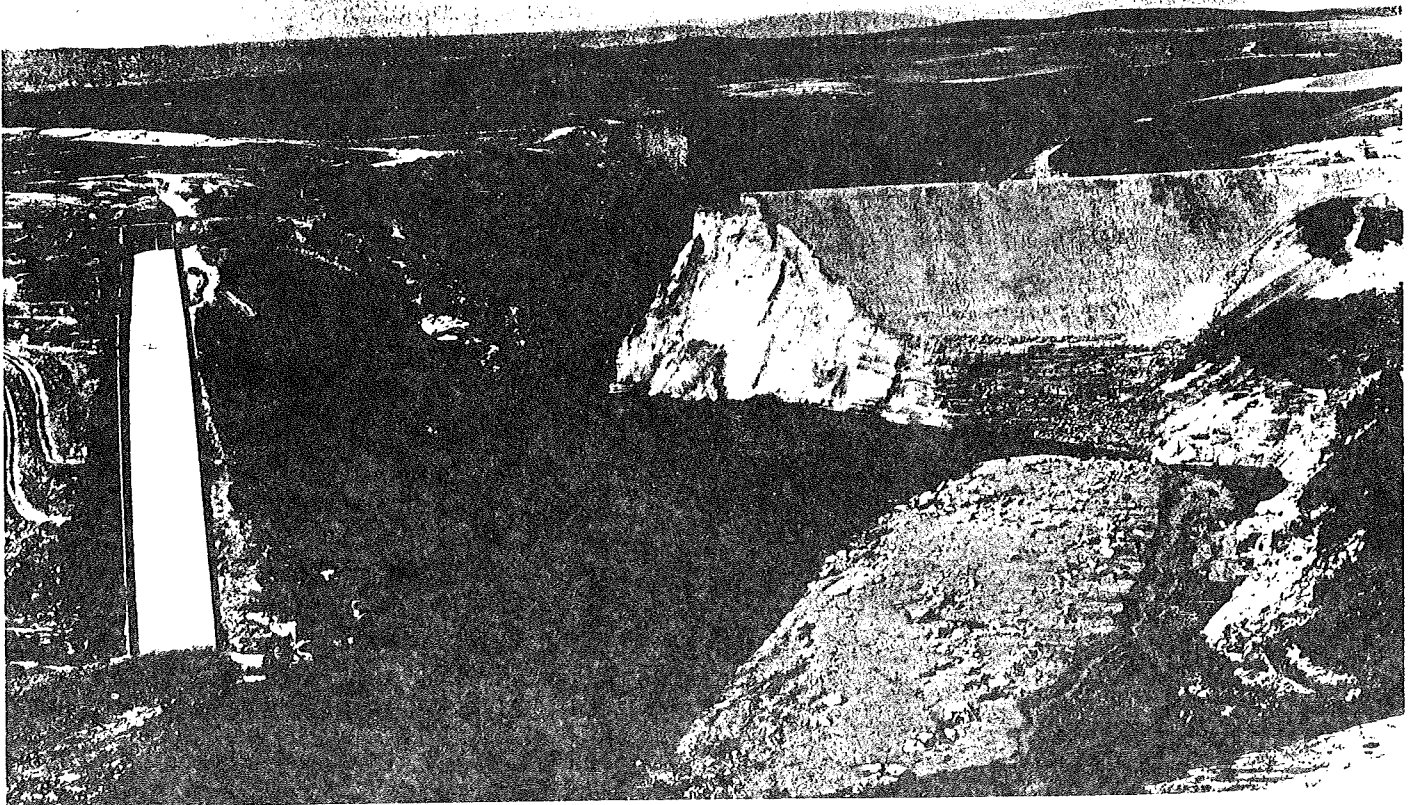
The 1970s brought several tragic examples. Among the most dramatic was the June 9, 1972, disaster at Rapid City, South Dakota. The city was "protected" by two upstream dams; but an unusually heavy rainfall dumped 14 inches of water

within two hours into the Black Hills above Rapid City. Nearly 240 people were killed; 720 homes were destroyed and 1,400 damaged. Damages reached \$500 million.

Similar disasters happened in the structure-protected communities of Jackson, Mississippi (1979); Buffalo Creek, West Virginia (1972); Idaho Falls, Idaho (1976) and Johnstown, Pennsylvania (1972), which the Corps had declared a "flood-free" community because of structures. Together these communities suffered hundreds of deaths, thousands of injuries and billions of dollars in property damages.

The Idaho disaster, in which the failure of the Teton Dam cost 11 lives and more than \$350 million in damage payments by the federal government, spurred the federal government to inspect its dams across the country. The inspections made it apparent that repair of deteriorating structures would become an increasingly expensive problem in times to come. Congress beefed up the nation's dam repair program in 1978; by 1982, it was considering increasing the authorization for dam repairs from \$100 million to \$650 million.

Another factor combined with these disturbing new realities to further erode the desirability of flood control structures. That was the growing



*The Teton Dam, a Bureau of Reclamation project, collapsed in 1976, killing 11 people and causing millions of dollars of damages. The dam's collapse illustrated, once again, that structural solutions to flood problems are not without inherent risks.*

environmental movement of the late 1960s and the 1970s. A new set of values began emerging. They held that human need and economics — until then the major considerations in deciding how to deal with flooding — must be weighed against the need to protect ecosystems. Environmentalists argued that warring against nature was warring against ourselves, because human well-being ultimately depends upon a healthy and stable environment.

In the late 1960s, Congress took those new arguments to heart, passing the National Environmental Policy Act, which for the first time gave environmentalists a powerful legal weapon to challenge and stop construction of flood control structures. Henceforth, flood control structures would have to be thoroughly analyzed to make sure they would not cause serious damage to the environment.

### **The Regulatory Era**

While dams and levees were being questioned in the 1960s, a new era began: the regulatory era. Water resource experts and Congress gradually decided it perhaps would be more effective to regulate people than rivers.

In 1968, Congress passed the National Flood Insurance Act, its first attempt to discourage unwise construction in floodplains. With revisions in the early 1970s, the Act goes like this: The federal government will help floodplain property owners buy flood insurance. (Previously only Lloyd's of London wrote flood insurance policies, and sometimes with premiums at up to 50% of the insured value.) Flood insurance will allow property owners to recover part of their equity if their buildings are damaged by floods. That is the carrot.

There are two sticks attached. First, in order to qualify for the subsidized insurance, floodplain property has to be covered by floodplain zoning. In other words, riverside communities have to pass ordinances prohibiting future construction in the direct path of a flood — the floodway. New construction is allowed in flood-time backwater areas (the flood fringe) only when it was "floodproofed." Floodproofing means that a building is protected from serious damage by construction and/or landscaping techniques.

Second, unless riverside property is covered by floodplain zoning, owners lose their eligibility for all grants and loans associated with the federal gov-

ernment. That means not only the popular federal programs like Farmers Home Administration and Veterans Administration loans, but even loans from federally insured lending institutions. That includes virtually all banks and savings-and-loan associations.

While floodplain zoning and enrollment in the federal flood insurance program got off to a slow start, an increasing number of communities and property owners are taking advantage of these programs.

### **Today's Options**

Today, the use of structures to control flooding is on the decline. The decline is, in part, a result of the Carter administration's opposition to wasteful projects. In 1977, Carter drew a "hit list" of projects he considered wasteful. In 1978, he announced a new national water policy aimed at making projects pass strict tests of cost-effectiveness and environmental soundness. Such efforts drew furious opposition in Congress, where dams had long been an important form of pork barrel projects. As Congress approved projects considered wasteful by the President, Carter used his veto. In the end, much of Carter's effort to steer national water policy away from its structural emphasis, as well as many of the congressional projects, bogged down.

More recently, as Congressional Quarterly reports, "What Carter failed to win in the policy arena, a soaring federal deficit and resulting new cost-consciousness seem to have accomplished in practice. The flood of water projects that used to roll through Congress unchecked has dried to a mere trickle."

The last time Congress passed an "omnibus" water projects authorization bill was 1976. Congressional appropriations of money to begin construction on projects already authorized were growing rare. In the mid-1960s, 30 or 40 major new starts per year were common; the 1982 rate dropped closer to half-a-dozen a year, Congressional Quarterly reported.<sup>8</sup>

The Corps of Engineers, in the spring of 1982, had a backlog of water projects (\$20 billion worth) approved by Congress, but not funded. Another \$32 billion worth of projects had been started, but were awaiting money for completion. Yet Congress was budgeting only \$1 billion to \$2 billion each

year for all water projects, new and continuing.<sup>9</sup> Thus, it appeared that clearing the backlog would take a very long time.

Another policy resulting from tight finances was dimming the appeal of flood control structures for many communities as the 1980s began: a movement in Washington for far higher monetary contributions from communities wanting a project. Traditionally in structural projects, the federal government has paid between 80 and 100 percent of the costs. But as part of the 1983 federal budget, the Corps of Engineers proposed that nine new water projects receive only 21-percent federal funding, with the remaining 79 percent put up by state, local and private sources. Further, the Corps suggested that communities be required to pay their shares "up front," before construction began, so that the federal government would not have the burden of financing the local share at low interest rates over long periods of time.

A final factor bode ill for communities thinking of going to the federal government for flood control structures. The growing number of people, businesses and industries locating in the water-poor

Western states made it likely that in the fierce competition for scarce federal dollars, water projects to transport and store water in those regions would fare better than flood control structures.

All of these factors gradually have made "nonstructural" remedies more appealing. In communities across the country, it is likely that zoning, floodproofing, flood forecasting and other such measures will become attractive alternatives to the more traditional dams and levees.

Many communities already are making use of one or more of the nonstructural options. Some have gone even further, embarking perhaps on a fourth era in national water policy. In some places, people are choosing to leave the floodplain and return it to a condition approaching its natural state. Soldiers Grove has become one of the pioneers of this new strategy, but it did not move into that role overnight. Its history has closely followed, and been intertwined with the changing national philosophy about the relationship between rivers and people.

### Milestones

1917	Corps authorized to construct levees along Sacramento River
1927	10 million acres along Mississippi River are flooded — 313 people die
1928	Lower Mississippi Flood Control Act
1935-1938	Series of devastating floods hit Kansas, Upper Susquehanna, Ohio, and Middle Mississippi Rivers
1936 & 1938	National Flood Control Acts give Army Corps of Engineers responsibility for flood control — "structural era" begins
1968	National Environmental Policy Act
1968	National Flood Insurance Act; flood insurance available in communities with zoned floodplains — "regulatory era" begins
1972	"The Year of the Flood;" dam fails at Rapid City, South Dakota — 240 people killed; Hurricane Agnes causes extensive damage on East Coast
1978	President Carter declares new national water policy — "nonstructural era" begins

*Notice the ties between large-scale disasters and legislative initiatives. Federal actions to prevent damages have consistently been "reactive," post-disaster efforts. Political ripeness for action is greatly increased in the wake of dramatic flood losses.*

## Chapter Two: The Problem

It was 7:30 a.m. on Saturday morning, July 21, 1951. Mabel Shepard was asleep in her bedroom on the first floor of her family home on Main Street, Soldiers Grove.

She awoke suddenly, her mother shaking her by the shoulders. Mabel climbed out of bed still half-asleep and found herself standing ankle deep in water. The Kickapoo River was flooding.

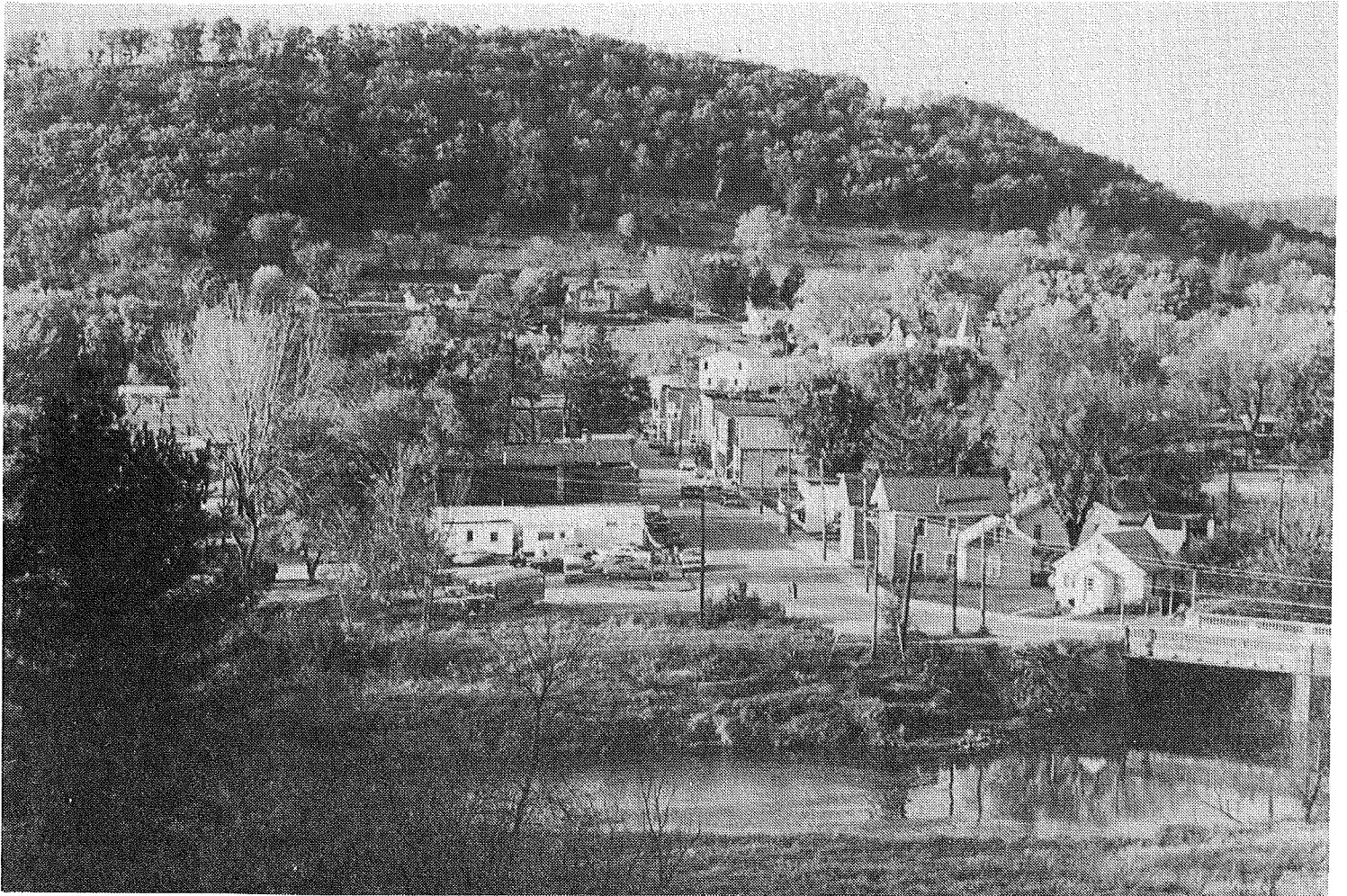
Mabel, her mother and two other elderly women staying at the home gathered in the living room. The women watched in horror as the force of the floodwaters ripped away the kitchen, located in a small addition to the house. The water continued rising quickly, and the women retreated to the second story of the house.

Soon, the water was lapping at the windowsill and seeping through the floorboards of the upstairs room where the four women huddled. Then, they felt the entire house jerk and begin to move. With incredible power, the floodwaters surging down Main Street lifted the house off its foundation and began carrying it away.

Mercifully, the house traveled only about 20 feet before lodging against a large tree. Mabel wasn't sure how long the reprieve would last. She considered making a rope from sheets and tying it to the tree, thinking the women might climb into the branches to await rescue. But before she could implement the risky plan, an aluminum motor boat struggled to the window. Its pilots, a banker and a



*The July 1951 flood on the Kickapoo River lifted this house off its foundation and lodged it against a tree. Mabel Shepard, her mother and two other women were rescued from a second-story window.*



*In the past, Soldiers Grove was much like many other floodprone, rural villages around the country. But the villagers have decided to stop being victims and to begin taking control of their future.*

newspaperman from nearby communities, coaxed the ladies one by one into the boat.

“With fear, I stepped from the upstairs window into the swirling rescue boat,” Mabel’s mother later told a reporter. “It was then I resolved never again to complain about material things.”

The Kickapoo River, usually no bigger than an oversized stream meandering through downtown Soldiers Grove, had swollen from eight inches of rainfall that fell the night before. It surged through the downtown with such force that automobiles were tumbled side-over-side; doors and windows were blown out of buildings as though dynamited.

It was not Soldiers Grove’s first flood, and it would not be the last. But so far, it was the village’s worst flood disaster, a rude and dangerous reminder of the perils of living in the path of a river.

Mabel Shepard’s story was not unusual. Dozens of people in Soldiers Grove could tell similar tales of narrowly escaping death during one flood or another. Townspeople in the small southwestern Wisconsin village drew lines inside their buildings to show where the high-water mark had been during the worst of the community’s floods. Tales of heroism, of narrow escapes, of community cooperation in cleaning up muck and debris in the aftermath of the Kickapoo’s uprisings, were part of the village lore.

The floods were also one of the reasons Soldiers Grove had turned from a thriving agricultural settlement early in the century into a waterlogged, economically depressed village of 514 people in the 1970s.

## Unintentional Jeopardy

Like many riverside communities around the nation, the folks who founded Soldiers Grove had not knowingly developed their village in a floodplain. In 1857, a man named Joseph Brightman built a sawmill on the banks of the Kickapoo. The river supplied mechanical power and floated logs to the mill from upriver, where loggers harvested trees from the Kickapoo Valley's hilly, heavily wooded terrain. Brightman's mill gradually became the nucleus of a town. By 1888, the settlement — with its own post office and about 300 citizens — incorporated.

At the turn of the century, the villagers' dependence upon the river deepened. Two enterprising businessmen built the Kickapoo Valley's first hydroelectric plant, furnishing electricity to the hamlet. The river was seen as a friend, a provider of power, a means of transportation, a natural highway linking the village with other parts of the valley.

No one remembers any flooding in the early years of the community's life. But gradually, as loggers cleared the upstream terrain, the watershed's ability to absorb rainfalls and snow melts diminished. Eroded soil carried by the runoff settled in the Kickapoo's riverbed so that it could not contain as much water. The village's first recorded flood occurred in 1907. More floods hit in 1912 and 1917.

As highways, parking lots, streets and buildings were constructed in the Kickapoo Valley watershed, they too contributed to runoff by covering up the earth so it could not easily absorb water.

The first flood which would be classified as a disaster hit in 1935, severely damaging buildings in Soldiers Grove and the Kickapoo Valley's other riverside communities. Valley residents finally realized that flooding was a permanent and serious problem.

## Appeal for Help

Soldiers Grove and several other Kickapoo communities petitioned Congress in the late 1930s for a flood control project. Congress ordered the Corps of Engineers to study flood control options in the valley.

Interrupted by World War II and the Korean War, then spurred by the 1951 flood, those studies

continued for nearly 30 years. Finally, in 1962, Congress authorized the Corps to build a dam and recreational lake 36 miles upriver from Soldiers Grove. Since the dam was so far away, it would protect only about nine percent of Soldiers Grove's floodplain land. The Corps proposed that a levee be built around the village.

It took several more years before the Corps of Engineers began purchasing farmland for the new dam and lake and preparing it for construction. But by the time the work began in 1969, environmental consciousness was growing strong around the nation and Congress had passed the National Environmental Policy Act. Environmentalists quickly challenged the Kickapoo River dam, alleging in a lawsuit that the Corps had not done sufficient environmental impact studies on the project.

The controversy intensified between 1970 and 1975. Although environmentalists were unsuccessful in their lawsuits, their objections forced several reviews of the project and eventually encouraged the Governor and the members of Wisconsin's congressional delegation to begin questioning the dam.

Meanwhile, the Corps continued work, spending more than \$18 million on land purchases and construction of the dam itself.<sup>10</sup>

## Currents of Change

In 1974, state and federal officials began pressuring Soldiers Grove to pass a floodplain zoning ordinance, or face a cutoff of federal grants and loans within the floodplain.

For communities with few or relatively unimportant buildings in the floodplain, the national zoning law wasn't much of a hardship. But in Soldiers Grove, it hurt. The village's entire central business district — including nearly 40 commercial and municipal buildings — and 22 residences were in the floodplain. Floodplain zoning could mean the death of the community's economic heart.

As required in Wisconsin, the ordinance in Soldiers Grove would limit major repairs and modifications of downtown buildings to half their market value at the time the ordinance passed. For example, a building worth \$30,000 could receive only \$15,000 in repairs, a small allowance considering that the buildings were old, high-maintenance structures.

In many cases, that limit would be surpassed immediately if another flood hit, or a building was damaged by fire. When that happened, the buildings could not be repaired. The limit also would affect major maintenance of the buildings. It meant that once the ceiling on major repairs was reached, buildings would have to be allowed to deteriorate.

The villagers viewed floodplain zoning as even more threatening than the Kickapoo River. Nevertheless, in January 1975, the village passed floodplain zoning under protest, hoping that the dam and levee would be completed, and floodplain zoning eventually could be removed.

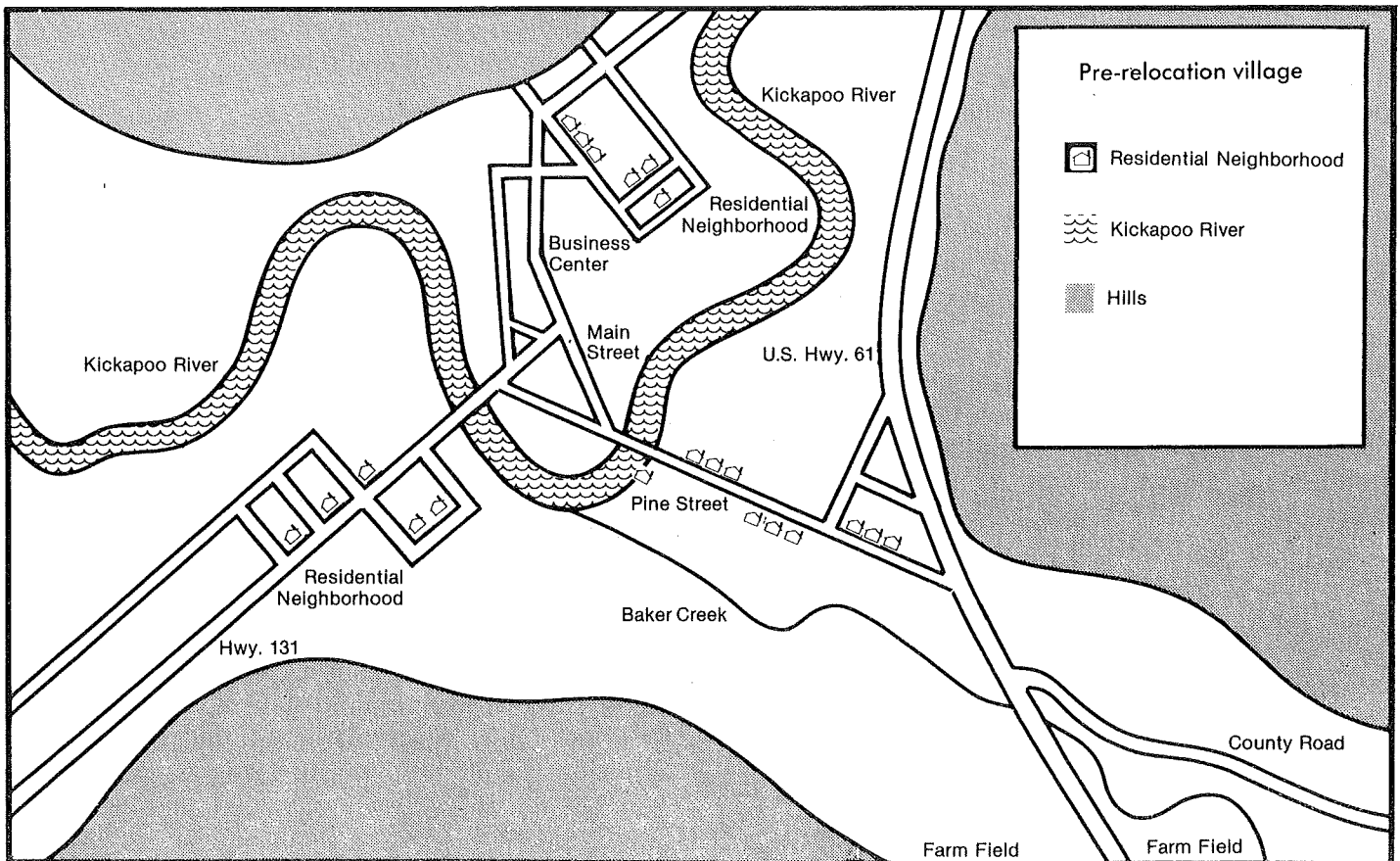
### Disillusionment

But that hope was quickly shattered. Shortly after the village passed its floodplain zoning ordinance, the Army Corps of Engineers came to town to present the details of its long-awaited levee plan for Soldiers Grove. The Corps reported the levee would cost \$3.5 million (in 1975 dollars). The village would have to pay \$220,000 toward construction. Further, the community would be responsible for maintaining the structure over its

100-year life, at a cost of about \$10,000 annually (not counting inflation).

There were several problems with the plan. First, growing opposition to the dam made it possible the dam, and therefore the levee too, would never be built. Second, Soldiers Grove's entire tax levy amounted to only \$14,000 a year. It would have to be nearly doubled to pay for levee maintenance. Third, the last assessment of the village's floodplain property had placed its value at less than \$1 million. It made little sense to spend \$3.5 million to protect less than \$1-million worth of property.

Finally, it occurred to the villagers that the large investment in a levee might end flooding, but it would not solve the community's other serious problems. Soldiers Grove's population had peaked in 1940 at 778. Since, the population and the economy had been on the decline. The nationwide drain of money and people from rural to urban areas was part of the problem. Flooding was another. A key third factor was that, in the 1950s, U.S. Highway 61 had been moved to bypass the Soldiers Grove business district. The highway,



As this map shows, Soldiers Grove's original business district was located within a horseshoe bend of the Kickapoo River.

which used to run along Main Street, was relocated a half-mile to the east. Downtown business had not been the same since.

By 1975, these factors helped create a local economy in which 36 percent of the village's families earned less than \$3,000 a year. Soldiers Grove had become a community largely of elderly and low-income people. A levee, for all its cost, would do little to change that. As one business owner put it, "A levee would turn us from a dying town subject to flooding into a dying town protected from flooding."

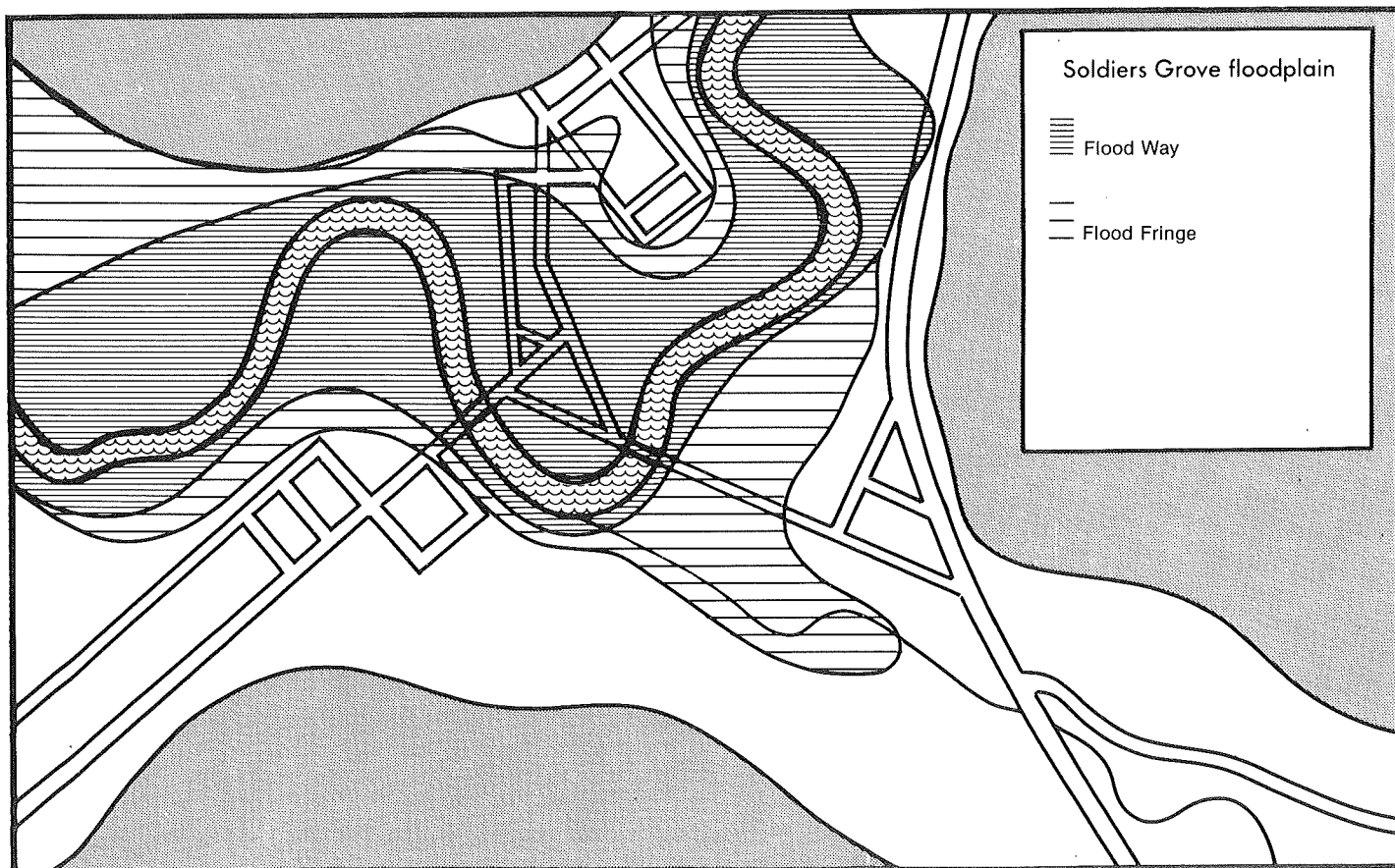
The federal government had handed the community two choices: do nothing, and let floodplain zoning and the Kickapoo River take their toll; or build an expensive levee not worth its cost. Unsatisfied with either, the villagers applied common sense and their own perspective to the problem. They invented a third choice. Why not ask the Corps of Engineers to consider a more sensible approach: a coordinated relocation of the downtown to higher ground?

## Taking the Challenge

In its environmental impact analysis of the dam project, the Corps of Engineers had dismissed relocation as "socially unacceptable." Elsewhere in the nation, a few communities had tried evacuating their floodplains. But few floodplain residents and business owners had volunteered to move, and few if any projects had involved the reconstruction of an entire central business district.

Yet the idea made sense for a number of reasons:

- By the Corps' estimates, Soldiers Grove suffered average annual flood damages of \$127,000.<sup>11</sup> Thus, based on the elimination of flood damages and a federal cost equal to the \$3.5-million investment for a levee, relocation would pay for itself in 27.5 years. That was considerably better than the 100-year payoff considered economical in most structural flood control projects.
- Unlike with the levee option, relocation would give the villagers an opportunity to rebuild the most blighted section of the community.



*Soldiers Grove's entire central business district—40 commercial and municipal buildings—and 22 residences were located in the floodplain before the relocation project began.*



## RELOCATION



An Alternative For The Village of Soldiers Grove

*When the Corps of Engineers' levee plan proved too expensive, village residents proposed that the most floodprone buildings be moved. Petitions were circulated and the newspaper publisher drafted a report outlining the community's three options: do nothing, build levees or relocate.*

- In an organized relocation, the village probably would retain more of its businesses than it would under a long-term evacuation caused by continued flooding and floodplain zoning restrictions. Soldiers Grove could not afford to lose many businesses. A project marshalling community spirit to create a new town center would minimize the migration of businesses away from the village.
- If business owners could afford the move, the construction of a new downtown would allow modernization of the village's decaying commercial facilities and would improve the tax base.
- A modernized business district and the elimination of the stigma of flooding could breathe new economic life into the community, particularly if the business district could be moved back to U.S. Highway 61.
- Unlike any structure, relocation was 100-percent effective. The village would not have to worry about structural failure, maintenance or gradual deterioration of a dam or levee.

A handful of villagers thought it was a good idea to study whether relocation was feasible. But would villagers ever support such a plan? To find out, one floodplain businesswoman circulated a petition asking the Corps of Engineers to give relocation thorough study as an alternative to the proposed levee. Thirty of the 39 owners of commercial floodplain property signed. So did 15 of the 22 owners of floodplain homes and five of the seven members of the Village Board. The petition undermined the Corps' assertion that relocation would be socially unacceptable.

The publisher of the community newspaper drafted a 13-page report outlining the community's three options: do nothing, build a levee or relocate. He argued that relocation seemed the only sensible option. With the blessing of Village President Cecil Turk and the Village Board, the report was submitted to the Corps of Engineers in late January, 1975, with a formal request that the engineers study the possibility of substituting a move for a levee.

Two months later, the Corps responded that if the villagers wished it, relocation could be substituted. Federal policy allowed the engineers to replace structural projects with nonstructural measures when such a switch was economical.

But shortly after the engineers agreed, Soldiers Grove received bad news. New studies showed the Kickapoo River dam and lake would endanger several colonies of rare plants and that the lake would soon suffer from severe pollution problems caused by manure- and fertilizer-laden runoff from surrounding farm fields. A number of congressmen and federal and state agencies joined environmentalists in pressing for a halt to the project. In the summer of 1975, the Corps of Engineers announced it would pull out of the Kickapoo Valley. It would no longer work on the dam or its related efforts at Soldiers Grove.

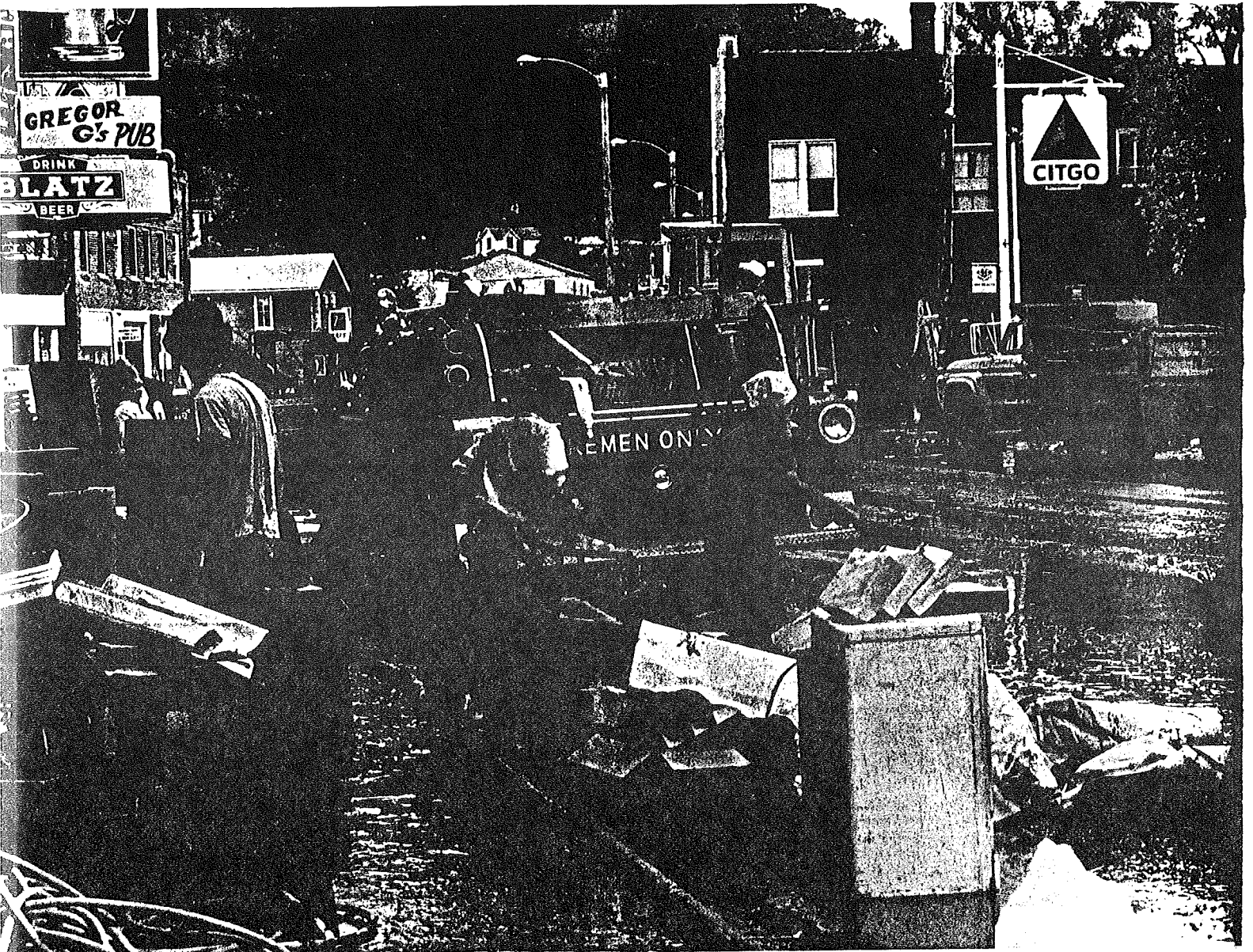
That would be no simple task. The low-income community could not accomplish relocation without technical and financial help from the government. The village knew little about how to seek federal grants, or the complicated federal bureaucracy. Yet Turk and a few downtown business owners were convinced that relocation would prove to be the only sensible and effective path to a secure future for the community. They decided to continue researching relocation, without the Corps' help.

### Key Decision

Thus, if Soldiers Grove wished to end its long history of flood disasters, it would have to do it without the convenient assistance of the government's chief flood control agency. Worse, it would have to do so without the convenient single funding source provided by Congress' 1962 authorization of the Kickapoo River flood control project.

### Milestones

1907	Soldiers Grove's first recorded flood
1935	First flood disaster in Kickapoo Valley
1936	Valley requests flood control project
1951	Record flood disaster hits Soldiers Grove
1962	Congress authorizes LaFarge dam
1969	Corps begins work on dam
Fall 1974	Corps presents levee plan for Soldiers Grove
January 1975	Village passes floodplain zoning, proposes relocation
March 1975	Corps agrees to study relocation
June 1975	Corps announces moratorium on valley-wide project



*Floodplain residents tend to forget how much mud they shoveled from their floors after the last flood. The tendency for property owners to forget the trauma of flooding is a way to deny that floods are a problem in their community.*

## Floodplain Psychology

A common psychology affects people who live in floodplains, and who are confronted with the threat of flooding. Flood disasters are a signal from the environment that something is amiss in the relationship between people and their local ecosystem. If flooding is severe, it pressures people to change that relationship — and that means adjustments in their ways of thinking and behaving.

The Soldiers Grove experience indicates there are three characteristic stages of "floodplain psychology": denial, avoidance and acceptance.

**Denial.** The first response to flooding usually is to try to ignore it, and to deny that it is a long-term problem. Floodplain property owners tend to assume that each flood is a freak occurrence. After several, they may try to persuade themselves that something has changed to make future floods unlikely — upriver conservation practices, perhaps, or some other alteration in the watershed. Further, they are subject to "floodplain amnesia," the tendency to forget the trauma of flooding as time goes on and to remember mostly the positive experiences of the last disaster. They may remember how the community pulled together, or new friendships they formed, but forget how much mud they shoveled from their floors or the grief they felt when irreplaceable belongings were lost. Denial is a device for refusing to acknowledge a problem, and therefore, ignoring the need to do anything about it.

**Avoidance.** If flooding persists, its victims eventually are forced to admit that it may be a permanent problem, and that something may have to be done about it. Avoidance then sets

in. Through avoidance, victims attempt to shift responsibility for action to someone or something else. Typically, communities have asked Congress and the Corps of Engineers for flood control projects, thereby shifting the cost to the national taxpayer, the effort to the federal government and the trauma of change to the ecosystem. In the avoidance stage, floodplain residents admit they have a problem, but attempt to avoid direct responsibility for solving it.

**Acceptance.** When avoidance does not work (the federal government will not fund a project; a structure is killed by court action; or a structure is built, but fails), floodplain residents face a critical choice. They can regress to denial; they can choose to do nothing, hoping to withstand future floods; or, they can choose to take the responsibility of change upon themselves. In any case, they come under pressure to mature in their relationship with the river. The only paths forward are to consciously accept the liability for remaining in the floodplain, or to consciously and deliberately get out of the river's course.

Soldiers Grove has experienced all three stages. The villagers denied that flooding was a problem until their first major disaster in 1935. Then they practiced avoidance, asking Congress to assume responsibility for flood control. When the Kickapoo Valley dam project was halted in 1975, the villagers moved into the acceptance stage, proposing a solution (relocation) in which they would take control of the flooding problem and assume as much as possible of the burden for ending their history of flood disasters.

**At which stage are the people in your community?**

## Chapter Three: Hopes, Fears and Planning

Soldiers Grove took its first concrete step toward relocation in March 1975. It won a small CETA (Federal Comprehensive Employment and Training Act) grant from the county and hired a full-time "relocation coordinator."

To take over central responsibility for the infant proposal, the Village Board hired Tom Hirsch, an architect and community planning specialist who had moved from Chicago to the Kickapoo Valley five years before. The designation of a single person to coordinate study and planning full-time was a symbol of the community's seriousness. Further, as months went by, it turned out to be extremely valuable in helping the many groups, agencies and local citizens who would become involved know where to go with questions, suggestions and concerns.

Because Hirsch was an "outsider" who might have difficulty dealing with local people on so sensitive an issue, and because village leaders wanted to spread responsibility for the plan, the Village Board formed a Citizens' Planning Committee to advise it on the project. One of the committee's first jobs was to conduct a door-to-door survey to learn more about what people wanted for the community's future and what they felt were key local problems. This information was vital, village leaders felt, if relocation was to be made the best possible project.

The survey found some obvious and some not-so-obvious sentiments. People wanted a prosperous future for themselves and their children. Soldiers Grove had been an economically depressed community for too many years; too many young people had left in search of better jobs. Most people wanted additional recreational opportunities, particularly for teens and senior citizens. Most wanted a greater variety of commercial services so they didn't have to drive to larger com-

munities for prescription drugs, clothing and other items not available in the village.

Many floodplain building owners had a substantial part of their life savings tied up in their buildings. They wanted to recover their equity. Village leaders wanted a healthy tax base so the community could continue providing adequate public services.

It seemed reasonable that a well-designed relocation plan could help meet all these needs and desires to some extent. In fact, it seemed that relocation could become the catalyst for a comprehensive effort to revitalize the community.

The survey also uncovered some initial local apprehensions about relocating. People feared the project would make their taxes increase. People outside the floodplain denied that flooding was all that serious a problem, and viewed relocation as a boondoggle.

Given the frustrating experience with the dam, many people expected relocation would take decades, or that it might never be completed because of the unpredictability of national politics and the federal government.

Like people everywhere, the villagers were afraid to change and take risks. It was clear that village leaders would have to work as hard inside the community as they would among government agencies on the outside to build support for such a plan.

### Serious Planning

With a sense of direction provided by the survey, Hirsch and the citizens committee began work on the next steps. Soldiers Grove needed expert confirmation that relocation was sensible. If

the move was confirmed as sensible, the village would need a broad plan for accomplishing it.

In early 1975, the village won a \$4,000 planning grant from the Mississippi River Regional Planning Commission. The money would be used to reaffirm the viability of the relocation concept. As soon as Hirsch came on board, he set to work with a team from the University of Wisconsin, contracted at bargain-basement prices to do a feasibility study.

The team was made up of three university professors — a landscape architect, an expert in real estate development and a business specialist — plus a number of graduate and undergraduate students in landscape architecture, who participated in the study for credit. They identified three possible relocation sites within the village limits, each large enough to accommodate a new central business district.

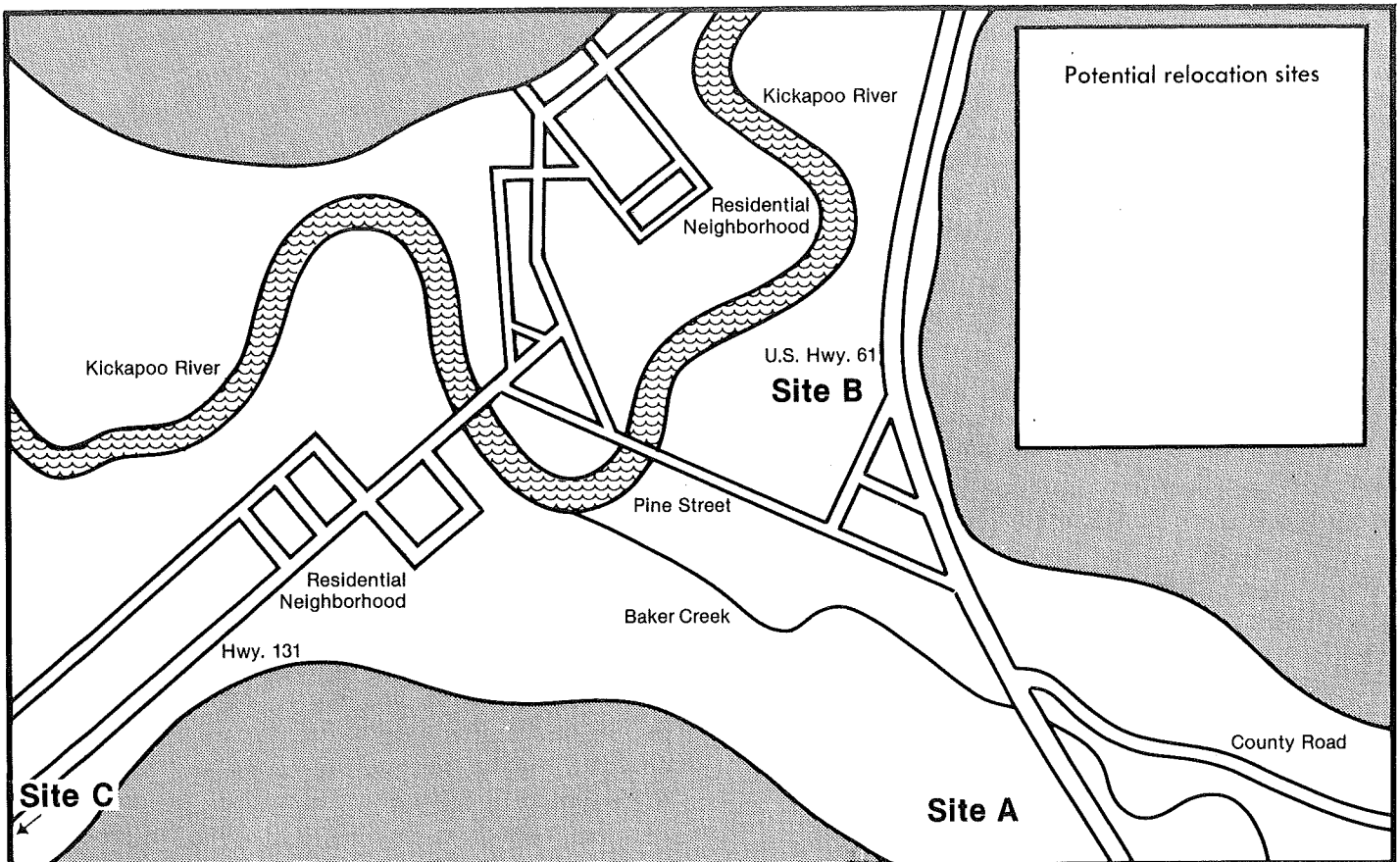
More importantly, however, the team reviewed the community's options and came to the same conclusion as many of the villagers: the community's only viable alternative was to relocate. That "expert testimony" gave the village the ammunition

it needed to initiate formal applications for state and federal funding.

The study also suggested the broad outlines of relocation. Thirty-six businesses, three municipal facilities and 22 homes in the floodplain would be evacuated. So the floodplain would retain economic value, it would be planted with native floodplain vegetation and converted into a municipal park.

A new business district would be constructed from the ground-up at one of the three relocation sites. Totally new construction would be necessary because most of the floodplain structures either were not worth moving or were built in such a way that they could not be moved. The rest of the village — three major neighborhoods surrounding the old downtown — would not be moved, since they were not in the floodplain.

In effect, relocation would be a community heart transplant. The heart of the town — its retail stores, government buildings and service businesses — would be transplanted from the center of the village to higher ground. And as with a real heart transplant, chances were the patient would not sur-



A study team from the University of Wisconsin identified three possible relocation sites within the village limits. "Site A" ultimately became the single relocation site.

vive without the operation.

Although they could not accurately anticipate all the costs involved with relocation, the UW team made a rough estimate in its October 1975 report to the village that the move could be accomplished for about \$3 million. The report estimated, however, that each year the project was not begun, inflation would drive up its costs 12.5 percent.

The team offered a final suggestion: that the municipal government and the business owners work as a team to accomplish the move. Such a partnership would allow the municipality to become the conduit of government funds for developing the new business district. The private/municipal partnership would help lower the moving costs for business owners, increasing the likelihood that most of them would participate in relocation rather than go out of business or leave town to reestablish elsewhere.

### Financing Relocation

In mid-1976, Soldiers Grove took two more steps. With a \$2,700 grant from the Wisconsin Division of State Planning and Energy, the village hired a University of Wisconsin graduate student to do a study of the environmental and social consequences of relocation. A study of social impacts was important because the major consequences of relocation clearly would be social. The village willingly undertook these studies because they were vital to good planning.

Secondly, the village used a \$13,200 community development grant from the state to hire a private consulting firm (Laufenberg Research and Development Institute Inc., of Chippewa Falls, Wisconsin) to propose how relocation could be implemented. The grant funded only 80 percent of the study's cost, so Hirsch collected the rest (\$3,300) from increasingly committed floodplain business owners. The study reaffirmed the UW team's findings, and outlined how the move might be financed.

Once again outside consultants confirmed that relocation was the only sensible choice. They outlined the following financing strategy:

- The village would use government grants to pay fair-market value for the floodplain homes and businesses, allowing property owners to recover their equity and build on higher

ground. Once it was owned by the village, the floodplain land would become part of the municipal riverside park suggested by the University of Wisconsin team. The newly acquired open space would retain economic value as a recreational facility for local residents and for Kickapoo River canoeists who would stop at the village to camp, restock their supplies or buy refreshments. The floodplain would remain strictly zoned to prevent future construction of buildings easily damaged by floods.

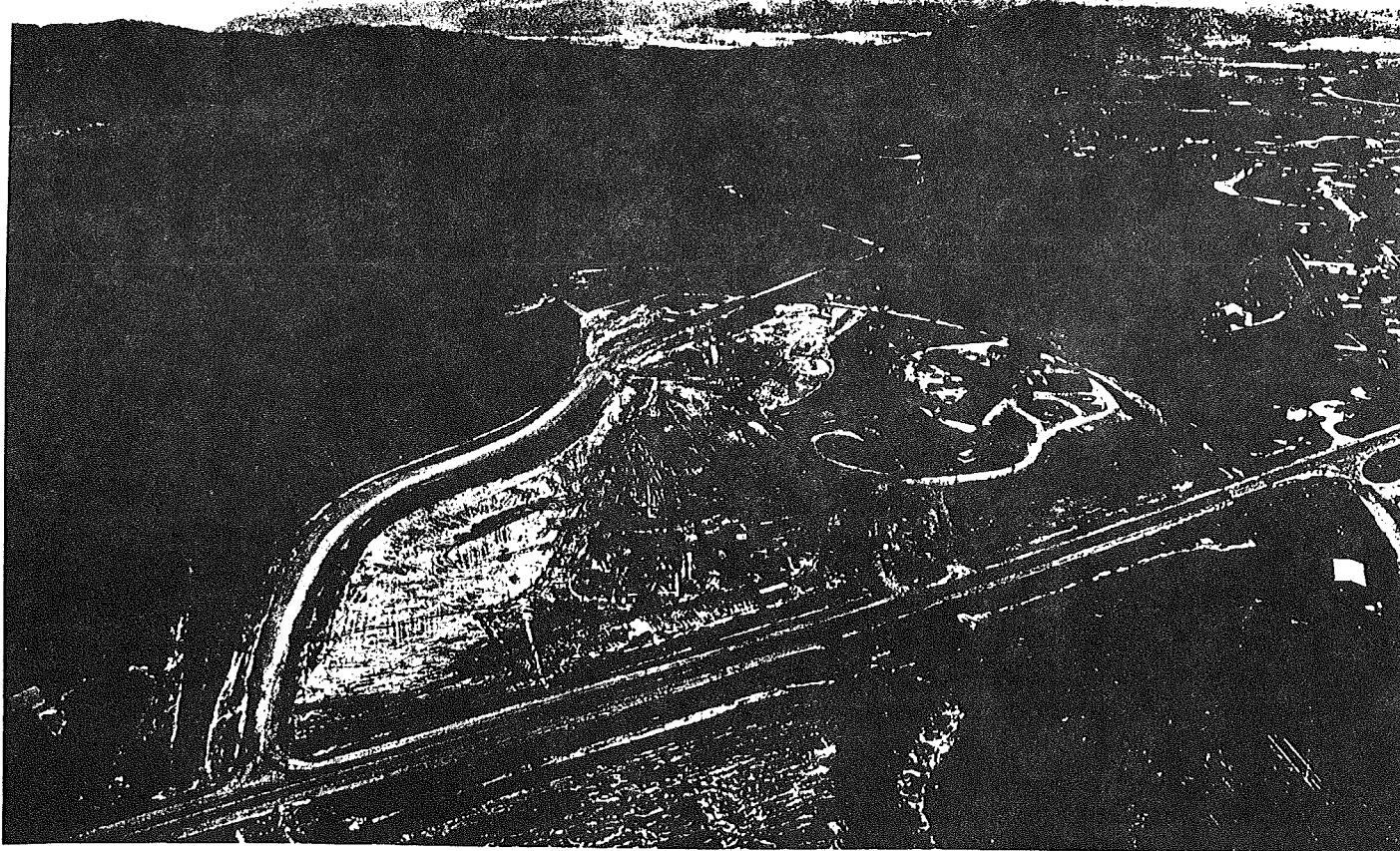
- The village would use additional grant money to comply with Wisconsin law requiring the payment of "relocation benefits" to those displaced by government projects. State law requires that a municipality pay some or all of the difference between the purchase price of a property, and the cost of replacing that building with a "decent, safe and sanitary" facility of comparable size and construction. The maximum payment was \$50,000 for businesses and \$15,000 for homes. Thus, the village would offer the community's marginal-income businesspeople and homeowners substantial help in reestablishing themselves, help that would be critical in making the move financially possible and socially acceptable.

*As an example, take the case of a business owner needing \$200,000 to construct a new building comparable in size to his floodplain structure valued at \$50,000. The municipality would purchase the floodplain building for \$50,000, then pay the owner the maximum of \$50,000 in relocation benefits. The owner, with \$100,000 in hand, would privately finance the balance — \$100,000 — needed for construction. While such an arrangement most often would mean new indebtedness for the business owners, it would allow them to recover their equity from the old floodprone structures and obtain modern, new facilities with substantial immediate equity. Thus, the most blighted area of the village would be completely modernized; new tax base would be created. While businesspeople and homeowners would pay part of the cost of the move through new indebtedness, there would be sufficient financial incentive for floodplain property owners to take part in the move willingly, thus minimizing the property disputes which could complicate and delay the project.*

- Meanwhile, business owners could expect that the new buildings would have minimal maintenance costs, and that maintenance savings would help them pay their new mortgages. In addition, the modernization of their facilities would help them compete better with the shopping facilities at larger cities in the region. Particularly if they chose to develop the new business district at a site along U.S. 61, they could expect modest increases in business which also would help them bear their new debts.
- Finally, the business owners would be allowed to reorient their retail operations to better serve the needs of customers. For example, the owner of one of the village's two hardware stores might choose to reopen as a clothing store, since the old downtown had none. Thus, the services and goods offered by the new Soldiers Grove downtown could be tailored to better meet the needs of area shoppers and to increase business in the community.

In a November 1976 report, the consultants calculated a pricetag of more than \$6 million for the project, including all private and government costs. They suggested that a nonprofit development corporation be formed to administer the move. Further, they recommended that in seeking state and federal assistance, the village offer to put up the same amount of initial local share it would have under the Corps' levee plan — \$220,000.

This financing plan made it clear that relocation could be not only achievable, but beneficial. In December 1976, the Village Board adopted a resolution formally declaring relocation a long-range community development goal. The resolution was the first time the board had gone on record firmly supporting the move; it was a major milestone.



*In June 1977, the Village Board voted to purchase this farm field (Site A) for the new industrial site. This step was a key factor in convincing federal officials that the village was serious about their relocation plan.*



## **Village Board Resolution**

WHEREAS the village of Soldiers Grove, Wisconsin, suffers heavy, periodic flooding from the Kickapoo River, flooding which threatens the life, limb and property of the residents of Soldiers Grove, causing an estimated \$127,000 average annual flood damages in the developed portion of the Village, comprised of virtually the entire downtown business district and several of its residences, making flood control essential to the continued life of the community and therefore to the interests of the Municipal and County and State and Federal governments; and

WHEREAS the volunteer advisory Planning Committee at the direction of the Board has, during the past 23 months, investigated all conceivable alternatives for alleviating flood-damage potential in the Village, concluding that the proposed relocation of the floodplain properties is the most practical alternative; and that conclusion has been supported by three separate studies — one in 1975 by the Environmental Awareness Center, University of Wisconsin-Madison, which established the feasibility of the proposal; a second by the URS Corporation of New York which confirmed the feasibility, and a third by the interdisciplinary team of consulting firms under the direction of Laufenberg Research and Development Institute, Chippewa Falls, Wisconsin, which also confirmed the feasibility and detailed the implementation of the proposal; and

WHEREAS the U.S. Army Corps of Engineers, under the authorized Kickapoo River Valley Flood Control Project, has designed a system of levees and channel improvements for flood control at Soldiers Grove, and it is unlikely that local taxpayers would approve participation in that project because the average annual maintenance costs alone would virtually double the local tax levy; and

WHEREAS the Corps is empowered by Section 73, Water Resources and Development Act of 1974 to substitute relocation for the levee, and the Village did on July 3, 1975, request that such a substitution be made, and the relocation proposal has been shown to be socially acceptable and cost effective for less net first costs than the levees while yielding substantial socio-economic benefits which are not available under the levee plan; and WHEREAS immediate actions to relieve the Village from the emotional trauma and direct physical threat of flooding are in the best interests of the citizens of Soldiers Grove, promoting their health, safety and prosperity, and of the State and Federal governments, realizing the objectives of floodplain management, flood insurance, disaster relief, blight elimination and housing rehabilitation, transportation, energy conservation and rural development programs, and any delay in providing flood control at Soldiers Grove threatens its residents with substantial loss from flooding and other catastrophic loss jeopardizing the economic and social viability of the Village as a community and forces the costs of flood control to undergo inflationary increases, endangering the practicality of flood control; and

WHEREAS the prompt execution of the relocation proposal will preserve the social and economic resources of the Village while being fully compatible with the range of Valley-wide flood control and recreation alternative being considered;

NOW THEREFORE BE IT RESOLVED:

THAT the Village Board of Soldiers Grove, Wisconsin, hereby adopts the relocation proposal as a goal for the community's development and requests that the County, State and Federal governments participate with the Village and private citizens, each as their interests may be, justly and by law, in immediate funding and execution of the proposal; and

THAT the Board hereby directs the governor of the State of Wisconsin, its state senator and state representative, its U.S. congressman and senators, to so represent the interests of the Village, actively and aggressively taking the necessary steps to ensure the timely and successful execution of the relocation proposal; and

THAT the Board hereby directs the Soldiers Grove Planning Committee and the Relocation Coordinator to forward copies of this resolution to the Village's legislative and congressional representatives and to the appropriate agencies of the State and Federal governments, along with such explanation and documentation of the relocation proposal necessary for prompt execution of the proposal.

Passed and approved this 21st day of December, 1976

## Refining the Plan

In a series of public meetings, surveys and other public participation events, Hirsch encouraged the villagers themselves to refine the basic relocation plan outlined by the two studies.

With recreational opportunities a high local priority, the townspeople wanted the new riverside park to be developed with picnic areas, tennis courts and other features that would be minimally affected by flooding and would draw Kickapoo River tourists as well as serving local recreational needs.

At the suggestion of the University of Wisconsin team, the townspeople tentatively selected a small plot of land between the Kickapoo River and U.S. 61 for the new central business district (Site B). The land was floodplain property, but studies indicated it could be filled with earth to raise the site above flood level without adverse environmental or hydrological effects. The advantages of the site were that it would put businesses on the federal highway where they could be exposed to traffic, it would allow the downtown to retain its traditional riverside location, and it would keep the business district within easy walking distance of the nonfloodplain neighborhoods.

For the light industrial businesses in the old downtown (a cheese factory, a grain mill and a wood manufacturing business among them), the villagers favored a 200-acre farm field a half-mile from the old downtown, also along U.S. 61 (Site A).

In June 1977, the Village Board voted to spend \$90,000 to purchase Site A for the industrial buildings. The investment, the village's first major financial commitment to the move, exhausted its statutory borrowing limits. But it later proved a vital move in persuading state and federal officials that Soldiers Grove was serious about relocation and about doing all it could to fund the move locally.

The overall plan, then, called for construction of a new central business district at Site B and a small industrial area at Site A; the development of a zoned riverside park where the old central business district had been; and the evacuation of 22 homes, with owners moving to nonfloodplain sections of the community. It was a plan the villagers seemed willing to accept.

## Steps Toward Relocation

Here is a summary of the steps Soldiers Grove took to prepare for financing and carrying out relocation, after the community had reviewed its options and selected relocation as the one it favored:

- Designate relocation coordinator
- Appoint Citizens Planning Committee
- Survey citizens' goals and concerns
- Conduct formal feasibility study
- Study how to implement the move
- Conduct environmental/social impact analysis to identify potential problems
- Make formal municipal commitment to the plan
- Begin funding search
- Refine plan continually in interaction with citizens

All that was left was to persuade potential federal and state funding sources that the plan was sound. The village argued that the plan made sense, not only for Soldiers Grove, but for the state and federal governments. Even at a cost of \$6 million, the project would pay for itself in less than 50 years. And that payback was based only on the Corps' 1975 calculation of average annual flood damages of \$127,000. It did not count the substantial economic and social benefits beyond flood-damage prevention.

Relocation would remove Soldiers Grove forever from the rolls of flood disaster relief victims. There need be no more federal or state tax dollars invested in flood forecasting, early warning systems, disaster cleanups or aid to home and business owners in the aftermath of a flood.

Preserving the village would mean that the people in its service radius could continue saving time and gasoline by having a commercial center nearby. Without the village, farmers in the midsection of the Kickapoo Valley would have to travel long distances to do their shopping, milling and banking. In short, the project made great sense for everyone.

In January 1978, two small breakthroughs occurred with state agencies. The Wisconsin Department of Natural Resources, impressed by the Village Board's commitment of \$90,000 to purchase the industrial site, awarded the community \$42,000 to begin extending utility work to the old farm field. An additional \$67,684 for sewer and water extensions was granted a short time later from a governor's discretionary fund (an Economic Development Administration "304" fund).

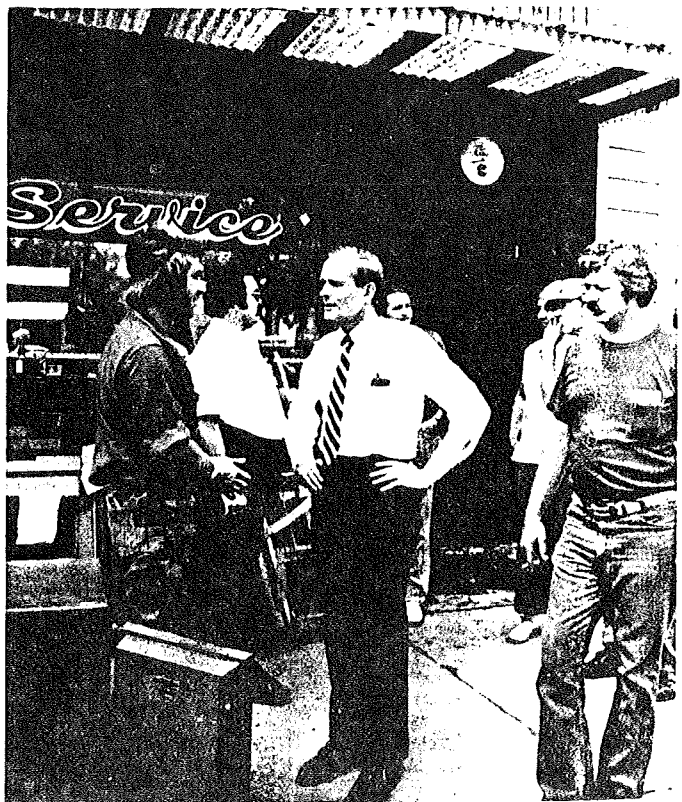
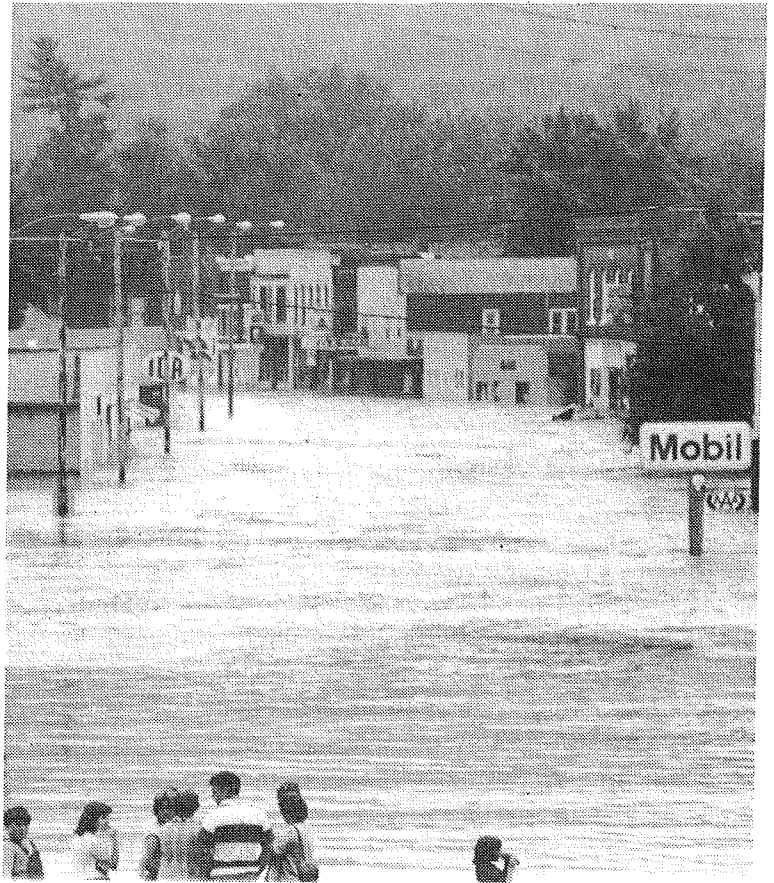
However, the most important help — federal funds to allow the community to begin purchasing and moving floodplain properties — did not come. Hirsch and the village had persisted for three frustrating years trying to win the federal grants necessary for the village to purchase floodplain buildings so the move could begin. But federal officials shied away from funding the novel plan. They cited several reasons: a fear of interfering in property rights, a lack of familiarity with such a project and the fact that the Kickapoo Valley dam project remained officially on the books although construction had stopped.

The CETA grant that paid Hirsch's salary ran out early in 1978. He continued working without pay, driven by faith that such a logical project — and such a valuable demonstration to other floodplain communities — had to succeed.

### Nature Intervenes

On July 2, 1978, the Kickapoo River intervened. Following an intense rainfall in the Kickapoo Valley, the river hit Soldiers Grove with the largest flood in its history. The flood inflicted a half-million dollars in damages, completely destroying several buildings, including the community's relatively new concrete-block bank.

While no one would have wished for such a flood, it accomplished what Hirsch and other community leaders had not been able to — it galvanized opinion inside and outside the village that Kickapoo River flooding was inevitable and that relocation must proceed at once. With the help of U.S. Senators William Proxmire and Gaylord Nelson, the flood jarred loose the support of federal agencies. Nelson, an environmentalist, had supported relocation since its inception. It took a visit to Soldiers Grove to view the devastation of the latest flood to persuade the fiscally conservative Proxmire that relocation was necessary and sound.



*U.S. Senator William Proxmire visited the village in the aftermath of the 1978 flood. The visit persuaded the financially conservative senator that relocation made economic sense.*

When federal agencies offered disaster recovery funds to the community, Soldiers Grove invoked Executive Order 11988, issued by President Carter in May 1977, in an attempt to prevent federal tax dollars from being used to develop floodplains. The order prohibits federal agencies from helping communities develop floodplains "unless no reasonable alternative exists." Soldiers Grove argued it had a reasonable alternative — its long-sought relocation plan — and federal funds would be better spent helping the community move.

Within a month of the flood, Proxmire called Hirsch and then-Village President Ron Swiggum to Washington to personally present the relocation plan to key government officials. In an ornate Senate hearing room, Swiggum, a lifelong resident of the village and a Main Street businessman, eloquently stated the community's case for relocation.

By the time the two men left Washington, they had a commitment of \$900,000 from Housing and Urban Development Secretary Patricia Harris' discretionary fund, plus \$40,000 from the Community Services Administration to pay administrative costs. The CSA money was used to establish a small community development office staffed by Hirsch and directed by Swiggum, who resigned the village presidency to take the job.

Swiggum's assumption of leadership was important. With the move about to begin, he and Hirsch felt a native of the community should take the lead so there would be no feelings that an "outsider" was in control. Swiggum was a natural to take command. In addition to being a floodplain businessman and able to understand the concerns of other people in the downtown, he was energetic, intelligent and committed to the community's future.

Although these two grants were only a fraction of what the community would need in federal funds to complete the move, there was great pressure to begin relocation as soon as possible. Some businesses were closed because of flood damage. So long as they remained closed, they lost money, and there was a danger that they would leave the community if they could not reopen soon. Yet there was little sense in making major repairs to buildings which soon would be replaced. The village would have to proceed with the move on faith that the money to complete the project would be forthcoming.

It was the Kickapoo that caused the breakthrough, but the community's three years of effort were not in vain. While it was unquestionably a gamble, the village's decision to spend \$90,000 of its own money on the industrial site convinced federal officials the community was serious and willing to do its share. The extensive lobbying the community had done of the state and federal governments gave the village a first-hand education in federal policy, while giving some key federal officials an education on relocation.

The extensive contacts developed over the years with agency officials laid the groundwork for a rapid federal response after the flood. But most importantly, the prolonged planning allowed the community's final disaster recovery to be not a mad scramble for higher ground, but an orderly exit from the floodplain and the creation of a truly innovative central business district.

In effect, the village's disaster prevention plan was converted into an excellent disaster recovery plan, which guaranteed the latest flood would be the last.

### Milestones

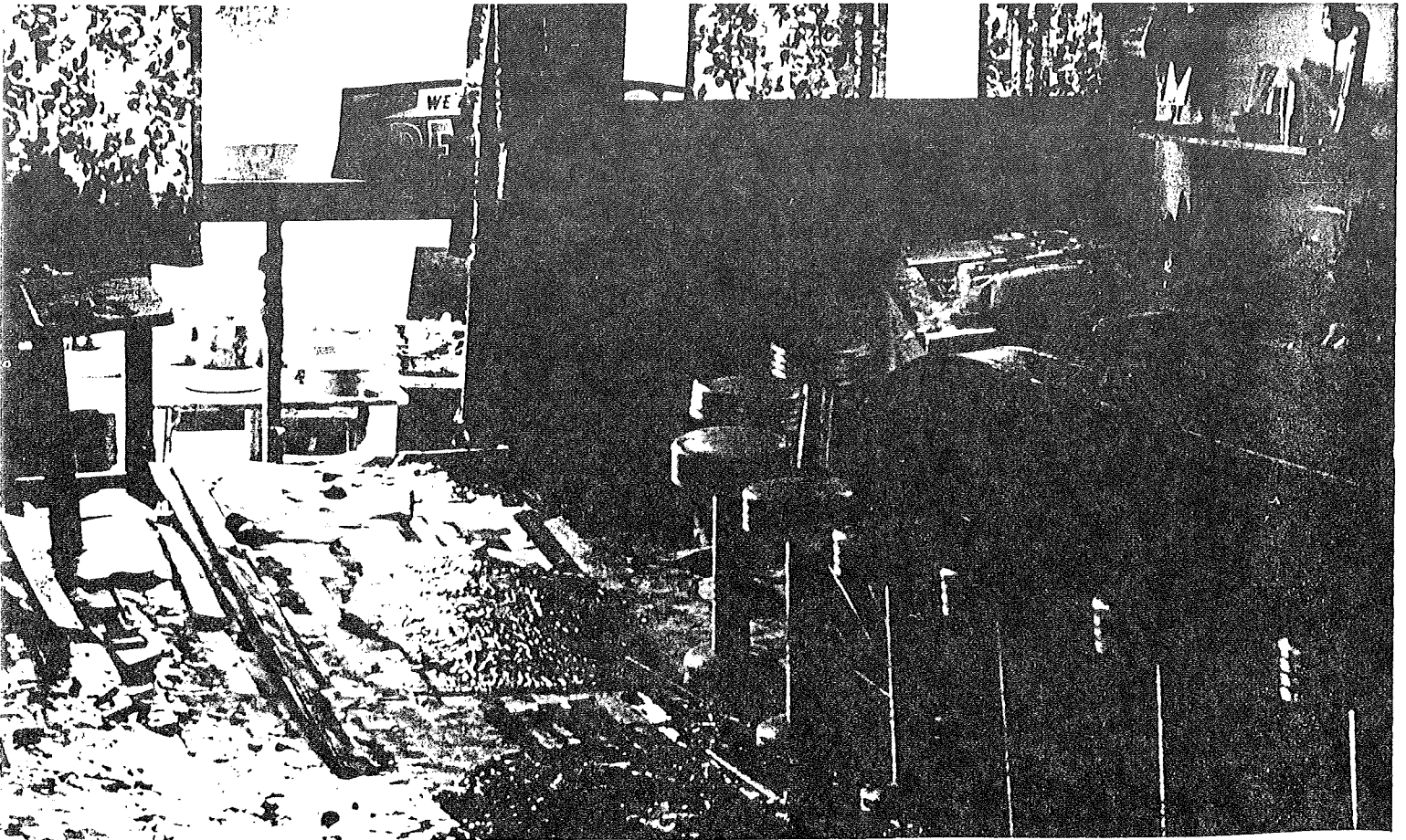
- May 1975 . . . . . Village hires relocation coordinator
- November 1975 . . . . . UW study concludes relocation is feasible
- November 1976 . . . . . Consulting firm reaffirms feasibility, outlines implementation plan and costs; study of social/environmental impacts supports acceptability of move
- December 1976 . . . . . Village Board makes relocation long-range development goal
- June 1977 . . . . . Village Board approves purchase of relocation site
- January 1978 . . . . . Two state grants awarded for utility extensions
- July 2-4, 1978 . . . . . Record flood hits village and Kickapoo Valley; Presidential disaster declaration issued
- August 1978 . . . . . Funding breakthrough: two federal agencies award grants to begin move

## Chapter Four: Relocation and Beyond

Despite more than three years of reviewing and planning the move, the village was not yet ready to proceed. Prior to the flood, there had been insufficient local resolve and insufficient funds to do the detailed master planning and design work for the new central business district and the buildings it would contain.

Wisely, the villagers decided to postpone the beginning of construction to prevent helter-skelter development. Village officials appealed to the University of Wisconsin-Extension (the arm of the

state university system that deals with the educational needs of the state-at-large) for four types of help: a land use plan showing the best layout for the new business district; an assessment of the legal options property owners and municipal government could use to choreograph the move; a study of energy use in the new downtown; and counseling for individual businesses, including a "threshold analysis" to show the types and size of business facilities Soldiers Grove should build to meet the needs of its surrounding service area. The



*The 1978 flood inflicted a half-million dollars in damages on Soldiers Grove. This cafe was out of business for several months while the relocation plan was refined and implemented.*

business counseling would help owners make realistic plans about what size facilities they should construct, and if market conditions suggested so, they could change the type of services they offered.

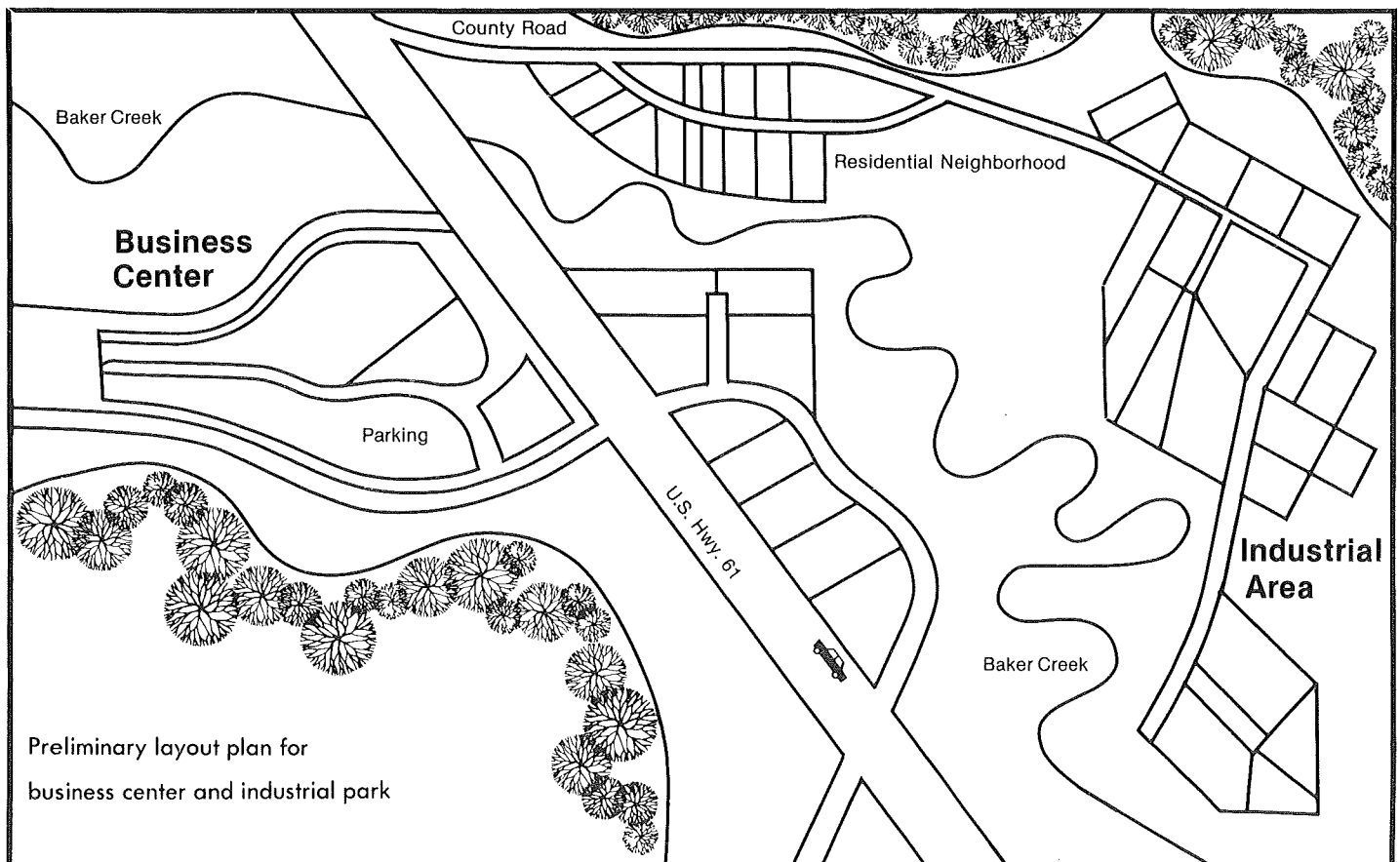
The UW-Extension office agreed to help Soldiers Grove, assigning faculty members in each of the four areas. The various efforts began late in 1978. As a result of the studies and introspection they induced, the villagers made a number of key decisions:

- The village decided to relocate all of its businesses to the farm field straddling U.S. Highway 61, bought by the municipality originally to house an industrial park. The site originally identified for the retail businesses, near the Kickapoo River, required substantial earthmoving, and thus delay. The "industrial" site, meanwhile, would require relatively little preparation, being already owned by the village and having sewer and water extensions under contract.

The final plan called for retail businesses to be

placed on the side of U.S. 61 closest to the residential neighborhoods, and the village's industrial businesses to be located across the highway.

- The owners of the 12 homes on the floodplain fringe along Pine Street decided they would rather floodproof than relocate their homes. Estimates showed the cost would be comparable. The remaining 10 floodplain residences in the old business district presented little problem. Some were mobile homes which could be easily moved. In other cases, owners could purchase existing vacant homes in the village's nonfloodplain neighborhoods. Additional housing would be provided in rental units above some of the businesses, and in the new elderly housing project.
- In the early feasibility studies on relocation, the villagers had received two different recommendations on how to organize for the move. The University of Wisconsin study team recommended a partnership between the municipality and floodplain property owners. The Laufenberg firm recommended that business



*The village decided to relocate all of its businesses to the farm initially purchased to house only the industrial park. Retail businesses were placed on the side of U.S. Highway 61 closest to the residential neighborhoods and the light industries on the far side of the highway.*

owners form a development corporation. Most business owners had little experience administering something so complex as a development corporation, and little desire to add that challenge to the already formidable task of moving. Instead, the villagers decided on an informal partnership with their municipal government.

The municipal government — working closely with the citizenry — would serve as recipient of federal grants, administrator and coordinator of the move, and developer of the new downtown.

- The community would make use of two important legal tools provided in Wisconsin law — Tax Incremental Financing (TIF), and Planned Unit Development (PUD).

Wisconsin passed TIF to help encourage community development. Ordinarily, property tax revenues in the state are shared by all taxing districts — school districts, counties and vocational education districts — to finance their activities. But under TIF, a municipality can declare an area slated for development a “TIF district.” Then it can keep property taxes earned from that area as a result of new development, spending the money on municipal public works that support the development.

By designating the relocation site as a TIF district, Soldiers Grove could use future property tax revenues from the new business buildings as collateral for municipal bonds to pay for sidewalks, sewer and water laterals, streets, landscaping, outdoor lighting and parking lots. The debt then would be gradually repaid over 19 years with property tax revenues.

This arrangement lowered initial construction costs for business owners, since they didn’t have to front the money for those items financed with the help of TIF. Another advantage was that the municipality could borrow the money at lower municipal interest rates, another money-saver.

Under Planned Unit Development, a master plan would be drawn for how the site should be developed. The plan would be reviewed in public hearings and, if approved by the Village Board, would have the force of zoning in regulating development of the site. Soldiers

Grove found the PUD process an ideal solution to guide another innovative development it had in mind for the new site — solar heating.

### **Nation’s First “Solar Village”**

Of all the decisions Soldier Grove made in the aftermath of the flood, one was particularly dramatic. That was the decision by the village to build an energy-conserving, solar heated central business district, the first of its kind in the nation.

As with many other aspects of the project, the inspiration grew from a problem. A major and increasing cost for many of the Main Street business owners had been energy bills. Their structures were not only badly deteriorated by flooding, but old and poorly insulated. They were costly to heat and cool, especially with fuel oil, the most expensive of fossil fuels at the time.

Early in the planning of relocation, it occurred to some villagers that construction of a new business district opened the opportunity for Soldiers Grove to build efficient structures and to promote the use of renewable, alternative fuels. Thus, the project could have even more local benefits, plus further value as a national demonstration. Conservation and renewable energy systems held the promise of increasing local self-reliance while insulating the community from oil and gas shortages of the future; of reducing air pollution in a valley whose terrain often causes air inversions; and — most attractively — substantially lowering energy bills for businesses. The lower energy costs would provide a form of “new income” for business owners.

As part of the UW-Extension planning help, a study team was formed with technical experts from the Wisconsin Energy Extension Service, the UW-Extension Engineering Department, the Division of State Energy and the U.S. Department of Energy’s Argonne National Laboratories.

The team helped the village inventory local sources of renewable energy — sewage sludge, organic garbage, agricultural and wood wastes, wind and sunlight. It gathered a variety of other data (size of the new buildings, climate information, etc.) and after a two-month study, recommended that because a large amount of wood waste was produced by lumber mills within a 30-mile radius of Soldiers Grove, the new business

district should receive most of its heat from a central, wood-fired boiler plant. Passive solar heating might serve as a supplemental source of heat, the team concluded.

Fascinated by the solar idea, the Village Board hired Hawkweed Group Ltd., an experienced Midwestern solar architectural firm, to design three energy-conserving, solar heated municipal buildings. The buildings would demonstrate to the rest of the village an official endorsement of solar energy, and would bring an architectural firm to town to entice and educate many of the business owners to investigate solar heating systems.

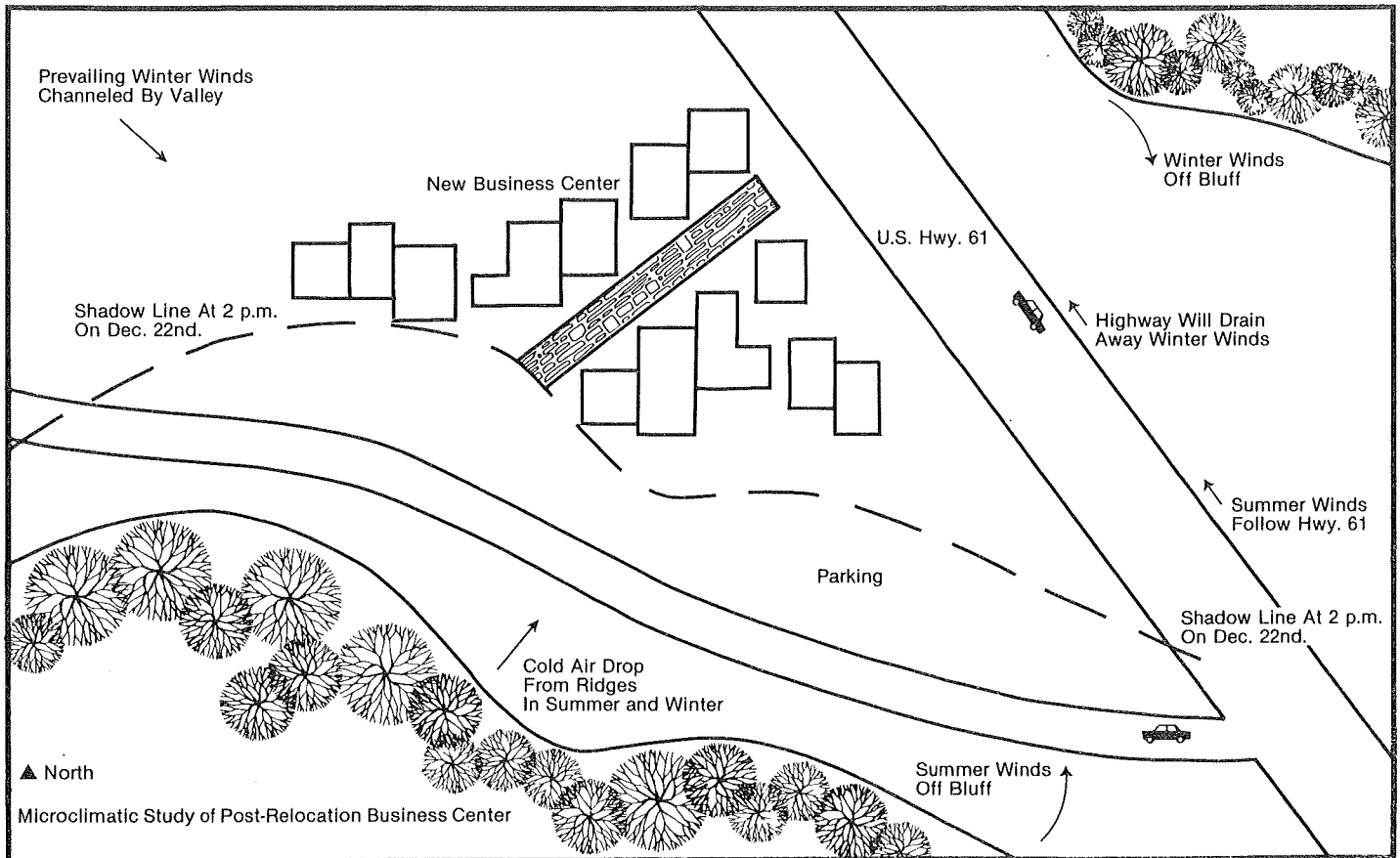
Hawkweed solar specialists began by conducting a "microclimate" study of the relocation site. They analyzed sunlight and shadow patterns at the site, identified summer and winter wind currents, calculated the effects of existing vegetation and proposed new plantings that would block winter winds and channel cooling breezes in the summer.

Hawkweed's findings were remarkable. Most people (including other energy technicians who had studied the options at Soldiers Grove) thought solar was a marginal possibility in Wisconsin's cold

climate. But Hawkweed estimated that when high levels of insulation and intelligent building design were coupled with simple, site-built solar heating systems, solar could supply an average of 75 percent of each structure's heating needs. Furthermore, the construction of superinsulated, solar heated buildings would cost no more than conventional new buildings of comparable size elsewhere in the area.

Based on these estimates, the popularity of the solar option grew quickly. The UW-Extension team's recommendation for a wood-fired boiler was scrapped. If Hawkweed's estimates proved true, the demand for heat from the plant would be so low that the boiler couldn't pay for itself.

At the request of the village, UW-Extension and Hawkweed adjusted earlier site plans to accommodate passive solar heating. Buildings would be placed with two-story structures to the north of one-story structures, so the taller buildings would not shadow the shorter. The collection of retail structures was pushed to the northernmost edge of the relocation site so they cleared shadows cast by a nearby hill. Parking lots were placed in the



*Hawkweed's microclimate study analyzed sunlight and shadow patterns, identified summer and winter wind currents, calculated the effects of existing vegetation and proposed appropriate landscaping for the relocation site.*



shadowed portions of the site.

Hawkweed's work became the basis of the PUD master plan for the new downtown, and protected each building's solar access where conventional zoning couldn't. The pioneering plan sailed through the hearing process with the full support of the community, and was adopted by the Village Board.

The plan required that all new business buildings be constructed to achieve energy efficiency several times greater than that required by state building codes. In practice, this requirement meant that the typical new building would have insulation of R-36 in its walls and R-72 in its attics.

The village required that each building receive at least half of its heating energy from the sun — a relatively easy standard to meet in such highly efficient buildings since they would require a minimum of energy to heat and cool. The ordinance made Soldiers Grove the first community in the nation to mandate solar heating. (Later, the village also passed an ordinance forbidding new construction anywhere in the community from blocking another building's access to sunlight.)

While the new buildings would likely share

common features like earth-berming and superinsulation, the village decided to stress the energy performance of the buildings rather than their specific features, leaving business owners maximum design flexibility. The solar heating requirement could be met with any type of system the owner wanted, although the ordinance suggested passive systems.

Other sections of the ordinance required that the business district and its buildings be accessible to the handicapped, placed limits on the size and number of advertising signs and encouraged the use of wood as a basic building material. Wood was chosen because it was locally available, renewable, required less energy to prepare and had higher insulating properties than many other materials. The new business district was designed around a pedestrian commons so that people would walk rather than drive from store to store, conserving gasoline.

Finally, the village encouraged building owners to use furnaces fired by bottled gas as their backup heating systems. Looking to the future, the community hoped to use a wide variety of organic materials from surrounding farms and sewage treatment plants to one day construct a biogas plant. If



*Even in Wisconsin's northern climate, solar heating systems can provide an average of 75 percent of each building's heating needs, when the simple, site-built systems are combined with high levels of insulation and intelligent building design.*

that happened, the gas furnaces could be converted easily to renewable biogas.

### **Community Development Spinoffs**

Energy conservation and solar heating were the most dramatic evidence in Soldiers Grove that relocation can result in spinoff benefits. But they were by no means the only examples.

Suppose you were faced with having to rebuild your home or business. In the process, you might decide to fix a number of problems that had been nagging you for so long. You'd probably add better insulation and perhaps some simple solar heating features such as south-facing windows to lower your heating bills. You might decide to make a larger building, or a smaller one to better suit your needs. You might add that workshop in the basement or that extra bathroom you've wanted.

That was the situation Soldiers Grove found itself in as it prepared to relocate. The move provided individual owners and the village as a whole the opportunity and the excuse to fix many long-standing problems.

For years, Soldiers Grove's municipal well had been located in the floodplain, near the business district. After even minor inundations, the community water supply would become contaminated. So, the community decided to add a second well, placing it outside the floodplain near the new downtown. Adding a larger storage reservoir would also benefit the community.

Like in many other floodprone communities, Soldiers Grove's fire and rescue station was located in the floodplain. So in the move, the community relocated the fire station to a location more accessible during flooding.

And as mentioned before, the move back to the relocated highway put the new business district back in the economic mainstream.

### **Other Improvements**

One of the major concerns of young people and the elderly in Soldiers Grove was inadequate recreational facilities. That concern helped guide the decision to develop the old floodplain into a new municipal park, complete with tennis courts, picnic areas, and a number of other recreational

features. A new community building now offers villagers added recreational facilities.

The extension of sewer and water services to the relocation site opened up new development area along its route. It also provided an opportunity for the village to fix a long-standing problem — discoloration and odor in the water in one nearby neighborhood, caused by aging pipes.

Meanwhile, the floodplain homes along Pine Street were in poor repair, suffering from years of water damage and disrepair. There had been little incentive to repair buildings expected to be damaged over and over again. So, as the buildings were being elevated atop earthen fill and new foundations to raise them out of the reach of flooding, each would be rehabilitated. Electrical wiring and plumbing would be brought up to code, and each house would be weatherized to reduce its owner's energy bills. In some cases, the Pine Street homes would be given solar features — one home, for example, was equipped with an attached greenhouse.

A fix-up, clean-up spirit began to spread through the community. Other homeowners in nonfloodplain neighborhoods weatherized and made other improvements to their homes too, often with the help of HUD Community Development Block Grants. As homeowners were evacuated from the floodplain during the summer of 1979, several relocated to empty, existing homes in the nonfloodplain neighborhoods, and used their relocation assistance to improve the condition of the buildings. Other neighborhood projects included curb and gutter improvements, street paving and tree plantings.

Relocation also inspired new business development, beyond that linked directly to flood avoidance. A nursing home in Soldiers Grove — the community's major employer — for years had been located in an aging Victorian mansion outside the floodplain. The land opened up for relocation provided level ground for building a new facility. In upgrading the village's water system to serve the relocation site, sufficient storage capacity and water flow were provided to accommodate the code-required sprinkling system for a new nursing home. So, impressed by the new spirit of growth in the community, the owner decided to build a \$1 million facility near the new downtown. Another local entrepreneur later bought the Vic-

torian mansion and converted it to a combination restaurant-hotel. A much-needed dental clinic was built to serve people from miles around.

With seed money from the village government, a group of citizens formed the "Soldiers Grove Development Corporation" to solicit new industry and business development in the village. Village officials felt the investment to capitalize the group was beneficial. Permanent form was finally given to the municipal/private partnership which had been formed to accomplish relocation. One of the corporation's first public activities was to plan a week-long dedication celebration of the new business district and the new era being born in Soldiers Grove.

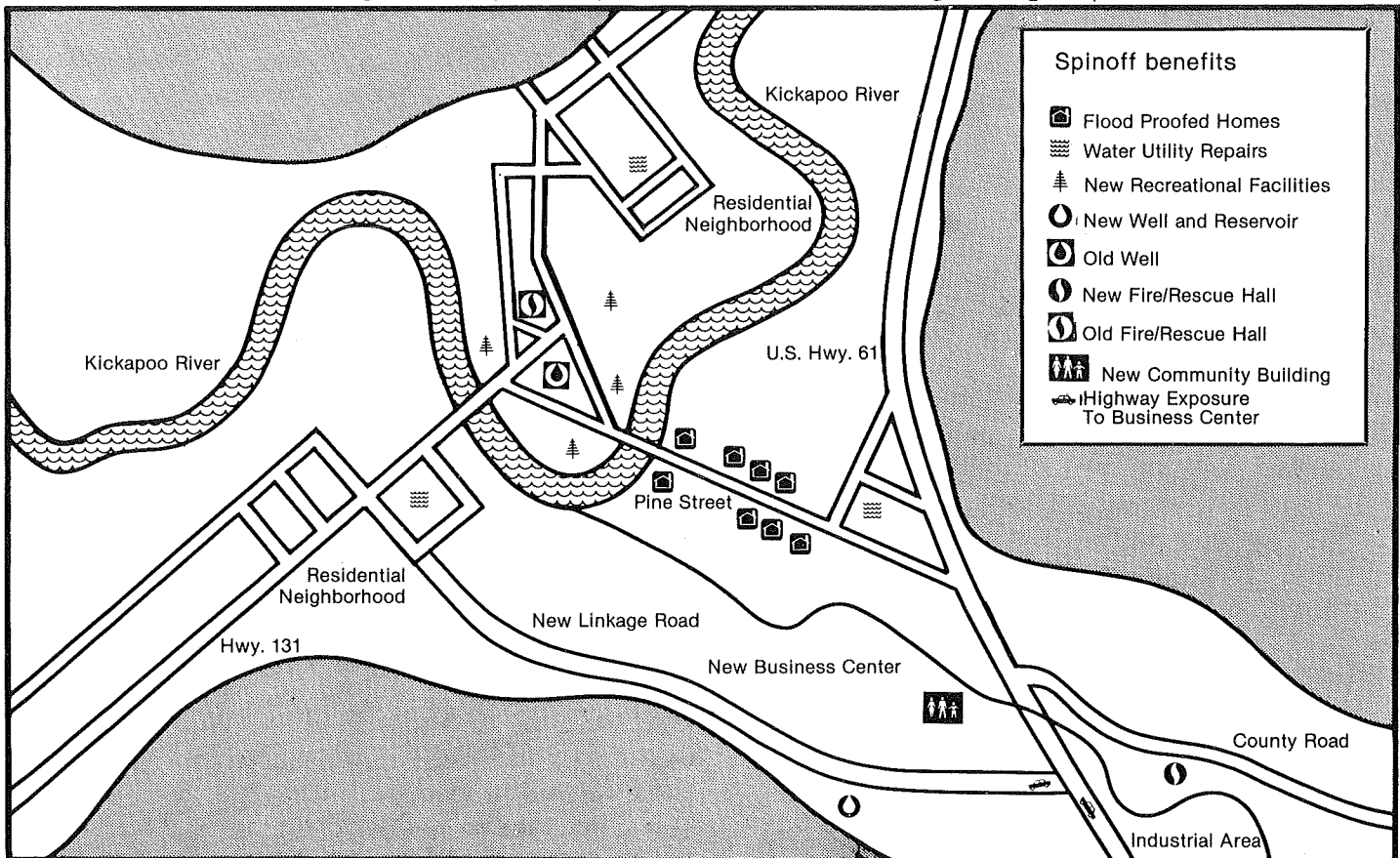
### Good Signs, Good Times

Construction of the new central business district finally began in the fall of 1979. Despite the rapid funding breakthrough after the 1978 flood, it took three more years of intensive, persistent grantsmanship before Soldiers Grove secured all the state and federal funding necessary for acquisi-

tion of the floodplain properties and payment of relocation assistance. The final grant was awarded in May 1981.

As it scheduled floodplain buildings for purchase, the village gave first priority to the residences in the floodway. Then it began gradually purchasing occupied downtown businesses, starting with those owners who were most willing to participate, proceeding as rapidly as available funds would allow.

Meanwhile, the floodproofing of Pine Street homes has proceeded slowly, again as funding allowed and interest dictated. Despite the fact that the village offers zero-interest, deferred-payment loans to Pine Street homeowners to help them elevate their buildings, a number of homeowners have been reluctant to do the work. There apparently are a number of reasons. Floodplain amnesia has again set in. Several owners are concerned that when they sell their buildings, the sale price won't be sufficient to pay back the investment in floodproofing. Such fears persist, even though the opposite has proven true for one Pine Street home which already has been sold. Because it was floodproofed, it brought a higher price than it would



*Soldiers Grove project was much more than just a flood avoidance plan. The community fixed several long-standing problems, making its plan serve many revitalization purposes.*

have had it been floodprone. The increased market value proved more than sufficient to pay off the costs of floodproofing.

Despite the new grey hair these and other problems have caused for the staff of the community development office, the initial signs are good that the overall relocation/community revitalization project is greatly successful. Since the 1978 flood, the business community has changed. Soldiers Grove lost eight businesses: three bars, a cafe, a grocery store, a meat-locker plant, a laundromat and the weekly newspaper. Four of those businesses sold out to the village and moved away. Three business owners took advantage of their property sales to retire. The weekly newspaper was absorbed by a larger regional newspaper which continues to serve the community.

Meanwhile, the community has gained the restaurant/hotel, dental clinic and nursing home expansion mentioned earlier; a real estate agency; a combination craft store and insurance office; a woodworking shop; another restaurant and a 16-unit elderly housing project. After national advertising by the development corporation, a much-needed pharmacy was added during the summer of 1982.

During this post-flood shuffle, Soldiers Grove lost 18 permanent jobs but gained 64.5 permanent jobs — a net increase of 46.5. Put another way, the business district offered 66 full-time equivalent jobs before the move; that figure has nearly doubled, to 123. Nearly \$2 million in new tax base has been added to the community.

Although the community has consistently declined to count on revitalization resulting in new industry and businesses, it has planned "expansion areas" for new homes and industries while extending sewer, water and roads.

As the first waves of business buildings went up and weathered Wisconsin's winters with their conservation/solar features, the outlook for the success of the community's energy innovations also was good. A few of the buildings experienced easily corrected problems with their heating systems. Generally, however, the solar systems were fulfilling their promise. For example, the largest of the new commercial structures — a 7,000-square-foot supermarket — now has operated through two winters and one summer. The owner, who relies on recycled heat from his refrigeration compressors as well as a passive solar heating system, has never

had to light the pilot of his back-up natural gas furnace. During the summer, the interior of the store has remained cool and comfortable without mechanical cooling.

The downtown's solar systems have drawn national attention, and have become an energy demonstration within a relocation demonstration. The Soldiers Grove business owners have shown that it makes no sense to build any new structure that is not solar heated. The solar systems are proving economical, even in a low-income community, and effective, even in the village's northern climate.

Whether the future of Soldiers Grove is prosperous and secure remains to be seen. Clearly, it depends on much more than the elimination of flood disasters. But in removing themselves from the path of the Kickapoo River, the villagers have given themselves the best chance for success. And, from the standpoints of improving the business climate, increasing the tax base, creating jobs, modernizing services and eliminating blight, relocation is succeeding. Despite a sinking national economy and continued anemia in rural areas, the signs of community revitalization at Soldiers Grove are strong.

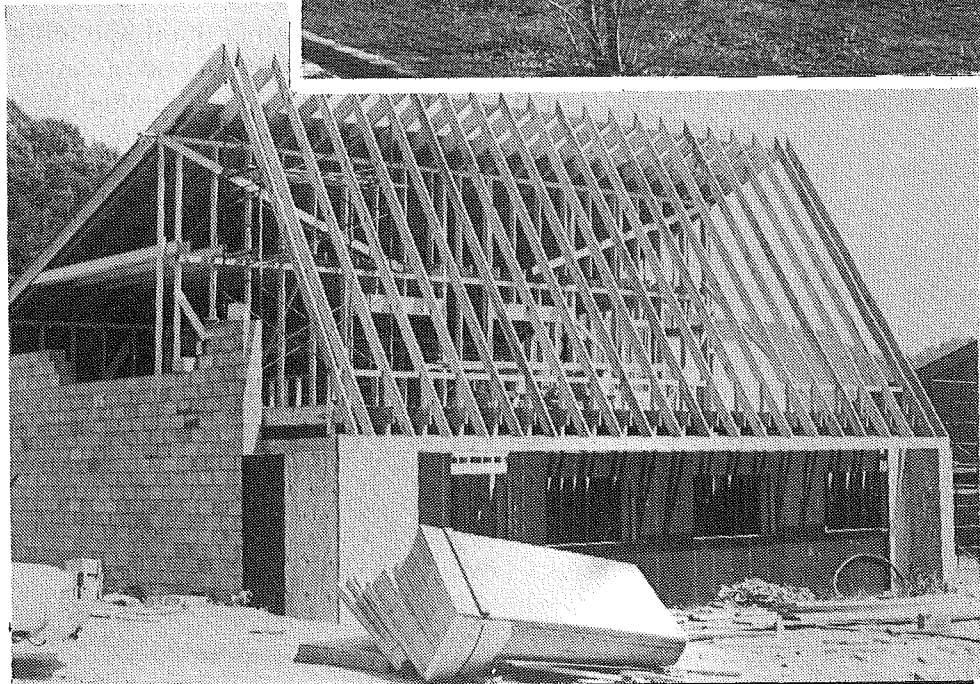
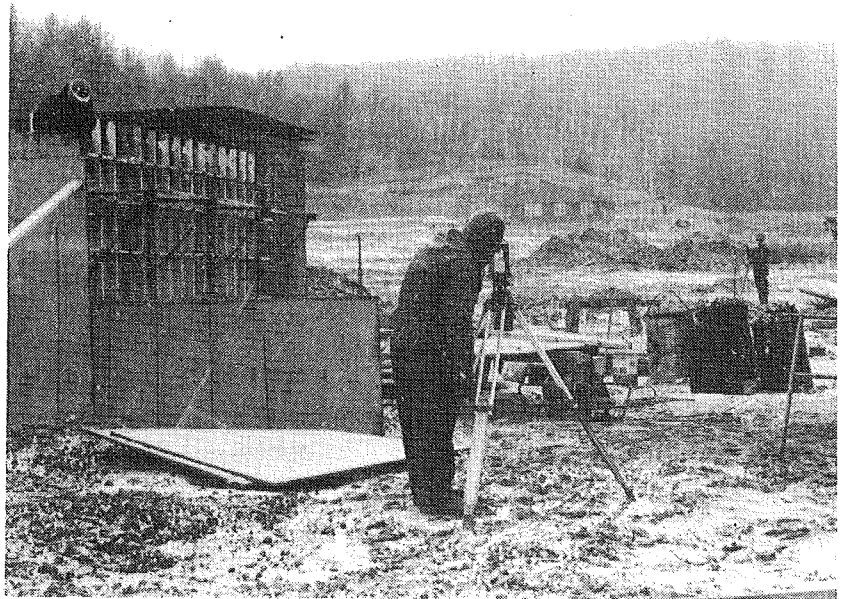
### **Psychological Renewal**

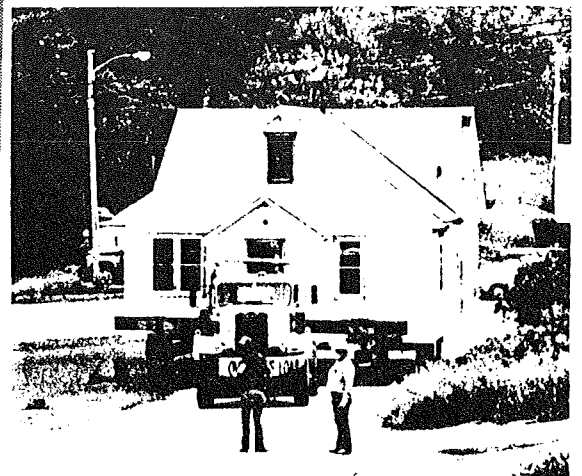
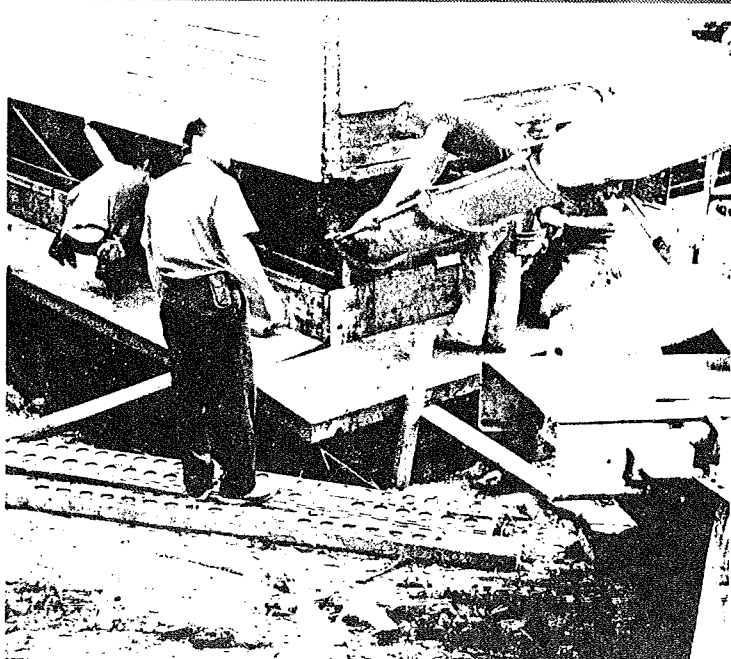
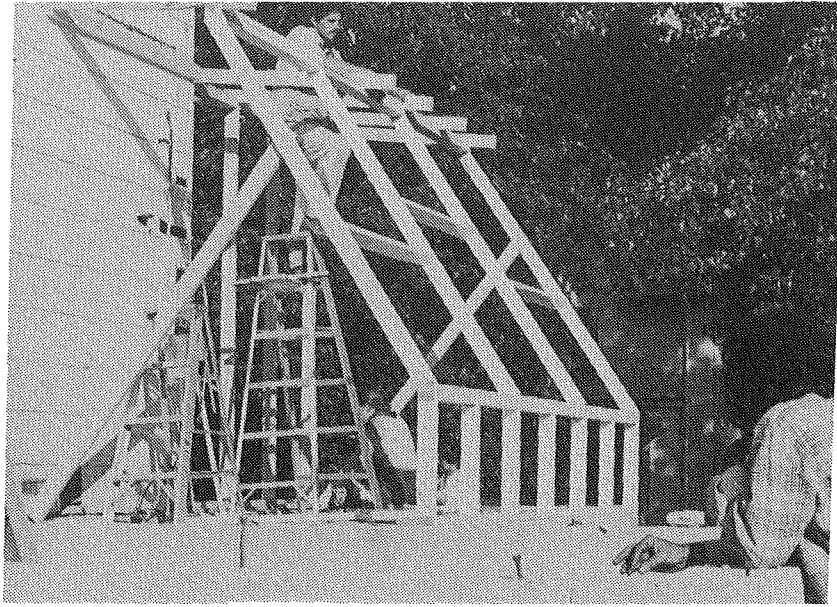
Importantly, the physical revitalization has been accompanied by a psychological renewal. After generations of living passively with the fear of another flood, the mood of the village prior to 1975 was one of day-to-day survival, fierce competition for limited business, and a general water-logging of the spirit. The people of Soldiers Grove were chronic victims.

Something subtle happened as relocation was planned, then implemented. The villagers began to shape their environment rather than being victimized by it. They began to create their own future rather than living in fear of it. Further, it is a future based upon harmony with the river and cooperation with one another. And it is a future for which they are now prepared, come rain or shine.

Significantly, the 1980 census showed that Soldiers Grove had picked up population for the first time in decades. The 1970 population of 514 grew to 622. Some of the increase (32 people) was due to the expanded nursing home capacity; but

*Construction of the new business district began in the fall of 1979 — more than a year after the devastating 1978 flood. Buildings at the new site incorporated passive solar features. New buildings in the flood fringe district (right center) were elevated on earthen fill, as required by floodplain zoning.*



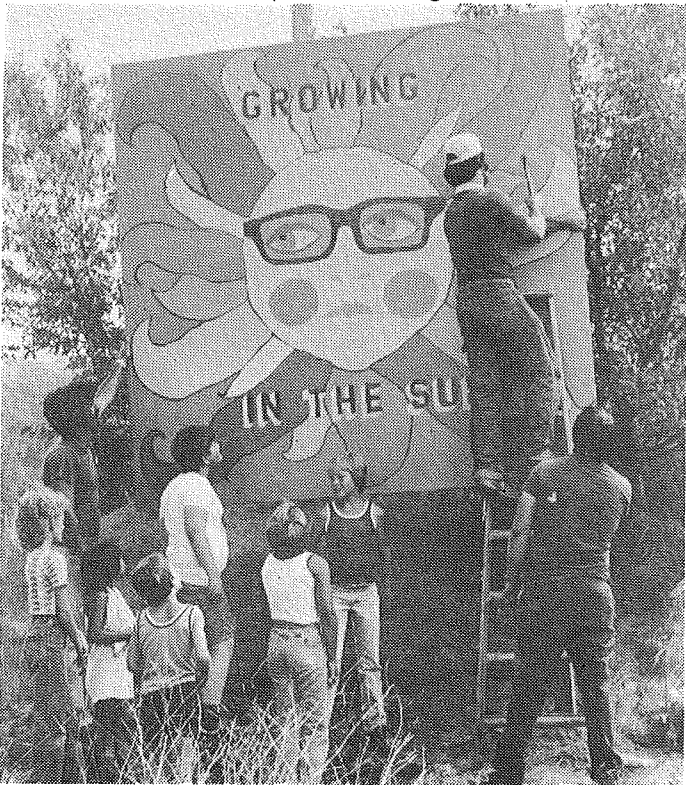


*But the project was not limited to new construction. Some residences in the floodway were moved to higher ground. The church parsonage (center) was elevated atop earthen fill to make it "floodproof." One flood fringe home received a greenhouse addition to capture solar energy.*

there was an undeniable turnaround underway. There were no fantasies that Soldiers Grove would become a boom town. There was, however, a reasonable hope that the community will stabilize, its long decline halted and perhaps reversed.

The feeling in the community is perhaps best illustrated by two signs painted by children in the local summer-recreation program. The signs have been posted where they can be seen by travelers entering the village on U.S. 61. One shows a number of personified buildings trotting across the Kickapoo River, holding hands and smiling on their way to higher ground. The caption is, "Soldiers Grove — the little town that could."

The other sign is a large sun with a smiling face and sunglasses. It says, "Growing in the sun."



## Key Implementation Tools

### Administration and Choreography

- Local project control
- Publicly accessible planning
- Business-municipal partnership
- Planned Unit Development (PUD-locally defined zoning)
- Continued municipal ownership of common areas

### Financing

- Relocation benefits
- Private investments
- Tax Incremental Financing (TIF)

### Flood-Damage Prevention

- Evacuation and clearance of floodway
- Floodproofing by elevation
- Continued zoning of floodplain to prevent future flood-susceptible construction

### Standards for New Buildings

- Flexible energy-performance standards
- High conservation expectations
- Solar heating mandate
- Solar access provisions (village-wide)
- Design standards define a limited range of building styles and construction techniques
- Pedestrian amenities; handicapped accessibility

## Milestones

Summer 1979	Relocation of homes begins
October 1979	Groundbreaking of new business district
Fall 1979	Construction begins
May 1981	Village receives final federal funding
Spring 1982	Phaseout of Community Development Office begins
Spring 1983*	Final demolition in downtown; development of floodplain park begins
Summer 1983*	Construction of new downtown completed

\* Projected

# Chapter Five: The Little Town That Could

In its long and often frustrating battle to win federal funding for relocation, Soldiers Grove learned a great deal about the difficulties a community is likely to confront as it tries to accomplish a nonstructural flood damage reduction project.

Because the village did not have sufficient local resources to do the job alone, it had to seek federal help. It found that because relocation was largely uncharted territory, the federal government was unused to, uncommitted to and often unorganized for lending support to such a project.

This chapter will describe the problems Soldiers Grove encountered and suggest some solutions other communities can employ in seeking funds.

## Water Resource Funding

In the past, a community wanting help in preventing flood disasters most often asked its congressional representatives to introduce a bill authorizing and funding a flood control project. If the bill eventually passed, the community waited for the Corps of Engineers to carry out planning and design work, then waited some more as the Corps returned to Congress each year to request money for the next stage of work. Finally — assuming the project survived changing political climates, environmental reviews, budget cuts and other hazards of modern government — the project was constructed. This approach is called water resource funding.

Communities are likely to encounter three principal problems in funding from the traditional water resource agencies: long delays, structural bias and pork barrel politics.

**Delays.** It typically takes a decade or more to obtain funding authorization from Congress for a

flood control project. Politics, federal budget limits and complicated regulations, including the need for thorough environmental assessments of structural projects, contribute to these long delays. As noted in Chapter 1, two other factors have contributed to delays in recent years: President Carter's Executive Order 11988 demanding more thorough review of flood control projects and the current soaring federal deficit and cost-consciousness in Washington. At the current rate of Congressional funding for new and authorized structural projects, it will take decades to clear the \$52 billion backlog of projects already approved but not completed.

**Structural bias.** The traditional flood control agencies and the regulations which govern them are oriented in favor of structures.

In the past, for example, the federal government often paid 100 percent of the costs of building a dam, but required communities to contribute a minimum of 20 percent of the cost for nonstructural projects.<sup>12</sup> (This is changing under the Reagan administration, which is demanding a local share for all flood-damage prevention projects, structural or nonstructural.)<sup>13</sup>

In addition, Corps of Engineers projects must pass a benefit-cost (B/C) test. Under federal law, the Corps cannot undertake a flood control project unless the financial benefits of the project exceed its costs.

However, it is hard to place dollar values on many benefits of nonstructural projects — for example, the psychological benefits of removing the onus of flooding or structural failure from a community; the safety and health benefits of replacing damaged facilities with new code-complying buildings; the safety benefits of removing fire and rescue facilities from the floodplain, where they are cut off from other parts of the community during floods; or the environmental benefits



of “de-urbanizing” the floodplain so the ground can absorb runoff again and wildlife habitat is restored.

Because such benefits are hard to calculate, they tend to be ignored. The result is that many nonstructural projects do not meet the B/C test.<sup>14</sup>

**Pork barrel politics.** Dams and levees are politically attractive projects for congressional representatives. They promise jobs for constituents and recreational income if the project includes a reservoir. (Studies in recent years have indicated that the job and recreational benefits of dams often have been greatly overestimated, but the allure continues.) Dams result in physical monuments to the power of a congressman or woman and his or her concern for the folks back home. Many dams, in fact, have been named after their congressional sponsors.

Dams also have been attractive because they are relatively simple projects to understand. They are the traditional “simple fix.” Usually, they involve only one or two objectives — flood control and perhaps some recreational benefits thrown in if the project includes a man-made lake.

Relocation and other nonstructural measures are quite different. A well-designed relocation project may well become a multipurpose undertaking, involving comprehensive efforts toward community development. That makes relocation seem complex and less politically appealing than the more familiar, straightforward approach of trying to tame rivers with structures.

Nonstructural methods may involve interference with private property rights. They may inconvenience people. They might anger the folks back home and result in political controversy, particularly if they are imposed from the outside. It’s unlikely a community will rename itself after a congressman once its relocation or floodproofing project is accomplished.

For all these reasons, dams and levees continue to be seen as good pork barrel politics, while nonstructural alternatives may be considered politically risky and highly sensitive.

### What To Do

The advantage of the traditional route is that through a Congressional authorization, your community can acquire funding from a single agency,

and obtain the technical help of the Corps. But to overcome its barriers, the water resource funding route demands:

1. Building local consensus to make your project as noncontroversial — and consequently, as politically safe for congressional representatives — as possible.
2. Finding and working with at least one member of your congressional delegation willing to make a committed and sustained effort to push the proposal through Congress — not only initially, but as each year’s funding is sought.
3. Thoroughly analyzing the many benefits of nonstructural measures, and “quantifying” them in monetary terms as much as possible to make a convincing case for the cost-effectiveness and political attractiveness of your plan. Assess both direct and spinoff benefits.
4. Lobbying hard and following up persistently to minimize the delays involved in water resource funding. Even with such effort, however, delays are inherent in this funding route, particularly when federal money is scarce. (Delays have encouraged some communities to go elsewhere for funds. Beatrice, Nebraska, is an example. Impatient with delays in the planning and funding of a Corps’ project, it applied for and won funding from another agency — the Department of Housing and Urban Development — to carry out its flood damage prevention plan.)

Advocates of nonstructural measures are working to eliminate structural biases like those inherent in the government’s benefit/cost formulas. Particularly if those efforts succeed, the single-agency, single-authorization advantages of water resource programs may hold best promise for your project.

### Nontraditional Funding

As Beatrice, Nebraska found, the programs of the Department of Interior, the Department of Housing and Urban Development and other agencies can fund flood damage prevention projects, although those agencies are nontraditional sources for such purposes. Funds from nontraditional agencies can be used to supplement water resource programs, or to replace them.

Nontraditional grant and loan programs have their own pitfalls. They include no single grant program (in federal parlance, no single “categorical aid” program) for flood damage prevention. That means a community — particularly if it is seeking more money than can be covered in a single year’s grant application — may have to deal with many different agencies, many different grant requirements and many different standards. This makes funding complicated, spotty and time-consuming.

In addition, the people making decisions on where and how to spend federal funds usually are not as experienced in the problems of flooding as are the decision makers in water resource agencies. They may not fully appreciate how serious a problem flooding is.

Other disadvantages of nontraditional funding programs are competition, lack of coordination and uncertainty.

**Competition.** A community wishing to relocate will have to compete for funds against other municipalities across the nation wishing to build parks, rehabilitate housing, construct tennis courts, etc. The grant programs are highly competitive, and unless your community has had a recent flood that offers dramatic evidence of need, you may have a tough time winning funds.

**Lack of coordination.** Using many different funding programs will require careful coordination. The timing of funding, the various standards for different grant programs, questions like what types of funds can be used for local matching dollars — all of these demand coordination so that the many pieces of the funding puzzle will fit together.

*Example:* HUD allows its grants to be used in concert with other federal dollars for floodplain acquisition and relocation projects, but only when the HUD money is used for acquisition. The agency does not like its money being used to help complete a project in which acquisition is begun with other funds.

*Another example:* The Department of Interior’s LAWCON grant program is set up on a cost-reimbursement basis. A community must “front” the costs of floodplain acquisition, completing acquisition and allowing the agency to scrutinize paperwork, before LAWCON dollars are delivered.

Each federal grant program has its own regulations and demands, complicating the use of funds

from a number of different agencies. Yet no one at the federal level is assigned the job of coordinating these many and sometimes conflicting requirements for a community wanting to utilize the programs.

**Uncertainty.** Relying on funding in lots of little pieces is far less certain than the water resources route, where funding is authorized in a single piece of legislation and the community works with a single agency. Your community may find, as Soldiers Grove did, that it must begin its project without assurance that all necessary funding will become available. Funding agencies may argue that since there’s no guarantee your project will be completed, they do not want to fund it (a Catch-22, since completion can’t be guaranteed until agencies fund it).

## What To Do

Using funding from a number of different programs requires fund “packaging.” In other words, you may have to break your project into its component parts and seek funding from appropriate agencies for each.

For example, Soldiers Grove’s relocation involved a number of traditional community development activities: parkland acquisition, sewer and water improvements, housing rehabilitation, urban development and renewal. While the overall relocation approach was unusual, its components were conventional, fundable community activities.

When your project is divided into component parts, it’s easier to identify appropriate funding programs for each. If possible, each part should stand on its own as a legitimate community development activity. That way you can argue that whether or not the total project succeeds, funding of sub-projects is worthwhile and will not be wasted. Building-by-building floodproofing is one such modular activity.

At the same time, the fact that sub-projects are part of an overall community development plan whose aim is to remove your community from federal disaster assistance rolls can give your project more appeal. Other communities competing for funds may not be able to promise such a favorable “return” to the federal government.

To handle coordination, your community may do what Soldiers Grove did — put a full-time local coordinator on the payroll to become expert at

federal funding options and requirements. He or she should seek help from sympathetic state and federal officials who know the ins and outs of funding, and from other communities that have successfully accomplished similar projects. Soldiers Grove found that Wisconsin officials were generous in offering technical help to the community. Other states — among them Pennsylvania, Minnesota and Arizona — have reputations for actively assisting their communities.

Uncertainty is inherent in the nontraditional funding approach, but in a well-designed project, each component will be worthwhile in its own right. Your community should develop an implementation plan listing subprojects in logical sequence (see Chapter 7), then proceed as far down the list as possible using local, state and federal resources. If you eventually are blocked by

a lack of support from funding agencies, you will at least have developed a comprehensive plan for reducing flood damages and will have begun to implement it.

If and when another flood occurs, funding agencies may be more inclined to help, and you can convert your disaster prevention plan into disaster recovery action. Whatever steps you've been able to accomplish before a disaster will give your community a head start in making a sensible and lasting recovery from flooding.

In building a funding package, rely as much as possible on local and private resources — the larger part they play, the less your project will be subject to the whims and pitfalls of far-away decision makers who, distracted by other interests and pressures, cannot be expected to give top-priority to your community's needs.

### Soldiers Grove's Funding Package

State/Local Sources	Amount	Date	Purpose
Regional Planning Commission	\$4,000	May 1975	Feasibility study
State Planning Office	\$2,700	May 1976	Social/environment study
Dept. of Local Affairs & Development	\$13,200	Early 1976	Implementation study
Local businessowners	\$3,300	Early 1976	Implementation study
General obligation borrowing by village	\$90,000	June 1977	Site purchase
Dept. of Natural Resources	\$42,000	Jan. 1978	Public water works
Governor's discretionary fund	\$67,684	Feb. 1978	Sewer/water
	\$100,000	Aug. 1978	Sewer/water
Village borrowing	\$235,000	Aug. 1979	TIF startup
(Farmers Home Administration)	240,000	Aug. 1979	Water works
	\$91,000	Aug. 1979	Sewer works
	\$150,000	1981	Water works
	\$110,000	1981	Sewer works
	\$1,072,000	1981	Community facilities
<b>Total</b>	<b>\$2,220,884*</b>		
Federal Sources	Amount	Date	Purpose
Housing & Urban Development (CDBG)	\$185,600	Oct. 1978	General
	\$900,000	Oct. 1978	General
	\$573,200	Sept. 1979	General
	\$474,300	Aug. 1980	Acquisition/relocation
	\$535,000	Nov. 1980	Acquisition/relocation
	\$500,000	May 1981	Acquisition/relocation
Community Services Administration	\$40,000	Oct. 1978	Administration
Economic Development Administration	\$500,000	Aug. 1980	Acquisition/relocation
Dept. of Interior (LAWCON)	\$500,452	July 1979	Parkland acquisition
			relocation
	\$145,695	Sept. 80	Parkland acquisition
<b>Total</b>	<b>\$4,354,247</b>		

\*Total does not include CETA funding for relocation coordinator's salary, substantial in-kind contributions of labor, office space, technical assistance, etc., from village or state agencies; funds related to relocation, but used for general community development; or private borrowing by business owners.

## General Problems

You are likely to encounter several additional barriers in the federal government: a fear of regulating people, changing national philosophies on flood damage prevention, a lack of technical help, and an emphasis on disaster recovery rather than disaster prevention.

**Fear of regulating people.** Congress and federal agencies are afraid of the political consequences of regulating people rather than rivers. There have been few successful models of relocation around the country that they can turn to for reassurance. Thus, as the National Science Foundation puts it, "Although the nation has purchased millions of acres for flood control dams, it has been slow to accept buying floodplain lands to prevent flood damage."<sup>15</sup>

*Solution.* Again, build the strongest possible local consensus about your project so that it promises a minimum of controversy and conflict. When consensus is built, document it with petitions, referenda or local government resolutions. These measures will assure federal officials that they are safe in lending their support.

No project which places the burden of change and adjustment on people can be made completely noncontroversial. But controversy can be kept to a minimum if you build strong public participation, maintain local control, respond to the apprehensions of property owners and work to treat people uniformly so that jealousies are reduced.

**Changing federal philosophies.** Changing presidential administrations and evolving beliefs about what works best to end flood disasters have caused frequent shifts in federal philosophy. Before it was completed, funding at Soldiers Grove was personally approved by three HUD secretaries (two under President Carter, one under President Reagan).

These shifts in personnel and outlooks can make the search for federal support tricky as various approaches and different national funding priorities go in and out of fashion.

*Solution.* Do your homework, then persist. A sound, well-documented, well-researched proposal should make sense, no matter who is judging it. Don't accept "no" for an answer; "no" usually

means that the person needs more information.

**Absence of technical help.** Since federal agencies have had relatively little experience with nonstructural measures in general, and relocation in particular, you may find little help in anticipating and solving the technical problems you will encounter in carrying out your project.

*Solution.* Breaking the project down for planning and funding purposes into its component parts helps reveal where technical assistance might be found.

Although few agencies have experience in relocation, several do have experience in the legalities involved in property acquisition for other purposes, like highway or dam construction. Many have experience in parkland development, in sewer and water work, in housing rehabilitation, etc.

Soldiers Grove found free or low-cost technical help available from the University of Wisconsin. Faculty members welcomed real-life educational experiences for their students. University faculty and students helped the village identify relocation sites, plot the location of buildings at the new business district, assess what types of energy would be most advantageous in the new development, analyze the environmental and social impacts of the move, counsel business owners on planning their new facilities, pick zoning and local funding options, and design surveys on citizens' attitudes and expectations.

Private engineering and architectural firms often will give discount rates for technical help if they feel they are likely to be hired later for more detailed engineering and design work. In addition, a great deal of help can be obtained from other communities that have tried similar projects. Private groups can help too. The Sierra Club, the National Audubon Society, Rural America and the Solar Energy Research Institute all shared knowledge with Soldiers Grove and helped persuade federal officials that the relocation project was worth funding.

**Emphasis on disaster recovery.** Federal agencies tend to favor action after a disaster rather than before. A flood gives bureaucrats and politicians a politically defensible excuse for allocating funds to a floodprone community. A flood gives dramatic

evidence of community need and puts the community's problem center-stage in the competition for federal resources — for a time.

Because of floodplain amnesia, a disaster also helps coalesce local support for nonstructural action. It is in the immediate aftermath of a flood that citizens and government officials are most willing to act.

*Solution.* No community can or would want to invoke a disaster to build political support for a disaster avoidance project. The only solution is to develop a sound prevention plan and to push as hard as possible for its implementation, arguing that a record of chronic flooding justifies support.

If the disaster prevention plan is not funded, it can be used as a disaster recovery plan after the next flood, when local and governmental resolve is renewed. Meantime, a disaster prevention plan can be used to guide community development whether or not another flood occurs. As floodplain buildings, bridges and roads are replaced because of age, or as new public works projects are undertaken, they can be guided by the plan.

### Local Problems

Relocation planners in Soldiers Grove also encountered a number of local barriers in trying to carry out the project, among them floodplain amnesia, resistance to inconvenience, fear of financial risk, and lingering hope for a structural project.

**Floodplain amnesia.** According to the National Science Foundation, "Data indicate that two and three years after a disaster, victims have a sense of well-being which is very similar to their (pre-flood) state . . . The trauma, which might have been experienced temporarily when confusion abounded and the crisis seemed only to be getting worse, dims rather quickly."<sup>16</sup>

Consequently, so does community willingness to act to prevent another disaster, particularly when action requires inconvenience. "Time is the enemy of the nonstructural system," notes a water policy expert. "(The) tendency for those damaged by floods to forget these floods and to discount the possibility of other, even larger floods, creates social obstacles to nonstructural solutions."<sup>17</sup>

*Solution.* Local officials in Soldiers Grove tried to counter floodplain amnesia by designing the

move as much more than a disaster avoidance project. They stressed a community revitalization with benefits well beyond eliminating flood damages. Thus, the move and its tangential projects made sense whether or not the villagers believed flooding was still a problem.

The record 1978 flood, of course, immediately dispelled floodplain amnesia, but within a couple of years, it had begun to set in again. An example is the reluctance of Pine Street homeowners to borrow funds for floodproofing, even at the most favorable terms possible.

A community development thrust can help overcome floodplain amnesia, but liberal amounts of patience and persistence will be needed too.

**Resistance to inconvenience and discomfort.** People don't like inconvenience. They also resist changing old habits and losing comfortable old patterns.

Relocation meant the loss of familiar, well-worn social gathering spots along Main Street in Soldiers Grove. It meant a disruption of familiar traffic patterns, and the loss of peoples' physical links with the community's past.

These types of pitfalls are more obvious in relocation, which is relatively rapid in execution, than they are in floodplain zoning, which may gradually force an evacuation of the floodplain. Thus, Soldiers Grove found it was necessary to deal with them consciously and deliberately.

*Solution.* The community identified peoples' perceptions of the move's inconveniences and discomforts in its public participation programs. People and village officials worked together to find solutions. In addition, the many gains of relocation were emphasized over the few losses — when people focused on the positives, the negatives seemed more manageable.

**Financial risk.** Relocation meant three levels of financial risk for local people: risk for the community as a whole, risk for floodplain building owners, and risk for the owners of homes in non-floodplain neighborhoods.

For the community, the major risk was that once the village paid floodplain business owners for their property, they could take the money and leave town, leading to a lethal loss of tax base, services and jobs for the village.

Floodplain building owners were concerned that the village would not offer fair prices for their properties, that business volume at the new site would not support their new indebtedness, and that the village would not receive all the funding necessary to complete the move. If that happened, Soldiers Grove would end up with two weak business districts, each cut off from the drawing-power of the other.

Nonfloodplain homeowners feared the move would force an increase in property taxes. Those closest to the old downtown were afraid the value of their homes would drop once they became neighbors to a municipal park.

*Solution.* Village leaders looked for ways to minimize financial risks, and ways to practice "risk management." They explained to citizens which risks were real and which were imagined. They communicated that some risks were inevitable, that relocation was something of a gamble, but a worthwhile gamble.

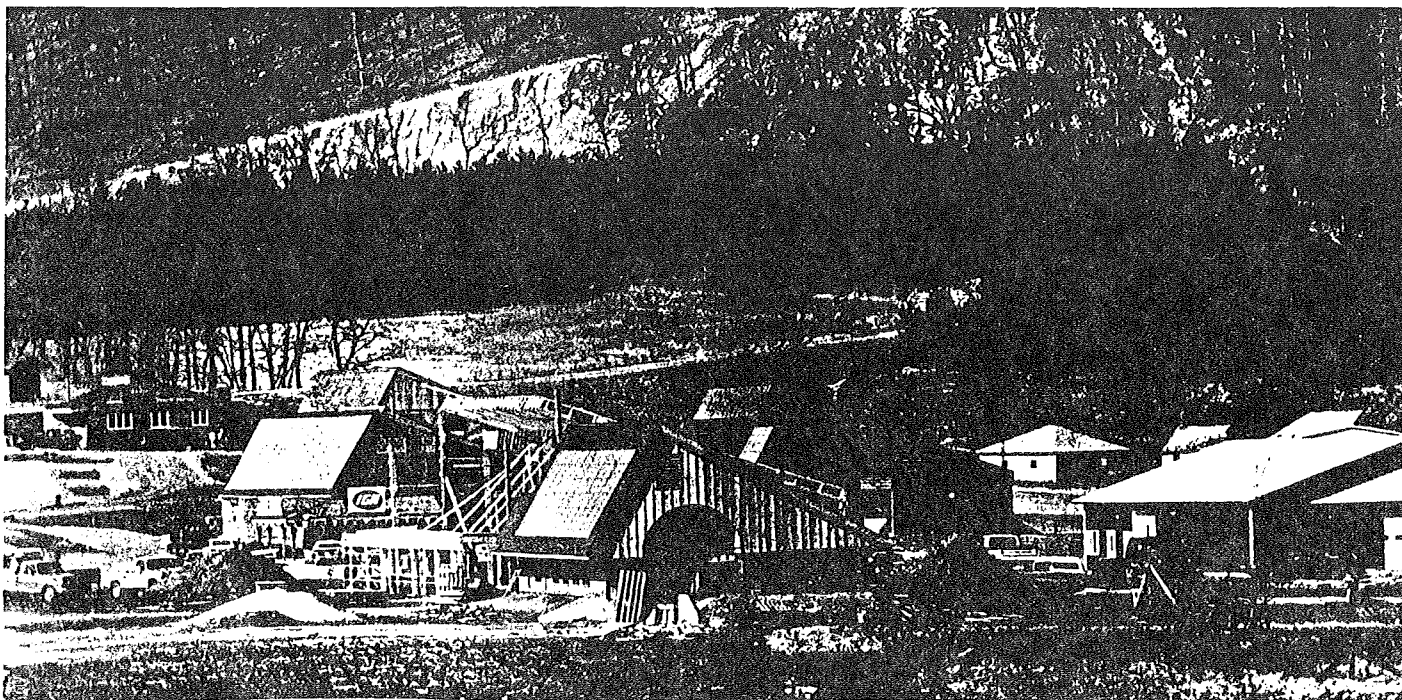
Floodplain business owners were linked with University of Wisconsin business counselors, and when necessary, with the Small Business Administration for low-interest loans. Maintenance and energy savings in the new buildings were stressed as ways to help owners meet mortgage payments; the Highway 61 location was emphasized as the

best possible development site to increase business volumes.

Village officials designed local financing as much as possible to keep the burden off homeowners outside the floodplain. They worked to keep community spirits high about the move and about the future, while encouraging businesses to build in the village rather than elsewhere.

At their root, most local barriers are attitudinal, Soldiers Grove found. By directing community attention carefully toward the real benefits of a post-relocation or a nonstructural future, the difficulties, gambles and adjustments inherent in moving, grow smaller and more acceptable. If a fault-finding mentality develops in your community, replace it with a creative, can-do attitude.

Citizen participation is essential for competing successfully for federal and state funds, and for overcoming local barriers, building a well-planned project and rooting that project in local support. In fact, thorough involvement of villagers in the conception, design and execution of relocation probably was the single most important factor in making Soldiers Grove's project a success. It's so important, in fact, it is the subject of the next chapter.



*Construction of the new business district began in October 1979 and was to be completed by the summer of 1983. Despite a sinking national economy and continued anemia in rural areas the signs of community revitalization at Soldiers Grove are strong.*

## Problems and Solutions

### Water Resource Funding Problems

Delays  
Structural bias  
Pork barrel politics

### Nontraditional Funding Problems

Spotty funding  
Stiff competition  
  
Lack of coordination  
  
Uncertainty

### General Federal Barriers

Fear of regulating people  
Changing federal philosophy  
Lack of technical help  
Disaster recovery emphasis

### Local Problems

Floodplain amnesia  
Fear of inconvenience  
Financial risk

### Solutions

Persist; seek other kinds of funds.  
Quantify benefits thoroughly.  
Build local support; quantify nonstructural benefits.

### Solutions

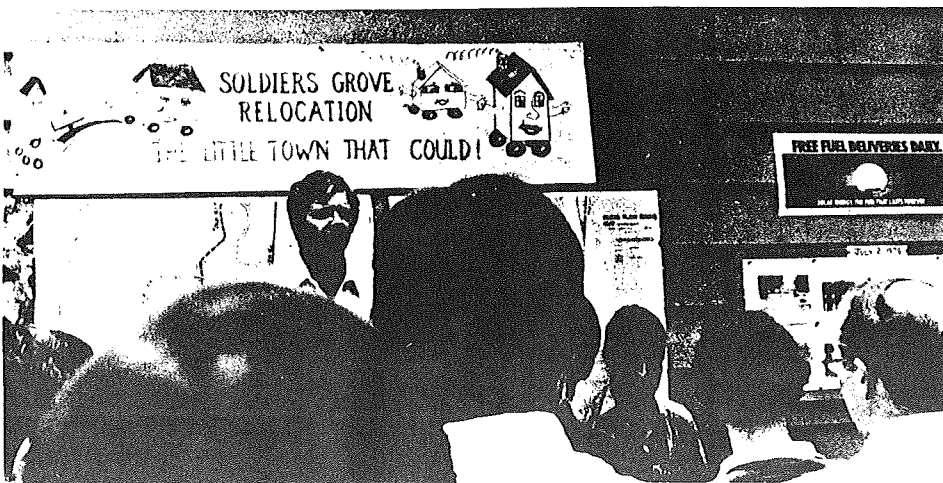
Plan well; package funds; lobby hard.  
Do homework; stress disaster-prevention need and comprehensive community development plan.  
Name local coordinator; seek helpful federal officials.  
Build incremental plan; use maximum state/local funds.

### Solutions

Build strong local consensus.  
Make appealing plan, use maximum local funds.  
"Package" needs; tap state/private sources.  
Fund community development goals; persist.

### Solutions

Stress community development goals.  
Strong public participation.  
"Risk management" counseling.



*Soldiers Grove relocation and community revitalization project has become a "hands-on" demonstration project. Ron Swiggum has explained details of the village's move to many interested groups.*

# Chapter Six: Getting People Involved

Public participation is essential to the success of any nonstructural project which asks people to make substantial adjustments in their settlement patterns or property ownership. Soldiers Grove went further. It not only got people involved, it gave them control of direction setting and decision making as the community prepared to relocate.

Too often local plans are drawn by "experts" from outside a community. Such "top-down planning" often meets considerable local resistance. Hirsch called the village's public participation program "bottom-up planning." In other words, grass-roots decisions guided the project rather than decrees from outside government agencies or professional consultants hired by the community.

It was made clear to every government official, consultant and technician brought into the project that he or she would take direction from the people, rather than give direction to them. Outside participants would serve as resources in the community decision process, not directors of that process. There was also "bottom-up decision making," with village officials liberally consulting citizens before key votes.

Many of the reasons for the bottom-up planning strategy already have been mentioned, but they deserve repeating.

**Strengthens local support.** A project which people have helped conceive and guide is much more likely to enjoy broad public support. When community sentiment is behind relocation, many potential sticking points — the negotiation over purchase prices for floodplain property, the willingness of property owners to take part, the likelihood of property owners reestablishing themselves within the community — are not as difficult to overcome.

When relocation is perceived as a community-wide undertaking rather than the brainchild of a

few planners or property owners, a spirit of "co-creation" develops, a mixture of cooperation and creativity rather than resistance and resentment.

Participation gives citizens a feeling of ownership of a project and, more importantly, responsibility for its success or failure. People work harder, look less for problems and more for possibilities.

**Increases state and federal support.** A plan with a strong foundation of local support is much more stable. Therefore, it's more likely to win support from state and federal agencies and politicians worried about controversy.

**Makes plan realistic.** A strong public participation program makes planners and local officials aware of problems and possibilities they might not have thought of themselves. It helps make a relocation plan that truly reflects the concerns and goals of the people affected. Such a plan is far more sound and far more likely to succeed than one formed in a distant committee room.

**Solves problems early.** The problems caused by dams and levees are principally environmental and economic; the problems of relocation and other nonstructural approaches are primarily social and economic. The best way to identify these problems in advance so they may be avoided or solved, is to involve local people in planning. No one knows better than citizens themselves how a relocation plan might help or harm them and how such harm can be prevented.

**Eliminates surprises.** Public participation allows people to know in advance the potential pitfalls of moving. They can prepare for them, economically or emotionally. Forewarning of foreseeable problems keeps alive a feeling of goodwill and trust — and that feeling is critical in the relationship between officials, planners and citizens as the project progresses.



**Avoids misinformation.** Misinformation may run rampant if facts are not regularly reported to the community. Unless rumors are counteracted or prevented early by liberal doses of public information, they can take root and grow into troublesome sources of unnecessary opposition. Rumors are a kind of attitudinal weed. It is much easier to prevent them in advance than it is to repair the damage once a rumor has taken hold.

**Spreads responsibility.** The risks and inconveniences of relocation are likely to be shouldered by everyone in the floodplain, and in some cases, everyone in the community. So, everyone must be given the opportunity to take part in planning such a project and making the key decisions about it.

Soldiers Grove found that public participation was a two-way process. From day to day, the responsibility for tending the project fell upon one or two officials acting on behalf of the community. Most villagers were only partially active in the project, other were virtually inactive. To keep them in touch with the project, village officials made an effort to deliver information to the community. At the same time, they encouraged villagers to supply feedback.

Three types of citizen participation were used to keep this two-way communication going: structured involvement, nonstructured involvement and education.

### Structured Involvement

Tom Hirsch (and later the Community Development Office) maintained an open-door policy and actively solicited comments from citizens. Yet many people did not wish to talk to him or the "Town Fathers" directly. Most thoughts and feelings surfaced among small groups of people in their traditional social settings — churches, bars, club meetings, etc. To tap into these communication networks, the Village Board named the Citizens Planning Committee in 1975, several months after relocation was proposed. The 10 members were carefully selected to include many of the community's key opinion leaders and representatives of the most important sectors of village life — business, service organizations, the elderly, church and social groups.

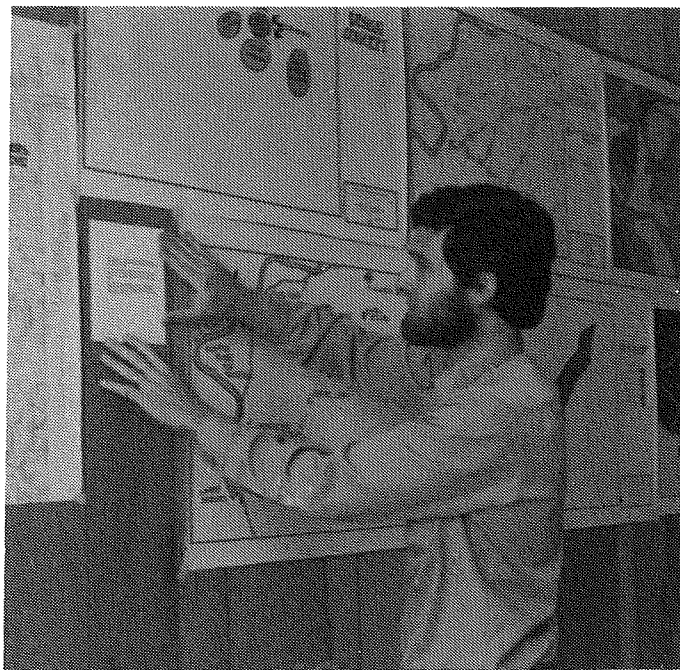
The committee members became key actors in relocation planning. They were kept thoroughly informed by Hirsch and by consultants helping on

the plan so they were able to spread accurate information in their social contacts. They were able to bring back comments for village officials that citizens were reluctant to deliver personally.

Hirsch served as "staff" for the committee, making it clear that the key decisions on relocation would belong to the committee and the Village Board. The Village Board followed the committee's advice carefully, happy to have citizens helping define and implement so politically sensitive a project. Thus, the burden of decision making fell to a group representing a broad base of the local citizenry, rather than to a single individual or to the handful of elected leaders on the Village Board.

The committee was one form of "structured" citizen participation. Another was a series of town meetings held whenever major new information was to be presented or major feedback was needed from the villagers. Architects, engineers and other consultants were required to be on hand to explain their latest ideas and findings, allowing villagers to question them personally. Attendance at these sessions sometimes was small (people got "meeting-out"). But even those citizens who did not participate could take comfort in the fact that they had been presented the opportunity.

The several surveys mentioned in an earlier chapter were a third form of structured involve-



*In 1975, the village used a CETA grant to hire Tom Hirsch as a full-time relocation coordinator.*

ment. They were used to gauge local values and attitudes important in fashioning the details of the relocation plan. One survey was taken door-to-door by volunteers from the Citizens' Planning Committee, and covered virtually every household in the community. Others were run in the community newspaper. Another was designed by a University of Wisconsin graduate student to learn architectural preferences for the new downtown.

### **Nonstructured Involvement and Education**

There were several forms of less-structured citizen involvement. Hirsch wrote a weekly column for the village newspaper. Hirsch, Swiggum and other members of the community development staff actively sought out people in business and social settings to ask their opinions informally. Hirsch and Swiggum hung a sign — "Office of Complaints" — on the door of the Community Development Office. It was a tongue-in-cheek recognition that once people realized someone in government was willing to listen, all kinds of gripes could get aired.

Hirsch asked engineers, architects and students working on the project to translate their proposals into large posters and models. These were used in public meetings, then displayed several weeks at a time in the post office, a place nearly everyone in the community visited frequently.

Education also took several forms. In some cases — for example, when business owners and planners were considering alternative energy systems for the new downtown — formal workshops were held by technical consultants to school interested people in energy efficiency and solar heating. These programs helped local merchants and other villagers make informed decisions.

Consultants and planners were asked to work individually with floodplain property owners whenever possible. One — University of Wisconsin landscape architect Phil Lewis, who headed the team that conducted Soldiers Grove's early feasibility study — spent hours with business owners, having them push construction-paper squares around a cardboard model of the relocation site. The process helped businesspeople choose where they would like their buildings located. It also helped



*A University of Wisconsin-Extension specialist worked with business owners to balance the owner's location preferences with good architectural layout and design.*

them appreciate what a jigsaw puzzle it was to position each building according to the owner's preference, while balancing the many other requirements of good layout and design. After they took part in trying to solve the puzzle, building owners were more willing to compromise to help the pieces fit.

Education can occur when professionals mix with local citizens. In one case the Village Board required a consulting firm — Hawkweed Ltd., the architectural firm chosen to design three solar heated municipal buildings — to establish an office in Soldiers Grove. That way, the architects were readily available to talk with business owners who might also want to utilize solar heating. For a time, the solar architects became members of the community, exposing the locals formally and informally to their energy awareness and solar knowledge.

A final — and very important — educational tool was that of a "hands-on" demonstration. Shortly after relocation was proposed in 1975, a small group of village leaders traveled to Niobrara, Nebraska, a small community relocating because of flooding problems caused by a dam downriver. The visit allowed villagers to see a relocation project first-hand and to talk to its participants. Articles in the village newspaper reporting on the visit helped pass Niobrara's demonstration value along to other people in Soldiers Grove.

The hands-on strategy was used to help soothe the fears of some property owners who remained unsure relocation would work. The Village Board selected for the first wave of the move, those business owners most enthused and committed, not only to relocation, but to utilizing solar heating systems. Solar heating had become a community-wide goal for the new downtown. Reluctant businesspeople were able to see the new structures in place, to talk to their owners about how relocation was working, and to watch solar systems in operation. The hands-on strategy calmed the apprehensions of several owners who might have chosen to move away from Soldiers Grove if they'd been selected as part of the first wave.

### **Creative Problem Solving**

These public participation procedures did not eliminate all of Soldiers Grove's troubles building and maintaining public support and community

coherence once the move was underway. Inevitable disputes and rumors grew anyway. Mentioned earlier was the rumor among nonfloodplain residents that their property taxes would leap astronomically after relocation. At another point, rumors circulated that the solar heating systems in some of the new buildings were failing (in fact, several of the systems suffered correctable "bugs").

But the village's prolonged and thorough public participation effort kept scares and conflicts to a minimum, prevented them from causing significant damage, helped reduce the discomforts of the move, and got the entire community involved in creative problem solving. For example:

- A major problem was that the business district would be moved further from many of the village's elderly residents, making shopping and other chores more difficult. This concern led to three solutions. The first was to incorporate housing units in the new business district so that some elderly residents could continue living in or near the downtown. Second-story apartments were encouraged above the new retail buildings, allowing those buildings to produce not only retail but rental income for their owners. One man who owned a commercial building in the old downtown decided to become a residential landlord in the new downtown, and built a housing project for the elderly near the relocated business district.

A second solution was to consider a minibus or cab service to give residents from throughout the community easy transportation to the new downtown. The service would also allow shops to deliver groceries and goods to homes of the elderly or handicapped. A third possibility was to offer postal delivery for those residents seriously inconvenienced by the post office's relocation to the new site.

- Some people were worried that with the destruction of the old downtown, Soldiers Grove would lose touch with its century-old heritage. Villagers decided to create a display of pictures of and artifacts from the old downtown. Other options were to name some of the new streets after key figures and events in the village's past and to erect historical markers in the riverside park at the site of the old downtown.

- Businesspeople were worried that after selling their buildings to the village, they would have to remain closed until their new facilities were constructed. That would mean a loss of business and income. The village solved the problem by allowing business owners to lease their buildings from the municipality after they were sold, until their new facilities were ready for occupation.
- Many residents resented losing the “comfortable old slipper” feeling of the floodplain business district. It might have been under water on occasion, but it was home. After working with people to pinpoint what they enjoyed about the old downtown, planners made several adjustments in designing the new. For example, there were several spots in the floodplain business districts that had become gathering places for elderly residents. Included were a couple of wooden benches on the sunny side of Main Street, outside the post office. Planners watched daily life on Main Street to identify this and other gathering spots, then designed similar places to gather in the new downtown.

People liked the small town atmosphere of the old business district. So features of the old downtown were replicated in the new. Main Street’s mix of one- and two-story buildings were reproduced along the new Main Street. So were the old downtown’s clusters of buildings and irregular lines of store fronts. Buildings at the new site were clustered in groups of two and three and arranged in jagged rather than straight lines along the new Main Street. Also retained was the old downtown’s mix of business and residential units.

As this list illustrates, some concerns were minor, some major. But all were important in the minds of people worried about change. An active effort to identify worries and to address them helped ensure that relocation succeeded at Soldiers Grove rather than becoming entangled in bad feelings, controversy, fears and charges of insensitivity. The Corps of Engineers is right — it often is much easier to deal with rivers than with people. But it can be done well, particularly by local people retaining control and actively participating in the creation and execution of their project.

### **Bottom-Up Planning Techniques**

#### **Structured**

- Citizens Planning Committee
- Periodic town meetings
- Formal surveys and publicity of findings

#### **Nonstructured**

- Local officials’ open-door policy
- Interaction between citizens and technicians
- Weekly newspaper column
- Conversations with citizens

#### **Education**

- Workshops
- Individual consultation with technicians
- Hands-on demonstration

## Chapter Seven: The Illusive Panacea

It is ironic that while floods are the nation's major recurring disaster, they are the most predictable.

"Unlike many other disasters, floods occur in areas which can be defined with a fair degree of certainty," notes the National Science Foundation. "It is, therefore, theoretically possible to avoid catastrophic flood damage either by not building in these areas or by designing developments to survive floods.

"For a variety of reasons, these seemingly simple expedients are not effectively practiced in the United States and flood damages continue to increase."<sup>18</sup>

Some of the reasons perhaps are apparent after reading the Soldiers Grove story. Water has a magnetic influence on people; it draws us to riverbanks and coastlines despite their inherent natural hazards. Over the years, as we removed watershed vegetation and urbanized the floodplain, we have helped make waterside living even more dangerous. As a nation, we responded by calling in our engineers, who have tried to bulldoze American waterways under control so that people could continue living, working and building in floodplains.

But this seemingly simple, technological fix has proven largely ineffective. We now know that urbanization increases the force and frequency of floods. Dams sometimes fail. Nature defies even the most careful calculations of how it ought to behave, sending unprobable rainfalls to unexpected places. The result, despite the massive national investment in structures since the mid-1930s, has been continued loss of life and property in floodplains.

Our challenge is to understand that rivers flood for good reason. They overtop their banks to regulate their own water flows during heavy rains. They create wetlands to store floodwaters. They create

unique habitats. They invite us to enjoy them, but they defy our efforts to control them.

We are adjusting to this understanding a step at a time, retreating only slowly from the notion that when man and nature come into conflict, it is nature that must yield. There are both technical and sensible limits to how much we exercise the raw power of bulldozers and the sublime power of technology to control nature. We are reluctant to acknowledge such limits and to live willingly within them. But the cost of refusing to accept our limitations is high and growing higher, in wasted tax dollars, community disruption and the loss of human life.

The latest major step in transcending the myth of technological omnipotence in floodplains has been Congress' passage of the National Flood Insurance Act, requiring future riverside development be floodproofed or prohibited. The act was the first federal law recognizing that dams and levees were not doing the job, and that nonstructural approaches were needed.

Soldiers Grove is using both zoning and floodproofing, but it also is going a step further. Through acquisition of the floodplain and relocation of buildings to higher ground, it is returning the riverbanks to a condition approaching their natural state. It is showing that such a strategy can be socially acceptable and economically beneficial.

However, there is a more fundamental, and less publicized, lesson offered by the community. We have lived under erroneous assumptions: that environmental preservation and economic development are incompatible goals; that community development can only take place at the expense of the environment; and that environmental preservation can only occur at the expense of economic development. Soldiers Grove has proved that with some creative thinking, win/win solutions can be

found to settle the conflict between people and riverine ecosystems.

### Finding Your Solution

The success of the project does not mean that every floodprone community should relocate. Each community is different. Each has a unique economic situation, a unique set of flooding characteristics and natural features, its own political climate, its own domestic tolerance for innovation, risk and change.

While relocation of a community of several hundred, or even several thousand buildings might be technically feasible, for example, it might be so socially disruptive that it is unlikely to win local acceptance.

That was the case in the village of Gays Mills, Soldiers Grove's downriver neighbor. Its 670 people were able to watch relocation at work and were subjected to flooding similar to Soldiers Grove's, yet they voted in a referendum to seek construction of a levee. A critical difference between the two villages is that 75 percent of Gays Mills' buildings are located in the floodplain. Not only its business district, but most of its residential neighborhoods would have to be moved. That was more change and trouble than the people wanted to handle.

Yet there are a growing number of states which have recognized that relocation is often a valuable option.<sup>19</sup> Arizona offers financial help to communities for floodplain mapping and relocation. Recent statutes there authorize local officials to petition the state to designate specific flood hazard areas targeted for relocation and to exchange those areas for state land.

Maryland has adopted a bond issue to provide money for localities to acquire floodplain land. Pennsylvania provides similar help so that communities can acquire flood-damaged properties for open-space use. Mississippi has earmarked HUD money to relocate 292 low-income family residences and to rehabilitate and floodproof 84 additional units. Rhode Island has launched a feasibility study of acquiring and relocating property in several areas which have suffered recurring flood damages.

### Demonstrating a Process

The broadest value of Soldiers Grove's demonstration is not the mechanics, but the process, of making relocation work. In summary Soldiers Grove's experience has shown that:

1. Nonstructural solutions need not be socially unacceptable. Nonstructural approaches such as relocation (often routinely regarded as socially unacceptable in the past) must be given serious consideration by floodprone communities and government agencies as viable alternatives to dams, levees and other "flood control" structures. In fact, given our recent problems with structural flood control, nonstructural alternatives should be given primary consideration.
2. Basic to making nonstructural solutions acceptable to the people involved is to actively seek, encourage and utilize their input in conception, planning and execution of the project. People are more willing to bear the social costs of regulating human behavior if they are assured they control the regulation process. Like a healthy plant, nonstructural projects must grow from bottom-up, developing out of the grassroots before branching into sophisticated plans and requirements.
3. Floodplain residents can be helped to overcome their attitudes and fears which stand in the way of changing their relationships with rivers. They can be coaxed out of floodplain amnesia, and away from the tendency to try to shift the responsibility for action to the government, or to technology, or to the river itself. People can be persuaded to shoulder the burden, acknowledging that flood damages are "people problems," not "river problems."
4. With imaginative leadership and the assurance that they remain the final authority in decision making, people can move beyond the stock solutions of the past to innovate. Given the chance to use their common sense, they can solve their problems simply and effectively. They can change themselves from victims of flooding to creators of their own future security.
5. Relocation, and to an extent other forms of nonstructural flood control, can become the impetus and the centerpiece of comprehensive

community revitalization. Nonstructural actions create opportunities to improve quality-of-life beyond flood damage prevention. In part, spin-off benefits can be achieved by using each dollar to achieve multiple goals (for example, Soldiers Grove's upgrading of water services as it extended utilities to the relocation site, and its energy-efficiency improvements as part of the new construction). In the parlance of planners, this is called comprehensive planning rather than single-purpose planning, and it allows a community to make maximum use of increasingly limited resources.

6. In addition to comprehensive planning, a community can benefit from "holistic planning." In other words, it can align local goals with national and global goals to produce not only the biggest bang for the buck, but the greatest good. Soldiers Grove made choices which not only will end flood disasters, but will reduce pollution, enhance environmental preservation, shift local reliance to renewable fuels and conserve fossil fuels. Thus, the villagers, "thought globally, and acted locally." While solving their local problems, they made a small contribution to solving problems of the nation and the world.
7. The primary responsibility for finding a solution to flood disasters is a local, not a state or federal, responsibility. Once they decide to act, local people can exercise considerably more wisdom and imagination in devising solutions than can federal agencies and officials who are burdened with the need to generalize, with political considerations and with substantial attitudinal and regulatory barriers. In many respects, the best people to figure out what ought to be done to end flood disasters are the real and potential victims of those disasters.
8. If federal officials and the Congress wish to help solve the national flood disaster problem, they must reform policies and grant programs to accommodate greater innovation on the part of floodplain communities. Those policies now often subvert rather than facilitate worthy local initiatives like those taken by Soldiers Grove. Alternatively, greater flexibility and financial resources should be turned over to states and local governments, where quicker and more sensitive response to local needs is possible.

## Nonstructural Alternatives

Relocation is perhaps the most radical of the nonstructural options available to reduce or eliminate future flood damages. Often, however, other options or a mix of them will be appropriate. For example, while relocation was the major element in Soldiers Grove's program, the community mixed that strategy with others. The flood fringe homes on Pine Street are being floodproofed rather than moved. The entire floodplain will remain under strict zoning to prohibit future construction susceptible to damage.

Here are a few of the options communities may wish to use as alternatives to, or in tandem with relocation:

### **Flood forecasting and early warning systems.**

Early warning allows floodplain residents and business owners time to prepare, reducing the threat to life and property. It is the weakest of the nonstructural options, but helps minimize flood damages while more effective solutions are planned. Flood forecasting is a nationwide responsibility of the National Oceanic and Atmospheric Administration (NOAA), but some communities have developed local warning systems to supplement the NOAA efforts. For example, about 40 self-help flood forecast and warning systems have been locally organized in the Susquehanna River Basin of New York, Pennsylvania and Maryland.

**Flood insurance.** The National Flood Insurance Program offers federal subsidies to floodplain property owners to make flood insurance more affordable. One promising provision of flood insurance in permanently ending flood damages is called Constructive Total Loss (CTL). If a structure is damaged while a standard flood insurance policy is in force and, because of the extent of damages and requirements of local zoning, is precluded from repair or reconstruction, CTL kicks in. It allows a settlement under which the owner can be paid up to full face value of the policy at the time of the loss. The payment helps him reconstruct outside the floodplain. CTL was included in the 1968 Flood Control Act, but was not funded until October 1979. During the opening months of its funding, there were 41 CTL payments made, all in Texas.<sup>20</sup>

CTL can be used as a device for funding eventual relocation. Communities can encourage floodplain property owners to buy flood insurance; identify a suitable relocation site; engage in site-

planning; and seek local, state or federal funds to extend sewer and water services. The site can be utilized in the event of a major flood, with building owners recovering equity through CTL payments. Such an approach has several shortcomings. For example, no relocation benefits are offered to help owners meet the costs of new construction. Nevertheless, flood insurance can be an important source of funding to reestablish homes and businesses on higher ground after a flood.

The record of floodplain property owners in using flood insurance has been poor. In 1976, a massive flood caused \$56 million in damages and killed 139 people in Big Thompson Canyon, Colorado. Only one property owner had flood insurance. Only nine flood insurance policies existed in Soldiers Grove at the time of its 1978 flood. Only 29 policies were in effect at Rapid City at the time of its 1972 flood, despite the city's known flooding history.<sup>21</sup>

The use of flood insurance is growing, however. By the end of 1979, nearly 1.8 million policies were in effect in more than 16,700 communities, with coverage totalling nearly \$73 billion in face value. During 1979, the National Flood Insurance Program paid more than \$427 million to 66,175 claimants.<sup>22</sup>

**Floodplain zoning.** Floodplain zoning works hand-in-glove with flood insurance under federal law. In order for their residents to qualify for flood insurance, communities are required to pass approved zoning ordinances guiding future floodplain development. Generally, new construction is not allowed in the direct path of floodwaters. Construction often is allowed in flood fringe areas, so long as buildings are floodproofed.

In some states, like Wisconsin, tougher restrictions are imposed. Floodplain buildings in Soldiers Grove, for example, could not be modified or improved beyond 50 percent of their value, unless the improvements were floodproofed.

Perhaps the most comprehensive use of floodplain zoning has occurred in the Tennessee Basin, home of the Tennessee Valley Authority. More than 100 communities have adopted some form of land use regulations to guide development away from the floodplain. The TVA was the originator of this approach in the early 1950s, providing technical assistance and data to communities wishing to implement zoning.

**Floodproofing.** Floodproofing refers to any of a number of procedures designed to protect individual properties from water damage. Good floodproofing blocks the entrance of water through building openings; prevents damage to building finishes and contents; stops seepage through walls, floors and foundations; averts damage to foundations, walls or floor slabs because of water pressure; and keeps water from backing up through sewage systems. Another goal of floodproofing is to allow emergency access to and from a building during floods.

There are several approaches to floodproofing. One — being used along Pine Street — is the use of earthen fill to elevate buildings above record flood levels. Soldiers Grove had completed four such floodproofings at the time of this writing and has found the costs to vary greatly from building to building. The estimated costs of the Pine Street floodproofings range, for example, from \$341.70 per inch of elevation for one home raised 40 inches, to \$2,225.70 per inch of elevation for another structure raised 10 inches. Each building is different.

Another technique called "wet floodproofing" allows flood water to flow through a building designed to withstand it, after easily damaged items are moved. Or by pumping the interior of a building full of water after damageable items are removed, water pressure is equalized and damage to the structure prevented.

Barricades and other temporary devices can be used to close building openings; earth berms (in effect, small levees) around a building or lot perimeter divert flood flows; and in some climates, elevation upon stilts rather than earthen fill is effective. Temporary polyurethane wrapping for a building exterior can prevent water from getting inside.

Some types of floodproofing border on structural approaches and depend on the ability of engineers to anticipate nature's wiles. And always care must be taken to provide access to a floodproofed structure so it does not become isolated during times of high water.

**Acquisition/Evacuation.** As the name implies, this option involves the purchase of floodplain land and buildings, usually by a government agency, to clear a floodplain. Relocation and evacuation often are confused. Strictly speaking, evacuation is simply the emptying of people and property from a



floodplain; there is no effort made to guide where the buildings and their owners resettle. Relocation goes a step further, reestablishing floodplain buildings elsewhere in a community so that population, tax base, housing and business services are retained. Simple evacuation is a more appropriate option for communities whose floodplain buildings are of marginal economic or social significance, or where adequate housing and development opportunities exist. Relocation is the necessary option for communities like Soldiers Grove, which cannot afford to lose key businesses and property tax revenues.

The City of Prairie du Chien, south of Soldiers Grove, is evacuating its Fourth Ward along the Mississippi River, with evacuees folding as they can into vacant housing stock and building lots. The project is one of the few nonstructural approaches being sponsored by the Army Corps of Engineers. The City used HUD funds to pay its local share.

Evacuation also has been used in the Big Thompson Canyon area in the aftermath of the 1976 flood. Local officials, under pressure from the Federal Insurance Administration, declared an eight-month moratorium on repairing any structures damaged beyond 50 percent of their value. In the meantime, local officials instituted zoning restrictions (including ceilings on repair or reconstruction of the badly damaged structures) on floodplain development. They tried to institute a plan to purchase 166 parcels of floodplain land at a cost of \$3 million. But public pressures to reinhabit the floodplain grew during the delays in planning and funding the project.

Eventually, 123 parcels were purchased for \$2.2 million. A portion of the funding was authorized by Congress under a special amendment to the Land and Water Conservation Act of June 1977. Other government contributions totaled \$1.6 million and came from a mix of sources, including the HUD Community Development Block Grant program, the Secretary of the Interior's discretionary fund, and the regional planning commission.

## What To Do?

Given these options, and the knowledge that no other community's plan is a perfect model, what should a floodprone community do? Larry Larson, chief of the Floodplain-Shoreland Management Section in the Wisconsin Department of Natural Resources, suggests there are four basic steps when a community wishes to end its flood disasters.

1. Keep the problem from getting bigger. The first step is to adopt floodplain zoning, thus preventing further unwise construction in the path of a river.
2. Take out insurance. Property owners should be encouraged to purchase insurance under the National Flood Insurance Program. In the event of another flood, they will be able to recover some portion of the equity in their damaged buildings — equity which could help them rebuild elsewhere in the community.
3. Make flood damage prevention a community development goal. Local officials must acknowledge their flooding problem and take it into account in their actions. As Don Barnett, Mayor of Rapid City noted after that community's disaster, "Elected public officials must give the same attention and priority to (their) drainage problems as they give to police and fire problems. In the history of Rapid City, perhaps 35 people have died in fires and another 35 have been killed (by) crimes. But in just two hours, 238 people died in a flood."<sup>23</sup> Flood-conscious action means that when highways, bridges, sewer and water lines and other public facilities come up for replacement, they be built to accommodate expected floods or are moved beyond the reach of the river.
4. Develop a flood damage prevention plan. Create a plan which sets a long-term target of zero flood losses and establishes achievable steps along the way. Make it a plan which, in the worst case, becomes a master plan for post-disaster recovery after the next flood; or, in the best case, serves as a logical, step-by-step guide for action before another flood has a chance to occur.

Larson also suggests this checklist for carrying out these four steps:

- ✓ Recognize, and encourage others to recognize, the problem. It is no coincidence that this suggestion sounds like the first step in getting help for a drinking or drug abuse problem. Many floodplain residents are flood-a-holics, denying they have anything to worry about. They are locked in the first stages of change — denial and avoidance. Nothing can be done until floodplain residents acknowledge their continued vulnerability to flooding and agree that they must do something about it.
- ✓ Identify all your community's flood-related costs. This will help others recognize how costly and economically disruptive flooding is. Count direct costs, like building, property and public-facility damages; and indirect costs, like erosion of property tax base, interruptions of business and services during flood times, the expense of flood forecasting or early warning systems, and the loss of property values because of the threat of flooding. You'll be amazed at the money your community spends just to maintain the status quo.
- ✓ Organize local people to guide the development and execution of a community flood prevention plan.
- ✓ Appoint one person to serve, full-time if possible, as staff to the committee and as coordinator of the plan's execution. Set him or her to work finding necessary data, regulations, permit requirements and funding sources.
- ✓ Research. Have the coordinator contact other floodprone communities like Soldiers Grove to learn from their experiences. Set the citizens and the coordinator to work learning everything they can about the community's problems and alternative solutions.  
  
Make an inventory of state and federal resources, technical and financial, to help with planning and implementation.
- ✓ Identify those community development goals which might be accomplished as part of a flood prevention plan, or inspired by it. For example, your flood prevention plan may open opportunities for energy conservation, housing rehabilitation, urban renewal, alternative energy use, soil and water conservation, utility improvements, additional open-space and recreation, and improvements in transportation routes and emergency access. Identifying such goals is the first step in ensuring the project has maximum positive impact on the community. It also opens up multiple approaches for state and federal funding.
- ✓ Package a combination of solutions tailored to your community. Consider public attitudes, available money, legalities. For example, your selection might include floodproofing for existing buildings, the acquisition and relocation of severely floodprone properties, the purchase of floodplain land for open-space use, and the construction of levees to protect flood fringe areas. Work with the community-at-large in selecting these options. Then fold them into the community development plan.
- ✓ Set milestones. Plan the order of the flood prevention program and when each phase ought to be accomplished. Be realistic, allowing longer time and more work for those phases requiring state or federal support.
- ✓ Solicit low-cost or no-cost technical help from sources such as the state university, the state floodplain management and emergency services agencies, the Corps of Engineers, and the Soil Conservation Service. These sources often can help with preliminary planning; private firms most likely will be required for detailed architectural, engineering, financial and other technical work.
- ✓ Immediately begin implementation of the most achievable, short-term goals in the plan. This will help establish a "can-do" atmosphere, a record of achievement and evidence of community seriousness. Build on that record of success in tackling progressively harder and more resource-intensive goals.
- ✓ Push and persist. Remain flexible and responsive to unexpected developments and opportunities. And do not be discouraged by problems. Flexible persistence is perhaps the essential element in seeing the plan accomplished. Where there is a will, there is a way to end your history of flood disasters.

# For Further Information

*Reports cited in this booklet and other technical policy discussions:*

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*Other Soldiers Grove materials:*

THE MAKING OF A SOLAR VILLAGE: A CASE STUDY OF A SOLAR DOWNTOWN DEVELOPMENT PROJECT, William S. Becker, 1980. Available from Lorian Press, 7146 Elderberry Rd., Middleton, Wisconsin 53562. (\$2.50)

"Come Rain or Shine," a 28-minute color movie will be completed by August 1983. Film makers Mark Samels and Kathleen Latterelli expect to distribute both 16mm and videocassette versions. Call them at (608)244-1929 for details.

"Come Rain, Come Shine" slide-tape set by Tom Hirsch and Kathy Fairchild is available from the Wisconsin Department of Natural Resources, Floodplain Management Section.

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