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Bulletin 39

FLOOD DAMAGE ABATEMENT -
FEDERAL ASSISTANCE TO LOCAL GOVERNMENT

Edited By
William R. Walker
T. W. Johnson

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FLOOD DAMAGE ABATEMENT
FEDERAL ASSISTANCE TO LOCAL GOVERNMENT

Edited by

William R. Walker, Director
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Water Resources Research Center
Virginia Polytechnic Institute and
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Blacksburg, Virginia 24061

July, 1970

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PREFACE

Floods have been a problem in Virginia since colonial times. Although their frequency does not appear to have increased, the damage inflicted after each flood of comparable size continues to rise. The alternatives available to the individual in mitigating damages are limited and the solution appears to be in some form of collective action, usually by a governmental unit. Since 1936 both the individual and the state have abdicated their responsibilities for reduction of floods and flood damages to the federal government. The damages continue to rise despite the ever increasing amounts devoted to flood control structures. The state, although recognizing that these floods cause a drain on its total economy has been unwilling to devote significant resources toward the reduction of flood damages either by structural or non-structural alternatives. It is readily apparent that local government is most directly involved with flood losses and has the most to lose by waiting for either the state or federal government to assist with its flooding problems.

Many small communities with limited resources feel inadequate to the problem and have grown to accept losses to life and property as inevitable or have become totally frustrated in attempting to deal with the flood damage problem. The Water Resources Research Center felt that local government could do more than it had in the past, that the economics of doing nothing was leading to losses that were rising at an exponential rate, that there was little awareness of the various types of assistance available, and that there were communities which had effectively dealt with their flooding problem in a realistic way using the assistance that was available. To assist local governments in coping with this flood problem, the Water Center organized a seminar to show that something could be done at the local level, to highlight the economics associated with flooding, to provide detailed information about the assistance available, and to hear the testimony of community leaders who have reduced their flood losses with the financial and technical assistance available. This bulletin contains the papers presented at the seminar in the hope that others might find the information of substantial value.

William R. Walker
Director

OPPORTUNITIES AND RESPONSIBILITIES
OF LOCAL GOVERNMENT

George W. Griebenow
Administrator
Urban Renewal Board

It is a real pleasure for me to be here to enjoy the beauty of Virginia and to talk to you people who are experts in the field in order to exchange ideas regarding procedures and methods of developing comprehensive water resource programs that would respond to the needs of the various communities that we represent.

I am glad that I am not speaking from a platform, because it reminds me of a young clergyman who was called to his first church and he was very anxious to be the minister of that congregation. So he reviewed a sermon several times with his bishop, and his bishop said, "Son, if you can say it that well and give that speech as well as you did to me, I'll guarantee that you will be called as the minister of that congregation." So he memorized his sermon and he knew every gesture and every phrase and everything that he was going to say all the way through. When he had it down word perfect, he went to occupy this pulpit. And the congregation sang a hymn and they had the announcements and the offertory, and it was time for him to talk. And because he had memorized it he only took one phrase from from his notes, and it was, "Now I step forth." And if that word come to him, the rest of the message would come to mind. So he took one step aside and he said, "Now I step forth." He took a step forward to emphasize his point, and his mind went completely blank. He couldn't think of another word. And he stepped back and he caught that phrase again and he said, "Now I step forth." And he went off the edge of the platform and he landed in the lap of Dr. James here in the front row, and he picked himself up and straightened out his robes and he apologized profusely, and Dr. James said to him, "That's all right, son, you warned me twice and I should have moved."

So I am glad that I am not on that type of basis. I was real pleased to come in on Piedmont, and I happened to be up front where I could overhear part of the radio conversation, and the pilot called in to the ground control station for the time. And the ground control station said, "Well, who are you?" And the pilot said, "What difference does it make--I just want to know what time it is," and he said, "I'm sorry but you will have to identify yourself." He said,

"Well, all right. I don't see what difference it makes, though, will you please tell me why you have to know who I am--I just want to find out what time it is." And the ground control station said, "Well, if you are United Airlines, it's 22:15, if you are Eastern it's 15 minutes after 10 pm, but if you are Piedmont, the little hand is on 10 and the big hand is on 3."

Recently, the mayor of my city and some of our community leaders and I appeared before the House and Senate Committees on Public Works Appropriation on the 6th and 7th of May and we essentially gave this committee a statement that read something like this: 1969 was a year of sharp contrast for the city of Waterloo. Outstanding progress has been achieved in our local flood control and redevelopment effort. Meanwhile the city has experienced two of the most serious floods in its history brought on by rainfall deluges in June and July, 1969 during which millions of dollars worth of property was damaged and the city was placed in serious economic jeopardy. In 1961, 1962, 1964, 1965 and again in 1968 the city of Waterloo was declared a major disaster area by Presidents Kennedy, Johnson, and last year by President Nixon. Well over one million dollars worth of emergency federal financing has been poured into the city during these years to supplement the local expenditures involved in the flood control recovery effort.

During all of these tragic experiences the morale of our people was high and the cooperation of the federal, state and local officials was outstanding. The events of the summer of 1969 brought home the necessity of expediting a coordinated public works and capital improvements program along with long range planning. It is with this in mind that the citizens of Waterloo join me in thanking you for this invitation to appear as outside witnesses in support of a request for continuing appropriations for the Waterloo local flood control project.

To date we have purchased \$6,559,000 worth of land in anticipation of flood walls, landfill operations, channel corrections, bridge construction and reconstruction and the containment of one of the principal flood producing creeks. This purchase of land also anticipates the relocation of utilities, the clearing of structures in portions of the floodplain, the elimination of mixed land use through proper zoning, and river beautification factors as well as a major transportation plan for a 1520 acre area. A new Fifth St. bridge was designed to comply with the government's flood elevation requirements, and it has been completed and it is in use. A new flood-free Mullen Ave. bridge is under construction. A new First St. bridge has been constructed well above the flood elevation supplied by the Iowa Natural Resources Council and the

U.S. Army Corps of Engineers. In addition, another upstream vehicular bridge in the Conger-San Souci area will be replaced to improve the water flow and sharply reduce the effects of flooding in an important residential area around Chautauqua Park. This will also safeguard the city's large investment in the National Dairy Council Congress as well as the right-of-way for the Cedar Valley Expressway. Engineering studies are underway for the replacement above flood design elevations for two additional bridges, bringing the local expenditures for this purpose alone to well over \$4 million.

The principal reason that we need to advance the two programs of flood control and urban renewal simultaneously and have the necessary funds appropriated is to prevent duplication of effort and to coordinate the two major domestic programs in terms of design elevations, storm and sanitary sewer locations, local flood development commitments and to prevent private expansion from interfering with the most efficient design of the flood control works. With this in mind we have entered into an ambitious flood management program with the Metropolitan Development Division of the Department of Housing and Urban Development, the Iowa Natural Resources Council, the U.S. Army Corps of Engineers and the Waterloo Board of Park Commissioners. Already two-thirds of all the flood plain area of some 600 acres along Black Hawk Creek has been acquired through this highly specialized technique of preventing future encroachment into the flood plain. The land itself is being preserved for park and open spaces use and the general benefit of the using public. The time to reduce costs and to save delays is in the planning stage when differences of a few feet or inches in design can substantially reduce the overall costs to both the city and the federal government.

Mr. Chairman, I know of no program that has given us more satisfaction than this large scale redevelopment opportunity for the city of Waterloo. In our opinion it will demonstrate that when local interests embark on bold and imaginative plans and exercise strong local control, the result will be maximum benefits to both the federal government and to the local governmental bodies. We have repeatedly reassured the government and the U.S. Army Corps of Engineers that we will meet all the local requirements for flood control construction. Well over \$8 million has been earmarked for this purpose and the advanced land acquisition has been impressive and has been coordinated with the planning of the various federal agencies.

This is a brief synopsis of statements and testimony that was given before the House and Senate subcommittees recently in Washington, D.C. and which received the ear of Congress in a favorable vein. In the House Committee,

chaired by Congressman Mike Kerwin and the Senate Committee headed by Senator Ellender, they were very well aware of the fact that some of the things that prevent the local governing bodies from exercising their options and proceeding ahead of flood control projects were being accomplished in a community of about 133,000 people on the Cedar River in northeast Iowa.

The city of Waterloo is right at the confluence of the Black Hawk, the Beaver, the West Fork, the Shellrock, and the Red Cedar. All of these streams and rivers come together right at the heart of a large metropolitan area. We are an industrial city. The Waterloo John Deere Tractor Works employs up to 9400 people. It is a specialized, high paying industrial factory, and the Rath Packing Company is also on the Cedar River farther down stream. Most of our industries are water related—they depend on water from one source or another for their industrial growth and development. Within the corporate limits of our city 4200 acres are susceptible to flooding at the 100 year flood level. And as you well know, the Corps of Engineers designs their flood works for the 100 year frequency level or more, depending on the cost-benefit ratio, and in this 4200 acres of flood plain area within the city of Waterloo is 61% of all our total assessed evaluation. Our principal governmental agencies are located in this area, our central business district, and many of the churches and schools on which our community depends are located in this flood plain.

Our founding fathers, when they chose this area to settle, found there the ingredients that now make up the flood susceptibility of the area. They found this low, level plain with a hardrock base, with a limestone river bottom ideal for fording back and forth across the Cedar River and for establishing their mills and their agricultural operations. What was ideal for our founding fathers 100 years ago or more are the very ingredients that now make the area susceptible to flooding. These five tributaries that I mentioned that feed into the area are a natural watershed which produce the rapid runoff of water because of the melting of snow and ice that make us very susceptible to this flood-producing factor.

By sheer providence and by accident, prior to 1961, we did not have any floods from 1929. Then, since 1961, we have had eight disastrous floods which brought home the realization that we had to do something. Now basically we are an inland city—we are fairly far from the Mississippi and the Missouri. We are not a main stem city; we are not basically interested in the normal Corps operations of navigation, harbor construction, siltation, water pollution, and other factors like that. The Cedar River has about 79,000 cfs in water volume capacity at a maximum level. At flood stage it goes to 126,000 cfs, so it is not a large river, but in 1961 when this flood came on, it

caught us by surprise. We were not ready for it, and I recall with considerable amazement now how naive we were about the things we had to do to get ready for flood control planning. We sat in the mayor's office and everybody pointed the finger at someone else... At the Iowa Natural Resources Council, at the State Conservation Authority, at the Corps of Engineers, at the Office of Emergency Preparedness...anybody but ourselves. We constantly pointed the finger in all directions until finally we came to the realization that it had to start with us. And so we initiated a program with the Department of Housing and Urban Development for flood plain management and for clearing the floodplain and providing the Corps of Engineers with those essentials of local agreement that are necessary for the construction of flood works.

Now most of you are very familiar with the fact that the Corps requires the local governing body to supply them the land and the easements on which to build the flood walls. They also require the local governing bodies to provide them with zoning and with land use controls to keep the flood plain from further encroachment. They also request that the local bodies save them free from harm and danger, that they relocate all the utilities, bridges, streets, thoroughfares and that they elevate the bridges and other flood producing factors that bring about these flooding conditions. Now many of these things are also part and parcel of an urban renewal program, and we tied together a 1520 acre urban renewal and open spaces program with flood control so that instead of having a series of vertical walls and a Maginot line, a Siegfried line of high cement barricades and earthworks, we could tie these things together with a landfill operation that would make the dikes aesthetically appealing and, if at all possible, use the floodwall as a basis for roads and for a scenic river drive, and elevate our bridges so that at the same time we would coordinate the two programs for the maximum benefit of each.

One of the things we found out was that most of our bridges were built in 1903, 1905, 1908, and 1909, and they were earth-filled coffer bridges which were getting obsolete anyway, but more than that, they were designed at an elevation which produced flooding. The five principal bridges in town were producing an elevation of nearly two feet in flood water upstream, and this flood water was going into some of our best neighborhoods and causing excessive damage. The reconstruction of each one of these bridges was coordinated with the redevelopment effort on both ends of the bridges and elevated and replaced at an increased elevation so that the flood waters would go through.

Along with this, Black Hawk Creek that fed into the Cedar River was also a flood producer. More than that there was the beginning of the encroachment into this flood plain. Little by little, as pressure was exerted on the local planning and zoning authorities, people were just "a little at a time" moving into this flood plain, just a little construction, just a little fill, just a little building. And it soon became apparent to us that the mistakes that had been made in the past on the Cedar River now had a potential for re-occurring on Black Hawk Creek on the west side of the Cedar River feeding into the Cedar by the Waterloo John Deere Tractor Works.

So we made an application for \$205,000 worth of flood plain management money through the Department of HUD and we received this grant which, matched with local funds, allows us to proceed with the acquisition of over 600 acres of land on both sides of Black Hawk Creek. Concurrently the Corps of Engineers did an aerial survey, a land use study, and an engineering report in depth along Black Hawk Creek to show us exactly where the flood plain was, and we bought the open space land to coincide with the flood plain study that was developed by the Corps of Engineers. This land will be reserved in perpetuity for public use and for open spaces. It is the kind of land that is ideal for that purpose. It has some of the last remaining woods in virgin condition in our country, that is to say, the woods are not spoiled by any man-made encroachment. There is potential for bridle paths and nature study areas and for trailways and for scenic sites for camping and picnicking and things of that kind, for fishing and a limited amount of hunting. This can still be salvaged in an area that is going through a rapid industrial change.

In one of the sections that was purchased because it was in an urban renewal area, over 126 acres worth of deteriorated and dilapidated residential property was acquired. All of this property was in the flood plain. The families were assisted with relocation out of the flood plain--the few properties that were movable and were still of standard construction were moved out of the flood plain on dry land above the flood elevation, and the building inspectors department, the local public works director and others examined each structure to make sure that they were not termite ridden or flood damaged in any way unusable, and they were moved out of the flood plain onto buildable lots throughout the city. But the large portion had already been damaged by flooding or were substandard or they were not amenable to rehabilitation, and they were demolished after the families had moved out.

As I stated to you a short while ago, over \$6 million of property was purchased in this manner. The land was cleared, and then a great deal of this was dedicated for industrial purposes. On this 126 acres which I referred to, the river was dredged and the land was filled and raised above the 100 flood level and it became an ideal industrial park. On this industrial park a new all electric foundry is being constructed with a value of \$20 million to the city of Waterloo. The present foundry, the old John Deere foundry, is a cupola type coke burning foundry that was emitting air pollution and to a certain degree some water pollution. Now this is being totally corrected by an all electric foundry which looks no different than a large college building or a shopping center or something else of that nature. When it is completed, you will have no idea that you are approaching a foundry at all, and twin 161 KVA electrical units are positioned close by to give this all electric foundry all the power that it needs. This is a tremendous gain to us as a city. It is using flood control and redevelopment to bring us economic gain instead of wringing our hands and feeling sorry for ourselves and saying that these 550 families that were living in the flood plain were destined to remain behind high walls at best, and at worst to leave them in the flood plain susceptible to flooding year after year.

We cleared the land, the land was filled with 1,400,000 cu. yd. of fill from the river which produced a channelization program which is already reducing the crest of the flood, On this landfill the first building that is being constructed is an all electric foundry. This was just sheer coincidence. As you all know, and I am sure you are very sensitive to it, the ecologists, the environmentalists, the conservationists, and the pollution experts are putting considerable pressure on the Department of the Interior, HUD, the Corps of Engineers, and all other bodies, your Natural Resources Councils and conservation commissions, to do something about the ecology of the area, about the environment. And we started this 6 or 8 years ago and by a fortuitous accident--I cannot say that it was through any crystal ball look-to-the-future we came on to this industrial growth and this pollution abatement program that is enhancing the area in a most remarkable way and which is removing the air and water pollution factors within the flood plain as well. The industries of bygone days took a lot of river water. They used it for cooling turbines, they used it for industrial purposes, for sludge clearance and other things of that kind, and these things have to be corrected. That is what made the river attractive to all these industries and that is why so often you see the concurrent development of industry and watersheds. This is now being corrected within this area and, of course, it makes the project quite attractive. It gives us the political support and the economic backing of the entire community.

As you well know, before you get into any flood control program or any program that uses eminent domain procedures, you have to have a number of public hearings. And I might say right now that you can stub your toe on the public hearing and go no further if that public hearing is not properly set up, the supporting factors in the community are not marshalled and organized. If you do not get them to the public hearing on time, if they are not visibly in support of the program, you can lose the program right at the very beginning of it, because there are a lot of hard luck stories, a lot of difficulties that will be emotionally presented at a public hearing that will bring out everybody's sympathies for the person whose homestead is in the flood plain and who wants to remain there and who has stayed there through two or three generations and nobody is going to get that individual to move, because that is home. And we have unlimited sympathy for those kind of situations, and incidentally we assist every family, every business, every factory located in the flood plain to relocate out with the usual relocation assistance that is provided by the Department of Housing and Urban Development. Even when federal funds are not involved, we used local and state money to assist people to move out of the area. But as I said before, you can very often pick up the impetus for defeat at that first public hearing, and we soon realized this.

The initial public hearing that was set up for the development of the 18 million dollar housing and urban development program which is known as the Westville-Virden program—the hearing was set for 7:30 in the evening and by 5:00 many of the community leaders were there, and they occupied the hearing room. They were there with oral presentations and written presentations, and they were visibly present. And when that hearing room filled up with over three or four hundred people and the prominent leaders of the community—the people who really wanted to get the job done and who were sensitive to the needs of the community and who realized that this was an opportunity to either let this area decay or go downhill and to be destroyed by continual disaster, or to recoup the losses of the past and regain the economic impetus for the present and the future—when they were there and when they came forward and announced their names and said that this firm or that company—the major employers of town—the people who really knew here was an opportunity to take a big step forward, when they came and expressed themselves, it helped a great deal, and in that hearing there was not a single no vote from any member of the governing body.

The same thing occurred in the flood control hearings that were conducted by the Corps of Engineers. We did our homework; we helped people write statements; we helped them organize their thoughts; we helped them to say the same thing so that two separate, friendly witnesses were not in conflict

with each other. And we tried to keep the public interest uppermost in mind. We conferred with the Corps of Engineers and with the Iowa Natural Resources Council and with other groups so that we were not in conflict with their financing ability and with their time schedule and with the other things that they had to do. The hearings that were scheduled to begin at 9:00 in the morning and set to go all day were finished by noon. There was nothing more to say; there was general agreement. There were not 110 separate engineers who stood up and had 110 separate ideas and that many “guardhouse lawyers” who had their separate viewpoints, but it was cohesive and coordinated and with a single voice. And when the hearings were over it gave us the platform on which to initiate the program. The news coverage, the general support that was expressed, helped us later on when we went out to buy the property and when we went out to negotiate and when we went out to help people to get across a friendly, warm empathy with the people living in the area and to give us a kind of support and rapport with the people that we badly needed.

This program is no magic answer—it may work in one community and it may not work in another. And I can automatically see if I represented a city just starting to initiate a flood control program that you would automatically say well, fine, I can see the reason for coordinating HUD with the Corps of Engineers programs and with state and local highway construction and bridge rebuilding programs in order to gain these massive dividends, in order to increase the cost-benefit ratio, and in order to see something positive coming out of what otherwise might have been a negative program: But it may not work in your community. I do not know. A lot of it depends on initiative. A lot of it depends on evening meetings, on weekend work. Very fortunately, we have a board that believes that nothing can stand in their way. We will break up an evening meeting say at 11:00 and everybody is tired and sleepy and they have their other jobs, and before we finish we agree to get together at 7:30 the next morning to finish up the loose ends that are not quite tied down—one more statement, one more letter that needs to be written, one more contact that needs to be made, an extra degree of cooperation that we need from the county conservation commission, from the park board, from the recreation commission, from some other local body. You stub your toes usually on the local situations by not having all these boards and commissions working together and coordinating their efforts. You take out a park with a dike or flood wall and you do not replace it someplace else and you engender considerable misunderstanding and mistrust, because parks are very precious to people nowadays, and they find more and more leisure time for that softball diamond, the Robinson Crusoe island that may have to come out because of flood works, that playground area takes on a very emotional

dividend. You can say, well, we are creating an industrial park over here of 126 acres and this will mean so many new jobs for the area, but that does not count in terms of Tommy and Kenny and Judy's playground area or the summer softball season or something else in which the flood plain has been used for recreational opportunities. You have to find something to replace these facilities some place else or else you are victimized by letters to the editor, by city council members that are not happy and a number of other things that keep the thing from moving forward on all fronts in a united way. This takes a lot of meetings.

We have been very fortunate in having a sympathetic ear of the District Office of the U.S. Army Corps of Engineers, and we have had a series of District Engineers that have been sympathetic to it, and the program that has been developed here has been nationally written up by the Corps of Engineers. In the Water Spectrum magazine, for instance, last fall it was a featured article of how flood control and housing and rehabilitation and redevelopment is being done together so that there is a substantial dividend in timing and financing and the private sector of the economy is being stimulated to make major investments in the area. As I said before, this has worked with us. It may not work in another area. One of the problems right now is the difficulty in getting federal financing for housing and urban development programs.

All over the nation funds are limited, and many of the cities, many of the large metropolitan areas faced with the squeeze in the crisis that they all face, want all of the money funneled into their large population centers, and rightfully so. I think the mayors of the large cities must have the ear of the federal government. They see the pressing impact of the immigration of people who used to live on the farms and rural communities now pressing in for jobs and for housing and for an opportunity to improve the quality of their life, and sometimes they do not see the outlying smaller communities, while we feel that the smaller communities are the larger communities of the future. At the same time, we feel that helping Philadelphia or Boston or San Francisco or Los Angeles or Houston or any other city is not taking anything away from us. We think that when we help any other city we are helping every city. And it is because of that that I am here today, because I think if it is good for our town, it may be good for another city. If it has worked in Waterloo it may work in some of your hometowns in some of your areas. But I wanted to point out to you that persistence and the vitality of community support that is required to put something like this together, and the legal right that you have to exercise--you must have the power of eminent domain, you must have the proper legislation to move ahead on these programs without restrictions.

In the purchase of over \$6 million of land we have been to court 15 times, (that is, through District Court). We have managed to negotiate, we have managed to settle these differences before getting into court, and that takes a great deal of time in order to stay out of litigation and to stay out of questions of constitutionality and property values and things of that kind. The thing that we find works for us is to get two independent separate appraisals by the best appraisal firms that we could find and then on the basis of those two appraisals make an offer that is no lower than the lower or higher than the higher. Usually, it is the higher appraisal, and on that basis we make a single offer--no matter who it is, rich or poor, or no matter what their condition in life is, we make the single offer--we do not try to negotiate for a lower price. And there are some people who are so anxious to get out of the flood area they would settle for far less than we offered, but we do not think that that is fair to them to take advantage by deprecation and the emotional content of their living condition and to offer them less than the fair market value. So we find the fair market value and then we make this single offer, and in case after case, we find that people were ready to move on that basis.

Then, I should point out to you that through the Department of HUD, relocation assistance is available. This is the most sensitive area of all and sizable increases have been made in relocation grants, moving expenses, rent supplementation programs, things of that nature, and in housing programs. I would suggest to you that you initiate these programs and that you begin to develop alternatives to living in the flood plain or in the area that is susceptible to this constant damage. If you coordinate that with the land purchase plan, the two should go together to your advantage.

Basically, the area is probably best described on an aerial map. The blue area on this map is the area that was flooded, and we took a number of pictures from news accounts of the flood actually in progress and then in a very amateurish way, we located the inundated area by putting these pictures up against the flood map. We did this to convince ourselves where the flood susceptibility area was and where we should initiate a redevelopment project. Now, as I said, we did this at the staff level. We did this on our own initiative, on our own time largely. And we put together a composite. Now it looks quite amateurish, but you would be surprised how much weight this carried. And I would suggest to you, at the height of the flood when you are going through the damage and the disaster, and when you are facing human relocation, the Red Cross is active and various emergency techniques are being implemented, that you document it with photographs--that you get it right then--because soon after, everybody forgets it and they do not think that it is ever going to occur again. You would be surprised how much

propaganda we heard along that line-- "It will never come up this high again;" "My house will never get wet again." Well, here is the proof positive, and incidentally, we used this in the few condemnation cases we had--it was pretty eloquent testimony to a jury that these properties had to be removed and taken out of the floodplain.

I described to you earlier the fact that the Waterloo John Deere Tractor Works was located here, and all of this area upstream from it was flooded. Well, the John Deere firm in Waterloo was landlocked and waterlocked. It could go no further. If it wanted to expand, if it wanted to modernize, if it wanted to go into pollution control programs, it had to leave this particular area or it had to have some elbow room or flexibility. We purchased this land upstream from it that was in the flood plain. The river was widened, deepened, and rechannelized, and all of the river bottom sand was used to fill this area above the 100 year flood level and that is the site of the new foundry that I described a little earlier. In addition this program is substantially protecting a prime residential area on both sides of the Cedar River. The Black Hawk Creek flood plain that I described is this blue area coming up. You can see where the water came in 1961 in that blue area. This land is being purchased now through an open spaces grant and being preserved for park and outdoor recreation purposes.

Parks and open areas are perfectly all right for flood plain purposes. All you have to do is chain down the picnic tables and the park equipment, tie up everything and ride out the storm, and when the water goes back down it takes quite a clean up job, but there is not a human factor, there are not human lives involved, and there is not a substantial amount of improved property. This combined use of parks for watershed and drainage and floodplain areas is working out very well in our area. Now I did not want to get into a technical program. I brought these maps and other material here, but you are welcome to follow up on the remarks that I have made, because as the keynote speaker, I am supposed to stimulate you to do your own thinking, to improvise, to be bold and imaginative, and to take some of the language that I have given to you and translate it into your own terms, where you live and how you practice your various techniques.

I might say in closing that both the Army Corps of Engineers and the Department of HUD has all kinds of language in their manuals that says you are to coordinate your programs with other federal agencies. Reams and reams of material are written into the Corps of Engineers Manual and the Urban Renewal Guidelines. Do not go any further in flood control planning until you have conferred with the Corps of Engineers. Do not go any further

until you have seen what the land use and zoning control should be and whether or not urban renewal can be used as a supplement to your flood control effort. But in many, many communities these guidelines are ignored, and by the federal agencies themselves, because it is complex enough to take on one agency without two, and the timing, coordination and split-second cooperation that you need is not easily come by. And so, although it is there and although it is adopted by Congress, and although it is used by these various departments to indicate that there should be this cohesive, coordinated, forward thrust in flood control management and urban development, it is very seldom actually put into effect. It is there, though, if you look for it.

For instance, there are Section 215 Agreements in the Corps of Engineers that allow you to go ahead and proceed with flood works and the construction of flood control devices ahead of the appropriated funds on a reimbursable basis. There are housing and urban development funds that are available to revitalize and rework a flood plain area. There are public works grants that are available. Substantial federal assistance is available for the installation of water and sewer facilities. If you finish a flood control plan and a redevelopment proposal and your sewer outlets are out of line, or at the wrong elevation, what good does it do? You have to go back over and re-do your whole program practically and dig up a lot of streets and cause a lot of unhappiness all the way around by not taking into consideration the fact that when the new elevations are reached those pipes may all have to be 8 or 10 or 12 inches higher than they were before. This takes a whale of a lot of paper work, and it takes a lot of "grinding it out," and it is not done by speech-ifying or by eloquence, or by politics. You have to do your homework and you have to do your paper work very well. Then after that, you can try the politics and push for the support that you need.

We found it very useful to associate ourselves with a number of groups with that purpose--The Mississippi Valley Association, Water Resources Associated, the National Rivers and Harbors Congress, and other groups like that. And we gladly contributed our time and our effort because we have a lot to learn from other cities who have gone through this experience. We certainly do not have the time to go through this over and over again and to make the same mistakes over. We like to benefit from what other communities have gone through. Out of this has come a program that we think will be highly beneficial and useful. We could not sit there certainly on the Cedar River in the heart of a vital agricultural area with a heavy industrial investment that was part of this 4200 acre flood plain community and continually be susceptible to these disastrous floods. Our senator said on the