

State of Nebraska Community Flood Mitigation Planning Guidebook

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Nebraska's deadliest flood
Republican River Flood of 1935 - Riverton

Nebraska Natural Resources Commission

June 1998

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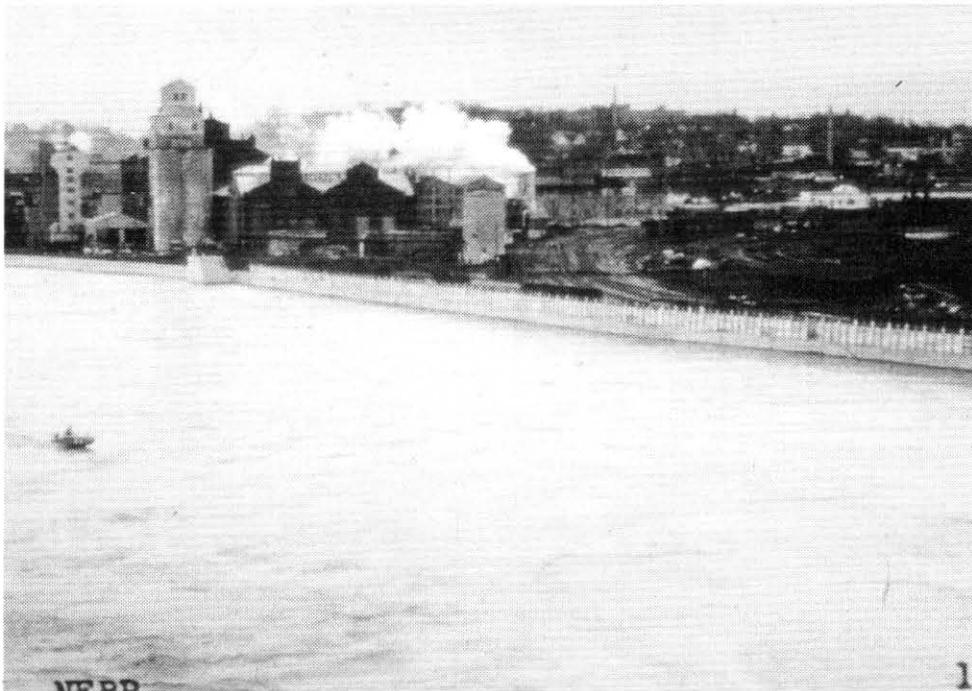
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Missouri River at Omaha, 1952

Nebraska Natural Resources Commission



Big Blue River near Seward under normal conditions
Nebraska Natural Resources Commission



Same location during a flood
Nebraska Natural Resources Commission

INTRODUCTION

What is the purpose of this Guidebook?

This Community Flood Mitigation Plan Guidebook was designed to lead you through the steps of developing a flood mitigation plan which will qualify your community for project assistance from the two flood-related programs which require a flood mitigation plan: the Flood Mitigation Assistance (FMA) program and the Community Rating System (CRS). The FMA program can also provide financial or other assistance in the development of your plan.

Examples of mitigation projects eligible for funding under the FMA include:

- Acquisition
- Relocation
- Floodproofing
- Demolition
- Elevation
- Minor structural projects

What is a flood mitigation plan and what does it do?

A flood mitigation plan benefits your community because it outlines the flood problems a community experiences and establishes a framework for solving them through the combined action of elected officials and citizens.

Why is a flood mitigation plan important?

A flood mitigation plan locates areas with flood problems, identifies courses of action to reduce the risk, and establishes a process to implement and review the plan as future conditions

change. Thus, it is a major step toward reducing flood damages in a community.

A completed mitigation plan is also a sign that your community is willing to address its flood problems. Because of this, a community with a mitigation plan may receive priority for disaster assistance money as Federal budgetary constraints become more of a concern.

More federal agencies are requiring some sort of flood planning document before funding a flood-related project. For example, if your community seeks a flood control structure through the Army Corps of Engineers (USACE), new guidance under section 202 (c) of the Water Resources Development Act of 1996 (WRDA) requires that, "The non-federal interest must prepare a floodplain management plan designed to reduce the impacts of future flood events in the project area." The process of developing the USACE floodplain management plan is very similar to the flood mitigation plan you would need to complete for the FMA and CRS programs. Thus, by completing a flood mitigation plan, you may qualify your community for more than one Federal flood mitigation program.

How much work will producing a flood mitigation plan be?

Developing a Community Flood Mitigation Planning Guidebook for Nebraska was difficult because the size of communities varies so widely. Small communities usually lack the staff to take on a very large flood mitigation planning study while other larger communities have planning departments or grant administrators to deal with these

subjects. Generally speaking, the amount of time and effort expected to complete your flood mitigation plan depends on the amount of resources available to you and the amount of related work already completed (such as a completed floodplain delineation study). A sample CRS flood mitigation plan is supplied as **Attachment 7**.

It may be entirely possible for a smaller community to hold one main public meeting and to discuss every step in the development of a mitigation plan. Also, because there are fewer structures in a small town, the identification of structures at risk may not take long.

Larger communities, with their higher number of interest groups, might sometimes even wish to hold one meeting for each of the steps identified in this Guidebook. More structures in a larger community may mean more time involved to identify structures at risk; however, more staff may offset the higher amount of time necessary to identify them. There is no requirement about how a community completes their plan – just as long as the appropriate interests are involved and the underlying federal guidelines are addressed.



Weeping Water Creek, 1982
Nebraska State Historical Society

Who can help guide me through this process?

This Guidebook is intended as a first step; however, the State Point-of-contact (State POC) will be available to guide you through the development of your flood mitigation plan throughout the entire process. In addition, the Floodplain Management Division of the Nebraska Natural Resources Commission (NNRC) can assist in technical floodplain matters.

What type of assistance is available?

A. Assistance for developing a plan

Financial assistance for developing a mitigation plan is available through the FMA program if your community receives a planning grant.

Community Development Block Grant (CDBG) funds may be available to fund mitigation plans or to offset funding cost shares which are not covered by the FMA program.

Technical assistance in the development of your flood mitigation plan is available from the State POC.

The State POC for Nebraska is Steve McMaster of the Natural Resources Commission. If you have any questions about the FMA program, he may be contacted at (402) 471-3957.

If your community does not have a FMA planning grant, a limited amount of floodplain engineering or delineation assistance is available from the NNRC. Call Brian Dunnigan, Floodplain Management Division, at (402) 471-3934.

B. FEMA Approval Process

The State POC will perform a rudimentary review of your community's flood mitigation plan to make sure that the requirements have been met. The State POC will forward the plan to FEMA Region VII Office in Kansas City for Federal approval. FEMA must return the plan within 120 days of submission. If the plan is unacceptable, the FEMA Regional Director will provide recommendations to correct the deficiencies.

C. Assistance for Carrying out a Project

After the mitigation plan is approved by FEMA, a community is then eligible for project grants under the FMA program. Projects must be identified in the community's flood mitigation plan.

If the amount of FMA funds is insufficient to carry out a project, other funds such as Hazard Mitigation Grant Program (HMGP) funds may be available.

The Flood Mitigation Assistance (FMA) program

Funding resources, such as the Flood Mitigation Assistance (FMA) program, are available to help a community complete a flood mitigation plan and to carry out flood impact reducing projects identified in that plan.

The goal of the FMA program is to reduce claims on the NFIP insurance fund by funding impact-reducing projects in communities which show

they are willing, through NFIP-enforcement and a local flood mitigation plan, to mitigate their flood problems.

GRANTS: In the FMA program, jurisdictions which are in good-standing in the NFIP are eligible to apply for two types of grants: planning grants and project grants. **Planning grants** are intended to help a community with the costs associated with developing a flood mitigation plan. After your mitigation plan has been approved by FEMA, **project grants** then become available to assist in funding eligible projects which meet the goals identified in that plan. Technical assistance in the development of your flood mitigation plan is available from the State POC. If your community does not have a FMA planning grant, a limited amount of floodplain engineering or delineation assistance is available from the NNRC.

FUNDING: For both kinds of grants, Federal money will pay up to 75% of the total project cost with the remaining 25% coming from a non-Federal source. The State may be able to supply a portion of the 25% match; however, projects which have this match secured and in writing in the application may receive preferential treatment when the FMA Review Board convenes to recommend projects. The only stipulation on the 25% match is that no more than half (or 12.5% of the total project cost) may come from in-kind contributions.

The Community Rating System (CRS)

A FEMA-approved flood mitigation plan is also necessary for your community's

citizens to benefit from the National Flood Insurance Program's (NFIP) Community Rating System (CRS). If your community is currently enrolled in the CRS, your CRS flood mitigation plan qualifies for the FMA program with little or no alterations. You do not need to complete a new flood mitigation plan to be eligible for FMA program grants. For more information about the CRS, see page 15 of this Guidebook or contact your local floodplain administrator.

Other Mitigation Programs

The **Hazard Mitigation Grant Program** (HMGP) is another FEMA-sponsored mitigation program. The HMGP is a post-disaster program which requires that a county must first be declared a Federal disaster area before funds become available. At present, no flood mitigation plan is required when applying for HMGP funds; however, projects identified in a flood mitigation plan would streamline the application process. In addition, the review committee may put a higher priority on whether or not the community has a specific project identified in a flood mitigation plan. In Nebraska, the HMGP is administered by the Nebraska Emergency Management Agency (NEMA). For more information about the HMGP, contact Ralph Medina, the Nebraska State Hazard Mitigation Officer, at (402) 471-7425.

The **Community Development Block Grant** (CDBG) program is administered by the Nebraska Department of Economic Development (NDED). A limited amount of funding becomes available annually on a competitive basis to assist with the funding of a wide range

of project interests. For more information about CDBG funds, contact Shari Garner-Sterkel, the CDBG Administrator, at (402) 471-3111.

How much will developing a flood mitigation plan cost?

It is difficult to state how much it will cost your community to develop a flood mitigation plan. On one hand, if you have planning staff who can complete the flood mitigation plan requirements or if you have all of the necessary engineering and hydrological information, costs could be minimal or even zero. On the other hand, if a floodplain delineation study has not been completed for your community (see **Attachment 2**) or if you will need to hire an engineer to survey elevations of structures and flood levels, there will be some costs involved. FMA planning grants can pay for 75% of these costs, and the State POC will work with you to try to secure funding of the non-federal 25% match if your community is unable to provide it.

The expenses incurred by your community also depends on what you plan to do with your flood mitigation plan. If you plan on completing a flood mitigation plan and not applying for mitigation grants, identification of flood-prone structures without engineering oversight may be enough. However, this engineering work will need to be completed before you can apply for FMA project grants or the CRS. If you decide to apply for a FMA planning grant, each flood-prone structure will need to be surveyed; however, planning grant money will pay for such an activity.



Bridge damage – Shell Creek in Platte Co., 1990
Nebraska Natural Resources Commission

WRITING YOUR FLOOD MITIGATION PLAN

The ball starts rolling for flood impact reducing mitigation projects only after a community has completed a flood mitigation plan which has been approved by FEMA. This section details the necessary information a plan must have before it will be forwarded from the NRC to FEMA. There are six mandatory segments which must be included in a plan – these are established in Federal law as 44 CFR 78.5 (a) through (f) and are listed in on page 7.

Overview

Although there are some required components for each plan, developing a strict framework which a community must follow is not necessary because each community will have different problems and different potential solutions to those problems. When first starting to develop a framework for your local plan, it may be easiest to ask yourself simple questions such as how?

Who? What? Where? When? Why? There will be a natural progression of reasoning which may become easier as the process moves along – the toughest portion, as in all planning processes, is getting started. This guidebook will attempt to lead you along a system of logical steps to get you and your community moving and keep you moving toward the goal of completing your local flood mitigation plan. The following is a brief overview of the different steps outlined in this guidebook; each will be explained in detail in individual sections.

The first step in any plan is to *identify the flood problem or problems in your community*. Commonly called *risk assessment*, this entails obtaining input from the public and researching data sources to determine just how flood-prone your community has been and will continue to be.

Identifying goals and objectives is the second step in a your plan. Once you know the problems and you know what you want to accomplish, the potential solutions will practically write themselves. Like the first step, a broad base of interests should be represented to make sure that all goals and objectives are expressed.

The third step entails *data collection and analysis*. Based on the first two steps you will need to obtain more specific information which directly relates to the proposed goals. For example, if you have the reduction of property losses as a goal and the objective is an acquisition project to meet that goal, you will need to research the values of the identified structures, the types of structures, the level of homeowner interest, and several

other items. After the information has been obtained and analyzed, it may be helpful to revisit the initial questions (such as who, what, etc.) to prioritize the goals identified in step two.

The fourth and final step is *writing a complete plan*. This may entail several drafts and revisions before you have a product you wish to send to the State for review. Please remember that at any time in this whole process, the State FMA POC is available to supply input and make recommendations about completing your plan.

Implementation of your plan involves translating the goals and objectives you identified in earlier steps into action. By now, you should have a grasp on the feasibility of options available to you and perhaps you can also determine some possible alternative actions in case your initial objectives meet dead ends. Once you know the actions you want to do, you will need to determine which agency or person will be in charge of

implementing each portion of the plan. Also, it will be beneficial to determine which portions of the actions can be performed now and to draft a timeline for when the entire action should be completed.

The last stage of drafting a complete plan is to develop a schedule to regularly monitor your plan. Planning is a changing and dynamic process which may change directions drastically for a variety of reasons. For example, if a jurisdiction directly upstream constructs a levee and you foresee future floods problems getting worse, by addressing these new concerns in your plan you facilitate the availability of funds in the future, should your concerns prove real. Make it a goal to regularly revisit and update/revise your plan.

To make sure that you have included all the necessary information for both FMA and CRS flood mitigation plans, a checklist is given on page 30 of this document.



Salt Creek bottoms, Lincoln - March, 1972

Nebraska Natural Resources Commission

THE FOUR-STEP APPROACH TO MITIGATION PLANNING

44 Code of Federal Regulations Part 78.5 (a)-(f)

- Step One: Identify your Problems/Risk Assessment**
Requirement #1: Description of Planning Process and Public Involvement.
Requirement #2: Description of the existing flood hazard and identification of the flood risk.
- Step Two: Identify your Goals and Objectives**
Requirement #3: Identification of the applicant's floodplain management goals.
- Step Three: Data Collection and Analysis**
Requirement #4: Identification and evaluation of cost-effective and technically feasible mitigation actions considered.
- Step Four: Writing A Complete Plan**
Requirement #5: Presentation of the strategy for reducing flood risks and continued compliance with the NFIP, and procedures for ensuring implementation, reviewing progress, and recommending revisions to the plan.
Requirement #6: Documentation of formal plan adoption by the legal entity submitting the plan (i.e., Governor, Mayor, County Executive).



Elkhorn River flooding near Snyder – March, 1993
Nebraska Natural Resources Commission



100-year flood – location and date unknown
Nebraska Natural Resources Commission



Overflow from ice jam south of Columbus, March 1969
Nebraska Natural Resources Commission

STEP 1

Identify your Problem(s)

Where are we now?

- Step 1: Identify your problems
- Step 2: Identify your Goals and Objectives
- Step 3: Data Collection and Analysis
- Step 4: Write A Complete Plan

Public Involvement

To varying degrees, flooding occurs every year in Nebraska. From ice jams on the Platte River to ponding in low-lying areas, different communities have different flood problems. No two mitigation plans will be alike because of different problems and different public perceptions.

These public perceptions are vital to the planning process because it is the home and business owners who many times have the personal experiences and memories which may need to be addressed in the future. The overall goal of flood mitigation is to reduce the risk to flood damages in the future; the FMA program has the additional goal of reducing flood claims to the NFIP. Since both the risk and the claims come from people like past flood victims in your community, they need to have an active voice in the development in your flood mitigation plan. Plan requirement #1 states that you must include a description of the planning process and of public involvement. Aside from the general public, it will be helpful to receive input from people like a city planner or administrator, city clerk, mayor or county executive, assessor, chief of police, or any other private or public employee who has specific flood-related job duties. State government employees may also a valuable asset in producing a plan because they may have worked with your community during times of disaster; however, they will not be as aware of the specific problems in your community as its citizens.

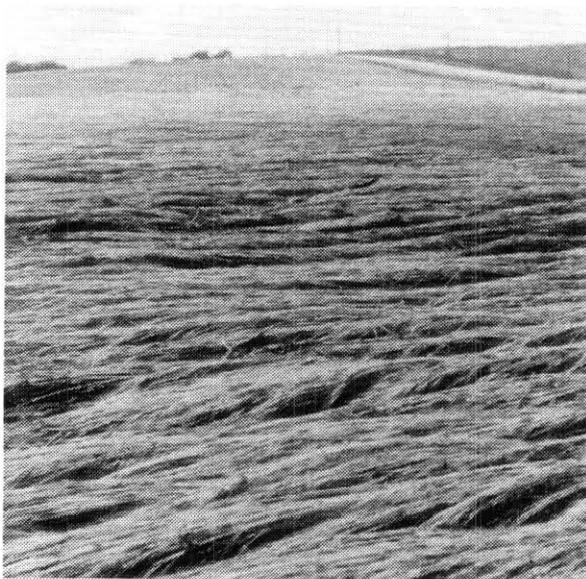
During Step 1, you are not looking for solutions to the problems – those come later. In this step you are only concerned about addressing the

nature of flood problems in your community after everyone has been invited to do so. In addition to getting input from different interests, public forums will also be able to get concrete, black and white answers to your flood problem and be able to foster open debate if necessary. All are critical to a well-written plan which incorporates community input as a foundation to its success.

Citizen involvement in this initial stage is important for other reasons, as well. First, there may be disagreements between local officials and citizens about flood problems and their sources. There may even be some disagreement between about what people believe constitutes a flood problem. At any rate, it is important that no person feel as though he or she has been neglected in voicing input about flood problems in your community. It will save you headaches down the line if individuals believe that your community is moving forward on flood-related projects after they have voiced their input.

It is also healthy for a community to acknowledge that a problem exists. Even in repetitively flooded areas, there is often a “short-term memory” of flood problems, when after the water has gone down and clean-up has been completed, the need for action does not seem as great. Citizens need to understand that since they have been flooded once, floodwaters will come again. By confronting these opinions as a part of a structured mitigation plan, residents are more likely to understand the flood problem as it relates to them.

If it appears as though there are some major differences between local officials and citizens, remember that this step in the plan is to only receive input about the nature of the flooding problems in your community. Don't let discussions or debates get bogged down with unrelated issues or finger pointing.



Wheat field destroyed by flooding near Hastings
June 1968

Nebraska Natural Resources Commission

Identifying Flood Problems in your Community

There are several methods you can use to determine the nature of flooding in your community. First, through public involvement you could administer a *survey* in which you ask people of their flood experiences such as the depth of flooding, frequency, type of flood, and general comments about how to best solve the problems as they see them. You could also hold *public meetings, hearings, or workshops*. These public forums will have the added benefit of allowing the citizens to meet with the local officials who may be supervising a future project.

In addition to getting input from citizens about where flood problems exist, assessing your city's level of flood risk is necessary to identifying flood risks in your community. This process may involve some extensive research to look for *documents and archives* which show the frequency and severity of previous floods in your community. *Hydrological information* such as the level of different probabilities of floods (i.e., the 100- and 500-year floods) will need to be determined. Also, a *list of each structure at risk* (floodway versus flood fringe if possible) will

need to be completed, along with the first-floor elevation, structure type, and approximate assessed value for each. Inasmuch as this can be very labor- and time-intensive, please remember that planning grant funds allow for an employee to conduct such research.

In larger communities, additional resources may exist to help in determining the flood risk and inventorying flood-prone structures. If planning departments have Geographic Information System (GIS) capability it may be possible to overlay a floodplain boundary map with a parcel map to easily determine a quick estimate of the number of structures in the floodplain or floodway.

There are many other sources of data which are available to you to assess your community's flood risk. Some of them are:

- **Flood Insurance Rate Map**, or FIRM, delineates the 100- and 500-year floodplains in any community which has been studied. In more detailed studies, engineers have gone ahead and marked the floodway boundary within the floodplain. If this is the case, you will be able to determine how many structures lie within the floodway and how many are in the flood fringe (see **Attachment 1**). If your community is enrolled in the NFIP there should be FIRMs available to you. If you do not have copies of FIRMs personally, chances are your community planning or building department does. If you need assistance reading a FIRM, your local planning and building supervisors should be able to help you; otherwise, your local floodplain coordinator can help you. If you need to order FIRMs for your community, the FEMA hotline at 1-800-358-9616 to request the map(s). There is not charge for local officials.
- **Flood Insurance Study** is a more detailed look at the engineering mechanics of each studied river in your community. Typically, when a community joins the NFIP flood insurance rate maps and a flood insurance study are produced. However, not all jurisdictions in the NFIP have a flood insurance study and many only have FIRMs. Also, many flood insurance studies show the entire floodplain and do not have the floodway boundary marked. If your community has a flood insurance study it

will be possible to list the flood profile (see **Attachment 1**) for critical areas in your community. This will help with the risk assessment, especially when you determine the first-floor elevations of structures in the floodway or flood fringe. Again, contact your local floodplain coordinator for assistance in reading a flood insurance study.

- **Nebraska Natural Resources Commission (NRC), Floodplain Management Division** handles floodplain mapping for the State and will be able to provide technical assistance in matters related to floodplain, floodway, and flood fringe delineations. The NRC is in the process of completing floodplain maps for the entire State. See **Attachment 2** for a map of which areas in Nebraska have been studied. For specific questions about floodplain studies in Nebraska, contact Brian Dunnigan, NRC Floodplain Management Division Head, at (402) 471-3934.
 - **Repetitive loss information** for communities enrolled in the NFIP available through FEMA to the NRC can also be used to show the level of flood risk for structures in your community. Information detailing the number of NFIP policies and the amount in claims which individual structures have incurred are available. Since this information is proprietary and subject to the Privacy Act, you will need to sign a release form prior to the information being released to you. A copy of the Repetitive Loss Property Release Form for your use is located in **Attachment 3**. Facsimile requests will not be processed.
 - **Survey information** must be determined for each structure in the floodplain (or if possible, the floodway/flood fringe) in your community. If you have a city or county engineer or surveyor who will be able to conduct such a review as part of your normal operating costs, that would be preferable. However, planning grant funds
- may be utilized for this type of expenditure if your jurisdiction has no one on staff to survey structures.
- **Local resources** which may yield historic flood information include history books, newspaper articles, television reports, historical societies, community members, and many others.
 - **United States Army Corps of Engineers** is a Federal agency responsible for the maintenance and economic viability of the Nation's waterways. In the past this has involved constructing floodwalls, levees, reservoirs, and other flood control projects, but recently the Corps has also shifted toward non-structural alternatives to flooding as well. A Corps of Engineers flood control study may have been conducted in your community in the past. If one has been produced recently, this report will also identify mitigation options available to your community. In addition to flood control, the Corps of Engineers is also responsible for overseeing wetland-related issues and is one of the permitting agencies involved in wetland alteration. To learn more about possible wetland areas in your community, contact the Regulatory Branch of your local Corps of Engineers. Contact your district office of the Corps to see if a flood study has been conducted for your specific flood problems. See **Attachment 4** for a map of the different Corps districts in Nebraska.
 - **Natural Resources Conservation Service** typically conducts two types of floodplain studies: a Floodplain Management Study and a Watershed Study which is authorized under Public Law 566. Contact your local NRCS Field Office or the NRCS State Conservationist at (402) 437-5300.

Checklist for Step 1

Checklist	Action
<input type="checkbox"/>	General public has been notified about how, when, and where they can give input on flood problems in the community.
<input type="checkbox"/>	Elected officials and relevant community officials have agreed to attend public meeting(s).
<input type="checkbox"/>	Basic information about the history of flooding in your community has been compiled.
<input type="checkbox"/>	Inventory has been completed for all structures in the floodplain (floodway if possible) in your community.
<input type="checkbox"/>	A map has been completed showing the locations of all structures at risk to flooding in your community.
<input type="checkbox"/>	Additional resources have been used to determine flood risk.



Loup River at Ravenna – June, 1968

Nebraska Natural Resources Commission

STEP 2

Identify your Goals and Objectives

Where are we now?

- | | |
|---------|---|
| Step 1: | Identify your problems |
| Step 2: | Identify your Goals and Objectives |
| Step 3: | Data Collection and Analysis |
| Step 4: | Write A Complete Plan |

When starting on a long vacation, one doesn't just get in their car and head in the general direction of their destination. Rather, the traveler consults a roadmap to see where he should go, which roads to take, and to familiarize himself with the route in order to get to his destination as quickly and as safely as possible. The same holds true for flood mitigation planning. To resolve flood problems in your community you don't just start working to resolve them; rather, you set your sights on obtainable ideas and then determine the necessary steps and actions to reach them. This is the subject of the second step in your flood mitigation plan.

Goals are general, broad guidelines which explain what you want to achieve in your community. Based on these goals, you develop specific objectives needed to obtain these goals. More specifically, **objectives** define strategies for meeting the goals and outline the "who, what, when, and where" necessary to reach them.

Once again, because each community will have different goals, each plan will be different. Even if there are similar goals between two communities, the objectives and methods to go about reaching those goals may be completely different.

Here are two examples of goals and some objectives which could be used to meet them.

Goal #1: Reduce flood damage

Objectives:

- Adopt stricter development regulations to reduce risk to life and property in flood-prone areas,
- Develop inventories and maps to identify areas and structures at risk to flooding,

- Develop a funding program for property owners wishing to floodproof their structures,
- Create an annual awareness campaign to remind floodplain residents of the importance of buying and renewing their flood insurance, or
- Seek government grants for a voluntary floodplain acquisition project.

Goal #2: Develop the 100-year floodplain as green open space, maintain area as a park.

Objectives:

- Acquire existing homes in the 100-year floodplain through federal, state, or local funds,
- Restrict development in the 100-year floodplain which does not meet federal open-space criteria, or
- Work with the Nebraska Game and Parks Commission to determine the most appropriate use of the open space.

As you can see, some of the objectives listed above, such as an acquisition project, could also be goals in and of themselves with further objectives to complete them.

Formulating Mitigation Ideas

A mitigation idea is nothing more than a statement about what bothers someone during a flood in your community. For example, a homeowner might say something like, "Every time there is a hard rain I get up to three feet of water in my basement." An idea such as this will come in handy when formulating goals, which is covered in the next section. But as in step #1, the group of people you involve in this goal identification stage is absolutely vital. Once again, the public must have an active voice in the goal and objectives development process; as should the community or county administrators, leaders, and flood-related personnel. Public input could come from a survey, as mentioned in the last chapter, or through a public meeting. No matter which way you develop mitigation ideas,

developing clear goals and objectives creates consensus out of conflict by involving all interest groups in decision-making. In an active, open discussion it is important that there be an impartial facilitator to write each idea as it is voiced. It doesn't matter what is used to write each idea – it could be an overhead, chalkboard, or tear-away flip charts. At any rate, it is helpful for the audience to see what has already been said because some ideas may initiate further ideas. The facilitator must also recognize if thoughts wander away from mitigation; frequently people try to determine solutions at this phase. Solutions are down the line in the mitigation planning process – you only need to identify goals now.



West Beatrice, 1960

Nebraska Natural Resources Commission

Identifying your Goals

Now that you have a list of mitigation ideas, how do you determine goals and objectives? Start by grouping ideas into common themes such as flooding problems and safety concerns. Often by rephrasing ideas into positive terms, they easier to express as goals. For example, if one of the ideas was, "Whenever the river comes up we have to evacuate," that could be changed to a positive goal such as, "Reduce the threat to human safety." From the last section, in response to mitigation idea that "Every time it rains hard I get up to three feet of water in my basement" could be "to reduce the damage floods cause to personal property." This is the beginning of formulating your goals and objectives. Be sure that all recognized goals are

ones which can realistically be accomplished by your jurisdiction.

Once you have grouped all ideas into similar groups and have identified the goals, you should identify specific actions – or objectives – to reach them. Often, these objectives may have been expressed during the idea collection phase. If not, the facilitator can help direct a collective "brainstorming" of the audience to help develop some new ideas and solutions. This is what objectives are: solutions to problems.

The broader the range of goals determined by a community, the more funding sources you'll be eligible to tap. If there are peripheral ideas such as the development of a park system along a river corridor, government agencies may have funding mechanisms in place to help. By creating a park adjacent to the river which complies with NFIP regulations, flood losses may be reduced, but your community will also receive the benefits of recreational activities.

Now that you have a list of goals and their corresponding objectives, the next step is to rank them so local officials can focus their attention on developing alternatives. The audience may choose which goals are the most important and the facilitator can aid them in narrowing their focus. The main purpose of ranking and narrowing focus is to separate the important goals from ones which can be addressed at a later time. If your community will be developing a comprehensive community plan in the future, you should keep all identified goals and objectives for that. A smaller number of goals will be easier to accomplish.

Identifying alternatives

Goals and objectives for flood mitigation have been developed. For several reasons, it is necessary to narrow down the list of options to the one(s) which best suit your community. For example, local planning and zoning officials may determine that one option would not be possible with the community's zoning ordinance. Perhaps even after work has started on one option something like an endangered species habitat has been discovered which will automatically make some options infeasible. At any rate, it is important to list and analyze alternative actions in order to select the option

which most efficiently uses government money and solves the problem most effectively.

In addition to the planning aspect, identifying at least three alternatives is a required aspect in the environmental review process if an Environmental Assessment (EA) is required under the National Environmental Policy Act.

There is a logical three-step process to identifying the best alternative: identifying alternative actions, evaluating those actions, and selecting the most appropriate action(s).

A. Identifying Alternative Actions

Because flood mitigation is a voluntary process, you will need to continue to work with citizens of your community to identify alternatives which are acceptable to them.

Below are some possible mitigation alternatives which can be used if your goal is to reduce flood damage. Often, a community will incorporate a combination of these techniques to best address their unique flood problems.

Acquisition/Relocation

Most acquisition or relocation projects are done through voluntary agreements with property owners. These are the preferred methods of mitigation for several reasons:

- ◆ They are the only way that flood damages, threat to life and property, and expenses to the community (i.e., evacuation or rescue) are guaranteed to be eliminated
- ◆ Community open space could be used as a park or other community development
- ◆ Additional floodwater storage could be created if structures are removed
- ◆ Reduces the threat of water pollution by removing property from the floodplain

Floodproofing/Retrofitting

Floodproofing involves making modifications to existing buildings in the floodplain to make them less susceptible to flood damage. Retrofitting means to furnish with new equipment which was not available at the time of manufacture. There

are many techniques which can be performed and often, a combination is used after an engineer has examined the structure. Some techniques are:

- ◆ Elevating the structure
- ◆ Raising the structure by placing it on a fill pile or pad
- ◆ Installing sewer back-flow valves
- ◆ Raising essential utilities above the flood level regulated in the community's NFIP ordinance
- ◆ Sealing or filling in points of entry for floodwater such as garden-level or basement windows

In addition to these small-scale structural alternatives, there are non-structural alternatives which the community can initiate.

Updating the Floodplain Zoning Ordinance

Once a floodplain zoning ordinance has been adopted by a community, it is easy for it to sit on a shelf somewhere without it getting updated. Not only will updating your floodplain zoning ordinance ensure that your community will remain eligible for the benefits inherent in being enrolled in the National Flood Insurance Program, but it will also reduce the risk for floodplain structures by incorporating the latest floodplain development standards. For existing development, the standards assure that additions to these structures are protected to current state and federal standards. It also limits the amount of additions and modifications over the life of the structure, thereby limiting future potential damages. New development is restricted to having the lowest floor at least one foot above (perhaps more depending on your local ordinance) the 100-year flood level.

Community Rating System (CRS)

The CRS is a program within the NFIP which is designed to make flood insurance premiums cheaper in communities which go above and beyond the minimum requirements of the NFIP. It may be to your community's benefit to join the CRS because education of floodplain matters and mitigation projects and planning count as points necessary to reduce a community's ranking. All communities start out as a '10' on the CRS scale,

then receive points for floodplain-related activities. Once a certain amount of points have been earned, the CRS ranking goes down one point and all flood insurance premiums in that community are discounted 5%. The more a community plans and acts about floodplain issues and flood problems, the more potential benefits are received by NFIP policy holders. For more information about the CRS program, contact your local floodplain coordinator.

No Action

Even though the purpose of developing a flood mitigation plan is to do something about the flooding problem, one option which is always open is to do nothing. Of course, this represents its own set of ramifications because if nothing is done, flood problems will continue as they are.



Flood damage to highway 63 near Ashland, 1963
Nebraska Natural Resources Commission

B. Evaluating Alternative Actions

If you now have a list of several possible options available to you to meet your goals, it will next be necessary to evaluate each alternative. The objective now is to eliminate problematic options and to determine both positive and negative consequences of each alternative. This may be the most effective way to reduce your options because if there is direct opposition to an idea, you can toss it out now and not have to worry about it later. It will help to have local officials who have knowledge of floodplain requirements present along with the

public during this process. Because the local floodplain zoning regulations does not allow new construction in the floodway, it may be helpful to have the zoning administrator there to explain that the most feasible option may be acquisition. For projects consisting of only a few homes, there may be more consent for a floodproofing or elevation program rather than acquisition – this will depend on the homeowners.

If finding local matching funds is problematic, it may also be helpful to have someone present at this meeting who is familiar with various grant programs offered by State or Federal government agencies. The potential availability of funds may make one option more viable than another. Also, if a particular grant program is being used, there may be limitations in the kind of project which may be used by those funds. This would help to analyze your alternatives further.

A review of the effectiveness of any past and current mitigation activities may provide you with insight about the feasibility of continuing with that activity or selecting a different alternative. After severe flooding in 1973, Beatrice initiated a system of acquiring flooded structures to reduce the future flood risk. These acquisitions have been so effective that Beatrice applied for, and received, the first FMA program planning and project grants offered in Nebraska

It will also be beneficial for a community to think about long-range plans. If a community would like a riverside park system, the best option would probably be acquisition. If a community would like to preserve an historic building district, floodproofing may be the best option.

The development of an Alternatives Evaluation Sheet, such as one given as **Attachment 5**, will help a community see which options appear better under different circumstances.

C. Selecting an Alternative

Evaluating your alternatives ensures that a sound decision has been made by everyone in the decision-making process. Therefore, when an alternative is selected – if it is different from the original objective identified in step two or not – is the best one for your community.

Checklist for Step 2

Checklist	Action
<input type="checkbox"/>	Mitigation ideas given at public meeting.
<input type="checkbox"/>	List of flood mitigation goals developed from mitigation ideas.
<input type="checkbox"/>	Objectives were developed from list of flood mitigation goals.
<input type="checkbox"/>	Goals were ranked in order of importance with the help of public.
<input type="checkbox"/>	Public and local officials have identified possible alternatives to the objectives.
<input type="checkbox"/>	Public and local officials have reviewed alternatives and selected the best one.



Grand Island – Parkview and Stolley Park Subdivisions – June, 1967

Nebraska Natural Resources Commission



Damage from the Republican River flood of 1935

Photograph courtesy of Nebraska Farmer



Damage from the Republican River flood of 1935

Photograph courtesy of Nebraska Farmer

STEP 3

Data Collection and Analysis

Where are we now?

- Step 1: Identify your problems
- Step 2: Identify your Goals and Objectives
- Step 3: Data Collection and Analysis**
- Step 4: Write A Complete Plan

Benefit-Cost Data

In order to determine whether or not a mitigation action is cost-effective and feasible (federal requirement #4), specific information is now needed to help show how much an action will cost. The work necessary to complete the data collection will depend on the size of area affected by flooding in your community. These data will be used by the State POC for input into a FEMA benefit-cost module; thus, it is imperative that they be accurate. However, based on the type of action not all of the general data categories listed below will be applicable. It may be easiest to input data into a spreadsheet program such as the Individual Structure Data Sheet given as **Attachment 6**.

1 Keying Structures to a Map

Being able to see where flood-prone structures are on a map of your city helps in nearly every stage of developing your community's flood mitigation plan. For example, by being able to see that flood-prone structures are situated in one area of your community, it will help tailor your goals and actions to better suit that specific area. For submittal of project grants to FEMA, maps of the project area are necessary, so developing a map is more than functional – it's required. In later steps it will help if you have assigned a number to each structure and have organized all necessary data according to that structure number. The type of map on which you plot the flood-prone structures will depend on what you have available. If your community has a planning department with GIS (Geographic Information System) capability, they may have maps showing floodplain limits, roads, and structure locations. Clearly, this would be the best-case scenario because it would show all the

desired information. If your community does not have GIS capability, you should try to produce a map which shows the important information. Some communities have Sidwell planning maps at their disposal – these show roads and property delineations. Other communities may only have a FIRM for their community, which have the benefit of showing the limits of the floodplain in your community. At any rate, try to find a map which shows where the structures are in the area in your community at risk for flooding. If necessary, retrace the floodplain boundary from a FIRM or other floodplain map.

- ✓ For planning purposes, identify on the map the locations of any critical facilities (i.e., City Hall, schools, police and fire stations, hospitals, treatment plants, electrical stations, waste facilities, etc.).
- ✓ On the map also identify the location of any past or current mitigation activities in your community such as an acquisition project area. Also, be sure to include a written description of these activities in your plan.

2 Age and Condition of Affected Structures

Assign a number to each structure and keep track of some or all of the following information for each one:

- ◆ How often each structure has flooded (year)
- ◆ First-floor elevation for each structure
- ◆ Type of structure (i.e., mobile home, 1 story w/o basement, split level w/ basement, etc.)
- ◆ Owners of vacant parcels of land (if land will be bought in an acquisition project)
- ◆ Height inside home floodwaters rose each time
- ◆ Type of flooding (i.e., overland, sewer back-up, groundwater, ponding, etc.)
- ◆ Age and general condition of each structure

The first-floor elevation of each structure may require the most coordination; however, when compared to the 100-year flood level, those elevations will show you how severe a flood threat your community is facing. Elevations should be shot by an engineer or other qualified

personnel and, in the FMA program, are eligible expenses for reimbursement.

3 Economic Data

Hazard mitigation isn't cheap. As a result, benefit-cost analyses must be run to ensure that there will be a positive return on mitigation expenditures. There are different types of data which can be used to determine benefits and costs for a project. They are:

- ◆ Amount of damage (per event)
- ◆ Assessed values of structures and land. Multiplier used by community to establish difference between assessed and real property values (typically around 3.0 or 3.1)
- ◆ Business interruptions (number of businesses, days, and dollars lost)
- ◆ Tourism – number of people, visits, and dollars generated, estimated losses from flood
- ◆ Previous mitigation efforts – costs, benefits, problems encountered
- ◆ Federal disaster assistance received by the community like Public Assistance money from FEMA to repair roads, clear debris, pay overtime, etc.



Flood debris – Sweet Creek and Hwy. 2 , 1968
Nebraska Natural Resources Commission

Other Important Data

There is other information that will be useful to include as a part of your flood mitigation plan.

A well-rounded mitigation plan benefits from having brief summaries about the following topics.

4 National Flood Insurance Program (NFIP)

The NFIP is the foundation of the FMA and CRS programs, so information about your community's involvement in the NFIP is very important. In your community's flood mitigation plan, include information about the following:

- ◆ Date of inception into the NFIP
- ◆ Date of effective floodplain/floodway maps
- ◆ Date of latest community floodplain ordinance (attach copy as part of plan)
- ◆ NFIP community number
- ◆ Number of NFIP policies in community
- ◆ NFIP claims made if known (repetitive loss data - when, how much)
- ◆ CRS Rating (if any) and effective date

5 Age and Condition of Infrastructure

Assess the condition and utility of roads, bridges, dams, sewage treatment plants, mass transit systems, and other affect infrastructure. Even though buildings in the area may be viable and worth saving, the support systems may be too expensive or physically difficult to repair.

This task is optional, but if future flood mitigation projects involve transportation, utility, or government agencies listed below, these data may be helpful. If this will be a task which outstretches your resources, agencies like the Small Business Administration, Corps of Engineers, Natural Resources Conservation Service, or a Regional Planning Commission may have completed a study in your area which would be useful.

6 Land Use and Zoning Data

This task is optional for smaller communities, but please remember that it is better to include more information than necessary.

The community's zoning administrator or building inspector can provide valuable assistance in helping to determine land use and zoning data. This information will be particularly valuable if your community wishes to conduct an acquisition or relocation project. You should determine the following:

- ◆ Current uses and functional values of the land (i.e., commercial, residential, critical facilities such as hospitals or police stations)
- ◆ Steps necessary to rezone an area to a desired use
- ◆ Problems with nonconforming uses or structures
- ◆ Land use in the area: homogenous or mixed?
- ◆ Must new buildings in your community adhere to any building codes – local, national, or professional?
- ◆ Does your community have a current land use plan?
- ◆ Development density in the floodplain area
- ◆ Availability of adequately zoned industrial and commercial land for relocations
- ◆ In addition to the floodplain ordinance, does your community have any of the following ordinances?
 - ☞ Zoning
 - ☞ Subdivision
 - ☞ Stormwater management
 - ☞ Erosion control
 - ☞ Stream maintenance
 - ☞ Other

By looking at the history of flooding and comparing the zoning map with flood problem areas, mitigation options such as elevation or relocations may become clearer.

7 Demographics and Population Trends

This task is also optional for smaller communities. When the United States was developing, settlers were dependent on waterways for transportation and commerce. As a result, structures were constructed in close proximity to the water. As the Nation has developed, our dependency on waterways for transportation has nearly disappeared. In fact, close proximity to water is now valued more highly for its aesthetic value in real estate than anything else. Thus, there tends to be old and new types of structures in floodplains today – both for different reasons. Inhabitants of older

structures tend to not be able to afford to move out of the floodplain because rents are the cheapest due to the proximity to a flood risk. As a result, if a damaging flood occurs, these inhabitants will be even more unable to move out of the floodplain if they spend money on repairs. The newer floodplain inhabitants, on the other hand, are much more financially capable of moving out of the floodplain – they just don't want to leave an area of such natural beauty. By analyzing the demographics and local experiences, you can determine the balance of groups with which you will be concerned.

Population trends are also helpful in developing a long-range flood plan. For example, if a major city is expanding in the direction of a floodplain, one shouldn't expect the flood threat to hinder property values from rising. In fact, as mentioned above, often these waterfront areas attract some of the wealthier families who may build more expensive homes. Population trends can help predict user conflicts during the mitigation planning process.

Demographic and population analyses may prove to be helpful in other planning and development processes. In most mitigation plans a brief history of development is given in order to show the "how we got here" viewpoint. To do this, try finding information about:

- ◆ Estimated population
- ◆ Community history (if possible)
- ◆ Development trends – like if a majority of homes were constructed in a certain period

If population and demographic information is not available in your community, try the U.S Census Bureau or other agencies and consultants.

8 Other Items

Other flood-related expenses or actions by the jurisdiction may also be important to note. Each jurisdiction will have unique situations and/or expenses as the result of a flood. Include anything which will aid your planning efforts.

Data Analysis

Now that you have all of the data collected, you are ready to perform the analysis. If necessary, you may appoint citizens to perform some analysis and report the findings back to you or to

the community. Public meetings, brainstorming sessions, media campaigns, interviews, and other methods are all excellent ways to keep the local citizenry involved and informed. The public should be aware of all analysis findings as they pertain to possible flood mitigation solutions. Some ways to do this are through handouts at

public meetings, the media, or postings at the City Hall.

You have identified goals and objectives, and because you have analyzed specific data, you now have a detailed understanding of the impacts of those objectives. Next comes the step of writing your plan.

Checklist for Step 3

Checklist	Action
<input type="checkbox"/>	Flood-prone structures and critical facilities were keyed to a readable base map such as a FIRM.
<input type="checkbox"/>	Age, condition, and economic data of affected structures listed (see Individual Structure Data Sheet – Attachment 6).
<input type="checkbox"/>	Economic data about past floods in your community listed.
<input type="checkbox"/>	A brief summary of previous mitigation activities in your community has been given and their locations identified on the base map.
<input type="checkbox"/>	National Flood Insurance Program information about your community given.
	Age and condition of infrastructure listed (optional).
<input type="checkbox"/>	Land use and zoning data given (optional for small communities).
<input type="checkbox"/>	Demographic and population trend information given (optional for small communities).
<input type="checkbox"/>	Any necessary analysis has been performed and the public informed.



Highway 64 bridge wash-out – Platte River, March 1993
Nebraska Natural Resources Commission

STEP 4

Write a Complete Plan

Where are we now?

- Step 1: Identify your problems
- Step 2: Identify your Goals and Objectives
- Step 3: Data Collection and Analysis
- Step 4: Write A Complete Plan

Using the analogy of relating the planning process to a journey, you are finally all packed and ready to head out toward your “destination” of an approved plan. In steps one and three you have identified where you are now and realized the extent of the flooding problem in your community. In step two you began the preparation for your trip by identifying the direction and courses of action necessary for you to reach your destination. Now you have all the necessities for your trip and you are ready to set out on the final task of writing a complete plan.

There are three major components to writing a complete plan: plan preparation, plan implementation, and plan monitoring. Each will be explained in detail in this chapter.



Flood damage to railroad near Unadilla, 1967
Photograph courtesy of Soil Conservation Service

1. PLAN PREPARATION

Plan preparation involves the actual drafting of the plan and the adoption of the plan as your community’s official flood mitigation policy.

A. Drafting your Plan

If someone unaccustomed to writing plans is assigned the task of drafting of your flood mitigation, it will help to start out with an original draft, which can be reviewed by a person experienced with such writing.

It is important to address each of the steps taken to reach this level, including all decisions and the methods used to make those decisions. For example, be sure to list the alternatives to your proposed project, the reasons the community did or did not like them, and the decision process for determining the best alternative. Remember the six requirements of a flood mitigation plan (see page 7) and be sure that each requirement is addressed. The Flood Mitigation Plan Review Checklist can be used to make sure that the vital points of a mitigation plan have been covered. A sample CRS-qualifying flood mitigation plan for the hypothetical town of Planton has been included in this Guidebook as **Attachment 7** for you to see.

It will be helpful to determine priorities within and between projects the community has proposed. Properties in the floodway versus the flood fringe should receive a higher priority in an acquisition project, for example. Also, if two projects complement each other but one needs to be done first, naturally the first project should have a higher priority.

The availability and timeframe of funding may automatically create priorities for you.

Several drafts of a plan may be necessary as the public and local officials have a chance to read it. Once all necessary revisions have been made, the next step is to have the plan ratified by your community’s elected officials.

B. Adoption of your Plan

Throughout the entire planning process you have been aided by the public and knowledgeable local officials who have identified flood problems, and agreed about flood mitigation goals, objectives, and alternatives. The last step in preparing your plan is to get it officially adopted by your community's elected officials. This will involve the City Council or Village or County Board or other local policy-creating governmental group of elected officials. If these officials have been involved in this process from the beginning, chances are there will be no problems with getting the plan adopted. This is a requirement under the Federal guidelines.

2. PLAN IMPLEMENTATION

Now that you have accomplished the hard part of developing your plan and getting it adopted by the community officials, you need to establish how your plan will be put into action. This section suggests ways to do just that – translate your goals and objectives into action.

Suggestion #1 Identify actions which address your community's issues, goals, and alternatives (see Table 1)

Table 1 shows the format which may be used to help visualize how you moved through the process of identifying the flood risk to determining actions.

Resource Issues	Goals	Alternatives	Actions
Homes and business in town suffer from repeated flood damage.	Reduce flood threat. Create self-sustaining businesses.	Consider an acquisition project. Consider assistance for floodproofing.	Seek federal funds for acquisition project. Seek federal funds to floodproof buildings.
River corridor development.	Ensure that development will not degrade the corridor's resources.	Use zoning techniques to protect the river corridor. Create open spaces and parks along river corridor.	Revise existing zoning ordinance to include protection measures. Seek state funds from Nebraska Game and Parks Commission for a riverfront park.
Critical facilities located along the river are cut off when it floods.	Ensure that critical facilities are available to the public during periods of flooding.	Relocate critical facilities.	Seek federal funds to voluntarily relocate critical facilities.
River water quality is poor.	Improve water quality.	Implement development standards which control erosion. Develop a public information program on the problems with floodplain development.	Revise existing zoning ordinances to include standards regarding water quality. Develop brochures, meet with riverfront property owners.

* Adapted from *The Riverwork Book* (1988) prepared by the U.S. Dept. of the Interior, National Park Service

Suggestion #2 Create an Action Agenda (see Table 2)

After you have identified your actions, develop an action agenda. An action helps focus your tactics on implementing the plan. Using the format in Table 2, create your action agenda by focusing on the following key areas:

1. Who?

Identify who is responsible for initiating and implementing each action. One person or department could take the lead role (zoning administrator, planning department or public works department), but the work will probably be shared by a number of other actors, departments, or agencies such as the building inspector, community development department, or other federal, state, or local government agencies.

TABLE 2 – ACTION AGENDA*			
Action	Who?	How?	When?
Seek Federal funds for acquisition project.	Planning Director Consultant	Develop and submit application.	Fall, 1998
Seek federal funds to floodproof buildings.	Mayor Community Dev. Dir. NEMA, NNRC, DED	Develop and submit application.	Application deadline August 31, 1998.
Revise existing zoning ordinance to include more restrictive river protection measures.	Planning Director Zoning Administrator Mayor NNRC	Prepare analysis of zoning options and recommendations.	Summer, 1998. City Planning and Zoning Board meeting July 22, 1998.
Seek state funds from Nebraska Game and Parks Commission for a riverfront park.	Planning Director Community Dev. Dir. Mayor Interest Groups	Prepare open space study. Develop and submit application.	Summer, 1998. Application deadline September 3, 1998.
Seek federal funds to voluntarily relocate fire station subject to flooding.	Mayor Community Dev. Dir. NE Dept. Econ. Dev. NNRC	Develop and submit application.	Application deadline February 15, 1999.
Revise existing zoning ordinances to include standards regarding water quality.	Zoning Administrator Planning Director Neb. Dept. of Environmental Quality	Prepare analysis of zoning options and recommendations.	Summer, 1998. City Planning and Zoning Board meeting July 22, 1998.
Develop brochures about erosion, meet with riverfront property owners.	NRCS Community Dev. Dir. Mayor	Develop brochure and coordinate meetings with local property owners.	Ongoing. Winter, 1998.

* Adapted from *The Riverwork Book* (1988) prepared by the U.S. Dept. of the Interior, National Park Service



South Crete Gauging Station – Big Blue River, 1968

Nebraska Natural Resources Commission

2. How ?

Identify how each action will be taken. Identify the tool or method for implementing the action. For example, floodproofing a commercial building means consulting an engineer or architect to develop concepts for each building, meeting with individual property owners, regulatory review of each design concept, developing final plans and specifications for the concept, and implementing the concept through construction.

3. When?

Identify when each action will be taken. Determine the timeframe and the sequence of events, especially if there are fixed deadlines. For example, a hearing date may be scheduled to gather public comments on an environmental impact statement for a proposed water treatment facility to be located on the watershed. In other cases, you may only need to set general deadlines. One action may not begin until another is completed. A general plan or guide which considers all the timeframes will help you better plan and implement your work.

Suggestion #3 Include the action agenda as an element within the plan itself.

Detailing how your plan will be implemented is part of federal requirement #5, but they are

important for other reasons, as well. Having an integrated action agenda to implement your plan is a wise idea. If you identify who is responsible for implementing the plan, as well as the general benchmarks or timeframes for actions, implementation will be smoother and more effective. You will need to make adjustments as issues come up, but at least you will have a general strategic framework from which to operate.

Having an implementation element as part of the plan adopted by your community's elected officials will commit the necessary people and identify areas for which they are responsible. Before this commitment takes place, the key players will have already participated in planning from start to finish in developing your flood mitigation plan.

Suggestion #4 Implement some inexpensive and visible demonstration projects to get the whole program moving

In order to overcome any existing public skepticism it may help to implement a small-scale project to illustrate to the citizens that the money and effort exist to complete larger projects down the road. If there are smaller projects identified in your plan, it may help to complete those first to increase public support.

Suggestion #5 Develop a public education system to keep citizens informed.

When implementing a flood mitigation program, keep the flow of communication open between the local government and affected and interested public. The public needs to know how regulations (i.e., state floodproofing standards or state or federal relocation assistance) affect their property. A newsletter or news release can help you communicate clearly with your community. In addition, if they have questions they can come to you, rather than visiting with each property owner. For smaller communities a one-time photocopied update many all that is necessary. Or you could post public information at the town or village hall.

Suggestion #6 Hire a Flood Mitigation Coordinator

If your community receives a planning grant, some of those funds may be used to hire a limited-term consultant for coordinating the mitigation projects. A coordinator could work directly with contractors and serve as a liaison between the homeowners and government officials, write newsletters, and other public information duties.

For the FMA, a coordinator must be familiar with the community's goals and actions, and have a complete understanding of the program. A coordinator should also have excellent communication and facilitating skills.

As you begin implementing your plan and the results begin to be seen, the public and elected officials may offer ideas for complimentary projects. As a result, you may find yourself updating your plan to include these new proposals. Therefore, it is important to have a plan to monitor and revise your plan.



Wahoo Creek and Hwy. 63 near Ashland, 1963
Nebraska Natural Resources Commission

3. MONITORING YOUR PLAN

Good plans are dynamic and are designed to change along with evolving conditions and issues. Also, local officials are responsible for multiple projects which leave little time for unplanned activities. For these reasons, it is important to install a system to monitor and revise your plan and to include it as a section in your plan. Furthermore, federal guideline #5 requires a monitoring section in each plan.

Brief progress and annual reports help to chart progress and may be presented to governing bodies. Progress reports may be used to recommend actions to achieve goals and objectives of the plan and explain the need to change them in light of new issues and circumstances.

The floodplain administrator or a city planner can prepare these reports. One approach which has been recommended is to copy the Community Rating System progress report format which uses the following outline:

- ◆ A review of the plans and objectives of the plan
- ◆ A review of any floods that occurred during the year
- ◆ A review of each element of objective of the original plan, including what was accomplished the previous year
- ◆ A discussion of why any objectives were not reached or why implementation is behind schedule.
- ◆ Recommendations for new projects or revised objectives.

Linking the flood mitigation plan to your community's floodplain ordinance may also prove to be beneficial in the future. If fully integrated, these two documents can complement administration and enforcement efforts. For example, if new floodplain maps are produced which show more structures in the flood fringe, mitigation assistance can complement enforcement by voluntarily removing a nonconforming structure by using mitigation funds.

Checklist for Step 4

Checklist	Action
<input type="checkbox"/>	A flood mitigation plan has been written which is acceptable to all reviewers at the local level.
<input type="checkbox"/>	The elected officials have adopted your flood mitigation plan and it is now an official community policy.
<input type="checkbox"/>	Your plan has been implemented by developing an Action Agenda (see Table 2) or something similar.
<input type="checkbox"/>	A method has been developed to monitor your flood mitigation plan on a regular basis.



Flooded residence in Beatrice, 1984

Photo courtesy of Nebraska Emergency Management Agency

Summary of Methods and Suggestions for Writing a Complete Plan

- ◆ **Identify Alternatives**
 - ✓ After determining the nature of the flood problem in your community (step 1), identifying goals and objectives about how to solve the problem(s) (step 2), and you have compiled and analyzed data necessary to determine the feasibility of possible options (step 3), you identified alternative actions which might solve the flood problem in your community a different, more efficient way.
 - ✓ You evaluated each alternative with the help of the public and knowledgeable community personnel.
 - ✓ You selected an alternative or complimentary group of alternatives which would best remediate your flood problems.

- ◆ **Plan Preparation**
 - ✓ You drafted your plan, receiving input for revisions from the public, community leaders, and other relevant personnel.
 - ✓ The city board/council or county board adopted your plan which means that the actions identified in the plan are the approaches the city of county will use to reduce or eliminate long-range flood concerns.

- ◆ **Plan Implementation**
 - ✓ Although unique to each community, suggestions were listed which your community might use to implement your plan such as: drafting a table showing how you went from identifying problems to identifying actions (Table 1), drafting an Action Agenda (Table 2), developing a community education system, and hiring a flood mitigation coordinator.

- ◆ **Plan Monitoring**
 - ✓ You have identified the process which will be used to update and revise the flood mitigation plan as conditions change. Developing an annual report (such as the CRS progress report format) to the elected officials and linking the mitigation plan to the local floodplain ordinance were two methods suggested.

FLOOD MITIGATION PLAN REVIEW SHEET

(What FEMA looks for from different plans)

FMA	CRS	Activity: "The plan includes:"
<input type="checkbox"/>	<input type="checkbox"/>	A description of the planning process and public involvement.
	<input type="checkbox"/>	A statement of whether or not a professional planner was involved in the development of the flood mitigation plan.
		A listing of all community departments which were involved in the development of the plan.
<input type="checkbox"/>	<input type="checkbox"/>	A listing of the number and types of public activities (i.e., workshops, hearings, or meetings) which were held to explain the planning process.
<input type="checkbox"/>	<input type="checkbox"/>	A description of the extent of flood depth and damage potential.
<input type="checkbox"/>	<input type="checkbox"/>	A map and description of the existing flood hazard, identification of the flood risk, and a discussion of past floods.
<input type="checkbox"/>	<input type="checkbox"/>	Estimates of the types and number of structures at risk and the fair market value of each structure, if available.
<input type="checkbox"/>	<input type="checkbox"/>	A map and discussion of repetitive loss properties and potential mitigation activities for repetitive loss structures.
<input type="checkbox"/>	<input type="checkbox"/>	The plan assesses the problem. In addition to discussing the number and type of buildings at risk, the plan should:
<input type="checkbox"/>	<input type="checkbox"/>	a. Describe the impact of flooding on infrastructure, public health, and safety;
<input type="checkbox"/>	<input type="checkbox"/>	b. Describe the need and procedures for warning and evacuating residents and visitors;
<input type="checkbox"/>	<input type="checkbox"/>	c. Identify critical facilities, such as hospitals, fire stations, and chemical storage companies;
<input type="checkbox"/>	<input type="checkbox"/>	d. Include a description of development trends, including a discussion of redevelopment in the floodplain, the watershed, and natural resources areas;
<input type="checkbox"/>	<input type="checkbox"/>	e. Include a summary of the impact of flooding on the community and its economy.
<input type="checkbox"/>	<input type="checkbox"/>	The applicant's floodplain management goals for areas covered by the plan.
<input type="checkbox"/>	<input type="checkbox"/>	A strategy for reducing flood risk.
<input type="checkbox"/>	<input type="checkbox"/>	A strategy for continued compliance with NFIP regulations.
<input type="checkbox"/>	<input type="checkbox"/>	A map and brief description of other natural hazards.
<input type="checkbox"/>	<input type="checkbox"/>	A description of how the community has coordinated with other agencies and organizations and when their input was requested.
<input type="checkbox"/>	<input type="checkbox"/>	Identification and evaluation of cost-effective and technically feasible mitigation actions considered.
<input type="checkbox"/>	<input type="checkbox"/>	Procedures for ensuring implementation.
<input type="checkbox"/>	<input type="checkbox"/>	Procedures for reviewing progress.
<input type="checkbox"/>	<input type="checkbox"/>	Procedures for recommending revisions to the plan.

Flood Mitigation Plan Review Sheet - Continued

FMA	CRS	Activity
<input type="checkbox"/>	<input type="checkbox"/>	The documents submitted with the plan include documentation of formal adoption by the entity submitting the plan.
<input type="checkbox"/>	<input type="checkbox"/>	If the plan has been submitted by an entity other than a community, documents submitted with the plan include documentation of a formal interagency agreement signed by all parties to the agreement.
	<input type="checkbox"/>	The plan includes a list of potential projects and an explanation of how each project or group of projects contributes to the overall mitigation strategy.
	<input type="checkbox"/>	The plan includes an action plan and establishes post-disaster mitigation policies and procedures. (FMA recommended)
<input type="checkbox"/>	<input type="checkbox"/>	The plan identifies types of projects (i.e., acquisition, elevation, demolition, etc.) and their applicability to specific conditions or geographic areas.
<input type="checkbox"/>	<input type="checkbox"/>	The plan states if any proposed flood prevention activities are duplicated by other programs or Federal agencies.



Flood deposits and damage near Ashland – Platte River, 1978

Nebraska Natural Resources Commission

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ATTACHMENT 1

DEFINITIONS

Flood fringe – The portion of a floodplain which is not required to convey the strong current in a river during a flood (see floodway).

Floodplain – The entire area which will be covered with water during a flood. Together, the floodway and flood fringe comprise the entire floodplain.

Flood profile – In a flood insurance study there are fold-out graphs which usually show the 10-, 50-, 100-, and 500-year flood elevations for the entire stretch of each river which runs through your community. Major landmarks such as important intersections or river crossings are often listed along the top of those graphs. By examining the location of flood-prone structures in your community and relating their elevations to the different flood elevations in the profile, you should be able to understand the level of flood risk for structures in your community.

Floodway – The portion of a floodplain which conveys the current in a river during a flood. The floodway is an engineering phenomenon which is delineated according to the rule that if you were to be able to squeeze the entire floodplain toward the center of the channel during a flood, when the water in the middle rises one foot, those limits are the floodway.

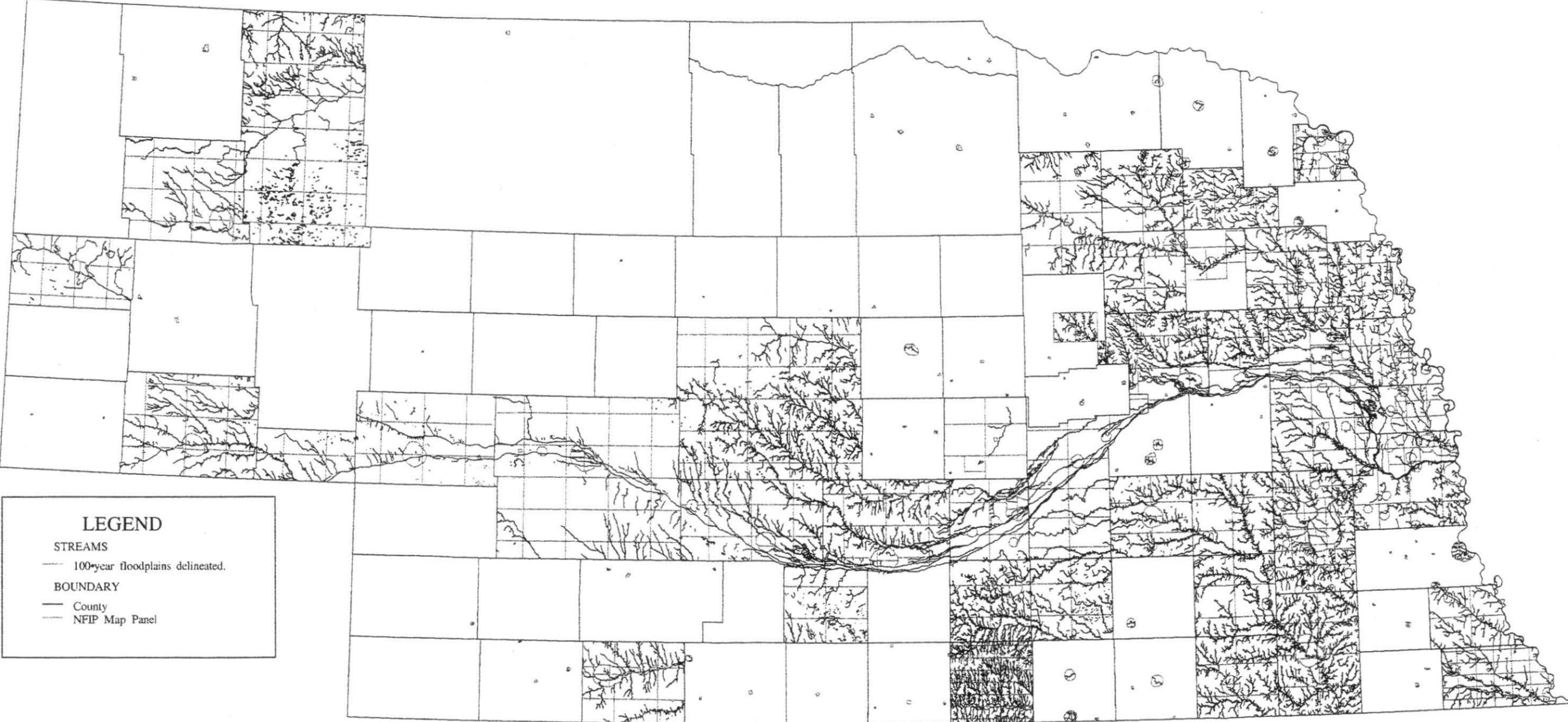
LIST OF ACRONYMS

CRS	Community Rating System (part of NFIP)
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance program
HMGP	Hazard Mitigation Grant Program
NDED	Nebraska Department of Economic Development
NEMA	Nebraska Emergency Management Agency
NFIP	National Flood Insurance Program
NNRC	Nebraska Natural Resources Commission
USACE	U.S. Army Corps of Engineers
WRDA	Water Resources Development Act of 1996

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Attachment 2

Delineated Floodplains in Nebraska



ATTACHMENT 3

REPETITIVE LOSS INFORMATION REQUEST FORM

Please provide any repetitive loss information relating to the _____ .

City/County Name

I hereby recognize that the flood insurance information that will be provided contains individual flood insurance policy information that is protected under the Privacy Act Notice. It is understood that _____ and its employees may only use this information to assist in administering or implementing floodplain management and other hazard mitigation programs.

City/County Name

Signature of Authorized Certifying Official

Date

Print Name and Title of Authorized Certifying Official

Signature of Primary Person Utilizing the Information

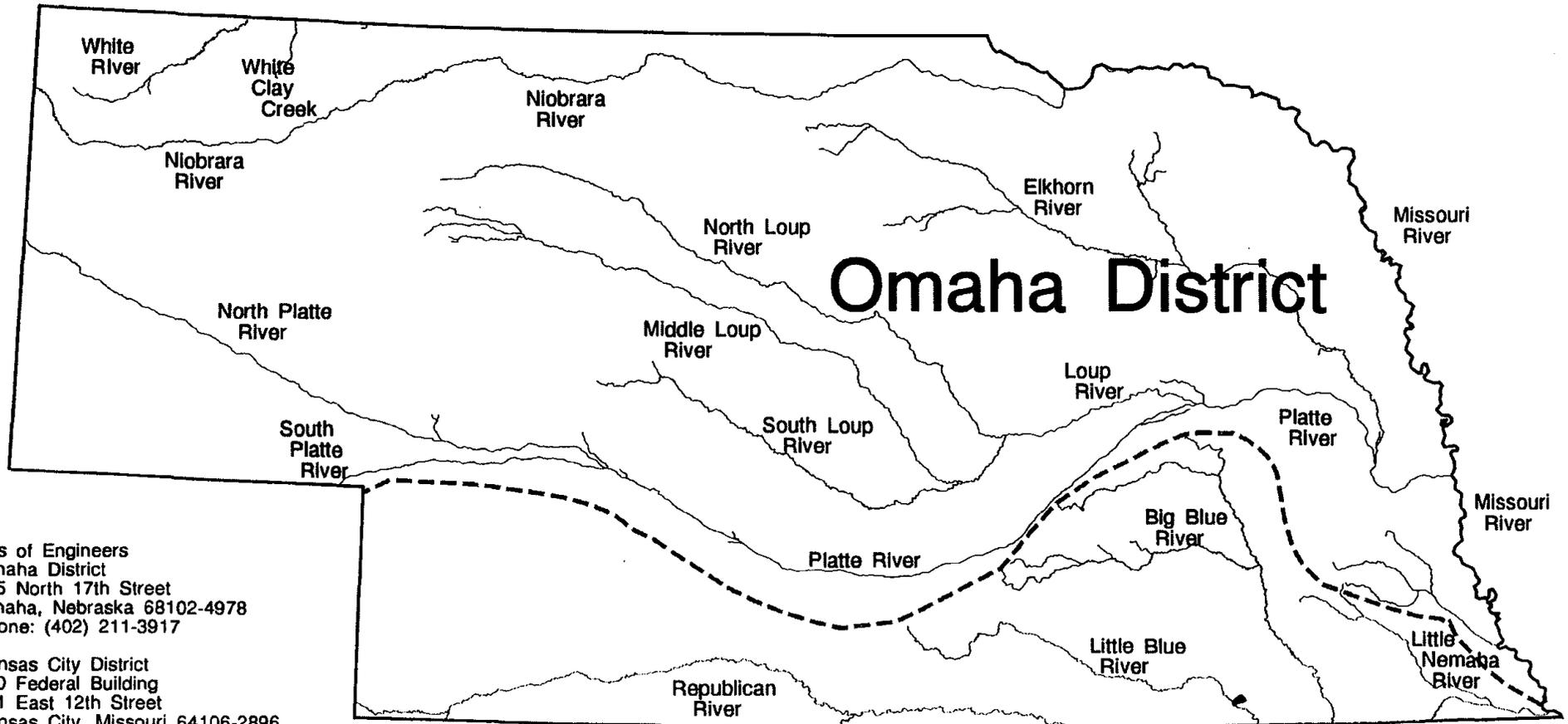
Date

Print Name and Title of Primary Person Utilizing the Information

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Attachment 4

Corps of Engineers Districts in Nebraska



Corps of Engineers
Omaha District
215 North 17th Street
Omaha, Nebraska 68102-4978
Phone: (402) 211-3917

Kansas City District
700 Federal Building
601 East 12th Street
Kansas City, Missouri 64106-2896
Phone: (816) 983-3486

Processed - May 1998

Kansas City District

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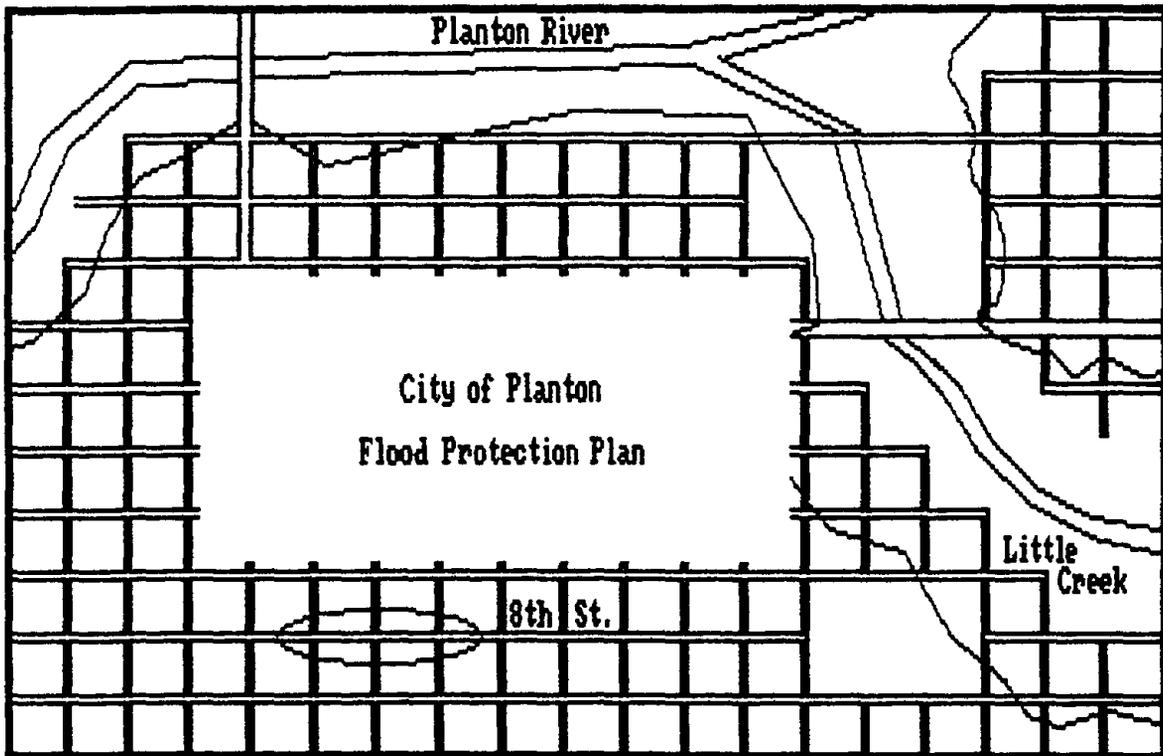
ATTACHMENT 7
Sample Flood Mitigation Plan

The following is an example Community Rating System Flood Protection Plan for the City of "Planton".

Please note: this example plan for a fictitious community was included because it provides examples of a plan format and some of the types of information a community may consider including in its flood mitigation plan. The scope and contents of a community's plan will vary and not all communities (especially smaller communities) will want or need to include the extent of information included in this sample plan.

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CITY OF PLANTON



Prepared by the
Planton Flood Planning Committee
September 8, 1994

Adopted by the Planton City Council
November 16, 1994

CITY OF PLANTON
FLOOD PROTECTION PLAN

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CITY OF PLANTON
FLOOD PROTECTION PLAN

1. Introduction

The City of Planton has experienced three floods in the last 15 years, resulting in extensive private property damage and contamination of the area's rivers. In September 1993, the City Council created a Flood Planning Committee to review the problem, assess possible solutions, and recommend actions for the City to take. This plan summarizes the Committee's work, findings and recommendations.

2. A Short History of Planton's Flooding Problem

The City of Planton was settled in the mid 1800's. At that time, the Planton River was navigable by canoes and shallow draft vessels. Being on high ground near the river, the site provided flood-free river access. The settlement initially served as a service center for the surrounding agricultural lands. Historical records describe the 1844 flood that wiped out docks and supplies that were stored near the river. For the most part, though, early settlers built their homes and businesses on the higher ground, south of Front Street.

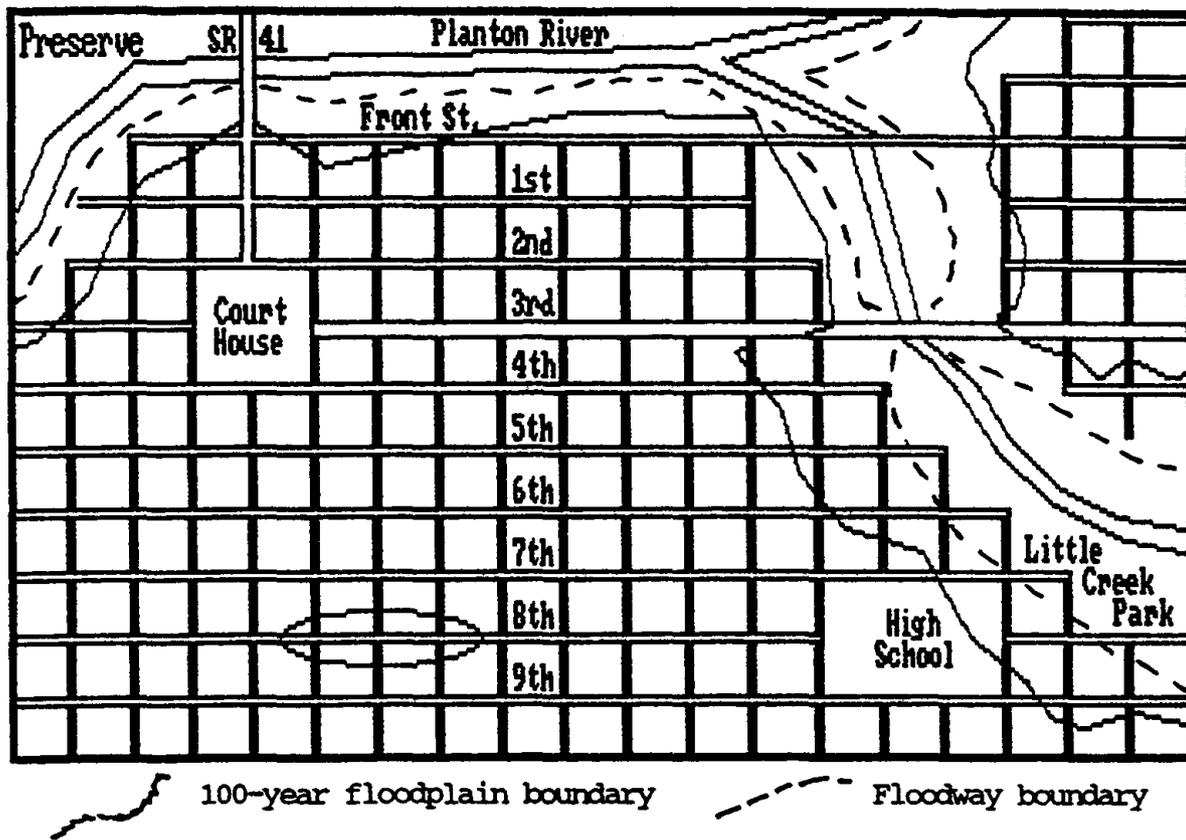
In 1847, Planton was selected to be the county seat. A court house was erected on the present site on Highway 41 and Third Street. Land around the courthouse became more valuable and properties closer to the river were built on. The City grew to the south and east and by 1900 was encroaching on the Little Creek floodplain.

Climatologists say the period between 1930 and 1970 was a "dry cycle" for this area. The lack of serious flooding lulled people into a false feeling that there was no threat. Floodplain land that had previously been avoided became developed because of the need to be near the City's downtown, on the major highways, and near public schools. Vacant properties on Front Street were developed by businesses serving the motorist, such as gas stations and fast food restaurants.

When it was built in 1960, students in Planton High School had an unrestricted view of Little Creek. Now there are several blocks of single-family homes between the school and the creek.

Development in the floodplain was not the only man-made activity that caused flood problems. The Highway 41 bridge was replaced by the State in 1965 with a bridge that is higher (and dry during floods). However, while floods used to flow over the old bridge, the new one obstructs floodwaters and results in higher flood levels along Front Street.

Development is closest to the streams on Little Creek between Third and Front Streets. In order to increase the amount of buildable land near Front Street, in 1970 the adjacent businesses paid for Little Creek to be straightened and deepened from Third Street to the Planton River. This (combined with the obstruction afforded by the Third Street bridge) reduced the amount of flooding. However, the riparian owners have not maintained their project and the stream has become overgrown and choked with debris.



Map 1. Planton's Flood Problem Areas

Farm levees were built along the Planton River across from the City in the 1920's. They have been made higher and stronger over the years since then, constricting flood flows and increasing flood heights. Farm drainage improvements have increased the amount of runoff and siltation of both the Planton River and Little Creek. In sum, there is now more floodwater coming downstream, less room for it to go, and more buildings for it to damage.

Substantial portions of the City have been flooded three times in the last 15 years. Luckily, no lives have been lost.

June 5-6, 1981: Following two weeks of intermittent rain, storms caused flooding of Little Creek. Approximately 80 homes and 10 businesses were affected. The Front Street bridge went under water.

March 15, 1988: Melting of record snows coupled with rains caused flooding on both the Planton River and Little Creek. Approximately 100 homes and 20 businesses were affected. Both the Front and Third Street bridges were overtopped and closed by what was estimated to be a 40-year flood. The Sewage Treatment Plant was flooded and shut down for three days, resulting in raw sewage entering the Planton River. The County was included as part of a Presidential Disaster Declaration.

The U.S. Army Corps of Engineers studied whether levees could be built along the creek. In 1991, the Corps concluded that the cost of the land, relocating buildings on the levee alignment, and construction exceeded the flood protection benefits. Without funding from the Corps or other agency, interest in building a levee dropped.

August 3, 1993: A flood similar to the 1981 flood covered the same areas. In addition to the damage caused by high water, there was a substantial fish kill in the Planton River. This was apparently caused by chemicals released when the Farm Service Company property was flooded.

Increased urban development has overloaded the City's storm sewer system in the older section of town. As a result, streets are flooded more frequently by smaller storms. Some homes along Eighth Street have been flooded four times in the last ten years: June 6, 1983, July 23, 1985, July 4, 1991, and August 3, 1993.

In 1983, Planton joined the Regular Phase of the National Flood Insurance Program. A floodplain ordinance was passed and greater amounts of flood insurance coverage were made available to residents. Some buildings have been built in the floodplain since then, but none of them were affected by the 1988 or 1993 floods.

3. How This Plan Was Prepared

On September 9, 1993, the Planton Flood Planning Committee held its organizational meeting. The Committee was composed of four residents of the flooded areas, two businessmen with flood-prone property, and a representative of the School Board. A City Councilwoman representing the district hit hardest by the last flood was appointed Chair by the Mayor.

The City Planner acted as a non-voting secretary and provided administrative support. Staff from other departments, including Building, Public Works, Parks & Rec, the Emergency Manager, the Engineer, and the City Attorney sat in on some or all of the meetings and participated in the discussions.

A series of monthly meetings was held for the Committee to review various topics and gather available data. Most of the research was conducted by the Planner and other staff who prepared drafts and background papers that were reviewed at each meeting. The following sessions were held:

10/14/93: Problem description: Review of past flooding and reports on the potential 100-year flood. Much valuable information was obtained from the 1991 levee study for Little Creek and the City's Flood Insurance Study. A survey of floodplain property owners' experiences and concerns was approved for distribution.

11/11/93: Problem description: Review of the City Planner's land use inventory which included data on buildings and vacant lands in the 100-year floodplains. Special flood problems and critical facilities were identified.

12/9/93: Problem description: Review of the floodplain property owner survey results. Discussion of the impacts of flooding greater than the 100-year flood.

1/6/94: Community development trends and goals: Review of the City's comprehensive plan and expected development trends. A set of flood protection planning goals was drafted consistent with the comprehensive plan and the concerns and desires of the floodplain residents who responded to the survey.

2/3/94: Flood control activities: Review of alternative construction projects that can control flooding. Presentations by the U.S. Army Corps of Engineers and the Director of Public Works. There was much discussion on the 1991 levee study that concluded that the cost of land, relocating buildings, and construction exceeded the flood protection benefits. It was agreed that this plan would not pursue a levee solution because the City could not afford to finance it and outside funding sources require a favorable benefit/cost ratio.

3/2/94: Public information and floodproofing activities: Review of flood insurance, wet and dry floodproofing, ways to elevate buildings, and how to advise property owners about these activities. Presentation by the State Flood Insurance Coordinator on flood insurance and state and federal public information materials.

4/6/94: Emergency management activities: Presentations by the City and County Emergency Managers on flood warning programs, sandbagging procedures, and their emergency preparedness plans.

5/4/94: Regulatory activities: Presentation by the City Building Commissioner and the District Conservationist of the USDA Natural Resources Conservation Service. Review of local zoning and building codes and ways to regulate stormwater runoff and erosion. Representatives of the Downtown Merchants Committee, the Planton County Builders Association, and the Planton Valley Regional Planning Commission attended and made presentations.

6/1/94: Open space: The Committee met with the heads of the City Park Department, the Natural Lands Society, the Planton High School Parent-Teachers Organization, and citizens interested in increasing open space, park land, and preservation of natural areas. The Planner presented information on wetlands and other natural resources that coincide with the floodplain.

7/6/94: Plan outline: The Committee reviewed the draft outline of the flood protection plan prepared by the staff, discussed the activities that were reviewed, and selected those appropriate to the City's goals.

7/21/94: Most of the committee members met with the City Planning Commission to review the draft plan and ensure that it was coordinated with other City planning activities.

8/3/94: Draft plan: A summary of the draft plan was published in the local newspaper and the public was invited to the meeting. Approximately 25 people attended and 12 made statements or asked questions. The Committee reviewed and commented on the draft.

9/1/94: Second draft plan: The Committee reviewed and approved the draft plan (with changes) and forwarded it to the Mayor and City Council.

4. Flood Data

While the worst flood of recent history is estimated to have been a 40-year flood, the Committee selected the 100-year flood for planning purposes. It is felt that Planton has been lucky in the past and that this plan should address the future threat. The 100-year flood is also the flood used by the floodplain ordinance to set protection levels on new construction in the floodplain. The Committee also reviewed the impact of the 500-year flood on the community, especially on critical facilities.

Planton has three areas affected by flooding: the Planton River floodplain, the Little Creek floodplain, and the Eighth Street drainage problem area. The first two have been studied by the Federal Emergency Management Agency (FEMA) and detailed data on them have been published in the Flood Insurance Study for the City.

The 100-year floodplain and the floodway shown in Map 1 on page 2 are based on the Flood Boundary and Floodway Map prepared as part of the Flood Insurance Study. The Flood Boundary and Floodway Map and the Flood Insurance Rate Map come in three panels. Only one panel was printed as there is no mapped floodplain in the southern portions of the City. Therefore, the maps used in this plan cover only the northern one-third of Planton (but all of the overbank flood problem in the City limits).

The Planton River has a drainage area of 1,250 square miles. It is a flat, slow-moving river that drains farm and forest land. Flood velocities do not exceed two feet per second. By monitoring snow depths, ground saturation, river gages, and rain gages, the National Weather Service can provide at least a 24-hour warning of an impending flood.

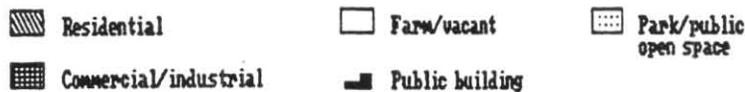
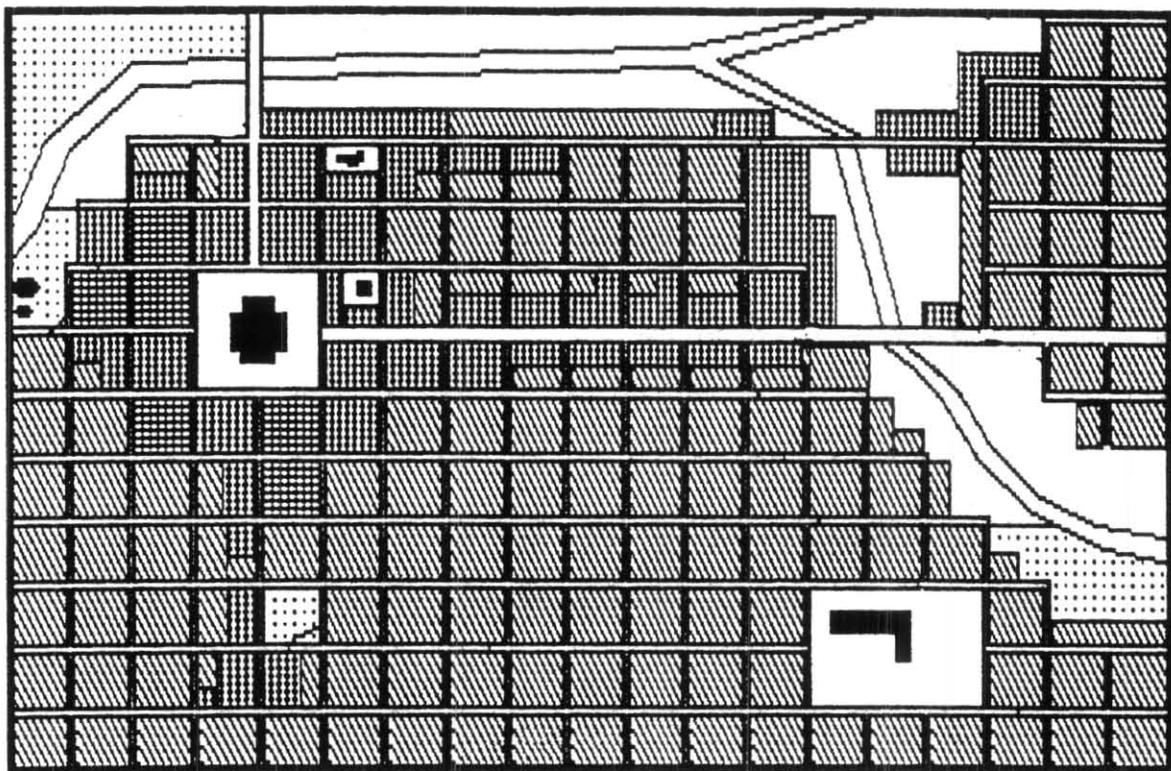
Little Creek drains 140 square miles of farm land. Because of the smaller drainage area, the creek is more responsive to local storms. According to the Flood Insurance Study, flood velocities at the upstream city limits can be as high as 6 feet per second. The Weather Service does not monitor the Creek or its watershed. It can only provide a general flood watch for the area when storms are threatening.

The boundary of the Eighth Street drainage problem area shown on Map 1 is the high water mark recorded during the August 3, 1993, flood. This was the highest flood of record for this area. Many nearby streets were flooded and intersections closed on these dates, but the mapped area is the only area where water is high enough to enter onto private property.

The Eighth Street drainage area was not included in the Flood Insurance Study and does not show as floodplain on the FEMA map. Flooding is caused when heavy local rains are severe enough to overload the storm sewer system. The backed up waters do not have a velocity. There is no National Weather Service flood warning, other than a severe storm warning.

5. Floodplain Development

Under natural conditions, a flood causes little or no damage. Nature ensures that floodplain flora and fauna can survive the more frequent inundations. This is the case in the Marzuki Preserve across the Planton River from the

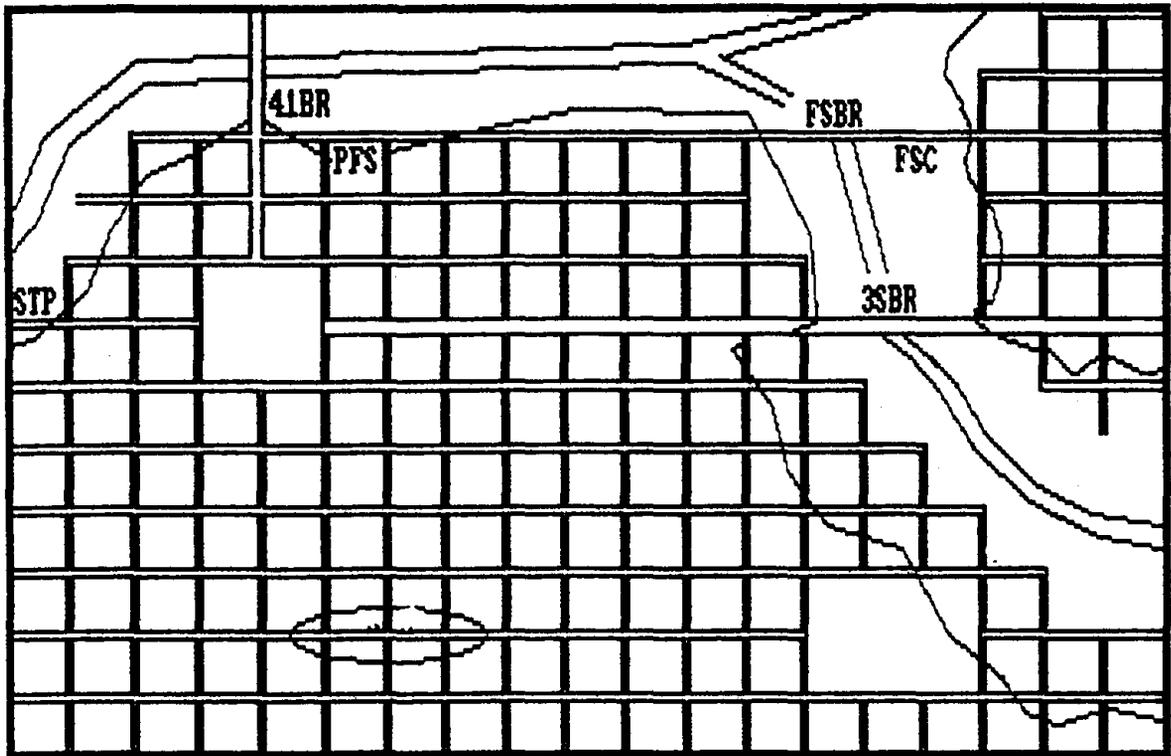


Map 2. Current Land Use

downtown. This area has been identified by the Department of Natural Resources as one of the state's few remaining floodplain bottomlands in its natural state. The Marzuki family donated it to the Natural Lands Society to be preserved as an environmental and education site.

Flood problems actually only exist when human development is damaged by nature's water. Unfortunately, Planton has a lot of human development exposed to flooding. The City has three areas affected by flooding which are shown in Map 2: the Planton River and Little Creek floodplains, which are shown on the Flood Insurance Rate Map (FIRM) as "A Zones," and the Eighth Street drainage area, which is not shown on the FIRM. An inventory of these areas shows the following:

- There are 25 buildings in the Planton River A Zone and 162 in Little Creek's, for a total of 187 flood-prone buildings: 149 single-family homes, 8 multi-family buildings with 32 units, 28 business properties, and 2 buildings owned by the City. Only 12 of these buildings have been built or improved since floodplain regulations went into effect in 1983. Many of the older buildings have basements.



STP	Sewage treatment plant	41BR	Highway 41 bridge
PFS	Police and fire station	FSBR	Front Street bridge
FSC	Farm Service Company	3SBR	Third Street bridge

Map 3. Critical Facilities

-
- There are 20 single-family homes in the Eighth Street drainage area, all with basements.
 - The area subject to the greatest damage is the Little Creek floodplain upstream of Third Street. This area suffered the worst during the last three floods, in part because the bridge is an obstruction to flood flows but primarily because of residential development in the floodplain. This area has 129 single-family homes and two multi-family buildings.
 - All of the 28 businesses are located downstream of Third Street, with the greatest concentration between Third and Front Streets. Two of these businesses have not reopened since the August 1993 flood.

The Committee identified six critical facilities in the three floodplains. Critical facilities are buildings or sites that deserve special attention because they are vital to the community or pose a special hazard during a flood. These are identified on Map 3.

- The City's sewage treatment plant was out of commission during the 1988 flood, resulting in pollution of the Planton River. A 100-year flood would damage the control and laboratory building. The City would then be without sewage treatment for days or weeks.
- Three bridges cross the two streams: State Route 41, Front Street, and Third Street. The State Route 41 bridge is high enough so it should still be usable during a 100-year flood, but it must be monitored to ensure that it is safe to use. The Front Street bridge is flooded during a 25-year flood and the Third Street bridge went under during the 1988 40-year flood. Closure of the two City bridges isolates the northeastern area of town. Traffic can only reach this area by taking a four-mile route to the north and east that depends on the Route 41 bridge being open.
- The City's Police and Fire Station is on the edge of the floodplain. In 1988, fire trucks had to go through a few inches of water on Front Street to reach the station. A 100-year flood would cover Front Street to a depth of two feet in front of the station, cutting off vehicular access. It also probably would flood the building's basement, which includes the City's Emergency Operations Center (EOC).
- Flooding of the Farm Service Company's agricultural chemical storage yard is the probable cause of the 1993 fish kill. Chemicals stored in above-ground tanks include fertilizers, pesticides, and herbicides, several of which are kept in toxic concentrations. The fish kill is the subject of a lawsuit brought against the Farm Service Company by the state Environmental Protection Agency.

6. Future Development

The Committee was concerned about how future development would affect the City's flood problems. Within Planton's corporate limits, there is little room for new development in the north part of town. The Planton River and Little Creek floodplains offer the only vacant land. However, as most of this land is floodway, the City's floodplain regulations prohibit new obstructions to flood flows. Construction of new buildings on open stilts is unlikely but not prohibited.

The Committee concluded that floodplain development will be of two kinds: home improvements and repairs, and redevelopment of business properties. Except for substantially improved or damaged homes, the former will have little impact on the flood problem. Substantially improved or damaged homes must be brought up to the standards for new construction (which include flood protection requirements).

On the other hand, business property is at a premium, particularly between Front and Third Streets. Commercial redevelopment can include expansion of storage or other non-building development into the floodplain. It also can include conversion of businesses to more hazardous enterprises, such as an expansion of the Farm Service Company. There are currently no zoning or other regulations to prevent commercial expansion or conversion that meet the floodplain regulation standards.

Development outside the city limits to the north and east has been curbed by the owners. To the northwest is the Marzuki Preserve, which will not be developed. To the north and east are family farms on prime agricultural land that have resisted development. It is suspected that if the ownership changes, especially to absentee owners, development would soon follow. There is no County zoning or other development restriction, other than the County's floodplain regulations.

Flooding can be aggravated by development in the watershed, especially in a smaller drainage area like Little Creek's. According to a state Department of Natural Resources map, approximately 30% of the Little Creek watershed is wetland and the rest is farmed. The wetlands serve to detain stormwater runoff to the creek.

If the wetlands were replaced by urban or agricultural development, Planton would see faster and higher floods. The only constraint on this possibility is the U.S. Army Corps of Engineers' Section 404 regulations that prohibit filling the wetlands but do not prohibit draining them. There is a possibility that they can be developed if the loss of wetland is compensated for by creation of new wetlands elsewhere.

7. Planning Goals

The Planning Committee set goals to deal with these problems. It started with community goals that had previously been set in the City's 1985 Comprehensive Plan. Five of the Comprehensive Plan's nine goals are appropriate to this Flood Protection Plan:

1. Develop vacant lands for uses that are compatible with existing uses and the environment. . . .
3. Improve housing conditions and the maintenance of the existing housing stock.
4. Increase recreational opportunities and expand the amount of open space available for recreation and education. . . .
6. Strengthen the City's economic base through business development and diversity. . . .
8. Preserve and protect natural areas and the quality of the air, water and soil.

To these general goals, the Planning Committee added the following goals and guidelines for selecting the flood protection activities that it would recommend:

1. The flood protection plan must be consistent with the City's goals as presented in the Comprehensive Plan.
2. The first priority of the flood protection plan is to reduce the threat to health and safety caused by flooding.

3. The second priority of the plan is to reduce property damage caused by flooding.
4. The third priority of the plan is to prevent the flood problems from getting worse.
5. The Planton River and Little Creek should be viewed as community assets. The plan should promote the proper use of these resources as well as address flood damage.
6. Where appropriate, flood damage protection activities also should be used to improve the environment, water quality, and the City's appearance.

8. Recommended Activities

The Committee spent four months reviewing a variety of activities that can affect flooding and flood damage. The Planner and Committee members contacted the other City departments; several County offices; the Natural Lands Society; the state Department of Natural Resources, Environmental Protection Agency, and Emergency Management Agency; and the U.S. Army Corps of Engineers, National Resources Conservation Service, National Weather Service, National Park Service, and Federal Emergency Management Agency. Input was also received from floodplain residents and businesses through the survey, the public meeting, and discussions with Planning Committee members.

All of these resources provided background information, ideas and suggestions. Possible activities ranged from "do nothing, people who are dumb enough to live in a floodplain should take care of themselves," to dredging the Planton River at an estimated cost of \$10 million.

Various ways to stop flooding on the river and creek were reviewed and are not recommended because they would be either too expensive or too disruptive. Levees, a dam, enlarging the channel, and opening up the bridges were all reviewed and not chosen because of the cost or environmental impact.

The 1991 levee study stated that there is no room for a levee high enough to contain the 100-year flood without removing large numbers of homes and businesses. The resulting land acquisition, relocation, and construction costs would be greater than the dollar value of the flood protection benefits to the remaining properties.

Dredging and channel improvements cannot be made large enough to carry the 100-year flood. The cost of constructing a reservoir on flat prime agricultural land makes an upstream dam infeasible, especially in a county with an economy that depends on agriculture. Opening up the Third Street bridge would simply transfer the flood levels downstream.

The Committee has concluded that the Planton River and Little Creek will continue to periodically overflow their banks in the future. Therefore, this plan recommends activities that minimize the effects of that flooding. The following recommended activities are affordable, doable, and will have an impact on present or future flood damage. Timetables start upon approval of the plan by the City Council.

8.1 Greenway

The Planton River and Little Creek offer some of the only remaining open space readily available to Planton's residents. While these streams are often viewed as sources of flood hazards and pains to keep clean, they also can be unique visual and recreation resources. They should be preserved as open space and developed as a greenway that includes public and private property.

Lands to the south of the two streams should be identified for greenway purchase or access easements. This would allow construction of a walkway/bikeway connecting the Sewage Treatment Plant grounds and Little Creek Park. Lands on the other side of the streams should be reserved as visual open space through development setback easements. This would prevent inappropriate development, preserve the open space appearance of the riverfronts, and keep the Marzuki Preserve in its natural state.

Project 8.1.1: The City's Parks & Rec Department should construct a walking/bicycle path along the streams in Little Creek Park and on the Sewage Treatment Plant land. Timetable: By the end of next fiscal year. Budget: \$10,000 should be allocated from next year's capital budget.

Project 8.1.2: The City Planner should pursue state and federal funds for acquisition of vacant land, greenway access easements, and development setback easements on properties along the two streams. Acquisition of greenway land is the preferred approach, but cost and owner's interest may make access easements more feasible. Timetable: Report on status in six months. Budget: Up to \$200,000, depending on the amount of outside financial assistance obtained. If each year's local share is under \$5,000, it could be funded from the Parks & Rec Department operating budget. Otherwise a bond issue may be needed. A bond issue has been considered to fund improved park and recreation opportunities pursuant to the Comprehensive Plan.

Project 8.1.3: The City Attorney should obtain easements from owners of properties that would be included in a greenway. There may be some property owners, particularly civic-minded businesses, willing to donate the easements. The rest should be purchased with funds obtained in Project 8.1.2. This work should be coordinated with Project 8.2.2. Timetable: Report on status in one year. Budget: N/A (staff time).

Project 8.1.4: The Parks & Rec Department, in cooperation with the Planton School District and the Natural Lands Society should develop signs and other informational materials on the natural resources of the rivers and their floodplains. These should be posted along the greenway path. Timetable: Report on status in one year. Budget: N/A (staff time and in-house supplies).

8.2 Stream Maintenance

Smaller storms are now causing overbank flooding because we have allowed the channels to become clogged with silt, vegetation, and debris. It would take a small crew only a day or two each year to clean out the overgrowth, logs, and trash. However, a maintenance program that complies with state regulations on channel projects should be prepared first. The permission of adjacent landowners also must be obtained.

Project 8.2.1: The Director of Public Works and the City Planner should prepare a stream maintenance standard operating procedure (SOP) and have it approved by the Department of Natural Resources. Timetable: Six months. Budget: N/A (staff time).

Project 8.2.2: The City Attorney should obtain the necessary rights-of-way for the City to enter private property to clear vegetation and debris. The subdivision ordinance should be amended to require a maintenance easement on every plat of survey. Timetable: Within two years. Budget: N/A (staff time).

Project 8.2.3: The Department of Public Works should inspect and clear the streams on a regular basis. Timetable: At least annually, more frequently where identified by the SOP. Budget: N/A (staff time).

8.3 Eighth Street Drainage Improvements

The area flooded along Eighth Street is a low depression that was probably a wetland before it was developed. It is now drained by a storm sewer that also drains nearly one-quarter of the City to the south. As new subdivisions have been built to the south, the sewer has had to carry more and more stormwater. During heavy rains, it runs full so that streets cannot drain. It also backs up into the Eighth Street depression.

There are three possible solutions to this problem that warrant further study before one is funded: enlarge the sewer, construct an overflow retention basin in the adjacent city park, or put restrictors on inlets in the drainage basin. Under the last approach, water could be purposely stored in the streets until the sewer can handle it.

Project 8.3.1: The City's consulting engineer should review the costs, benefits, and environmental impacts of these and other possible alternatives to stop Eighth Street flooding. Timetable: Report in six months. Budget: \$20,000 should be allocated from next year's capital budget. This also could be funded from the Gasoline Tax Fund because it will improve street drainage.

8.4 Acquisition of Flood-Damaged Buildings

As many as 20 homes east of the High School could be destroyed or substantially damaged after another large flood. They are low and in the floodway. The owners of these homes have been flooded before and have voiced an interest in moving. The City would be interested in obtaining more land to expand Little Creek Park and connect the greenway to the High School grounds.

Although there are no local funds to relocate these homes, such funds often become available after a flood. Programs such as the National Flood Insurance Program and FEMA post-disaster mitigation planning are often interested in getting damage-prone buildings out of harm's way.

Project 8.4.1: The City Building Commissioner should "red-tag" destroyed or substantially damaged buildings after a flood or other disaster. They should not be rebuilt until the Planner meets with the owners and explains alternatives to rebuilding on site. Timetable: Red-tagging should be completed within three days after a flood. Budget: N/A (staff time).

Project 8.4.2: The Planner should become familiar with acquisition and relocation funding programs and post-disaster procedures for obtaining those funds. Timetable: Provide a status report within six months. Budget: N/A (staff time).

8.5 Property Owner Protection Assistance

There are many ways property owners can protect themselves from flood losses. These include knowing the correct emergency actions to take, purchasing flood insurance, and floodproofing buildings. However, many property owners, even recent flood victims, are not aware of these measures. For example, while there are 187 buildings in the floodplain, FEMA records show that there are only 42 flood insurance policies in the entire city.

Project 8.5.1: The City Planner should collect information and materials on insurance, floodproofing, flood safety, water quality, protection of floodplain flora and fauna, and related topics. Information on available sources of technical and financial assistance also should be collected. Appropriate documents should be provided to the Planton Public Library for use by area residents. Timetable: Within three months. Budget: N/A (staff time and supplies accounts).

Project 8.5.2: The City Planner should become familiar with these flood protection measures and be available to answer owners' questions on them. The Planner should develop a list of names and telephone numbers of resource people who can help with questions beyond his expertise. These could include the Building Commissioner, insurance agents, the Natural Lands Society, the Environmental Protection Agency, the U.S. Army Corps of Engineers, and the State Flood Insurance Coordinator. Timetable: Within three months. Budget: N/A (staff time).

Project 8.5.3: The City Planner, in coordination with the Mayor's office, should prepare a brochure on the City's flood protection program and ways that property owners can protect themselves. This brochure should include information on sources of assistance, including the Library and the Planner's office. It should be mailed or delivered to every floodplain resident and business owner in the Spring. It should be updated and redistributed each year. Timetable: By March 1 each year. Budget: N/A (staff time).

8.6 Flood Warning

The National Weather Service only issues flood warnings for the Planton River. Little Creek flooding occurs faster and causes more damage. A flood warning system on Little Creek would allow residents and businesses time to move their vehicles and contents to high ground or higher floors.

Project 8.6.1: The City's Emergency Manager should work with the County Emergency Manager and the National Weather Service to develop a local flood warning system for Little Creek. The system should include procedures for warning the public and owners of critical facilities. Timetable: Status report within one year. Budget: N/A (staff time plus a small amount from the operating budget supplies account for rain and river gages).

Project 8.6.2: Once the flood warning system is established, the City and County Emergency Managers should develop a handout to explain how the system works and what the warning signals are. Timetable: Within 6 months of establishing the warning system. Budget: N/A (staff time).

8.7 Flood Preparedness Plan

The City's emergency preparedness plan does not address any individual hazard in detail. While plans for sheltering evacuees and post-disaster clean-up procedures are adequate, specific actions to take immediately after a flood warning are not included. A detailed flood preparedness plan is needed that can quickly guide City crews to maximize their effectiveness before and during a flood.

Project 8.7.1: The City Emergency Manager should work with the County and State Emergency Management agencies to develop a detailed flood preparedness plan that specifies what actions to take when the streams reach certain flood levels. The plan should include procedures for monitoring river conditions, closing bridges and redirecting traffic, evacuating residents, protecting critical facilities, sandbagging, and providing necessary services to the northeast area when it is isolated. Timetable: One year. Budget: N/A (staff time).

8.8 Critical Facilities

The flood preparedness plan (Project 8.7) should include procedures for monitoring the condition of the three bridges. The sewage treatment plant, the Police and Fire Station, and the Farm Service Company could be floodproofed or otherwise protected to minimize the impact of being flooded. Because they are so important, the 500-year flood should be used as the protection level for these critical facilities.

Project 8.8.1: The City Emergency Manager, the Police Chief, and the Fire Chief should develop a plan for protecting or relocating the Police and Fire Station when the Planton River is predicted to exceed the 100-year flood level. This plan should include ensuring vehicular access to the building. Relocation of the EOC to the County Courthouse's EOC should be investigated. Timetable: One year. Budget: N/A (staff time).

Project 8.8.2: After he has researched floodproofing (Project 8.5.1) the City Planner should work with the Director of Public Works and the Farm Service Company (FSC) to develop floodproofing plans for the Sewage Treatment Plant and the FSC property. Timetable: One year. Budget: N/A (staff time).

8.9 Floodplain Regulations

The City's building code does not mention flood protection. There is a separate floodplain development ordinance that was enacted to meet the minimum requirements of the National Flood Insurance Program (NFIP). Minimum requirements are just that: minimum national standards designed for a generic flooding situation. Planton's code should reinforce the need to keep the greenway areas open and protect existing and future development from obstructions and other things that can make floods go higher than predicted.

Project 8.9.1: The Building Commissioner should draft amendments to the building code to prohibit new buildings in the floodways and require new buildings in the flood fringe to be built two feet above the 100-year flood level. It also should be enforced in the Eighth Street drainage problem area as delineated on Map 1. Timetable: Six months. Budget: N/A (staff time).

With a separate building code, zoning ordinance, subdivision ordinance, and floodplain regulations ordinance, there has often been confusion over which rules apply. A consolidated code is needed to better coordinate the programs and reduce confusion.

Project 8.9.2: The City Planner should draft the appropriate amendments to consolidate the various codes. The digitized mapping system developed for tax records and used in this plan, should incorporate all property regulations data, such as floodplain, floodway, and zoning district boundaries. Timetable: One year. Budget: N/A (staff time).

Project 8.9.3: All floodplain development and building code regulations relate to protecting buildings. The floodplain is the home of special flora and fauna that also deserve protection. The consolidated code should prohibit disturbing natural areas within 50 feet of the channels of the Planton River and Little Creek to protect the wildlife in and adjacent to the water. Timetable: One year. Budget: N/A (staff time).

8.10 Watershed Management

Floodwaters come to Planton from out of town. Activities in the watershed beyond the City's jurisdiction can aggravate our problem. Sediment in the channels from farmland erosion and faster floods from improved drainage are two examples. If the upstream wetlands are filled or drained, these problems will get even worse. Several County Board members share this concern, but feel that the County lacks the resources to develop an appropriate program.

Project 8.10.1: The Planner should work with the Natural Resources Conservation Service, the Soil and Water Conservation District, and the County Board to develop a watershed management plan for the Little Creek watershed and those parts of the Planton River watershed within the County. The plan should review farm drainage practices, County, state and federal development regulations, and plans for watershed development.

A County ordinance regulating wetland development, setting standards for new subdivisions, and requiring "best management development practices" that account for stormwater quality should be one product of this work. The plan also should consider a County zoning ordinance, tax incentives, and other approaches to preserving floodplain land for agriculture or other appropriate use. Timetable: Two years. Budget: N/A (staff time).

9. Summary of Recommendation Assignments

<u>Project</u>	<u>Timetable</u>	<u>Budget</u>
City Planner:		
8.1.2 Report on greenway funding	1 year	(1)
8.4.2 Report on post-disaster funding programs	6 months	(2)
8.5.1 Collect flood protection info & materials	3 months	(2)
8.5.2 Develop list of resources on flood protection	3 months	(2)
8.5.3 Distribute flood protection brochure	Annually	(2)
8.8.2 Develop critical facilities protection plans	1 year	(2)
8.9.2 Consolidate codes and maps	1 year	(2)
8.9.3 Draft stream bank setback regulation	1 year	(2)
8.10.1 Develop county watershed plan	2 years	(2)
Superintendent of the Parks & Rec Department:		
8.1.1 Construct park pathway	18 months	\$10,000 (3)
8.1.4 Status report on greenway signs	1 year	(2)
City Attorney:		
8.1.3 Status report on greenway easements	1 year	(2)
8.2.2 Obtain maintenance rights of way	2 years	(2)
Director of Public Works:		
8.2.1 Draft stream maintenance SOP	6 months	(2)
8.2.3 Inspect & maintain channels	Annually	(2)
Building Commissioner:		
8.4.1 Red-tag damaged buildings	After flood	(2)
8.9.1 Draft building code amendments	6 months	(2)
Emergency Manager:		
8.6.1 Status report on flood warning system	1 year	(2)
8.6.2 Develop a flood warning handout	After 8.6.1	(2)
8.7.1 Develop a flood preparedness plan	1 year	(2)
8.8.1 Draft Police & Fire Station protection plan	1 year	(2)
Consulting Engineer:		
8.3.1 Eighth St. drainage plan	6 months	\$20,000 (3)
(1) Budget cannot be set until next year after further planning is done		
(2) Paid from Operating Budget by rearranging staff priorities		
(3) Capital Budget		

CRS CREDIT FOR PLANTON'S PLAN

Planton's Flood Protection Plan was prepared before the local officials learned of the Community Rating System. After discussions with the ISO/CRS Specialist, the City Planner confirmed that the plan should qualify for credit under Activity 510 (Floodplain Management Planning).

The following materials are used to calculate and document Planton's CRS credit:

- A copy of the plan (pages P-1 through P-16).
- A memo on the planning process steps that were not discussed in the plan text (pages P-18 through P-19).
- A copy of a letter documenting one of the creditable items (page P-20).
- Activity Worksheets AW-510 and AW-511 (pages P-21 and P-22).
- A copy of the notice advising floodplain residents about the public meeting on the draft plan (page P-23).
- A copy of the resolution adopting the plan (page P-24). An alternative would be to include a photocopy of the page of the minutes of the council meeting when the plan was adopted.

One other item of documentation is needed for continued CRS credit for the plan:

- An annual progress report on how the plan has been implemented. This is not submitted with the plan. It is sent in with each annual recertification. However, a copy of Planton's progress report is included here as an example (pages P-25 through P-32).

These items are on the following pages. The credit points for the plan are shown on the Activity Worksheets.

Memo on the Planning Process

City of Planton

"City of Progress in the Country"

Leo Lepetomaine, Mayor

December 1, 1996

TO WHOM IT MAY CONCERN

FROM:  Bill D. Best, City Planner

SUBJECT: Planton's Flood Protection Plan

Attached is a copy of the City's plan that is being submitted for credit under the Community Rating System. I have scored the plan on the attached activity worksheets, AW-510 and AW-511. I have noted on the worksheets where the items appear in the plan.

Two of the items do not appear in the plan document. However, they were a part of our planning process when we prepared the plan in 1993-1994. They are noted by step number:

Step c. Coordinate with other agencies, item 1. contacts with other agencies: On September 21, 1993, after the City Council created the planning committee and before the first meeting, we sent letters to state, federal, county and other agencies, asking them for copies of any flood hazard studies they might have and for information on how they could help us. A copy of one letter is attached. Several of the agencies responded and some came and met with the planning committee. The following agencies were contacted:

- State Department of Natural Resources
- State Environmental Protection Agency
- State Emergency Management Agency
- State Highway Division
- U.S. Army Corps of Engineers
- Natural Resources Conservation Service
- National Weather Service
- National Park Service
- Federal Emergency Management Agency
- Planton Valley Regional Planning Commission
- County Emergency Management Agency

TO WHOM IT MAY CONCERN
SUBJECT: Planton's Flood Protection Plan
December 1, 1996
Page 2.

- County Highway Department
- County Surveyor
- County Soil and Water Conservation District
- Natural Lands Society
- Friends of the Planton River
- Planton High School Parent-Teacher Association
- Planton County Builders Association
- Downtown Merchants Committee

Step c. Coordinate with other agencies, item 4. draft action plan: When the planning committee had prepared its first draft, copies were sent to the same agencies. A few wrote comments and three local groups appeared and spoke at the public meeting that was held on August 3, 1994.

If you have any questions on this memo or Planton's plan, please do not hesitate to call me at 555-1234.

Attachments:

Planton's Flood Protection Plan
Activity Worksheets
Example letter to agencies
Public meeting notice
Resolution adopting the Plan

BDB:mlw

City of Planton

"City of Progress in the Country"

Leo Lepetomaine, Mayor

September 21, 1993

Director, Office of Water Regulation
Department of Natural Resources
State Office Building, Room 123
Capital City, ST 12354

Dear Sir:

The City of Planton is starting to prepare a plan to find ways to protect our town from flooding. The City Council created a Flood Planning Committee which will be meeting monthly to review our situation and possible ways to reduce flood damage.

This letter is our request for assistance from your agency. Specifically:

Do you have any information on past flood studies and on possible solutions to flooding in our area?

Is your agency planning or implementing any flood projects that we should be aware of?

Does your agency have an financial or technical assistance programs that would help us?

Do you have any suggestions on what types of activities we should be reviewing that would reduce flood damage in Planton?

Would you be available to meet with the Flood Planning Committee (during an evening meeting) to advise us on your agency's work and recommendations?

Our first meeting is scheduled for October 14. We would appreciate a response by then. If you have any questions, please call me at 555-1234.

Sincerely,

Bill D. Best

Bill D. Best
City Planner

Activity Worksheet, AW-510

510 FLOODPLAIN MANAGEMENT PLANNING Community: Planton

511 Credit Points

	<u>Page</u>	<u>Item Score</u>	<u>Step Total</u>
a. Organize to prepare the plan			
1. Supervision or direction of a professional planner:	3	<u>2</u>	
2. Planning committee of department staff:	3	<u>6</u>	
3. Process formally created by the community's governing board:	1	<u>2</u>	<u>10</u>
b. Involve the public			
1. Public meeting held at the end of the planning process (REQUIRED):	4	<u>2</u>	
2. Public meetings held at the beginning of the planning process:		<u> </u>	
3. Public information activities encourage input:		<u> </u>	
4. Questionnaires ask the public for information:	3	<u>4</u>	
5. Recommendations are solicited from advisory groups, etc.: memo	4	<u>4</u>	
6. Planning committee includes the public:	3	<u>26</u>	<u>36</u>
c. Coordinate with other agencies			
1. Other agencies contacted at the beginning of the planning: memo		<u>3</u>	
2. Meetings are held with representatives of agencies:	4	<u>10</u>	
3. Review of the community's needs, goals, and plans for the area:	4,9	<u>3</u>	
4. Draft action plan is sent to agencies for comment (REQUIRED): memo		<u>2</u>	<u>18</u>
d. Assess the hazard			
1. The plan includes a map and hazard description (REQUIRED):	5	<u>5</u>	
2. The plan describes other natural hazards:		<u> </u>	<u>5</u>
e. Assess the problem			
1. Number and types of buildings subject to the hazards (REQUIRED):	6-7	<u>2</u>	
2. Description of the impact of flooding:		<u> </u>	
3. Warning and evacuating residents and visitors:		<u> </u>	
4. Critical facilities:	7-8	<u>4</u>	
5. Natural and beneficial functions:		<u> </u>	
6. Development, redevelopment and population trends:	8-9	<u>5</u>	
7. Summary of the impact of flooding on the community:		<u> </u>	<u>11</u>
f. Set goals (REQUIRED):			
	9-10	<u>2</u>	<u>2</u>
g. Review possible activities			
1. Preventive activities:	Project-pp 11-15 8.1.1, 8.1.2, 8.1.3, 8.2, 8.9.2	<u>5</u>	
2. Property protection activities:	8.4, 8.8 8.10	<u>5</u>	
3. Natural resource protection activities:	8.9.3, 8.10	<u>5</u>	
4. Emergency services activities:	8.6, 8.7	<u>5</u>	
5. Structural projects:	page 10, 8.3	<u>5</u>	
6. Public information activities:	8.1.4, 8.5, 8.6.2	<u>5</u>	<u>30</u>

Activity Worksheet, AW-511

	Item Score	Step Total
h. Draft an action plan		
1. Recommendations for activities from two of the six categories:	_____	
2. Recommendations for activities from three of the six categories:	_____	
3. Recommendations for activities from four of the six categories:	_____	
4. Recommendations for activities from five of the six categories: see	<u>40</u>	
5. Post-disaster mitigation policies and procedures: 9.	_____	<u>40</u>
i. Adopt the plan (REQUIRED): separate resolution (attached)	<u>2</u>	<u>2</u>
j. Implement, evaluate and revise		
1. Procedures for monitoring and recommending revisions to the plan: Resolution, p. 24	<u>2</u>	
2. Same planning committee does evaluation: Resolution, p. 24	<u>8</u>	<u>10</u>
Add the step totals for lines a through j above	FMP =	<u>164</u>

Note: If any step total = 0, then FMP = 0.

512 Impact Adjustment:

- a. Option 1: rFMP = 1.0
- b. Option 2: rFMP = 0.25

513 Credit Calculation:

- a. FMP = 164. If any of the ten step totals in Subsections 511.a-j is 0, then FMP = 0.
- b. FMP 164 x rFMP 1.0 = 164
- c510 = value above rounded to the nearest whole number: c510 = 164

514 Credit Documentation: The following documentation is attached to this worksheet:

- a. A copy of the floodplain management plan. pp. 1-16 see also memo, pp. 18-19
 - b. A copy of the notice(s) of the public meetings. p. 23
 - c. Documentation showing the plan was adopted by the governing body. p. 24
- We will submit the following with our annual recertification:
- d. An annual evaluation report. p. 25

Public Meeting Notice

This notice was published in the *Planton Daily Planet* on July 12, 19, and 26, 1994:

Notice of Public Meeting:

Flood Protection Plan

The City of Planton Flood Planning Committee will have a public input session at 7:30 p.m., August 3, 1994, at City Hall. The purpose of the meeting is to review the proposed Flood Protection Plan and solicit comments from the public.

The Plan proposes the following:

- A public greenway with a sidewalk along the left bank of Little Creek and the Planton River.
- A stream maintenance program to keep the streams clear of debris.
- Investigating possible solutions to flooding on Eighth Street.
- Acquisition of buildings damaged in future floods.
- Assisting property owners to protect themselves from flood losses.
- Developing a flood warning system and flood preparedness plan in cooperation with certain critical facilities.
- Strengthening the building code and other regulations.
- Developing a watershed management plan for the Little Creek watershed.

Copies of the plan are available at the City Planner's Office, City Hall. Questions should be referred to the City Planner at 555-1234.

Plan Adoption Resolution

Resolution #94-24

WHEREAS the City of Planton has been severely flooded three times in the last fifteen years, resulting in property loss and hazards to public health and safety,

WHEREAS flood prevention projects, such as levees and channel improvements, are not feasible or affordable, so we can continue to expect more floods in the future,

WHEREAS a Flood Protection Plan has been developed after more than a year of research and work by the Planton Flood Planning Committee,

WHEREAS the Flood Protection Plan recommends many activities that will protect the people and property affected by flooding, and

WHEREAS a public meeting was held to review the plan as required by law,

NOW THEREFORE BE IT RESOLVED by the Mayor and City Council of the City of Planton that:

1. The Flood Protection Plan is hereby adopted as an official plan of the City of Planton.
2. The respective City officials identified in Sections 8 and 9 of the Plan are hereby directed to implement the recommended activities assigned to them. These officials will periodically report on their activities, accomplishments and progress to the Flood Planning Committee.
3. The Flood Planning Committee will provide annual progress reports on the status of implementation of the plan to the Mayor and City Council. This report shall be submitted to the City Council by November 30 each year.

PASSED by the City Council of the City of Planton, this 16th day of November, 1994.

Mary O. Toole
Clerk

APPROVED by me this 14th day of November, 1994.

Leo Lepetomaine
Mayor

ATTESTED and FILED in my office this 14th day of November, 1994.

Mary O. Toole
Clerk

Annual Progress Report

NOTE: THE FOLLOWING IS NOT SUBMITTED WITH THE COMMUNITY'S APPLICATION. THIS IS AN EXAMPLE OF AN ANNUAL PROGRESS REPORT SUBMITTED WITH THE COMMUNITY'S ANNUAL RECERTIFICATION.

City of Planton

"City of Progress in the Country"

Leo Lepetomaine, Mayor

November 21, 1995

TO THE MAYOR AND CITY COUNCIL

FROM: ^{BDB} Bill D. Best, City Planner

SUBJECT: Flood Protection Plan Progress Report

On November 16, 1994, the City Council adopted a Flood Protection Plan. That plan was prepared by the Flood Planning Committee following a year-long process of reviewing alternatives and selecting the best mix of projects for the City. Copies of the plan and this progress report have been sent to the usual media contacts and are on file at the City Clerk's office for interested citizens.

On November 6, 1995, the Flood Planning Committee met to review how well we have done in implementing the plan. This memo is a report of the Committee's findings on progress toward implementing the plan and its recommendations.

1. The Plan: The Flood Protection Plan discusses the flooding problems of the City along the Planton River, Little Creek and the "Eighth Street Drainage Area." It reviews the history of flooding in these areas, the types of development affected, and the potential for things to get worse with future development. Section 8 of the plan recommended 10 activities:

- 8.1 Greenway
- 8.2 Stream Maintenance
- 8.3 Eighth Street Drainage Improvements
- 8.4 Acquisition of Flood-Damaged Buildings
- 8.5 Property Owner Protection Assistance
- 8.6 Flood Warning
- 8.7 Flood Preparedness Plan
- 8.8 Critical Facilities
- 8.9 Floodplain Regulations
- 8.10 Watershed Management

These activities were broken down into 21 specific projects. A City staff person was made responsible for completing one or more tasks by a deadline. Most of these people were able to make the November 6 meeting and tell the Committee how they had done.

2. Recent Floods: We can thank our lucky stars that we have had only one flood situation over the last 12 months. On June 20, we received four inches of rain in three hours. There was not enough rain over a large enough area to affect the two rivers. However, the City's storm sewers were overloaded once again and the streets and yards along Eighth Street were flooded.

Traffic was disrupted but there were no reports of water entering any houses. For the first time, there were no reports of basements being flooded by sewer backup. It may be that the City's public information efforts have worked and residents of the area have installed standpipes or backup valves.

3. Project Status:

8.1 Greenway

8.1.1 Park pathway construction: The \$10,000 was budgeted and pathways were built in both the park and the treatment plant grounds. They were dedicated in September. The pathways have proven to be very popular. Percent accomplished: 100%.

8.1.2 Obtain greenway funding: I researched seven different programs and wrote a status report on April 30, 1995. I submitted applications to three of the programs. We are on the "short list" for one of them that would provide \$50,000 on a 50/50 match basis. \$50,000 is being added to next year's proposed capital budget. Percent accomplished: 50% (funding found but local match needed).

8.1.3 Obtain greenway easements: Fifteen properties were identified as needing pathway easements and 8 need development setback easements. So far the City Attorney has obtained donated easements from six property owners. The rest will be obtained as funds are available. No status report has been submitted. Percent accomplished: 26% (6 of 23 obtained).

8.1.4 Greenway signs: The Parks & Rec Department and a Planton High School Biology class have prepared and installed six plaques at various places along the pathway. Future classes will prepare more when additional pathway right-of-way is obtained. Percent accomplished: 100%.

8.2 Stream Maintenance

8.2.1 Draft stream maintenance SOP: This was completed and submitted to the State Department of Natural Resources on June 4, 1995. Percent accomplished: 100%.

8.2.2 Obtain maintenance rights of way: These have been easier to obtain than walkway and setback easements. All property owners on Little Creek upstream of Front Street have signed access easements for annual maintenance work. A few farmers and the Marzuki Preserve management have yet to agree.

The Attorney has not gotten back to these people since the first round of invitations was sent out in 1995. The ordinance amendment to require maintenance rights of way was adopted by the Council last June but there have been no applications for subdivision approval. Percent accomplished: 82% (36 of 44 property owners).

8.2.3 Inspect & clear channels: This has been done each Spring in accordance with the new SOP. However, the department's work was restricted to City property and private property where we have maintenance easements. It is expected that when people see the improvements from the maintenance, the rest will sign the agreements. Percent accomplished: 90% (where access permitted).

8.3 Eighth Street Drainage Improvements

8.3.1 Prepare Eighth Street drainage plan: The plan was completed within six months, but the cost of the alternatives is so high that nothing will be built without outside funding. We are still looking for funding sources. Percent accomplished: 100%.

8.4 Acquisition of Flood-Damaged Buildings

8.4.1 Red-tag damaged buildings: The Building Commissioner attended a Floodplain Regulations and Flood Insurance Workshop hosted by the state. He has received new materials on regulating substantially damaged buildings and is prepared for this activity should a flood occur. He also recommends a special effort to meet with the owners of potentially substantially damaged buildings to discuss the rules and options before a flood occurs. Not knowing in advance which buildings these will be, we should focus on buildings in the floodway and those that have been repeatedly flooded.

We should also consider acquiring buildings as they are put up for sale by their owners, especially buildings adjacent to park or public lands. However, we do not have a budget for such an activity, yet. Percent accomplished: N/A (we are ready but there have not been any floods).

8.4.2 Research post-disaster funding programs: Done. I attended the new state floodplain management association's conference and picked up lots of information on disaster assistance and post-flood mitigation programs. A report on the conference was submitted on March 31. Percent accomplished: 100%.

8.5 Property Owner Protection Assistance

8.5.1 Collect flood protection info & materials: Done. The Public Library has cataloged 12 flood protection and flood-related references, including the City's brochure (Project 8.5.3) and information on the Floodplain Management Resource Center. The librarian says that the booklet on basements was the most popular and she has had to order more copies to replace two that have never been returned. Percent accomplished: 100%.

8.5.2 Advise property owners: The state floodplain management association's conference provided much information on flood protection measures and I met several state and federal agency people who are willing to provide technical advice over the telephone. I have talked to 22 property owners since the brochure announcing this service was sent out in March 1995. Seven building permits have been issued for floodproofing projects, five of them involving sewer backup protection. According to FEMA's records, the number of flood insurance policies sold in Planton has increased from 42 to 55. Percent accomplished: 100%.

8.5.3 Distribute flood protection brochure: A brochure has been mailed to every flood-prone property each March since the plan was adopted. It should be revised to include a discussion of the floodproofing activities undertaken by local property owners, the resident's role in stream maintenance, and the benefits of the City's flood protection activities. Percent accomplished: 100%.

8.6 Flood Warning

8.6.1 Develop a local flood warning system: With help from the County and State Emergency Management agencies and National Weather Service, we established a warning system on both the Planton River and Little Creek. Drills have been conducted, but the system has not been tested by a real flood. Percent accomplished: 100%.

TO THE MAYOR AND CITY COUNCIL
SUBJECT: Flood Protection Plan Progress Report
November 21, 1995
Page 5.

8.6.2 Develop a flood warning handout: This was prepared after the warning system was developed. It is put in all water bills each January. Percent accomplished: 100%.

8.7 Flood Preparedness Plan

8.7.1 Develop a flood preparedness plan: The "Flood Emergency Plan" was adopted by the City Council on July 12, 1995. It is based on the new warning system. Drills have been conducted, but the system has not been tested by a real flood. Percent accomplished: 100%.

8.8 Critical Facilities

8.8.1 Protect the Police & Fire Station: The EOC has been consolidated with the County's EOC in the basement of the Court House. Percent accomplished: 20% (the EOC has been protected, but the police and fire offices have not been and there is no flood response plan for the building).

8.8.2 Critical facilities protection plans: Not done. I am responsible for this one. Now that I have attended conference sessions on floodproofing, I can start working on these plans. Percent accomplished: 0%.

8.9 Floodplain Regulations

8.9.1 Draft building code amendments: Done. The building code was amended in April 1995. It now prohibits new buildings in the floodway and requires lowest floors of new buildings to be two feet above the 100-year flood elevation. The ordinance includes the Eighth Street drainage problem area as a floodplain subject to the code. Percent accomplished: 100%.

8.9.2 Consolidate codes and maps: Done. The April 1995 building code amendments repealed the separate NFIP ordinance and adopted the digitized mapping for all regulations. Percent accomplished: 100%.

8.9.3 Stream bank setback regulations: Done. The April 1995 building code amendment included provisions for a 50-foot setback from the banks of the Planton River and Little Creek. Percent accomplished: 100%.

8.10 Watershed Management

8.10 County watershed plan: The project has not started. There are many different organizations, property owners, and other interests in the watershed and we have been unable to convince enough of them that there should be a meeting to talk about the impact of their activities on Planton. It may take another year or two to get an acceptable plan. Percent accomplished: 0%.

4. Implementation Summary: Of the 22 projects recommended by the Plan, 14 have been completed, six have been partially implemented or are underway, and two have not been started. While we have done pretty well, there is room for improvement.

A review of the projects accomplished shows that those that we could do ourselves are generally getting done. It is the projects that depend on other organizations, such as obtaining donated easements and working out a watershed plan, that have been the most difficult.

A second reason for some projects being behind schedule is that we have not always monitored progress and reminded those responsible of their duties. This evaluation has reminded us that we still have work to do. In particular, it has made me promise to tackle the critical facilities protection plans and the City Attorney has agreed to contact the property owners again about the easements and rights of way. The Committee has decided to meet quarterly and receive progress reports from all the project lead people at each meeting so things won't get so far behind.

A third reason is cost. The Eighth Street drainage area will continue to flood until we find some outside funding. Obtaining all of the greenway easements will probably have to wait until we budget what is needed.

5. Objectives for next year: Based on the popularity of the greenway paths, the Committee strongly recommends that we pursue acquisition funding. The Committee chair plans to attend the Council's budget hearings to make a case for the \$50,000 in the capital budget.

We can also finish some of the projects if we just devote the time and attention they need. Starting on the next page is the Committee's recommended updated "Summary of Recommendation Assignments for Next Year." Accepting this report and adopting the Summary will reaffirm the Council's support of the plan and help us "nudge" the lead persons to continue to implement the plan.

Summary of Recommendation Assignments for Next Year

<u>Project</u>	<u>Deadline</u>
City Council:	
8.1.2 Budget the local share for greenway acquisition	Feb. 1
City Planner:	
8.4.2 Research post-disaster funding programs	Ongoing
8.5.1 Collect flood protection info & materials	Ongoing
8.5.2 Advise property owners	Ongoing
8.5.3 Update and distribute flood protection brochure	March 1
8.8.2 Prepare critical facilities protection plans	Aug. 1
8.9.2 Maintain consolidated codes and maps	Ongoing
8.10.1 Participate on the county watershed planning group	Ongoing
Superintendent of the Parks & Rec Department:	
8.1.1 Maintain the park pathways	Ongoing
8.1.4 Prepare more greenway signs	Ongoing
City Attorney:	
8.1.3 Obtain the rest of the greenway easements	Mar. 1
8.2.2 Obtain the rest of the maintenance rights of way	Mar. 1
Director of Public Works:	
8.2.1 Obtain state approval of the stream maintenance SOP	Jan. 1
8.2.3 Inspect & maintain channels	May 1
Building Commissioner:	
8.4.1 Red-tag damaged buildings	Ongoing
8.9.1 Enforce building code amendments	Ongoing
8.9.3 Enforce building code amendments	Ongoing

Summary of Recommendation Assignments for Next Year (Continued)

<u>Project</u>	<u>Deadline</u>
Emergency Manager:	
8.6.1 Conduct drills of the flood warning system	Ongoing
8.6.2 Mail the flood warning handout	Jan. 31
8.7.1 Conduct drills of the flood preparedness plan	Ongoing
8.8.1 Protect the Police & Fire Station	Aug. 1
Consulting Engineer:	
8.3.1 Monitor funding sources for Eighth St. drainage plan	Ongoing
<u>New Projects</u>	
Building Commissioner:	
8.4.1a Talk to owners of floodway and repeatedly flooded buildings	Feb. 1
BDB:mlw	

ATTACHMENT 8

**State of Nebraska
Flood Mitigation Assistance Program
Planning Grant Application**

National Flood Insurance Reform Act of 1994 (NFIRA), sections 1366 and 1367
(42 U.S.C. 4101)

Applicant information:

1. Name of community or county _____
2. Federal Information Processing Standards (FIPS) code _____
3. Name/title of highest elected official _____
4. Telephone and facsimile number _____
5. Address of elected official _____

6. Name/title of local coordinator _____
7. Telephone and facsimile number (if different from above) _____
8. Address of local coordinator (if different from above) _____

9. Relevant email address(es) _____

National Flood Insurance Program (NFIP) information:

10. Date the community entered the NFIP _____

Community's Community Rating System (CRS) number
 (Enter "10" if your community is not enrolled in the CRS program) _____

Project information

11. Briefly describe the geographic area to be covered by the flood mitigation plan:

12. **Activities** necessary to complete the planning grant (i.e., hire a contractor, survey flood-prone structures, etc.), **timeline** of expected completion date, and proposed **budget** for each activity.

Activity	Timeline	Budget
Submit flood plan to NNRC		\$0

Total project cost: add all dollar amounts in the "Budget" column: \$ _____

The total project cost by Federal statute may not exceed \$50,000.

By law, the Federal Emergency Management Agency (FEMA) can contribute up to 75% of the total project cost. The remaining 25% is a non-federal match and is commonly provided by the community applying for the planning grant. Of the 25% non-federal match, no more than one-half (or 12½ % of total cost) may be from in-kind contributions.

75% Federal match \$ _____

25% non-federal match \$ _____

Briefly outline how the community plans to supply the non-federal match.

\$ _____ From: _____

\$ _____ From: _____

Assurances and signature

By making this application and signing below, the highest ranking public official verifies that he/she has read the application and will adhere to local, state, and federal regulations and policy should a planning grant be awarded. It is understood that FEMA has final planning grant approval authority and as such, all State-approved applications will be submitted to FEMA for review.

The applicant signature below **must** be the highest ranking public official (i.e., Mayor, County Board Chairman, Village President, etc.).

Printed Name of Applicant Signor

Applicant Signature

Date

Official Title of Applicant Signor