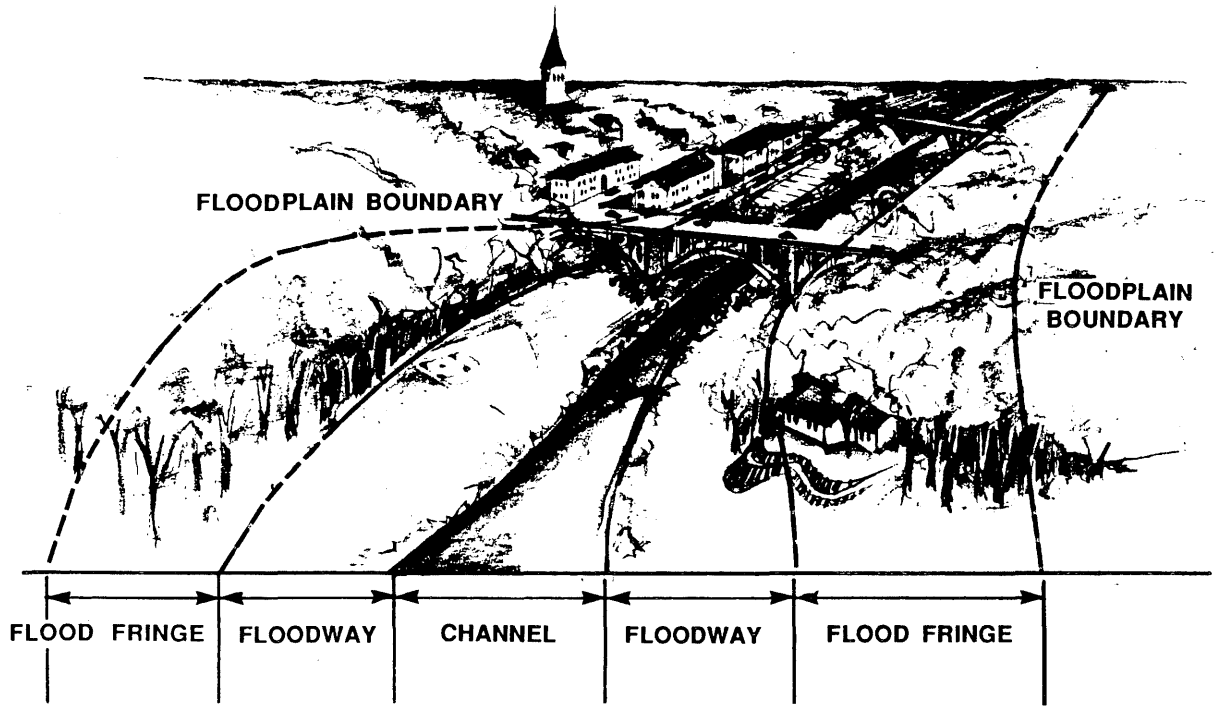
MANAGING MINNESOTA'S FLOODPLAINS FOR THE FUTURE OF OUR COMMUNITIES



Minnesota Department of Natural Resources
Division of Waters
August 1997

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THE HISTORIC NEED FOR FLOODPLAIN MANAGEMENT

Throughout the history of development in this country, communities have grown up near bodies of water to support economic development and transportation needs, and because people are attracted to the natural beauty. The inevitable combination of unusual snowfall, rainfall and snowmelt conditions, coupled with the presence of population in floodplains around our 12,000 lakes and 92,000 miles of rivers and streams, made it necessary for Minnesota to put floodplain management regulations in place to prevent catastrophic damage.

The first statewide regulations were instituted in 1970. Floods of the magnitude of what is described as "100-year", that is, floods with a one percent chance of happening in any given year, had occurred on the Mississippi River in 1965 and 1969. They have since occurred in various parts of the state in '72, '75, '78, '79, '87 and most recently in the spring of 1997.

In addition to snow melt floods, there are thunderstorms, technically known as 100-year rainfall occurrences, that can occur several times a year causing flooding and damage to crops and communities.

Because we have an abundance of lakes, rivers and streams, floods can affect about half of Minnesota communities. It is estimated that approximately 85 percent of the state's population reside in communities that have floodplain ordinances.

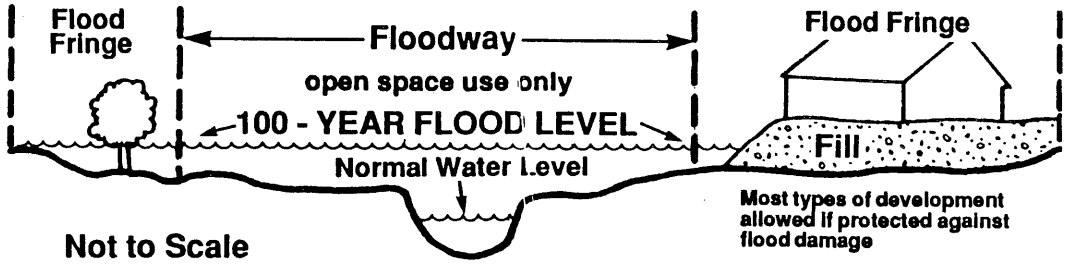
THE PHILOSOPHY OF THE FLOODPLAIN MANAGEMENT REGULATIONS

The Floodplain Management regulations reflect a belief that people and their structures should not be located in high hazard floodway areas. Structures located on the flood fringe, adjoining the floodway, should be elevated, if appropriate, and moved out of the path of naturally occurring waters. This approach is better than attempting to control our rivers and their natural forces with structures like dikes, levees, and diversion ditches.

Under state law, the floodplain is considered to be the land adjoining lakes and rivers which is covered by the "100-year" flood - the type that has only a one percent chance of occurring in any year. Floodway and flood fringe areas are officially identified on maps published by the Federal Emergency Management Agency (FEMA).

Floodway - This is the land immediately adjoining the river channel that is the natural conduit for flood waters. The floodway must remain open to allow flood waters to pass. When the floodway is obstructed by buildings, structures, or debris, flood waters will be dammed up and will flood areas upstream. Only open space uses, like parks, are normally allowed in the floodway.

Flood fringe - This is the remainder of the floodplain lying beyond the floodway. This area is generally covered by shallow, slow moving flood waters. Development is normally allowed in the flood fringe provided that buildings are placed on fill so that the structure including the basement is above the 100-year flood level.



EXISTING FLOODPLAIN MANAGEMENT REGULATIONS

The goal of the existing regulations and programs for flood damage reduction is to minimize the threat to life and property from flooding. In addition to property loss, people can be killed or injured fighting flood waters. Regulations restrict development in floodplains by preventing structures from being built and by preventing structures from being built at too low an elevation. The intent is to control encroachment on the floodplain so its water-holding and conveyance capacity is not reduced and so that properly located structures will not flood.

The natural floodplain is an important part of the water system. It affects water quality, stormwater runoff, vegetative diversity, wildlife habitat and the aesthetic qualities of rivers and lakes. Any alteration of the floodplain should be carefully evaluated.

State laws in place include:

1969 - 103A.207 It is the state's policy to reduce flood damages through floodplain management, stressing nonstructural measures such as floodplain zoning and flood proofing (like protective elevation) along with flood warning practices.

Nearly 400 cities and counties enforce floodplain zoning ordinances stating that no new buildings are placed in the path of floodwaters and that buildings that are substantially damaged by flooding are not rebuilt in the floodplain. In the 100-year floodplain the number of flood-prone buildings has been reduced from nearly 20,000 in 1970 to approximately 15,000 in 1997.

1988 - 103F.161 The Flood Damage Reduction Program provides a grant program 50/50 (state/local) to assist local governments undertaking both structural and nonstructural projects. It supplements federal programs. The Minnesota general fund has a $75,000 limit on individual projects.

DNR Waters currently has $176,000 of base level funding in the general fund to implement the flood damage reduction program. Additionally, the long range bonding plan includes $4 million per biennium. Types of projects include:

Non-structural: feasibility studies, acquisition and relocation of structures, flood warning systems
Structural: flood levees, flood bypass channels, flood impoundments, cost-sharing on federal projects.

THE STATE'S FLOOD DAMAGE REDUCTION PROGRAM - A COST EFFECTIVE WAY TO PROTECT COMMUNITIES

Since the Flood Damage Reduction Program was instituted in 1988, 75 projects have been completed to minimize the threat of loss of life and property damage from flooding. The efforts of local governments to enforce their zoning ordinances and to sponsor projects and acquire or relocate flooded buildings have helped to reduce flood damages. The majority of badly flooded areas often have older homes built before floodplain management ordinances.

- Henderson's levees on the Minnesota River cost $1.8 million. They averted $2.8 million in damages in 1993 and $2.1 million more in 1997.

- Permanent dikes, levees and flood control projects have virtually eliminated flood damages at Mankato, Chaska, St. Paul, Rochester and Winona. With floodplain zoning, flood insurance purchase and the protection of well-designed and carefully constructed flood control structures, Mankato avoided $11.3 million and Winona prevented $39.4 million in damages.

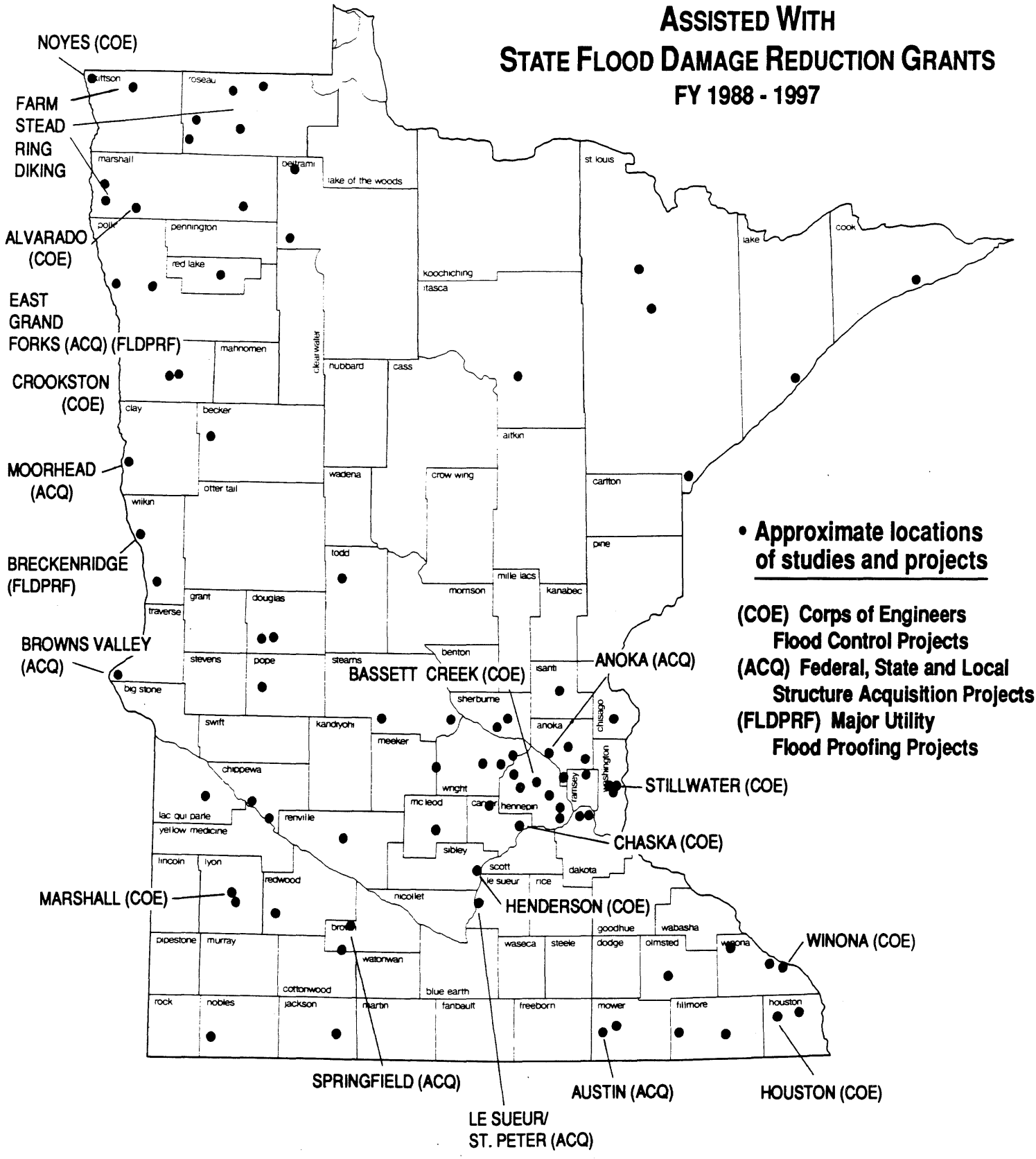
- Halstad, Alvarado and Noyes on the Red River are also protected by permanent flood control projects constructed by the Corps of Engineers. At Alvarado, permanent earthen levees and a floodwall were built in 1994. The top of the levee is constructed at an elevation three feet over the 100-year flood level. The project cost $1.8 million with $1.3 million federal, $250,000 local and $250,000 in state monies.

- Oslo's $1.4 million levee surrounding the city was completed in 1975 with the federal government contributing $1.3 million and the city $100,000. Despite the fact that it is just 20 miles north of Grand Forks/East Grand Forks, it was protected from flood damage in the disastrous spring of 1997. Adding the $6.8 million averted in damages in 1996 with the $9 million prevented in 1997, Oslo's $1.4 million levee has saved the community nearly $16 million in flood damage in the last two years.

- Following the 1993 flood, federal and state efforts were responsible for moving more than 209 structures from the floodplain in Austin, East St. Peter, Springfield, Brown's Valley and Moorehead. Structures damaged such that the cost of repair is more than 50% of it's pre-flood market value cannot be rebuilt without elevating it above the 100-year flood level. The only feasible course of action is acquisition or buy-out. Several hundred more substantially damaged structures will be removed from the 100-year floodplain as a result of 1997 flooding.

FLOOD DAMAGE REDUCTION PROJECTS ASSISTED WITH STATE FLOOD DAMAGE REDUCTION GRANTS

FY 1988 - 1997



- **Approximate locations of studies and projects**

(COE) Corps of Engineers Flood Control Projects
(ACQ) Federal, State and Local Structure Acquisition Projects
(FLDPRF) Major Utility Flood Proofing Projects

Jim Retterath holds his grandsons as truck moves his Austin home.

The Retterath home was relocated to higher ground in the same town.

Photos by Hormel Foods

Floods Inevitable, Damage Not

Moving to Higher Ground

After suffering through periodic flooding for over 15 years, Jim Retterath was one of the first to sign up for an offer to move his house.

Following the flood of 1993, the Austin Housing and Redevelopment Authority offered residents in the floodplain two options: they could use the money from the sale to buy another home or they could have the city deed back their home to them, with the stipulation that they move it out of the floodplain. Jim Retterath chose the second option.

"They were offering me a chance to get out, and I took it," said Retterrath. "It was strictly voluntary."

After looking at "at least 100" different lots, the Retteraths selected a site. Excavation for the basement began right away. Next, they solicited bids from house-moving companies and chose one.

Arrangements were made with Austin utilities, the local cable company and other agencies to prepare the route for relocation.

Coworkers helped Retterath move the furnace, hot-water heater and other items from the basement. The day before the move, the utilities were disconnected and hydraulic jacks were placed under the beams.

"We left furniture in place, mirrors on the wall and items on the shelves," Retterath said. "My wife did take the china down, though."

Less than four hours later, the move was completed.

"Now that we're here and getting everything in shape, everyone is happy about it," Retterath said. "I know we did the right thing."

Eventually, 75 Austin families agreed to sell their homes or land and relocate as part of a community mitigation program. The land, which was in the floodplain, is now a public park.

Recovery Times, June 3, 1997, published by the Federal Emergency Management Agency and the Minnesota Division of Emergency Management.

THE FLOOD DAMAGE REDUCTION PROGRAM WITH A FEDERAL DISASTER DECLARATION: PARTNERSHIP OF FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) AND STATE AND LOCAL GOVERNMENT

After a disaster occurs, an assessment is done county by county to see if the magnitude of the disaster warrants a federal disaster designation. Typically $1 per capita of damage triggers a disaster request. A disaster designation means federal assistance will be provided to the state.

When a federal disaster occurs in Minnesota, FEMA pays for 75% of the public damage. The state has historically paid for 15% and the local government picks up 10%. The Division of Emergency Management receives funds to cover the 15%. In the 1997 spring floods on the Red River, the formula became 90/10 for six counties in Minnesota. Those counties share the Red River border with North Dakota and were allowed to benefit from the North Dakota formula.

The Hazard Mitigation Grant Program (HMGP) is a separate FEMA program to reduce future flood damage potential. For the 1997 flooding damage, there will be around $30 million available for a 75% federal/25% non-federal cost share for flood reduction projects. That amount would require $10 million of non-federal funding.

Hazard Mitigation monies were matched immediately to the state's $4 million in bonding in 1997 to purchase homes severely damaged in the spring flooding.

Flood Damage Reduction Program Dollars Stretch Further When Floodplain Residents Have Flood Insurance

All residents of communities participating in the National Flood Insurance Program are eligible to purchase flood insurance for their homes and businesses and their contents. In Minnesota, nearly 500 communities, including 85 counties, participate. If a home or business is financed by a federally guaranteed loan, the lender must require flood insurance. Most communities in Minnesota that need to participate in the program do participate, but historically, only about 25 percent of the homes in the 100-year floodplain have coverage. This percentage increased dramatically in 1997, because of early warnings and media coverage.

State Flood Damage Reduction dollars reach far more communities and residents in the state when people are protected by the National Flood Insurance Program. After a disaster hits, those with insurance receive payment to rebuild and do not depend on mitigation programs of the state government. In a buy-out area, a non-insured homeowner would receive the full pre-flood market value of the home as well as a fully insured homeowner. In the aftermath of the 1997 floods, it has been clear that there is inequity in this federal program.

TODAY'S FLOOD MITIGATION DEMANDS: CURRENT REQUESTS EXCEED 281 MILLION

Severe flooding will occur again. Our historic records give us fair warning. (See the following three flood history river graphs)

Demand outstrips resources today. By August 1997, the Division of Waters will have obligated $3.8 of the $4 million in bonding appropriated in the '97 session. There is a waiting list of statewide projects and demand generated by the '97 flood far exceeds the ability to fund.

1997 Minnesota Recovery - Flood Damage Reduction

Acquisitions (97 Flood)	$76,000,000
Floodproofing (97 Flood)	$25,000,000
Relocation (97 Flood)	$37,000,000
Planning (97 Flood)	$22,000,000
Levees/Floodwalls (97 Flood)	$12,000,000
Engineering (97 Flood)	$19,000,000

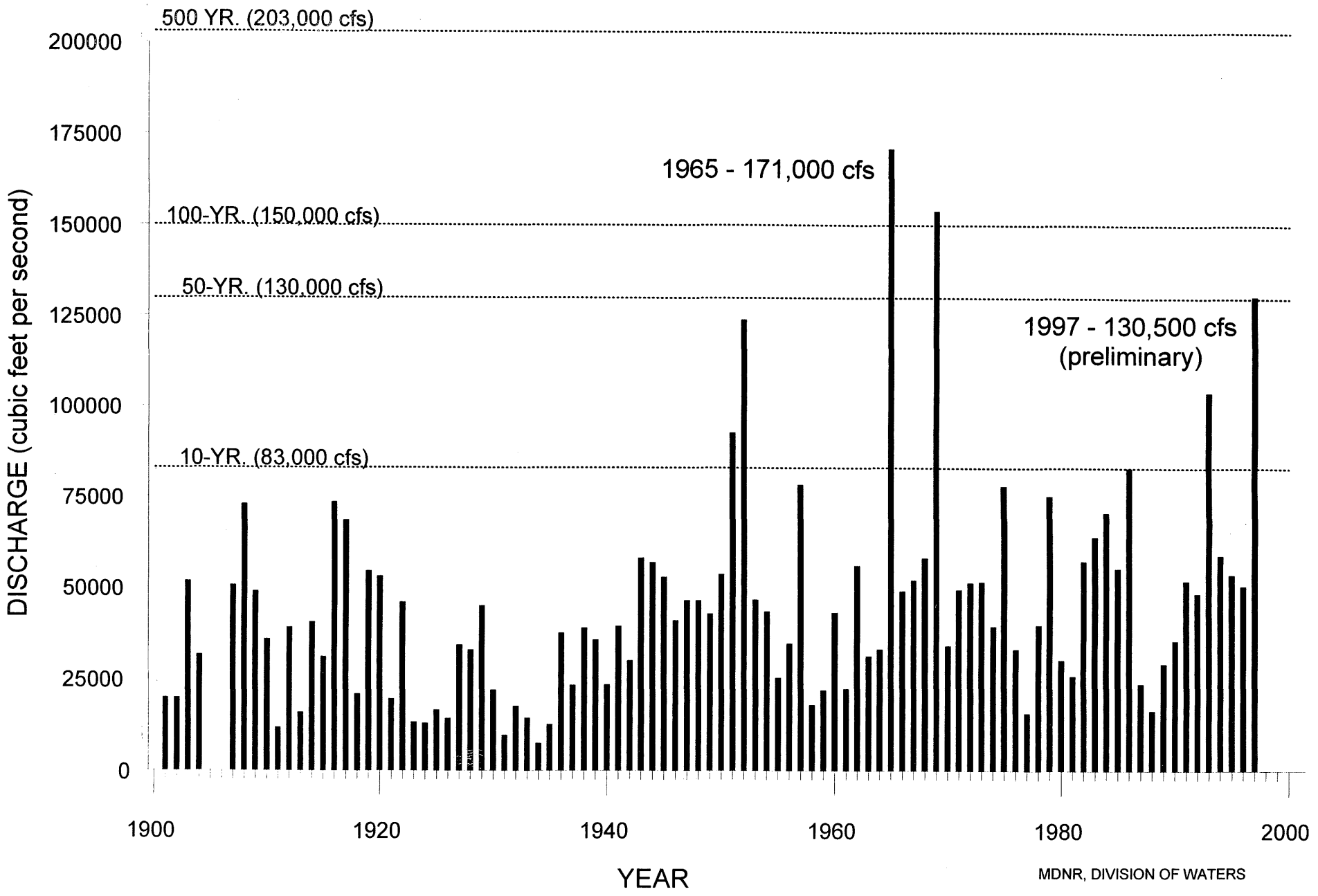
Federal Flood Control Projects

(The following numbers are total project costs - Marshall and Stillwater have been partially funded)

City of Marshall	$10,000,000
City of Stillwater	$11,600,000
City of East Grand Forks	$100,000,000
City of Crookston	$10,000,000
City of Warren	$7,000,000

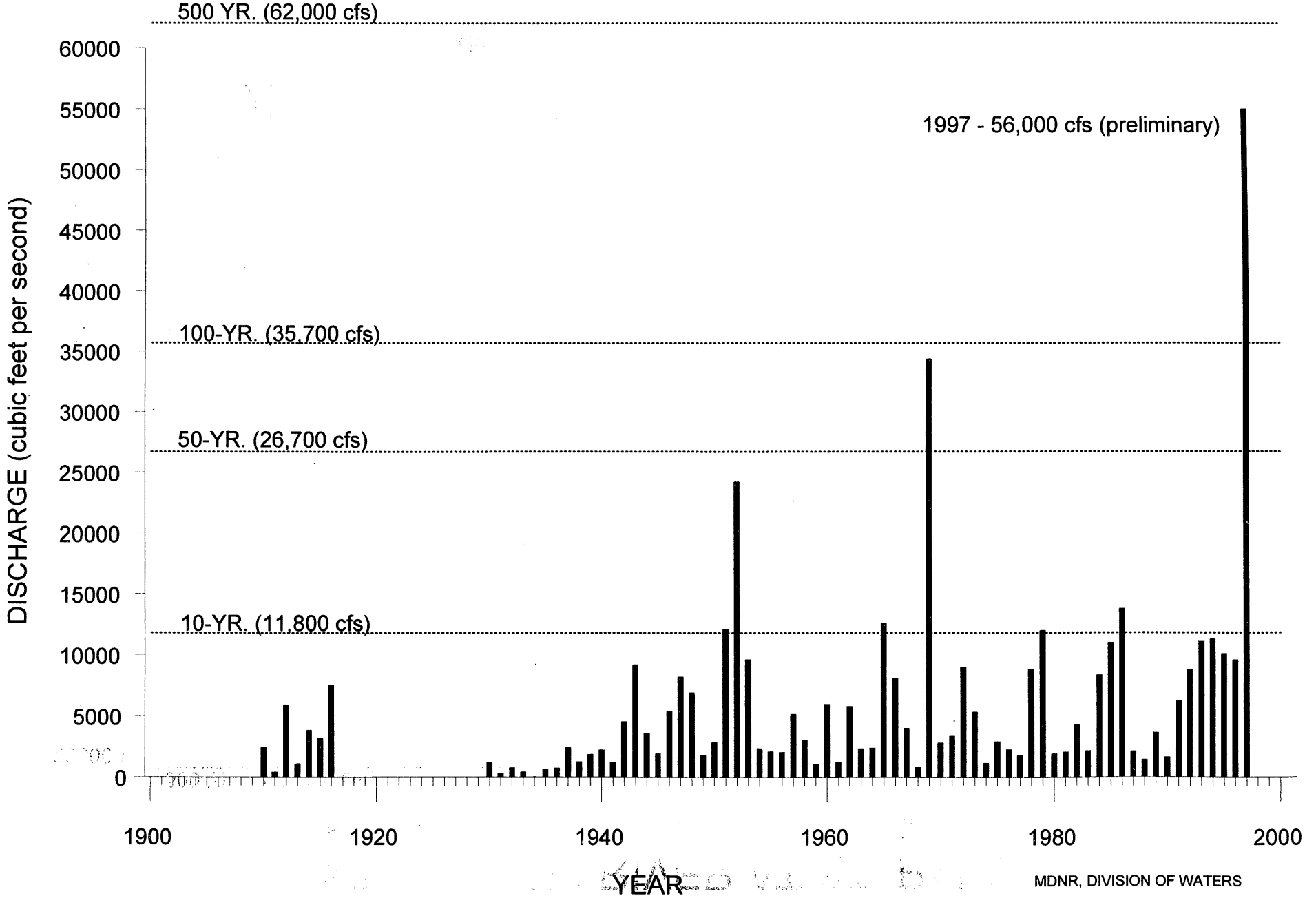
MISSISSIPPI RIVER AT ST. PAUL

HIGHEST ANNUAL INSTANTANEOUS DISCHARGE

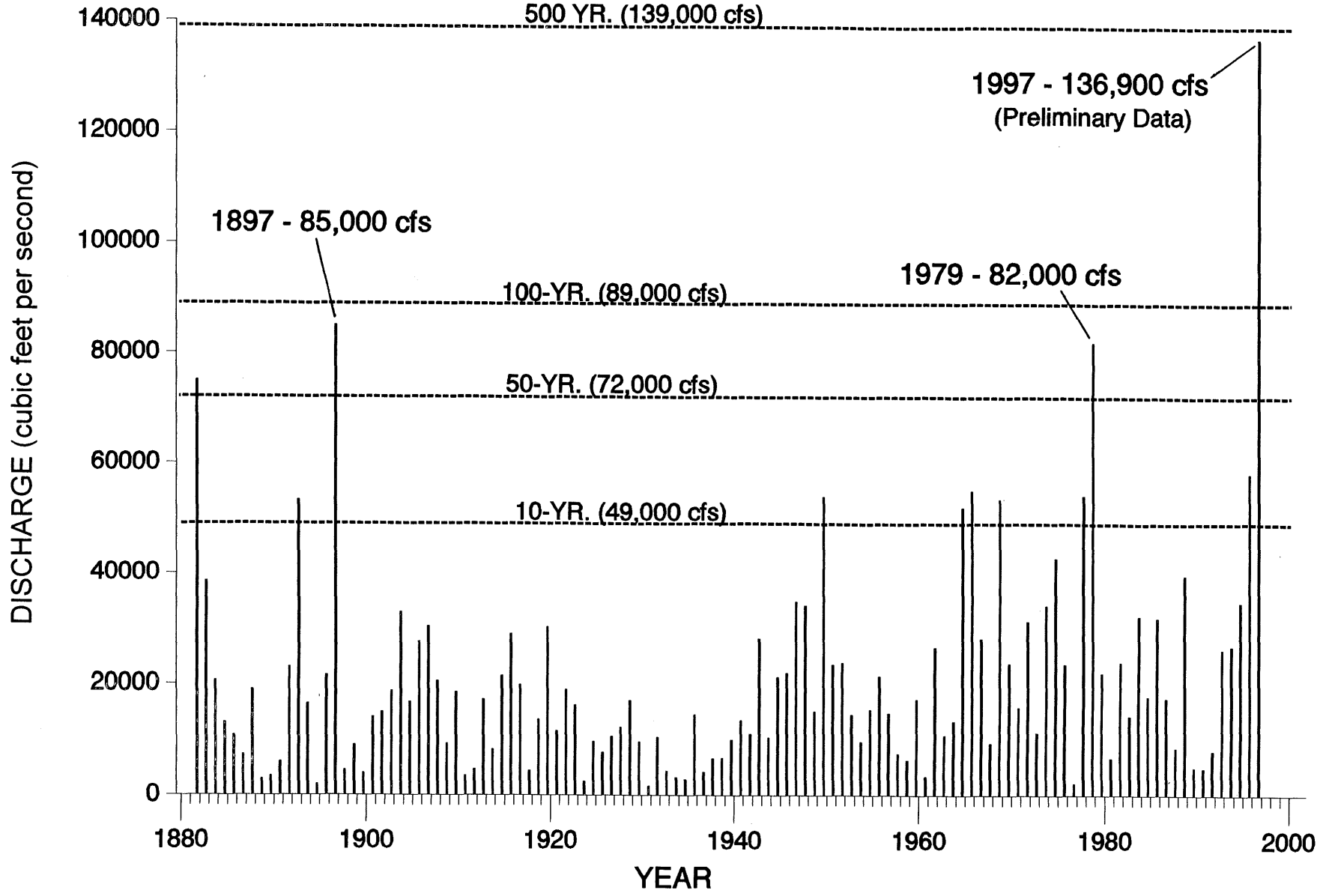


MINNESOTA RIVER AT MONTEVIDEO

HIGHEST ANNUAL INSTANTANEOUS DISCHARGE



RED RIVER of the NORTH AT GRAND FORKS, ND
HIGHEST ANNUAL INSTANTANEOUS DISCHARGE



MDNR, DIVISION OF WATERS

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