Floodplain Management Solutions

In a Nutshell

Local governments can go about floodplain management through two mechanisms: structural and nonstructural solutions. Structural solutions include development of levees and dams. Nonstructural solutions include land use regulations and building codes. Over time, nonstructural solutions have become favorable to structural ones. Both solutions help a community protect itself against flooding.

This tool can help guide cities as they work to become a part of the National Foodplain Insurance Program or the Community Rating System.

The “How To”

Local governments can go about floodplain management through two mechanisms: structural and nonstructural solutions. Structural solutions include development of levees and dams. Nonstructural solutions include land use regulations and building codes. Over time, nonstructural solutions have become favorable to structural ones. Both solutions can help a community protect itself against the disastrous affects of flooding. Page 91 of Wetlands and Watershed Manager has a detailed list of different flood mitigation tactics, including structural and nonstructural.

It is important to remember that it takes a combination of tactics to really help keep a community safe from flooding. In the Planning and Zoning tab, we have examples of flood ordinances of several communities in the area.

Planning & Zoning

Throughout the St. Louis region, there are two approaches to floodplain management. Both approaches involve the use of structural solutions and nonstructural use. The first approach is removing buildings and infrastructure from the floodplain by buying out the lots within the floodplain. SEMA and FEMA have chronicled success from buying out floodplain property in Missouri. These lots are usually turned into open greenspace and/or parks of some kind.

The second approach is regulating both zoning and building requirements within the floodplain.

Below are several examples of both approaches:

ARNOLD- Floodplain management is found under Title 5, Chapter V. Arnold has very good language in its ordinances for building within the floodplain. This language is in Section 5-80, 5-91 and 5-92. Arnold has bought out property within the floodplain after the 1993 flood.

CHESTERFIELD- The City of Chesterfield is a good example of a community building within the floodplain, and at the same time doing a lot to maximize the safety of those living and working within the floodplain.

FENTON- Floodplain management is found under Title 5, Chapter 515. In Section 515.050 under General

Standards, in provision 1 the code states the permits for building in the floodplain will no longer be issued. Under 515.040, the floodplain administration details are explained.

KIRKWOOD- Floodplain management is found Article V. This is a good example of floodplain management.

BRENTWOOD- As part of the 'Brentwood Bound' flood mitigation and road improvement plan, some businesses in the plan area were purchased to allow for flood mitigation. Read more about this and Brentwood's floodplain restoration efforts here.

Dollars & Cents

Communities conducting floodplain management can expect costs to incur from:

- Designing and building levees, dams, and floodwalls

- Implementing zoning and building codes

- Responding to flooding

- Reparing damage from a flood

- Buying out property within a floodplain

Measuring Success

OneSTL tracks a Floodplain Management indicator for the St. Louis region. This indicator is measured by the number of local governments participating in the Community Rating System. The 2010 baseline for that number was 1. The desired trend is for that number to go up.

There are articles by SEMA and FEMA cronicling success buying out floodplain property in Missouri. The examples cited in these articles can serve as benchmarks to other communities.

Discover More

SEMA provides tips to stop flooding deaths in Missouri. It is important to remember to:

- Be aware of water sources prone to flooding.
- Listen to news radio and television newscasts for the latest information.
- Do not walk through moving water over 6 inches.
- Do not drive in floodwaters over 6 inches.
- A foot of water can float vehicles and two feet of water can carry most vehicles.
- Avoid and report down power lines.
- Take caution of drinking the community water supply.

Case Studies

Buyout Program in Fenton, MIssouri

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Description

The City of Fenton has had a lot of issues with flooding along Fenton Creek and Meramec River. After the '93 flood, Fenton bought out nine properties at a cost of $276,099 with help from SEMA. While this particular buyout was relatively small, it is an excellent example of a well targeted buyout program. Each of those properties have been flooded multiple times in the years sinse.

Fenton's code has requirements for building codes and zoning which further protects the commuity. Floodplain management is found in Title V, Chapter 515.

Cost $0

Lessons Learned

One of the big take a ways from the City of Fenton is to the need to go beyond NFIP requirements for floodplain management. For instance, NFIP requires a one ft. freeboard. The CIty of Fenton has set a two ft. high freeboard requirement. Even with that extra foot, in the '08 flood season, the two foot high freeboard was overrun resulting in $300,000 in damages. Had the CIty gone with the 1 ft. requirement, officials believe the damage could have been a lot worse. City officials believe that going beyond the NFIP requirements results in safer communities, and it gives residents more assurance in times of flooding.

Floodplain Management in City of Chesterfield

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Description

Chesterfield has had a lot of success building within the Chesterfield Valley, and they can serve as a good example to cities in similar geographic locations. The City of Chesterfield has multiple streams and more than 4,500 acres of levees protecting Chesterfield Valley. Chesterfield's floodplain management is a good example of a city following NFIP guidelines and using NFIP tools, including Flood Insurance Rate Maps (FIRMs). The City also maintains a hydraulic model of the Chesterfield Valley drainage system. Both the hydraulic model

and FIRMs are used to help the city properly regulate development within Chesterfield Valley.

Chapter 14 of the Code of the City of Chesterfield details the city's floodplain management program. Also, a floodplain development permit is required to be submitted before construction or development within the floodplain can begin.

Cost $0