

# Flood Risk & Flood Problem Areas

## North Mill Creek / Dutch Gap Canal Watershed



STORMWATER MANAGEMENT COMMISSION

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## Flooding identified during development of issues and opportunities

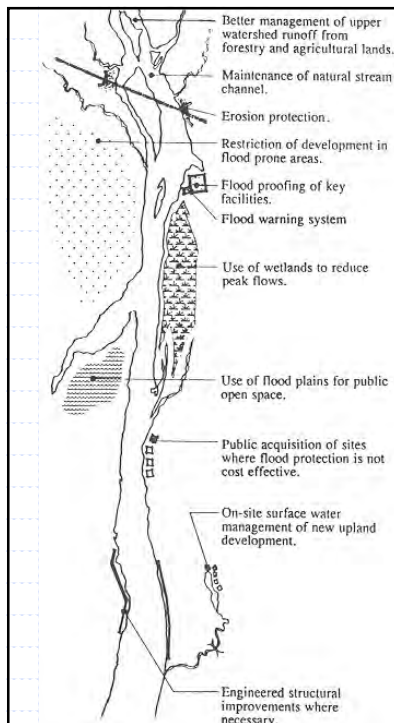
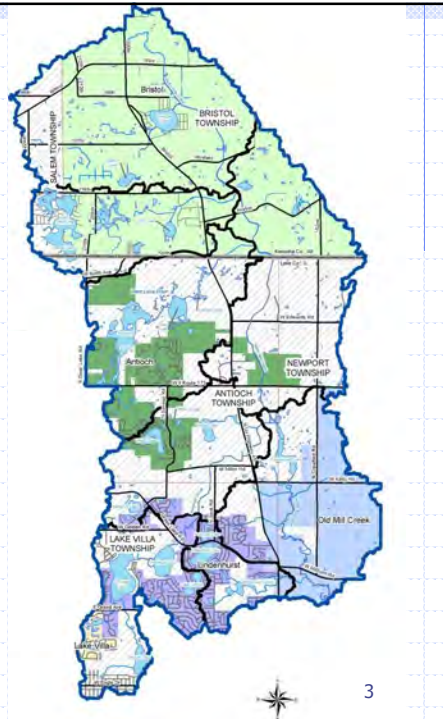
### ◆ Main Issues:

- Flooding (Lake George, Dutch Gap, Des Plaines, local, agricultural land)
- Effects of flooding from future developments (runoff volume increase, potential future changes in zoning and floodplains – filling floodplains)
- Prevent development and fill in current floodplains and wetlands
- Elevated water level in Dutch Gap (loss of farmable land due to flooding or poor drainage)

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◆ Main Issues (continued):

- Outside organizations influencing flood zones (concern with projects outside of the watershed being mitigated in North Mill Creek watershed)
- Floodplain map accuracy



## Watershed plan can identify opportunities to help:

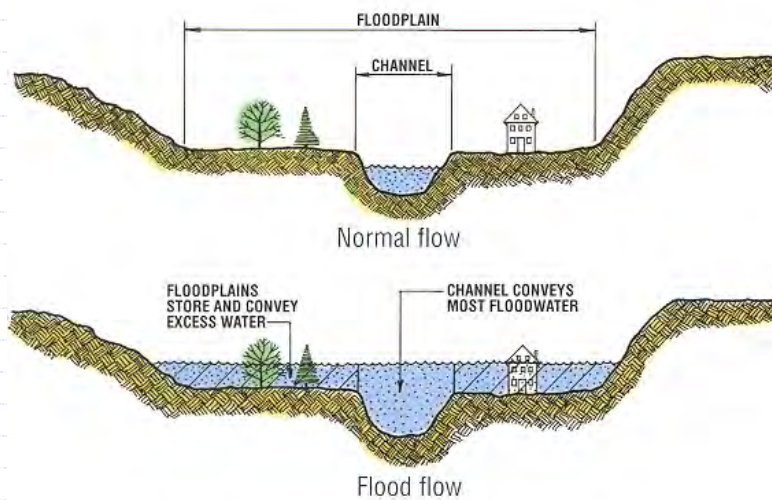
- ◆ Prevent flood damage in new areas
- ◆ Prevent flood damage from worsening at existing sites
- ◆ Correct existing problems

## Overview

- ◆ What is a Floodplain
- ◆ Flood Damage Risk
- ◆ Floodplain Studies
- ◆ Des Plaines Studies
- ◆ Flood Problem Areas
- ◆ Flood Problem Area Map Update

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## What is a Floodplain?



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## What is a Floodplain?

- ◆ The floodplain is the area that would be under water for a 1% annual chance flood.
- ◆ Also called a 100-year flood, it is the flood that has a 1% chance of occurring in any given year. (On statistical average it would occur once every 100 years, but could occur twice in the same year or in back-to-back years.)

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## Flooding Damage Risk

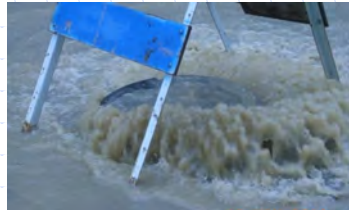
<b>Time Period</b>	<b>Flood Size</b>			
	<b><u>10-Yr</u></b>	<b><u>25-Yr</u></b>	<b><u>50-Yr</u></b>	<b><u>100-Yr</u></b>
1 year	10%	4%	2%	1%
10 years	65%	34%	18%	10%
20 years	88%	56%	33%	18%
30 years	96%	71%	45%	26%
50 years	99%	87%	64%	39%

- ◆ Over a 30 year mortgage, have a 96% chance of being hit by a 10 year flood event. 5% chance of fire in that same period.

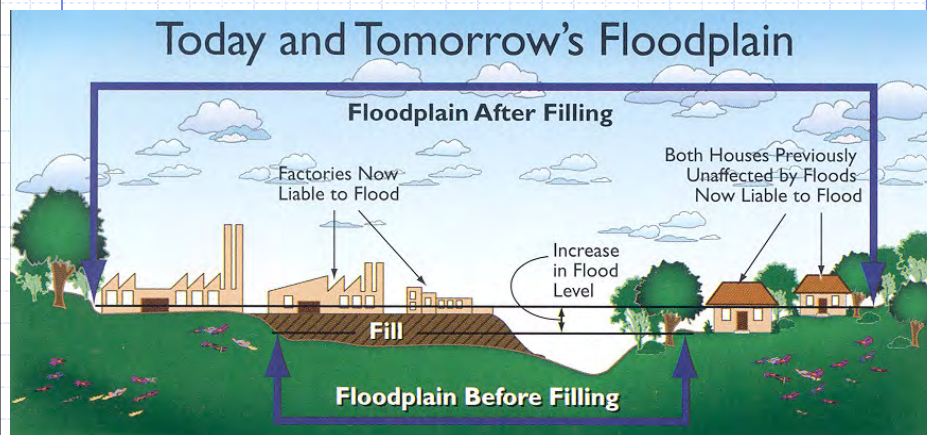
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## Floodplain Studies – Why Map Floodplain?

- ◆ Historically, flood damages were increasing significantly every year
  - Construction was occurring in areas with undefined flood risk
  - Land use changes were increasing flood levels and, consequently, flood risk

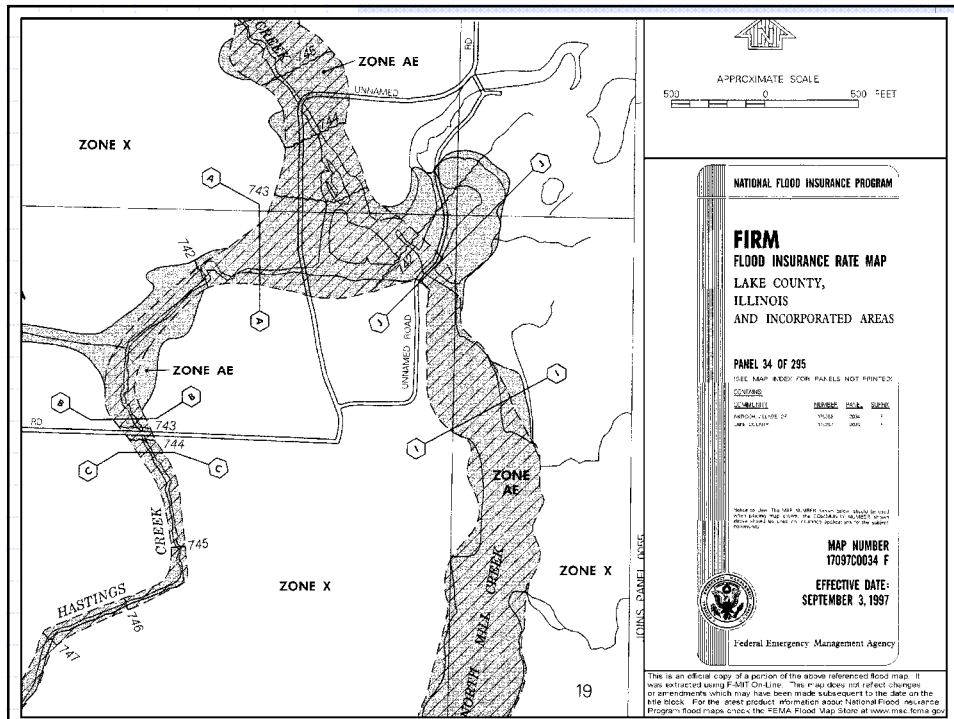
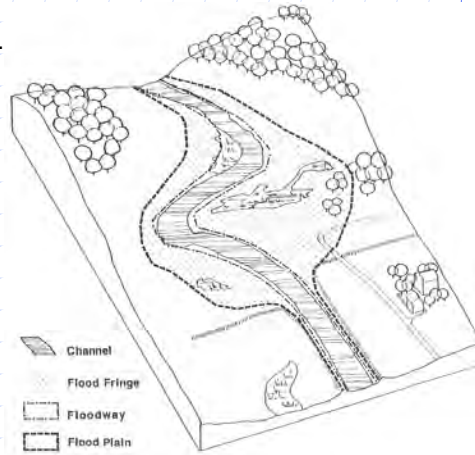


## Floodplain Studies

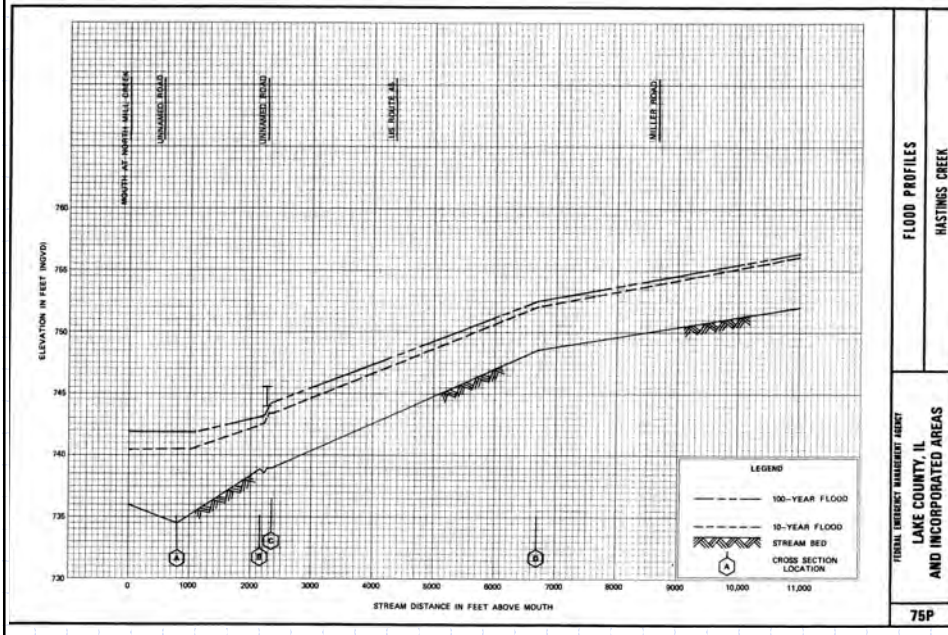


# Floodplain Studies

- ◆ Not creating floodplain – just identifying and reporting it
- ◆ Updated floodplain studies can increase or decrease floodplain areas
- ◆ Flood insurance awareness means more likely to have insurance when a flood occurs



## Flood Profile



## Floodplain Study Benefits → Reduces Flood Damage

- ◆ **Preparation** - Identify existing structural flood risk and prepare accordingly
- ◆ **Construction**- Properly locate and elevate new structures
- ◆ **Minimization** - Preserve storage and conveyance for floodwaters to minimize future increases to flood levels
- ◆ **Mitigation** – Establish a basis for future mitigation of existing problems (Example: can analyze various ways to lower flood levels)

Keeping floodplains open helps prevent bad problems with costly solutions. . .



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## Floodplain Map Update & Adoption Process

- ◆ Local agencies perform studies
- ◆ State Agency and FEMA review studies
- ◆ FEMA conducts public review period
- ◆ Local agencies make necessary revisions
- ◆ FEMA adopts and prints maps
- ◆ Local governments adopt maps

## Current Status of the Floodplain Study in Wisconsin

- ◆ Study completed and submitted to FEMA for review, anticipate Fall 2011 approval
- ◆ Considered 'best available data' by communities for proposed development, Kenosha County has adopted as part of the zoning ordinance
  - Construction limit in 100-year floodplain
  - State has implemented new shoreline regulations



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## Current Status of the Floodplain Study in Illinois

- ◆ Maps Effective date: September 3, 1997
- ◆ Currently have no updated study for Illinois portion of North Mill Creek
- ◆ Use existing maps for proposed development



## Upper Des Plaines Phase I Study

- ◆ Cooperative effort with federal, state, regional, and local agencies
- ◆ Phase I
  - Study conducted to identify and select sites to reduce flood damage along the mainstem of the river. Six structural features identified. Including North Mill Creek dam modification at Rasmussen Lake.

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## Upper Des Plaines Phase II Study

- ◆ Watershed based effort to identify multi-objective projects that cumulatively achieve study objectives.
- ◆ Phase II has three primary objectives:
  - Further reduction of mainstem flooding
  - Reduction of tributary flooding
  - Environmental restoration of degraded ecosystems
- ◆ Phase II has secondary objectives:
  - Improving water quality
  - Enhancing recreational opportunities
  - Exploring potential sites for flood storage and ecosystem restoration in the North Mill/Dutch Gap watershed.

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# Lake County All Hazards Mitigation Plan

## Types of Flooding:

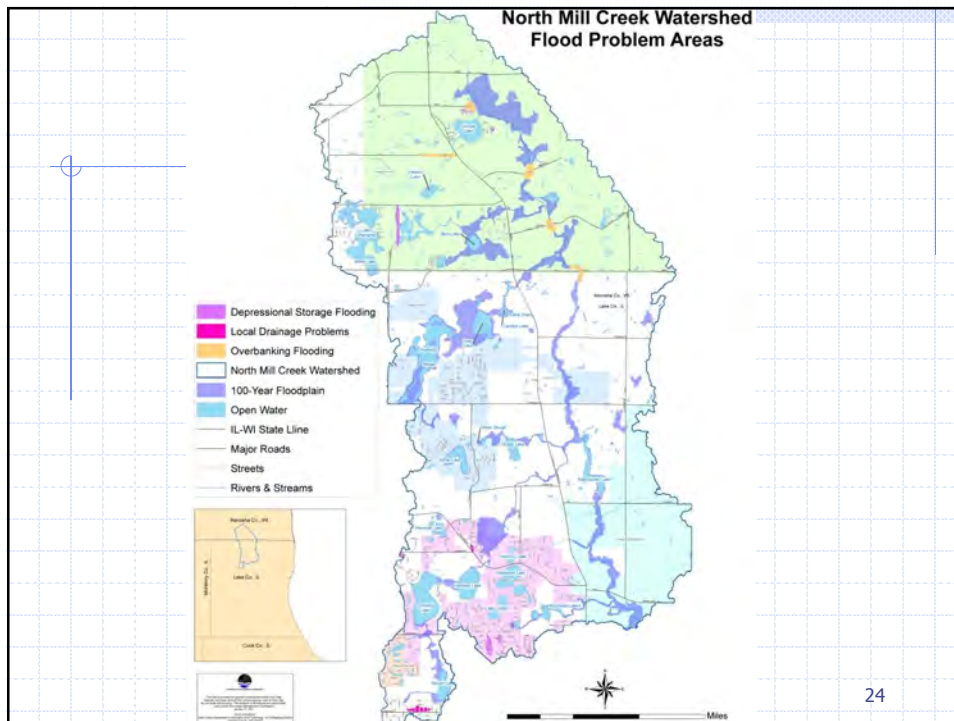
- ◆ Overbank flooding
- ◆ Flash flooding in ravines
- ◆ Depressional flooding - no natural outlet for runoff
- ◆ Storm or sanitary sewer backups - not enough onsite stormwater detention, where stormwater infiltrates into the sanitary sewer pipes, leaky manholes, or inappropriate connections to the sanitary lines.
- ◆ Local drainage problems (shallow flooding on roads, yards and sometimes buildings) often due to:
  - development in a drainage way
  - failing tile drains or storm sewers
  - depressional storage area
  - inadequately maintained drainage ditches
  - undersized storm sewers

## Flood Problem Area Definition

- ◆ One or more structures in a geographical area that are damaged by the same primary source/cause of flooding.
- ◆ Road flooding that results in damage to infrastructure, loss of critical access or is a threat to safety should also be included within or as a flood problem area.
- ◆ Known health and safety hazards such as septic failure, secondary sanitary sewer backup, erosion, water pollution from hazardous materials etc. should also be described on the worksheet.

# Flood Problem Area Inventory

- ◆ Lake County has been conducting inventory since 1995 as part of the County's All Hazard Mitigation Plan
- ◆ Have been updating for this watershed plan and extended into Wisconsin:
  - Letters to municipalities and other jurisdictional agencies
  - Letters to residents in existing FPA's
  - Flood survey to stakeholder lists



# Flood Survey Summary

	<b>General Location</b>
<b>Depressional Flooding</b>	208th Avenue North and East of George Lake Between Grand Ave and Lake Linden
<b>Overbank Flooding</b>	107th Street Winfield Road Horton Road State Line Road 98th Street
<b>Local Drainage Problems</b>	Poplar and Gelden Grass Lake Rd and Gelden Engle Drive

# Questions?

