



Division of Local
Government Services

Flood Plain Regulation for Local Review Boards

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Delaware River in Walton, Delaware County

**Floods are
'acts of God'
but flood
losses are
largely acts
of man.**

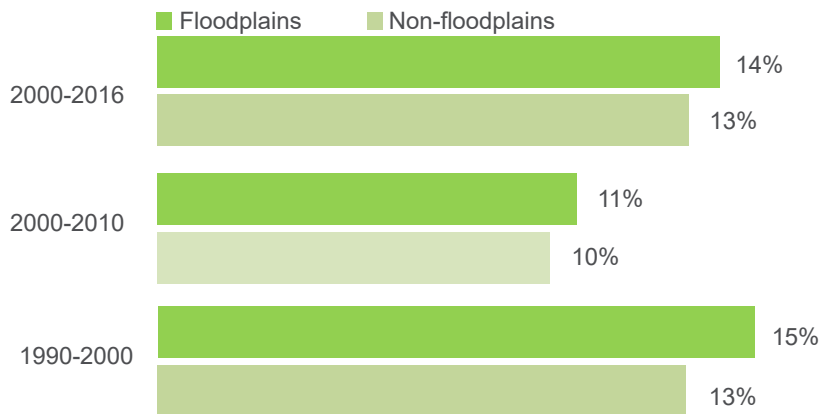
- Gilbert White



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U.S. Flood-Prone Population Growth

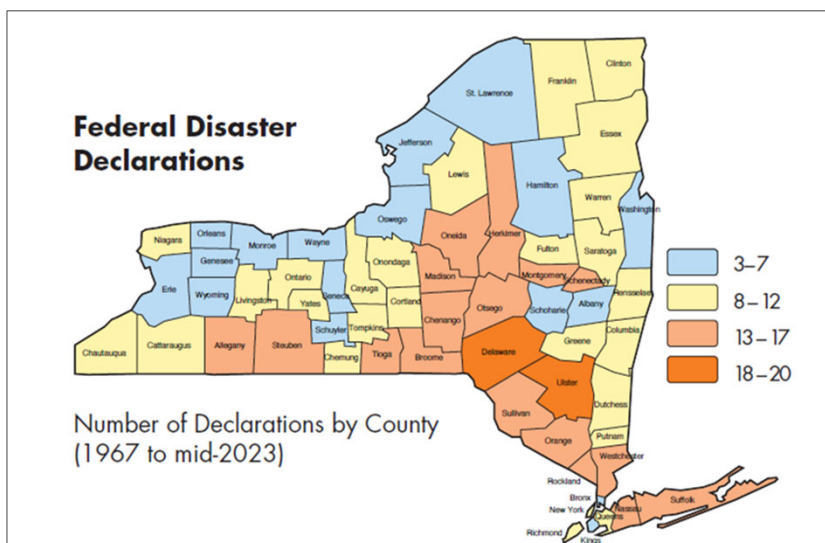
Calculated population estimates show areas in FEMA-designated 100-year floodplains are experiencing slightly faster growth.



SOURCE: Governing analysis of standardized U.S. Census tract data from IPUMS NHGIS, University of Minnesota; FEMA NFHL



Federal Disaster Declarations



Source: *A Quick Guide to Floodplain Management in New York State*, NYS Department of Environmental Conservation (2023) p.3



- More than 70% of NYS disaster declarations involve flooding
- Most flood events are not declared major disasters. They are smaller localized events

Why Regulate Floodplain Development?

Existing development is a complicated problem; new development is relatively simple



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Natural Floodplains Work Like a Sponge



- Slow the flow
- Flood storage reservoirs

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Benefits of Undeveloped Floodplains



- Flood damage reduction;
- Recreational opportunities;
- Plants and animals habitat;
- Water pollution reduction;
- Stormwater management;
- Erosion control; and
- Cultural resource preservation

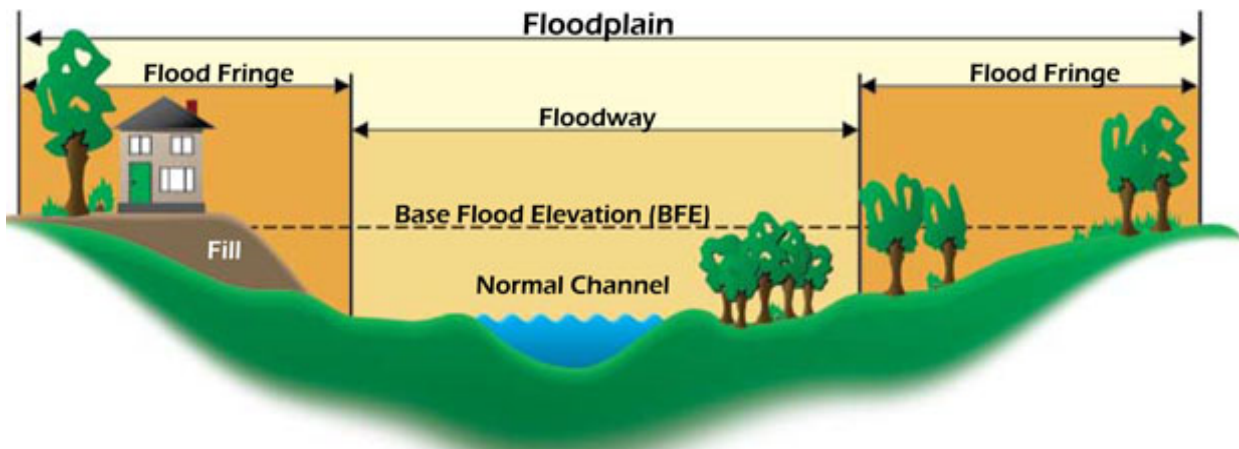
Characteristics of a Floodplain

Floodway

- Also known as “Regulatory Floodway”
- “...the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.”
- Most restrictive area

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Characteristics of a Floodplain



Source: NFIP Guidebook, FEMA

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Acronyms

BFE:	Base Flood Elevation
CRS:	Community Rating System
DFIRM:	Digital Flood Insurance Rate Map
FEMA:	Federal Emergency Management Agency
FIRM:	Flood Insurance Rate Map
FIS:	Flood Insurance Study
NFIP:	National Flood Insurance Program
SFHA:	Special Flood Hazard Area

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Special Flood Hazard Area

- “100-year floodplain”
- FEMA and building code development standards pertain only to special flood hazard area:

“land in the floodplain subject to a 1% **or greater** chance of flooding in any given year”

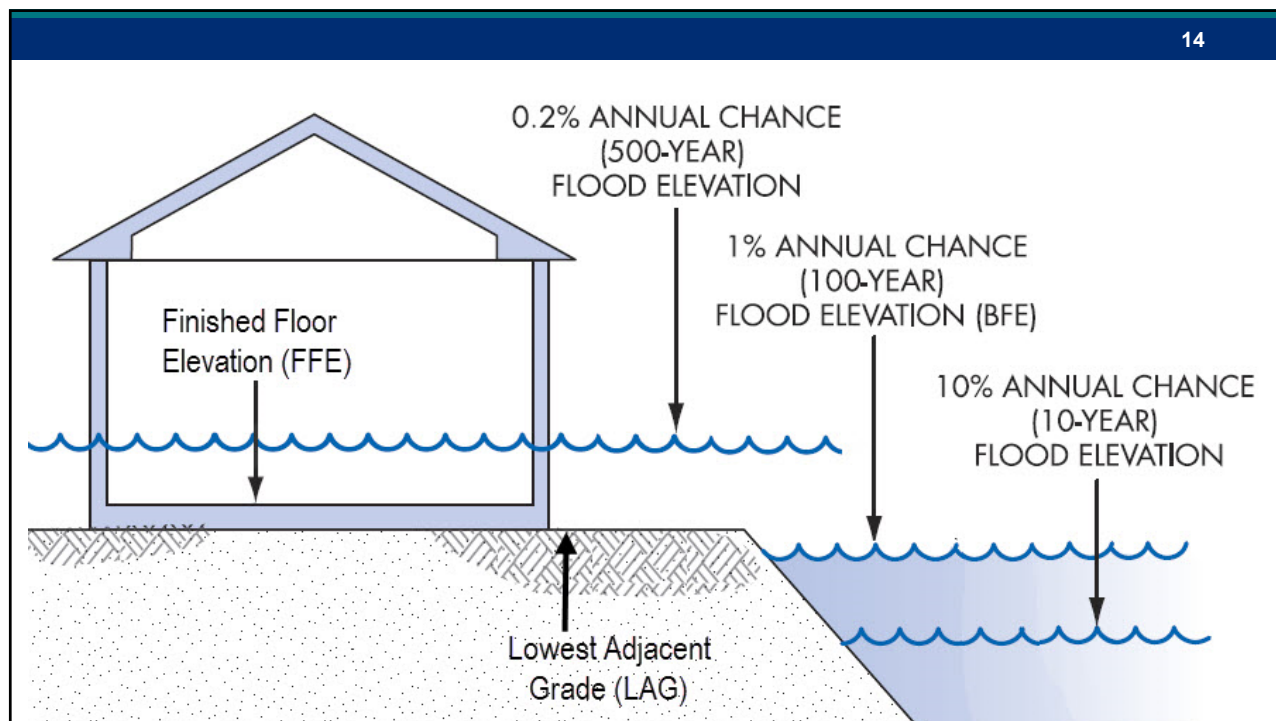


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Base Flood Elevation (BFE)

- “Base flood” is a flood that has a 1% probability of being equaled or exceeded in any given year, also known as a “100-year” flood
- “Base flood elevation” is the water surface elevation rounded to the nearest whole foot of a 100-year flood at a given location
- Flood with 1% chance of being equaled or exceeded in any given year
 - 26% chance of occurring in a 30-yr period
 - 39% chance of occurring in a 50-yr period
 - 63% chance of occurring in a 100-yr period

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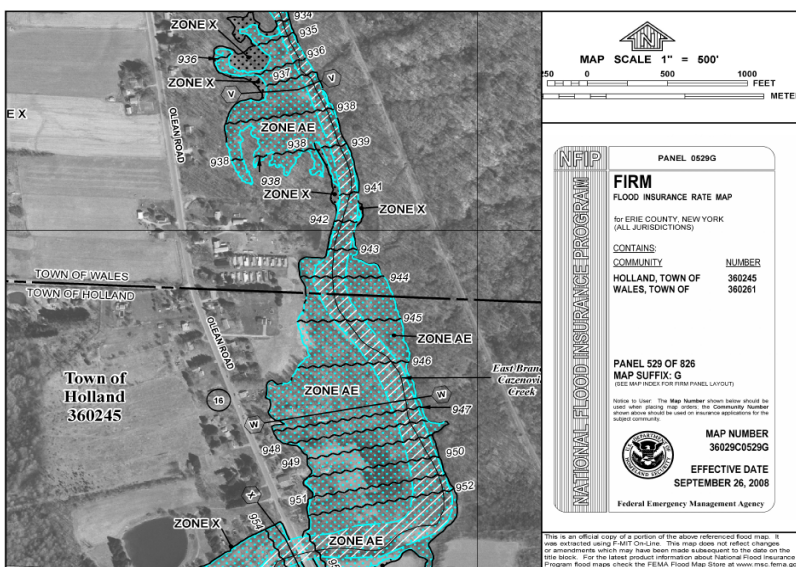
National Flood Insurance Program

- Partnership between the Federal Government and local communities
- The Federal Government agrees to provide flood insurance if the municipality agrees to enforce sound mitigation practices
- Structures in regulatory floodplain with federally backed mortgage require flood insurance
- Municipalities not enforcing requirements can be kicked out:
 - Flood insurance through NFIP will be unavailable
 - Federally-backed mortgages will be unavailable



Flood Insurance Rate Map (FIRM)

- FIRMs display Special Flood Hazard Areas (areas within boundary of a 100-year flood) within a flood plain
- FIRMs are used to balance risk of flood against rate of insurance
- FEMA Flood Map Service Center:
<https://msc.fema.gov/portal/home>
- Counties often layer flood maps on parcel data



Regulation

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**Floodplain
management
is **your**
responsibility**

“All local governments with land use jurisdiction over any area of special flood hazard shall, and are authorized to, take action necessary to achieve and maintain participation in the national flood insurance program.”

NYS Environmental Conservation Law, Article 36



Roles and Responsibilities

Municipalities

- Adopt floodplain management laws/ordinances
- Enroll in the NFIP and administer/enforce floodplain management laws, building code and maintain records

NYS Dept. of Environmental Conservation

- Oversight of community floodplain management programs and approval of ordinances
- Coordinate between FEMA and communities

FEMA

- Oversees the NFIP (enrolls communities)
- Produces flood studies and flood maps
- Reviews and approves changes to flood maps



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NFIP: new residential buildings in floodplain

ELEVATE (elevate top of lowest floor to or above flood protection level)

- Prohibit below grade basements on all sides
- Permit unfinished flood-resistant enclosed area solely used for parking, building access, or limited storage

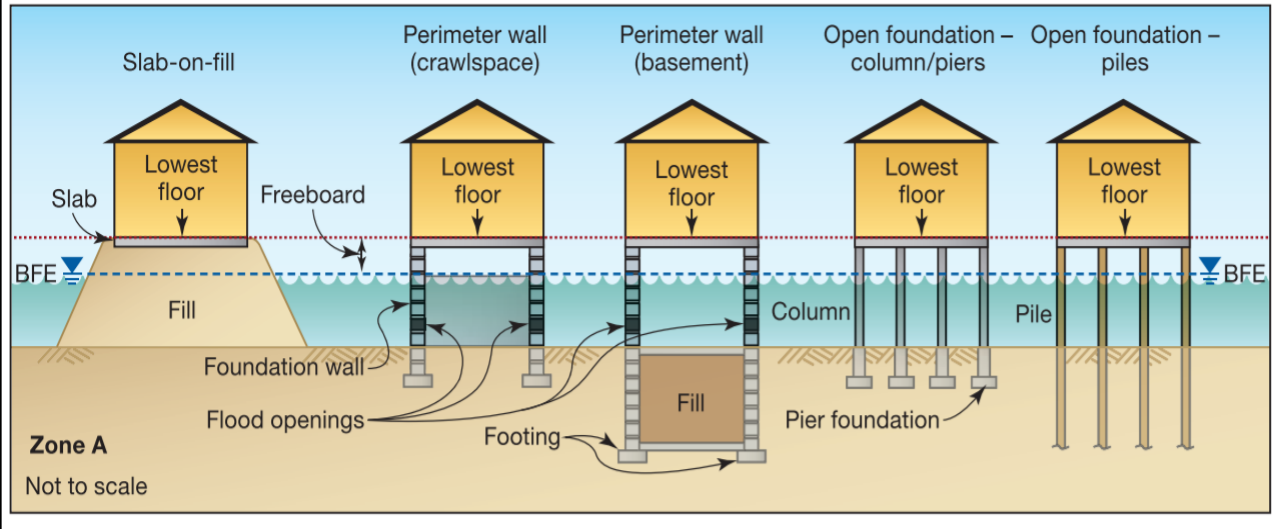
ANCHOR (building, service equipment, storage tanks must prevent flotation, collapse, or lateral movement during 100-yr flood event)

- Ensure foundation won't move due to water force, erosion, or scour



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NFIP-compliant: top of the lowest floor is above BFE



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NFIP: new non-residential buildings in floodplain

Construction protected against flood damage from 100-yr flood must:

- **Elevate** (top of lowest floor must be elevated to or above flood protection level)
- **Dry floodproof** (watertight below flood protection level, with walls substantially impermeable to passage of water)

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NYS Regulations

NYS Environmental Conservation Law Article 36: Participation in Flood Insurance Programs

- Requires local governments with special flood hazards to participate in the NFIP
- DEC has model language for local flood-damage protection laws/ordinances, with **minimum** floodplain management measures required to participate in the NFIP
- Who must meet regulations:
 - Property owners
 - Private developers
 - Cities, towns and villages
 - Counties
 - School districts
 - Public improvement districts



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NYS Regulations

NYS Uniform Fire Prevention and Building Code (Uniform Code)

- Building Code of NYS – Flood provisions primarily in Section 1612 Flood Loads
- Residential Code of NYS – Flood provisions in Section R322 Flood Resistant Construction and elsewhere in code
- Existing Building Code of NYS
- Plumbing, Mechanical, and Fuel Gas Codes of NYS

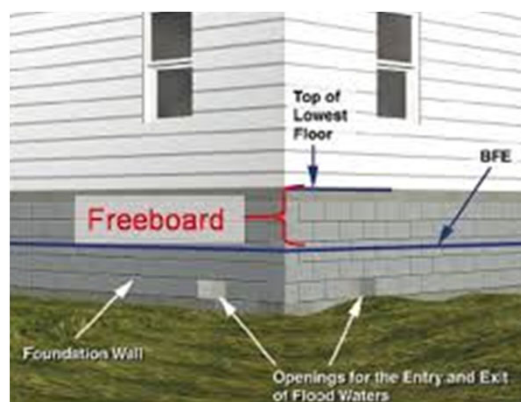


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NYS Uniform Code – Freeboard Standard

Requires extra elevation above BFE and top of lowest floor – known as “freeboard”

- Requires protection to a level 2 feet above BFE; if no BFE is available, at least 3 feet above the highest adjacent grade
- **Local law may still have older standard of protection to BFE, but freeboard requirement must be enforced**



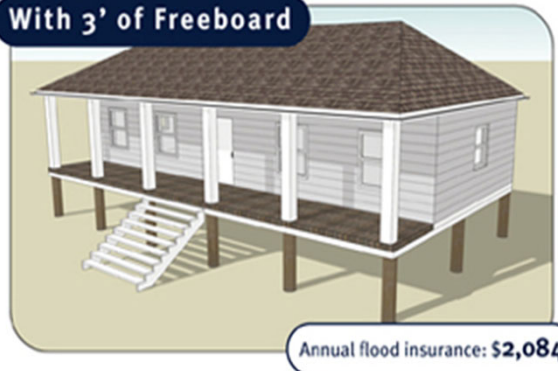
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Freeboard Relevance

Without Freeboard



With 3' of Freeboard



Lower flood risk = significantly lower flood insurance rates

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NFIP Subdivision Standards

- Determine if proposals will be reasonably safe from flooding
- If subdivision is in flood-prone area, review to assure that:
 - Proposal is consistent to minimize flood damage in flood-prone area
 - Public utilities and facilities (sewer, gas, electrical, water systems) are located and constructed to minimize or eliminate flood damage; and
 - Adequate drainage is provided to reduce exposure to flood hazards
- Base Flood Elevation (BFE) data requirement:
 - Require new subdivisions and other development (manufactured home parks and subdivisions) greater than 50 lots or 5 acres, whichever is the lesser, include BFE data

NYS Subdivision Requirement

"land shown on the plat be of such character that it can be used safely for building purposes without danger to health or peril from fire, flood, drainage or other menace to neighboring properties or the public health, safety and welfare."

Integrate hazard mitigation by adopting local standards (i.e., don't allow development on steep slopes)



Subdivision Tips

- **DON'T** approve lots that don't conform with floodplain regulations
- **DO** show floodplain boundaries/elevations on preliminary/final plats
- **DO** require watercourse or drainageway traversing subdivision have dedicated public easements for maintenance
- **DO** require public drainage installation and improvements
- **DO** tie soil erosion and sediment control regulations into plat approval procedure

The Local Floodplain Administrator

- Identified in local Flood Damage Prevention Law
- May also be Building Inspector, Code Enforcement Officer, or engineering department staff



Flood Plain Administrator's Duties

- | | |
|---|--|
| <input checked="" type="checkbox"/> Review applications | <input checked="" type="checkbox"/> Inspect development |
| <input checked="" type="checkbox"/> Provide base flood data | <input checked="" type="checkbox"/> Notification of watercourse alteration |
| <input checked="" type="checkbox"/> Review plans and specifications | <input checked="" type="checkbox"/> Record keeping |
| <input checked="" type="checkbox"/> Ensure all other permits are obtained | <input checked="" type="checkbox"/> Remedy violations |
| <input checked="" type="checkbox"/> Issue or deny permits | |

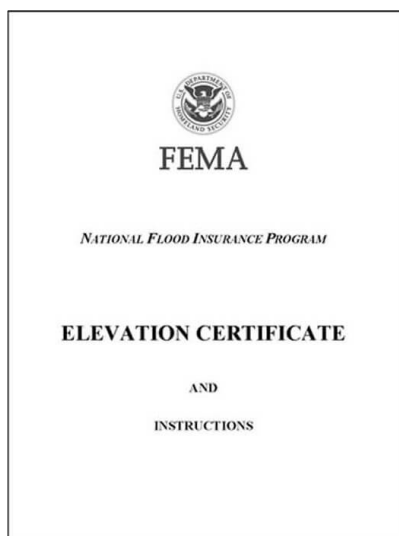
Floodplain Development Permit

(Not issued by FEMA)
 Needed for any man-made change
 in the regulatory floodplain:

- Grading, excavating, filling, mining
- Enclosures, storage
- Elevating a structure
- Substantial damage or improvement



The Elevation Certificate and LOMAs



- NFIP administrative tool
- Policy rating
- Supports map revisions and amendments
- Certify building elevations
- Community compliance
- Letter of Map Amendment (LOMA) – amendment to a FIRM issued to a property who provides information that building site at natural grade is at or above BFE

www.fema.gov/elevation-certificate

Variances

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Variances Should Be Rare

Two types of variances:

- Variance from **NFIP standards** - a variance from local flood damage prevention regulations and is granted by a local Board of Appeals designated by the local government
- Variance from **NYS Uniform Code** standards – granted by NYS Code Council
- If the relief sought violates both sets of regulations, variances must be granted by both!
- NFIP standing may be in jeopardy if you allow development in accordance with a state variance but have not gone through local variance procedures



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NFIP/FEMA Variance Criteria

Criteria for variances (44 CFR §60.6 and FEMA P-993)

- A showing of good and sufficient cause
- Failure to grant the variance would result in exceptional hardship
- Variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisance or cause nuisance, fraud, victimization of public
- Variance is the minimum action necessary to afford relief



Functionally dependent uses along waterways such as boat docking or repair facilities

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NYS Fire Prevention & Building Code Variance Procedures

19 NYCRR
Part 1205

- When Code provision or requirement entails “practical difficulties or unnecessary hardship or would otherwise be unwarranted
- If code provision creates excessive or unreasonable economic burden
- May not substantially adversely affect provisions for health, safety and security, and equally safe and proper alternatives may be prescribed

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Elevating Historic Structures



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Board of Appeals Variances for Historic Structures

- Qualifying structures are listed on National Register of Historic Places, State Inventory of Historic Places, or contribute to historic district
- Changes mustn't destroy or alter characteristics that made it historic (such as elevation)
- Certified local historic board or state historic preservation officer must first review and approve work
- Variance may be granted if minimum necessary to preserve historic character

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Other Floodplain Protection Tools

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“No Adverse Impact” Principle

- Ensure that actions taken in floodplains– and throughout the watershed– don’t lead to adverse impacts on property and rights of others
- Local adverse impacts should be based on physical, environmental, social, and economic conditions



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Reduce/Limit Development in Floodplain

- Acquisition programs – buyouts and relocations
- Zoning can limit development in floodplain
 - Limit permitted uses to discourage development
 - Reduce allowed imperviousness
 - Where development is already prevalent:
 - Prohibit increased building footprints with redevelopment
 - Allow more height in exchange for reduced imperviousness beyond minimum standards
 - Require low impact development, vegetation requirements etc.

GET INSPIRED: TAKE A VISION TOUR

TAKE A RIVERFRONT WALKING OR DRIVING TOUR!

Raise your voice and share ideas - you can determine the outcome.

- Large public meetings are not advised in the pandemic conditions. In response, we have developed a short tour that you can complete on foot or by car if you would like to visit the Village's acquired open space along the riverfront (see map below). Follow up your tour by joining your ideas by survey.
- Consider uses and activities that may benefit the Village along the riverfront. Please view open space from the road, sidewalk, parking area or trail. If you would like complete, contact us for a volunteer-led, guided and socially distanced walk.
- Once you complete your tour, please complete the paper survey on the next page or online at www.resilient-sidney.com/survey. Check out the online survey on recreation and gathering spaces while you're at it! You may return the paper survey to Village Hall or email to resilient@sidney@gmail.com.

Suggested Touring Route

ENVISION OUR RESILIENT RIVERFRONT

1 Park at Veteran's Memorial or Keith Clark Park. The memorial area offers good views of the 68 acres of open space; the site can also be seen from Route 8.

2 Follow walking paths to further view the open space donated by Sidney Community Foundation.

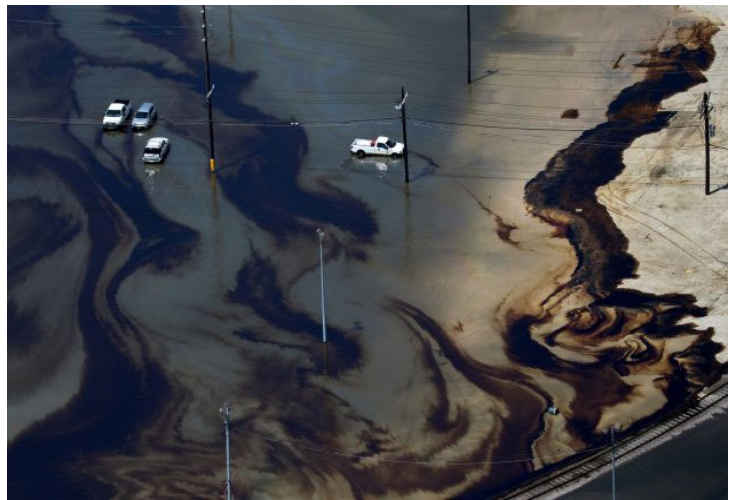
3 View some larger open spaces (1/4 acre) across from the Memorial and Keith Clark Park.

Village of Sidney, NY *Resilient Sidney Plan*

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Hazardous Materials

- The NFIP does not strictly prohibit hazardous materials from areas subject to flooding.
- **TIP:** Require them to be protected from floodwaters to reduce or eliminate damage associated with their release.



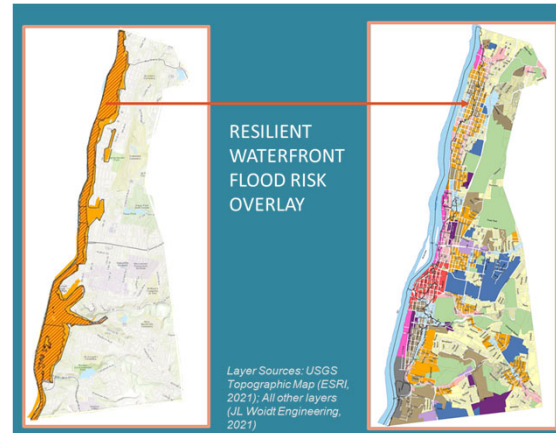
Government Services

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Overlay Zones

Applies a common set of standards over underlying districts:

- Base zoning sets permitted uses and dimensions
- Overlay sets additional requirements within specified boundaries, regardless of the underlying base zone (i.e. R1 home might also be in Floodplain Overlay)
- Could include use restrictions, landscaping requirements, and standards for environmentally sensitive areas



City of Troy Land Use and Development Ordinance

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Resilient Waterfront Flood Risk Overlay – Troy, NY

Example Elements to Preserve Ecosystem

- 50' setback for all new development; exceptions for replacement of existing structures
- Avoidance of clearcutting and other activities
- Prohibit environmental uses that could harm the river by locating them at least 500' off the river - except in the Industrial District which is 250'
- Additional standards in streambank protection standards

Siting & Development Approaches To Prevent Flood Damage

- **New critical infrastructure** – Must be located outside flood risk overlay if possible. If not possible - must be 1 foot above NYS Building Code for critical infrastructure
- **Flood safe access routes** – New critical infrastructure must have at least one access route elevated 1 foot above NYS Building Code requirements
- **New/substantial construction** – All other new development and substantial construction must be about 1 foot above the NYS Building Code floodplain standard

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Local Subdivision/Zoning Regulations

- Include “clustering” tool in zoning and subdivision regulations
 - Allows subdivision flexibility that could protect floodplain and flood fringe areas
 - Clustering of lots away from floodplain
 - Flexibility on minimum lot size, road frontage and setbacks while net density is the same
 - Possible density bonus for additional community benefit



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Site Plan Review Tips*

DO

- Preserve natural vegetative buffers
- Locate new streets outside 100 yr floodplain (or elevate them)
- Ensure adequate stormwater and drainage facilities, and their maintenance

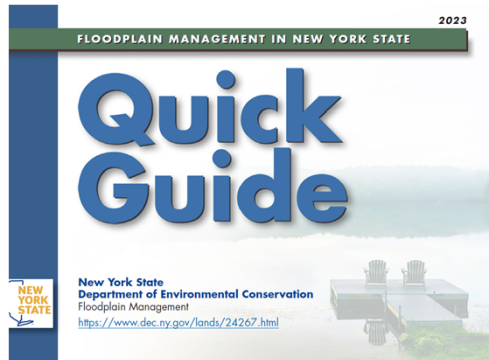
DON'T

- Disturb sensitive resource areas
- Locate structures in 100 yr floodplain unless they comply with Flood Damage Prevention local law
- Site critical facilities in 100 and 500 yr floodplain

*Specify additional standards for shorelines, riparian buffers, or sensitive areas

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Resources



NYS Dept. of Environmental Conservation <https://dec.ny.gov>

NFIP Technical Bulletins

<https://www.fema.gov/emergency-managers/risk-management/building-science/national-flood-insurance-technical-bulletins>

FEMA Flood Map Service Center:

<https://msc.fema.gov/portal/home>

NYS Floodplain and Stormwater Management Assoc. (NYSFSMA):

<https://nyfloods.org>



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Division of Local Government Services

518-473-3355

localgov@dos.ny.gov

<https://dos.ny.gov/training-assistance>

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