

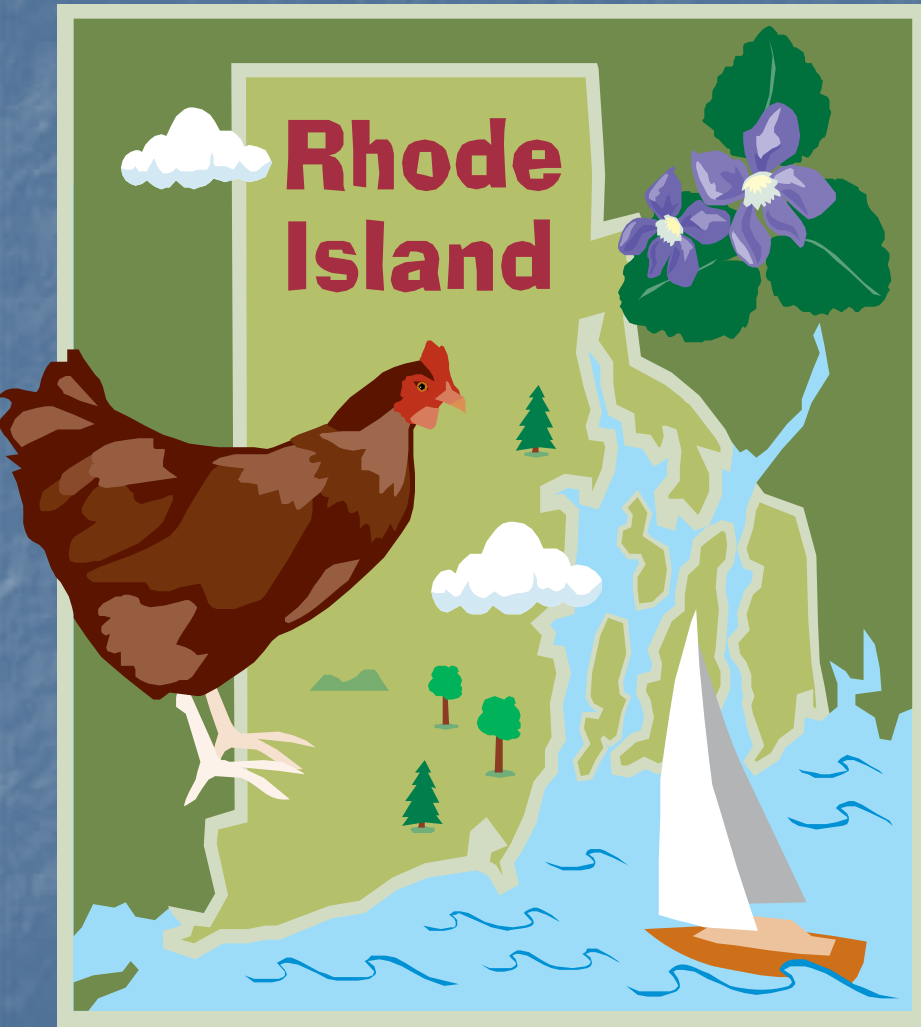
National Flood Insurance Program (NFIP) Background

- National Flood Insurance Act of 1968
 - Established the NFIP
 - Required mapping of flood-prone areas
 - Made flood insurance available to all residents of communities that meet floodplain management requirements

NFIP at a Glance: Rhode Island

- All 39 Communities and 1 Tribe participate
 - Participation is voluntary
 - Each community has a local NFIP point of contact
 - There are 15,173 NFIP policies in-force covering over \$3.5 billion in property
 - 8,196 in A zone and 1,208 in V zone
 - Average Rhode Island premium...\$1,089
 - Roughly 3.3% of the 450,884 households in RI
- (2007 RI Census Data)





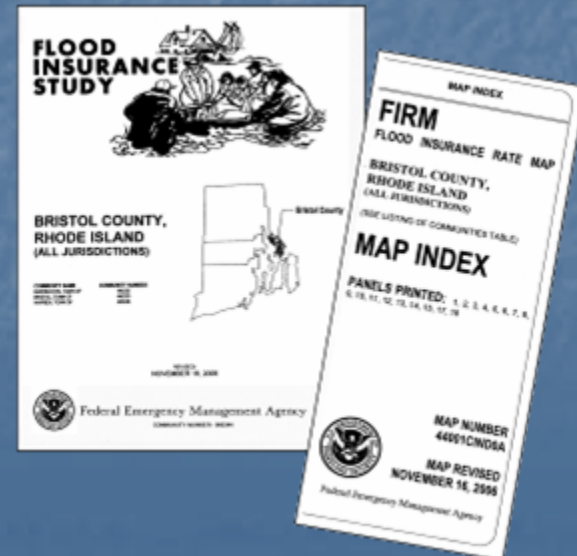
NFIP Components

- Mapping
- Regulations
- Insurance

Mapping

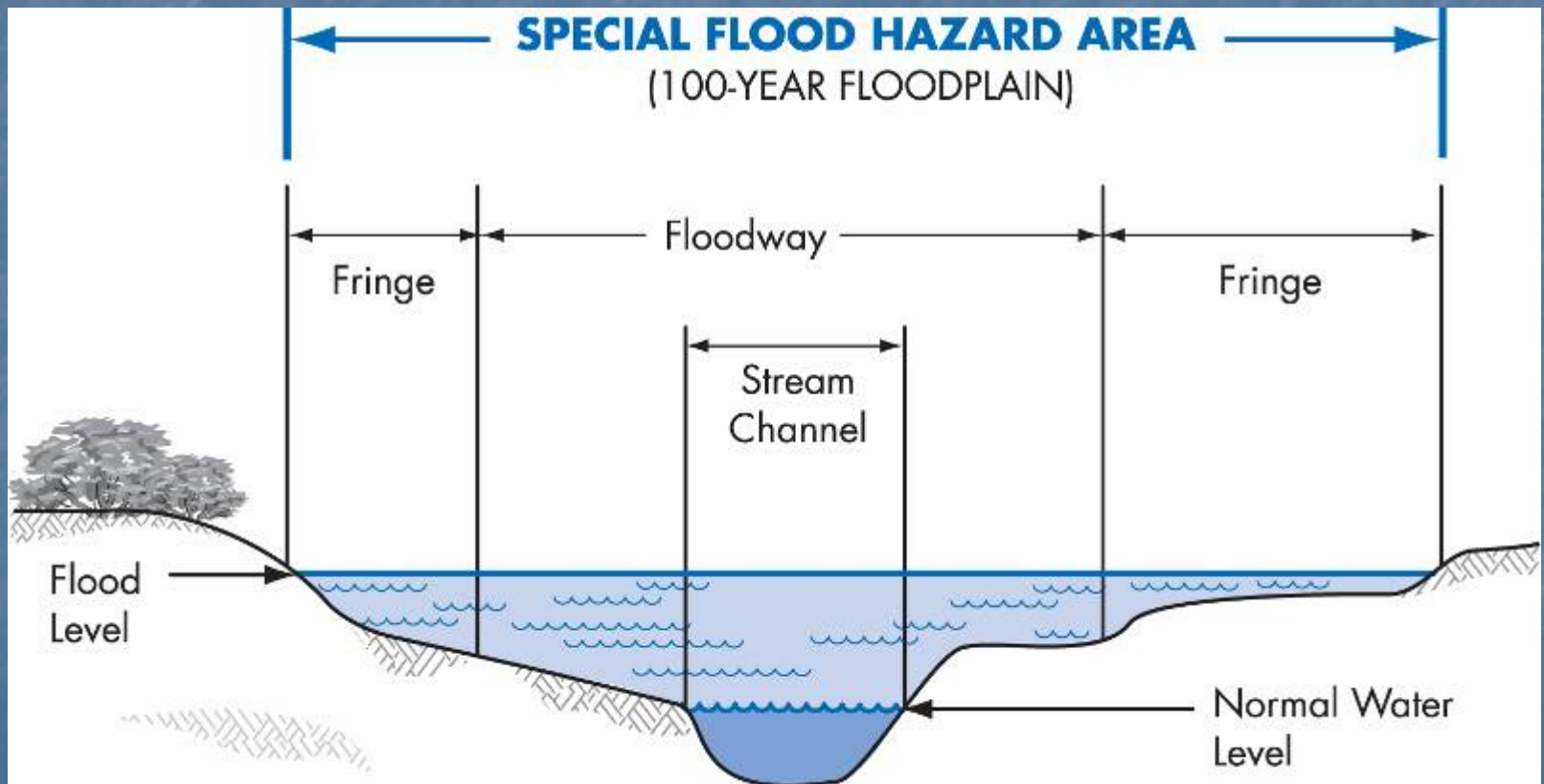
Flood Insurance Rate Maps (FIRMs)

- Primary floodplain management tool
- Product of Flood Insurance Study (FIS)
- Identifies flood zones within a community
- Maps used by a wide audience:
 - Government/local officials
 - Insurance agents
 - Lending institutions
 - Realtors
 - Property owners
 - Design Professionals
 - Environmental/Conservation groups



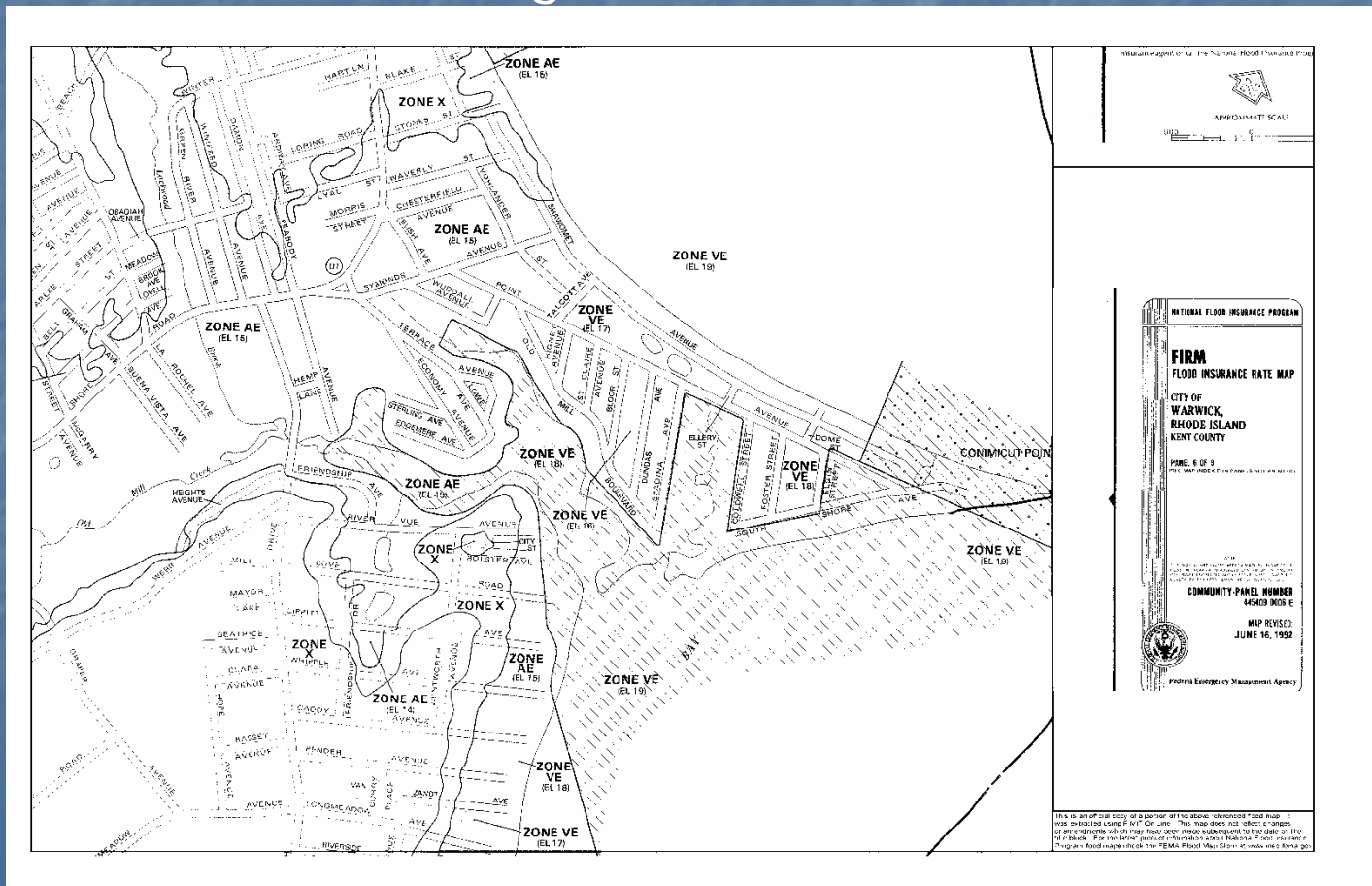
100-Year Floodplain

- The flood having a 1% chance of being equaled or exceeded in any given year



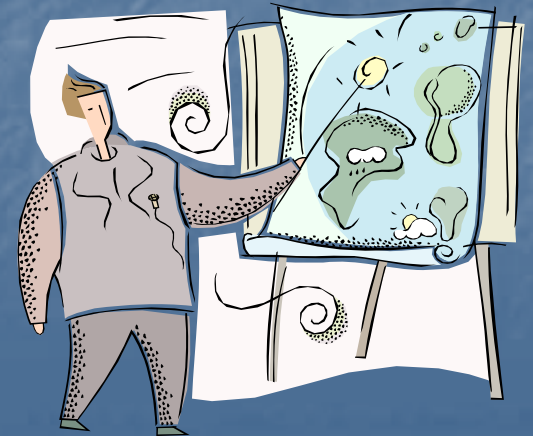
OLD FIRMs

- Outdated
- Difficult to decipher/make flood zone determinations
- Missing/mislabeled roads



Map Modernization

- Map Mod Program began in 2002 because:
 - Dynamic flood hazard conditions and old maps.
 - Desire for more timely updates and easier access to the data used to create the maps.
 - Up-to-date maps more closely align with actual risk and improve citizens' flood hazard awareness.
 - Map Mod created DFIRMs



What's in a DFIRM?

- Digital Information
 - Files usable in GIS
- Easier to update
- Other pieces:
 - Metadata
 - Flood Insurance Study (FIS) report
 - Back-up data (models, etc.)

Special Flood Hazard Areas

Land Ownership

Transportation

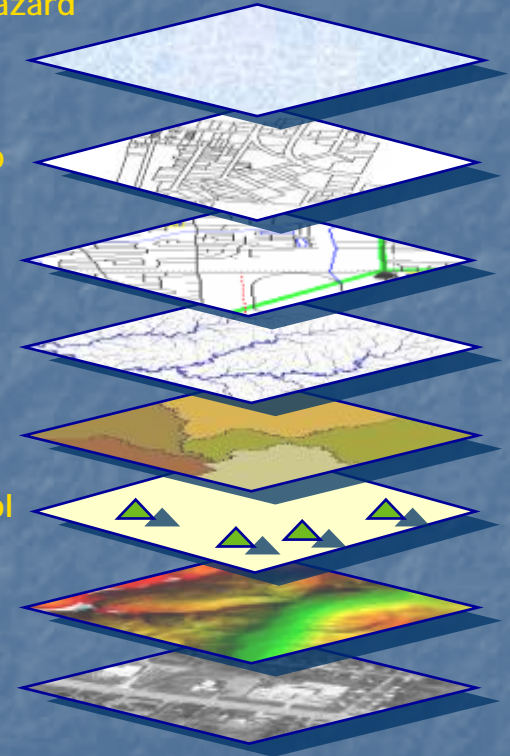
Surface Waters

Boundaries

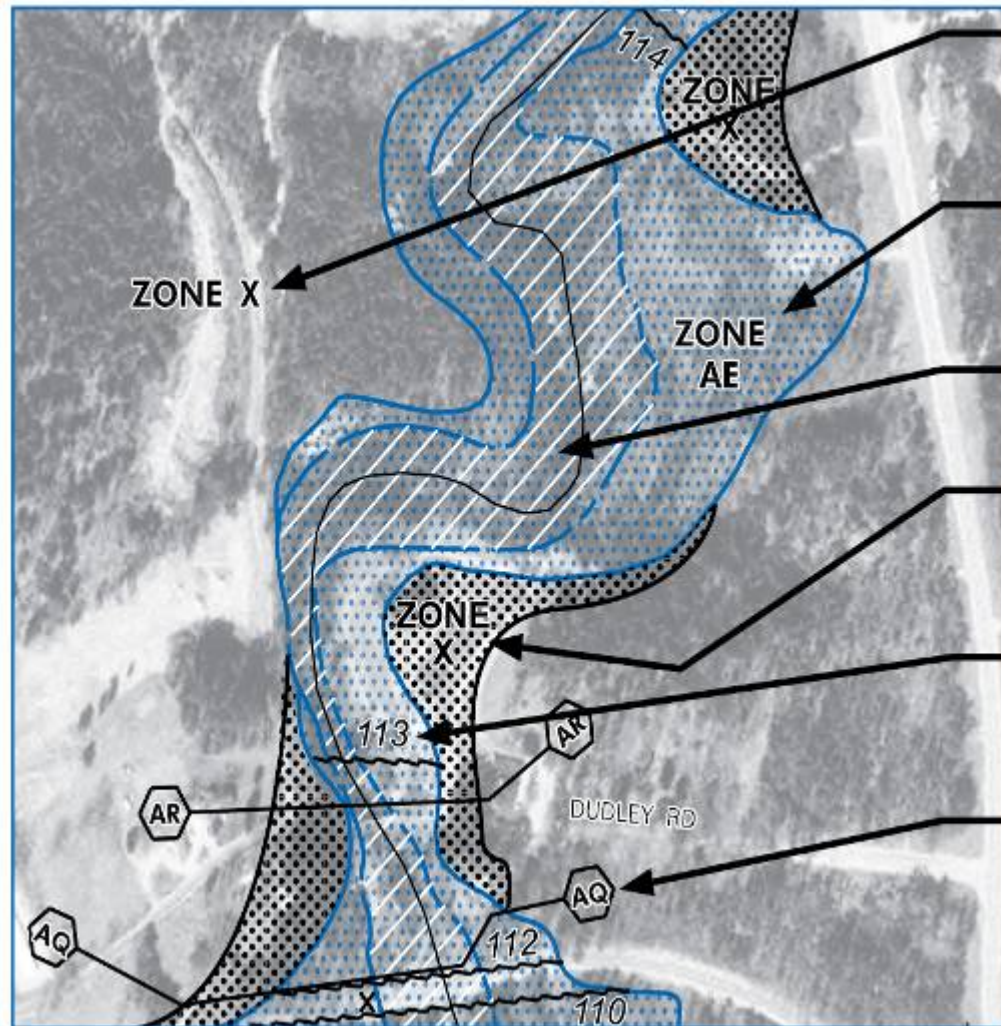
Geodetic Control

Elevation

Aerial Imagery

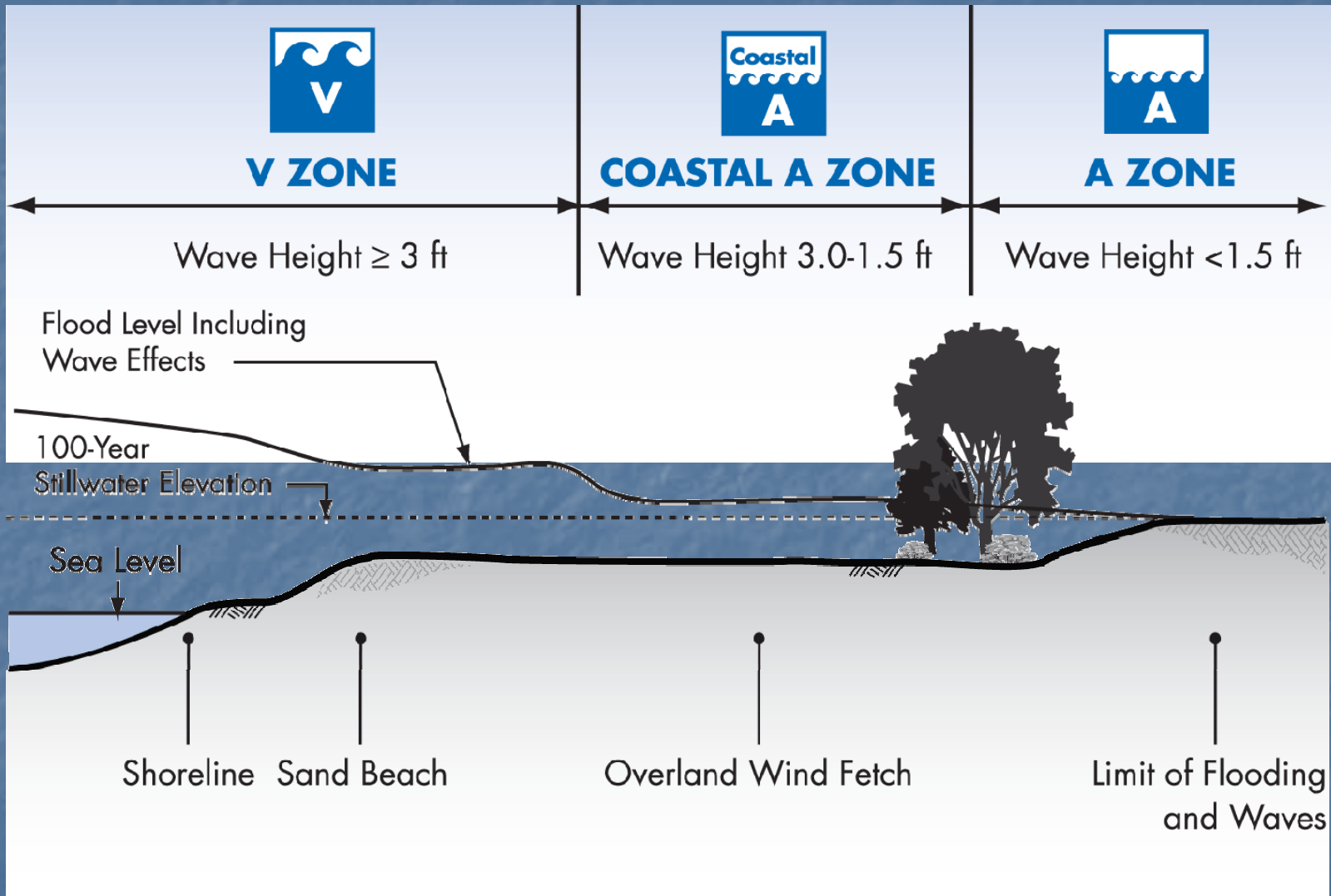


DFIRM Riverine Area

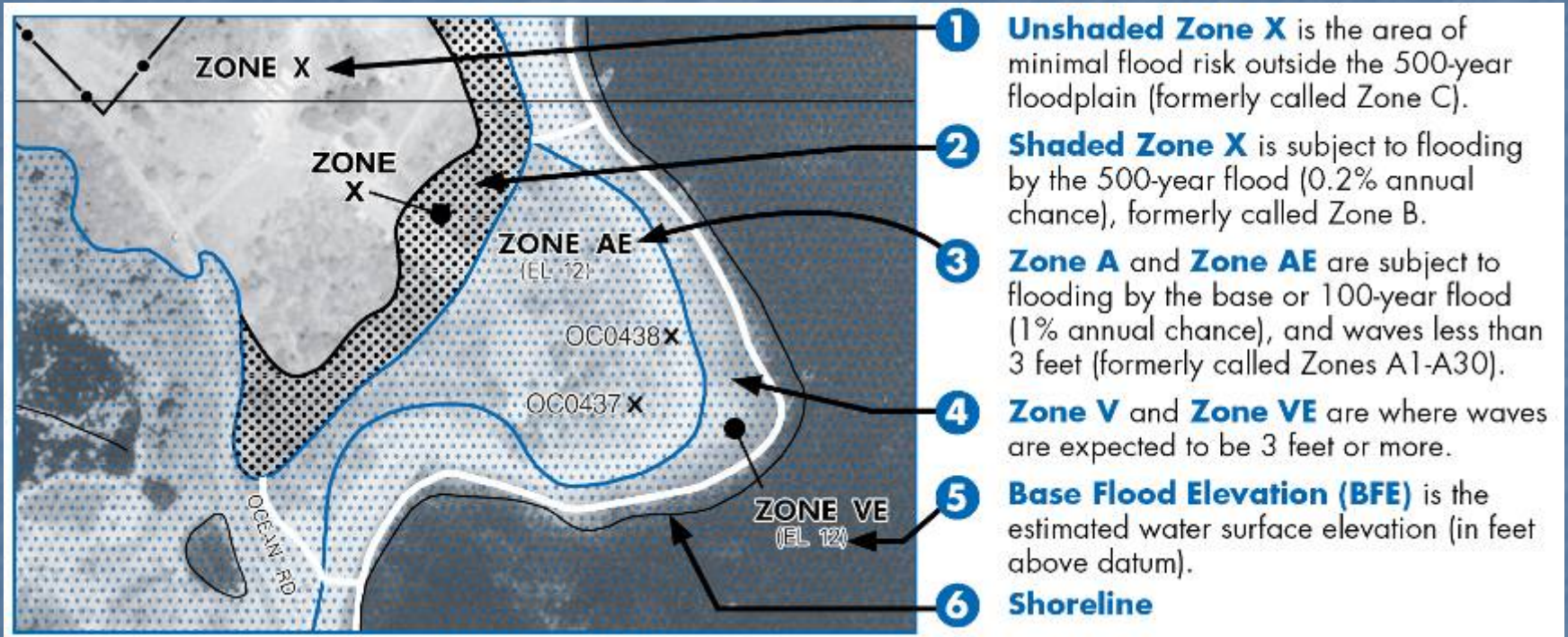


- 1 Unshaded Zone X** is the area of minimal flood risk outside the 500-year floodplain (formerly called Zone C).
- 2 Zone AE** is the 100-year (1% annual chance) floodplain with BFEs (formerly called Zone A1- A30).
- The **Floodway** is the cross-hatched area.
- 4 Shaded Zone X** is subject to flooding by the 500-year flood (0.2% annual chance), formerly called Zone B.
- 5 Base Flood Elevation (BFE)** is the water surface elevation of the base flood at specific locations.
- 6 Cross Section** location, where ground surveys determine the shape of the land and how constrictions such as bridges and culverts affect the flow of floodwater.

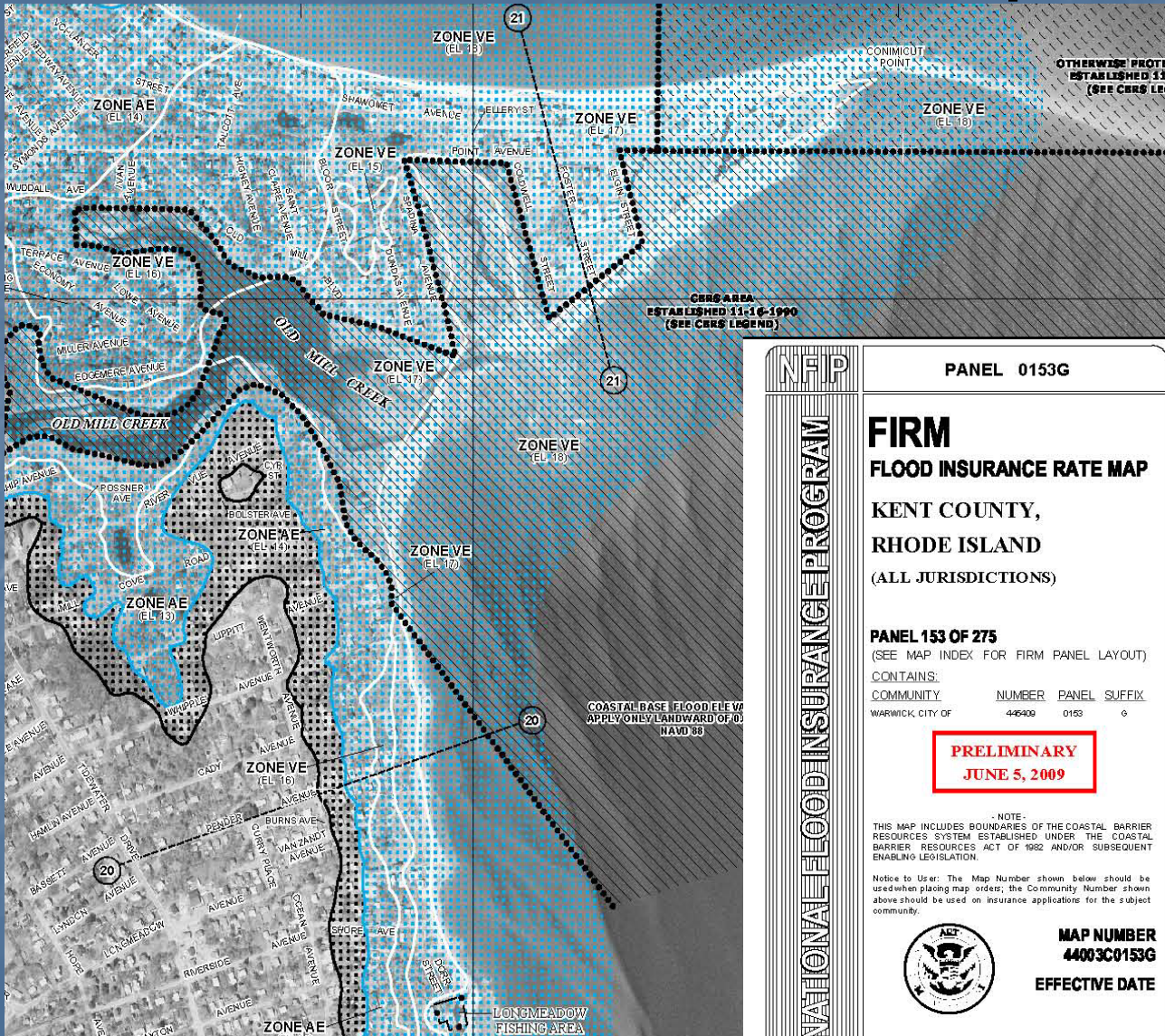
Coastal Floodplain



DFIRM Coastal Area



Local Example



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A
No Base Flood Elevations determined.

ZONE AE
Base Flood Elevations determined.

ZONE AH
Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO
Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of sluffal (fan flooding), velocities also determined.

ZONE AR
Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decommissioned. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99
Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V
Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE
Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X
Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X
Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D
Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
Base Flood Elevation line and value; elevation in feet*
Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988 (NAVD 88)

(A) — (A) Cross section line
--- Transsect line
97°07'30", 32°22'30" Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4750000N 1000-meter Universal Transverse Mercator grid ticks, zone 19
6000000 FT 5000-foot grid values; Rhode State Plane coordinate system, Island zone (HPS/ZONE 3600).
DX6510 X Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 River Mile


MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
MAY 21, 2009

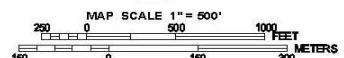
EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.


MAP NUMBER
44003C0153G
EFFECTIVE DATE

Federal Emergency Management Agency

MAP SCALE 1" = 500'


NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0153G

FIRM

FLOOD INSURANCE RATE MAP

KENT COUNTY, RHODE ISLAND

(ALL JURISDICTIONS)

PANEL 153 OF 275
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
WARWICK, CITY OF	44500	0153	6

PRELIMINARY
JUNE 5, 2009

NOTE - THIS MAP INCLUDES BOUNDARIES OF THE COASTAL BARRIER RESOURCES SYSTEM ESTABLISHED UNDER THE COASTAL BARRIER RESOURCES ACT OF 1982 AND/OR SUBSEQUENT ENABLING LEGISLATION.

Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER
44003C0153G
EFFECTIVE DATE

American Recovery and Reinvestment Act (ARRA) Emergency Watershed Protection Program – Floodplain Easements

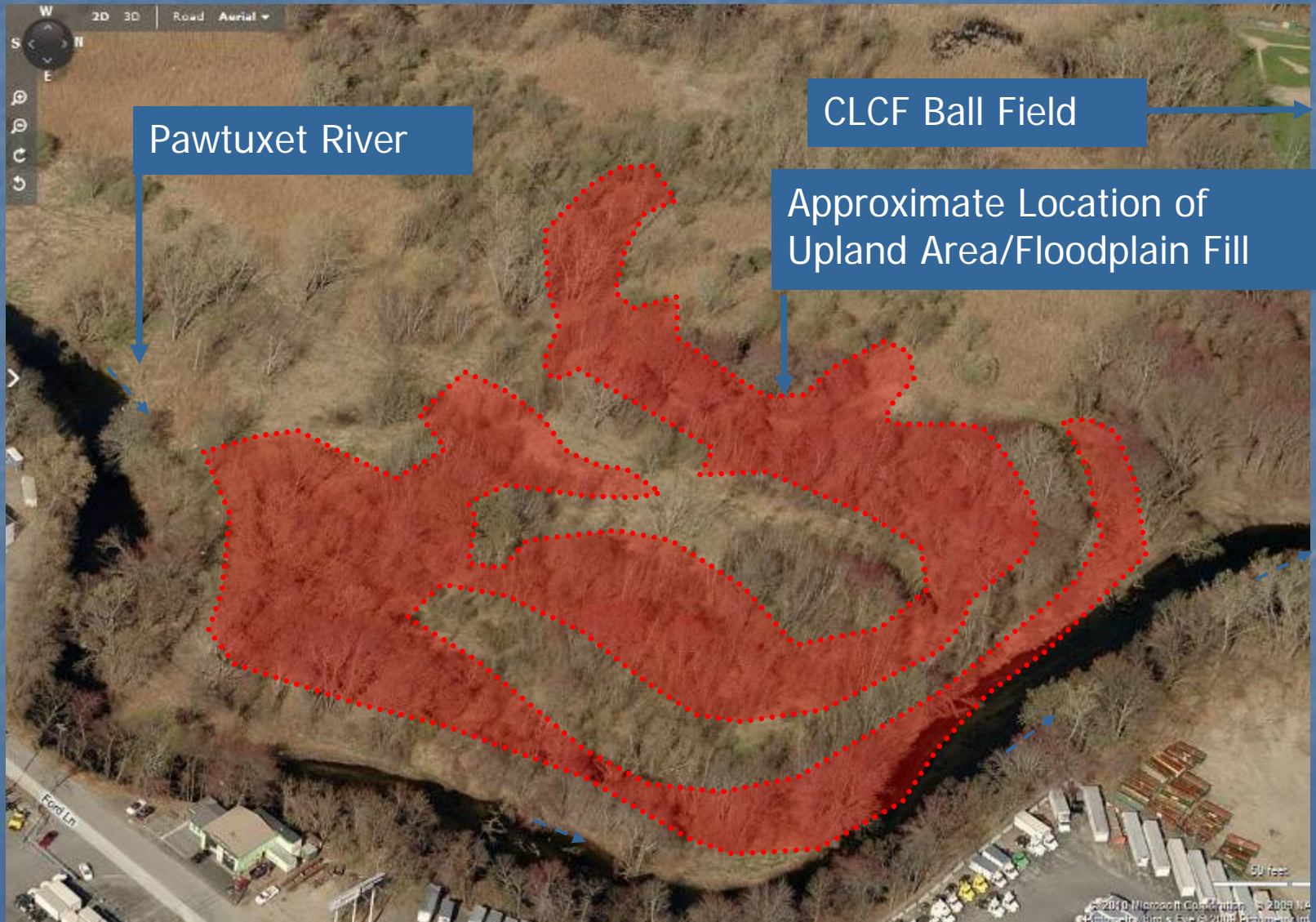
- RI NRCS received \$2.4 million in ARRA funds to implement 4 floodplain easement projects.
- City of Cranston
 - Pocasset River - Riverview Terrace & Blackamore Pond
 - Pocasset River and Pawtuxet River confluence
 - Rhodes on the Pawtuxet – Pawtuxet River Oxbow
- Town of West Warwick
 - Meshanticut River Headwater

Objective and Benefits

- Reduced Repetitive Flood Damage
- Increased Floodplain Storage Capacity by Removing Fill Material
- Restoration of Aquatic / Wildlife Habitat
- Restore historic floodplain

Existing Conditions

Confluence of Pawtuxet / Pocasset Rivers Floodplain Restoration



Existing Conditions

Confluence of Pawtuxet / Pocasset Rivers Floodplain Restoration



Proposed Restoration Plan

- Create Natural Stream Channels to Divert Drainage Runoff From Residential Neighborhoods
- Incorporate On-Site Materials to Create Bio-Engineered Channel and Streambank Stabilization Features
- Fill Ineffective Drainage Channel
 - Remove Potential Mosquito Breeding Areas
- Remove Fill Material to Create Additional Floodplain Storage Capacity
- Restore Native Vegetation (wetlands grasses) / Wildlife Habitat

Stream Channel Stabilization Features

Blackamore Pond / Pocasset River Floodplain Restoration



Brush Matting

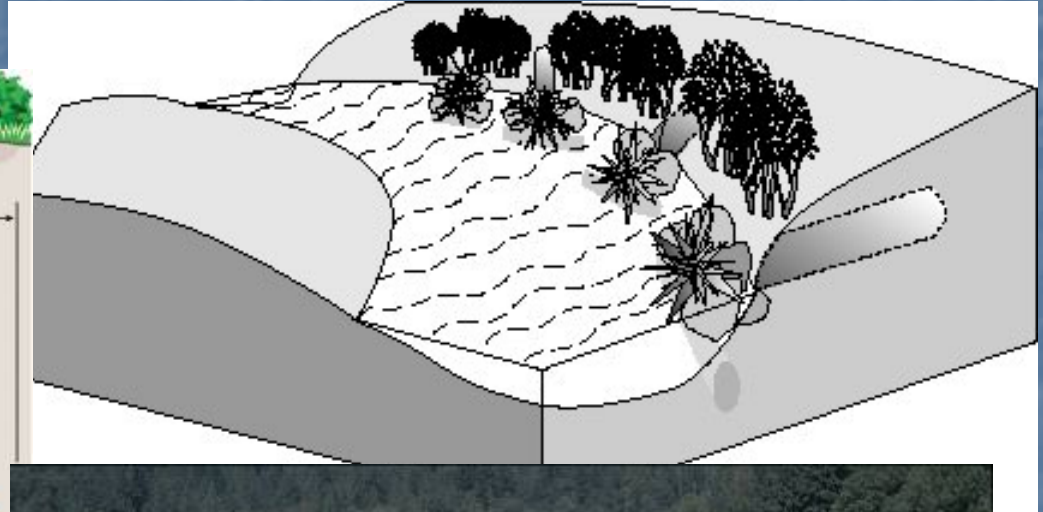
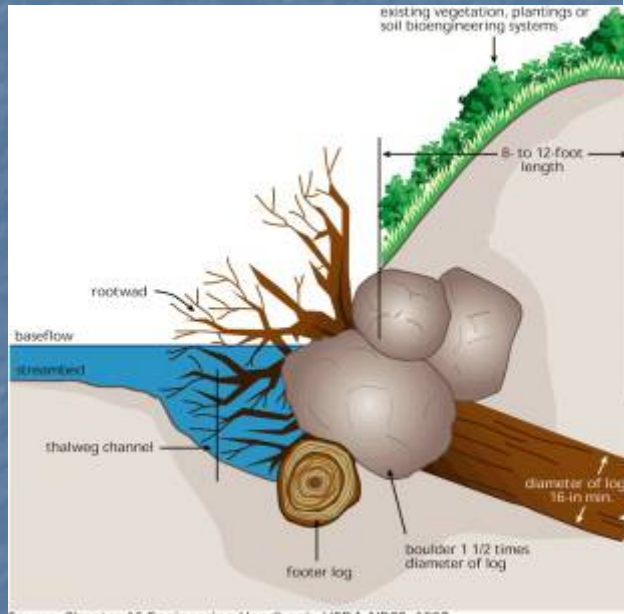
Source: NRCS



Live Fascines

Stream Channel Stabilization Features

Blackamore Pond / Pocasset River Floodplain Restoration

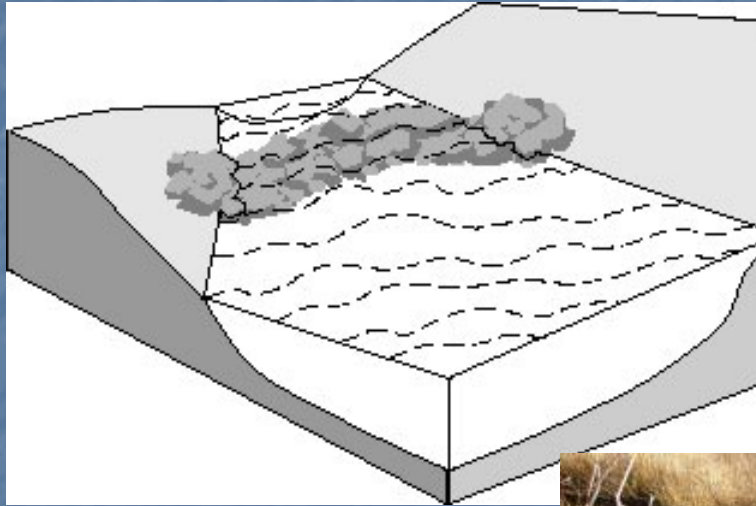


Root Wads

Source: NRCS

Stream Channel Stabilization Features

Blackamore Pond / Pocasset River Floodplain Restoration



Rock Vanes

Source: NRCS

Stream Channel Stabilization Features

Confluence of Pawtuxet / Pocasset Rivers Floodplain Restoration

New England Moist Seed Mix



Source: New England Wetland Plants, Inc.

Next Steps

Pawtuxet and Pocasset Rivers Floodplain Restoration

- **March/April 2010**
 - Complete 60% Design Drawings
 - Prepare and Submit Permit Applications
- **May/June 2010**
 - Complete Permitting
 - Finalize Design and Prepare Bidding Documents
 - Next Public Meeting
- **July/August 2010**
 - Complete Bidding
 - Start Construction
- **November/December 2010**
 - Complete Construction