



City of East Providence
EMERGENCY MANAGEMENT AGENCY

CITY HALL
145 TAUNTON AVENUE
EAST PROVIDENCE, RHODE ISLAND 02914-4505

ADDITIONAL LOCAL FLOODPLAIN RESOURCES

Local Flood Hazards

The primary causes of flooding for the City are prolonged heavy rainfall from large storm systems; torrential short-term rainfall from thunderstorms; snowmelt, often accompanied by heavy rain; and rain, coastal storm surges or both from tropical storms including hurricanes. The City has experienced a variety of damage from flood events that include property damage, loss of life, power outages, and interruption of transportation and communication systems.

Coastal storm surges from hurricanes, while very infrequent, present the single most serious flood threat for the City. The 1938 Hurricane and Hurricane Carol in 1954 both caused devastating storm surges.

The record flooding of March 2010 illustrated many of the impacts that can be expected during a widespread heavy rainfall and river flooding event in the city. Among these are flooded basements, surface flooding in areas of poor drainage, disruption of utility service due to flooded mechanical infrastructure, and disruption of transportation due to flooded roadways.

The following areas throughout the City have been identified as having a history of flooding that have been caused by major mid-latitude storms, tropical storms, thunderstorms, and snowmelt.

- Residential and commercial area located north of Waterman Avenue, east of Rockaway Avenue, and west of Seekonk, Massachusetts border due to the flooding of the Runnins River (commonly referred to as the State Street neighborhood)
- Commercial area located at the intersection of Commercial Way and Taunton Avenue due to a combination of heavy rains, low elevation, and poor drainage.
- Residential, private country club, and open space areas located along the Ten Mile River, either side of Pawtucket Avenue, east of North Broadway and north of Centre Street, including the Agawam/Fynn Playground, due to the flooding along the Ten Mile River. This includes a portion of Pawtucket Avenue itself, a primary north-south artery in the City.
- Commercial area along Newport Avenue between Moore Street and Vista Drive due to local poor drainage of heavy rainfall.
- Corner of Ferris Avenue and Circle Street due to local poor drainage of heavy rainfall.
- Western part of Dewey Avenue near North Broadway due to local poor drainage of heavy rainfall.
- Residential area located between Grosvenor Avenue and I-195, west of North Hull Street, and east of North Rose Street due to undersized drainage lines located under I-195.
- Portion of Pawtucket Avenue in front of St. Mary's/Bayview Academy due to local poor drainage of heavy rainfall.

- Veterans Memorial Parkway adjacent to Watchemoket Cove due to severe weather that coincides with high tides.
- The intersection of South Broadway and Lee Road.
- Recreational area of Sabin Point and surrounding area due to severe weather that coincides with high tides.
- Residential area along west shoreline of Bullocks Cove, and Crescent View Avenue in the area of the cove, due to severe weather that coincides with high tides.
- Residential and commercial area located east of Willet Avenue, south of Forbes Street, and north of Barrington town line due to flat terrain, poor drainage, and high water tables.

Floodplain Natural/Beneficial Functions

Flooding is a natural process that forms and maintains floodplains and coastal zones. Periodic flows of water that overtop the banks of a river and that encroach upon coastal areas are the lifeblood of river and stream corridors, marshes, beaches, and other natural areas. The seasonal variability of flow, incessant wave action, and intermittent extreme events all combine to determine both the physical structure and the biological diversity of flood prone areas. Finding the delicate balance between human needs and environmental sustainability is a difficult undertaking. Successful, sustainable flood hazard reduction solutions need to be based on the forces at work in floodplains and coastal zones and also on the resources that these flood prone areas provide.¹

Floodplains:

Provide flood storage. Many floodplains temporarily store flood waters and reduce flood heights and velocities for downstream areas.

Reduce wave damage. Some vegetated coastal floodplain areas reduce the force of waves and resulting wave and erosion damage to back lying properties and structures.

Reduce excessive erosion. Many vegetated floodplain areas help stem erosion by reducing water velocities, maintaining stream channels and stabilizing streambank soil.

Provide groundwater discharge. Some floodplains help maintain the base flow of streams and help to reduce ground water levels (which would otherwise flood basements)

Produce natural vegetation. Many types of floodplains and wetlands produce natural vegetation not found in upland (dry) areas.

• **Treat (remove) pollution in water body.** Wetlands located in lakes, streams, estuaries, depressions, and at other locations may remove pollutants from waters.

Provide habitat for fish and shellfish.* Floodplains adjacent to rivers, lakes and the tidal waters can provide food chain support, spawning areas, rearing areas, and shelter for fish. Many estuarine wetlands provide shellfish habitat.

Provide habitat for amphibians, reptiles, mammals, and insect species. Many floodplains and floodplain wetlands provide habitat for a broad range of mammals, reptiles, amphibians, and birds and corridors for migration or movement.

Provide habitat for song birds and other nongame birds. A broad range of floodplains and wetlands provide habitat for nongame birds important for ecotourism.²

¹ *Natural and Beneficial Floodplain Functions: Floodplain Management—More than Flood Loss Reduction.* American Society of Floodplain Managers, position paper adopted by ASFPM Board September 16, 2008

² Kusler, Jon A.; *Assessing the Natural and Beneficial Functions of Floodplains: Issues and Approaches, Future Directions*; Association of State Wetland Managers; 2011.

Flood Insurance

Because standard homeowners insurance doesn't cover flooding, it's important to have protection from the floods associated with hurricanes, tropical storms, heavy rains and other conditions. For more information on flood insurance, please visit the National Flood Insurance Program Web site at www.FloodSmart.gov .

Flood Safety Tips

The Red Cross webpage and the NOAA flood safety webpage linked below offer a wealth of advice on flood safety.

<http://www.redcross.org/portal/site/en/menuitem.53fabf6cc033f17a2b1ecfbf43181aa0/?vgnextoid=a3871c99b5ccb110VgnVCM10000089f0870aRCRD&currPage=25b71c99b5ccb110VgnVCM10000089f0870aRCRD>

<http://www.floodsafety.noaa.gov/>

Substantial Improvement/Substantial Damage Requirements

The National Flood Insurance Program requires that all structures within a designated 100 year flood zone (Flood Zone A, AE or AO) be brought into compliance with current building standards if there is substantial damage to the structure, regardless of the cause, or if substantial improvements are added. They are defined as follows.

"Substantial damage" means damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50 percent of the market value of the structure before the damage occurred.

"Substantial improvement" means any reconstruction, rehabilitation, addition, or other proposed new development of a structure, the cost of which equals or exceeds fifty percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage", regardless of the actual repair work performed.

Requirements for a structure to be in compliance include: anchoring the structure against movement by floodwaters, the foundation must be resistant to flood forces and be constructed of flood resistant materials, the lowest floor must be flood-proofed (not permitted for residential structures) or elevated so the enclosed space is at least one foot above the level of the 100-year flood, and all utilities must be resistant to flood damage.³

The FEMA Substantial Damage/Substantial Improvement Desk Reference can be downloaded from the FEMA webpage linked to here: <http://www.fema.gov/library/viewRecord.do?id=4160>

³ Lake County, California Substantial Damage/Improvement Webpage, used with permission. Available at http://www.co.lake.ca.us/Government/Directory/Water_Resources/Department_Programs/Flood_Management/Substantial_Damage_Improvement.htm

City Drainage System Maintenance

The City's Engineering Division Webpage, link immediately below, describes drainage system maintenance and current related projects, and offers advice on how residents can protect our local water resources.

<http://www.eastprovidenceri.net/content/666/738/746/782/818/default.aspx>

The Engineering division maintains copies of elevation certificates where required for projects within special flood hazard areas.

Ten Mile River Real-Time River Gage

The US Geological Survey maintains a river gage along the Ten Mile River near Pawtucket Avenue. The City is working with the USGS and the National Weather Service in determining levels of flooding relative to the readings from the stream gage. The stream gage reading is linked to here: http://waterdata.usgs.gov/ri/nwis/uv/?site_no=01109403