

Follow up from RIEMA from our March 12 Major Weather Event Roundtable:

At the meeting, someone asked if drain upgrades an eligible project under mitigation. I located the following information:

1. Mitigation Projects

What are some example mitigation projects for water or wastewater utilities?

Examples of mitigation projects for utilities include:

Flooded generators - elevating generators and electrical service panels.

Washed out culverts - enlarging culverts to better handle flood surges.

Flooded electrical equipment - providing flood protection around an electrical substation and transformers.

Earthquake pipe damage - modifying pipes with flexible joints.

Raw water intakes - strengthening raw water intakes to prevent damage from erosion, sediment, scour and flood debris.

Flood damaged pumps - replacing pumps with submersible or inline pumps.

FEMA mitigation projects fall into one of six general categories. Water and wastewater utility projects may fit more than one category.

Review Example Mitigation Projects for Water and Wastewater Utilities.

See a table of Successful Mitigation Projects Submitted by Water/Wastewater Utilities. The information is taken from FEMA. There is no guarantee that similar projects will be funded, as decisions are competitive and based on availability of funds.

FEMA is also encouraging mitigation projects to address climate resilience including projects on green infrastructure, floodplain and stream restoration, aquifer storage and recovery, and flood diversion and storage.

2. <https://www.narrabay.com/programs-and-initiatives/stormwater-mitigation-program/>

Currently, the Debris plan is in the review and update process. Below are a couple of inserts from the plan I believe will be helpful.

3.2.2 Municipalities

Local government is responsible for emergency response within their jurisdiction and is strongly encouraged to develop disaster debris management plans for their communities. Response efforts such as evacuation, sheltering, firefighting, search and rescue, utility restoration, and clearing debris from key roads will be directed to protect lives and property. Local government also will be responsible for later stages of debris management, including collecting debris and establishing debris management sites. Municipal personnel, equipment and resources would be augmented by contractors, volunteers and mutual aid from neighboring communities. A local State of Emergency may be declared when resources are inadequate to cope with an emergency. Local resources need to be fully utilized before state resources can be used. RIEMA may provide support if requested under such circumstances.

To forecast a rough estimate of the overall amount of debris that might be expected from a hurricane or similar major storm event, one can either use actual data from a previous disaster event in the municipality or nearby municipalities or generic modeling developed by the United States Army Corps of Engineers (USACE), or a combination of both.

The factors that go into the USACE hurricane debris estimating model are:

- Households in the jurisdiction;
- Storm category factor (1-5);
- Vegetative cover (light, medium, or heavy);
- Commercial density (light, medium, or heavy); and
- Precipitation factor (none/light or medium/heavy).

Example: For a municipality with 10,000 households and medium vegetative (veg cover) and commercial density (comm density), a worst-case debris estimate based on this model would be:

$$\begin{array}{ccccccccc} 10,000 & & 26 \text{ cubic yds} & & 1.3 & & 1.2 & & 1.3 \\ \text{households} & \times & \text{cat 3 storm} & \times & \text{veg.} & \times & \text{comm.} & \times & \text{precip.} \\ & & \text{factor} & & \text{cover} & & \text{density} & & \text{factor} \\ & & & & & & & & = 527,280 \text{ cubic yds} \end{array}$$

To the maximum extent possible, debris received at the management site should be separated into the following categories and should be stored separately to minimize cross-contamination:

- Vegetative Waste;

- C&D debris;
- White goods;
- Household trash including putrescent waste;
- Other separated recyclable categories where applicable (i.e., e-waste, metal, asphalt, brick and concrete, etc.); and
- Hazardous waste including Household Hazardous Waste.

One of the main functions of a debris management site will be to serve as volume reduction and consolidation areas for debris brought to the sites from the impacted areas. Volume reduction methods may include recycling, chipping for mulch or chipping for biomass fuel. For grinding and chipping to be feasible, the chipped material must have a viable use either as mulch or as wood chips for fuel.

B-1: Solid Waste Transfer/Collection Stations

City/Town	Site Name	Address	Capacity	Units
Bristol	Bristol	Minturn Rd		
Burrillville	Burrillville	Whipple Ave		
Charlestown	Charlestown Collection Station	Sand Hill Rd		
Coventry	Coventry	1670 Flat River Rd		
Cranston	Waste Management Cranston	1688 Pontiac Ave		
East Greenwich	East Greenwich	Crompton Ave		
Exeter	Exeter	Route 102		
Glocester	Glocester	Chestnut Hill Road		
Jamestown	Jamestown	North Rd		
Johnston	J.R. Vinagro	116 Shun Pike		
Johnston	Waste Connections	116 Shun Pike		
Little Compton	Little Compton	122 Amy Hart Path (Off Cold Brook Rd)		
New Shoreham	New Shoreham	West Beach Rd		
Newport	Newport	65 Halsey Rd		
North Kingstown	New England Waste Services (proposed)	West Davisville Road		
North Kingstown	North Kingstown	345 Devil's Foot Rd/ Compass Circle		
North Smithfield	North Smithfield	14 Canal St		
Pawtucket	Blackstone Valley. Reg.	240 Grotto Ave		
Portsmouth	Portsmouth	Hedley St		
Portsmouth	Prudence Island	Narragansett Ave		
Providence	Providence	140 Terminal Rd		
Richmond	Richmond	51 Buttonwood Rd		
South Kingstown	South Kingstown (Rose Hill)	Rose Hill Rd		
Warwick	Waste Management Warwick	65 O'Keefe Ln		
Warren	Warren	21 Birch Swamp Rd		
West Greenwich	West Greenwich	68 Bates Trail		
Westerly	Westerly	Westerly-Bradford Rd (Route 91)		
Woonsocket	Service Transport Group	28 Privilege St		

B-2: Composting Facilities

City/Town	Site Name	Address	Capacity	Units
Barrington	Barrington Compost Facility	Wampanoag Trail	25,000	Yds ³
Burrillville	Burrillville Compost Facility	Whipple Ave	3,500	Yds ³
Charlestown	Charlestown Compost Facility	Sand Hill Rd	4,000	Yds ³
Cumberland	Pascale Compost Facility	17 Old Mendon Rd		
East Providence	East Providence Compost Facility	Forbes St	30,000	Yds ³
Jamestown	Jamestown Compost Facility	North Rd	150	Yds ³
Johnston	Orbit Energy (Food waste processing)	Scituate Ave. and Old Pocasset Road		
Johnston	RI Resource Recovery Corp. Central Landfill	Shun Pike	220,000	Yds ³
North Kingstown	North Kingstown Compost Facility	345 Devil's Foot Rd/Compass Circle	8,000	Yds
North Providence	North Providence Compost Facility	Smithfield Rd	215	Tons/day
Pawtucket	Pawtucket Compost Facility	240 Grotto Ave	5,000	Yds
Richmond	Richmond Sand and Stone, LLC	Stilson Rd	37,500	Yds ³
Smithfield	Smithfield Municipal Compost Facility	5 Spragueville Rd		
Tiverton	Site-Ready Materials + Construction Co.	322 Eagleville Rd	10,000	Yds ³
Warren	Warren Compost Facility	21 Birch Swamp Rd	3,700	Yds ³
Warwick	Warwick Compost Facility & MRF	Range Rd	13,000	Yds ³



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