

# State of South Carolina

GOVERNOR HENRY MCMASTER



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## South Carolina Floodwater Commission

### INFRASTRUCTURE & SHORELINE ARMORING TASK FORCE

#### **BACKGROUND**

This task force will focus on drainage and flow infrastructure as well as shoreline armoring.

#### **Drainage Infrastructure**

Every community has a drainage system, either natural or human-made or, more likely, a combination of both. The drainage system carries surface water from where it falls through channels to a receiving body of water. Drainage improvements will result in a reduction in overall flooding problems.

Urban or human-made channels are different from the natural channels. Human-made channels may need more maintenance to provide proper conveyance. To function properly, it is necessary that they be kept clean and clear. The urban drainage system also includes storm sewers (i.e., pipes) that carry smaller flows underground. When storm sewers work, the streets and yards are drained quickly. Storm sewers won't work when they are blocked. Blockages can be caused by debris at the inlet, an outlet or outfall that is under water, a broken pipe, or debris or sediment in the pipe. The purpose of drainage ditches and storm sewers is to safely convey water downstream.

A community's drainage system covers a large area and includes storage basins, stream channels, backyards, swales, ditches, and culverts. A regular program of drainage system inspections can catch problems in the system before they turn into major obstructions. Such inspections and follow-up work for the whole drainage system are critical to maintaining a properly functioning drainage system.

A community's maintenance program should include:

Inspection of the entire drainage system at least once each year;

A check of known problem sites during or immediately after heavy storms;

Responding to inquiries or complaints from citizens; and

Removing debris soon after it is found.

Involving the citizens will be very helpful. While they may not do any maintenance (especially removing large logs or obstructions), citizens are the eyes and ears of the community and can look out for and report problems before they cause a flood. Volunteers may also clear minor blockages before they become major obstacles. Some communities have organized “stream teams” that regularly monitor assigned sections of rivers.

### **Shoreline Armoring**

This task force will further consider shoreline armoring and stabilization by utilizing site specific methodologies that balance the needs of manmade protection and that of natural systems.

Hard armoring has been the traditional approach to shoreline protection. This includes the construction of bulkheads, seawalls, and other barriers. Areas with considerable development & critical infrastructure may require hard armoring to protect against coastal flooding & erosion. These practices can allow for continued use of a developed area, even as sea levels rise. However, armored shorelines have a number of potential drawbacks to consider. As such, localities should carefully consider where to implement hard armoring.

The goal for shoreline armoring for flood hazards is to promote public health, safety and general welfare by minimizing public and private losses due to flood conditions in specific areas and by maintaining and restoring natural flow patterns. Flood management armoring should be located, designed, constructed and maintained to protect: the physical integrity of the shoreline and properties that may be damaged by alterations to the geo-hydraulic system; water quality and natural groundwater movement; fish, vegetation and other life forms and their habitat vital to the aquatic food chain; and recreation resources and aesthetic values such as point and channel bars, islands and other shoreline features and scenery.

### **OBJECTIVES**

To reduce the vulnerability of localized flooding by maximizing the effectiveness of flow infrastructure for water drainage.

To utilize community volunteers to assist in infrastructure maintenance and inspection.

To minimize coastal flooding utilizing “armoring” through the careful use of site-specific methodologies that balance the needs of manmade protection and that of natural systems.

### **DELIVERABLES**

- Identification of culverts, ditches, and other existing water drainage and flow infrastructure in need of maintenance.
- Clearing of existing drains and culverts of sediment and debris.
- Identification of drainage areas in need of enhancement and recommended solutions.
- Prioritization and recommendations to bring the infrastructure to full functioning capacity.
- Solicitation and creation of community volunteer groups to assist in inspection and

mediation of infrastructure.

- Identification and implementation of sediment management strategies in drain and culverts
- Identification and replacement of undersized culverts.
- Identification and mitigation of drainage issues resulting in ponding.
- Review and recommendations for South Carolina shoreline areas which may benefit from armoring while considering site-specific stabilization methods that balance the needs of the public with the needs of the natural system.

### **TIME FRAME**

1Q '19 Development of messaging and communication of Infrastructure program to South Carolina communities, cities, towns and counties.

2Q '19 Recruitment of community "volunteers" to assist in infrastructure inspection and mediation.

2Q'19 Completed review of SC shoreline areas for consideration of armoring for flood protection with recommendations.

3Q'19 State wide infrastructure maintenance complete with recommendations for improvements.