FloodStat
Increasing the City’s Resilience to Flooding, SLR, and Storm Surge.
PURPOSE

Establish accountability around the Mayor’s priorities.

Foster an environment for open, collaborative discussion so everyone WINS.

Represents a strong partnership between the Mayor’s Office and department leadership and their shared interest in using data to drive performance and decision-making.
Local Tide Trends - NOAA Station 8665530 - Charleston Harbor, SC

Annual High Tides >= 7ft

Highest Monthly Tides

Highest Daily Tides

Minor Tides

10
7.0' - 7.49'

Moderate Tides

0
7.5' - 7.99'

Major Tides

0
>= 8'

TIDEEYE: LOCAL TIDE TRENDS
DRAFT VULNERABILITY ANALYSIS RESULTS

PRIVATE PROPERTY

About 70% of all residential properties in the city are highly vulnerable and at risk to flooding.

ECONOMY

About 80% of the city’s annual sales volume and jobs/employees are highly vulnerable.

HIGHLY VULNERABLE CRITICAL FACILITIES

- 56% public safety facilities
- 69% schools and community centers
- 67% medical facilities
- 31% energy and utility properties
KEY PERFORMANCE INDICATORS (KPI)

KPI 1: No preventable loss of life or injuries during a flood event.

KPI 2: Reduce flood damage to private property.

KPI 3: Reduce the economic impact of SLR and flooding events.

KPI 4: Reduce the flood risk to the City.

KPI 5: Reduce the flood risk to the City through Community Activism.
<table>
<thead>
<tr>
<th>KPI</th>
<th>METRIC</th>
<th>REPORTING FREQUENCY</th>
<th>DATA SOURCE(S)</th>
<th>TREND</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Develop the City’s proactive traffic management and communications plan</td>
<td>Quarterly</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100% implementation of the City’s traffic management and communications plan.</td>
<td>Quarterly</td>
<td>TBD</td>
<td></td>
</tr>
<tr>
<td>KPI</td>
<td>METRIC</td>
<td>REPORTING FREQUENCY</td>
<td>DATA SOURCE(S)</td>
<td>TREND</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------------</td>
<td>---------------------</td>
<td>---------------</td>
<td>-------</td>
</tr>
<tr>
<td>2</td>
<td>Improve the City’s CRS Rating to #4 by 2023.</td>
<td>Quarterly</td>
<td>CRS point audit</td>
<td><img src="image" alt="chart" /></td>
</tr>
<tr>
<td>2</td>
<td>Actively reduce the number of repetitive loss properties.</td>
<td>Quarterly</td>
<td>NFIP</td>
<td><img src="image" alt="chart" /></td>
</tr>
<tr>
<td>5</td>
<td>Annually increase the percentage of properties in the City that carry flood insurance.</td>
<td>Quarterly</td>
<td>NFIP</td>
<td><img src="image" alt="chart" /></td>
</tr>
</tbody>
</table>
KPI #2
Reduce flood damage to private property
METRIC #1  
Improve the City’s CRS Rating to Class 4 by 2023
NFIP COMMUNITY RATING SYSTEM (CRS)

Community actions that exceed minimum NFIP requirements

- Reduce flood damage
- Support the NFIP
- Encourage comprehensive floodplain management

109 Elements across 19 Activities

More community action → more points → improved rating → greater premium reduction

2015 visit: 2,017 points

<table>
<thead>
<tr>
<th>CRS Class</th>
<th>Credit Points (cT)</th>
<th>Premium Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>In SFHA</td>
</tr>
<tr>
<td>1</td>
<td>4,500+</td>
<td>45%</td>
</tr>
<tr>
<td>2</td>
<td>4,000–4,499</td>
<td>40%</td>
</tr>
<tr>
<td>3</td>
<td>3,500–3,999</td>
<td>35%</td>
</tr>
<tr>
<td>4</td>
<td>3,000–3,499</td>
<td>30%</td>
</tr>
<tr>
<td>5</td>
<td>2,500–2,999</td>
<td>25%</td>
</tr>
<tr>
<td>6</td>
<td>2,000–2,499</td>
<td>20%</td>
</tr>
<tr>
<td>7</td>
<td>1,500–1,999</td>
<td>15%</td>
</tr>
<tr>
<td>8</td>
<td>1,000–1,499</td>
<td>10%</td>
</tr>
<tr>
<td>9</td>
<td>500–999</td>
<td>5%</td>
</tr>
<tr>
<td>10</td>
<td>0–499</td>
<td>0</td>
</tr>
</tbody>
</table>

Outside the SFHA: Zones X, B, C, A99, AR, and D
# CRS Points Audit

<table>
<thead>
<tr>
<th>Activity #</th>
<th>Current Activity Points</th>
<th>Maximum Activity Points</th>
<th>Difference</th>
<th>Element</th>
<th>Maximum Element Points</th>
<th>Action Required</th>
<th>CRS Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>420</td>
<td>109</td>
<td>2870</td>
<td>2761</td>
<td>OSP</td>
<td>1450</td>
<td>Map preserved open space parcels; continue Bluebelt acquisitions</td>
<td>FPM, RE, Legal, Zoning</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>DR</td>
<td>50</td>
<td>Place deed restrictions on existing and new open space parcels</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NFOS</td>
<td>350</td>
<td>Document natural functions parcels; continue Bluebelt acquisitions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SHOS</td>
<td>150</td>
<td>Special flood-related hazards open space</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CEOS</td>
<td>750</td>
<td>Coastal erosion open space</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>OSI</td>
<td>250</td>
<td>Pursue incentives to keep development out of floodplain</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LZ</td>
<td>600</td>
<td>Create low-density zone district</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NSP</td>
<td>120</td>
<td>Restrict alteration of natural shorelines</td>
<td></td>
</tr>
</tbody>
</table>
OSP – OPEN SPACE PRESERVATION

Objective: to prevent or minimize development in the regulatory floodplain that obstructs floodwaters; exposes insurable buildings to damage; is subject to erosion or other flood-related hazards; or adversely affects water quality, water quantity, or other floodplain functions

Credit: for preserving undeveloped parcels in the SFHA as open space

2015 points: 87

2020 target: 500

Difference: +413
**Objective:** to provide an extra margin of protection above the base flood elevation to account for waves, debris, miscalculations, changing weather patterns, or lack of data

**Credit:** for requiring that buildings and utilities are protected to a level above the base flood elevation

**2015 points:** 94

**2020 target:** 200

**Difference:** +106
## NEW FREEBOARD REQUIREMENTS

Effective for building permit applications submitted on or after July 1, 2020

<table>
<thead>
<tr>
<th></th>
<th>New Construction</th>
<th>Substantial Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>2 Feet</td>
<td>1 Foot</td>
</tr>
<tr>
<td>Non-Residential</td>
<td>2 Feet</td>
<td>2 Feet</td>
</tr>
</tbody>
</table>
Objective: to protect buildings subject to wave heights of 1.5-3 feet from wave effects, velocity flows, erosion, scour, or combinations of these factors

Credit: for enforcement of V Zone regulations in Coastal A Zones

2015 points: 0
2020 target: 500
Difference: +500
ACTIVITY 450 — STORMWATER MANAGEMENT

**Objective:** to prevent future development from increasing flood hazards to existing development, to protect existing hydrologic functions within the watershed, and to maintain and improve water quality

**Credit:** for Stormwater management regulations, watershed master planning, erosion and sediment control, and water quality regulations

**2015 points:** 216

**2020 target:** 300

**Difference:** +84
STORMWATER MANAGEMENT ELEMENTS

- Size of development regulated
- Design storms used in regulations
- Low-impact development
- Public maintenance of facilities
- Watershed master planning
- Erosion and sediment control
- Water quality regulations
Actively reduce the number of Repetitive Loss properties

Increase the percentage of properties in the City that carry flood insurance

Reduce the square footage of existing person and equipment occupied that is vulnerable to flooding and sea level rise

Decrease the number of high-risk acres that can be developed

Increase the percentage of historic properties in the historic district that apply for and receive approval to elevate
NEXT FLOODSTAT MEETINGS

Thursday, July 2\textsuperscript{nd}
- Housing
- Public Service
- Stormwater Operations

Thursday, August 6\textsuperscript{th}
- Parks – Capital Projects
- Planning
- Sustainability