

**Resiliency and
Sustainability
Advisory
Committee
Meeting**

Sept. 10, 2020 (Virtual Meeting)

WEBINAR LINK: <https://us02web.zoom.us/j/87142628321>

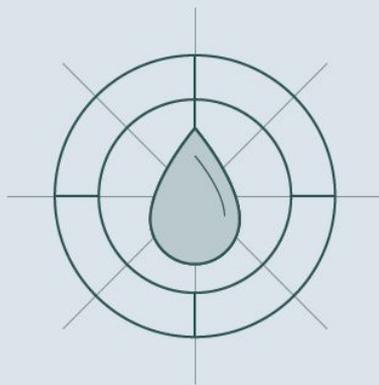
Call 1 (929) 205 6099, Webinar ID: 871 4262 8321

Agenda

1. Welcome and Moment of Silence
Mayor John Tecklenburg
2. Charleston City Plan
Christopher Morgan
3. Sustainability Next Steps
Katie McKain
 - a. Review FY18 Greenhouse Gas Inventory
 - b. Climate Action Planning
4. USACE Peninsula Flood Risk Management Study
Mark Wilbert
5. Mattress Recycling
Katie McKain
6. Charleston Rainproof
Katie McKain
7. Charleston Medical District
Mark Wilbert &
Christine Von Kolnitz
8. Public Comment Period

Charleston City Plan and its Synergy with Water Studies and Other Plans

By: Christopher Morgan
City of Charleston, Planning Manager



CHARLESTON CITY PLAN
THE CITY OF CHARLESTON COMPREHENSIVE PLAN 2020

Planning for water.

Register today for a Charleston City Plan

WATER LAB.

Wednesday, September 23

11:30 a.m. to 1:00 p.m.

Wednesday, September 23

6:00 p.m. to 7:30 p.m

www.charlestoncityplan.com

Sustainability Next Steps

FY18 Greenhouse Gas Inventory

By: Katie McKain,
City of Charleston, Director of Sustainability

Why Perform a Greenhouse Gas Inventory?

- Identify greatest sources of emissions
- Understand trends
- Set goals and targets for future reductions
- Track progress on meeting goals
- Starting point for Climate Action Planning

MtCO₂e = metric tons
of carbon dioxide
equivalent

Indicators that Influence Emissions

TABLE 1: CHANGES IN COMMUNITY INDICATORS

COMMUNITY INDICATOR	2002 (BASELINE)	2006	2010	2018	CHANGE SINCE 2002 BASELINE
POPULATION (City of Charleston Department of Planning)	98,795	107,845	120,083	148,143	+ 50%
GROSS DOMESTIC PRODUCT (Open Data Network)	\$40.5 M	\$43.3 M	\$41.6 M	\$46.9 M	+ 15%
COOLING DEGREE DAYS (National Weather Service)	2,567	2,370	2,706	2,920	+ 14%
HEATING DEGREE DAYS (National Weather Service)	1,784	1,743	2,118	1,696	- 5%

Two Inventories

CITYWIDE INVENTORY

(aka Community Inventory)

Emissions within entire City limits

1. Buildings
2. Transportation
3. Waste
4. Other

Includes emissions from City
Government operations too

GOVERNMENT INVENTORY

(aka Municipal Inventory)

Emissions from City government
operations only (local gov't only)

1. Buildings and Facilities
2. Street Lights
3. Fleet
4. Employee Commute

Makes up 2% of Citywide Inventory

FY18 Citywide Inventory

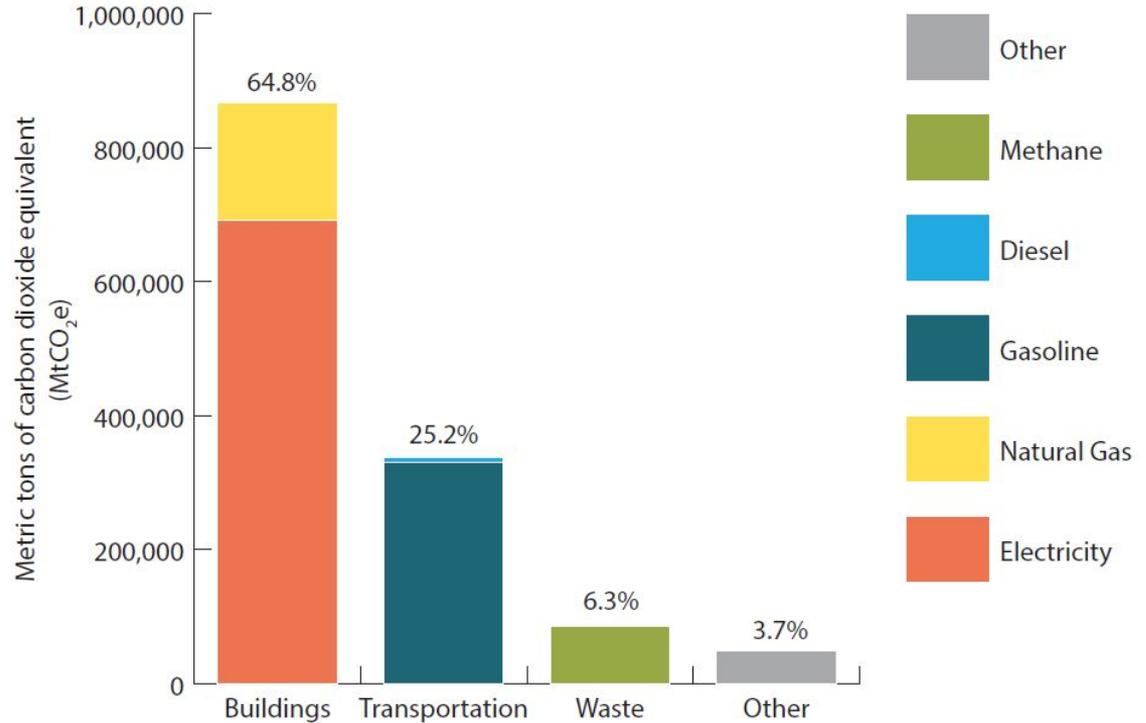
1,337,254 MtCO₂e

65% Buildings

25% Transportation

6% Waste

4% Other



FY18 Government Inventory

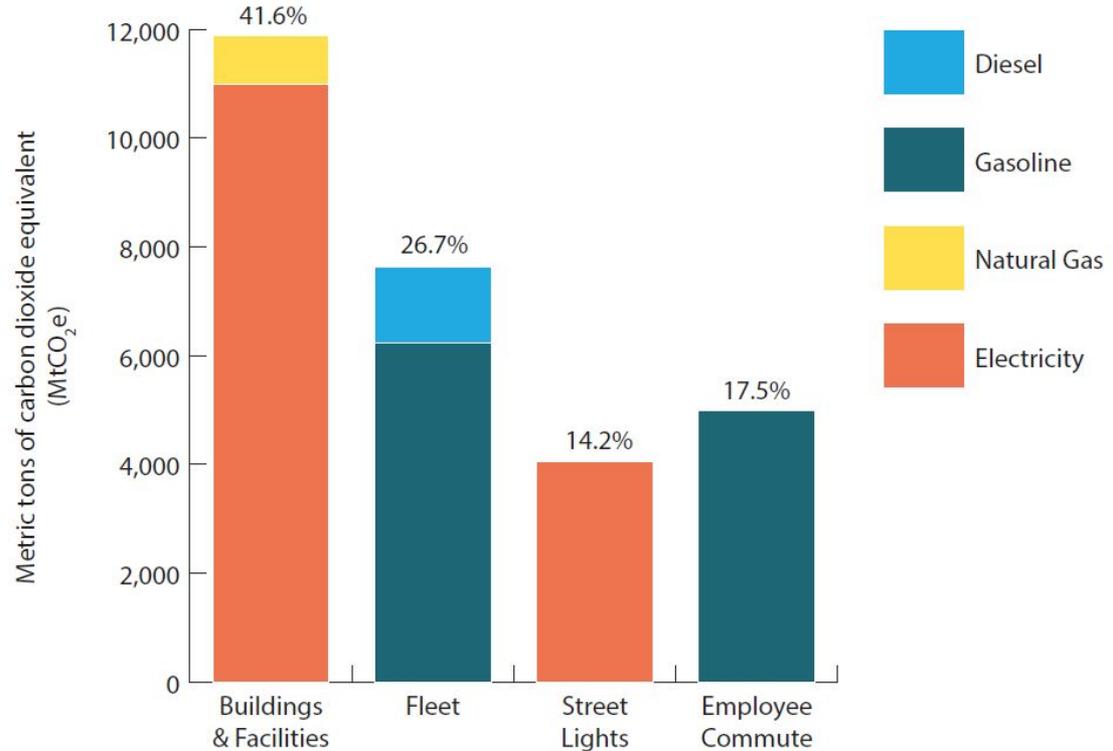
28,568 MtCO₂e

42% Buildings

27% Fleet

14% Street Lights

18% Employee
Commute

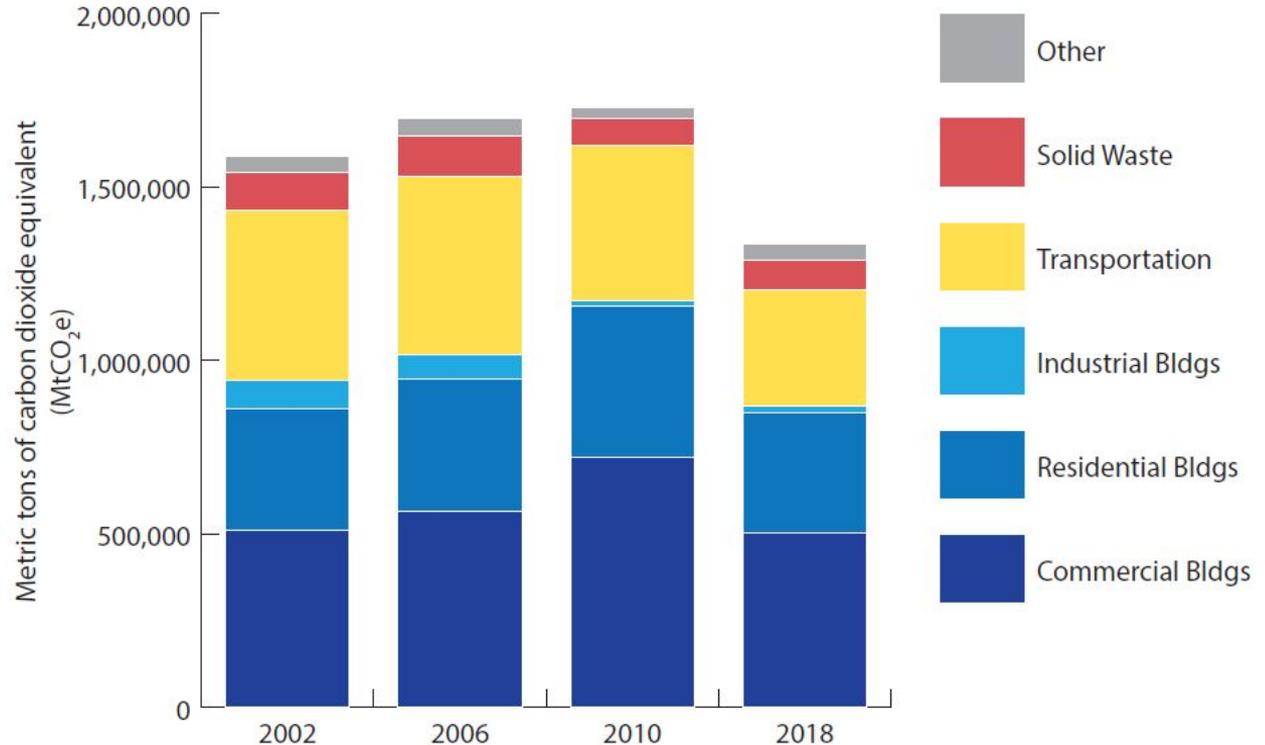


Citywide Inventory Comparison Over Time

Since 2002, emissions have decreased 15%

Community Indicators

- Population
- Economic activity
- Development
- Heating/cooling needs
- Vehicle miles traveled
- Vehicle efficiency
- International Energy Conservation Code
- Cleaner Grid

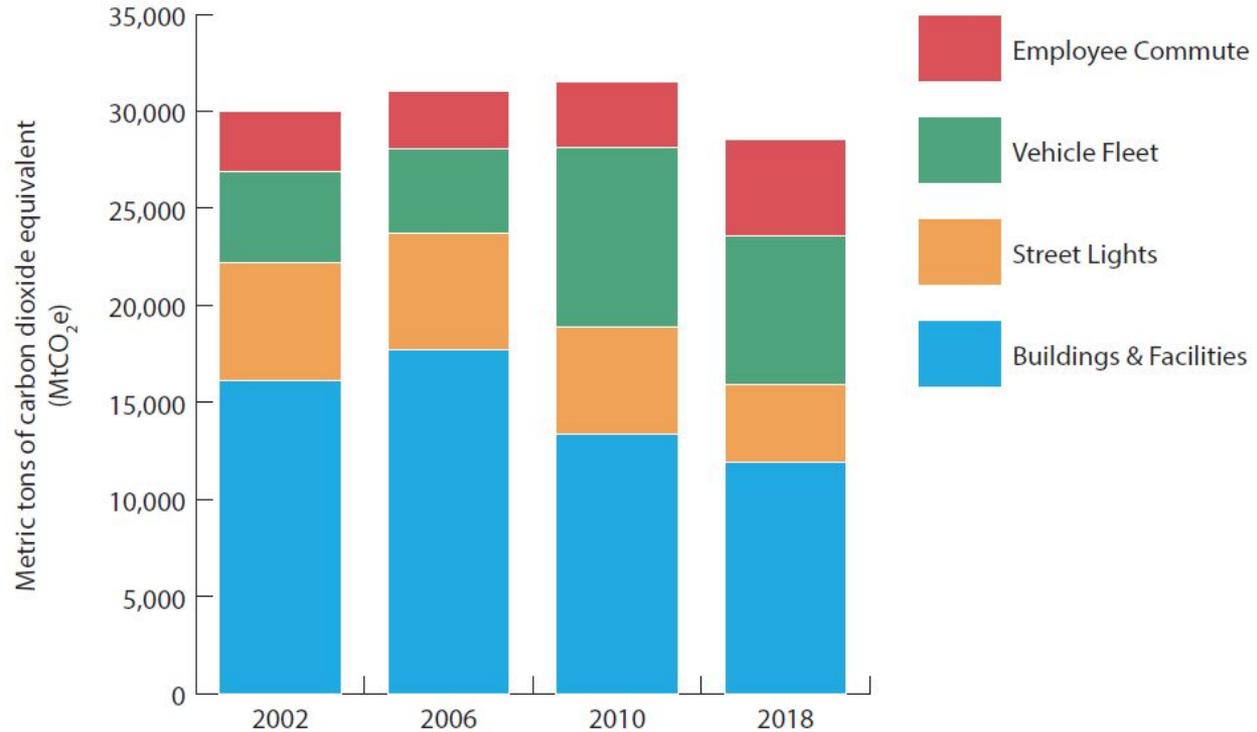


Government Inventory Comparison Over Time

Since 2002, emissions have decreased 5%

Government Indicators

- Energy Perf. Contract
- Other Energy Efficiency Improvements: Parks
- Heating/cooling needs
- # of City employees
- # of City vehicles
- Vehicle miles traveled
- Vehicle efficiency
- # of City Bldgs/facilities
- Cleaner Grid



Next Steps

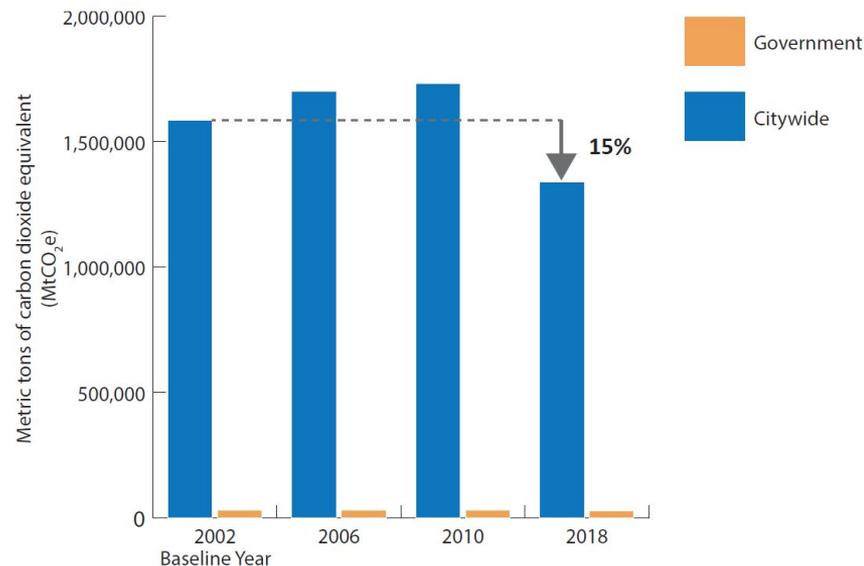
While progress towards reducing emissions is evident, there is more to be done.

Next we will focus on:

1. Establishing emission reduction goals
 - a. i.e. current goal is 80% reduction by 2050
2. Updating our Climate Action Plan
 - a. Draw inspiration from the 2010 Charleston Green Plan

FY18 Inventory will be available online

FIGURE 1: CITYWIDE VS. GOVERNMENT ANNUAL GHG EMISSIONS



Sustainability Next Steps

Climate Action Planning

By: Katie McKain,
City of Charleston, Director of Sustainability

Climate Action Planning Process

A Climate Action Plan outlines actions to reduce greenhouse gas emissions.

A key goal is to create a strategy outlining climate mitigation action items supported by the community, including City Council.

The roadmap will feature both government and community-wide initiatives, such as programs, projects and policies.



Public Input Opportunities

Input from the community is vital to create a successful Climate Action Plan!

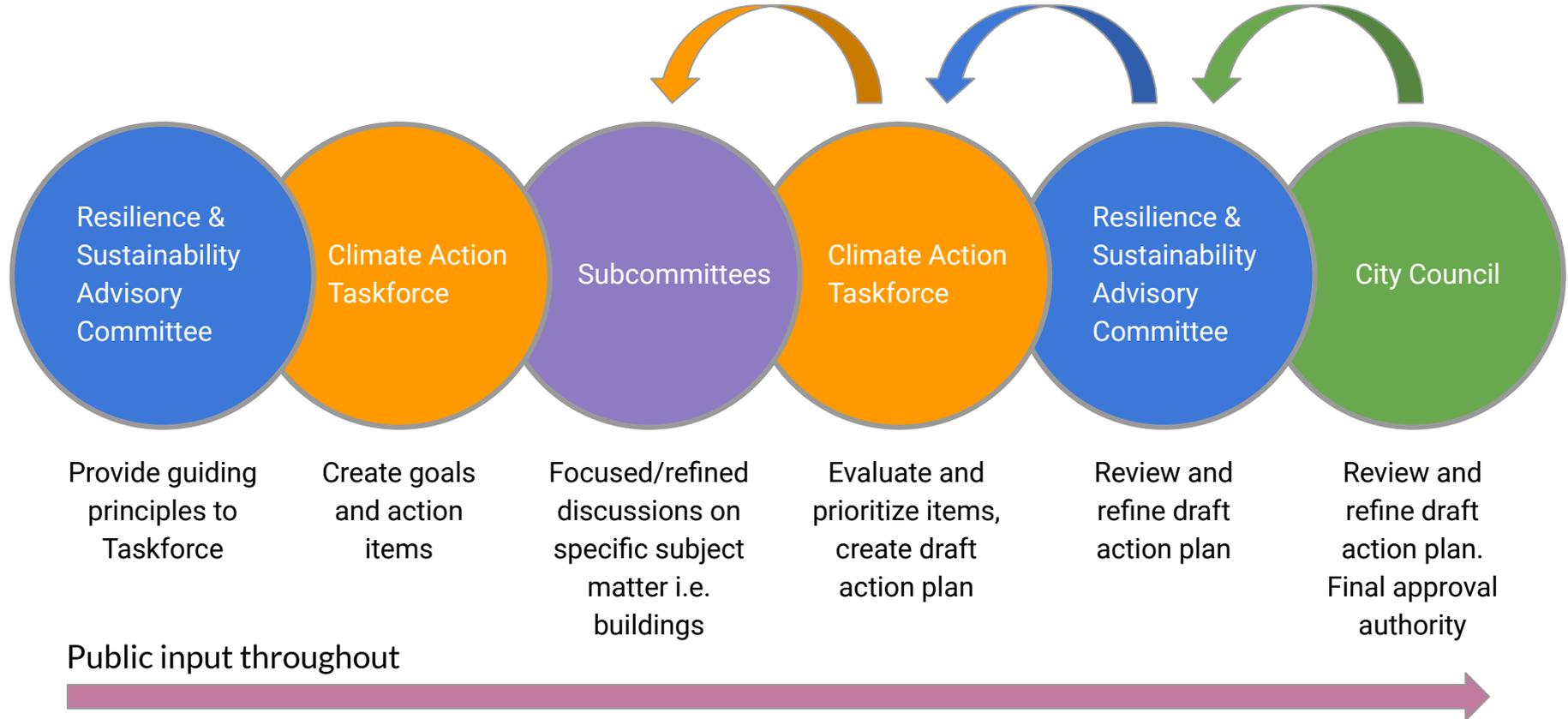
1. Participate in a climate action public meeting (Oct 6)
2. Fill out surveys
3. Attend meetings like this and participate during the public comment period
4. Contact the City's Sustainability Division
5. Contact City Council members or committee members
6. Volunteer on a climate action taskforce or subcommittee



You Can Help!

Visit charleston-sc.gov/sustainability to get involved, or reach out to Katie at 724-3789

Plan Evolution



Committee Discussion

Please provide some **guiding principles** you view as important for the Climate Action Taskforce to keep in mind when producing the updated strategy.

Some topics to consider:

- Achievable goals
- Fiscal responsibility- what it means to taxpayers
- Equity and environmental justice
- Rights of property owners, business owners and residents
- Consideration of future technological advancements

USACE Peninsula Flood Risk Management Study

By: Mark Wilbert,
City of Charleston, Chief Resilience Officer

Mattress Recycling

By: Katie McKain,
City of Charleston, Director of Sustainability

Mattress Recycling Pilot Project

- Mattress Challenges:
 - Are usually not accepted for donation
 - Take up valuable landfill space leaving “uncompacted voids”
 - Can no longer be taken to Bees Ferry Landfill, now they must go to the Republic Landfill in Ladson, SC, farther away
- Grant support from SC DHEC, \$12,500
- 10 month project
- Test methods to collect, store, and transport mattresses to a special mattress recycling facility in Pamplico, SC
- If successful, a new program could be created
- Planning began in September 2020



90% of a Mattress Can be Recycled

1. Foam → new carpet padding products
2. Steel parts → smelted down for reuse
3. Box spring wood parts are untreated ---> reclamation projects, mulch, or firewood
4. Only 10% is discarded as compacted waste when recycled



Recycled mattresses are not reused, they are disassembled into products that can be reused in new ways.

Charleston Rainproof

By: Katie McKain,
City of Charleston, Director of Sustainability

Charleston Rainproof (pilot project)

Charleston Rainproof is about us, the whole community- working together towards a common goal of addressing increasingly frequent and heavy rainfall.

The concept is simple: utilize both public and private spaces to capture rainwater.

The program draws inspiration from [Amsterdam Rainproof](#), and is a recommendation from the Dutch Dialogues.

www.charleston-sc.gov/Rainproof



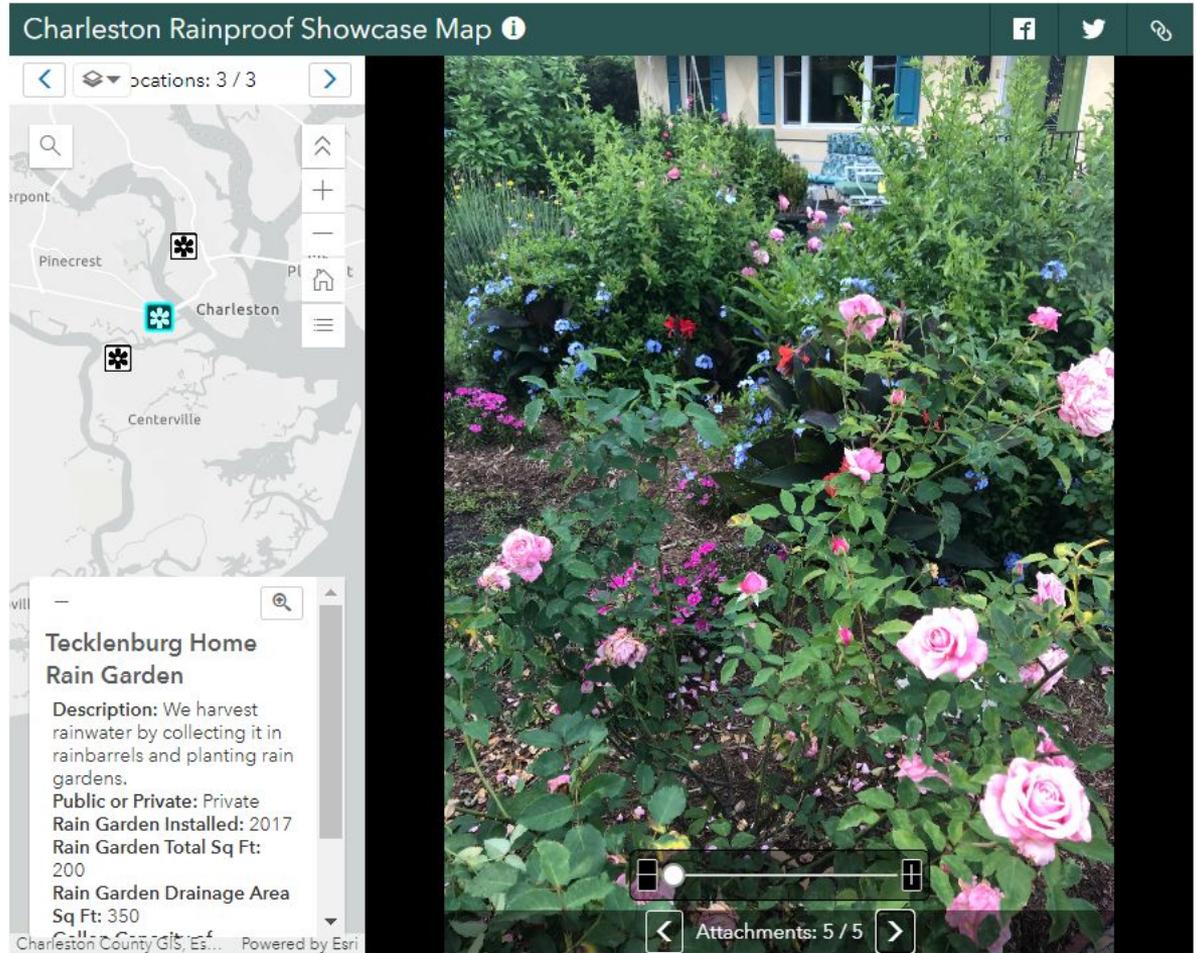
The program aims to inspire residents and businesses to take individual action by installing Rainproof projects like rain gardens, rainwater harvesting systems, and planting new trees.

Charleston Rainproof Showcase Map

The map showcases local projects and collects data so we can measure impact.

Add your project to the map instantly by visiting:

www.charleston-sc.gov/Rainproof



Charleston Rainproof Showcase Map

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The image displays a mobile application interface for the Charleston Rainproof Showcase Map. The top header reads "Charleston Rainproof Showcase Map" with social media icons for Facebook, Twitter, and a share icon. Below the header, a map of Charleston, South Carolina, is shown with three rain garden locations marked by flower icons. The map includes navigation controls like a search bar, zoom in/out buttons, and a home button. A pop-up window provides details for a specific project:

Tecklenburg Home Rain Garden
Description: We harvest rainwater by collecting it in rainbarrels and planting rain gardens.
Public or Private: Private
Rain Garden Installed: 2017
Rain Garden Total Sq Ft: 200
Rain Garden Drainage Area Sq Ft: 350

At the bottom of the map interface, it says "Charleston County GIS, Esri" and "Powered by Esri".

The right side of the image shows a photograph of a rain garden installation. It features several green rain barrels filled with light-colored mulch, with various green plants growing in them. The garden is situated next to a house with a window and a white downspout.

At the bottom of the photo, there is a navigation bar with a back arrow, a slider control, and a forward arrow, with the text "Attachments: 3 / 5" in the center.

Mini-Grants for Rain Gardens

- **Challenge:** Encourage property owners to install Rainproof projects
- Partnership with Keep Charleston Beautiful and the Clean Cities Sweep
- \$200 credit towards native plants in a new rain garden
- \$2,000 total grant funds, First 10 projects
- Simple Requirements:
 - Property must be in City limits
 - Install by Fall 2020
 - Add your rain garden to the Charleston Rainproof Showcase Map to share data publicly

www.charleston-sc.gov/Rainproof

Charleston Medical District Flooding and Heat Reduction Efforts

By: Mark Wilbert
City of Charleston, Chief Resilience Officer

and
Christine Von Kolnitz, MUSC Sustainability Manager



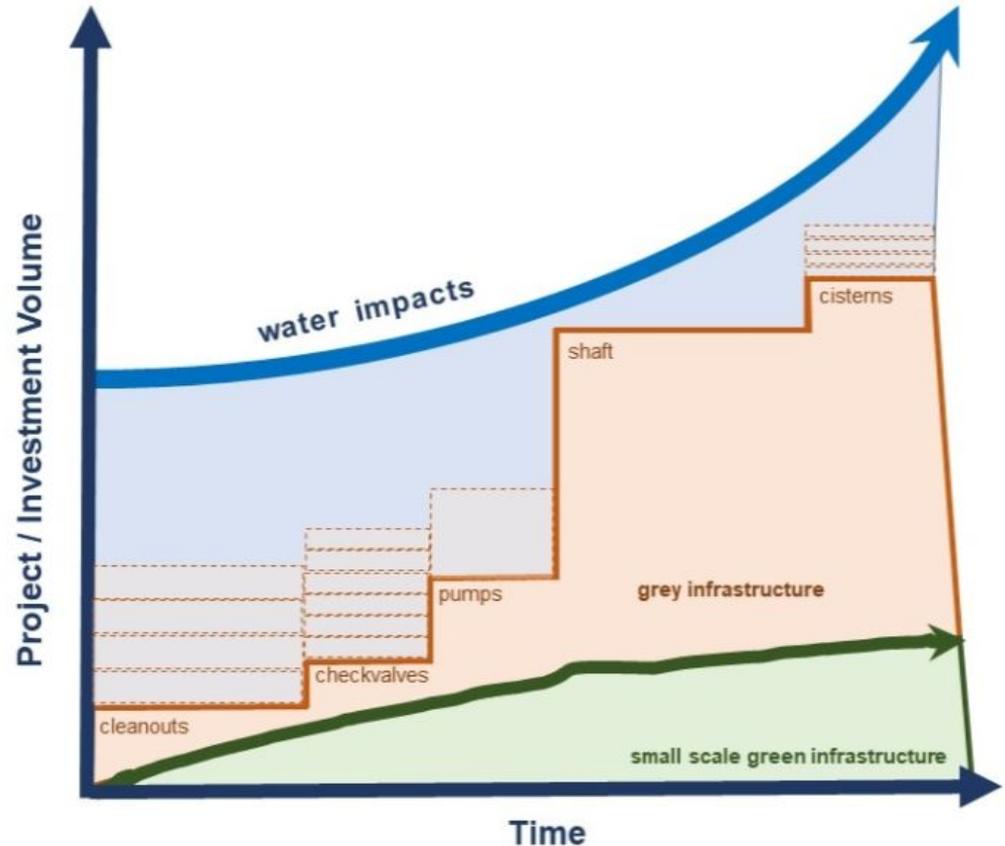
CMD BRIEFING



Charleston Medical District

CMD Strategies vs Time

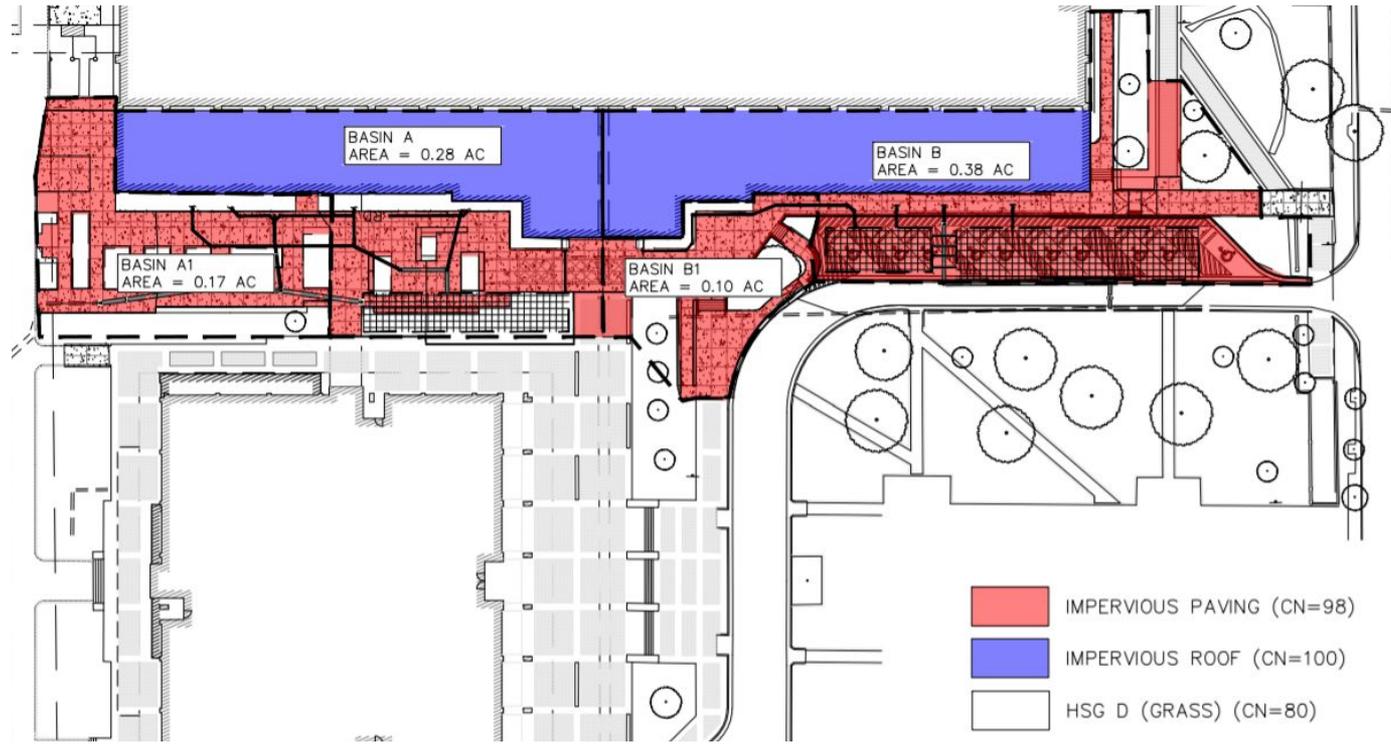
- Drainage clearing project: Drain
- Tidal Control: Drain
- MUSC Pharmacy addition: Store 50,000 gals underground
- Medical District Greenway: Slow and Store
- Long Lake: Store
- Ehrhardt tunnel: Drain
- Pump at VA Lot: Drain
- Pump at cloverleaf: Drain
- Perimeter Protection
 - USACE sea wall
 - SCDHEC oyster beds Ashley River
- CMD Rainproof
 - Green roofs, rain gardens, cisterns
 - Permeable pavers
 - Trees, native plants



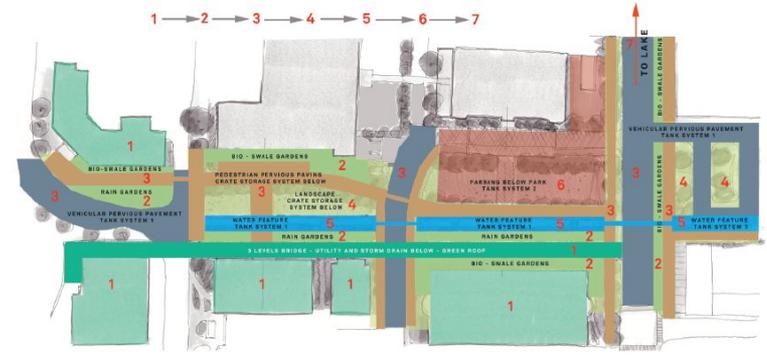
Ehrhardt Drainage Project



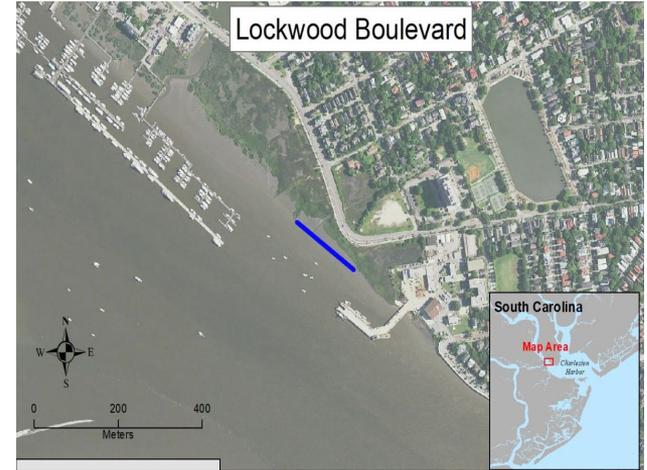
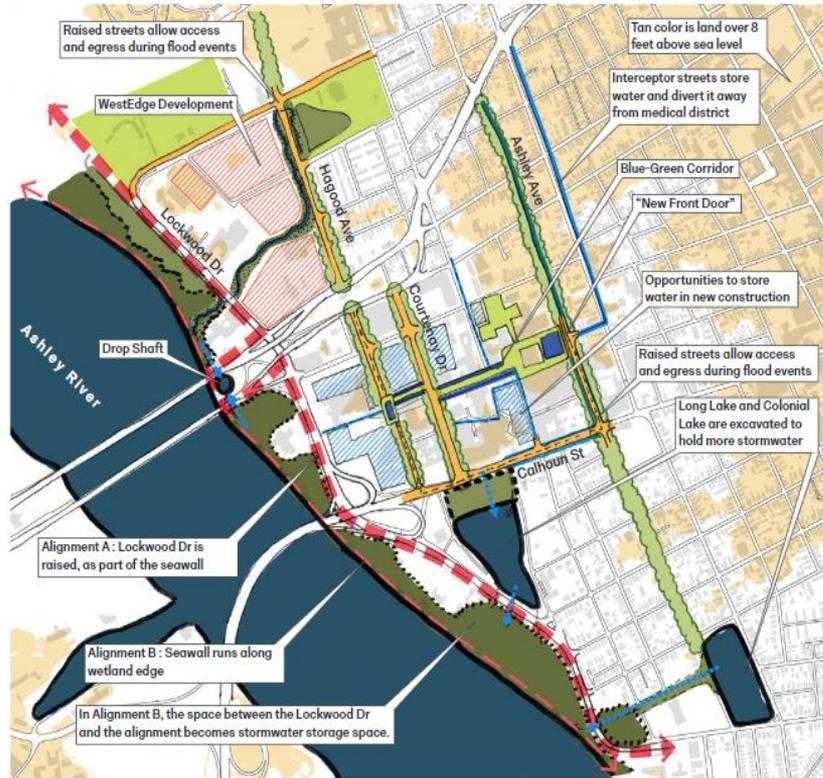
Pharmacy Construction Underground Storage



PROJECT UPDATE - FLOOD MANAGEMENT



Perimeter Protection



CMD Rainproof



CMD Team

Steering Committee

- Dr. David Cole, Medical University of South Carolina
- Lisa Montgomery, Medical University of South Carolina
- Craig Self, Roper St. Francis Healthcare
- Scott Isaacs, Ralph H. Johnson VA Medical Center

Advisory Group

- Roper, VA, City, MUSC
- Ken Hill, Rick Mahon, Mark Wilbert, Dennis Frazier, Ray Huff

Support Team

- Finance: Steve Hargett
- Administrative: Louise Burne
- Communications: Meredith Morey
- Parking: John Runyan
- Sustainability/Resilience: Christine von Kolnitz

Outsourced Professionals

- Climate Adaptation Partners: Janice Barnes, Leo Temko
- G&H Board: Sean Mummert, Lisa Montgomery, Steve Hargett, Jerry Reves, Ray Huff

Public Comment Period

If you would like to speak, please “raise your hand”:

- Join on the webinar itself <https://us02web.zoom.us/j/87142628321>
- Or Call 1 (929) 205 6099, Webinar ID: 871 4262 8321, press *9