

Climate Action Plan



STAKEHOLDER WORKING GROUP
NATURAL RESOURCES AND WORKING LANDS - 10/19/2020

MEETING AGENDA

Objectives

- Orient the working group to the task and each other
- Discuss what is known today about this sector's contributions to greenhouse gases and vulnerabilities to future climate impacts
- Develop criteria for use in selecting among potential strategies and actions

9:00-9:10 Welcome and Introductions

9:10-9:20 Introduction to the Cape Cod Climate Action Plan Process

9:20-10:00 **Adaptation** – What We Know Today About Hazards and Vulnerabilities

Small Group Reports

10:00-10:45 **Mitigation** – What We Know Today About Regional Greenhouse Gas Emissions

Small Group Reports

10:45-11:00 Break

11:00-11:30 Developing and Prioritizing Criteria for Climate Action Strategies

11:30-12:00 Public Comment & Next Steps

A photograph of a marsh landscape with tall, green grasses and a winding waterway. The scene is captured in soft, golden light, likely during sunrise or sunset. The water reflects the surrounding vegetation and the sky. A dark blue semi-transparent rectangle is overlaid on the left side of the image, containing the title text and a decorative horizontal line.

Welcome and Introductions



A photograph of a marsh landscape with tall, green grasses and a small body of water. The scene is captured in a soft, golden light, likely during sunrise or sunset. The grasses are dense and reach varying heights, with some showing signs of being in seed. The water is calm and reflects the surrounding greenery and the warm light of the sky.

Cape Cod Climate Action Plan Process





CAPE COD CLIMATE INITIATIVE

A community-focused, information-based effort to inform a strategic framework and collaborative approach to address the region's contributions to and threats from climate change.



CAPE COD CLIMATE INITIATIVE

COMMUNITY MEETING SERIES

Feedback obtained helped to better understand actions taken to date, structure a stakeholder process, and identify priorities for development of the **climate action plan**.



Community Climate Meetings

OCTOBER 2019

Chatham • Wellfleet • Yarmouth • Mashpee



Climate Initiative Focus Groups

JANUARY 2020

Young Professionals and Educators • Municipal Staff • Environmental Groups • Town Energy Committees • Sustainable Economic Development Pillar



2018 Regional Policy Plan Climate Change Actions



GREENHOUSE GAS EMISSIONS INVENTORY

Regional baseline of
greenhouse gas emissions



EV CHARGING STATION SITING ANALYSIS

Potential electric vehicle
charging station locations



SOLAR SCREENING TOOL

Sites for utility scale solar
or energy storage



Cape Cod Climate Initiative

[Home](#) > [Work](#) > [Cape Cod Climate Initiative](#)

Climate change is a key challenge facing the natural, built, and community systems of Cape Cod. Cape Cod is vulnerable to climate-related hazards, such as sea level rise, storm surge and flooding, erosion, damaging winds, elevated summer temperatures, and wildfire. These hazards put vulnerable populations at risk and can cause loss of life, damage buildings and infrastructure, impair coastal environments, and otherwise impact a community's economic, social, and environmental well-being, including impacting how Cape Cod's ecosystems function.

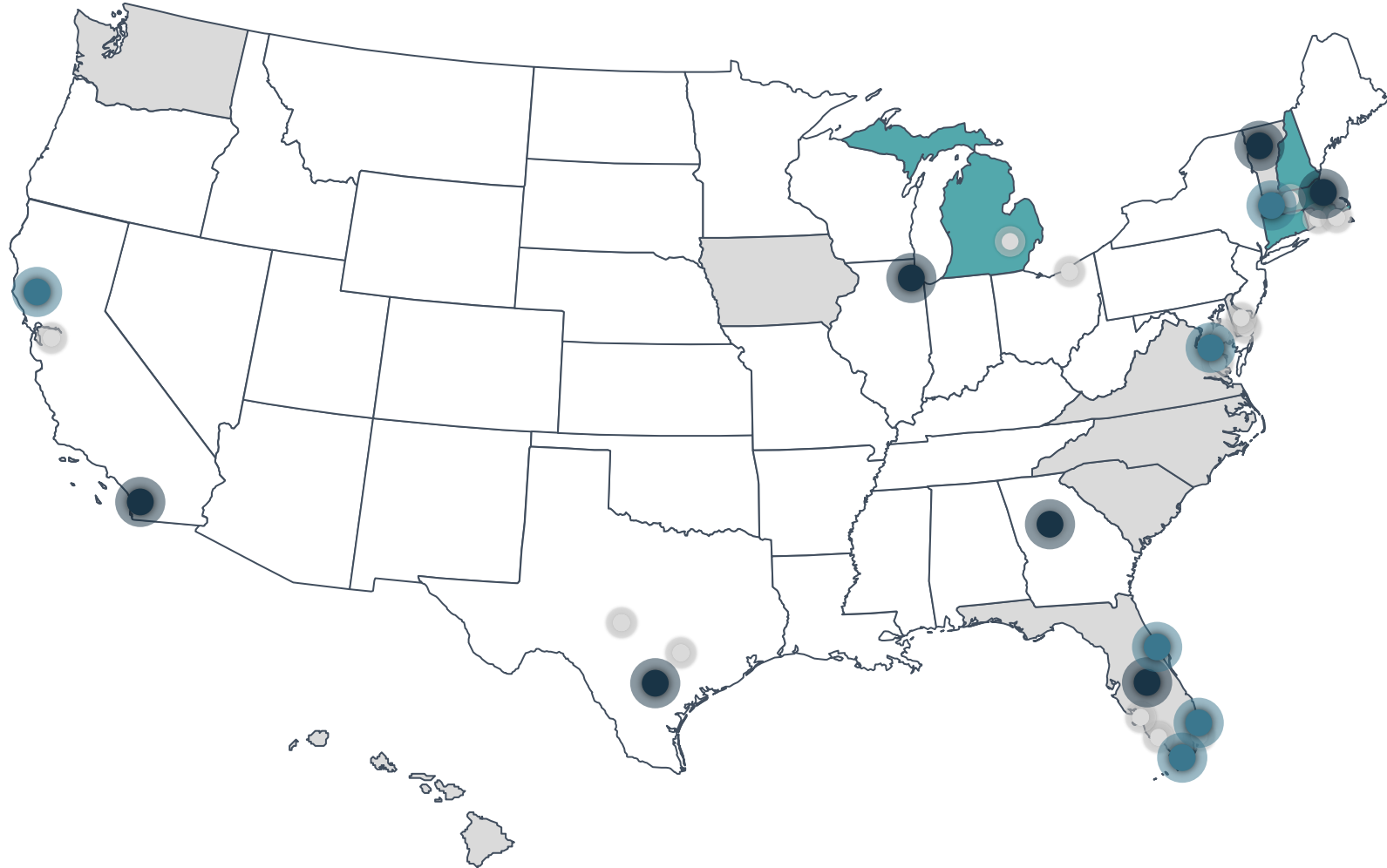
Mitigating the causes of climate change and adapting to its effects on Cape Cod involves regional planning and policy decisions with both environmental and economic considerations.



Stakeholders

If you are interested in participating, [please complete this form](#). The Cape Cod Commission is seeking stakeholders to participate in

CLIMATE ACTION PLAN LITERATURE REVIEW



Total Plans Collected (46)
Plans Selected for Review (17)

Plans Reviewed



City/Town

- Atlanta, GA
- Boston, MA
- Burlington, VT
- Chicago, IL
- Orlando, FL
- San Antonio, TX
- San Diego, CA



Regional

- Metropolitan Washington (DC)
- Monroe Co., FL
- Pioneer Valley, MA
- Sonoma Co., CA
- Southeast FL
- Volusia Co., FL



State

- Connecticut
- Massachusetts
- Michigan
- New Hampshire

Additional Plans Collected

- City/Town - 11
- Regional - 3
- State - 10
- Other - 5





Cape Cod Climate Action Plan

Subregional Municipal Working Groups to better understand local goals, capacity, and needs relative to climate action

FALL

Subregional
Municipal
Working
Groups

Stakeholder
Working
Groups
#1 and #2

Focus Group
#1

Stakeholder
Working
Group #3

Focus Group
#2

WINTER



Working Group Meeting Series

MEETING 1

OCTOBER

Understanding
Problems

MEETING 2

NOVEMBER

Identifying
Solutions

MEETING 3

DECEMBER

Taking
Action



ADAPTATION

Adjustments in human and natural systems that moderate harm or take advantage of beneficial opportunities



MITIGATION

Limiting or preventing greenhouse gas emissions and enhancing activities that remove these gases from the atmosphere

QUESTIONS



DISCUSSION



Adaptation



**What We Know Today About
Hazards and Vulnerabilities**

MA Climate Projections



**CHANGES IN
PRECIPITATION**



SEA LEVEL RISE

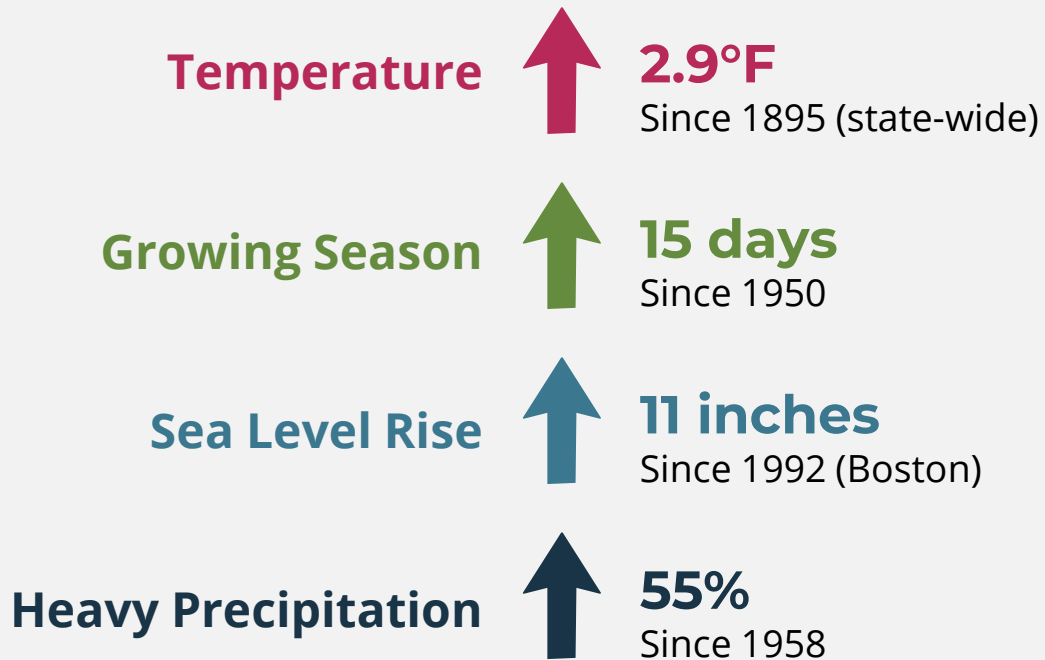


**RISING
TEMPERATURES**



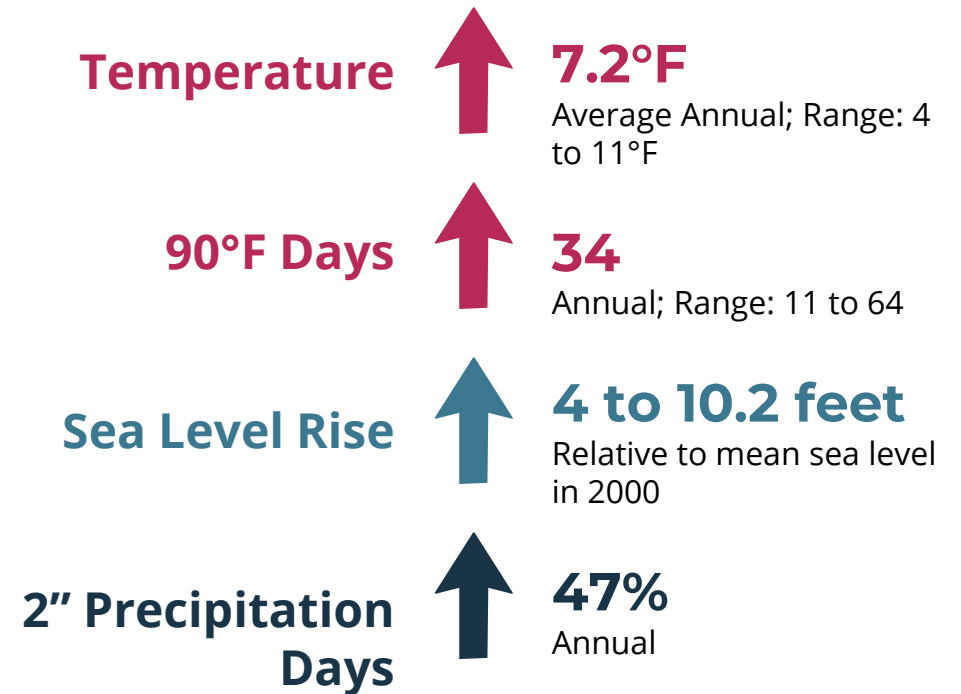
**EXTREME
WEATHER**

Massachusetts Observed Climate Changes



Source: Climate Science Special Report, 2017; NOAA NCEI nClimDiv; NOAA Ocean Service

Massachusetts Climate Changes Projected by the 2090s



Source: Northeast Climate Adaptation Science Center

PLANNING LAYERS

CLEAR



Sea Level Rise



Infrastructure



Erosion



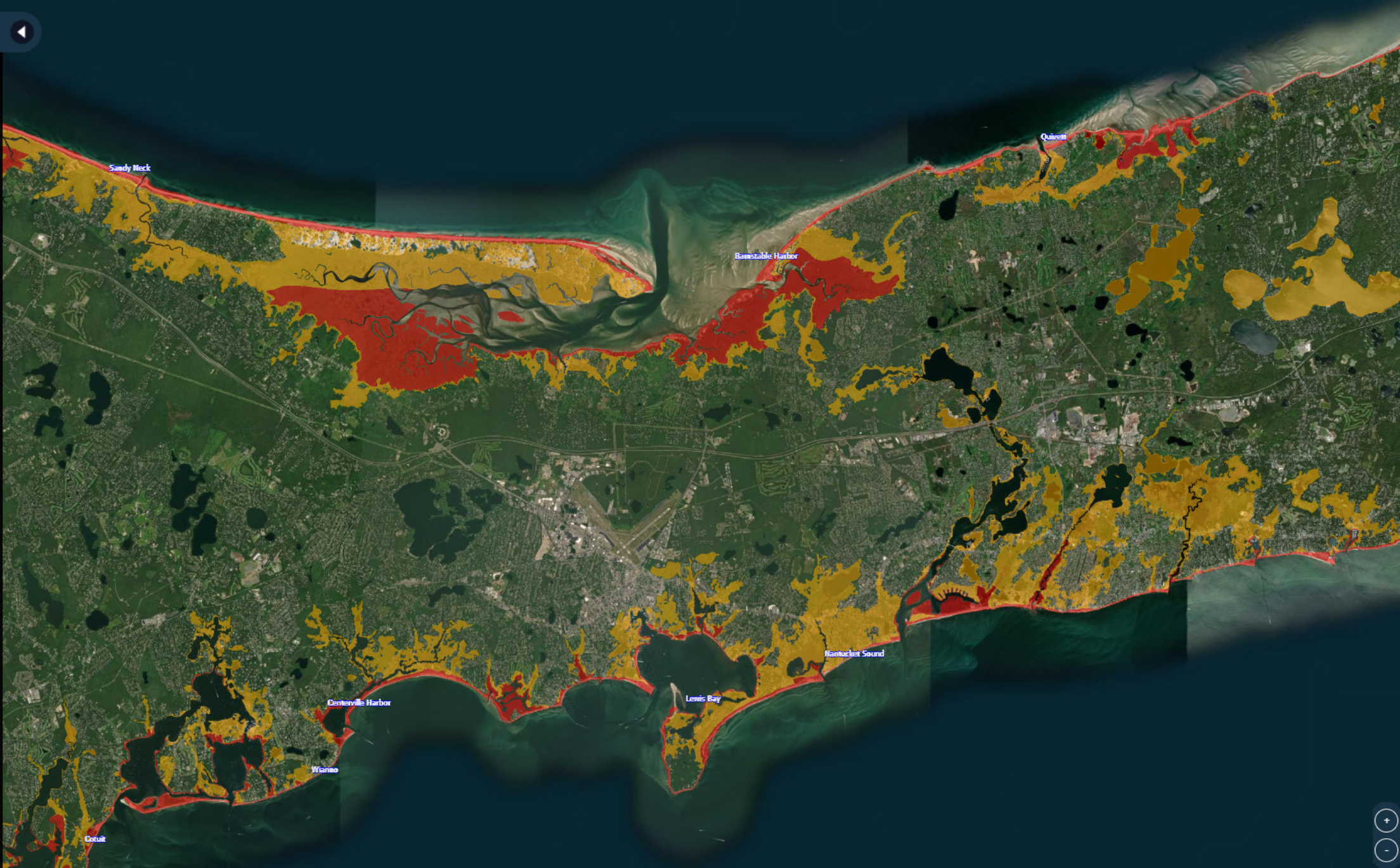
Inundation



Flood Zone

A AE AO VE

SLOSH



PLANNING LAYERS

CLEAR



Sea Level Rise



Infrastructure



Erosion



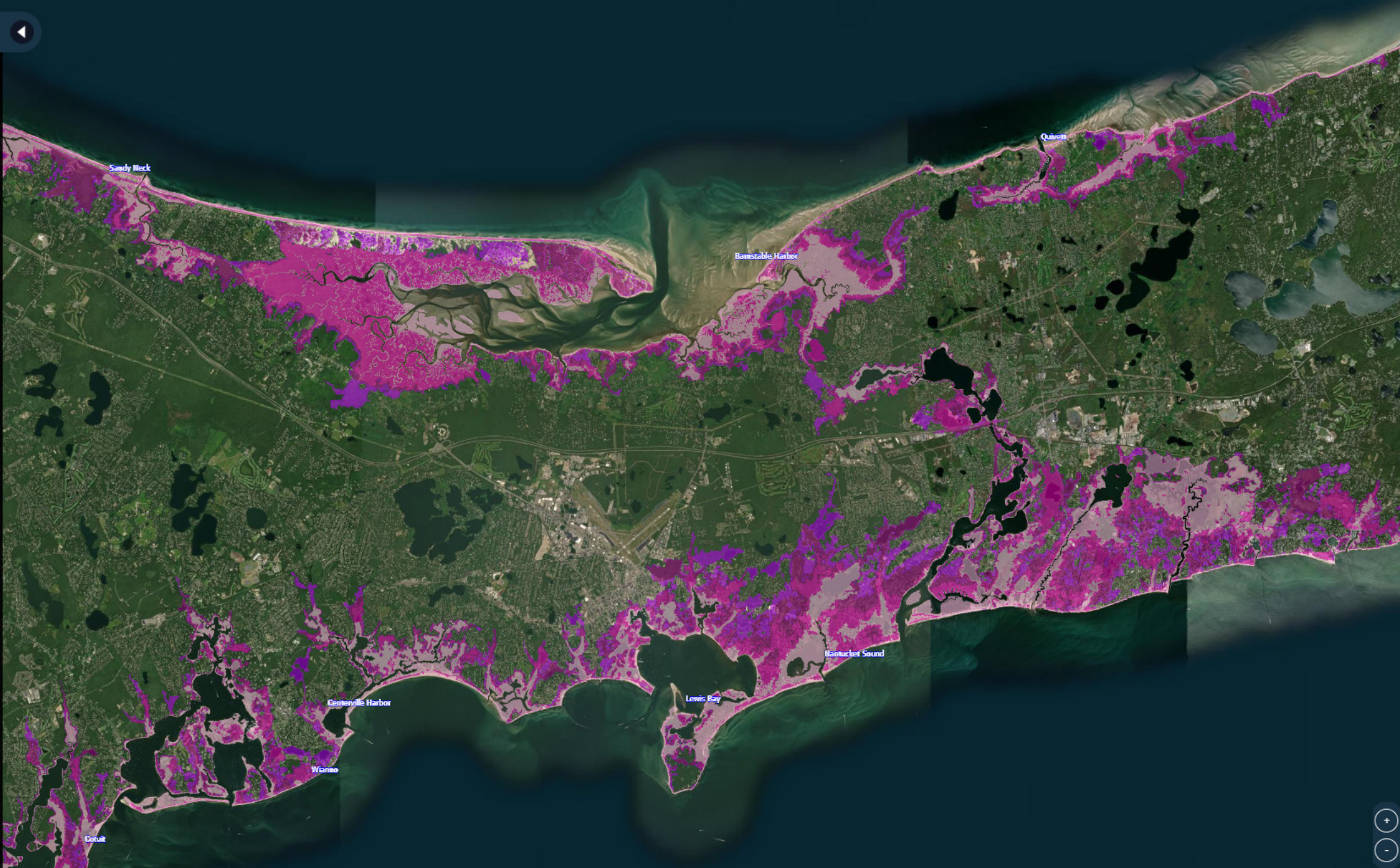
Inundation



▼ Flood Zone

☑ SLOSH

- CAT1
- CAT2
- CAT3
- CAT4



PLANNING LAYERS

CLEAR



Sea Level Rise



- Sea Level Rise
- 1ft - 2ft - 3ft - 4ft - 5ft - 6ft

- Disconnected Roads
- 1ft - 2ft - 3ft - 4ft - 5ft - 6ft

- Critical Facilities

Infrastructure



- Municipal Properties
- Public and Private Roads
 - Private
 - Public
- Sewered Parcels
- Coastal Defense Structures
- Structures
- Historic Districts
- Historic Places

Erosion



Inundation



- Flood Zone
- SLOSH



PLANNING LAYERS

CLEAR



Sea Level Rise



- Sea Level Rise
- 1ft - 2ft - 3ft - **4ft** - 5ft - 6ft

- Disconnected Roads
- 1ft - 2ft - 3ft - **4ft** - 5ft - 6ft

- Critical Facilities

Infrastructure



- Municipal Properties
- Public and Private Roads
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- Historic Districts
- Historic Places

Erosion



Inundation



- Flood Zone
- SLOSH



PLANNING LAYERS CLEAR

Sea Level Rise

- Sea Level Rise
- 1ft - 2ft - 3ft - 4ft - 5ft - **6ft**

- Disconnected Roads
- 1ft - 2ft - 3ft - 4ft - 5ft - **6ft**

Critical Facilities

Infrastructure

- Municipal Properties
- Public and Private Roads
 - Private
 - Public
- Sewered Parcels
- Coastal Defense Structures
- Structures
- Historic Districts
- Historic Places

Erosion

Inundation

- Flood Zone
- SLOSH





Climate Effects - Natural Resources and Working Lands

- Warming ocean affects marine species
- Ocean acidification alters shell formation in shellfish
- Drought exacerbates wildfire risk
- Drought and heat affect harvests, local food supplies
- Warmer temp in winter improves conditions for vector borne disease (Lyme, EEE, WNV)
- Erosion of salt marsh mobilizes sequestered carbon in peat

**Based on your
experience, is
there anything
you would add?**



ADAPTATION

Adjustments in human and natural systems that moderate harm or take advantage of beneficial opportunities

EXAMPLES

Relocate buildings out of floodplains

Managed retreat from coastline

Habitat restoration and preservation

Shift targeted and marketed fish catch

QUESTIONS



DISCUSSION



Mitigation



**What We Know Today About
Regional Greenhouse Gas Emissions**



GHG Inventory

What is a Greenhouse Gas Inventory?

a comprehensive accounting of total greenhouse gas emissions for all man-made sources.

Cape Cod Greenhouse Gas Inventory

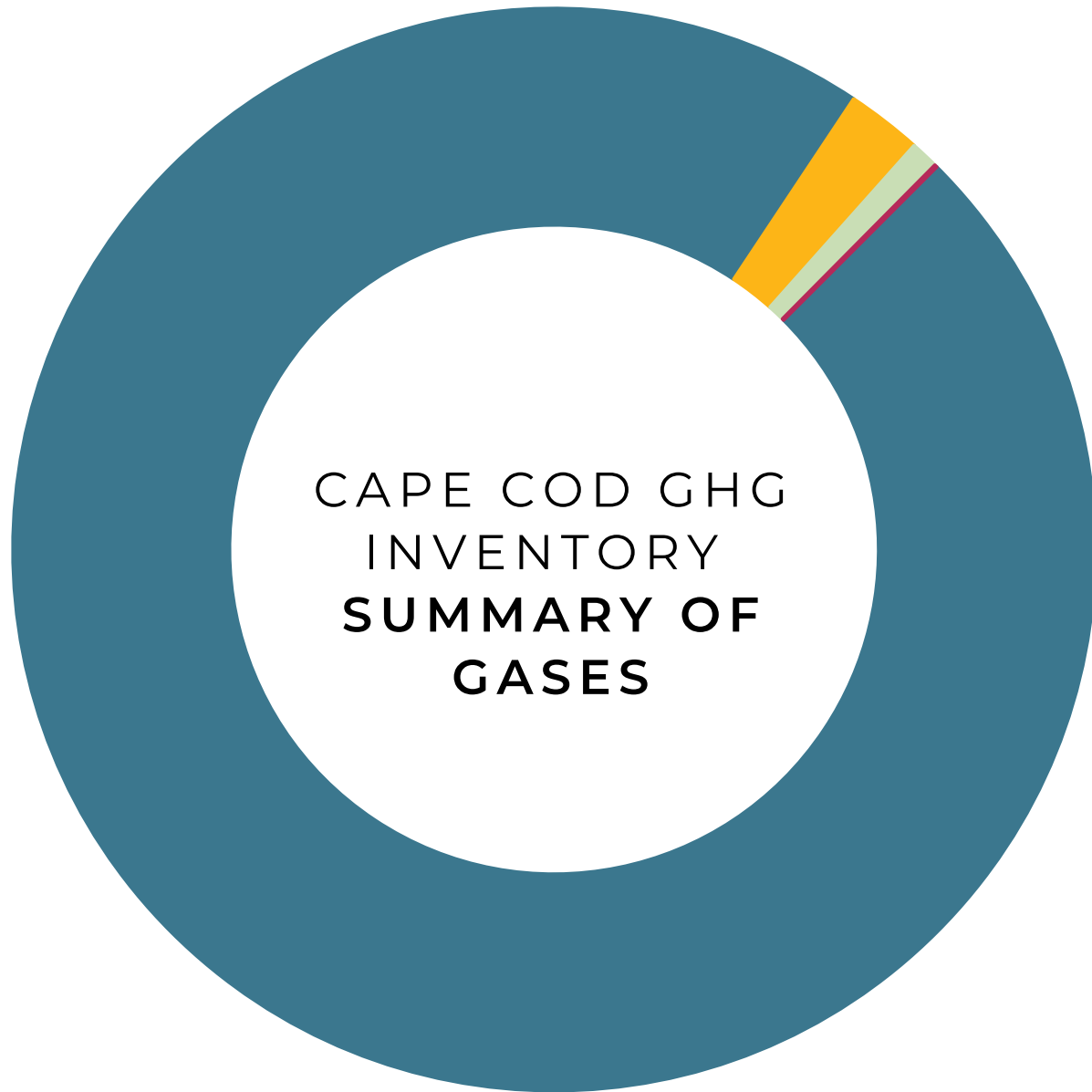
Calculate a greenhouse gas inventory that provides a complete picture of greenhouse gas emissions from Cape Cod

Establish an accounting method that is comparable and reproducible so we can measure emissions going forward

Identify high emissions sectors

Develop detailed inventory specific to our region

CAPE COD GHG
INVENTORY
SUMMARY OF
GASES



- 96.8% **Carbon dioxide** CO₂
- 2.2% **Methane** CH₄
- 0.8% **Nitrous oxide** N₂O
- 0.1% **Sulfur hexafluoride** SF₆
- 0.0% **Hydrofluorocarbons** HFCs
- 0.0% **Perfluorocarbons** PFCs

■ CO2 ■ CH4 ■ N2O ■ SF6

6

SECTORS

19

SUB-SECTORS

60

SUB-SECTOR
CATEGORIES

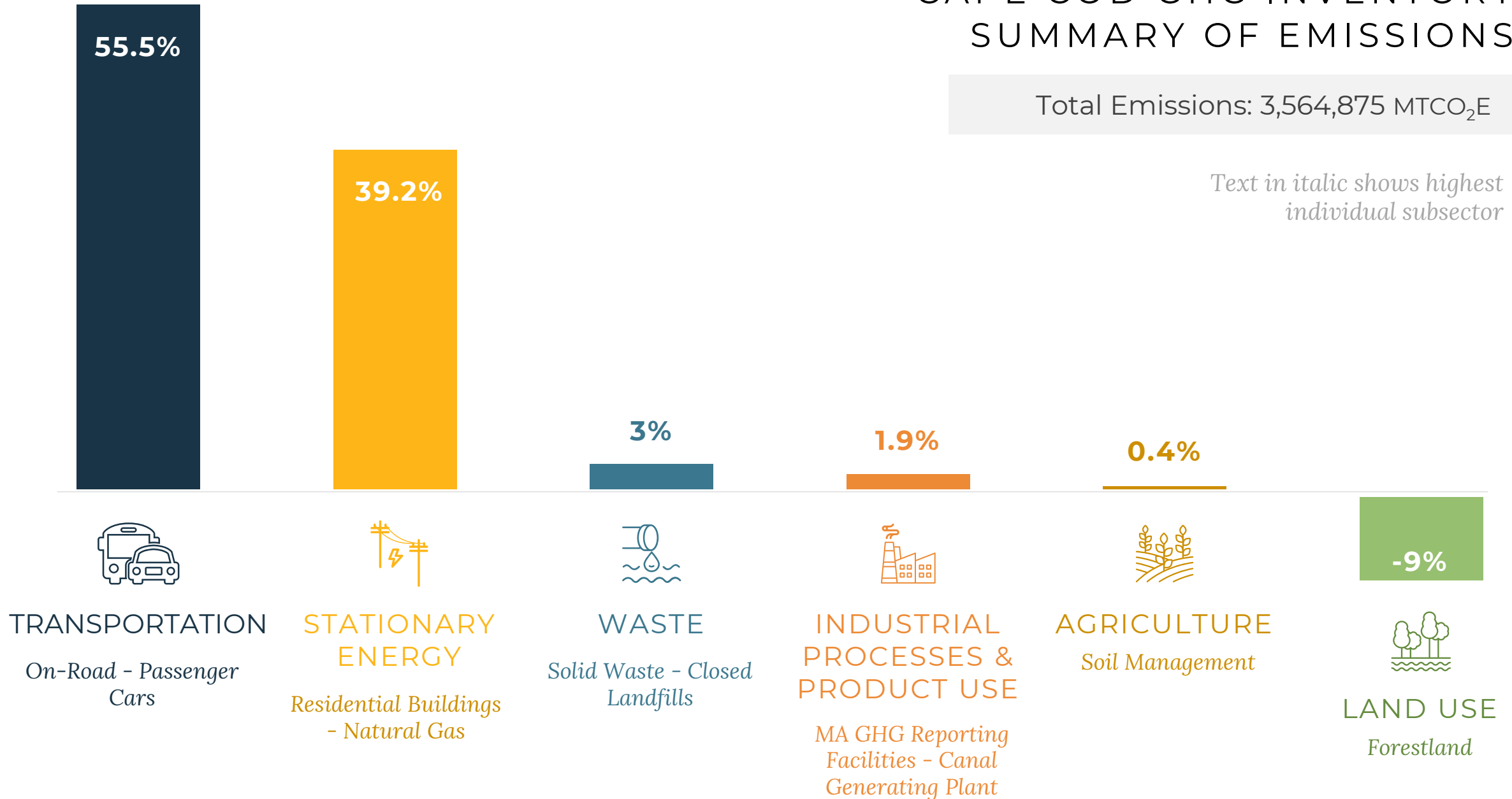
Every sub-sector category has a specific calculation, required data, and data source



CAPE COD GHG INVENTORY SUMMARY OF EMISSIONS

Total Emissions: 3,564,875 MTCO₂E

Text in italic shows highest individual subsector



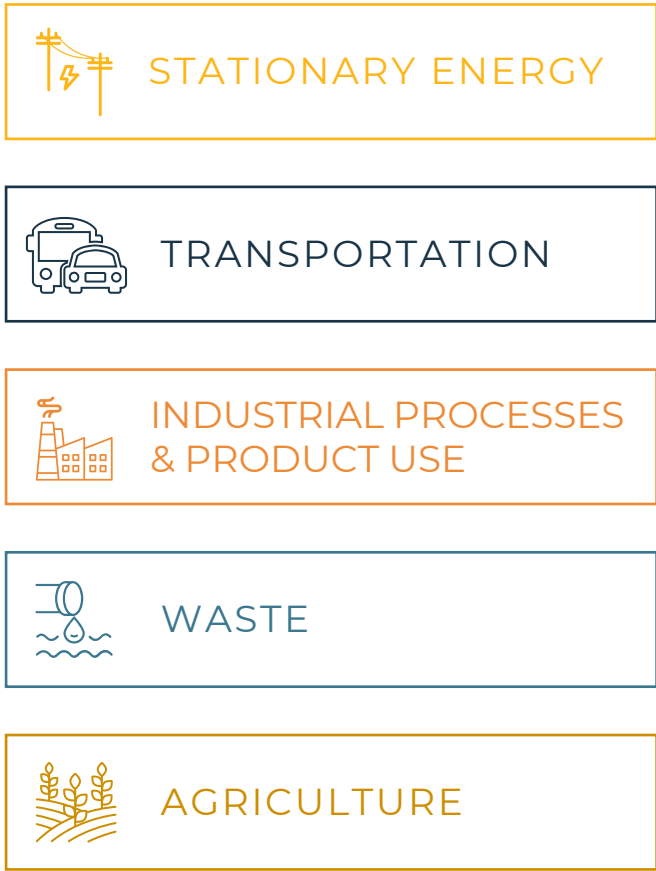
GHG INVENTORY

Sector Ranking

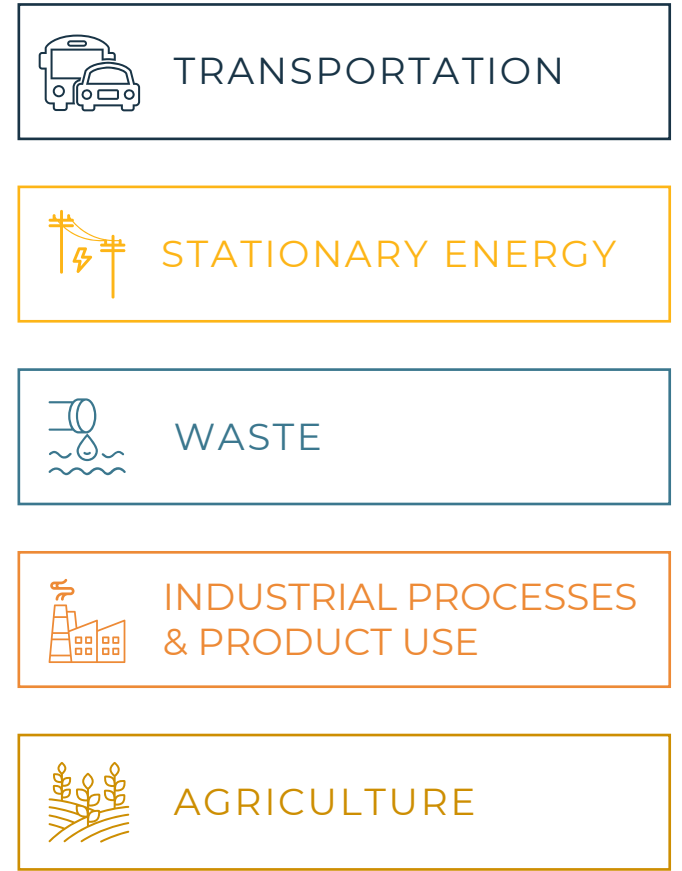
Highest to Lowest Emissions



STATE



CAPE COD





Land Use, Land Use Change, Forestry



Production



Consumption



Seasonality

 **Forestland:** **-337,657**

 **Grassland:** **79**

 **Cropland:** **-3,004**



CAPE COD
SEQUESTRATION

9%

(forests)



MA STATE
SEQUESTRATION

9%

(forests)



Agriculture



Production



Consumption



Seasonality



Livestock:

2,769



Soil management:

12,384



CAPE COD
EMISSIONS

0.4%



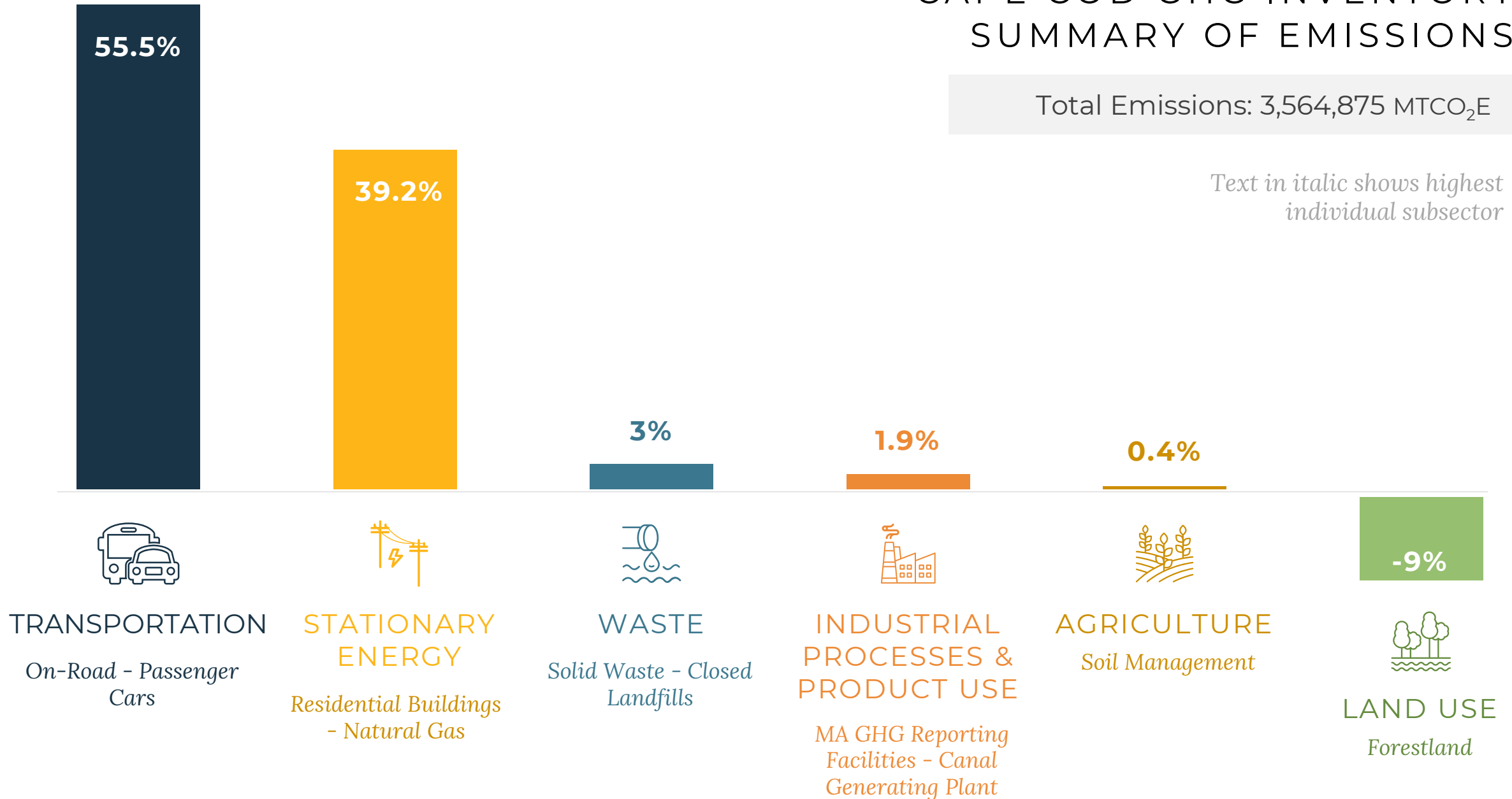
MA STATE
EMISSIONS

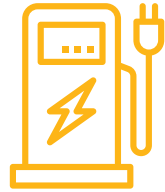
0.3%

CAPE COD GHG INVENTORY SUMMARY OF EMISSIONS

Total Emissions: 3,564,875 MTCO₂E

Text in italic shows highest individual subsector





MITIGATION

Limiting or preventing greenhouse gas emissions and enhancing activities that remove these gases from the atmosphere

EXAMPLES

Plant trees

Facilitate salt marsh migration

Reduce fertilizer and pesticide use

Improve bike access

QUESTIONS



DISCUSSION

BREAK



Please Return at 11:15

A photograph of a wetland landscape. In the foreground, there is a small, shallow stream or channel of water. The water is dark and reflects the surrounding greenery. The stream is bordered by dense, tall grasses, some of which are in bloom, showing golden-brown seed heads. The background is a vast expanse of similar grassland, stretching towards the horizon under a soft, golden light, suggesting either early morning or late afternoon. The overall scene is peaceful and natural.

Developing and Prioritizing Criteria for Actions



ADAPTATION

Relocate buildings out of floodplains

Managed retreat from coastline

Habitat restoration and preservation

Shift targeted and marketed fish catch

Protect open space

Restore tidal flow to salt marshes

Smart land use - TDR

Support local food production

MITIGATION

Plant trees

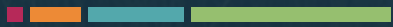
Facilitate salt marsh migration

Reduce fertilizer and pesticide use

Improve bike access

A photograph of a marsh landscape with tall, green grasses and a winding waterway. The scene is captured in soft, natural light, likely during the golden hour. The water reflects the surrounding greenery.

Public Comment and Next Steps



Climate Action Plan



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NATURAL RESOURCES AND WORKING LANDS -
10/19/2020