

# BUSINESSES ACTING ON RISING SEAS

Final Report | 2018 Campaign



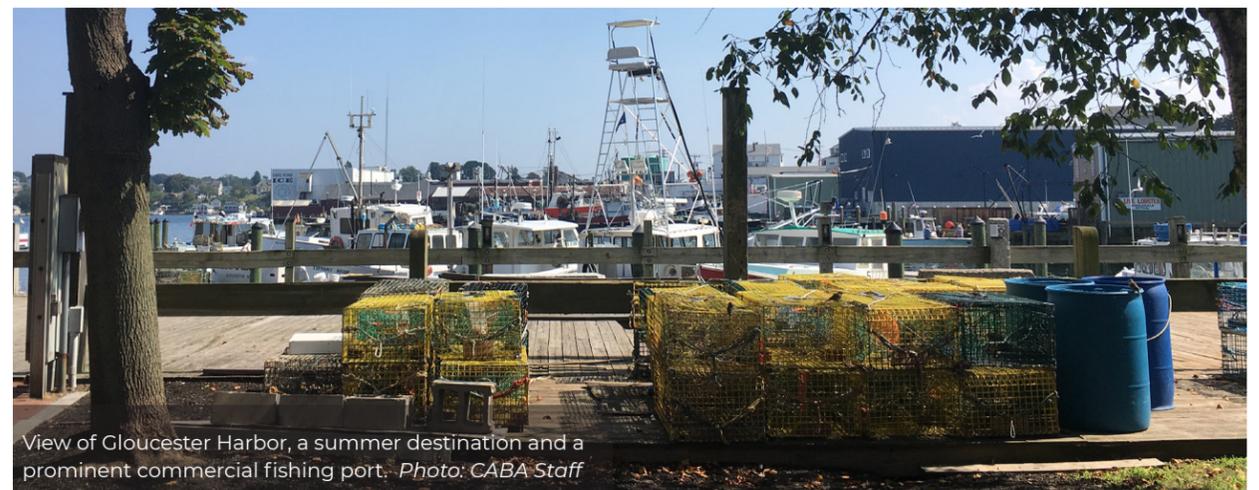
Overlooking Rockport Harbor with our Businesses Acting on Rising Seas sticker. Participating businesses were given stickers to put on their storefront windows. *Photo: CABA Staff*

Climate change is expected to increase the frequency and intensity of extreme weather events. With hurricanes, erosion, and sea-level rise, businesses are already experiencing significant damage from weather events due to climate change.<sup>1</sup> In striving towards a more secure and resilient future, we must acknowledge these vulnerabilities and the repercussions they have on local economies; only then will we be able to plan, legislate and cope with a new climate reality.

Businesses Acting on Rising Seas (BARS) is an educational campaign that helps local businesses understand their climate risk, and how their past experiences relate to extreme weather so they can plan for future climate impacts. In the past three years, the BARS Campaign has engaged with over 900 businesses in over 20 cities and towns. This was the second time the campaign was carried out in Massachu-

setts; we targeted 10 communities along the coast and in the City of Boston, reaching 350 businesses in 3 months, and conducting in-depth interviews with 100 businesses.

The BARS Campaign is unique in that we speak directly with business owners and managers who are facing the first impacts of climate change. We provide resources to businesses that offer simple, low-cost steps on how to better prepare and take preemptive action. Traditionally, these main street storefronts have been left out of the conversation in favor of big business voices when discussing climate impacts and responses. Small business owners often lack the financial resources and time necessary to learn about the potential future effects of climate change and relate how it will affect their day-to-day business practices. Our goal with the campaign is to bridge this gap and bring the information right to those who need it most.



View of Gloucester Harbor, a summer destination and a prominent commercial fishing port. *Photo: CABA Staff*

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**CABA** CLIMATE ACTION  
BUSINESS ASSOCIATION



Powerful winter storm in 2018 batters Gloucester Marine Railways. Photo: Courtesy of Gloucester Marine Railways

## BUSINESS CONNECTION TO THE SEA AND THE TOURISM ECONOMY

Tourism is one of the largest industries in Massachusetts. Out of 350 businesses we engaged with during the campaign, over half were directly dependent on tourism. In Massachusetts, over 149,000 jobs are supported by the tourism industry, with direct spending on tourism reported at \$22.9 billion for 2017.<sup>2</sup> With 192 miles of coastline in Massachusetts, disruption to coastal industries is felt across the state and impacts many industries, beyond tourism and fishing.<sup>3</sup>

Businesses are facing increasing financial pressure to be able to better “absorb the impact and recover from drastic environmental change.”<sup>4</sup> We found that 92% of businesses were negatively affected by storms during the 2018 winter season. Losses from just 25 businesses collectively exceeded \$500,000. Despite costs, many businesses are choosing to rebuild after severe storms. As these events increase in frequency and strength due to climate change, it is important to continue educating communities and businesses on preparing for future impacts to minimize losses and act proactively.

## MANCHESTER MARINE MANCHESTER-BY-THE-SEA

Local business vulnerability to flooding is dependent on a number of factors. Marinas experience firsthand the damaging effects of strong storms as they are located directly on the water, facing significant damage and disruption to their ports, docks, storage, and shops as the water encroaches due to sea level rise.<sup>5</sup>

A combined effect from the wind, high tide, and full moon, along with sea level rise, had a powerful and detrimental effect on the crew at Manchester Marine in the winter of 2018. We spoke with General Manager, Adam Cooper.

“We were affected in the January storm; it had the southwest wind which blew right into us. We were crippled for almost two months; we lost January and February for service work. We lost a couple of hundred thousand dollars’ worth of tools and equipment, and that’s not to say the labor that we lost during that time. It was a significant hit.”

Adam relayed how the water levels throughout their facility in Manchester-by-the-Sea reached 11 inches. Inside their facility, they had to replace all the sheetrock, outlets, carpet, painting, the water heating system, tile floors, and workbenches. To prepare for future storms Adam shared how they have raised central air conditioning units above expected floodwaters, as well as elevated valuables and computers.

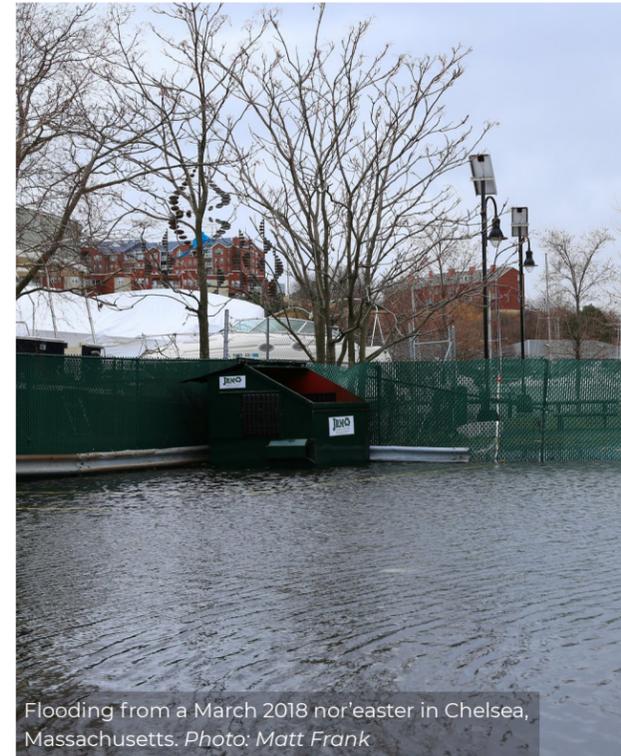


Flooding at Manchester Marine during the winter of 2018. Water levels throughout their facility reached 11 inches. Photos: Courtesy of Manchester Marine

## INSURANCE & EMERGENCY PREPAREDNESS

It’s estimated that after disaster strikes, a small business has a 1 in 4 chance of not reopening.<sup>6</sup> The costs associated with flooding, like increased insurance premiums, have caused concern around rent prices, bankruptcy, and the economic viability of some vulnerable areas.<sup>7</sup> Small businesses such as inns, bars and restaurants, gift shops, and other small retail stores often don’t have the financial capacity to absorb the costs from increased premiums from flooding events.<sup>8</sup>

The National Flood Insurance Program was established in 1978 by the Federal Emergency Management Agency (FEMA) and has received upward of 1.8 million in insurance claims.<sup>9</sup> Nearly 46% of those claims being made since 2005.<sup>10</sup> While there may not be a singular reason for the growth of insurance claims, rapid coastal development, as well as climate change, are major factors that have contributed to this trend.



Flooding from a March 2018 nor'easter in Chelsea, Massachusetts. Photo: Matt Frank

## CRAVE: MAD FOR CHICKEN BOSTON'S CHINATOWN

Over the years, the City of Boston has been hit by severe winter weather. Chinatown, a bustling cultural district filled with restaurants and entertainment, may have been spared from the worst of those impacts as the neighborhood is not directly on the water. When the city declares a snow emergency, business owners salt and shovel in front of their storefront, many remaining open to feed the neighborhood.

Crave: Made for Chicken is a staple in Boston’s Chinatown neighborhood, serving all-natural Korean-style fried chicken. We spoke to owner Susan Cheng about the winter of 2018:

“We had to close, and regarding insurance, we didn’t know the fine guidelines, so we apparently had to close for 96 hours before we got compensated for anything. We had shut down for two days and we didn’t get compensated for anything. This past January wasn’t as bad as a couple years ago when we were shutting down every week. We’ve also had a flood down in our basement where there’s a lot of goods — again. With all the paperwork, it’s easy for them to take your payment but

there’s a lot of paperwork to get any compensation.” – Susan Cheng, the owner of Crave: Mad for Chicken

It’s hard to imagine a scenario where opening actually causes a business harm, but it can happen. Insurance policies are supposed to act as a safety net in times of distress, but only within the parameters set by the contract. In our Small Business Resilience Guides, we included eight steps that any business could take to be more resilient, such as specific instructions to know your insurance policies and highlighted the importance of crucial redundancy.



Crave Mad for Chicken in Boston's Chinatown. Photo: CABA Staff



Flooding in Newburyport, Massachusetts during the winter of 2018. Photo: Courtesy of the City of Newburyport

The winter storms of 2018 had lasting impacts across Massachusetts. From all of the businesses we interviewed, only 35% had an emergency plan in place. This is an increase from the results of the 2016 BARS campaign, which found that 20% of businesses had an emergency plan. After speaking with us, 83% of businesses reported that they were interested creating or improving an emergency plan. We heard many stories about how business owners are buying the best insurance policies they can for maximum protection, particularly with flood insurance, where 55% expressed concerns about rising insurance costs.

**KEY TAKEAWAYS**

Small businesses are more **AT RISK OF REMAINING CLOSED AFTER A NATURAL DISASTER OCCURS**. Over 80% of the businesses we spoke with were negatively affected by the winter storms of 2018.

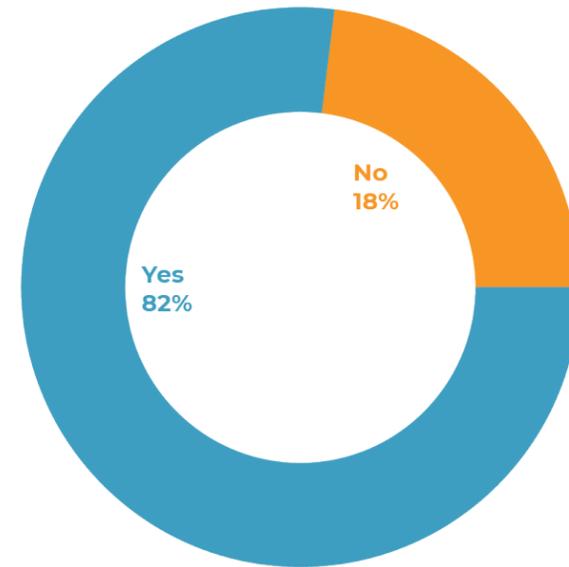
**FLOODING IN REGIONS THAT HAVE PREVIOUSLY REMAINED DRY** during storms is becoming increasingly common, leading to significant damages for business owners.

Businesses that carry bank loans that are located “high-risk” areas are often required to have **INSURANCE POLICIES**, however, business owners who own their buildings may not have insurance.<sup>11</sup>

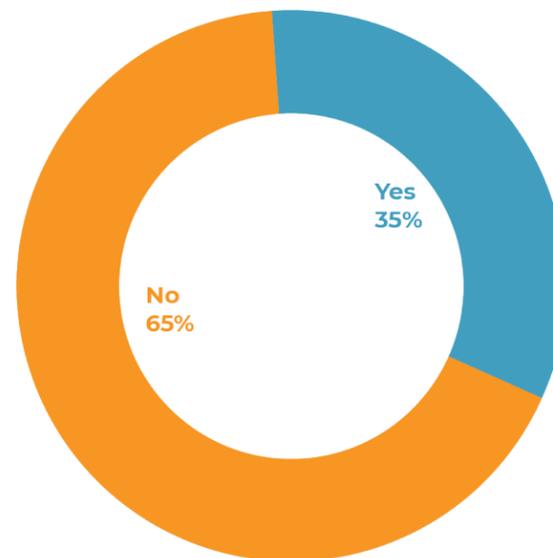
Having an **INSURANCE PLAN** and knowing the details of the plan will ensure businesses are better prepared for increasingly common weather events.

**EMERGENCY PLANS** help businesses recover quickly and help them avoid reputational risk or perceptions by consumers that specific regions may remain closed after a storm.

**INTERVIEW QUESTION: WERE YOU NEGATIVELY IMPACTED BY WINTER STORMS IN 2018?** 82% of Businesses were negatively impacted by winter storms in 2018.



**INTERVIEW QUESTION: DO YOU HAVE AN EMERGENCY PLAN IN PLACE?** Only 35% of Businesses Have an Emergency Plan in Place.



**GLOBAL IMPACT AND SUPPLY CHAIN**

Here in Massachusetts, we spoke with companies involved in service, retail, and professional services — all businesses that can be impacted by disruptions in their supply chains.

47% of businesses we interviewed indicated that their supply chain was vulnerable to the impacts of climate change and extreme weather events.

**KEY TAKEAWAYS**

**ECONOMIC GROWTH IS STUNTED** by increasingly common extreme weather events, impacting production and global trade.

Massachusetts small businesses are impacted through disruptions in their supply chains. **SUPPLY CHAIN DISRUPTION** includes goods stuck in transit from weather events as well as sources that are becoming rare and unattainable due to gradual or sudden changes in the natural environment.

**BUSINESSES NEED TO EVALUATE THEIR SUPPLY CHAINS** and determine if they can retrieve needed products from multiple suppliers.<sup>12</sup>

Embracing **AUTOMATION TECHNOLOGIES CAN BRING ABOUT EFFICIENCY**, sustainable sourcing, and facilitate planning.

**RETRIEVING THE CONTACT INFORMATION OF ALTERNATE SUPPLIERS** will allow businesses to recover from weather events and disasters in a more timely fashion.

**PRODUCE CENTER AND GROCERY MARKETS CHELSEA**

Businesses that use perishable products rely on timing to get their supplies in before they decay. This makes them vulnerable to changes in the climate in the regions where those products are grown, as well as the transportation of perishable foodstuffs. We spoke with 40 businesses in Chelsea, where it was impossible to ignore the prevalence of refrigerated trucks around town, most with logos and designs including carrots, grapes, and bananas.

Some of the freshest produce can be found in the local Chelsea markets we visited. Local business owners are quick to mention that a central part of the Chelsea landscape is The New England Produce Center. The center plays a huge role in the distribution of fruits and vegetables — it supplies produce to over 8 million people all over New England, even extending to parts of New York and eastern Canada.<sup>13</sup> However, the supply chain from this location is already at risk. Abutting the Mystic River, the location has experienced an increasing number of flooding events. Higher intensity and frequency of such events not only puts the produce distribution facility at risk, it impacts all of the individual distribution facilities within The New England Produce Center, and all the businesses relying on them for deliveries.



Flooding at the New England Produce Center in Chelsea. Photo: Matt Frank

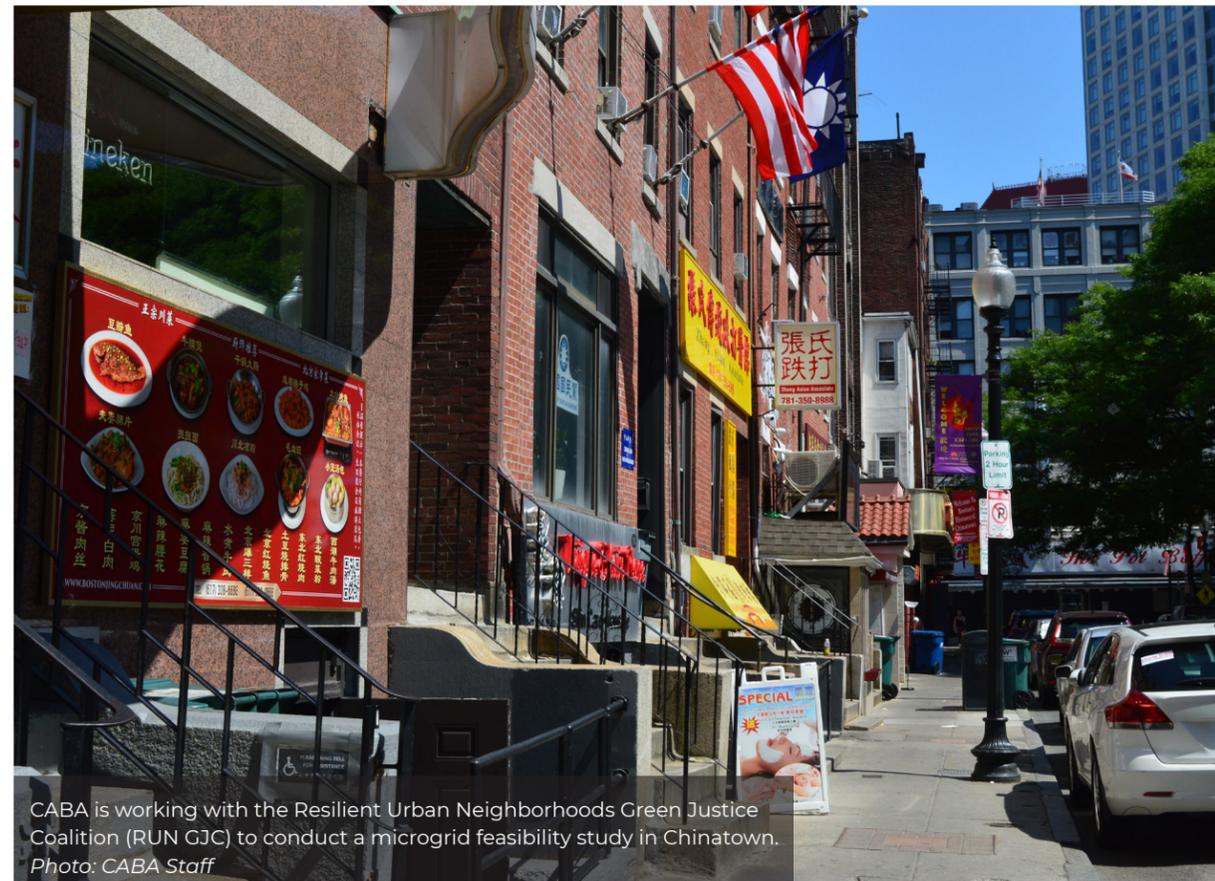
## HOW TO MAKE A GREATER IMPACT GRID RESILIENCE

For businesses to flourish and local economies to thrive, reliable, affordable, and accessible energy sources are essential. The U.S. Department of Energy (DOE) found that approximately 78% of all power outages from 1992 to 2010 were due to weather-related events.<sup>14</sup> Exposure to these risks disproportionately affects coastal and low-income communities, and can threaten business operations and can result in expensive losses for small businesses.

With extreme weather events expected to increase due to climate change, our communities are facing higher threats of power outages. Over 70% of the businesses we engaged with during our Businesses Acting on Rising Seas Campaign were concerned with their infrastructure, including the resilience of electric grids. Severe weather events can have a significant impact on our power systems due to transmission disruptions, causing outages throughout many communities.<sup>15</sup> It is therefore critical to integrate resilience initiatives into our power infrastructure.

Microgrids can connect and disconnect from the grid to operate in both grid-connected or island mode (when the microgrid generates power independently). These energy systems can minimize the scale of the impact of power outages by sourcing power from multiple streams and using energy storage technologies.

The rise of renewables, like wind turbines and solar panels, now allows businesses to choose to get their electricity from sustainable sources. Coupled with the falling cost of batteries, it can help businesses cut costs and lower their electric bills. Renewable energy sources can also be much more localized than traditional fossil fuels, therefore shortening the distance between generation and consumption and in turn, reducing vulnerabilities in its delivery.<sup>16</sup> Incorporating renewable energy into microgrids can reduce greenhouse gas emissions by integrating renewables, modernizing the grid, and providing a more localized resilient power network.<sup>17</sup>



CABA is working with the Resilient Urban Neighborhoods Green Justice Coalition (RUN GJC) to conduct a microgrid feasibility study in Chinatown.  
Photo: CABA Staff

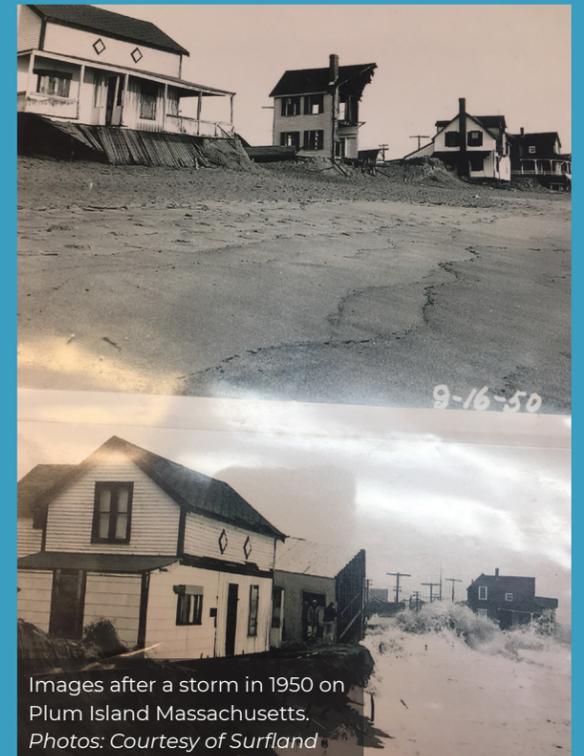
## SMART PLANNING

Resilience building has positive ripple effects, particularly in the relationships between towns, small businesses, and residents. Smart planning methods adopted by state and local governments can play a key role in fostering resilient building measures as well as helping to mitigate climate impacts at the local level.

Cities and towns can take advantage of zoning bylaws by installing stricter regulations than those imposed by state legislation. Creating higher building safety and environmental quality standards for areas that are high risk, along with incentives, can encourage building on better-suited locations. With greater knowledge of flood hazard districts, plans like the recent Climate Ready South Boston Report, are addressing sea-level rise by proposing the addition of 67 acres of green space to Boston's 47 mile shoreline that will protect properties, businesses and families.<sup>18</sup>

We found growing public awareness of green solutions to protect shorelines and prepare for climate impacts. Private and public entities are turning to solutions that incorporate green storm water infrastructure, leading to multiple benefits like providing a home for plants, developing new habitats, using less energy, and benefitting public health by remediating the heat island effect. Local municipalities are also creating hazard mitigation and emergency plans that incorporate green solutions, like living shorelines<sup>19</sup> into their plans to better prepare for flooding.<sup>20</sup>

We found that 76% of businesses have concerns about their city/town's infrastructure, and 82% report that state and town support (financial and legislative) would be helpful for businesses to do more for extreme weather preparation. Damaged bridges, frequent power outages, or long-term closures due to reconstruction can create a loss of business confidence in regions that are negatively affected.<sup>21</sup> Involvement from the local business community ensures that any planning process will be more equitable, and better suited to the needs of the community. Understanding how decisions made today can affect decision-making in the future is critical for the protection of our communities in the face of climate change.



Images after a storm in 1950 on Plum Island Massachusetts.  
Photos: Courtesy of Surfland

## SURFLAND BAIT AND TACKLE SHOP PLUM ISLAND

In our fieldwork, we found business owners to be key community members, many of them running family businesses that have been in their respective towns for generations.

Fishing is one of the main forms of entertainment on Plum Island, and Surfland Bait and Tackle Shop is one of the hubs of information. The shop has been owned by the same family for more than 60 years on Plum Island. They have an archive of how the island has changed, and what has stayed the same. We were shown a thick binder filled with old photographs, news articles, and personal stories of erosion and weather events. This family-run business is resilient, setting up shop on an island known for severe storm events. They knew where the island was most vulnerable, how the tides come in, and what businesses are most at risk, citing pictures to prove their stories. Business owners often have institutional knowledge that can help identify and prepare for threats that affect the community. Including them in workshops where they can share their expertise, as well as incorporating new businesses that are not as assimilated, will better help the community as a whole in their preparedness efforts.



Chelsea Produce Center, Chelsea  
Produce Center Flooding in the Winter of 2018.  
Photo: Courtesy of GreenRoots

## THE IMPORTANCE OF FUNDING RESILIENCE

The exact cost of climate change is hard to quantify. However, with projections of 2.8 feet of sea-level rise by 2100, costs could reach over \$90 billion in the Northeast.<sup>22</sup> With commitments to reduce greenhouse gases, like the Global Warming Solutions Act,<sup>23</sup> Massachusetts needs to ensure climate change mitigation and adaptation is adequately funded and may need to pick up the slack due to inaction at other levels of government.

### CARBON PRICING

Carbon pollution pricing has significant co-benefits that can reverberate across the state and the economy. Resilience efforts can be funded from a direct carbon fee. The policy should be part of the solution to fix our economic and climate woes; it uses market forces to shift consumers away from fossil fuels and towards renewables. A state or country can put a price per-ton on carbon emissions that can generate vital funds for resilience and green investment, while stimulating job growth and clean innovation. Carbon pricing keeps money invested in local economies while encouraging investment in locally-sourced and renewable energy increases.

The revenue generated from a direct carbon fee in Massachusetts can be invested in resiliency efforts and green infrastructure projects throughout our local communities. Many of the businesses engaged during the BARS campaign agreed that funding and other support from the Commonwealth would help

them in their resilience efforts. They were especially interested in funds that could be used to improve critical infrastructure such as storm water management systems and structural concerns in buildings. After the winter of 2018, businesses saw the effects of extreme flooding, drains overflowing, diverted traffic, closed streets, and halted commerce. A study commissioned by the Federal Highway Administration found that in Massachusetts 4,178 bridges, or 9%, are classified as 'in need of repair.'<sup>24</sup>

Money from a Green Infrastructure Fund would create public programs where businesses could directly apply for resources. California directs funds from their cap and trade programs into resilience planning, urban greening, and weatherization programs,<sup>25</sup> as well as funding for communities that are the most impacted by pollution to choose their own goals, strategies, and projects to reduce greenhouse gas emissions and local air pollution.<sup>26</sup> During our campaign we found that business owners seek to make their stores and communities more resilient, but costs often get in the way. We need an approach that will bring funds to support our main streets and increase the economic vitality of communities. Investing in carbon pricing revenue into projects that benefit and sustain our communities is the best approach to ensure an economically efficient response to climate change.

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## OUR PARTNERS

