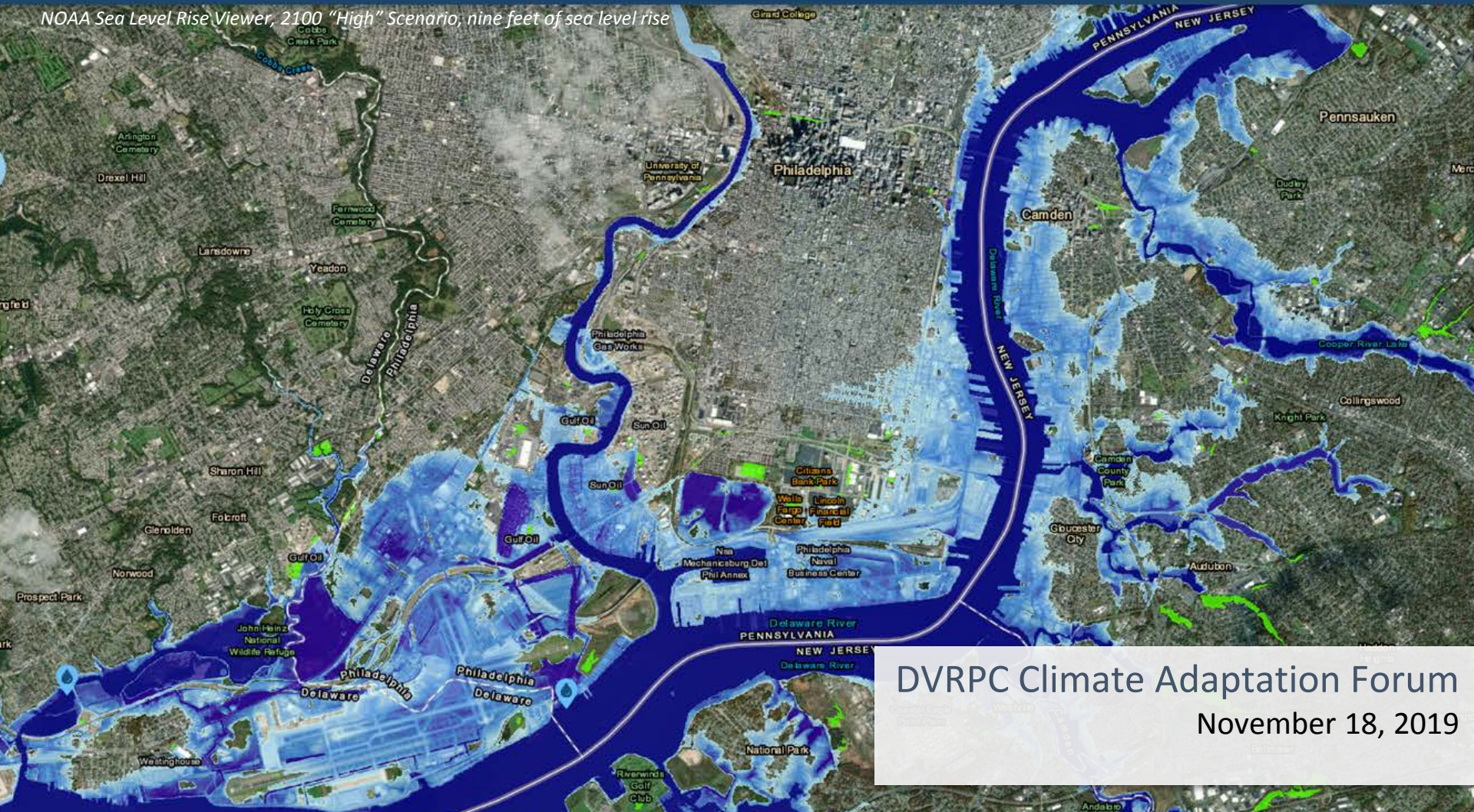


TOWARDS A CLIMATE RESILIENT PHILADELPHIA

NOAA Sea Level Rise Viewer, 2100 "High" Scenario, nine feet of sea level rise



DVRPC Climate Adaptation Forum

November 18, 2019

Climate change is a multiplier of existing risks and opportunities, from neighborhood instability and aging infrastructure to economic development and population growth.



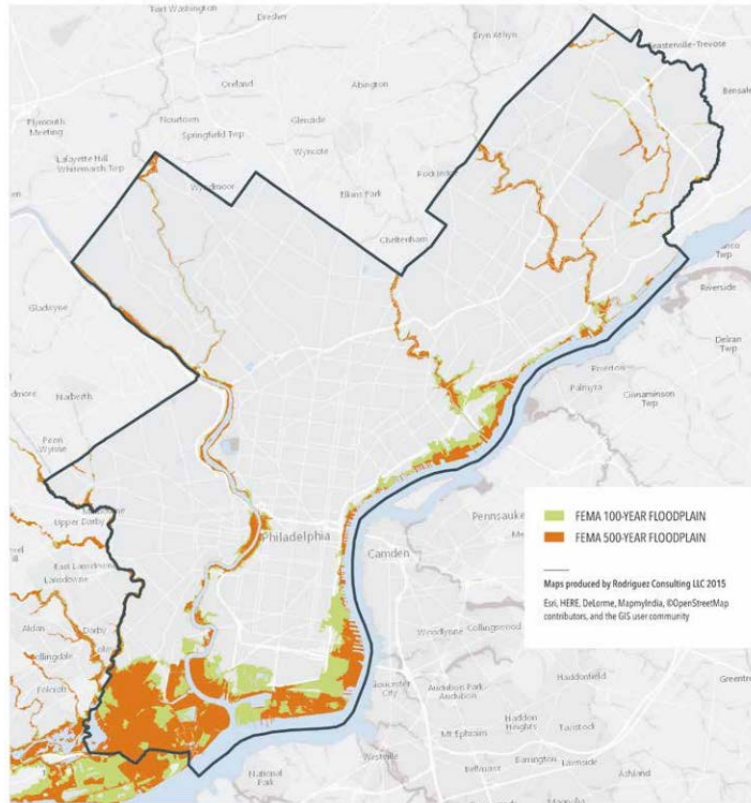
RISKS



Flooding at the SEPTA Spring Mill Station following Hurricane Sandy.

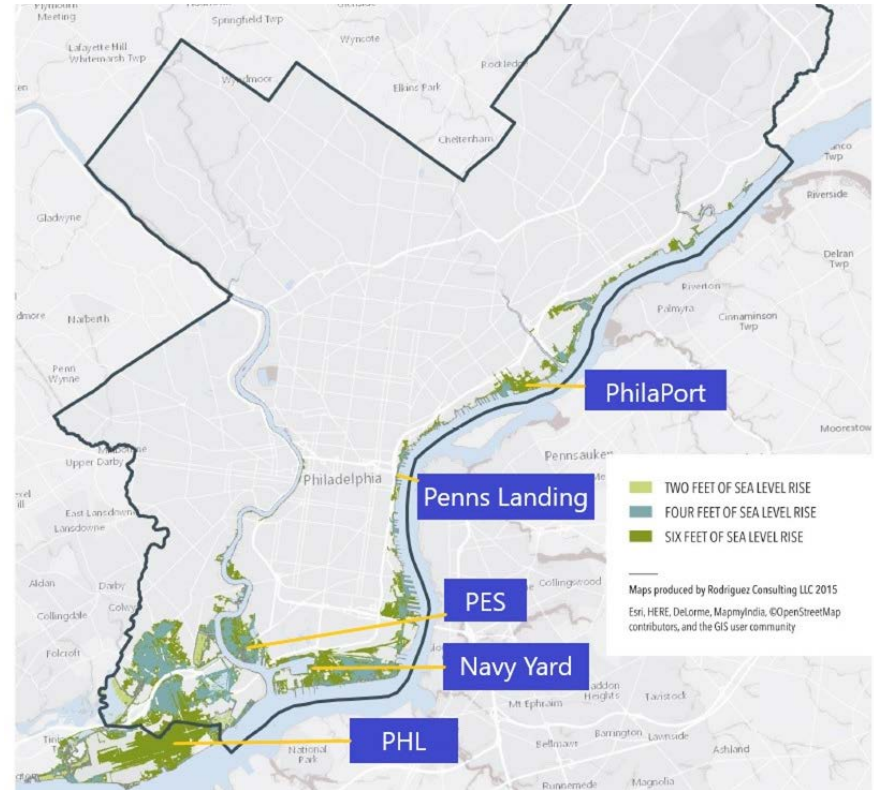
FLOODING LEADS TO PROPERTY LOSS & STRANDED ECONOMIC ASSETS

EXISTING FLOOD RISK



Source: Growing Stronger, Philadelphia Office of Sustainability

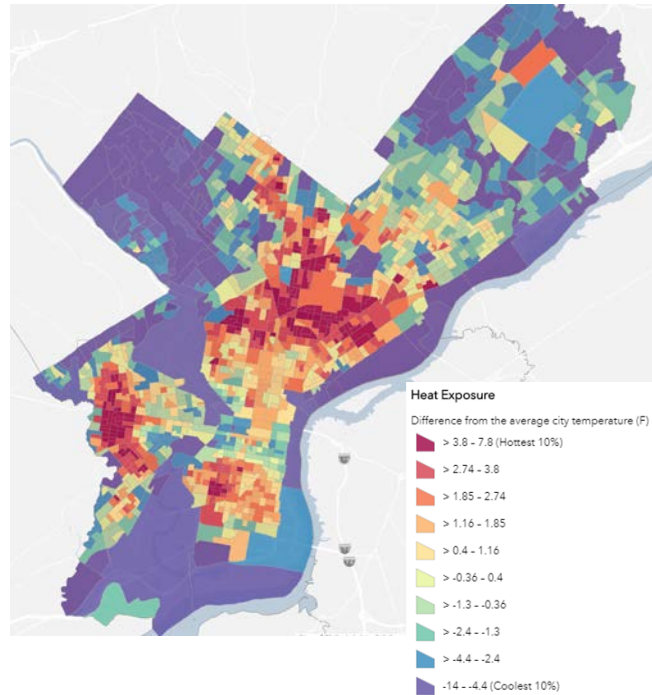
FLOOD RISK EXACERBATED BY SEA LEVEL RISE



Source: Growing Stronger, Philadelphia Office of Sustainability

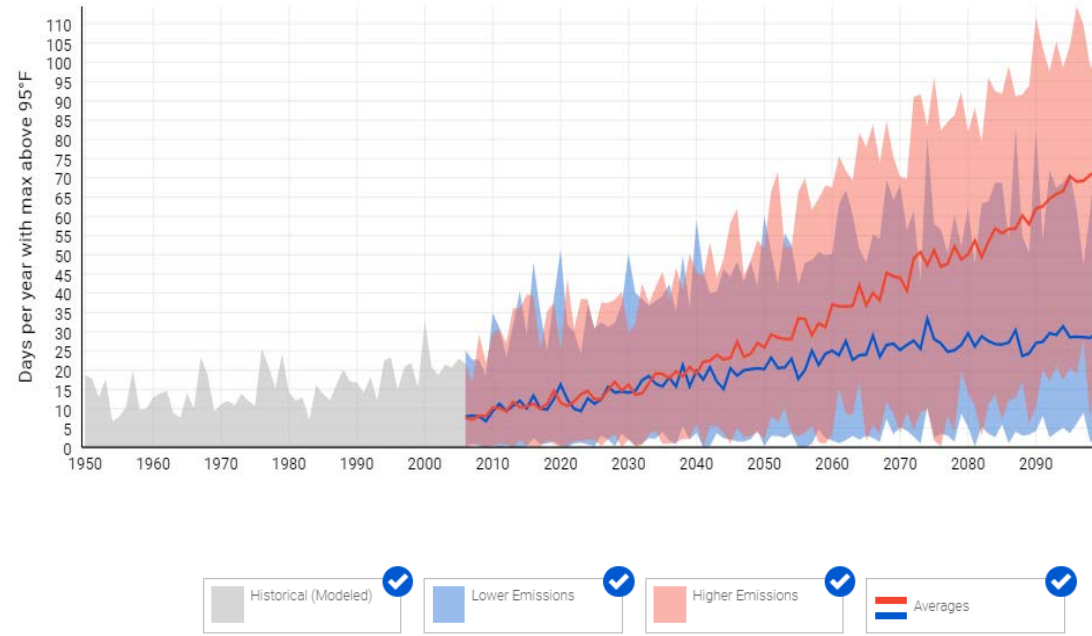
EXTREME HEAT EXACERBATES HEALTH ISSUES, DISPROPORTIONALLY IMPACTING SOCIALLY VULNERABLE POPULATIONS

EXISTING DISPARITIES IN HEAT VULNERABILITY



Source: Philadelphia Heat Vulnerability Map
Philadelphia Department of Health and Office of Sustainability

EXTREME HEAT: MORE DAYS OVER 95°F



Source: United States Global Change Research Program. 2018. U.S. Climate Resilience Toolkit Climate Explorer: Philadelphia County. <https://climateexplorer2.nemac.org>

OPPORTUNITIES

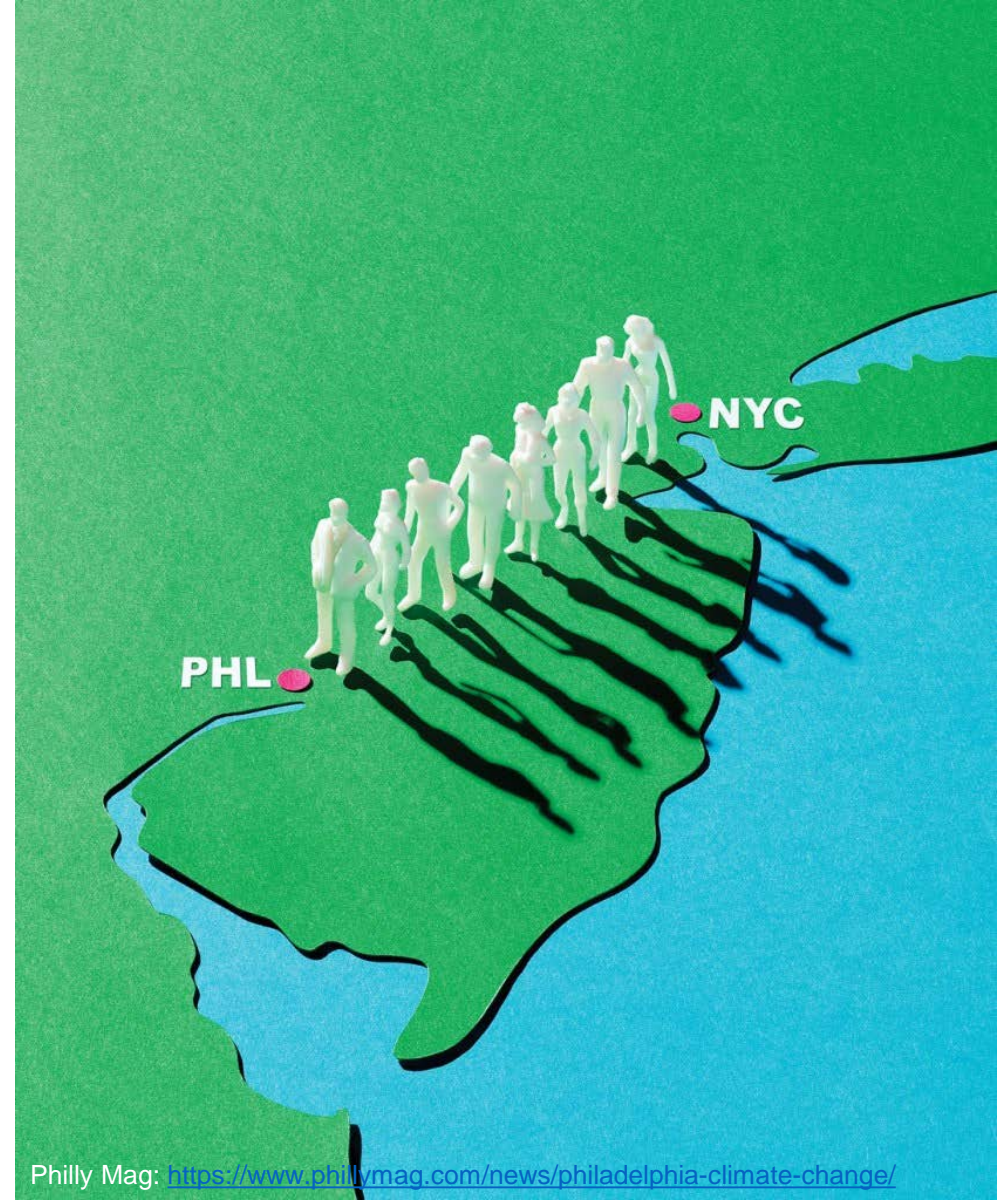


GROWTH OPPORTUNITY

PHILADELPHIA CONSIDERED A TOP DESTINATION FOR CLIMATE REFUGEES

- Climate disasters will displace between 25 million and one billion people around the world by 2050.
- Philadelphia metro area could see an influx of 300,000 migrants due just to rising sea levels by 2100.¹
- Most will arrive from New York, Boston and Jersey City.
- Philadelphia's infrastructure can serve 2.5 million residents,
*It would be "cheaper to maintain if it were operating at fuller rates of use."*²

Sources: 1. Matthew Hauer, Florida State University
2. Mark Alan Hughes, UPenn



Philly Mag: <https://www.phillymag.com/news/philadelphia-climate-change/>

RESILIENCE BUILDING



HOW DO WE DEFINE CLIMATE RESILIENCE IN PHILADELPHIA?

Common definition of “resilience”

(Can serve as the starting point for a city-specific definition.)

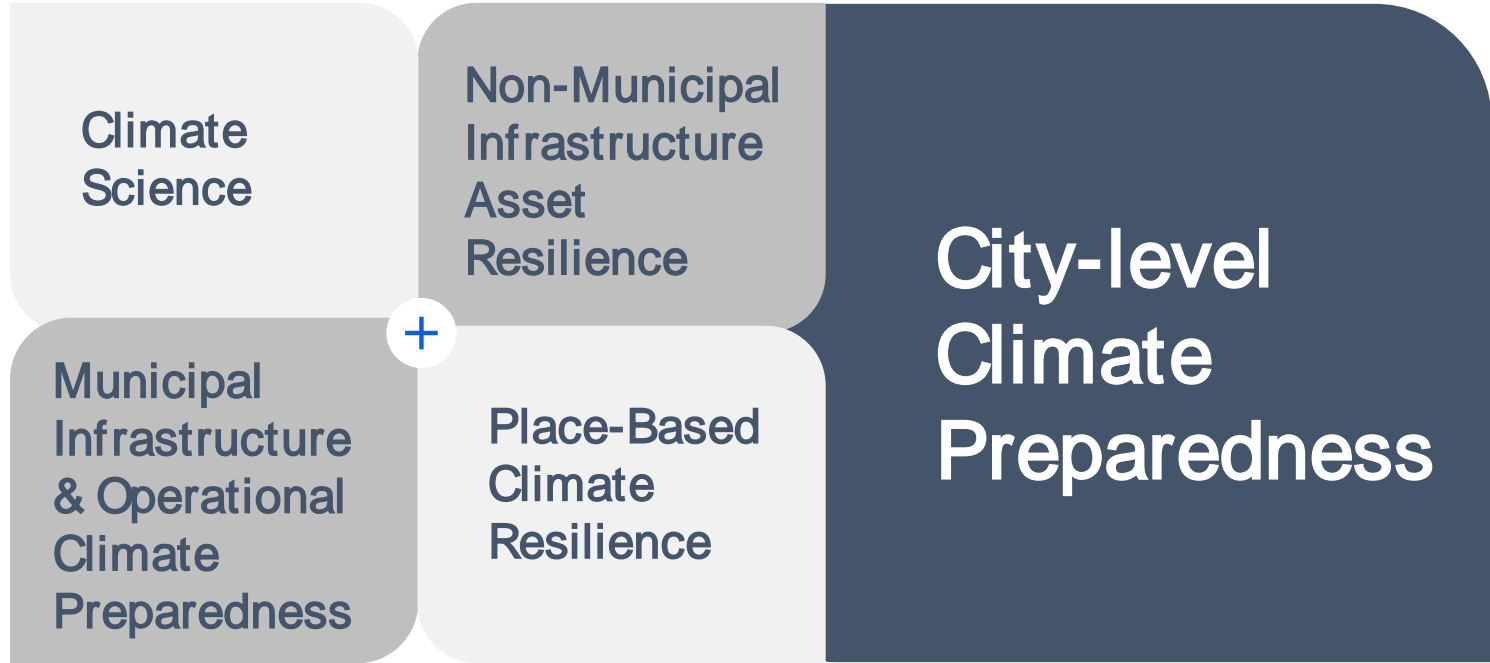
The capacity of individuals, communities, institutions, businesses, and systems, within a city to survive, adapt, and grow no matter what type of chronic stresses and acute shocks they experience.

Climate adaptation and resilience strategies often include policies, processes, partnerships, and investments that:

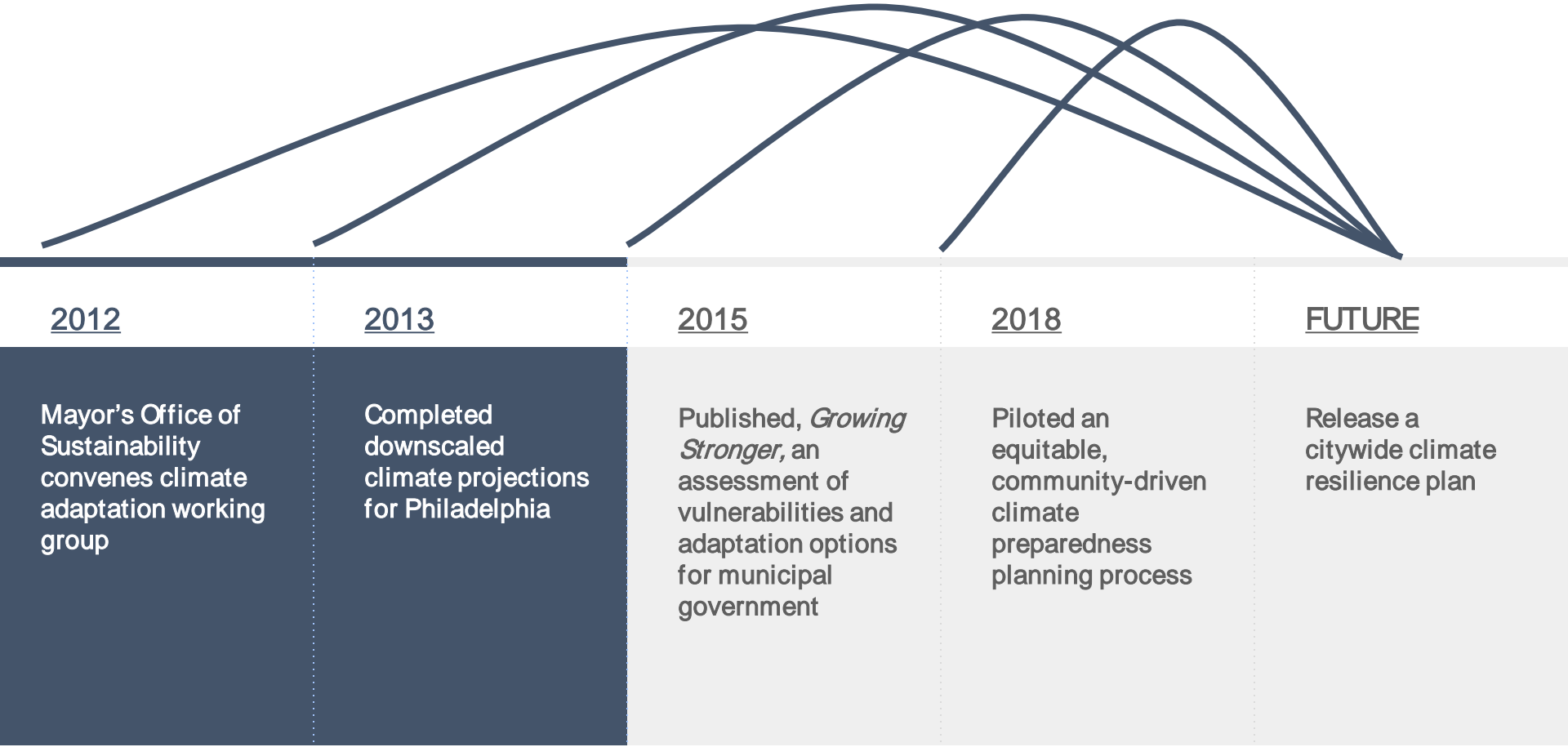


- **mitigate the impacts of shocks** (e.g., floods, storm related-infrastructure failures, heat waves, and other climate related hazards), and
- **address the stresses** (e.g., poverty and social inequality), that
- **enable residents and workers to bounce back** from climate-related impacts.

STRATEGIC FRAMEWORK FOR PROMOTING CLIMATE RESILIENCY



PROCESS AND TIMELINE FOR DEVELOPING CLIMATE ADAPTATION OPTIONS



2012

Mayor's Office of Sustainability convenes climate adaptation working group

2013

Completed downscaled climate projections for Philadelphia

2015

Published, *Growing Stronger*, an assessment of vulnerabilities and adaptation options for municipal government

2018

Piloted an equitable, community-driven climate preparedness planning process

FUTURE

Release a citywide climate resilience plan

CLIMATE CHANGE IS A CHALLENGE, BUT WE ALREADY HAVE MANY TOOLS TO ADDRESS IT:

- An equity-based economic development strategy
- Heat emergency procedures, including communications and inter-agency collaboration
- Green infrastructure and planting trees
- Partnerships with community organizations to provide economic and health related services
- Regional and inter-agency collaboration around hazard mitigation planning
- Flood Risk Mitigation Task Force
- Accelerated building code adoption
- Process for district planning
- Capital planning and budget processes

- Community building and the strength of social networks are proven to enhance resilience
- Trees and landscaping initiatives to cool neighborhoods can be designed to support stormwater management
- Updating building design guidelines and codes to address flood risks can protect property from flooding
- Modifications to district plans and infrastructure planning can address sea level rise impacts
- Energy efficiency, solar, storage can address energy burdens and reduce grid demand
- Integrating climate projections and life-cycle cost analysis can ensure the City's investments last the test of time

..and contribute to climate resilience

THE CITY OF PHILADELPHIA
— OFFICE OF —
SUSTAINABILITY

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Deputy Director

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