

## Concurrent Session C2

11:00 – 11:45

Integrating Municipal Climate  
Change Concerns into County  
Hazard Mitigation Plans



Office of Energy and  
Climate Change Initiatives  
**dvrpc**

Robert Graff

CTP Community of Practice Meeting  
October 22, 2019

# Integrating Municipal Climate Change Concerns into County Hazard Mitigation Plans

# Hazard Mitigation Planning . . . .



- Relevant
- Engaging
- Fun (!!)



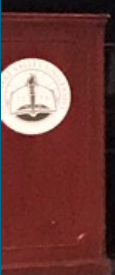
A group of people are seated around a large table in a workshop setting. They are looking at various documents, maps, and materials spread out on the table. The room has whiteboards and other workshop equipment in the background. The text "County Hazard Mitigation Planning Workshops" is overlaid on the top half of the image.

# County Hazard Mitigation Planning Workshops

- Climate Change In The Region
- The Game Of Extremes.
- Networking Lunch
- Hazard Mitigation Planning Exercise

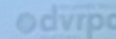


ATHLETE  
ADVISORY  
COMMITTEE  
STUDENT  
GOVERNMENT  
BOARD

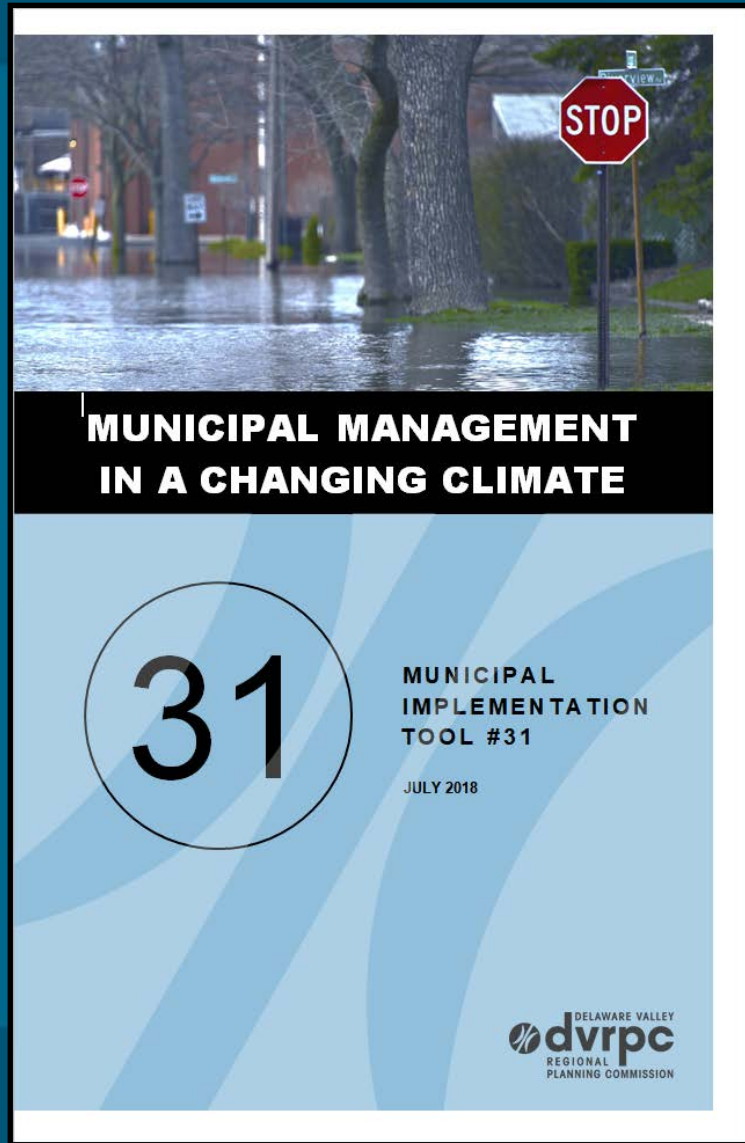


# COASTAL EFFECTS OF CLIMATE CHANGE IN SOUTHEASTERN PA: A STORY MAP

Amy Verbofsky, Senior Planner, Delaware Valley Regional Planning Commission  
Melissa Andrews, Planner, Delaware Valley Regional Planning Commission



# Municipal Management in a Changing Climate



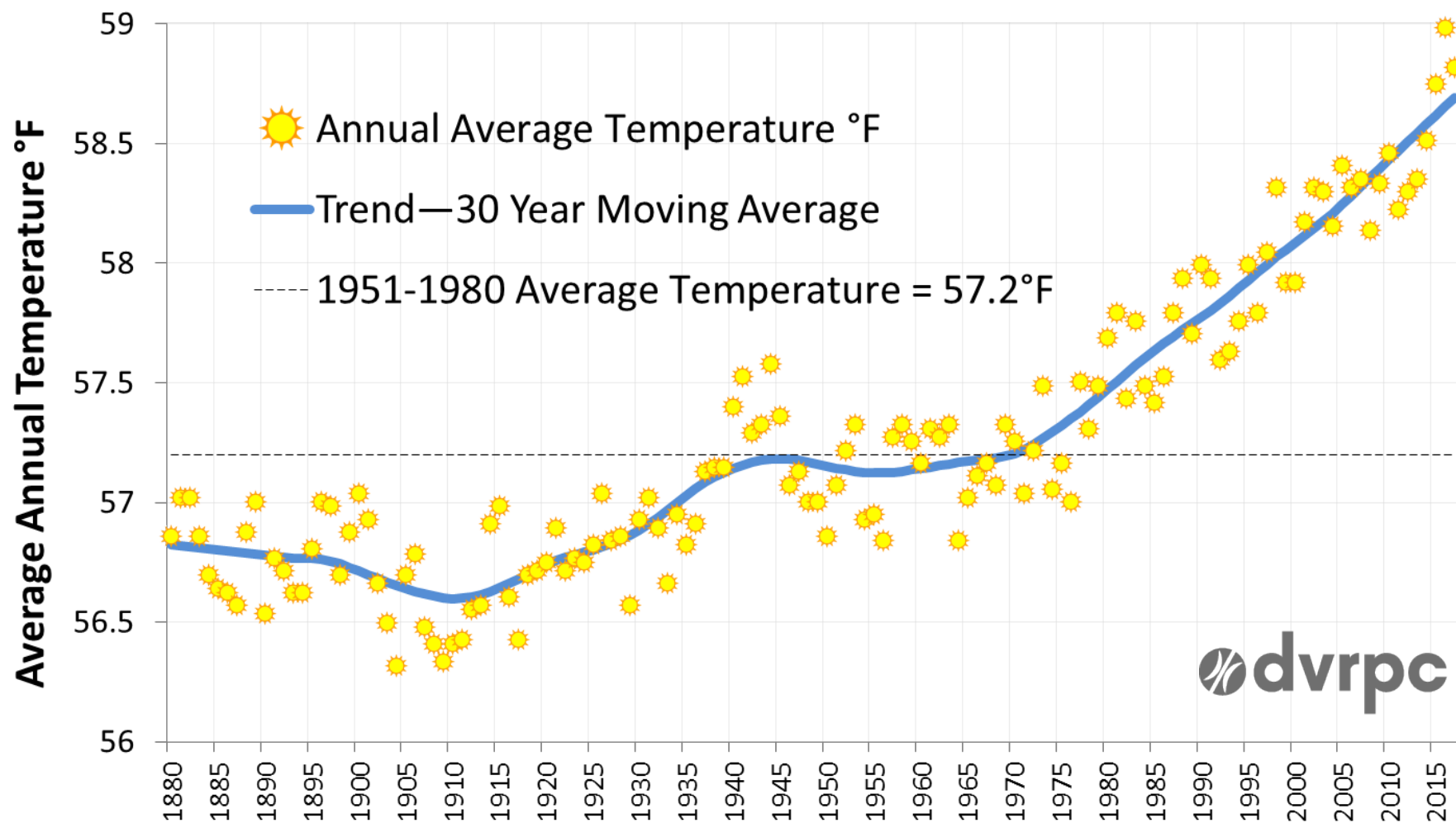
- Overview of current and projected changes to the climate in Greater Philadelphia.
- How these changes are expected to affect the region.
- What operational changes municipalities might want to consider to best serve their residents and businesses in light of these changes.



# The Region's Historic Climate

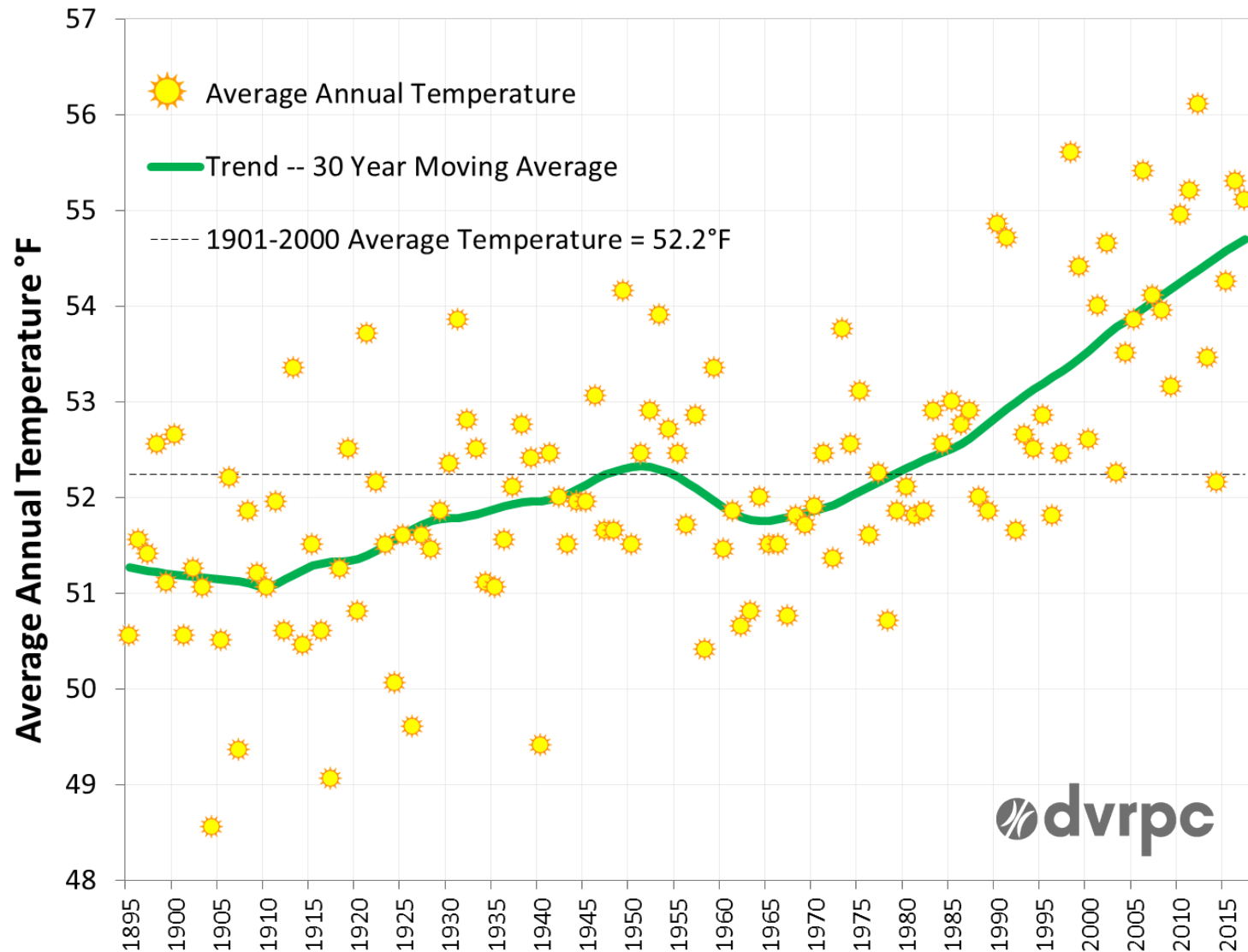


# Average Global Temperature: 1880–2017



Source: DVRPC chart using data accessed 24 May 2018 from [www.ncdc.noaa.gov/cag/](http://www.ncdc.noaa.gov/cag/).

# Average Regional Temperature: 1895–2017

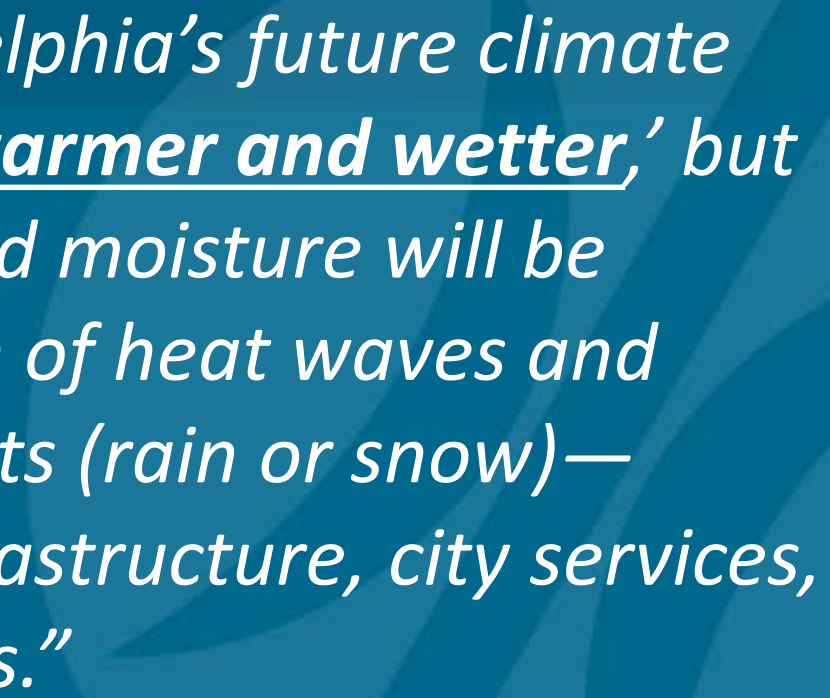


**Source:** DVRPC chart using data accessed 24 May 2018 from [www.ncdc.noaa.gov/cag/](http://www.ncdc.noaa.gov/cag/). Data reflects the average of two regions: Southeastern PA (Climate Div.3) and Southern NJ (Climate Div.2).



# The Region's Projected Climate



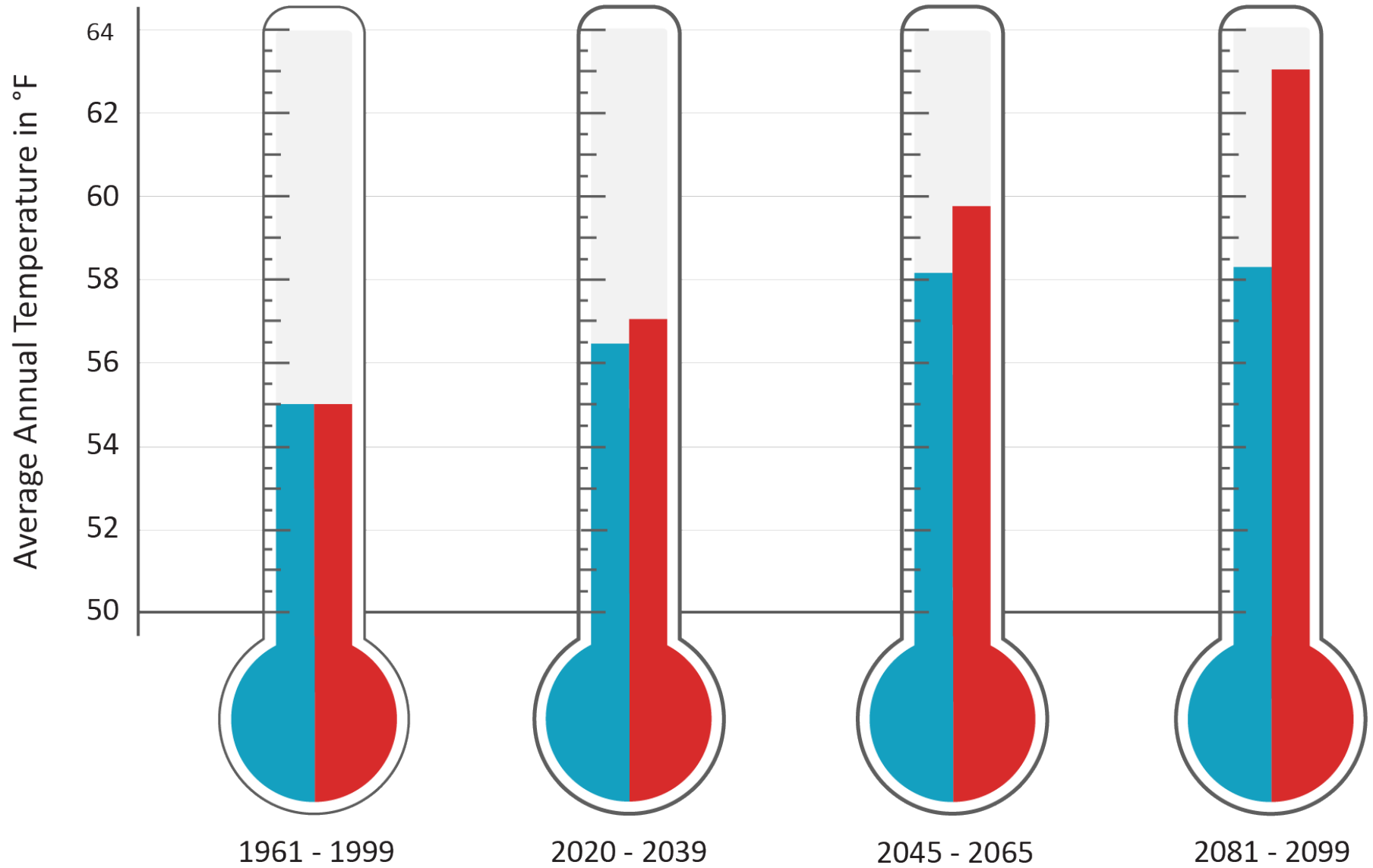
A large, faint, stylized logo of the City of Philadelphia, featuring a circular emblem with a star and a banner, is visible in the background.

*“The forecast for Philadelphia’s future climate can be summed up as ‘warmer and wetter,’ but much of that warmth and moisture will be concentrated in the form of heat waves and heavy precipitation events (rain or snow)—posing challenges to infrastructure, city services, businesses, and residents.”*

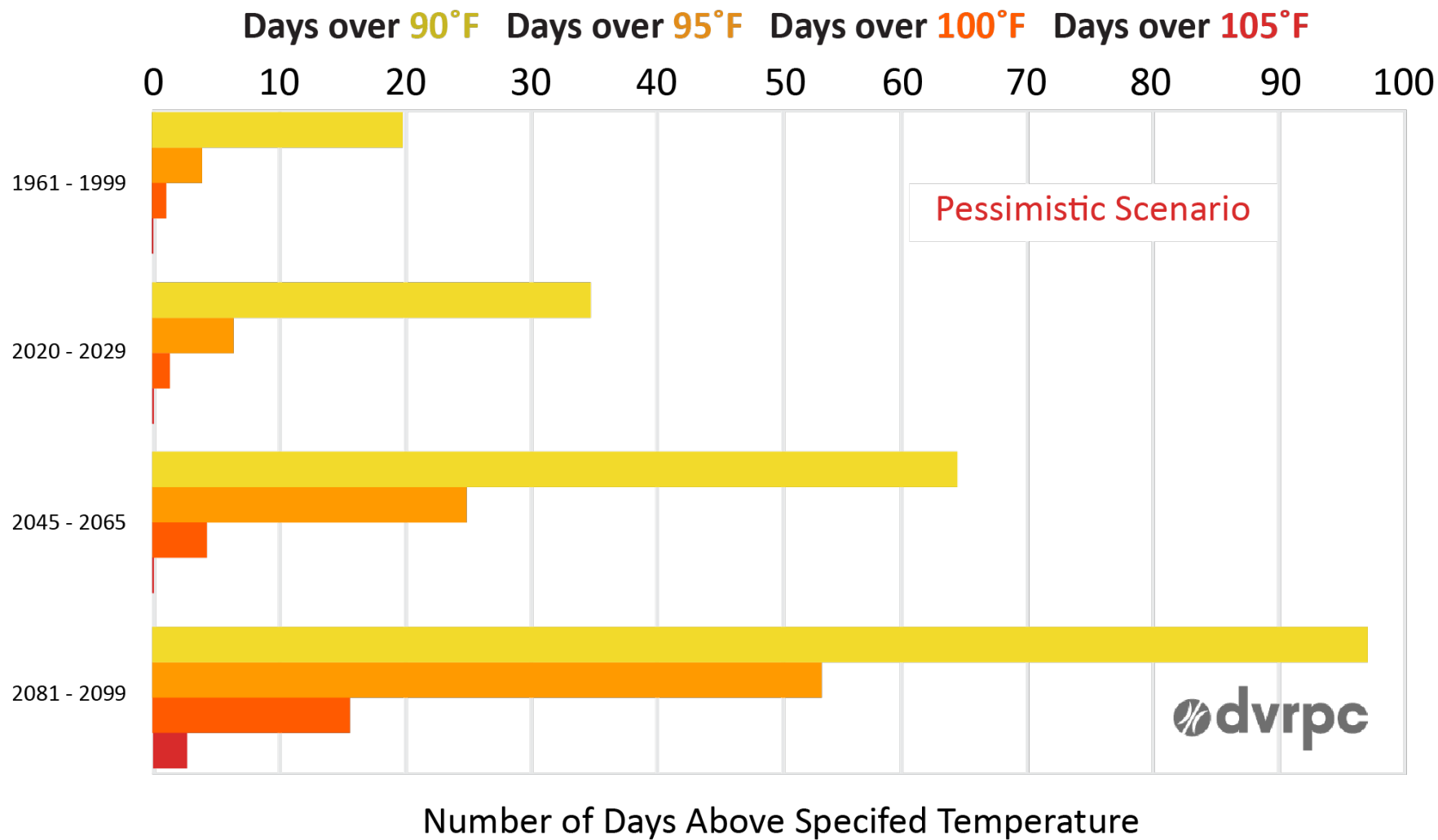
- Growing Stronger: Toward a  
Climate-Ready Philadelphia.



Optimistic | Pessimistic



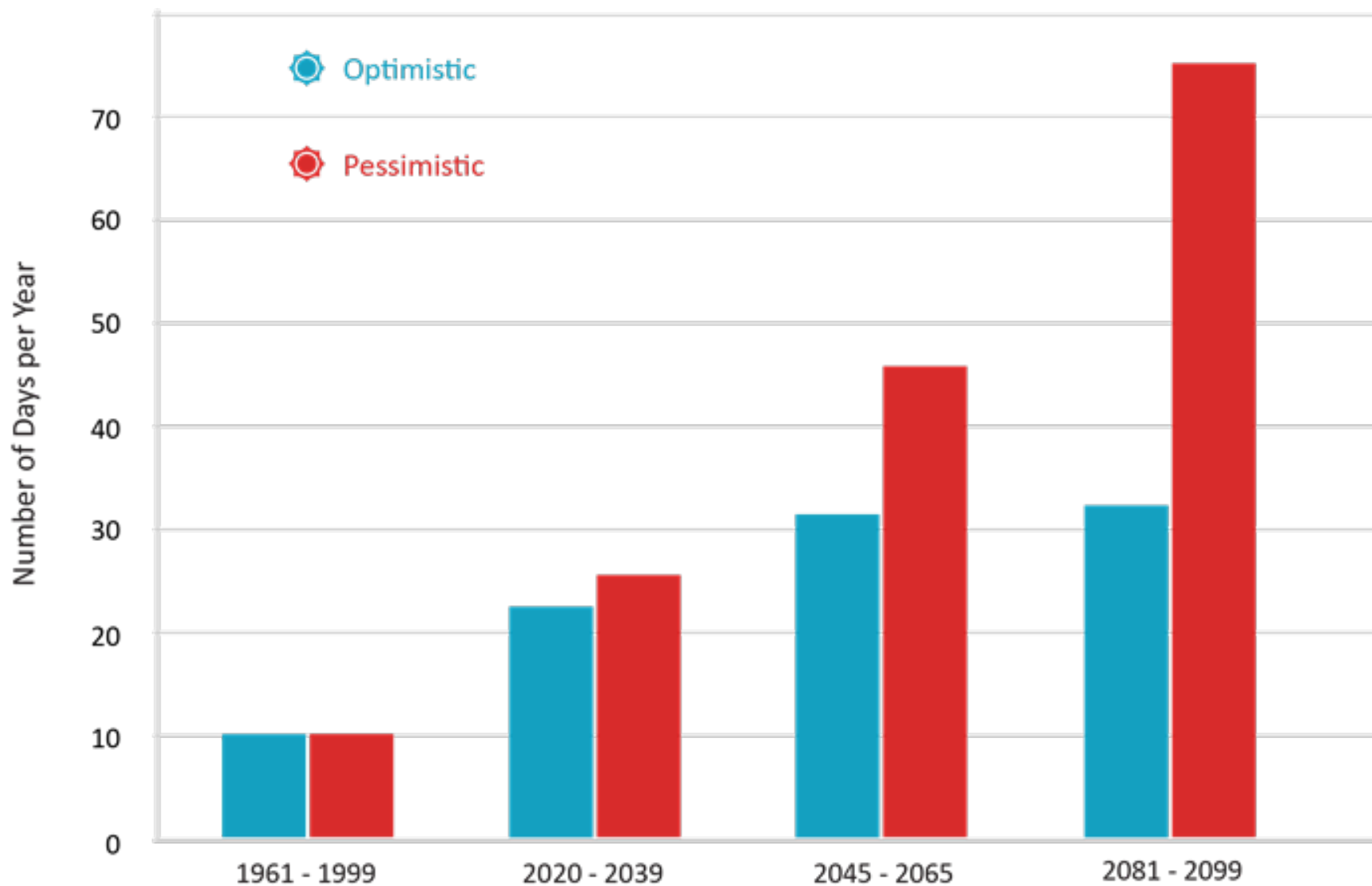
Source: DVRPC chart using data provided by ICF.



**Source:** DVRPC chart using data provided by ICF.



# Low Temperature Above 70°F

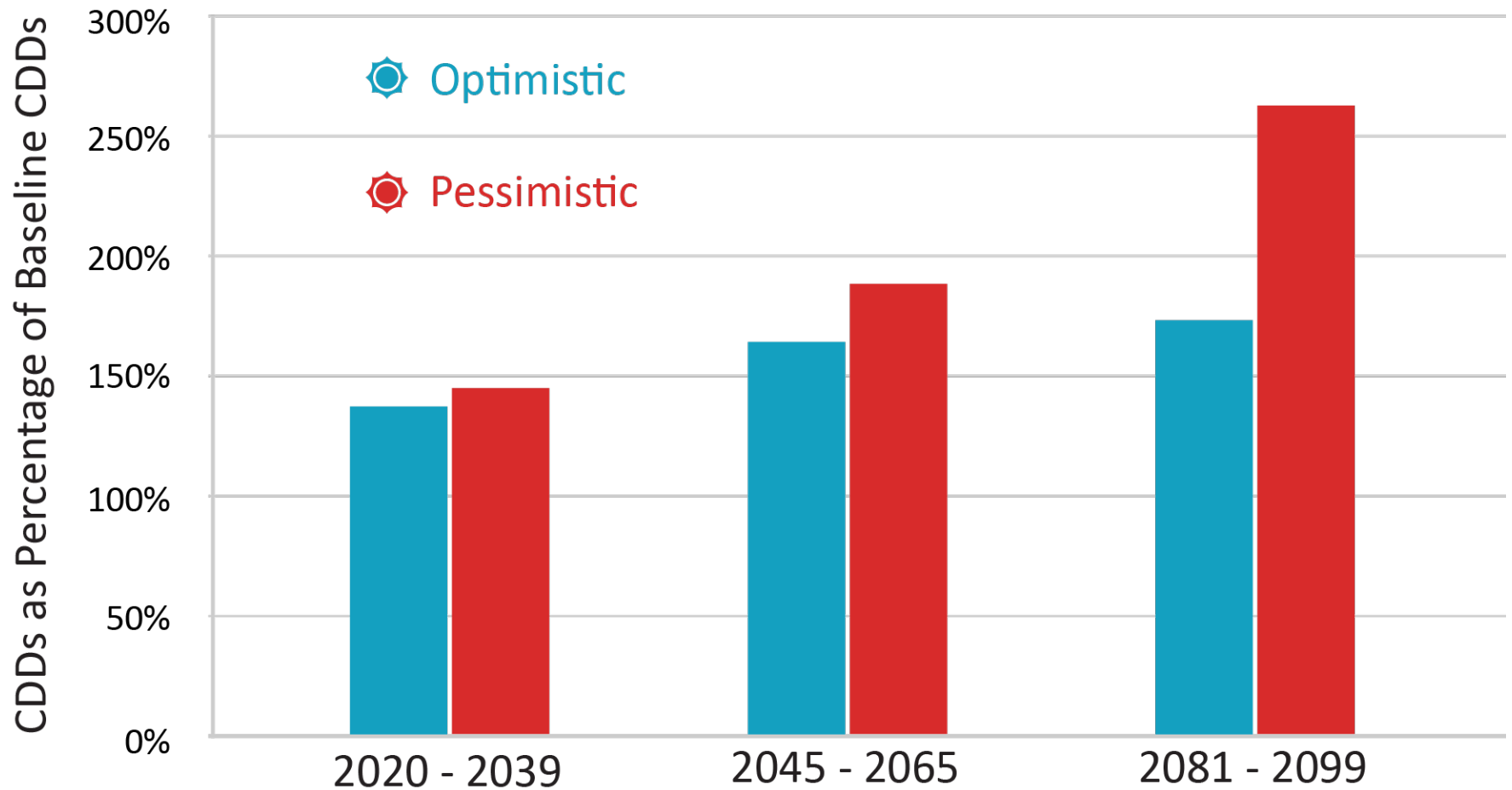


Source: DVRPC chart using data provided by ICF.

# Projected Climate Impact



# Change in Cooling Requirements

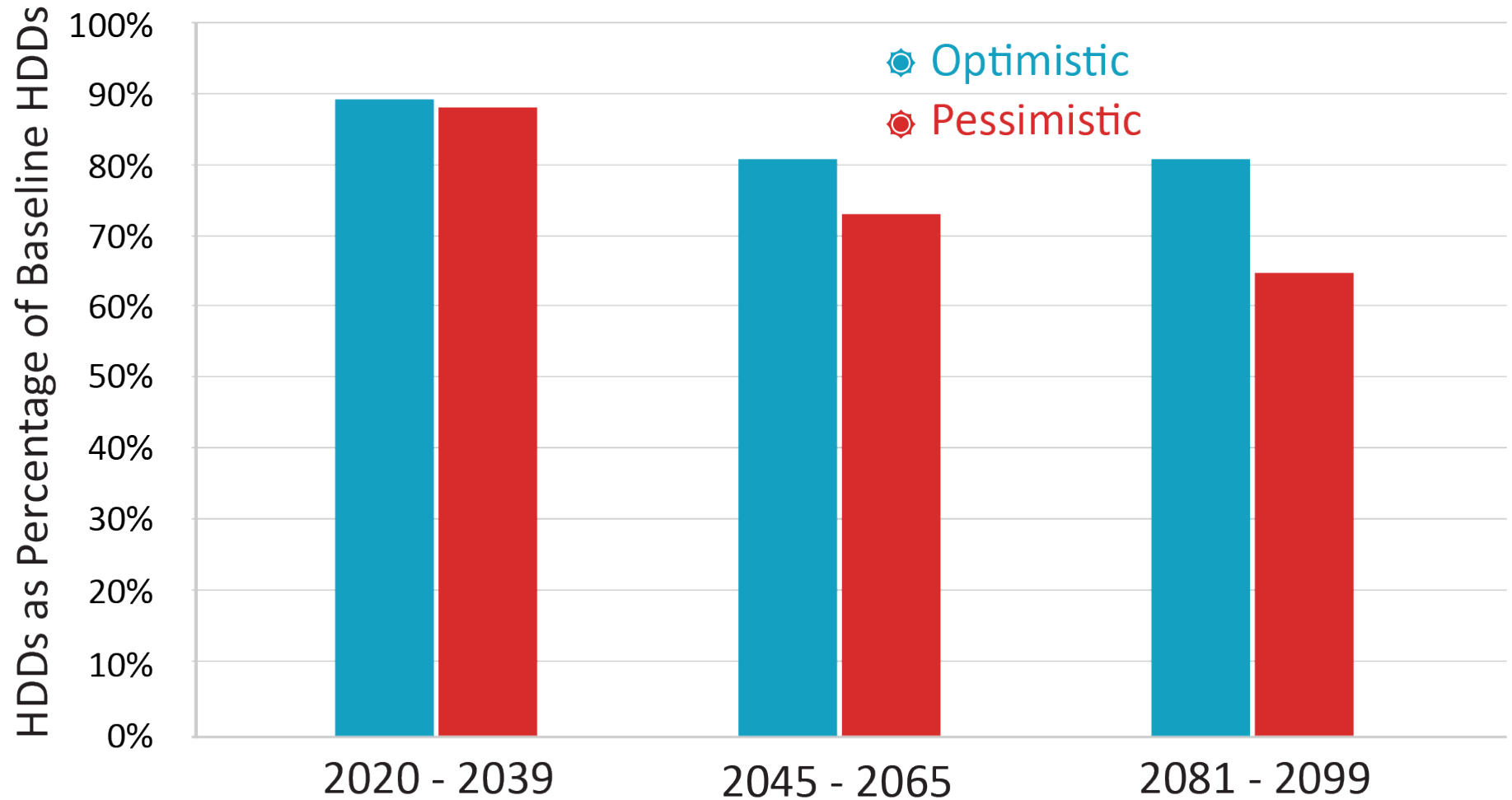


Source: DVRPC chart using data provided by ICF.





# Change in Heating Requirements



Source: DVRPC chart using data provided by ICF.



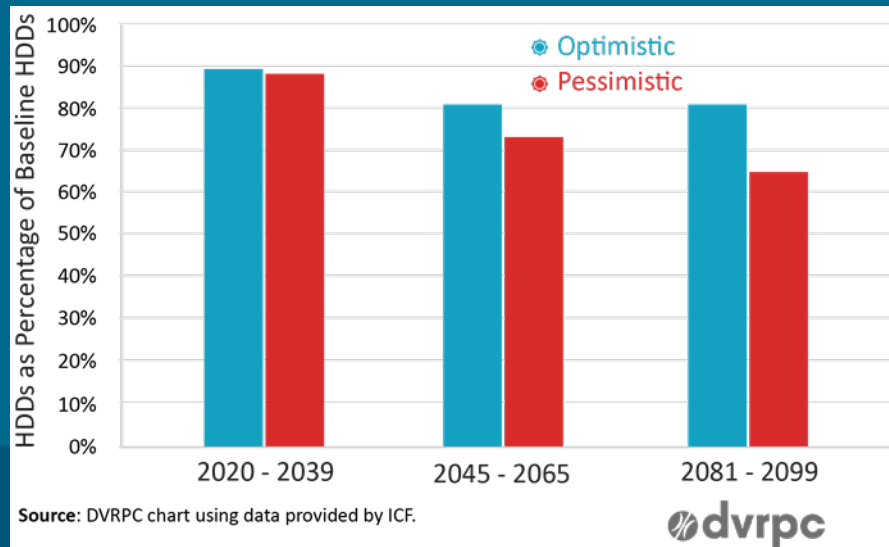
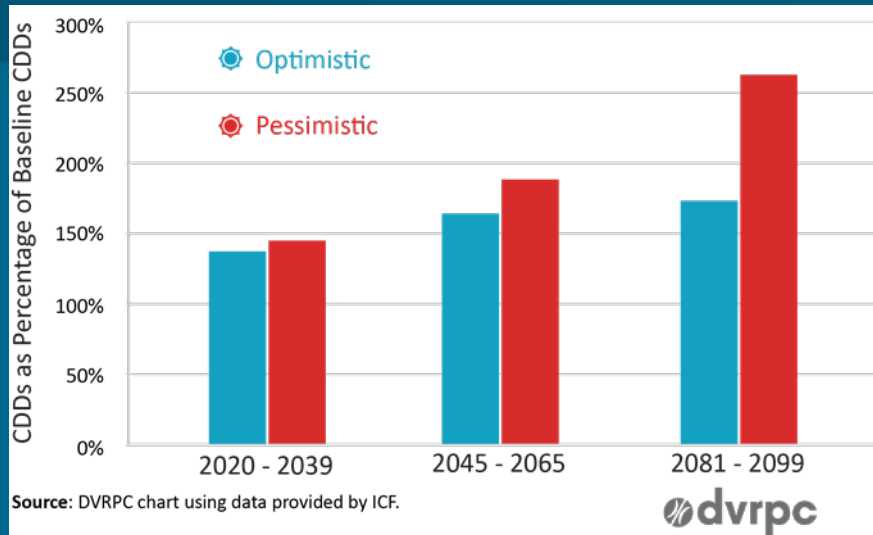
# Municipal Considerations

# Take Action



“What if we don’t change at all ...  
and something magical just happens?”

# Prepare Municipal Facilities



- More cooling; less heating
- Heavier rainfall
- Shade is key
- Playing surfaces
- Times?
- Water fountains

# Stormwater Systems



- Maintain the system!
- Slow the flow
- Use rainfall projections to guide (re)development



# Transportation Facilities



- Road, bridges, culverts
- Appropriate pavements
- Shade at transit stops
- Shade for those walking and cycling



# Municipal Service Delivery

- Trash Collection
- Foot Patrols
- Organized Youth Summer Programs
- Street Fairs



# Employee Contracts

- Work Rules
- Working Hours





# Public Trees





# Public Health



# Update Regulations

- Floodplain Ordinances
- Zoning Strategies
- Building Codes





# Other Information

- Resources for municipalities, with links
- Link to county-level charts for projected changes
- Discussion of coastal municipalities





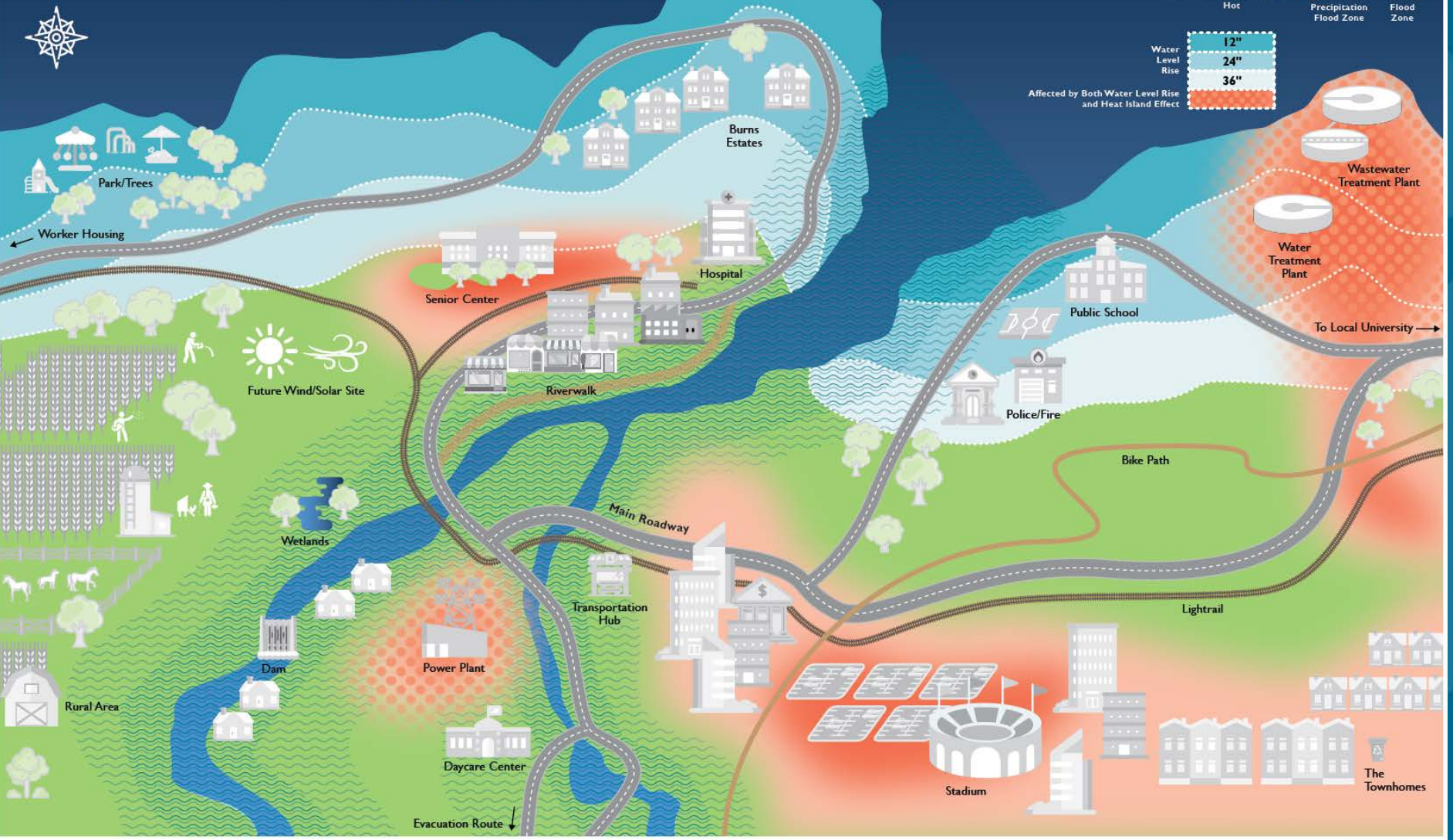
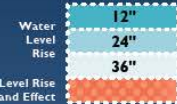
# Role-playing Exercise



# Game of EXTREMES

## MUGGYTOWN

10,000 Feet







# ASSET



## Daycare Center

The Daycare Center was built in 1999. This is the primary location for infant to four year old child care for during the work day. There is a large recreational area outside including a large asphalt playground, picnic area, and tots soft play area.

The building was flooded five years ago and was inoperable during that time. Following that flood, the center suffered from mold in the walls, thought to have led to illness for several of the young children.



# Water and Wastewater Treatment Plant Manager



**Role:** You represent the interests of the Water and Wastewater Enterprise (WWE). It is your role to ensure that the WWE achieves long-term sustainability while remaining fiscally responsible. You are concerned about combined sewer overflows which have occurred several times in the last few years during heavy rainfall events. This causes raw sewage to enter the local waterways, creating serious health concerns.

You immigrated to the U.S. from Mexico 15 years ago. Spanish is your first language. You live on the edge of the rural area of the city.

## Goals:

- Ensure reliability of water and wastewater infrastructure
- Avoid rate hikes for customers related to increased maintenance costs

# SCENARIO



## Scenario #1

### Climate Condition Baseline

**Water level rise:** Existing coastline

**Precipitation:** 45 inches annually

**Extreme heat:** Currently experiences 15 extreme heat days (above 95°F) per year and 1 heat wave event per summer lasting 3 days; Average annual temperature is 60°F

### Planning horizon: 2030

**Water level rise:** 12" by 2030

**Precipitation:** 20% increase in precipitation intensity

**Extreme heat:** 14 more extreme heat days than current day; 1 more heat wave event that lasts 1 more day than currently; 2°F increase in average annual temperature



# BUDGET



## Total City Budget Card 3

# \$8 million



































# Selected Resources

[www.dvrpc.org/EnergyClimate](http://www.dvrpc.org/EnergyClimate)

Urban Sustainability Directors' Network:

- <https://tinyurl.com/GameOfExtremes>





# Motivating Action Using Your Local Hazard Mitigation Plan

Mari Radford, Community Planning Lead, FEMA Region III

[Mari.radford@fema.dhs.gov](mailto:Mari.radford@fema.dhs.gov)

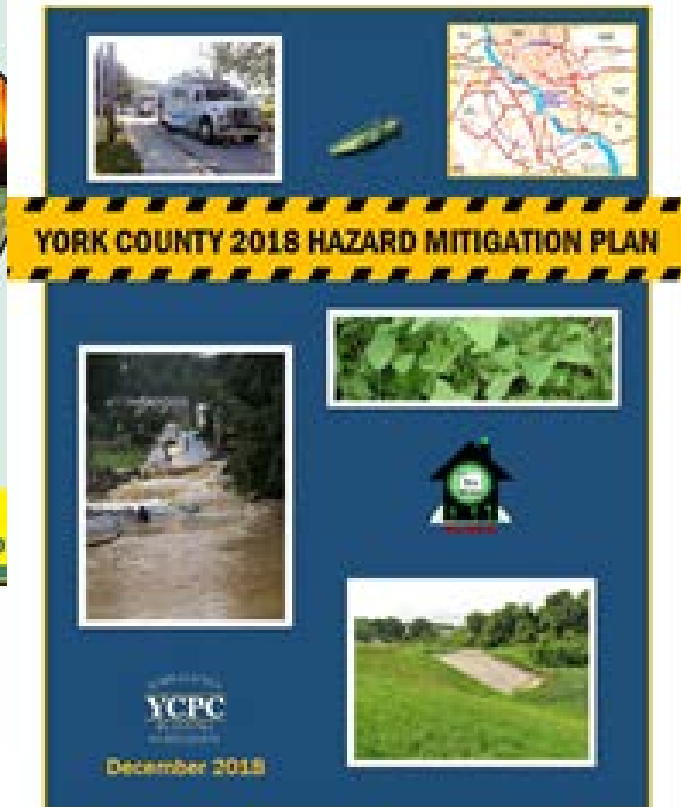
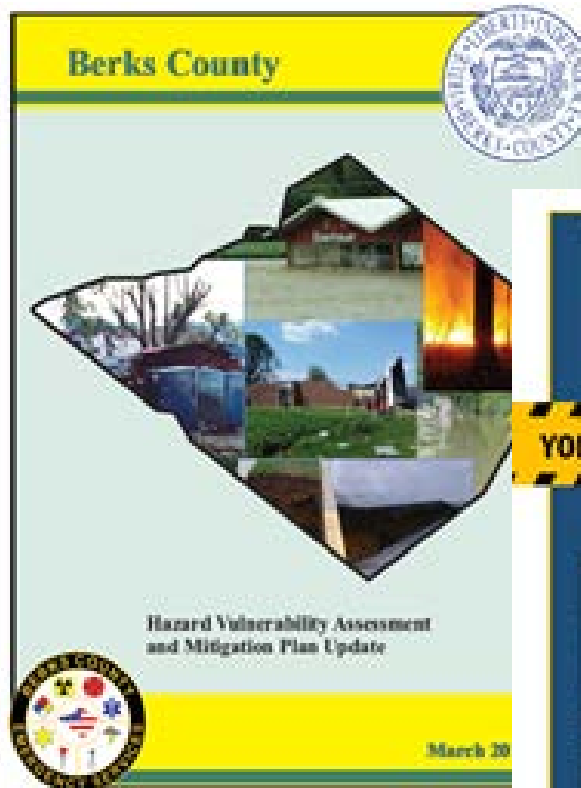
October 2019



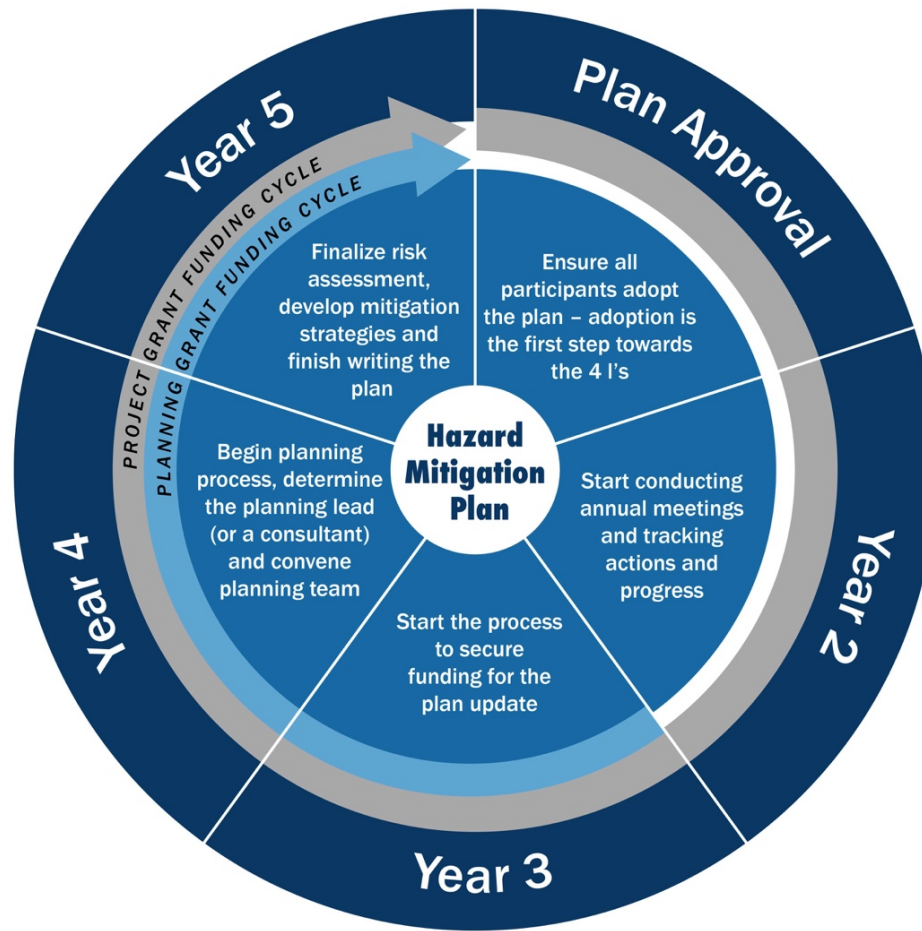
FEMA

# Your Local Hazard Mitigation Plan

## Montgomery County Hazard Mitigation Plan 2017



# Connecting to the Hazard Mitigation Planning Cycle



# How to Motivate Change

## Natural Hazard Mitigation Saves



### Natural Hazard Mitigation Provides the Nation \$6 in Benefit for Every \$1 Invested

National Benefit-Cost Ratio (BCR) Per Peril

\*BCR numbers in this study have been rounded

**Overall Hazard Benefit-Cost Ratio**

Beyond Code  
Requirements

**\$4:1**

Federally  
Funded

**\$6:1**



**Riverine Flood**

**\$5:1**

**\$7:1**



**Hurricane Surge**

**\$7:1**

Too few  
grants



**Wind**

**\$5:1**

**\$5:1**



**Earthquake**

**\$4:1**

**\$3:1**



**Wildland-Urban  
Interface Fire**

**\$4:1**

**\$3:1**

This Interim Study quantified a number of benefits from mitigation, including reductions in:

- Future deaths, nonfatal injuries, and PTSD
- Repair costs for damaged buildings and contents
- Sheltering costs for displaced households
- Loss of revenue and other business interruption costs to businesses whose properties are damaged
- Loss of economic activity in the broader community
- Loss of service to the community when fire stations, hospitals, or other public buildings are damaged
- Insurance costs other than insurance claims
- Costs for urban search and rescue



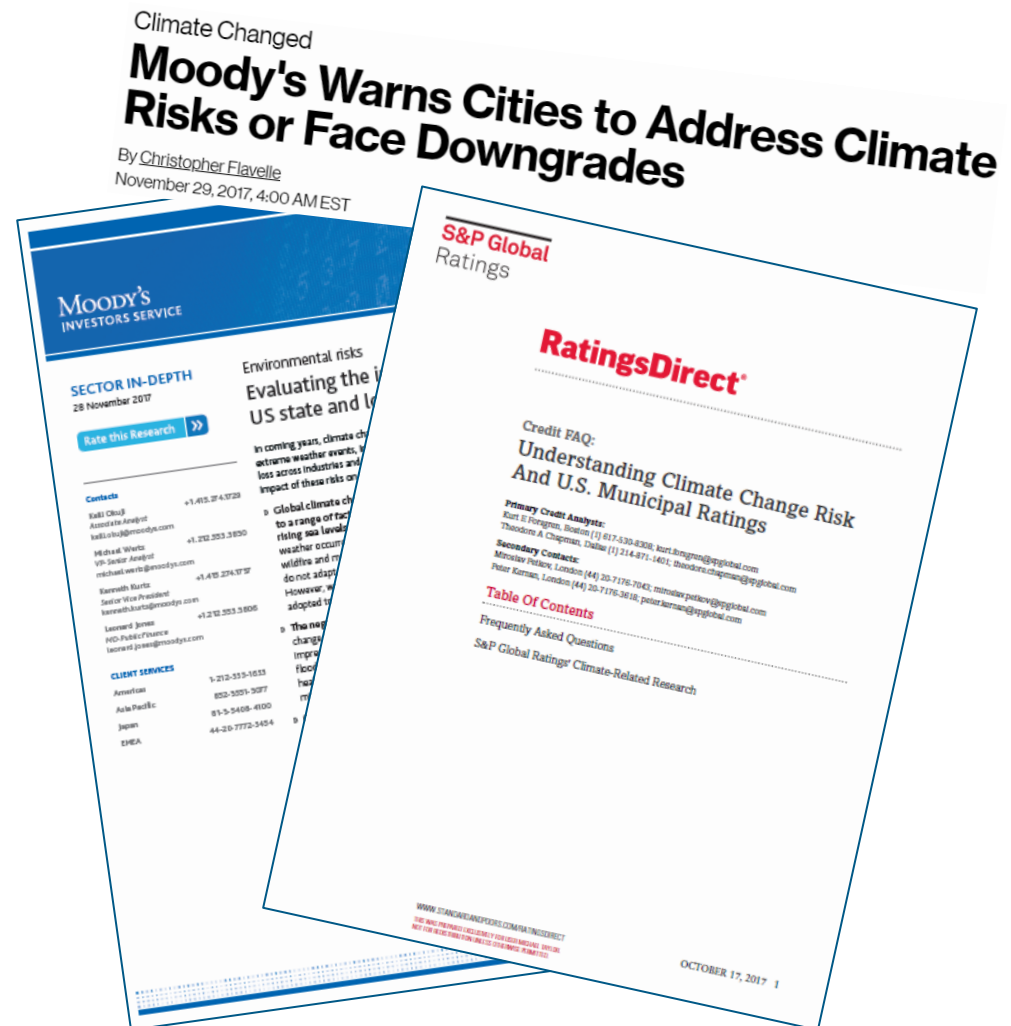
**FEMA**



**FEMA**

# Credit Rating Impacts

- ▶ Moody's and Standard & Poor are looking at risk and resilience in a new way
  - Climate change will increase US exposure and vulnerability to hazards
  - Negative economic effects will vary by region
  - Moody's is looking at credit risks
  - Local, state, and federal tools for response and recovery can enhance resilience





# Types of Mitigation Actions



**Local Plans and Regulations**



**Structure and Infrastructure Projects**



**Natural Systems Protection**



**Education and Awareness Programs**

# FEMA Mitigation Grant Funding

**FEMA offers grants to State and local governments to support mitigation projects**

► **Specific funding availability may vary from year to year, and some program verification may be required**

► **Flood and Drought Resistant Mitigation Activities now supported**

► **Types of grants:**

- Hazard Mitigation Grant Program (HMGP)
- Pre-Disaster Mitigation (PDM)
  - Including Advance Assistance
- Flood Mitigation Assistance (FMA)

Coming Soon....

Disaster Recovery Reform Act of 2018 **BRIC**



# Other FEMA Resources

**There are many FEMA programs that help fund mitigation projects**

- **Public Assistance (PA)Section 406 Mitigation**
- **Emergency Management Performance Grant (EMPG)**
- **Increased Cost of Compliance(ICC) under the NFIP**
- **National Disaster Recovery Framework**
- **High Hazard Potential Dam Grant Program**



# Commonwealth of Pennsylvania



## Commonwealth of Pennsylvania 2018 State Hazard Mitigation Plan

Review Draft: June 29, 2018





# Local Funding



# Plan Integration

- Integrate plan goals with other community objectives
- Use the risk assessment to inform plans and policies
- Implement mitigation actions through existing mechanisms



# Annual Local Hazard Mitigation Plan Reviews

- *Are Important!*
- Not prescriptive in format
- Answer the questions:
  1. What have you accomplished this year?
  2. What have been the challenges?
  3. Do you have new priorities?
  4. What training or technical assistance do you need?
  5. Identify urgent needs.







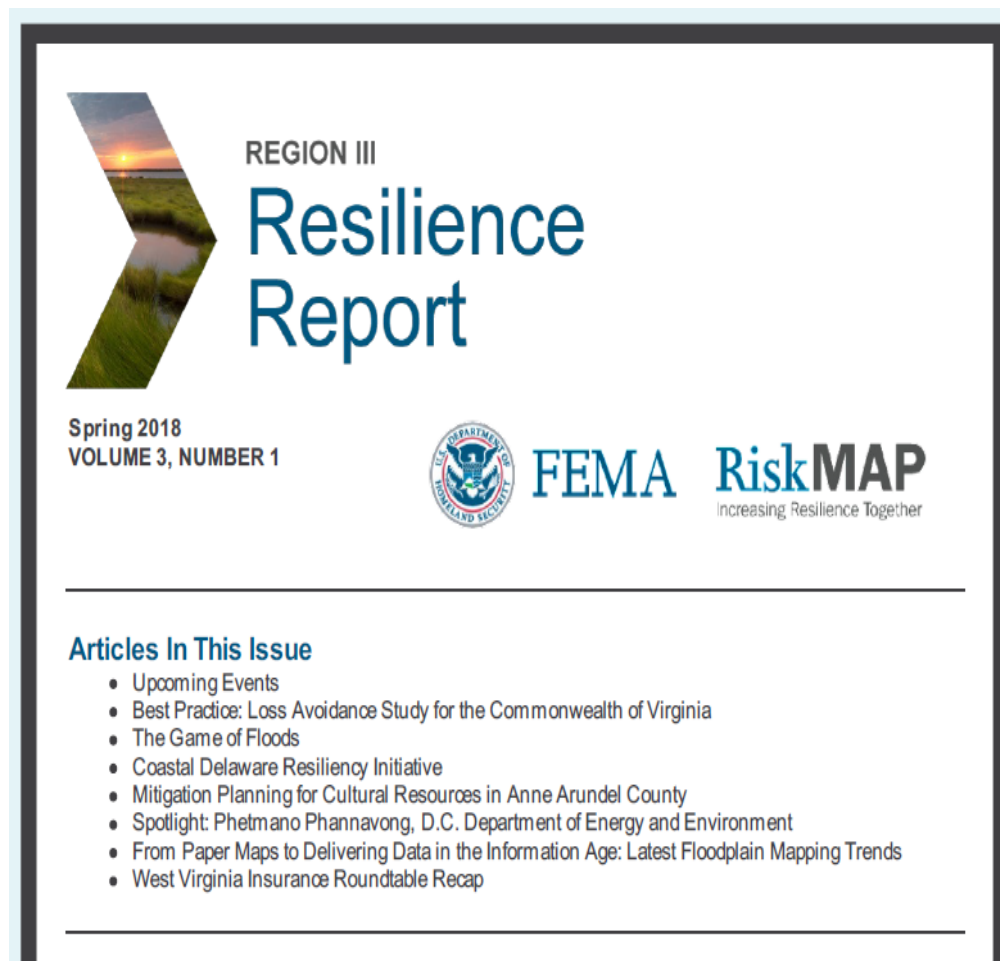
# Upcoming FEMA Region III Coffee Breaks

- **October 30, 2019: Integrating EPA Programs and Hazard Mitigation Planning**
- **January 15, 2019: Incorporating Historic and Cultural Resources in Your Hazard Mitigation Plan**

To register, please follow the link to:

<https://femaregion3coffeebreaks.eventbrite.com>

# Resilience Report



# Engaging Early and Often is Critical





# Montgomery County Hazard Mitigation Planning Workshop: Lessons Learned



**JON LESHER, LEED GREEN ASSOCIATE  
PRINCIPAL ENVIRONMENTAL PLANNER  
10.21.2019**

# County hazard mitigation plan requirements



- Disaster Mitigation Act passed in 2000
- Requires plan adoption by all municipalities
- Plans linked to future federal disaster relief grants and loans
- Plans must be updated each 5 years
- Annual review meetings are required

# Who am I?



- **Jon Leshner, Principal Environmental Planner**
  - Stormwater, sustainability & resiliency planning
- **I am not Mike Stokes**



- **The county is prepared to undertake the next plan update**
- **It will be a team effort**
  - Drew Shaw, Environmental Planning Section Chief
  - Donna Fabry, Senior Open Space Planner
  - Municipal and state partners (FEMA, PEMA, DVRPC, and others)



# 2019 Annual Meeting



- **Annual review meeting**
  - Annual meetings are required
  - A chance to collaborate and network as Montgomery County moves toward the next update
    - ✦ Especially the Planning Commission networking with municipalities
      - Managers, EMAs, elected officials, staff, etc.
  - An opportunity to work towards implementation
    - ✦ What has Montgomery County done?
    - ✦ What would Montgomery County like to do?
    - ✦ What challenges is Montgomery County facing?
    - ✦ How does Montgomery County overcome those challenges?

# Lessons Learned



- **Game of Extremes**

- As a planner, was skeptical at first
- Underestimated the audience
  - ✦ Hazard mitigation types are used to table-top simulations
  - ✦ The “game” was engaging on a number of levels
- Planners see it as a useful tool



# Lessons Learned



- The county's primary challenge is coordination and communication...
- Not necessarily with our stakeholders, but with ourselves
- The Mitigation Action Plan calls for county coordination between
  - Planning Commission
  - Public Safety Department
  - Health Department
  - Communications Department
  - County Commissioners
  - Roads and Bridges Division
  - Infrastructure and Assets Department
  - Montgomery County Conservation District



# Lessons Learned



- **Awareness**

- Plan is posted on county website and link has been sent to stakeholders
- Ready MontCo Safer using the Everbridge system app
- Montgomery County Citizen Corps
- Code Red & Blue warnings
- Annual meetings and finding ways to connect hazard mitigation planning to other efforts
  - ✦ Stormwater, Resiliency, Sustainability, etc.

# Next steps



- Grant funding application
- 2020 Annual review meeting
- Look to maximize effort and efficiency
  - Make it as useful of a tool as possible
  - Climate change planning?

**Jon Leshner, Principal Environmental Planner**

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**610.278.3750**



# Questions? Discussion

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Jon Leshner - [JLeshner@montcopa.org](mailto:JLeshner@montcopa.org)