



Weathering Change with Communities

Sari Rothrock

Partnership for the Delaware Estuary





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Weathering Change with Communities

- Why PDE cares about climate change
- The Weathering Change Initiative
- Interactive hypothetical case study



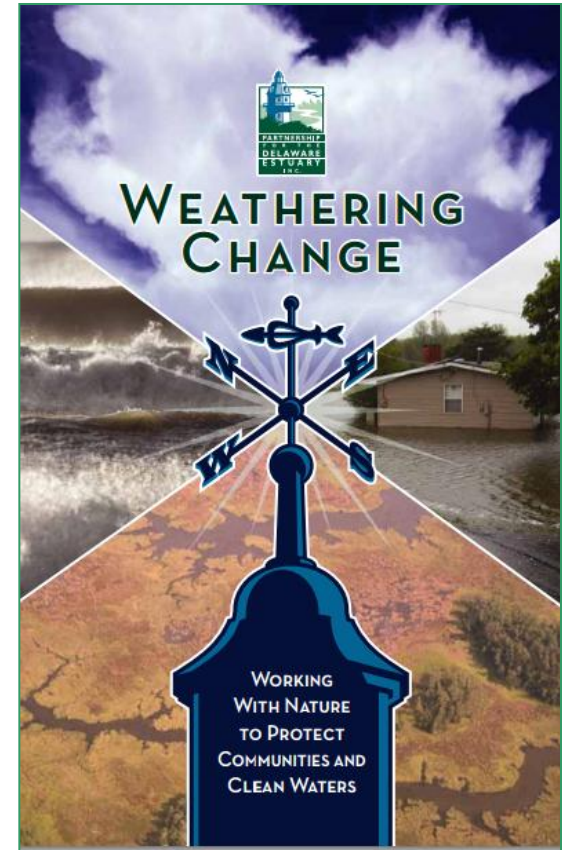
Weathering Change with Communities

- Why PDE cares about climate change
- The Weathering Change Initiative
- Interactive hypothetical case study



Weathering Change with Communities

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Partnership for the Delaware Estuary // Delaware Estuary Science & Environmental Summit 2013

Why does PDE care about Climate Change?



The Partnership for the Delaware Estuary is a nonprofit organization established in 1996 to take a leadership role in protecting and enhancing the Delaware Estuary, where fresh water from the Delaware River mixes with salt water from the Atlantic Ocean.

Why does PDE care about Climate Change?



The Partnership for the Delaware Estuary is a nonprofit organization established in 1996 to take a leadership role in **protecting** and **enhancing** the Delaware Estuary, where fresh water from the Delaware River mixes with salt water from the Atlantic Ocean.

Why does PDE care about Climate Change?

“Adaptation to climate change will happen, whether we take action or not.

By taking action, we can choose to adapt in a way that protects our most valued resources. By not taking action, we are risking the likelihood of losing or damaging some of our most valuable resources.”

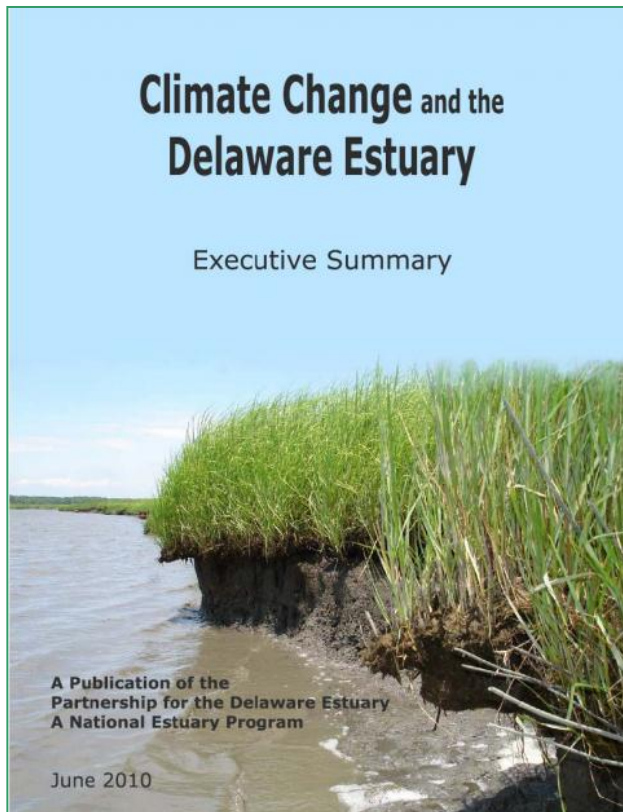
- Climate Change and the Delaware Estuary, 2010



What and why is the Weathering Change Initiative



What and why is the Weathering Change Initiative

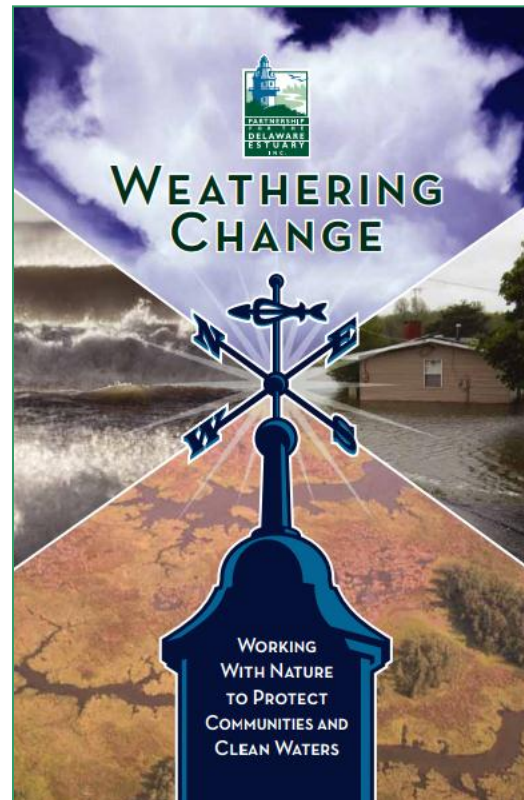
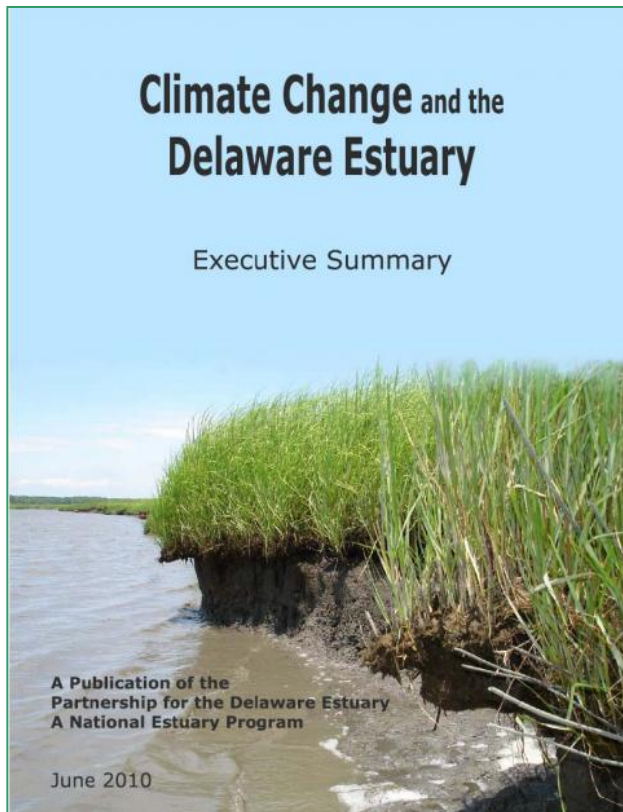


Climate Change and the Delaware Estuary, released in 2010.

Partnership for the Delaware Estuary // Delaware Estuary Science & Environmental Summit 2013



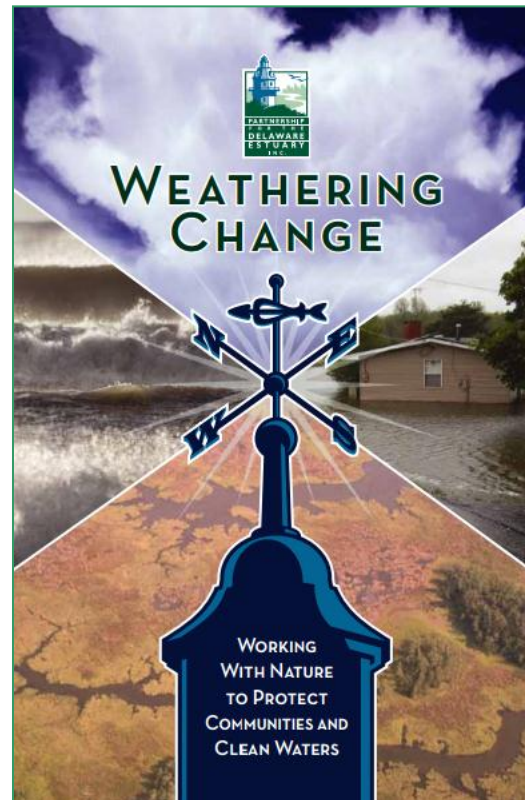
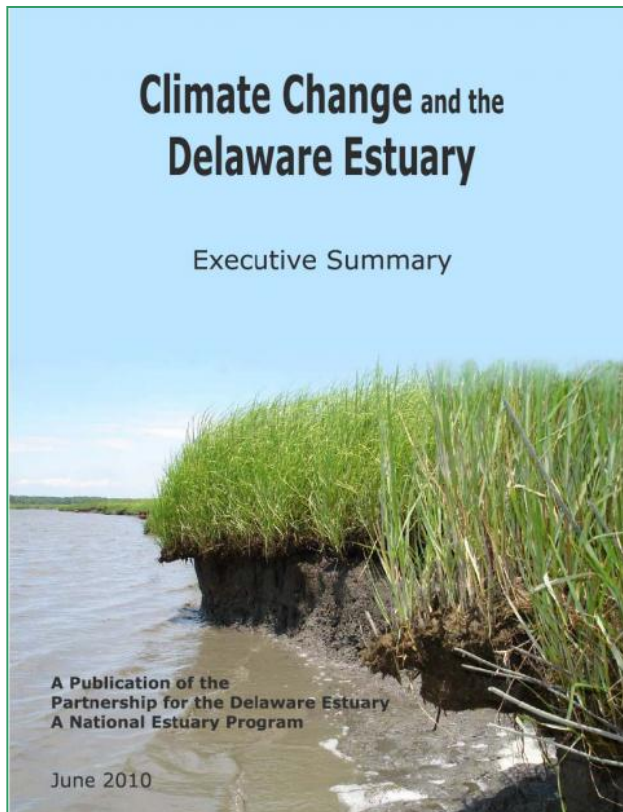

What and why is the Weathering Change Initiative



Weathering Change, released in 2011.

Partnership for the Delaware Estuary // Delaware Estuary Science & Environmental Summit 2013

What and why is the Weathering Change Initiative

Take Action for Weathering Change

Conditions in the Delaware Estuary watershed are changing. More frequent and severe rain, storms and flooding, hot and dry spells in the summer, and higher tides in coastal areas are all on the rise. If we work together to respond to these changes, we can create safer communities, protect our built infrastructure, and preserve the natural areas we rely on for clean water and healthy communities.

I, _____ a representative of _____ am committed to:

- **Identifying built infrastructure at risk in the community.** (Infrastructure at risk includes roads, water systems, and structures in low-lying and/or flood-prone areas.)
- **Identifying the natural assets in the community that are most important and/or at risk.** (Natural features like tidal wetlands, floodplains, and forested streambanks can help protect communities from impacts, but are also at risk.)
- **Identifying actions my community can take to adjust to changes.** (Actions like setting built infrastructure back from wetlands, floodplains and streams, and promoting healthy streamside forests and tidal wetlands can help communities minimize risk.)
- **Helping my community plan for the future.** (Educating residents and addressing changing conditions in plans and ordinances as they are updated can help prepare communities for change.)

Signature _____ Date _____

If applicable: This statement corresponds with municipal resolution _____ as passed _____

The Partnership for the Delaware Estuary will feature all signees on its website.
Please check the boxes below for additional offers.

Yes, my community would like to be eligible for additional public recognition organized by the Partnership for the Delaware Estuary, such as press releases.

Yes, my community wants help weathering change! Please contact me so I can learn more. My email is _____ and my phone number is _____

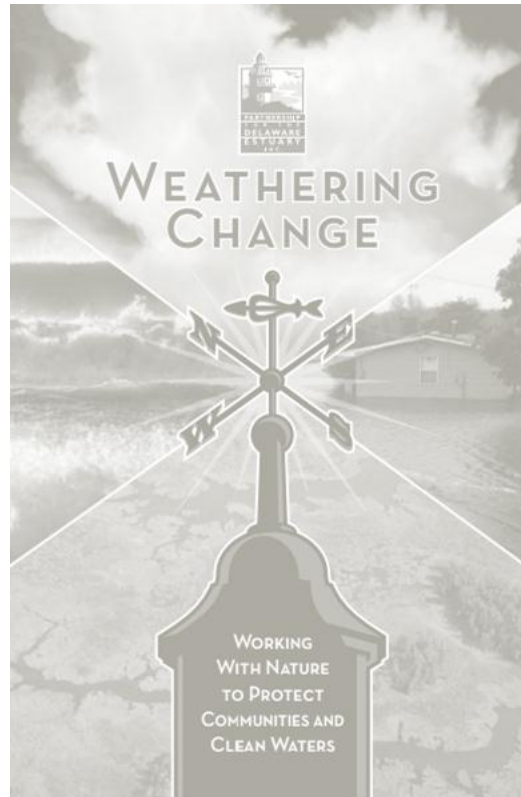
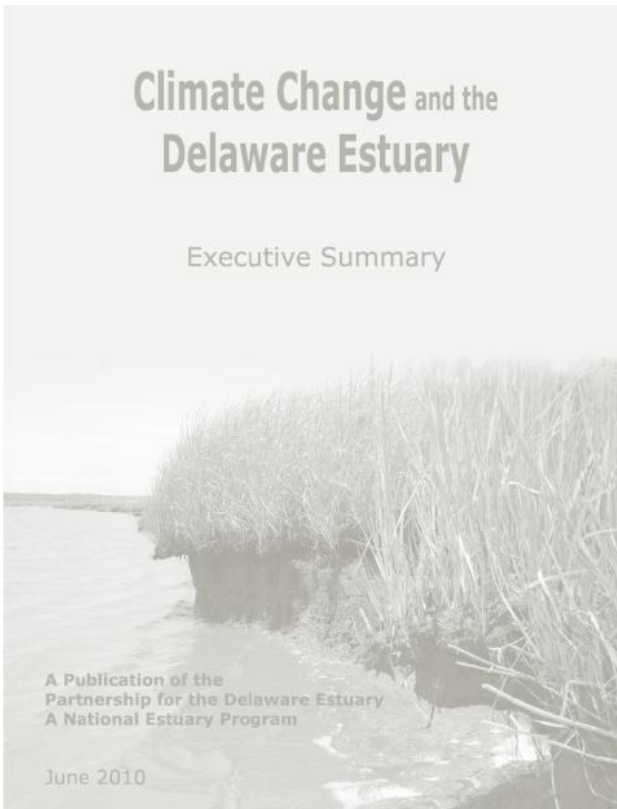

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Take Action for Weathering Change, released in 2012.

Partnership for the Delaware Estuary // Delaware Estuary Science & Environmental Summit 2013

What and why is the Weathering Change Initiative

Take Action for Weathering Change

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What and why is the Change Initiative

City of
Lewes
DELAWARE



Executive Summary



Take Action for Weathering Change

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City of Lewes DELAWARE



Weathering Change

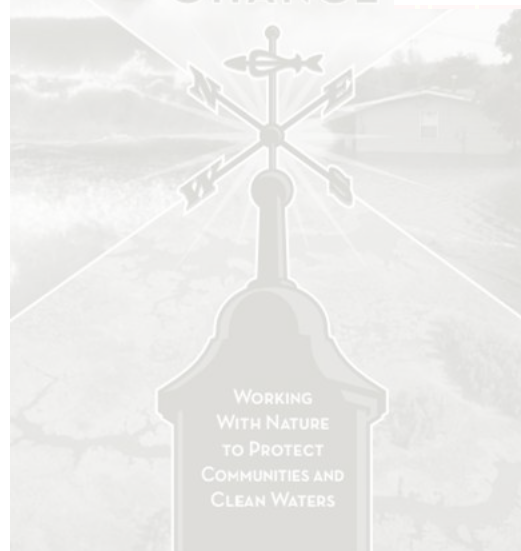
Conditions are changing. More flooding, hot and dry spells in the summer, and sea level rise are all on the rise. If we work together, we can create safer communities, protect the natural areas we rely on, and improve the quality of life for all.

Executive Summary



A Publication of the Partnership for the Delaware Estuary
A National Estuary Program

June 2010



WORKING
WITH NATURE
TO PROTECT
COMMUNITIES AND
CLEAN WATERS

I, _____ am committed to:

- Identifying built infrastructure of risk in the community. (Infrastructure of risk includes roads, water systems, and structures in low-lying and/or flood-prone areas.)
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City of
Lewes
 DELAWARE



Weathering Change
 Conditions are changing. More flooding, hot and dry spells in the past are all on the rise. If we work together we can create safer communities, preserve the natural areas we rely on.

Executive



- Identifying built infrastructure of risk in the community. (Infrastructure of risk includes roads, water systems, and structures in low-lying and/or flood-prone areas.)
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City of
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 DELAWARE



Weathering Change

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Executive



A Publication of the Partnership for the Delaware A National Estuary Program

June 2010

WORKING WITH NATURE TO PROTECT COMMUNITIES AND OUR WATERS

I am committed to:

- Identifying built infrastructure of risk in the community. (Infrastructure of risk includes water systems, and structures in low-lying and/or flood-prone areas.)
- Identifying natural assets in the community that are most important and/or at risk. (Wetlands, floodplains, and forested streambanks can help communities minimize risk, but are also at risk.)
- Actions my community can take to adjust to changes. (Actions like setting floodplains, floodplains and streams, and promoting healthy watersheds can help communities minimize risk.)
- Educating residents and addressing concerns as they are updated can help prepare communities.

Date _____

Resolution _____ as passed _____

_____ will feature all signers on its website. _____ for additional offers.

_____ for additional public recognition organized by _____ such as press releases.

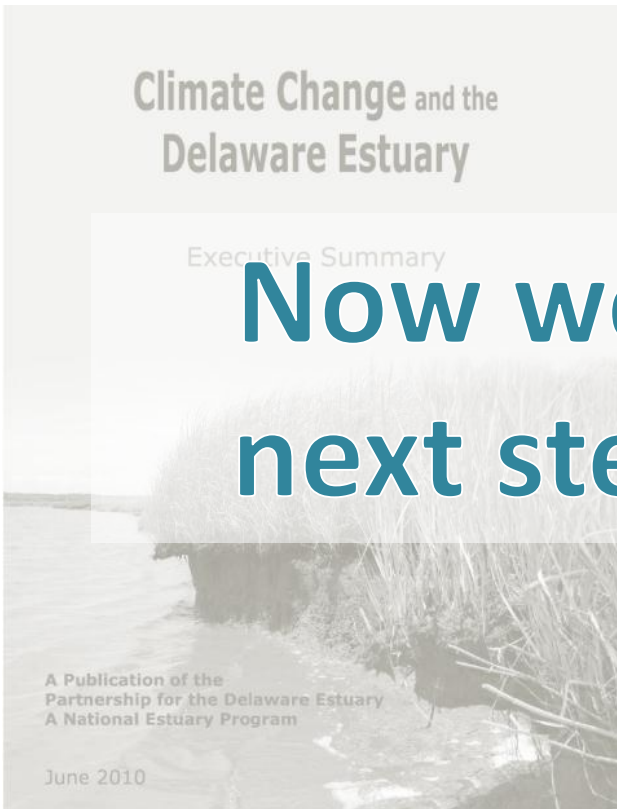

_____ weathering change! Please contact me so I can learn more. _____ and my phone number is _____

Delaware Estuary is a nonprofit organization established to take a leadership role in protecting the Delaware Estuary, where fresh water from the Delaware River meets with salt water from the Atlantic Ocean. Its staff works with partners in three states to increase awareness, understanding, and scientific knowledge about the Delaware Estuary, the region's most important cultural, economic, and recreational resource.



What and why is the Weathering Change Initiative

Now we're working on the next steps of the initiative.

Take Action for Weathering Change

Conditions in the Delaware Estuary watershed are changing. More frequent and severe rain, storms and flooding, hot and dry spells in the summer, and higher tides in coastal areas are all on the rise. If we work together to respond to these changes, we can create safer communities, protect our built infrastructure, and preserve the natural areas we rely on for clean water and healthy communities.

I, _____ a representative of _____ am committed to:

- Identifying built infrastructure in my community. (Infrastructure at risk includes bridges, roads, and buildings, and areas that are flood-prone areas.)
- Identifying the natural assets in my community that are most important and/or at risk. (Natural assets include tidal wetlands, forests, and forested streambanks that protect communities from impacts, but are also at risk.)
- Identifying actions my community can take to adjust to changes. (Actions like setting back built infrastructure from wetlands, floodplains and streams, and promoting healthy streamside forests and tidal wetlands can help communities minimize risk.)
- Developing emergency plans for the future. (Evacuating residents and addressing emergency response plans and procedures that are updated can help prepare communities for change.)

Signature: _____ Date: _____

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Creatively thinking through the next steps:
You're going to help.



Creatively thinking through the next steps:
You're going to help.

Have you ever heard of James Rojas?



Image retrieved from <http://drpop.org/2010/05/james-rojas-the-city-as-play/>

Creatively thinking through the next steps:

You're going to help.

I'm going to ask you a question.



Creatively thinking through the next steps:

You're going to help.

I'm going to ask you a question.

**You're going to build an answer
to it.**



Creatively thinking through the next steps:

You're going to help.

**Stand in front of a piece
of paper at your table.**



Ready?



Partnership for the Delaware Estuary // Delaware Estuary Science & Environmental Summit 2013

How would you build a town for 1,000 people who live on the Delaware Bay?



How would you build a town for 1,000 people who live on the Delaware Bay?

One side of your paper MUST be the coast!



How would you build a town for 1,000 people who live on the Delaware Bay?

One side of your paper MUST be the coast!

You have 10 minutes. GO!



TIME IS UP!

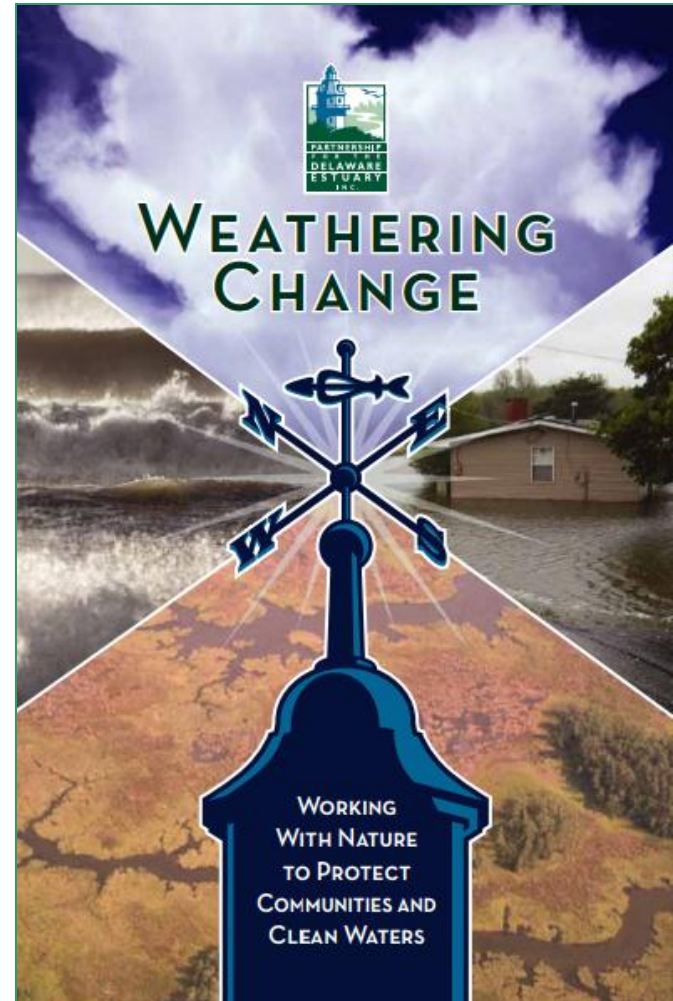
Everyone: stay put!





Partnership for the Delaware Estuary // Delaware Estuary Science & Environmental Summit 2013

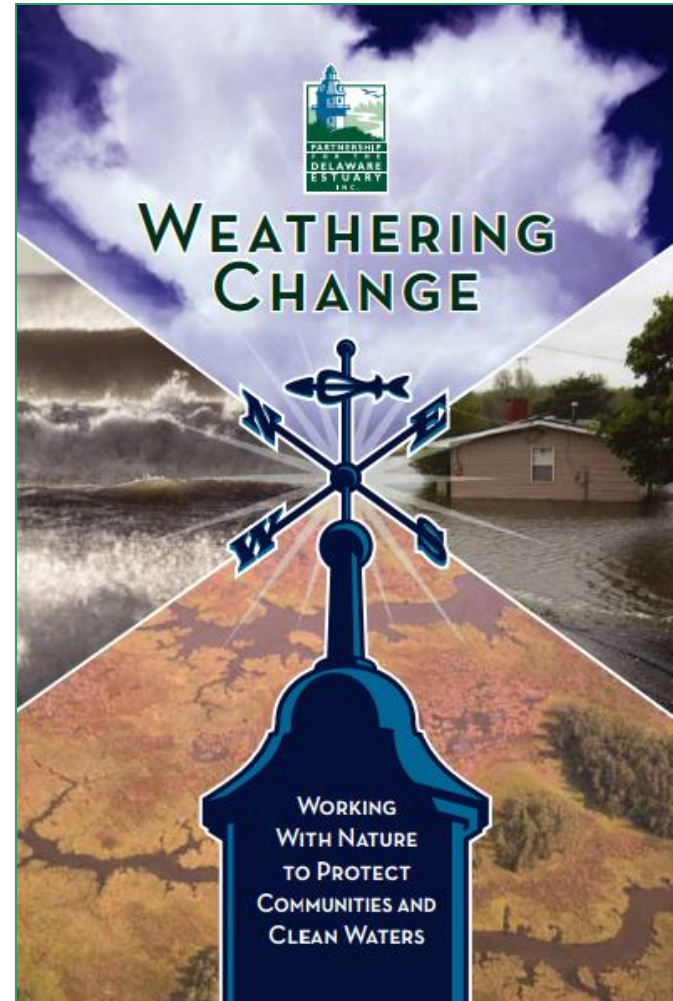
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What was that?



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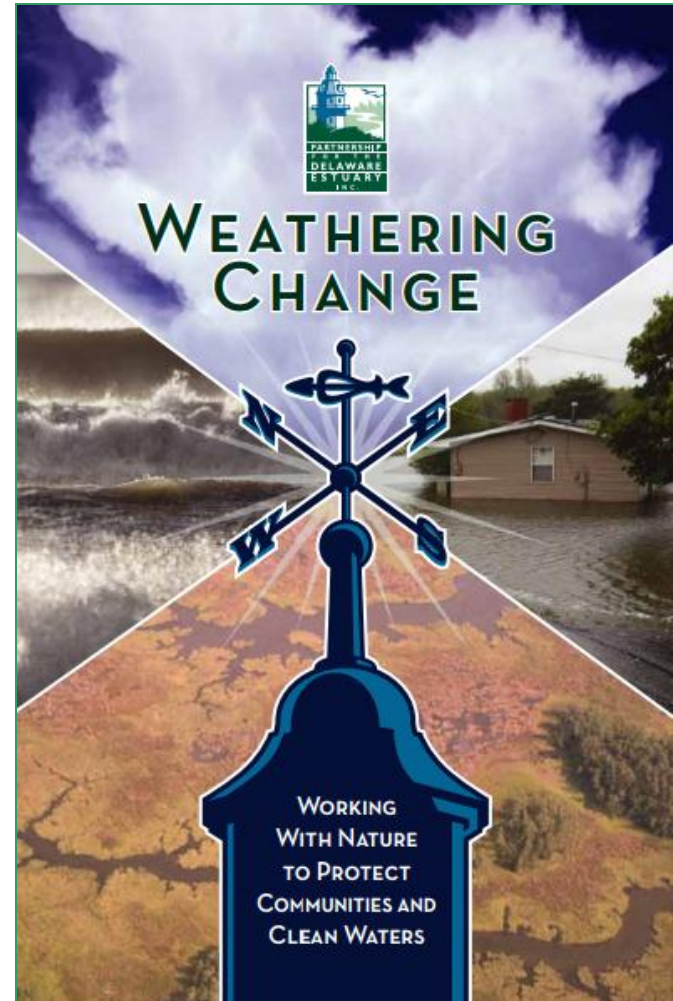
You were thinking through how to make a community capable of Weathering Change.



Creatively thinking through the next steps:

What was that?

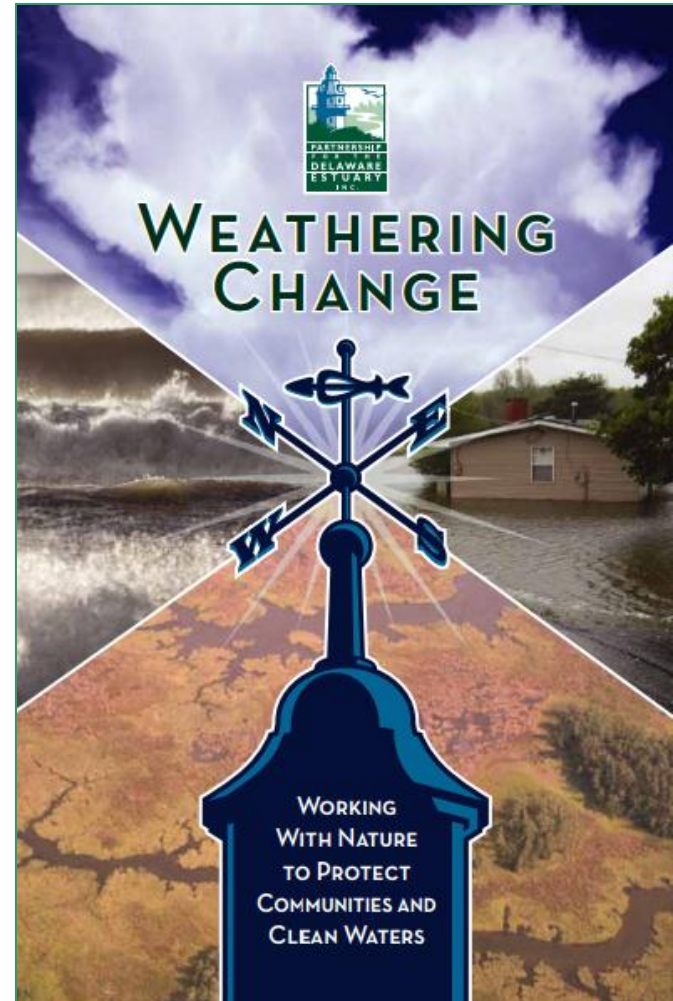
You were thinking through how to make a community capable of **Weathering Change.**



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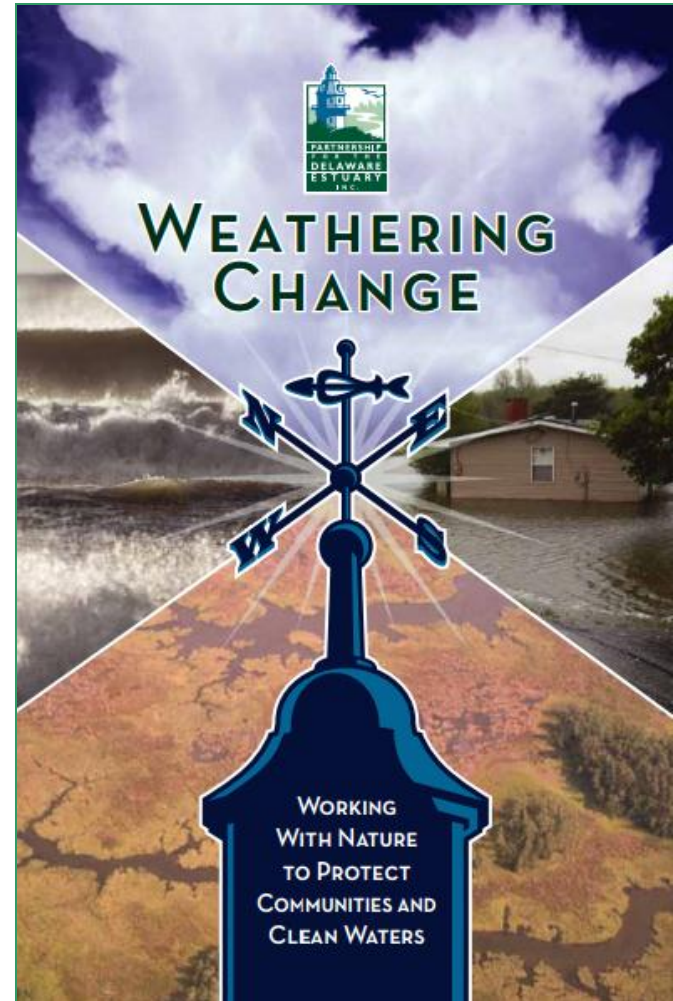
You were thinking through how to make a community capable of working with the environment.



Creatively thinking through the next steps:

What was that?

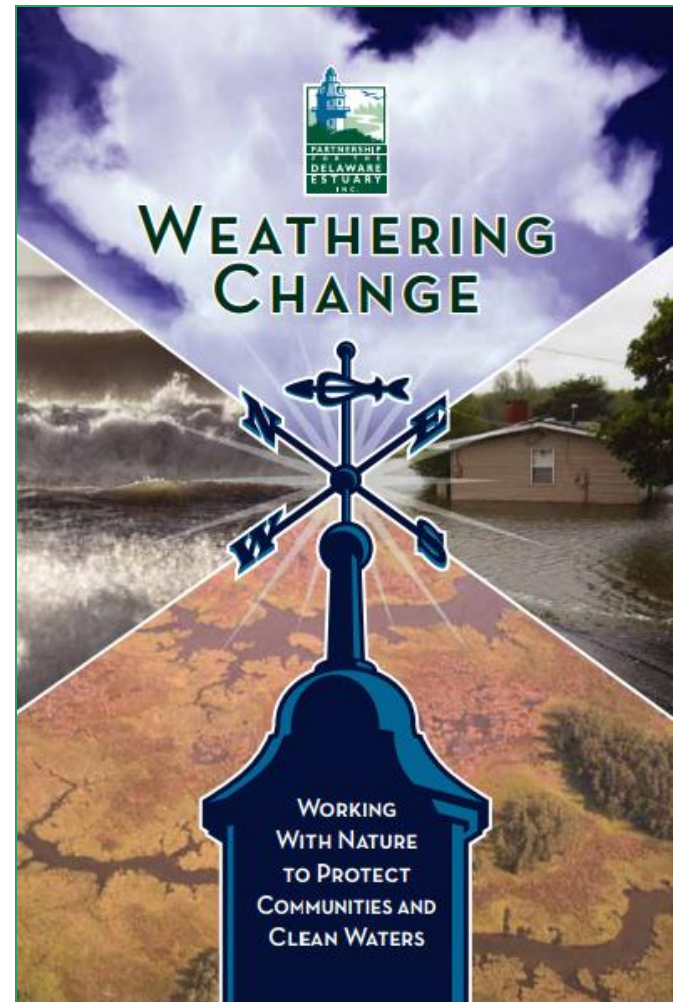
You were thinking through how to make a community capable of bouncing back from a beating.



Creatively thinking through the next steps:

What was that?

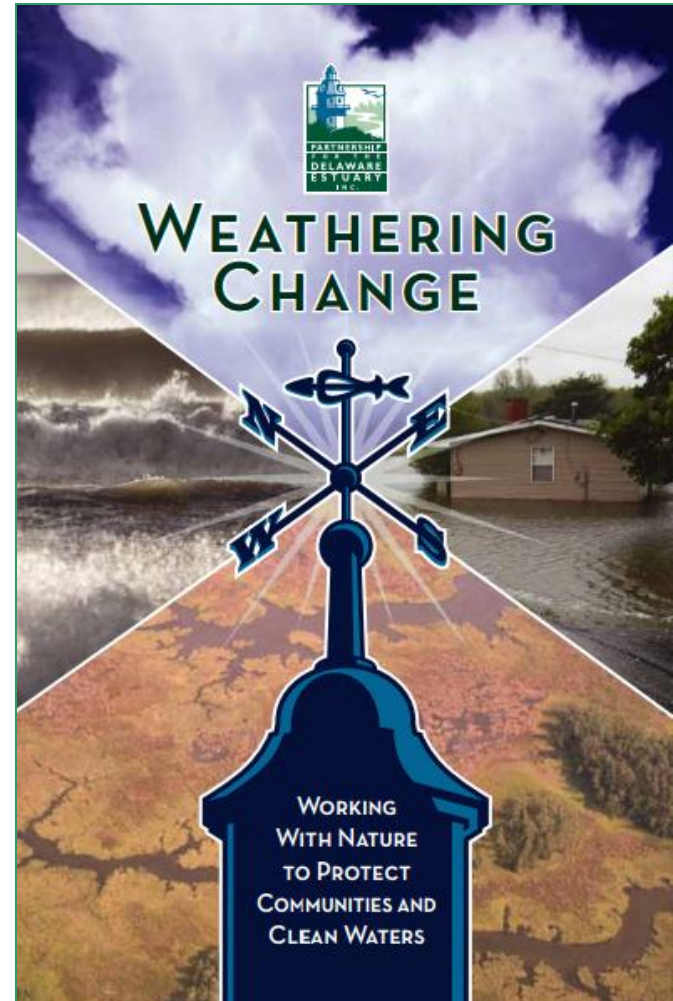
You were thinking through how to make a community capable of being resilient.



Creatively thinking through the next steps:

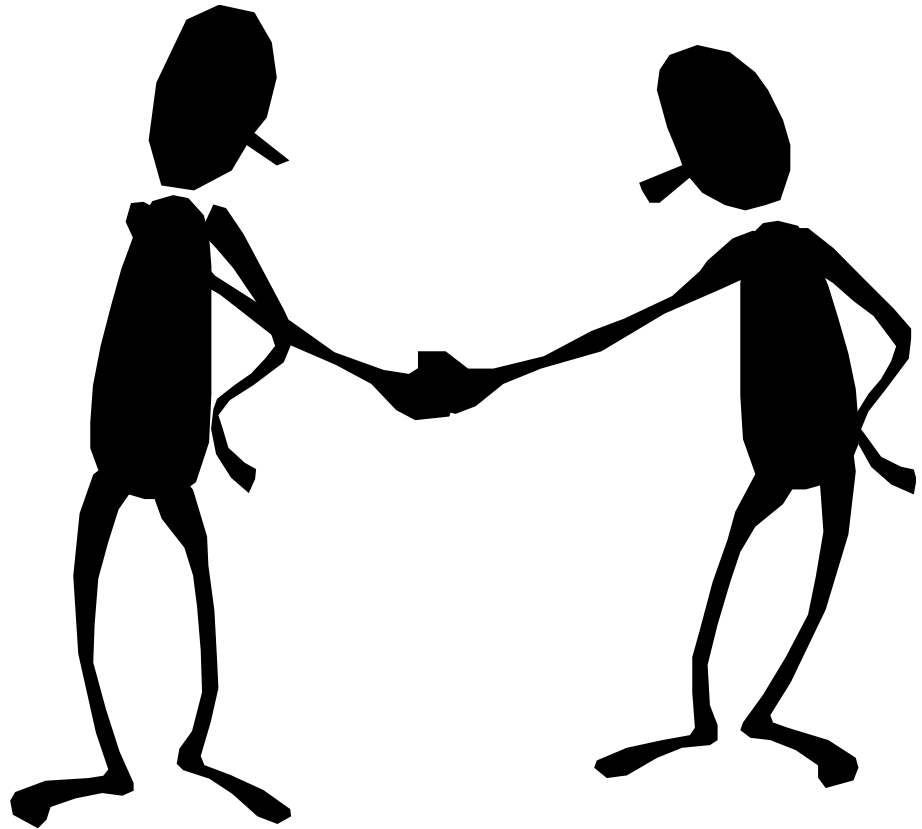
What was that?

Next steps of the Weathering Change Initiative will involve municipal outreach on ordinances and codes that may help a town to become more **resilient**.



Elements of Resilience

1. Social Infrastructure
2. Natural infrastructure
3. Built infrastructure



Elements of Resilience

1. Social Infrastructure
2. Natural infrastructure
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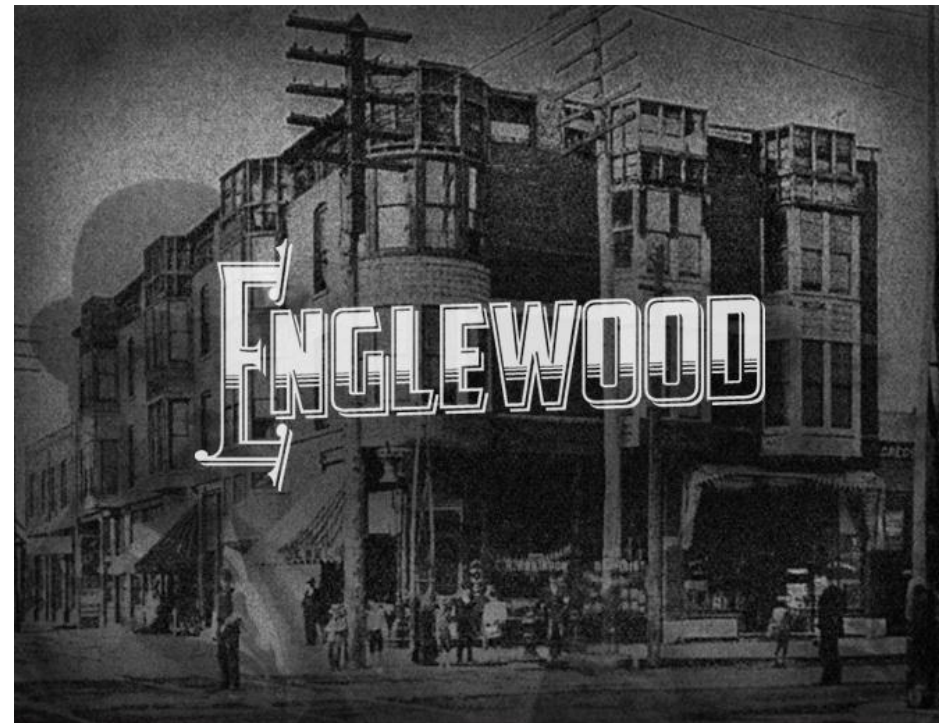
Elements of Resilience

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Social Infrastructure

Chicago Case Study



Images retrieved from <http://www.thechicagonighborhoods.com/>

For more info., see www.theatlanticcities.com/neighborhoods/2013/01/resilience-about-relationships-not-just-infrastructure/4305/



Natural Infrastructure

N.J. sand dunes protected Shore towns from Hurricane Sandy's wrath



By **Star-Ledger Staff**

on November 06, 2012 at 7:05 AM, updated November 06, 2012 at 11:44 AM

Tweet 23 **Like** 280 **Share** 1 **Foursquare** **Email**

By **Ryan Hutchins** and **Seth Augenstein**/The Star-Ledger

Hurricane Sandy did something unusual to Long Beach Island, a narrow 18-mile strip of land: The storm's raging winds and powerful surge of water carved two communities out of one.

There are the places that had a protective dune system installed and, as a result,



Enlarge

Andrew Mills/The Star-Ledger

Workers have closed a breach in the barrier island at the base of the Mantloking Bridge where Barnegat Bay met the Atlantic Ocean here after Hurricane Sandy pummeled the Jersey Shore last week. 11/5/12 (Andrew Mills/The Star-Ledger)

N.J. News Essentials

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N.J. voters favor stricter measures, poll shows

194

N.J. men sue Subway, charged on footlong sandwich

http://www.nj.com/news/index.ssf/2012/11/nj_sand_dunes_protected_shore.html

Built Infrastructure

“South-facing Long Beach on Oak Island, N.C., September 17, 1999 -- Hurricane Floyd brought a devastating 15 feet of storm surge that damaged or destroyed hundreds of houses along this community's ocean front, and flattened its frontal sand dunes. Here is a prime example of mitigation working by elevation of the home at right. The older, ground-level block foundation of the home on the left was crushed. Elevation of this home could have preserved it.”

Photo by DAVE GATLEY/ FEMA News Photo



http://www.fema.gov/photolibrary/photo_details.do?id=119



Sari's Theoretical Flow Chart: Why better design matters

END GOAL

“Weathering
Change”

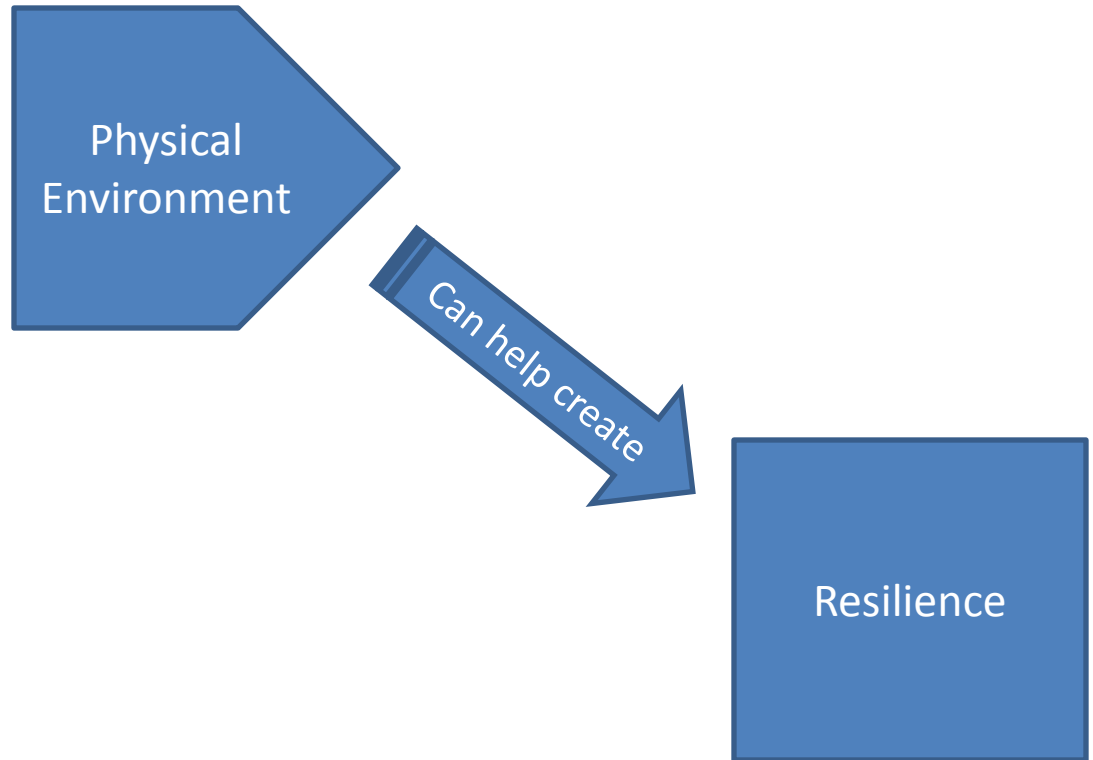


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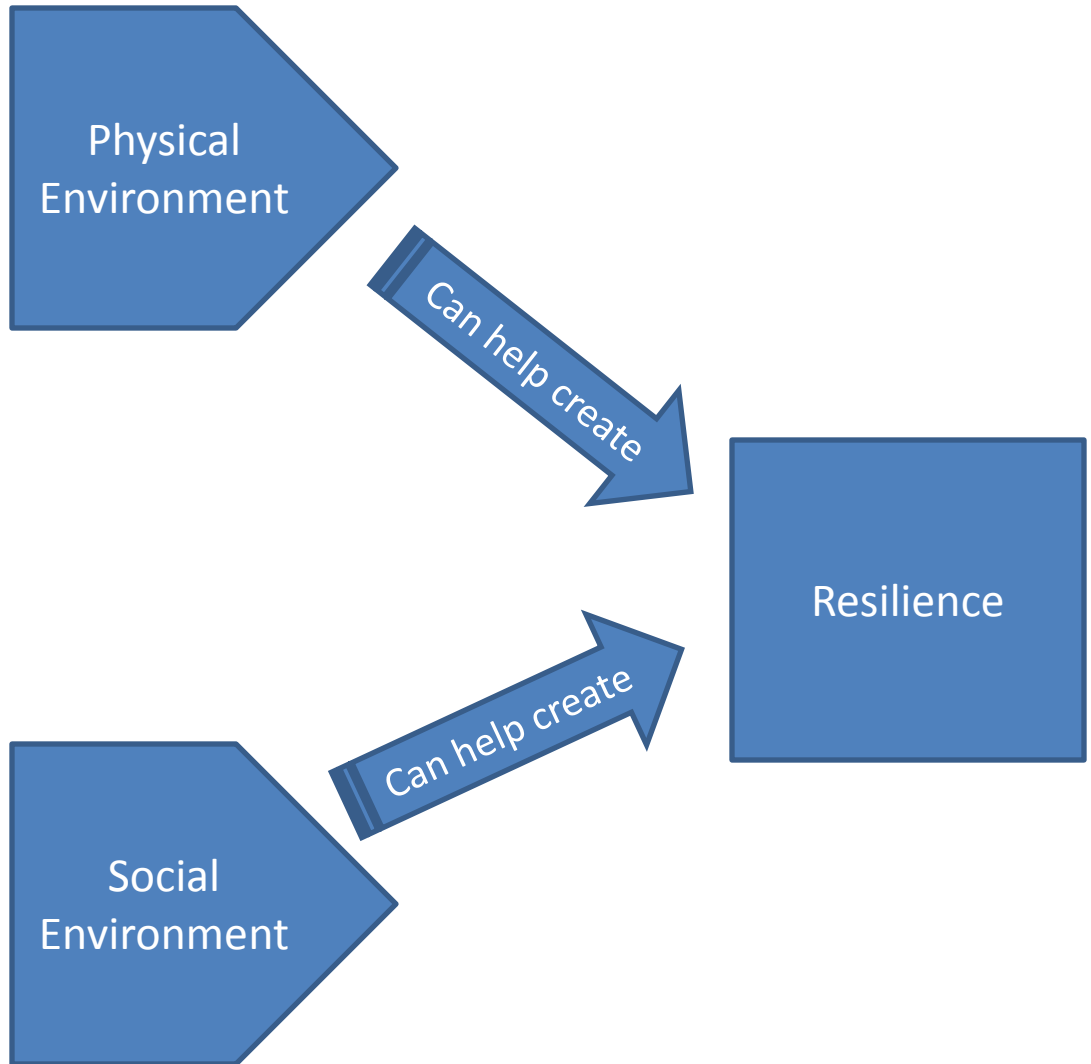
Ability to recover
from an event



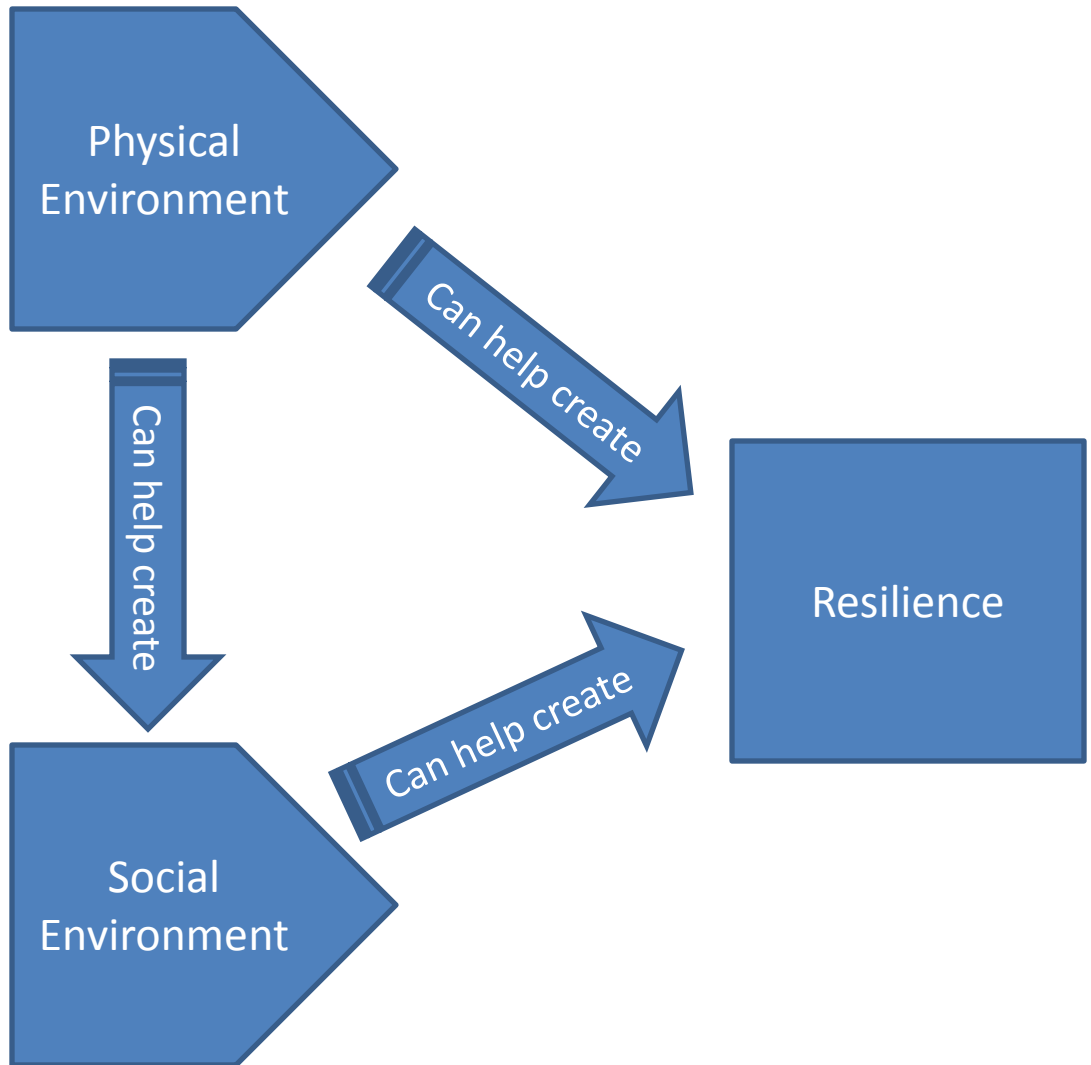
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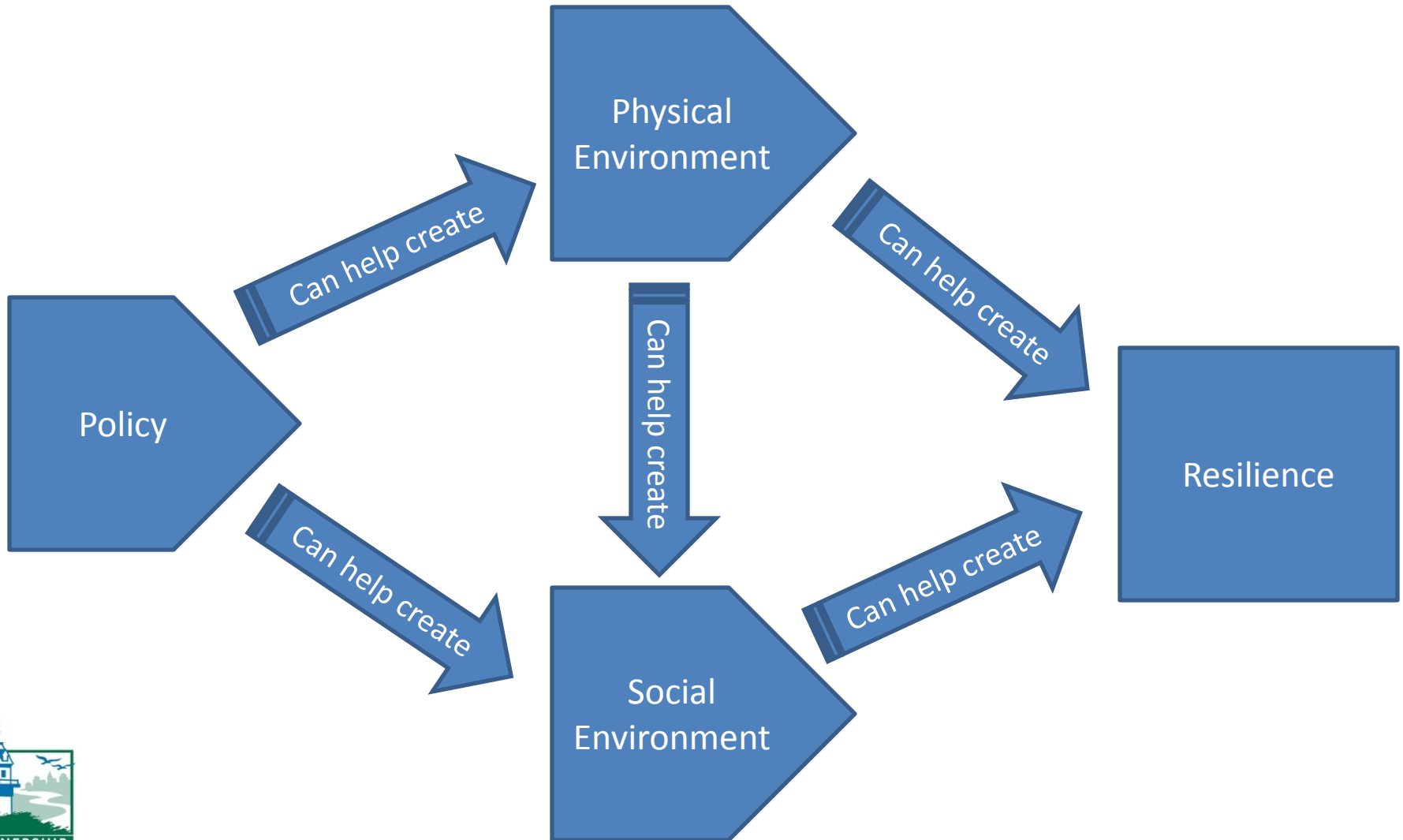
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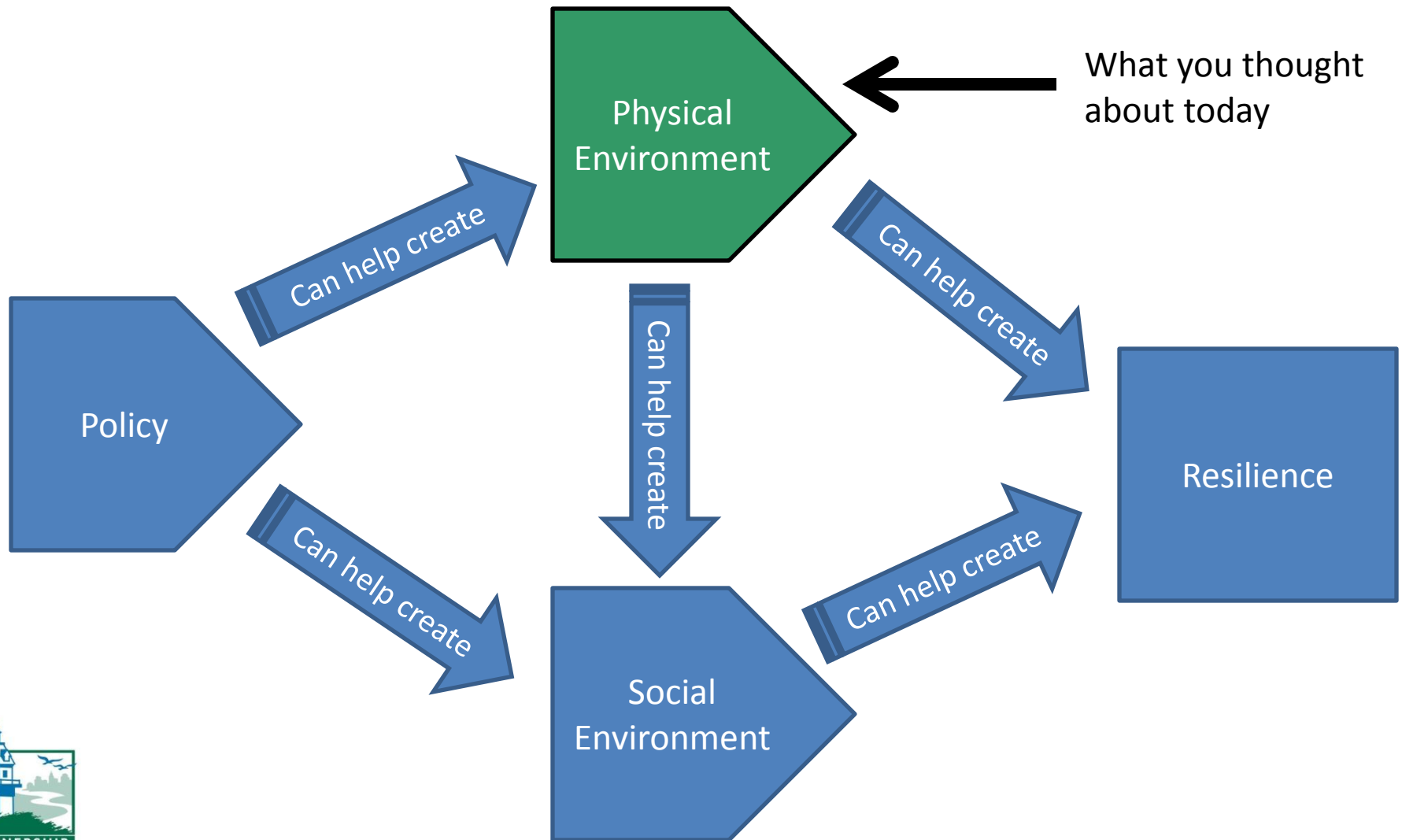
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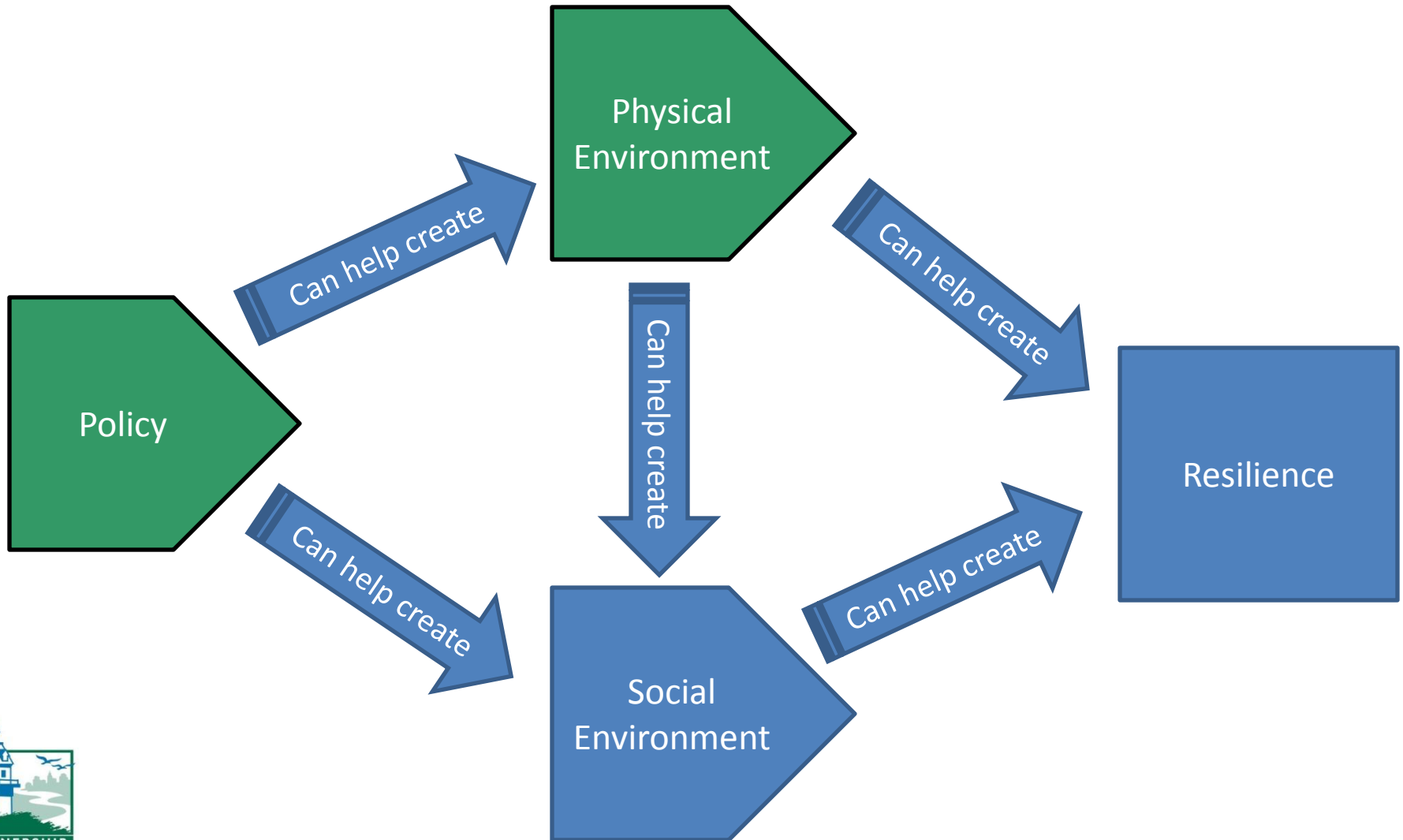
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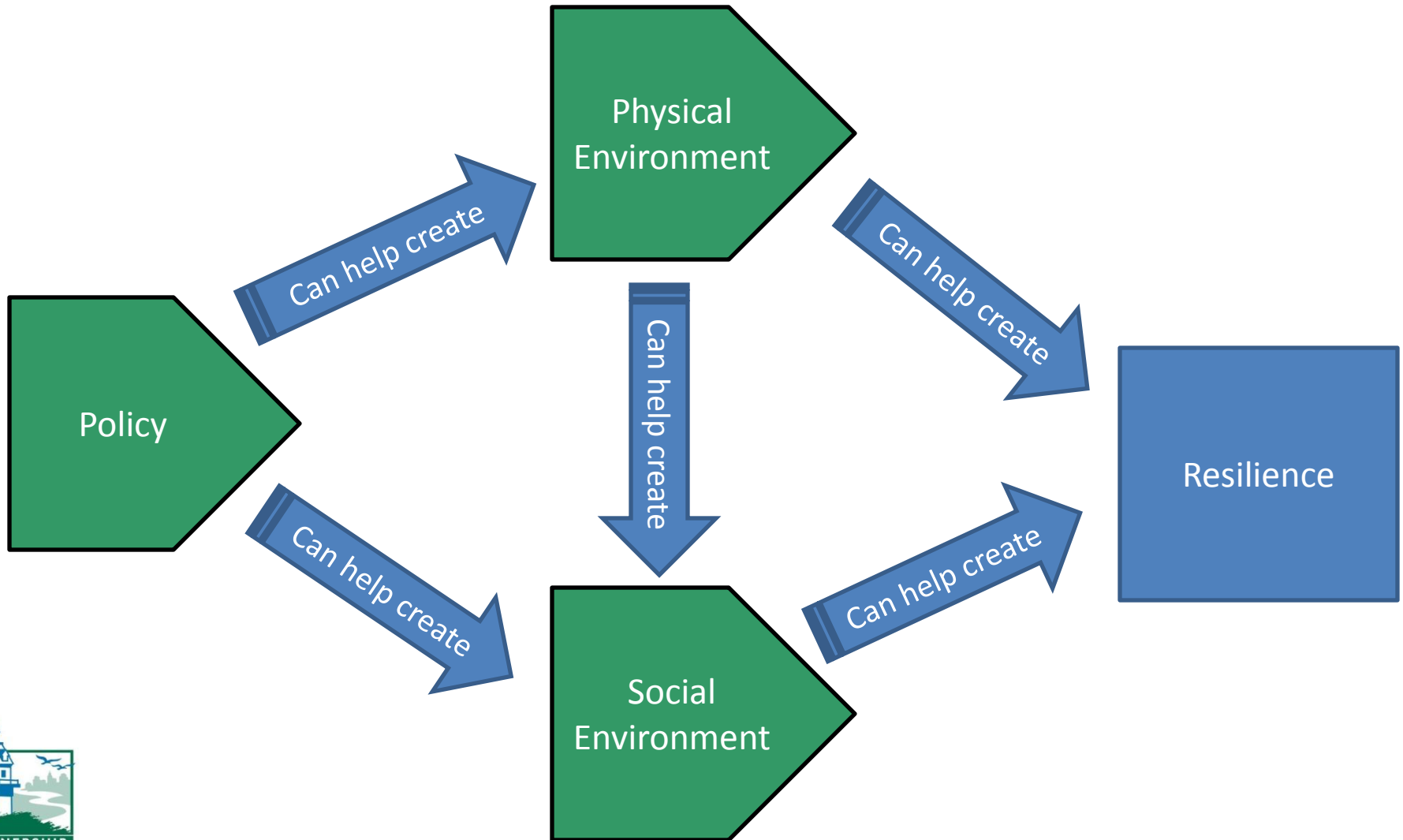
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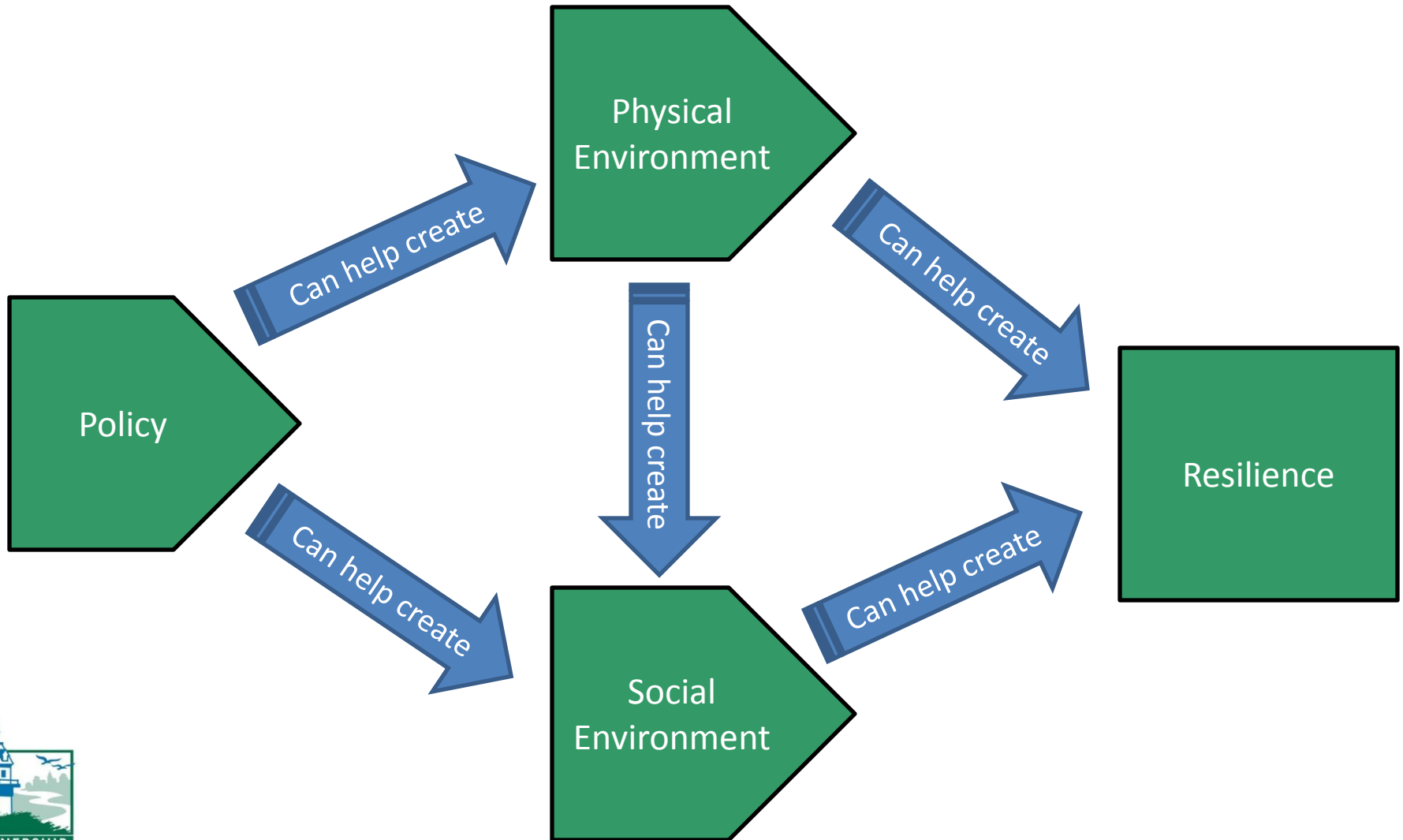
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Sari's Theoretical Flow Chart: Why better design matters



Sari's Theoretical Flow Chart: Why better design matters



Next Steps



Next Steps

- Put together a group of professionals to advise PDE on municipal ordinances, codes, and guidelines.
- Create an easy way for municipalities to access information.
- Find more communities to sign on to “Weathering Change!”



Next Steps

Want to help?

- Put together a group of professionals to advise PDE on municipal ordinances, codes, and guidelines. Do you know someone who would be good on our team?
- Create an easy way for municipalities to access information. Email me if you have ideas!
- Find more communities to sign on to “Weathering Change!” If you’re interested, pick up “Take Action for Weathering Change!”





Weathering Change with Communities

Sari Rothrock

SRothrock@DelawareEstuary.org

Partnership for the Delaware Estuary

