

# Strategies for 21st Century Risk Management and Climate Change Communication

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  - Heidi Roop, Lead Scientist for Science Communication, Climate Impacts Group, U. of Washington

# Climate Change, a Super Wicked Problem

## ***Wicked Problem*** (Rittel & Webber, 1973)

Wicked problems lack a simplistic, straightforward solution because they are difficult to define, have many interdependencies, have numerous stakeholders and opinions, involve economic burden and are interconnected with other problems (Rittel & Webber, 1973).

## ***Super Wicked Problem*** (Levin et al., 2007)

A problem with even further exacerbating features:

1. Time is running out
2. Those who cause the problem also seek to provide a solution
3. The central authority needed to address the problem is weak or non-existent
4. Irrational discounting occurs, pushing responses into the future

# Climate Change Communication Challenges

complex

lack of  
understanding

many  
audiences,  
many  
responses

viewpoint  
based on  
tribe

cognitive  
dissonance

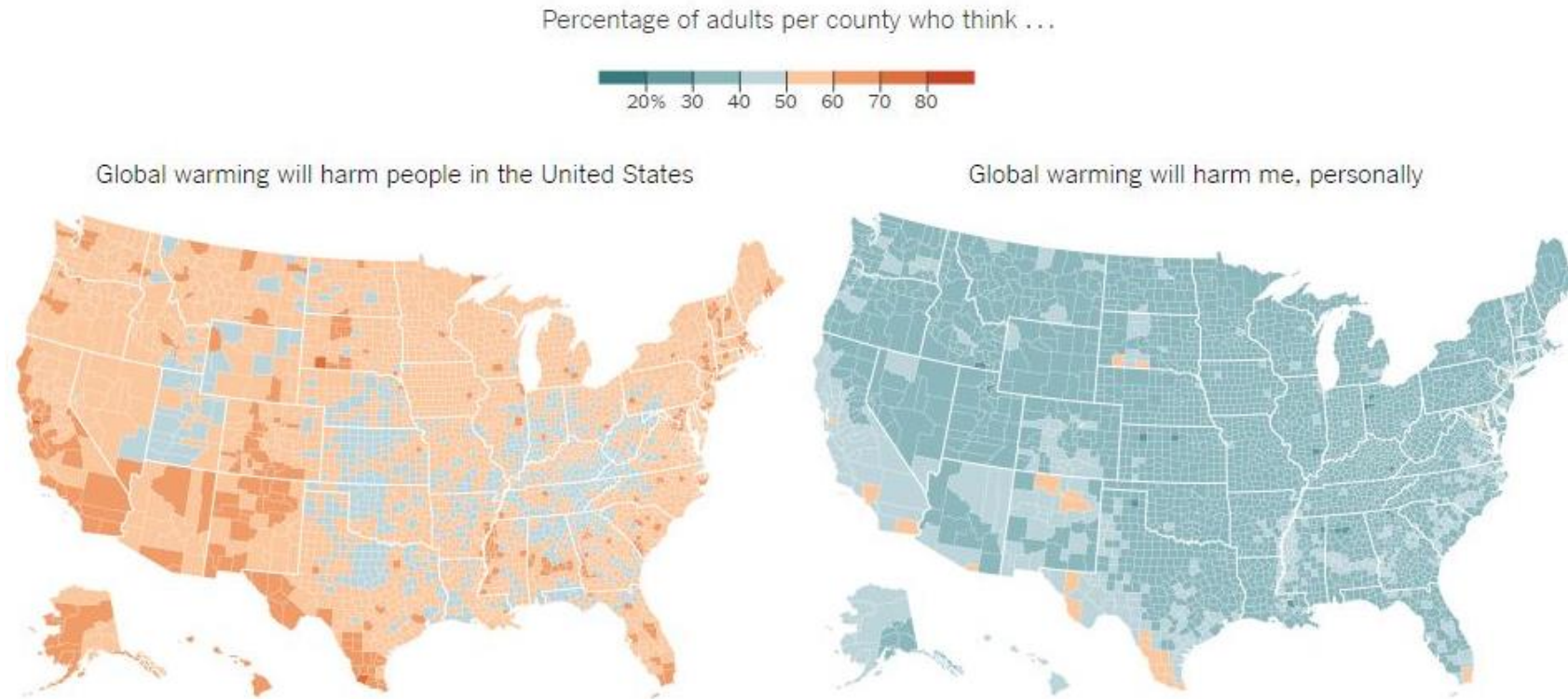
# Climate Change Communication Challenges



My desire to be well-informed is currently  
at odds with my desire to remain sane.

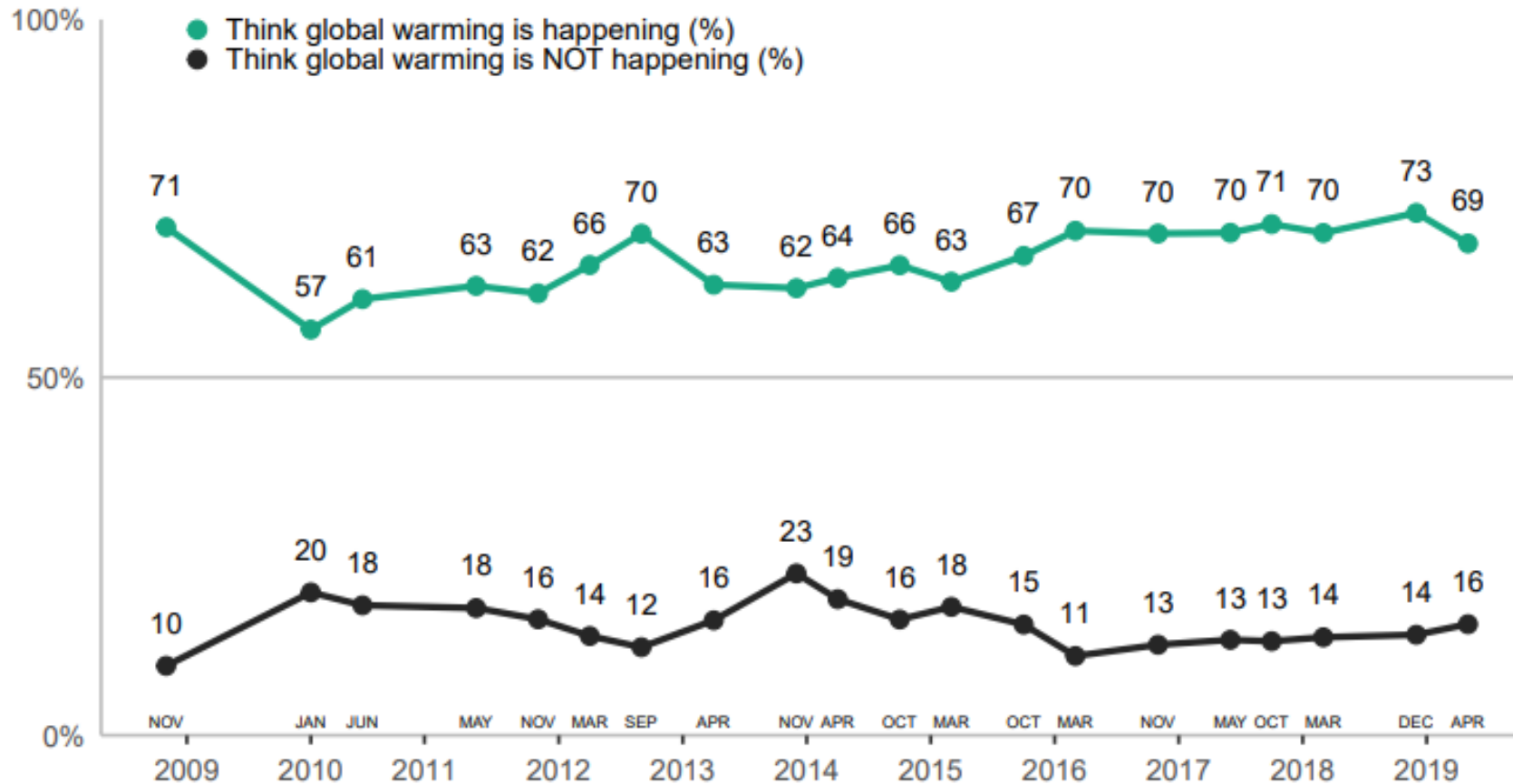
# Climate Change Communication Challenges

Most People Think that climate change will harm Americans but they don't think it will happen to them



Source: New York Times, March 21, 2017 article *How Americans Think about Climate Change, in Six Maps*

# The (mostly) good news...



Roughly 7 in 10 Americans think global warming is happening



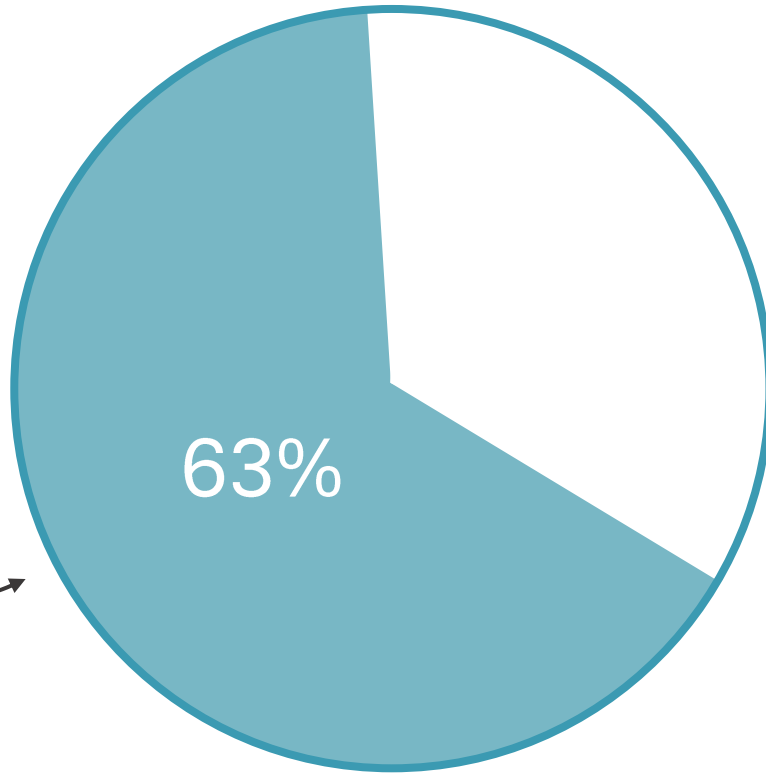
YALE PROGRAM ON  
Climate Change  
Communication



GEORGE MASON UNIVERSITY  
CENTER for CLIMATE CHANGE  
COMMUNICATION

# Communication is the key!

*About six in ten Americans (63%) say they "rarely" or "never" discuss global warming with family and friends*



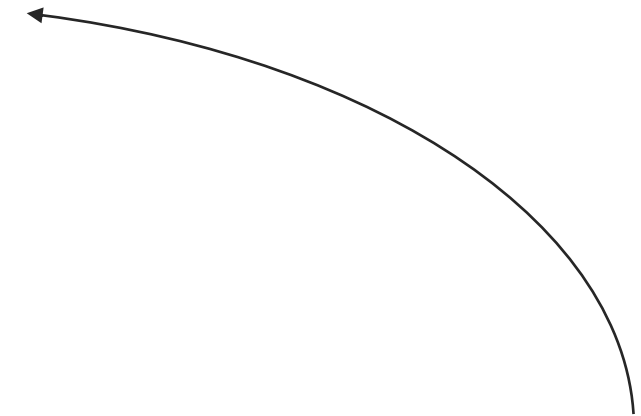
Source: Leiserowitz, et al., 2019



Katherine Hayhoe  
climate scientist/communicator  
extraordinaire



# Internal Communications and Mainstreaming



Climate Change can be  
really overwhelming!

# Internal Communications and Mainstreaming

Management/leadership style

physical separations

ideological separations

political separations

large staff



# Internal Communications and Mainstreaming

Management/leadership style

physical separations

ideological separations

political separations

large staff

CYLINDERS OF EXCELLENCE



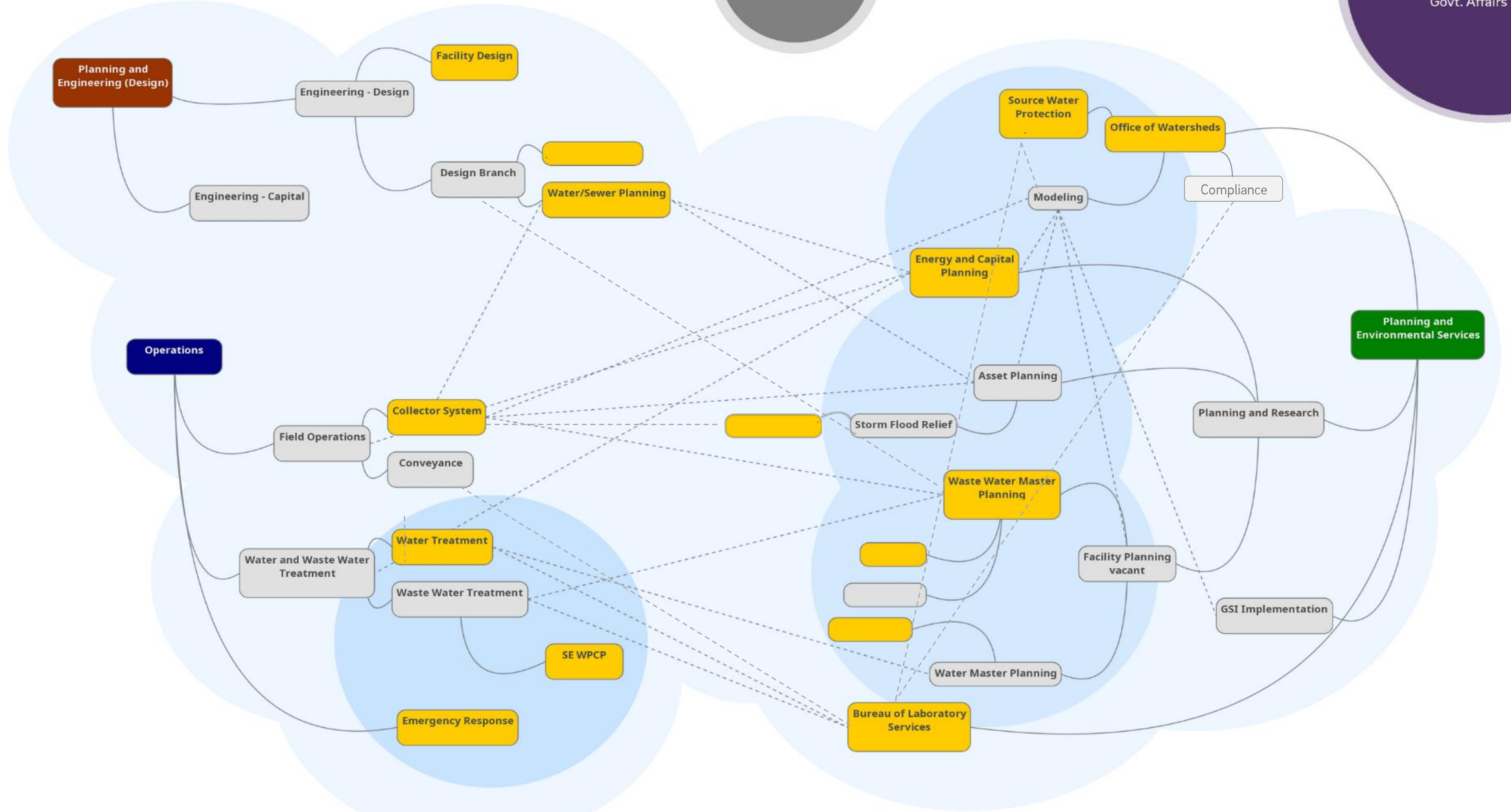
Roll Out Strategy - Organization Map

Safe Drinking Water Act

Executive Staff

Clean Water Act

Public Affairs  
Finance  
General Council  
Govt. Affairs



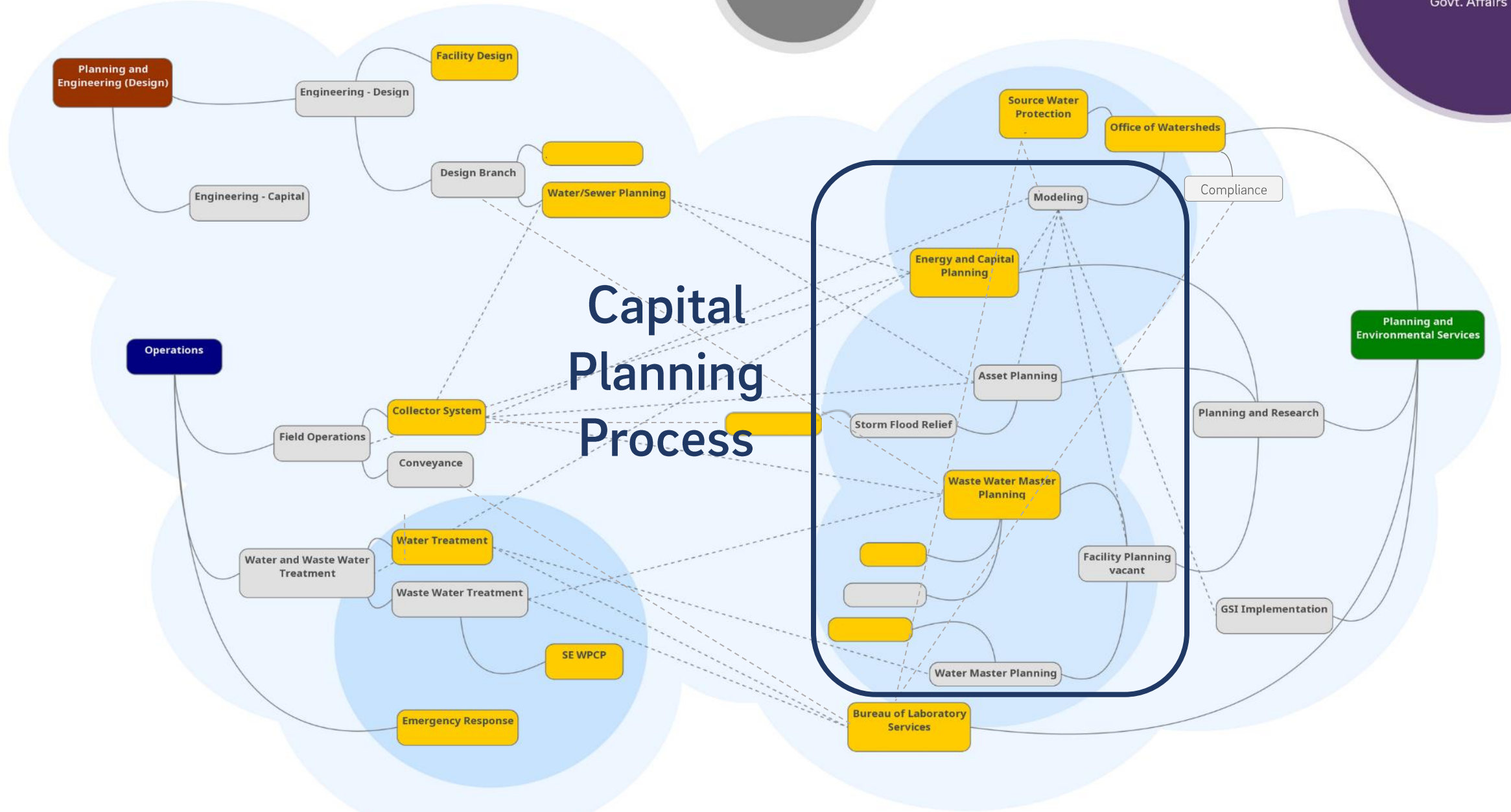
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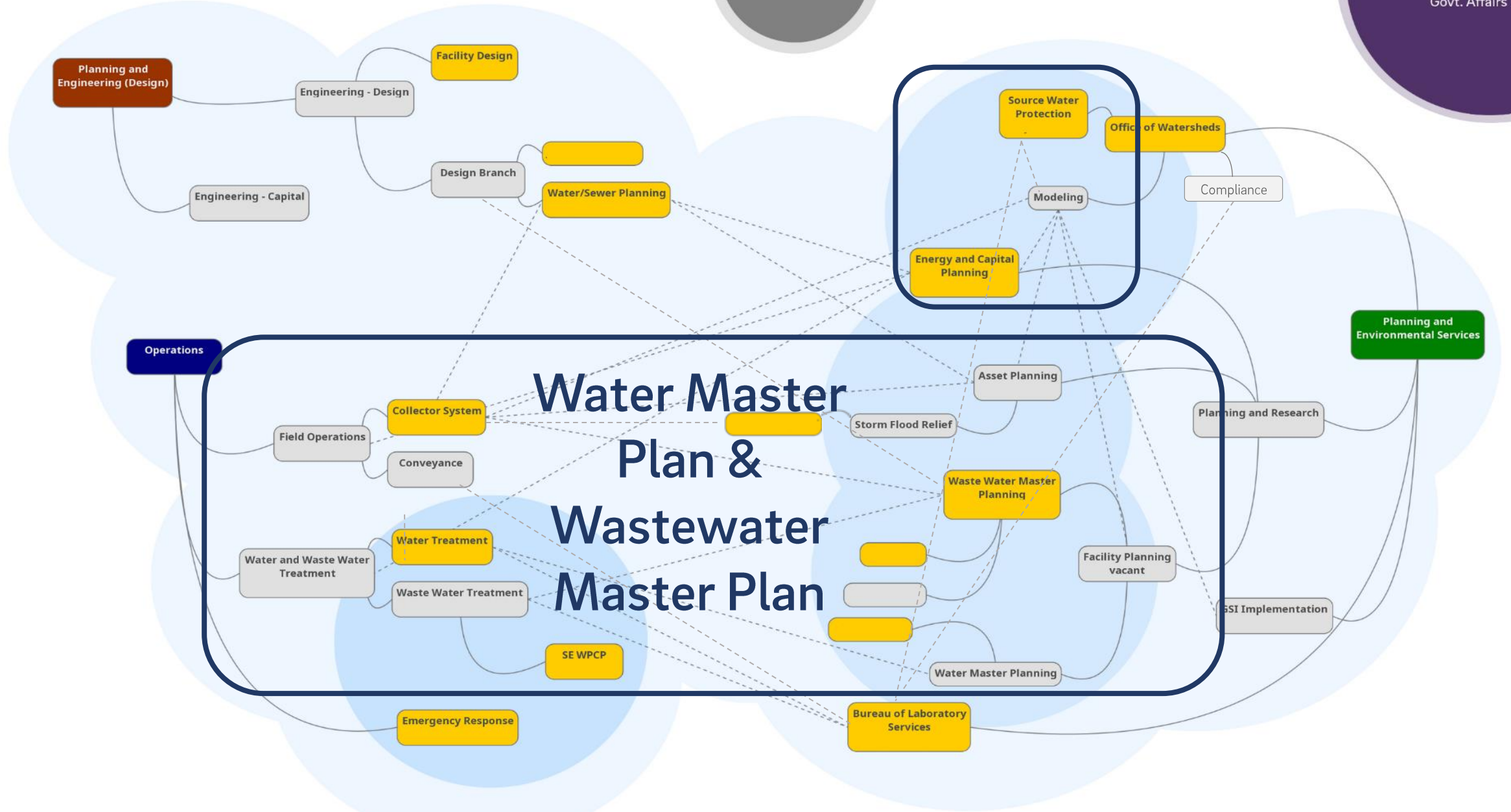
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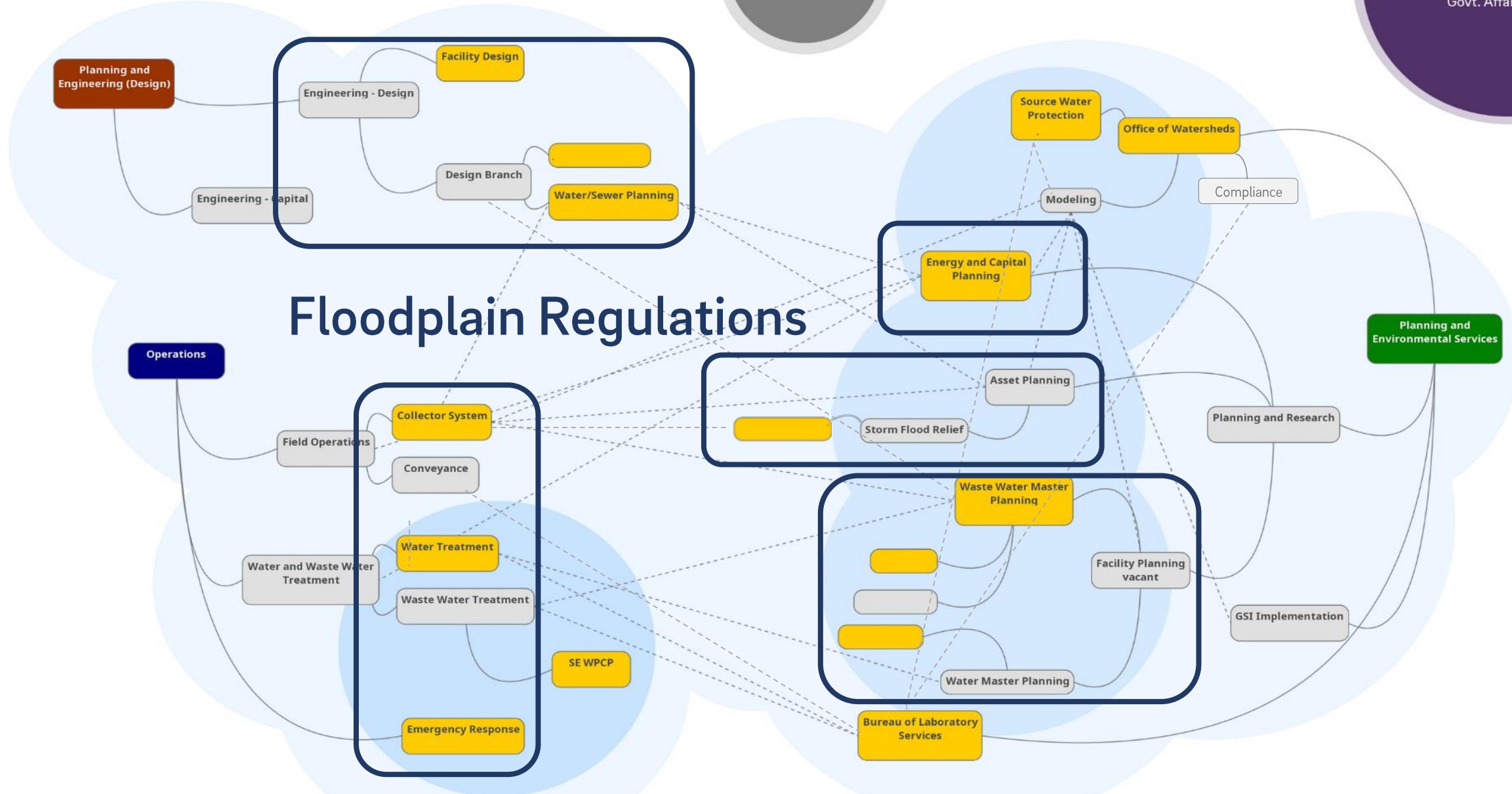
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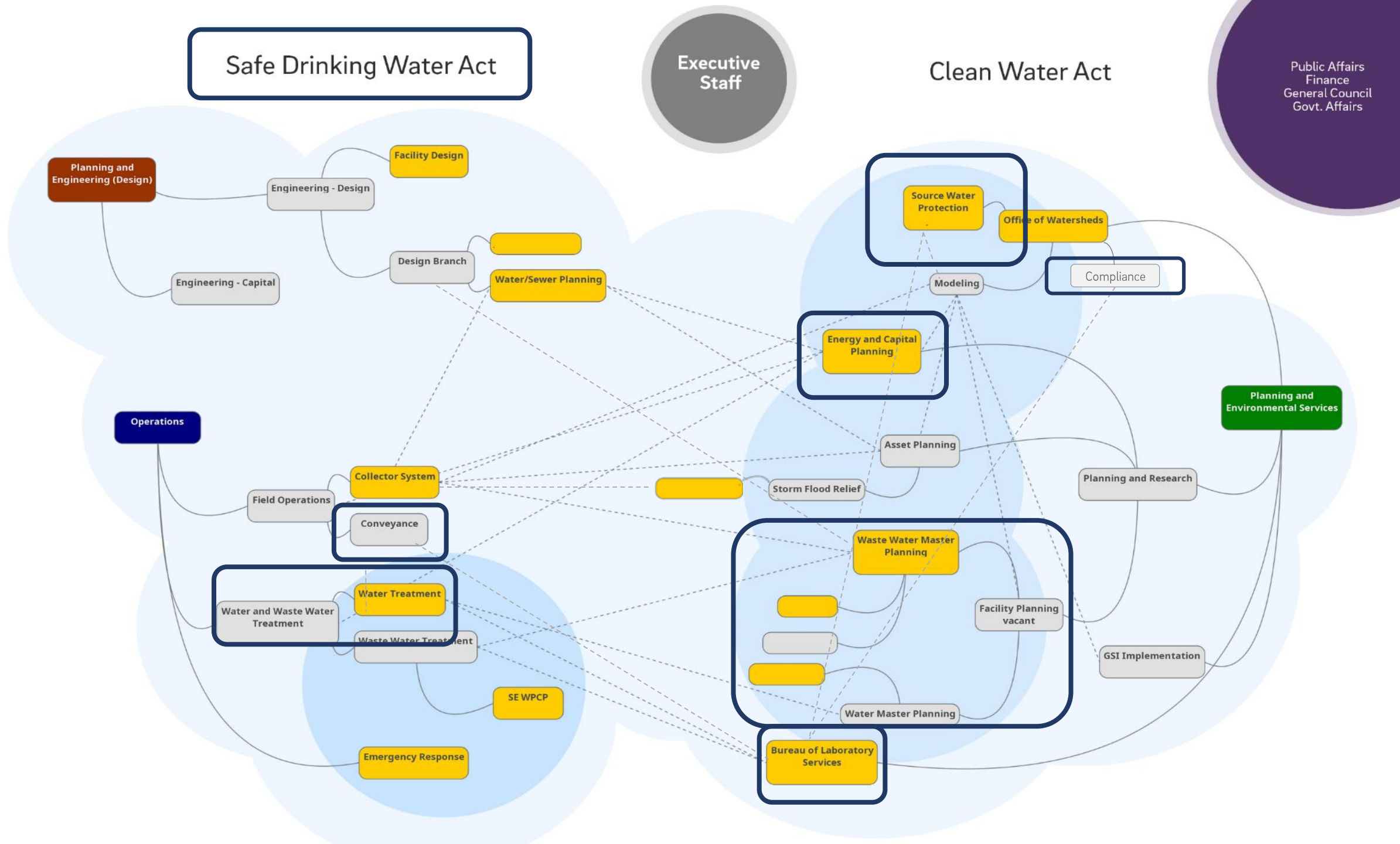
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# Floodplain Regulations



# Roll Out Strategy - Organization Map





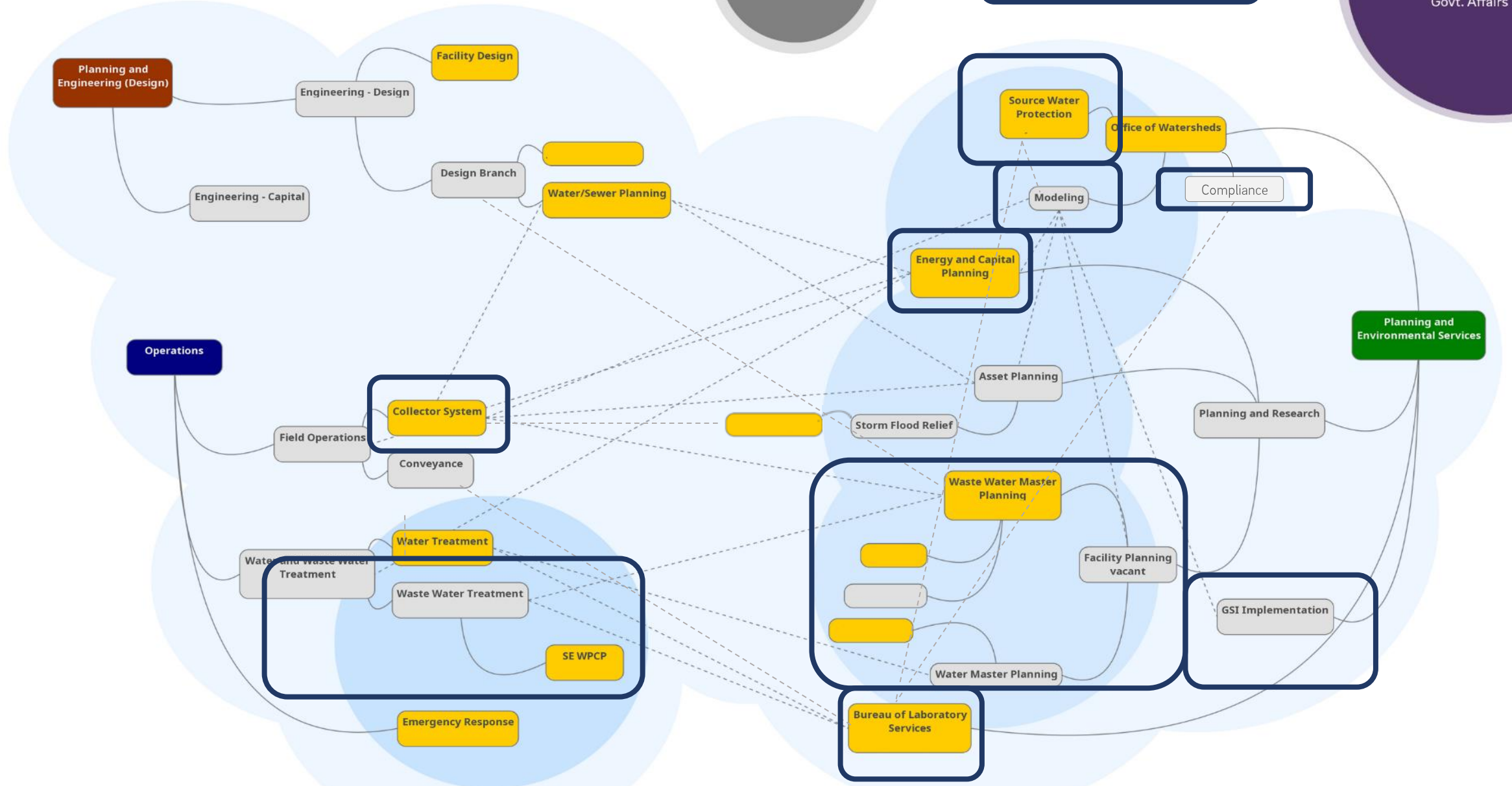
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# Internal Communications and Mainstreaming

## Sea Level Rise

What could be affected?	Units affected?	Programs, plans & processes affected?
<p data-bbox="239 662 555 701"><u>Structural systems</u></p> <ul data-bbox="239 725 805 1025" style="list-style-type: none"><li>• Drinking water treatment plants</li><li>• Wastewater treatment plants</li><li>• Pumping stations</li><li>• Stormwater system (CSO &amp; MS4)</li><li>• Wastewater drainage system</li><li>• Electrical equipment (all facilities)</li></ul> <p data-bbox="239 1075 639 1113"><u>Non-Structural systems</u></p> <ul data-bbox="239 1138 631 1282" style="list-style-type: none"><li>• Source water quality</li><li>• Source water quantity</li><li>• Energy demand</li></ul>	<ul data-bbox="963 682 1403 1018" style="list-style-type: none"><li>• Planning &amp; Research</li><li>• Office of Watersheds</li><li>• GSI Implementation</li><li>• Operations</li><li>• Design</li><li>• Emergency Management</li></ul>	<ul data-bbox="1633 675 2201 1239" style="list-style-type: none"><li>• Wastewater Master Plan</li><li>• Water Master Plan</li><li>• Operations (treatment, pumping)</li><li>• Storm Flood Relief Program</li><li>• Capital Planning Program</li><li>• Linear Asset Management</li><li>• Source Water Protection Program</li><li>• Green City Clean Waters (H&amp;H modeling, GSI)</li><li>• Emergency Planning &amp; Response</li></ul>

# Internal Communications and Mainstreaming

- Identify champions
- Form a working group
- Embed climate change into existing programs & plans



# Internal Communications and Mainstreaming

CCAP Champions Database					
Unit	Division	Staff member	email	phone	Location
Planning and Engineering	Facility Design				
	?				
	Engineering - Design Branch				
	Water/sewer Planning				
Operations	Field Operations				
	Conveyance				
	Waste water Treatment?				
	Waste Water Treatment				
	Emergency Response				
	Water Treatment				
	Field Operations				
Planning & Environmental Services	Planning and Research - capital planning and Energy				
	Planning and Research				
	OOW - Source Water/ Water Master Plan				
	Planning and Research - Waste water planning				
	Planning and Research - Waste water planning				
	Planning and Research - Waste Water Planning				
	GSI Implementation - GSI maintenance				
	GSI Implementation				
	GSI Implementation - Ecological Restoration Unit				
	GSI Implementation - Ecological Restoration Unit				
	GSI Implementation - Ecological Restoration Unit				
	OOW - H&H Modeling Group				
	OOW - H&H Modeling Group				
	Bureau of Laboratory Services				
	Bureau of Laboratory Services				

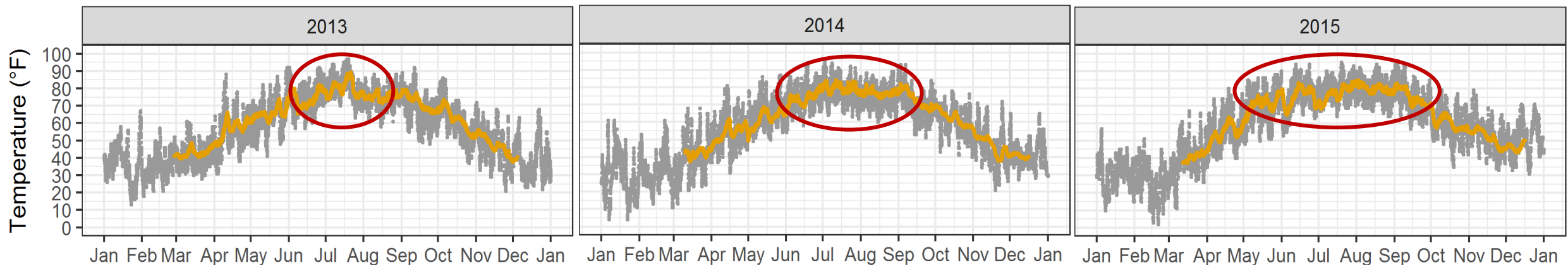




RESISTANCE

# Internal Communications and Mainstreaming

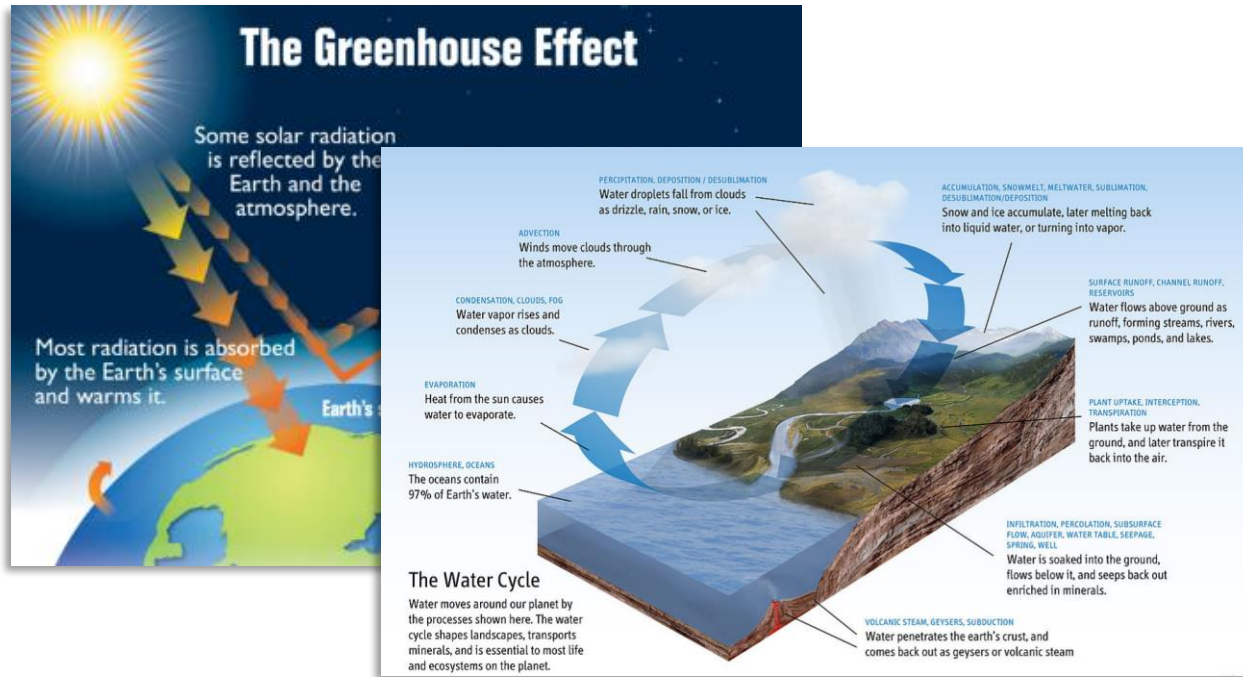
Talk about climate change in the context of what people already know



Climate change amplifies and multiplies issues we already deal with.

# Internal Communications and Mainstreaming

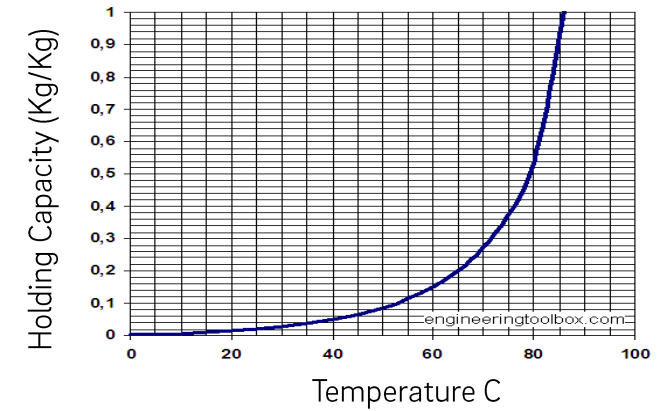
Educate people, have discussions, get them involved



- Provide the basics
- Cater your presentations
- Give people ownership
- Let them suggest solutions
- Getting stakeholders to the table is the most important part!

# Principle #1

Warm air holds more moisture than cold air.  
"Atmospheric holding capacity"

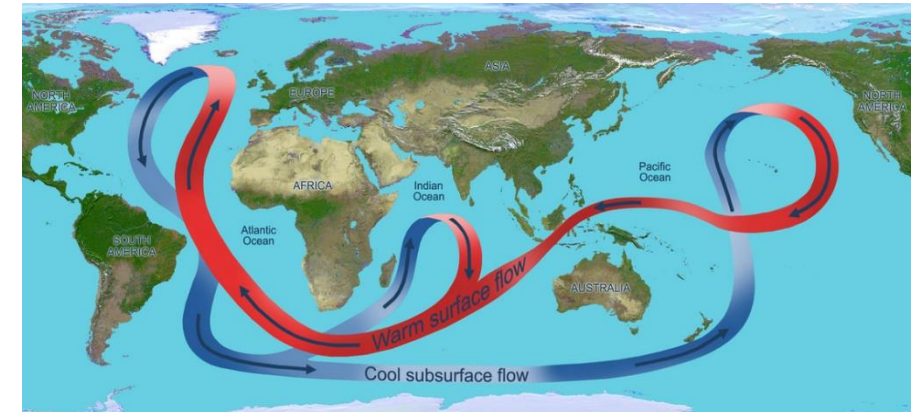


# Principle #2

Warm air increases evaporation and transpiration rates

# Principle #3

Temperature changes influence global circulation patterns (atmosphere & ocean)





# Best Practices – external communication

## Know your audience (do your homework!)

- Who is your target audience?
- Create audience profiles
- What matters to them (values)?
- If you don't know your audience:
  - Look at Yale climate opinion maps
  - Survey the audience: raise of hands

**What are their perspectives on Climate Change?**

**AUDIENCE PROFILE: Philadelphia Water Customers**

**Who is this audience?**

Philadelphia Water is a combined drinking water, wastewater, and stormwater utility that provides drinking water to approximately 1.6 million customers and wastewater services to 2.2 million people in Philadelphia and its surrounding suburbs. Customers are arguably our most important audience; we touch their lives daily and provide vital services that sustain life and make modern living possible. Climate change will make it harder for us to maintain current levels of service.

**Philadelphia demographics:**

- (2015) Population 1,560,297
- 25% graduated from college
- 18% did not graduate from high school
- Median household income: \$36,836
- 48% of households had an annual income of less \$35,000
- 26.3% below the poverty level (from 2013, the most recent data available), which is roughly 400,000 residents
- 13% units were listed as vacant, 87% listed as occupied.
- 15% of residents did not have health insurance.
- 2015 marked the 8<sup>th</sup> year in a row that the population of Philadelphia increased.
- A 2015 poll by the Pew Center for Charitable Trusts showed that the mood of Philadelphians was the most optimistic it's been in the six years they have been polling.
  - 67% said that Philadelphia will be a better place to live five years from now
- Philly's unemployment rate fell to an annualized rate of 7.8% versus the national annual average of 6.2% (in 2014)
- The city issued building permits for nearly 4,000 units with an estimated value of \$879 million (2015)
- 2014 homicides = 248
- In recent years, the Philadelphia School District has struggled with finances. There is hope that the state will open up more funds under the new leadership of Governor Wolf (elected in 2015).

**What are we asking them to do? What is the goal?**

- Understand that climate change will impact Philadelphia and understand the projections specific to our region
- Understand how climate change impacts can affect the water cycle and city infrastructure.
- Understand that we are preparing for climate change
- Take action to mitigate climate change by following the guidance laid out in the Office of Sustainability's

**How does Philadelphia Water interact with this audience/ WHY are they important?**

As stated earlier, our customers are arguably our most important audience. They will fund all climate change mitigation, and adaptation strategies. Customers receive monthly bills and the fees we collect from our customers, our rate payers, fund the work we do. Therefore, future investments for climate change adaptation projects and strategies will be funded by our rate payers and it is vitally important that they understand the importance of building resiliency into our programs and projects and adapting our infrastructure for a warmer, wetter future.

Customers have opportunities to interact with Philadelphia Water in a number of ways. Customers can reach PWD or provide feedback by calling our customer services unit, attending rate hearings, participating in community meetings and taking surveys. Developers in the city must also comply with our stormwater regulations and work with our plan review department. In addition to these points of contact, Philadelphia Water has robust public engagement and public education programs:

- Fairmount Water Works
- Community meetings for projects
- Special Programs such as Rain Check, SMIP, the Basement Protection Program, Conservation Assistance Programs
- Education programs such as the Wild West Philadelphia Junior Stewards Program and the GreenSTEM program
- Digital communications such as social media, websites, videos, applications and blog
- Special events such as Fish Fest, Coast Day, Spokedog Competition, trash clean-ups, ribbon cuttings, nature walks

# Best Practices – external communication

WHO IS THIS AUDIENCE?

WHAT IS OUR COMMUNICATION GOAL?

WHY IS THIS AUDIENCE IMPORTANT?

WHAT ARE THEIR PERSPECTIVES?

WHAT ARE KEY MESSAGES?

WHAT IS OUR COMMUNICATION STRATEGY

WHAT TOOLS CAN WE USE?

# Best Practices – external communication

Knowing your audience allows you to frame your message



People connect on values:

- Family
- Health
- Our responsibility – (to children & environment)
- Tell stories
- Convey how climate change will impact them (without necessarily using the words "climate change")

# Best Practices – external communication

Knowing your audience allows you to frame your message



Debbie Dooley, Tea Party Member

When talking to Republicans, promote renewable energy by talking about energy independence and freedom of choice, not by linking it to climate change.

# Lessons learned – external communication

Language has weight. You don't need to use the words "climate change"



- Belief Bias
- People feel attacked when beliefs are challenged
- "Extreme events" or "changing conditions"

# Lessons Learned – external communication

It's important to listen and learn.  
Building trust takes time and effort...

- Take the time to talk to people
- Listen to their concerns
- People want to be heard



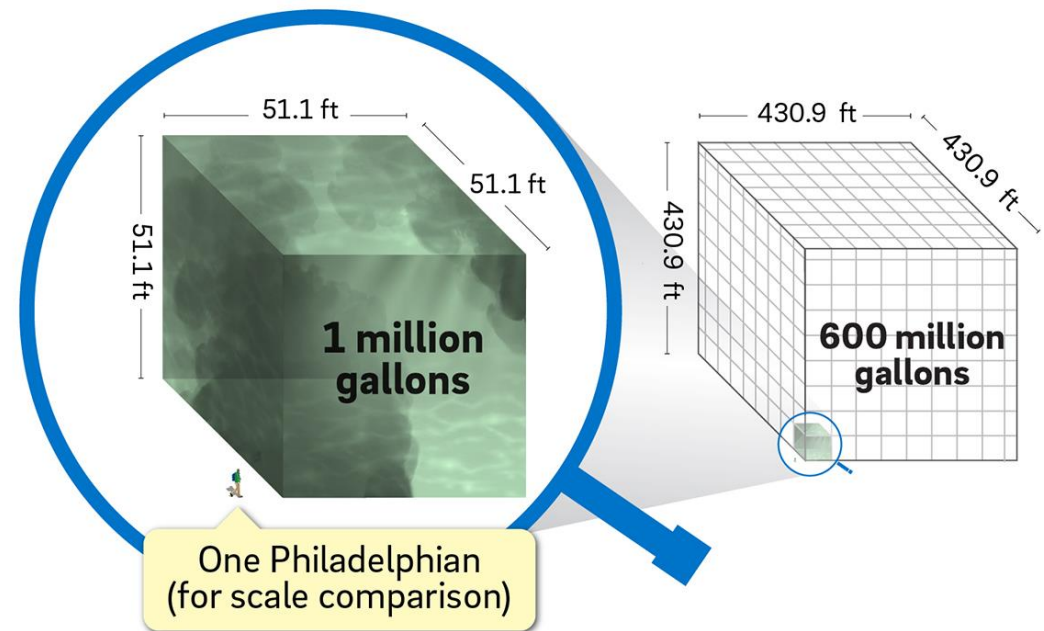


# Best Practices – external communication

Simple, clear, informative, repeated messages

- Never assume, but don't talk down
- Simple graphs
- Communicate on a human scale
- Make the science and statements meaningful
- 27 words or less

**What does 600 million gallons of pollution look like?**



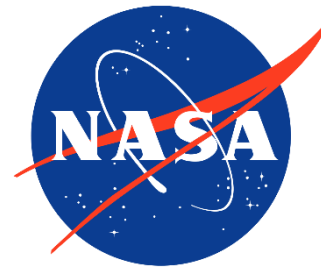
Source: Philadelphia Water Department

# Lessons Learned – external communication

## The messenger matters

- Convey through a trusted community member
- Send information from trusted sources
- Engage through existing channels
- Channel the power of groups
- Meet people where they are

I didn't say it, they did



United States  
Global Change  
Research Program

MOODY'S

STANDARD  
& POOR'S



# Best Practices – external communication

97% of them!

**IT'S REAL**  
**IT'S US**  
**EXPERTS AGREE**  
**IT'S BAD**  
**THERE'S HOPE**

Global warming is happening.

Human activity is the main cause.

There's scientific consensus on human-caused global warming.

The impacts are serious and affect people.

We have the technology needed to avoid the worst climate impacts.

Source: Yale/George Mason | Graphic: Cook et al., 2019

# Emotions....



- Common wisdom says keep emotion out of messaging
- People shut down when they feel it is beyond hope
- Majority do not want emotion in climate change messages

## However....

- More people are persuaded to take action when the message was conveyed with emotion
- There are differences in reaction based on gender, age, etc.

Source: Bloodhart, Swim & Diccio (2019) in the journal *Science and Environmental Communication*

# Keeping people engaged

- Don't read your notes!
- Don't use a lot of text!
- Make eye contact
- Practice your presentation



# THANKS



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