EPA National Environmental Justice Community Engagement Call

SEPTEMBER 19, 2023

Expanding the Conversation

working for environmental justice

Housekeeping

- Please join by phone or computer, not both
- You are on mute, please enter questions and comments into the Q&A pod
- If selected to speak during dialogue, please limit comment to 1 minute
- Recording and transcript will be available online in the near future

En Español

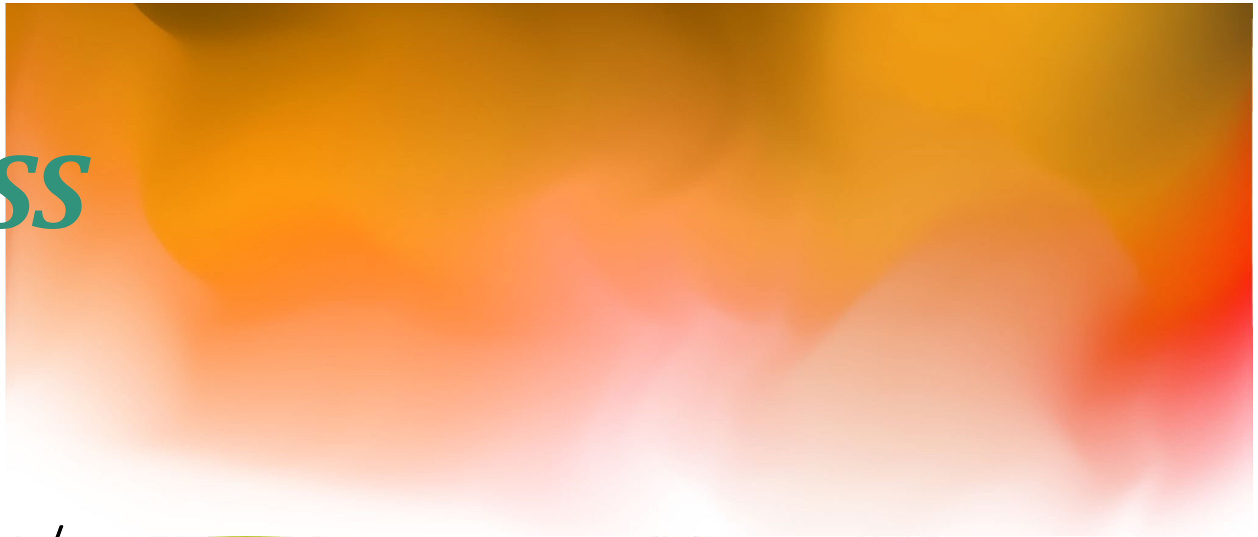
Tenemos interpretación en español disponible para aquellos que prefieren escuchar en español.

- Cómo cambiar el canal de audio en español
- Las personas pueden agregar preguntas en español al módulo de preguntas y respuestas
- Los materiales de la reunión estarán disponibles en español.

Spanish-language interpretation is available for those who prefer to listen in Spanish.

- ❑ *How to switch to Spanish language audio channel*
- ❑ *Individuals can add questions in Spanish to the Q&A Pod*
- ❑ *Meeting materials will be made available in Spanish.*

MINDFULNESS MOMENT



https://thenejc.org/

mindful EPA

United States Environmental Protection Agency

MAKING THE RIGHT CHOICES FOR YOUR UTILITY

How EPA’s Water Infrastructure Planning Tool Can Help Utilities Engage Community & Make Cost-Effective Multi-Benefit Investments

Today’s Speakers

Leslie Corcelli
Physical Scientist
US EPA

Andy Kricun
former Executive Director
Camden County Municipal Utility Authority

Sarah Shadid
Senior Associate
Ross Strategic

Water Utilities are Anchor Institutions

Every day in America, water and wastewater utilities are on the front lines…

Safeguarding public health

Sustaining critical infrastructure investments

Providing clean and safe water for hundreds of millions

Protecting and enhancing the environment

Water Utilities & Large Capitol Investments

Investments last for decades

Costly, Long Term Financial Commitment

Customer Funded

Service lives 50+ Years

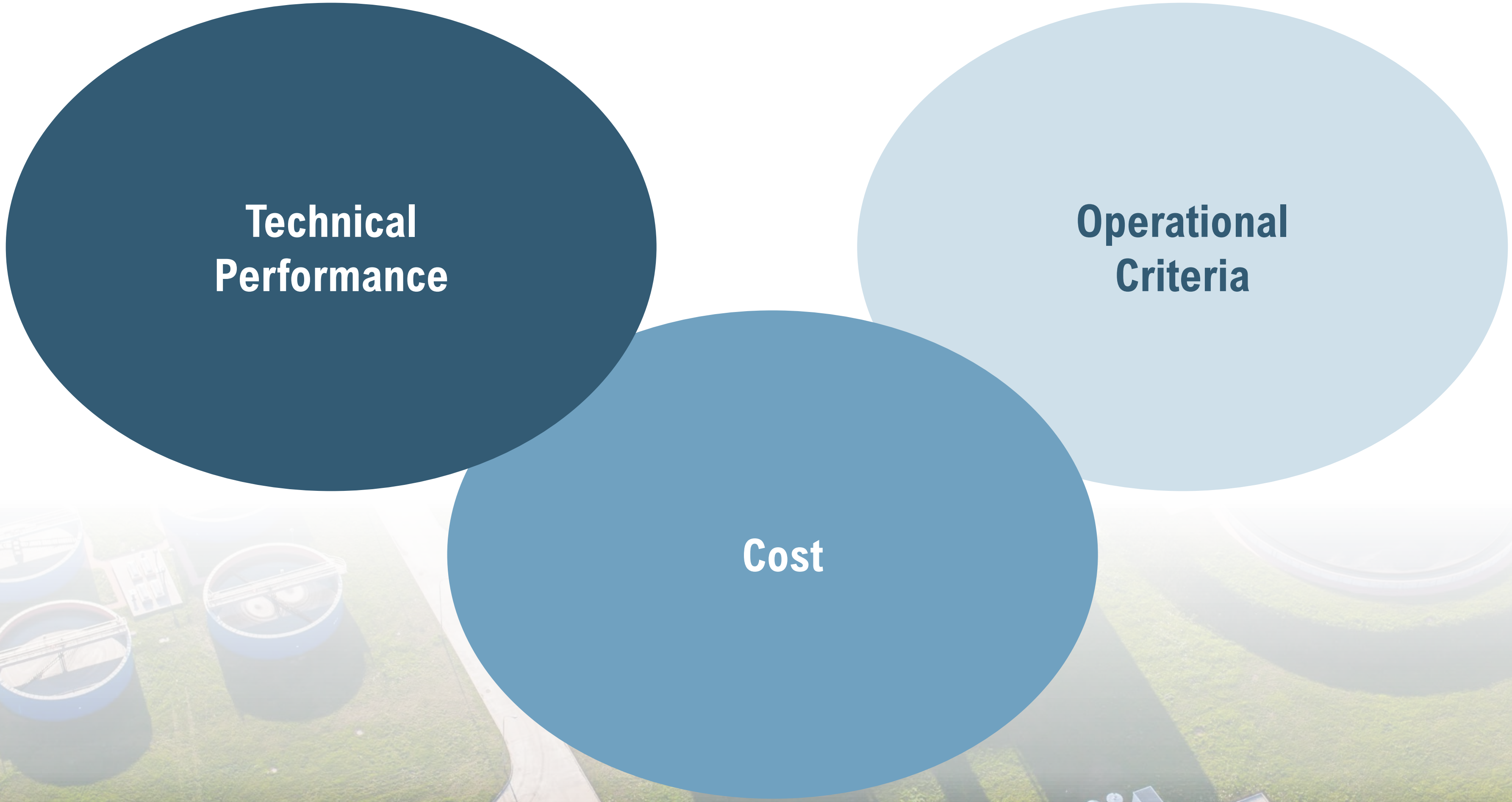
Today's capital project decisions are the foundation for decades of commitment to funding both the operating and capital costs over decades of service.

Investments last for decades – *and it's more than cost*

Investments can provide economic, environmental, and social benefits to the community

- Public Health
- Economic Development
- Regulatory Performance
- Public Understanding
- System Resiliency
- Workforce Enhancement
- Water Resource Reliability
- Community Livability

Conventional alternatives analysis



Conventional alternatives analysis *may fall short:*

- Technical Performance
- Cost
- Operational Criteria
- Proactively engaging the community
- Addressing and quantifying triple bottom line
- Selecting cost-effective option amidst multiple drivers

*EPA's capital project decision-making method, **Augmented Alternatives Analysis (AAA)**, was developed to address these challenges in modern-day project decision-making.*

Augmented Alternatives Analysis (AAA)

Adds to the core tenets of conventional alternatives analysis benefitting your utility in a few key ways:

- Begins with goals, not cost
- Drills down from goals to metrics
- Creates common scale for metrics (-5 to +5)
- Considers cost as final step (cost-benefit ratio)

Pilot Tested Method, Real World Results

City of Saco Water Resource Recovery Department

- Small Town
- Water Resource Recovery Utility

High Line Canal Conservancy

- Non-profit
- Works with 11 jurisdictions and water districts

Camden County Municipal Utilities Authority

- Large City
- Water Resource Recovery Utility

Camden County Municipal Utilities Authority (2016)

Public wastewater utility serving City of Camden, City of Gloucester, and Camden County

Revenues: ~$100 million/annually

Residents served	510,0000
Lines	125 mi.
Plant capacity	58 mgd

Receiving water: Delaware River

LTCP required to be in place by 2020 (Camden Goal: 2018)

Average number of Combined Sewer Overflows annually: 70

Camden County Municipal Utilities Authority (2016)

AAA Provided:

- An organizing framework for **meaningful** community input
- Systematic process to identify optimal project from **a triple bottom line standpoint**

Outcomes:

- **Significantly more greenspace** created for community benefit
- **Fewer overflows and less flooding** for environmental and public health benefit
- Only **slightly greater cost**, mitigated by SRF funding

AAA Process

A step-by-step walkthrough

How does AAA add to a conventional analysis?

Conventional Alternatives Analysis ✚ Augmented Steps of AAA

✚	1	Understand Community Priorities
	2	Determine Project Goals
	3	Define Objectives
✚	4	Rank the Importance of Goals
	5	Establish Criteria
	6	Choose Metrics for Your Criteria
✚	7	Create Performance Ranges
	8	Evaluate Performance of Each Alternative
	9	Compare Across Alternatives
	10	Incorporate Cost Considerations

Step 1: Understand Community Priorities

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Who needs to be included?

- Impacted groups
- Board/Council
- Community leaders
- Chamber of commerce, watershed partners, etc.

What form of engagement is best?

- Fixed Seat Working Group
- Webinars
- Public Meetings
- Tabling Events
- Attending Community Meetings

Step 1: Understand Community Priorities

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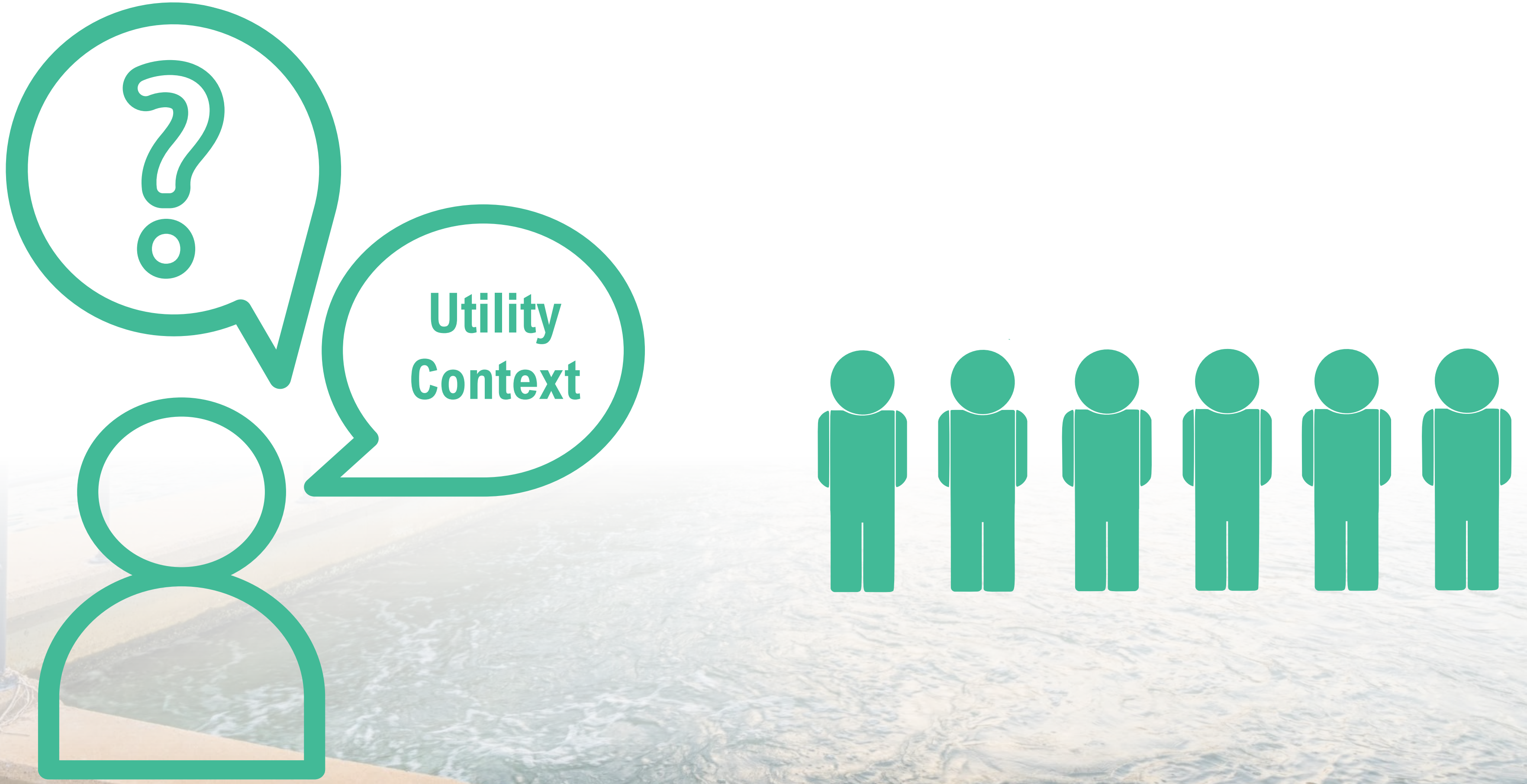

Step 1: Understand Community Priorities

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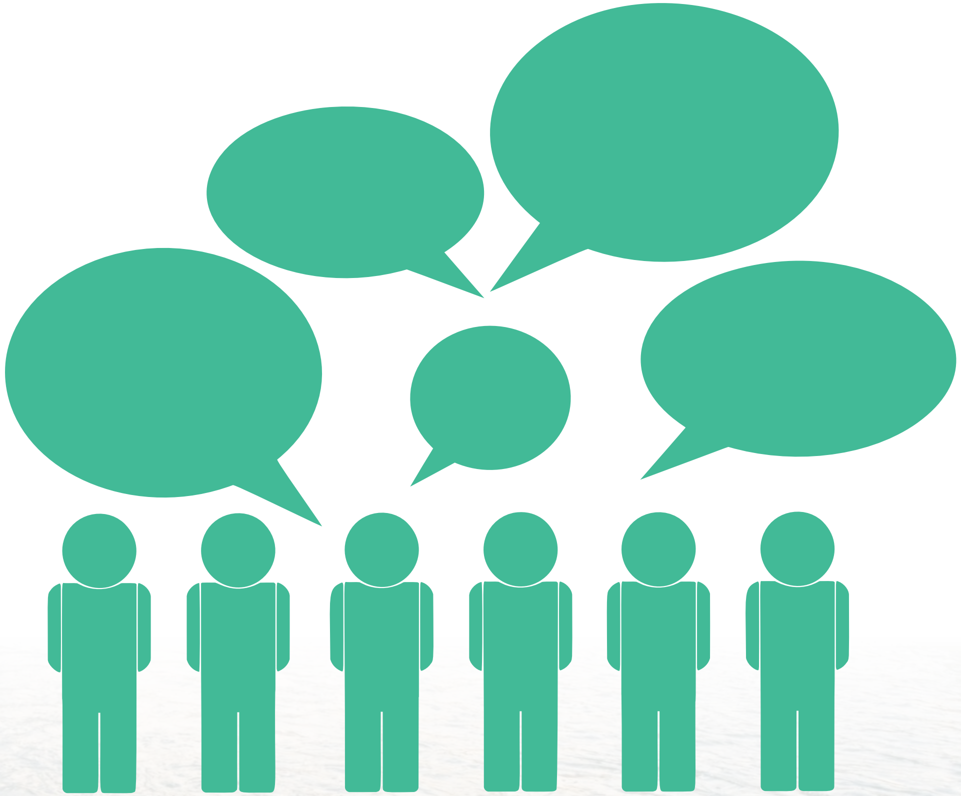

Step 2: Determine Goals

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Goal are **broad, high-level statements** that provide a snapshot of the **desired final results** that you hope to achieve (both within the utility and broader community).

Step 2: Determine Goals – Camden Example

- Enhance Public Health and Environment
- Meet or Exceed Permit Requirements
- Produce Economic and Neighborhood Benefits
- Enhance Overall System Resiliency
- Optimize Existing Public Resources
- Increase Public Understanding and Support for CSO Solutions

Step 2: Determine Goals – Camden Example

Goal Enhance Public Health and Environment

Step 3: Define Objectives– Camden Example

Goal	Enhance Public Health and Environment
Objective	Reduce human contact with sewage

An **objective** is an outcome that contributes to the achievement of the goal.

Step 3: Define Objectives– Camden Example

- Reduce human contact with sewage
- Improve receiving water quality

- Increase compatibility with regional redevelopment efforts
- Improve livability in neighborhoods

- Meet/exceed capture targets
- Meet/exceed treatment targets

- Identify and establish an affordable CSO strategy
- Reduce the amount of stormwater and groundwater entering system
- Support ongoing collection system operations

- Increase resilience to storm surges
- Increase adaptability to changing hydrologic conditions

- Transfer knowledge of CSO problems and value of wastewater services

Step 4: Rank the Importance of Goals – Camden Example

Ranking is the importance, prioritization, or “weight” of one goal in relation to another.

Step 4: Rank the Importance of Goals – Camden Example

Enhance Public Health and Environment	10
Meet or Exceed Permit Requirements	9
Enhance Overall System Resiliency	8
Produce Economic & Neighborhood Benefits	8
Optimize Existing Public Resources	7
Increase Public Understanding & Support for CSO Solutions	6

Step 5: Establish Criteria – Camden Example

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Goal	Enhance Public Health and Environment
Objective	Reduce human contact with sewage
Criteria	Reduction in street flooding events – emphasis on residential areas

Criteria reveal an alternative's strengths and weaknesses. They demonstrate how an alternative will perform relative to goal and objective.

Step 6: Choose Metrics– Camden Example

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Goal	Enhance Public Health and Environment
Objective	Reduce human contact with sewage
Criteria	Reduction in street flooding events – emphasis on residential areas
Metric	flood quantity % reduction in residential areas of concern

Metrics measure performance of each alternative.
They can be quantitative or qualitative.

Step 7: Create Performance Ranges – Camden Example

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-5	-4	-3	-2	-1	0	1	2	3	4	5

Step 7: Create Performance Ranges – Camden Example

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Goal Enhance Public Health and Environment

Objective Reduce human contact with sewage

Criteria Reduction in street flooding events – emphasis on residential areas

Metric flood quantity % reduction in residential areas of concern

-5	-4	-3	-2	-1	0	1	2	3	4	5
					Alternative has no impact on the flood quantity					

Step 7: Create Performance Ranges – Camden Example

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Goal Enhance Public Health and Environment

Objective Reduce human contact with sewage

Criteria Reduction in street flooding events – emphasis on residential areas

Metric flood quantity % reduction in residential areas of concern

-5	-4	-3	-2	-1	0	1	2	3	4	5
					Alternative has no impact on the flood quantity					Alternative reduces flood quantity by more than 40% annually

Step 7: Create Performance Ranges – Camden Example

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Goal — Enhance Public Health and Environment

Objective — Reduce human contact with sewage

Criteria — Reduction in street flooding events – emphasis on residential areas

Metric — flood quantity % reduction in residential areas of concern

-5	-4	-3	-2	-1	0	1	2	3	4	5
					Alternative has no impact on the flood quantity					Alternative reduces flood quantity by more than 40% annually

Step 7: Create Performance Ranges – Camden Example

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Goal Enhance Public Health and Environment

Objective Reduce human contact with sewage

Criteria Reduction in street flooding events – emphasis on residential areas

Metric flood quantity % reduction in residential areas of concern

-5	-4	-3	-2	-1	0	1	2	3	4	5
					Alternative has no impact on the flood quantity	Alternative reduces flood quantity by up to 10% annually	Alternative reduces flood quantity by 11-20% annually	Alternative reduces flood quantity by 21-30% annually	Alternative reduces flood quantity by 31-40% annually	Alternative reduces flood quantity by more than 40% annually

Step 7: Create Performance Ranges – Camden Example

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Metric flood quantity % reduction in residential areas of concern

-5	-4	-3	-2	-1	0	1	2	3	4	5
					has no impact on the flood quantity	reduces flood quantity by up to 10% annually	reduces flood quantity by 11-20% annually	reduces flood quantity by 21-30% annually	reduces flood quantity by 31-40% annually	reduces flood quantity by more than 40% annually

Metric Area of recreational space in acres

-5	-4	-3	-2	-1	0	1	2	3	4	5
impacts or eliminates more than 50	impacts or eliminates 25-50 acres	impacts or eliminates 10-25 acres	impacts or eliminates 5-10 acres	impacts or eliminates up to 5 acres	does not change the number of acres	adds up to 5 acres	adds 5-10 acres	adds 10-25 acres	adds 25-50 acres	adds 25-50 acres

Step 8: Evaluate Performance – Camden Example

Alternative 1: All Grey
Alternative 2: Moderate Green
Alternative 3: Heavy Green

Step 8: Evaluate Performance – Camden Example

Metric flood quantity % reduction in residential areas of concern

-5	-4	-3	-2	-1	0	1	2	3	4	5
					has no impact on the flood quantity	reduces flood quantity by up to 10% annually	reduces flood quantity by 11-20% annually	reduces flood quantity by 21-30% annually	reduces flood quantity by 31-40% annually	reduces flood quantity by more than 40% annually

Alternative 1: All Grey	**0**
Alternative 2: Moderate Green	**3**
Alternative 3: Heavy Green	**3**

Step 8: Evaluate Performance – Camden Example

Criteria	Unweighted Score		
	Alternative A	*Alternative B*	*Alternative C*
Goal 1 - Reduction in flooding events	0	3	3

Step 8: Evaluate Performance – Camden Example

Criteria	Unweighted Score		
	Alt A	*Alt B*	*Alt C*
Goal 1 - Reduction in flooding events	0	3	3
Goal 1 - Reduction in CSO discharge volume			
Goal 2 - Annual system-wide CSO volume capture			
Goal 3 - Flexibility in siting project			
Goal 4 - Flexibility in timing of implementation of project			
Goal 4 - Flexibility in phasing implementation of alternatives			
Goal 4 - Green space			
Goal 4 - Reduction in heat island effect			
Goal 5 - Cost effectiveness			
Goal 6 - Visibility to citizens			

Step 8: Evaluate Performance – Camden Example

Criteria	Unweighted Score		
	Alt A	***Alt B***	***Alt C***
Goal 1 - Reduction in flooding events	0	3	3
Goal 1 - Reduction in CSO discharge volume	4	4	4
Goal 2 - Annual system-wide CSO volume capture			
Goal 3 - Flexibility in siting project			
Goal 4 - Flexibility in timing of implementation of project			
Goal 4 - Flexibility in phasing implementation of alternatives			
Goal 4 - Green space			
Goal 4 - Reduction in heat island effect			
Goal 5 - Cost effectiveness			
Goal 6 - Visibility to citizens			

Step 8: Evaluate Performance – Camden Example

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Criteria	Unweighted Score		
	Alt A	***Alt B***	***Alt C***
Goal 1 - Reduction in flooding events	0	3	3
Goal 1 - Reduction in CSO discharge volume	4	4	4
Goal 2 - Annual system-wide CSO volume capture	5	5	5
Goal 3 - Flexibility in siting project	1	1	1
Goal 4 - Flexibility in timing of implementation of project	4	3	2
Goal 4 - Flexibility in phasing implementation of alternatives	3	3	3
Goal 4 - Green space	0	1	1
Goal 4 - Reduction in heat island effect	0	1	1
Goal 5 - Cost effectiveness	2	-1	-3
Goal 6 - Visibility to citizens	1	5	5

Step 8: Evaluate Performance – Camden Example

Criteria	Unweighted Score		
	Alt A	*Alt B*	*Alt C*
Goal 1 - Reduction in flooding events	0	3	3
Goal 1 - Reduction in CSO discharge volume	4	4	4
Goal 2 - Annual system-wide CSO volume capture	5	5	5
Goal 3 - Flexibility in siting project	1	1	1
Goal 4 - Flexibility in timing of implementation of project	4	3	2
Goal 4 - Flexibility in phasing implementation of alternatives	3	3	3
Goal 4 - Green space	0	1	1
Goal 4 - Reduction in heat island effect	0	1	1
Goal 5 - Cost effectiveness	2	-1	-3
Goal 6 - Visibility to citizens	1	5	5
TOTAL	**20**	**25**	**22**

Step 9 Compare Across Alternatives – Camden Example

Criteria	Unweighted Score		
	Alt A	*Alt B*	*Alt C*
Goal 1 - Reduction in flooding events	0	3	3
Goal 1 - Reductio	4	4	4
Goal 2 - Annual sy	5	5	5
Goal 3 - Flexibility	1	1	1
Goal 4 - Flexibility	4	3	2
Goal 4 - Flexibility	3	3	3
Goal 4 - Green sp	0	1	1
Goal 4 - Reductio	0	1	1
Goal 5 - Cost effe	2	-1	-3
Goal 6 - Visibility to citizens	1	5	5
TOTAL	**20**	**25**	**22**

Step 9 Compare Across Alternatives – Camden Example

Criteria	Weight	Alt A	Alt B	Alt C
Goal 1 - Reduction in flooding events		0	3	3
Goal 1 - Reductio		4	4	4
Goal 2 - Annual s		5	5	5
Goal 3 - Flexibility		1	1	1
Goal 4 - Flexibility		4	3	2
Goal 4 - Flexibility		3	3	3
Goal 4 - Green sp		0	1	1
Goal 4 - Reductio		0	1	1
Goal 5 - Cost effe		2	-1	-3
Goal 6 - Visibility to citizens		1	5	5
TOTAL		**20**	**25**	**22**

- Enhance Public Health and Environment **10**
- Meet or Exceed Permit Requirements **9**
- Enhance Overall System Resiliency **8**
- Produce Economic & Neighborhood Benefits **8**
- Optimize Existing Public Resources **7**
- Increase Public Understanding & Support for CSO Solutions **6**

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Step 9 Compare Across Alternatives – Camden Example

Criteria	Weight	*Alt A*	*Alt B*	*Alt C*
Goal 1 - Reduction in flooding events		0	3	3
Goal 1 - Reductio		4	4	4
Goal 2 - Annual sy		5	5	5
Goal 3 - Flexibility		1	1	1
Goal 4 - Flexibility		4	3	2
Goal 4 - Flexibility		3	3	3
Goal 4 - Green sp		0	1	1
Goal 4 - Reductio		0	1	1
Goal 5 - Cost effe		2	-1	-3
Goal 6 - Visibility to citizens		1	5	5
TOTAL		**20**	**25**	**22**

Enhance Public Health and Environment	**10**
Meet or Exceed Permit Requirements	**9**
Enhance Overall System Resiliency	**8**
Produce Economic & Neighborhood Benefits	**8**
Optimize Existing Public Resources	**7**
Increase Public Understanding & Support for CSO Solutions	**6**

Step 9 Compare Across Alternatives – Camden Example

Criteria	Weight	Alt A	Alt B	Alt C
Goal 1 - Reduction in flooding events	10	0	3	3
Goal 1 - Reductio	10	4	4	4
Goal 2 - Annual sy	9	5	5	5
Goal 3 - Flexibility	8	1	1	1
Goal 4 - Flexibility	8	4	3	2
Goal 4 - Flexibility	8	3	3	3
Goal 4 - Green sp	8	0	1	1
Goal 4 - Reductio	8	0	1	1
Goal 5 - Cost effe	7	2	-1	-3
Goal 6 - Visibility to citizens	6	1	5	5
TOTAL		20	25	22

Enhance Public Health and Environment	10
Meet or Exceed Permit Requirements	9
Enhance Overall System Resiliency	8
Produce Economic & Neighborhood Benefits	8
Optimize Existing Public Resources	7
Increase Public Understanding & Support for CSO Solutions	6

Step 9 Compare Across Alternatives – Camden Example

Criteria	Weight	Alt A	Alt B	Alt C
Goal 1 - Reduction in flooding events	**10**	0	3	3
Goal 1 - Reduction in CSO discharge volume	**10**	4	4	4
Goal 2 - Annual system-wide CSO volume capture	**9**	5	5	5
Goal 3 - Flexibility in siting project	**8**	1	1	1
Goal 4 - Flexibility in timing of implementation of project	**8**	4	3	2
Goal 4 - Flexibility in phasing implementation of alternatives	**8**	3	3	3
Goal 4 - Green space	**8**	0	1	1
Goal 4 - Reduction in heat island effect	**8**	0	1	1
Goal 5 - Cost effectiveness	**7**	2	-1	-3
Goal 6 - Visibility to citizens	**6**	1	5	5
TOTAL				

Step 9 Compare Across Alternatives – Camden Example

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Criteria	Weight	Alt A	Alt B	Alt C
Goal 1 - Reduction in flooding events	**10**	0	10	30
Goal 1 - Reduction in CSO discharge volume	**10**	40	40	40
Goal 2 - Annual system-wide CSO volume capture	**9**	45	45	45
Goal 3 - Flexibility in siting project	**8**	8	8	8
Goal 4 - Flexibility in timing of implementation of project	**8**	32	24	16
Goal 4 - Flexibility in phasing implementation of alternatives	**8**	24	24	24
Goal 4 - Green space	**8**	0	8	8
Goal 4 - Reduction in heat island effect	**8**	0	8	8
Goal 5 - Cost effectiveness	**7**	6	18	30
Goal 6 - Visibility to citizens	**6**	0	10	30
TOTAL				

Step 9 Compare Across Alternatives – Camden Example

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Criteria	Weight	*Alt A*	*Alt B*	*Alt C*
Goal 1 - Reduction in flooding events	**10**	0	10	30
Goal 1 - Reduction in CSO discharge volume	**10**	40	40	40
Goal 2 - Annual system-wide CSO volume capture	**9**	45	45	45
Goal 3 - Flexibility in siting project	**8**	8	8	8
Goal 4 - Flexibility in timing of implementation of project	**8**	32	24	16
Goal 4 - Flexibility in phasing implementation of alternatives	**8**	24	24	24
Goal 4 - Green space	**8**	0	8	8
Goal 4 - Reduction in heat island effect	**8**	0	8	8
Goal 5 - Cost effectiveness	**7**	6	18	30
Goal 6 - Visibility to citizens	**6**	0	10	30
TOTAL		**155**	**185**	**209**

Step 9 Compare Across Alternatives – Camden Example

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Criteria	Weight	*Alt A*	*Alt B*	*Alt C*
Goal 1 - Reduction in flooding events	**10**	0	10	30
Goal 1 - Reduction in CSO discharge volume	**10**	40	40	40
Goal 2 - Annual system-wide CSO volume capture	**9**	45	45	45
Goal 3 - Flexibility in siting project	**8**	8	8	8
Goal 4 - Flexibility in timing of implementation of project	**8**	32	24	16
Goal 4 - Flexibility in phasing implementation of alternatives	**8**	24	24	24
Goal 4 - Green space	**8**	0	8	8
Goal 4 - Reduction in heat island effect	**8**	0	8	8
Goal 5 - Cost effectiveness	**7**	6	18	30
Goal 6 - Visibility to citizens	**6**	0	10	30
TOTAL		**155**	**185**	**209**

Step 10: Incorporate Cost Considerations – Camden Example

	Alt A	Alt B	Alt C
Total Score	**155**	**185**	**209**
Project Capital Cost (Millions)	25	27	30
Benefit-Cost Ratio			

Step 10: Incorporate Cost Considerations – Camden Example

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	Alt A	Alt B	Alt C
Total Score	**155**	**185**	**209**
Project Capital Cost (Millions)	25	27	30
Benefit-Cost Ratio	6.2	6.7	7

The AAA Process

Conventional Alternatives Analysis | Augmented Steps of AAA

1. Understand Community Priorities
2. Determine Project Goals
3. Define Objectives
4. Rank the Importance of Goals
5. Establish Criteria
6. Choose Metrics for Your Criteria
7. Create Performance Ranges
8. Evaluate Performance of Each Alternative
9. Compare Across Alternatives
10. Incorporate Cost Considerations

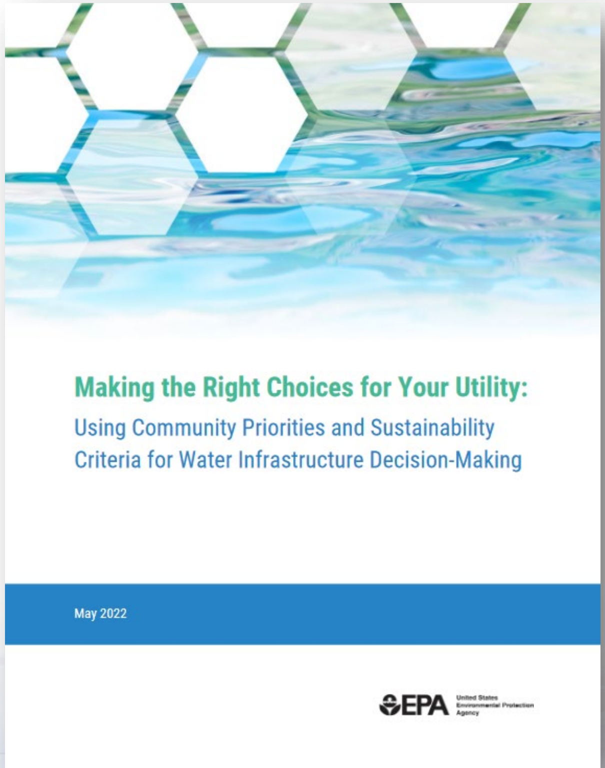
Camden Experience with AAA

- Identified an investment alternative with **significant community input**
- Improved **community & environmental benefits** (without significant cost & impact to ratepayers)
- Allowed Camden to **apply unique values** & weigh them systematically
- Put competing components of the project together to evaluate the full picture

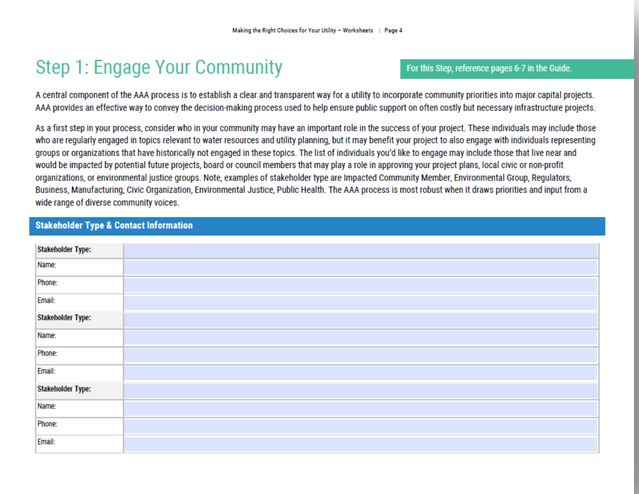
The AAA process was applied ***– not theoretical –*** and allowed us to talk about the **where** and **how** of green infrastructure

Questions?

AAA Resources



EPA's AAA Guide
(Revised May 2022)


Making the Right Choices for Your Utility – Worksheets | Page 4

Step 1: Engage Your Community

For this Step, reference pages 6-7 in the Guide.

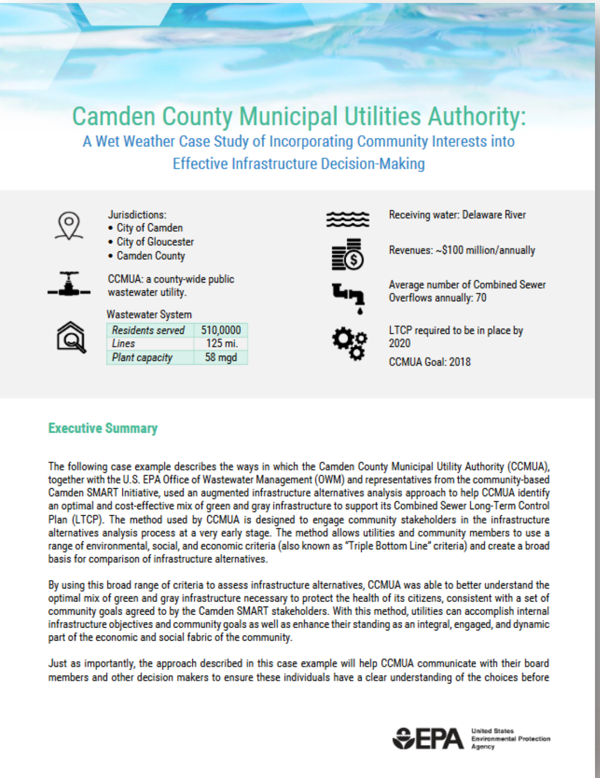
A central component of the AAA process is to establish a clear and transparent way for a utility to incorporate community priorities into major capital projects. AAA provides an effective way to convey the decision-making process used to help ensure public support on often costly but necessary infrastructure projects.

As a first step in your process, consider who in your community may have an important role in the success of your project. These individuals may include those who are regularly engaged in topics relevant to water resources and utility planning, but it may benefit your project to also engage with individuals representing groups or organizations that have historically not engaged in these topics. The list of individuals you'd like to engage may include those that live near and would be impacted by potential future projects, board or council members that may play a role in approving your project plans, local civic or non-profit organizations, or environmental justice groups. Note, examples of stakeholder type are Impacted Community Member, Environmental Group, Regulators, Business, Manufacturing, Civic Organization, Environmental Justice, Public Health. The AAA process is most robust when it draws priorities and input from a wide range of diverse community voices.

Stakeholder Type & Contact Information	
Stakeholder Type:	
Name:	
Phone:	
Email:	
Stakeholder Type:	
Name:	
Phone:	
Email:	
Stakeholder Type:	
Name:	
Phone:	
Email:	

Worksheets
Fillable PDF & Excel

Webinar Recording


Camden County Municipal Utilities Authority:
A Wet Weather Case Study of Incorporating Community Interests into Effective Infrastructure Decision-Making

Jurisdictions:
- City of Camden
- City of Gloucester
- Camden County

CCMUA: a county-wide public wastewater utility.

Wastewater System

Residents served	510,0000
Lines	125 mi.
Plant capacity	58 mgd

Receiving water: Delaware River

Revenues: ~$100 million/annually

Average number of Combined Sewer Overflows annually: 70

LTCP required to be in place by 2020

CCMUA Goal: 2018

Executive Summary

The following case example describes the ways in which the Camden County Municipal Utility Authority (CCMUA), together with the U.S. EPA Office of Wastewater Management (OWM) and representatives from the community-based Camden SMART Initiative, used an augmented infrastructure alternatives analysis approach to help CCMUA identify an optimal and cost-effective mix of green and gray infrastructure to support its Combined Sewer Long-Term Control Plan (LTCP). The method used by CCMUA is designed to engage community stakeholders in the infrastructure alternatives analysis process at a very early stage. The method allows utilities and community members to use a range of environmental, social, and economic criteria (also known as "Triple Bottom Line" criteria) and create a broad basis for comparison of infrastructure alternatives.

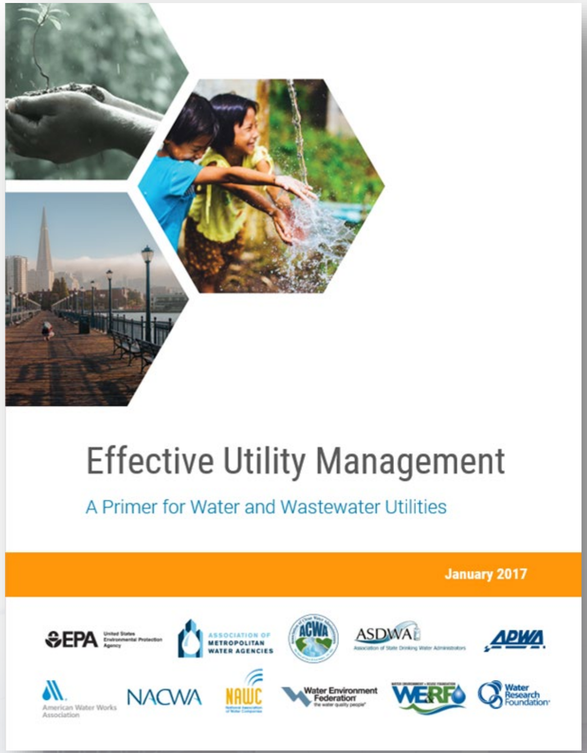
By using this broad range of criteria to assess infrastructure alternatives, CCMUA was able to better understand the optimal mix of green and gray infrastructure necessary to protect the health of its citizens, consistent with a set of community goals agreed to by the Camden SMART stakeholders. With this method, utilities can accomplish internal infrastructure objectives and community goals as well as enhance their standing as an integral, engaged, and dynamic part of the economic and social fabric of the community.

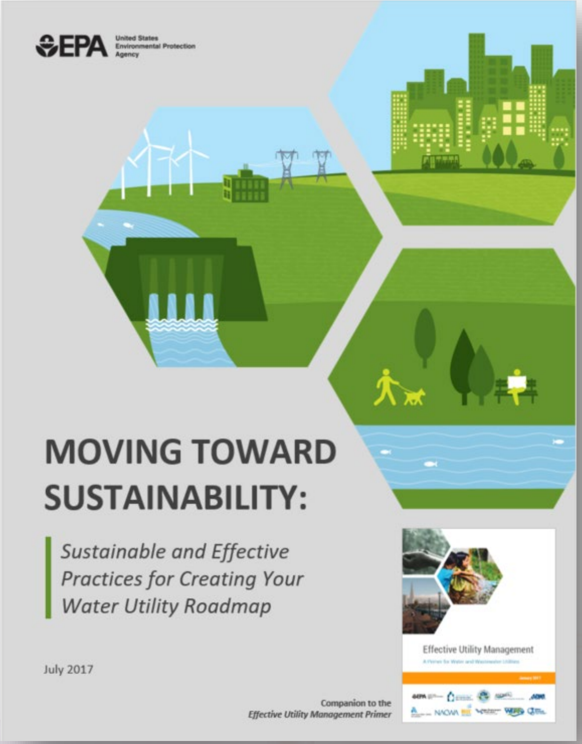
Just as importantly, the approach described in this case example will help CCMUA communicate with their board members and other decision makers to ensure these individuals have a clear understanding of the choices before

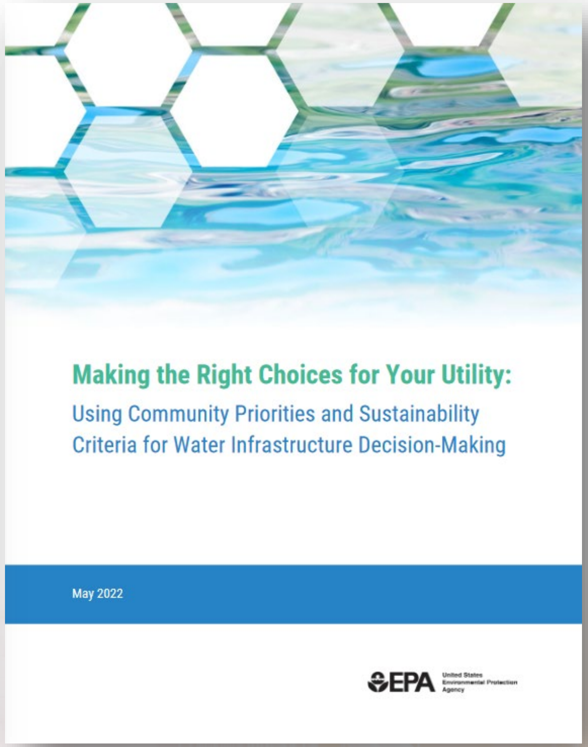
EPA United States Environmental Protection Agency

Case examples

EPA's Sustainable Utility Management







EPA United States Environmental Protection Agency

To view resources:

Or search online for EPA's

"Planning For Sustainability" webpage

Contact us with questions and to learn more!

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NSPS Kb

EJ National Community Engagement Call

September 19, 2023

Presented by the Office of Air and Radiation

Key Terms

Volatile Organic Compounds (VOCs)

- Chemicals that evaporate easily and react in the atmosphere to create ground-level ozone (formally defined in 40 CFR 51.100)
- Examples of VOCs: Benzene, Formaldehyde, Gasoline Vapors, n-Hexane, Toluene, Xylenes, Vinyl Chloride

Volatile Organic Liquids (VOLs)

- Organic chemicals that emit VOCs

Storage Vessel

- Tank, reservoir, or container used for storing VOLs

NSPS Kb

New Source Performance Standards (NSPS)

- EPA standards for newly constructed, modified, and reconstructed sources of emissions
- NSPS Kb is the existing standard for VOL storage vessels constructed or modified after July 23, 1984
- EPA is currently working on an updated VOL storage vessel standard, referred to as NSPS Kc

NSPS Kb Emission Controls Applicability

- Applicability for emission controls based on the size or capacity of a tank and the stored maximum true vapor pressure of a fluid
- Vapor Pressure:
  - NSPS Kb includes instructions for determining a fluid’s maximum true vapor pressure which accounts for the highest calendar-month average of the fluid's storage temperature
  - Measured in units of kilopascals (kPa) or pounds per square inch absolute (psia)

NSPS Kb Emission Controls Applicability

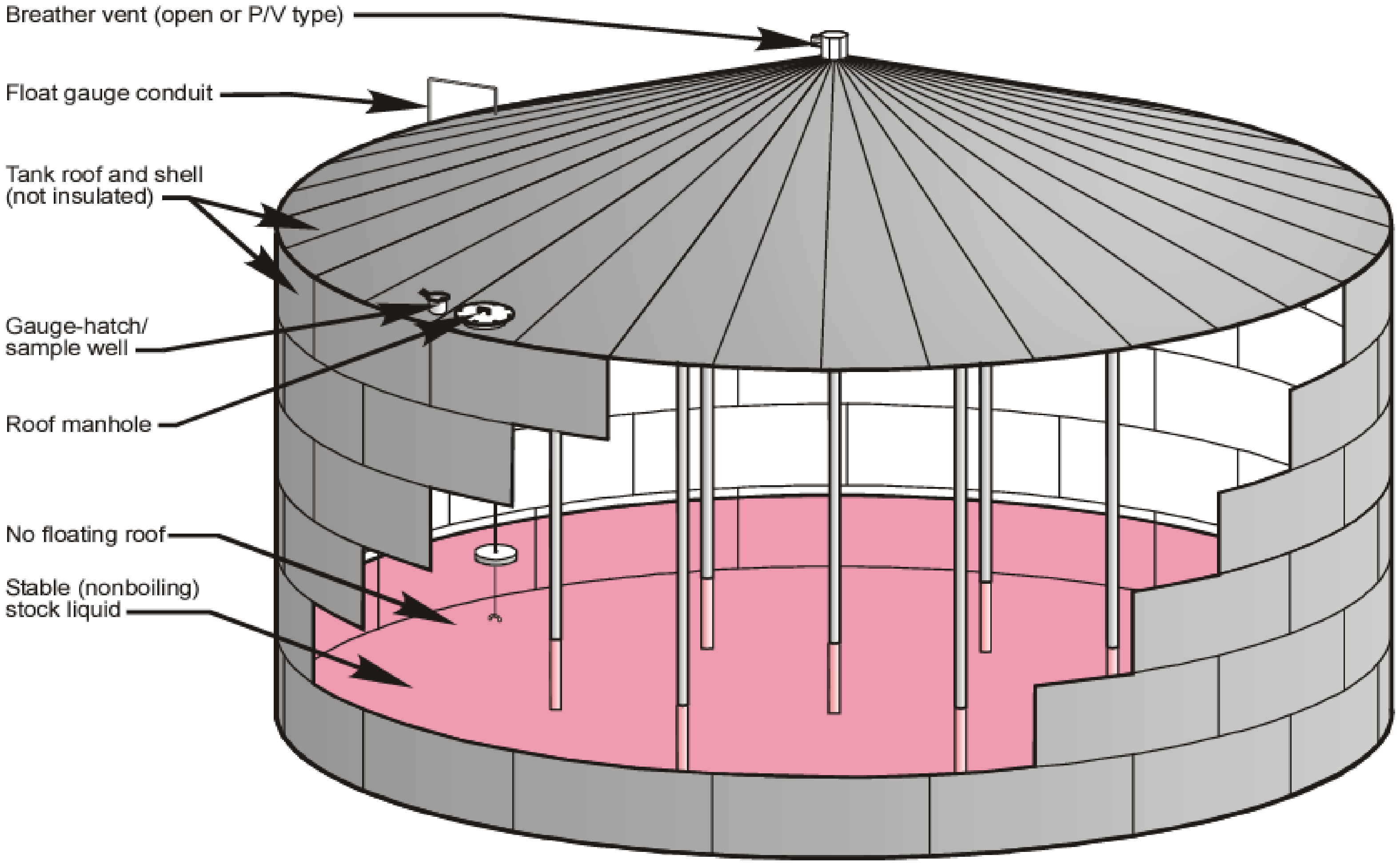
Required for these storage vessels that store volatile organic liquids (two groups of applicable vessels)

- Capacities ≥ 40k gallons
  - Maximum true vapor pressure ≥ 0.75 psia
  - Includes chemicals such as Heptane, Ethyl Alcohol, Benzene, Hexane, and Gasoline
- Capacity between 20k and 40k gallons
  - Maximum true vapor pressure ≥ 4.0 psia
  - Includes chemicals such as gasoline

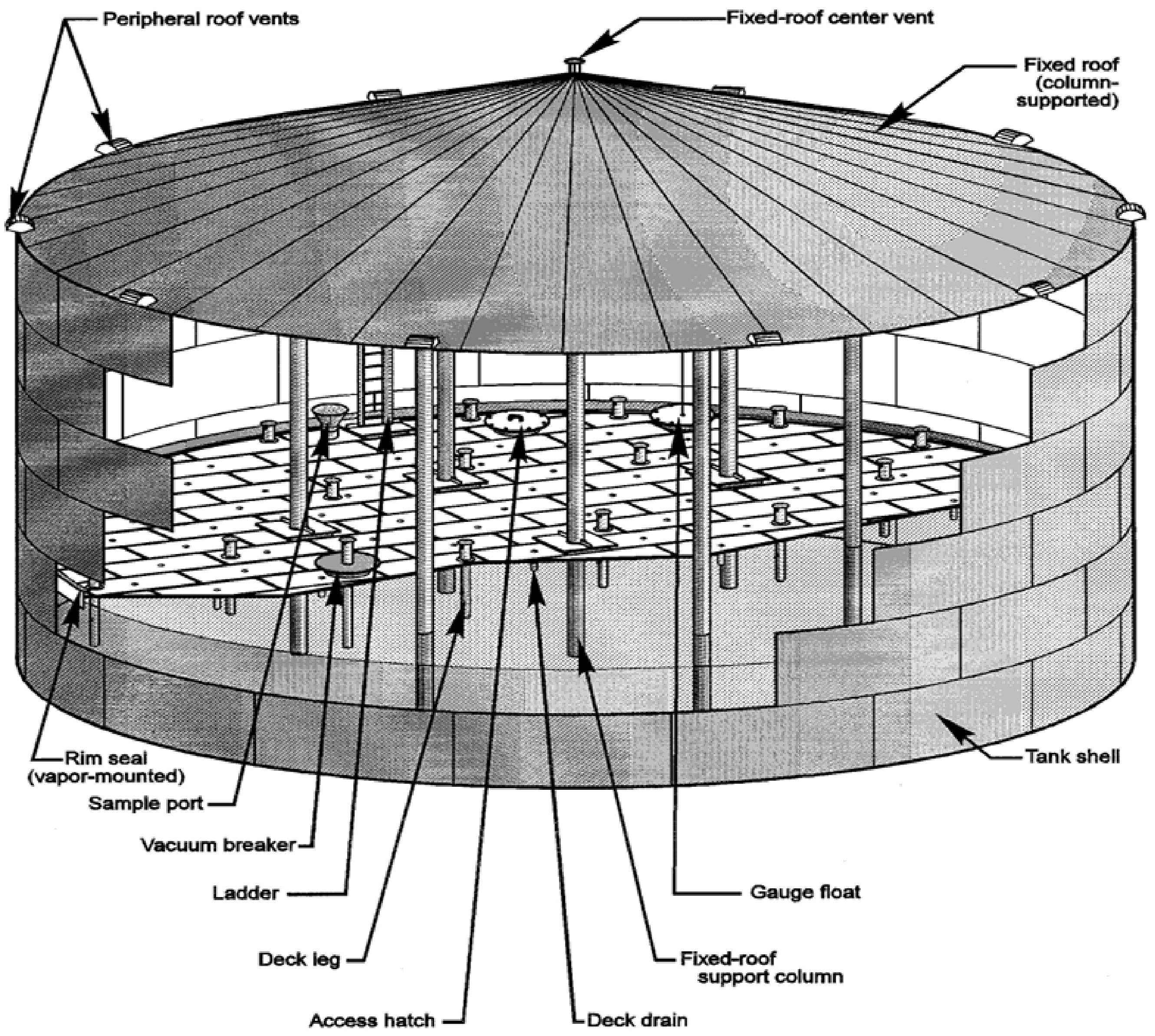
Emission Controls include

- Floating Roofs
- Closed Vent System and Control Device (such as a flare)

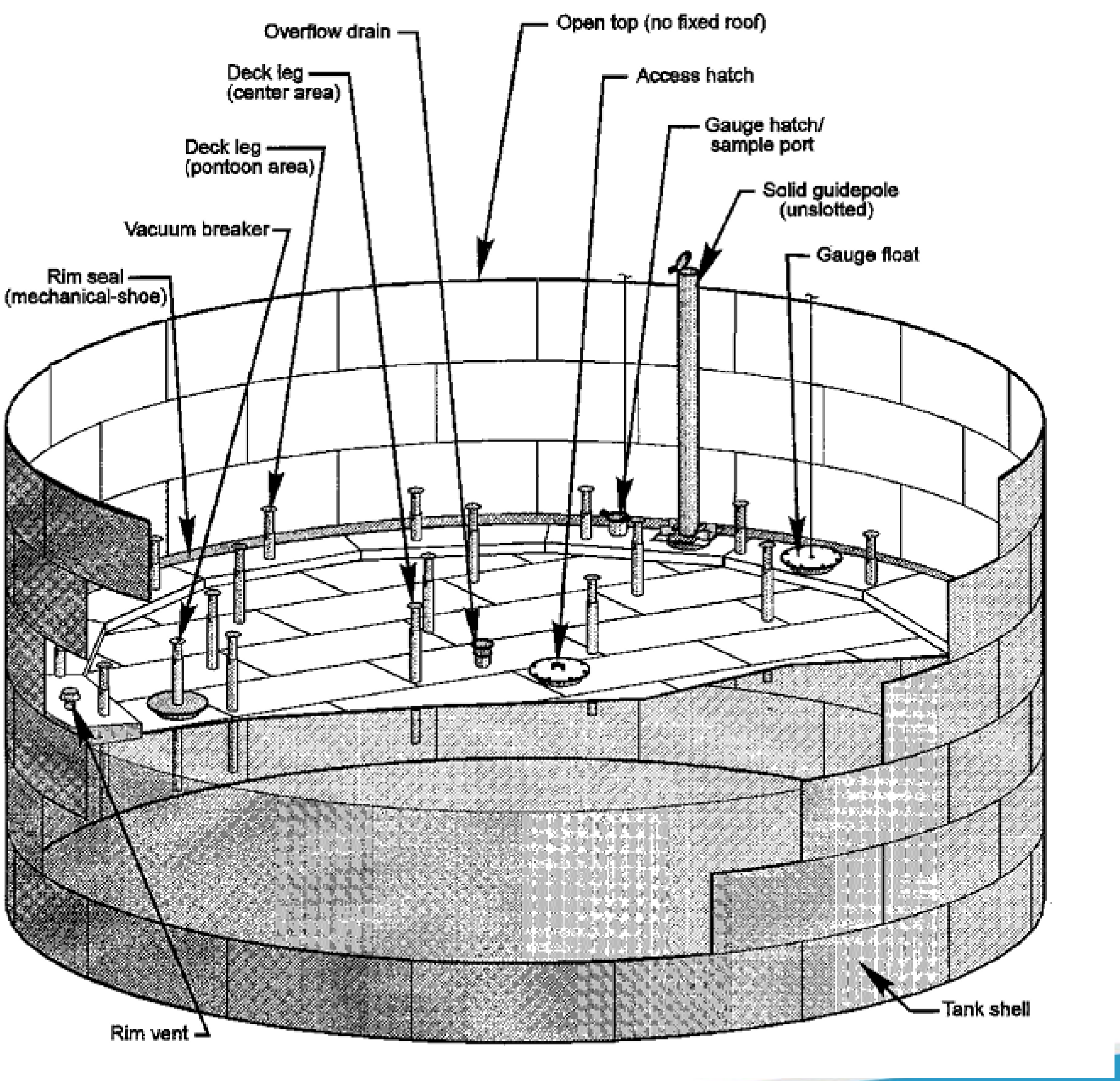
Fixed Roof Tank



Internal Floating Roof Tank



External Floating Roof Tank



Closed Vent System and Control

Closed Vent System

- Collects all VOC vapors and gases discharged from the storage vessel and sends them to a control device

Control Device

- Examples include:
  - Flares
  - Thermal oxidizers
- 95% Control Efficiency

NSPS Kc Proposal

Signature Expected Late September 2023	Updated Standards for VOL Storage Tanks
Publication expected October 2023	• Include review of current standard • Proposal for updated standards

For more info: https://www.epa.gov/stationary-sources-air-pollution/volatile-organic-liquid-storage-vessels-including-petroleum