Overview of the STEPP Program

— October 19, 2022 —

Seth Brown, PE, PhD | Executive Director

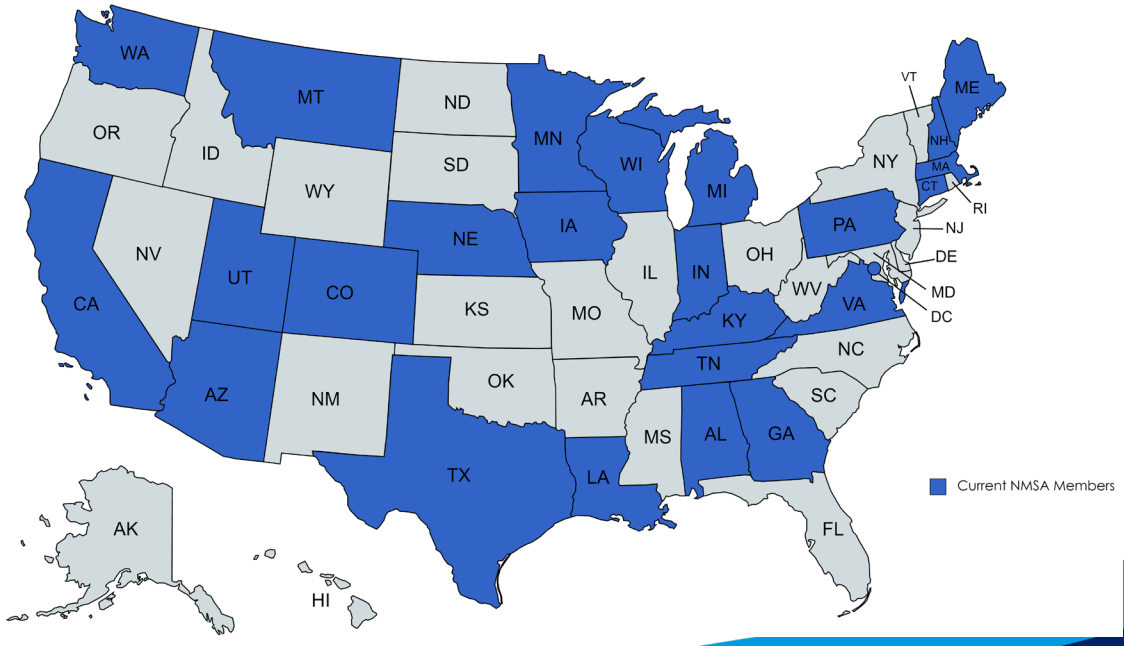
National Municipal Stormwater Alliance

Overview of National Municipal Stormwater Alliance (NMSA)

- **Who/What is NMSA?**
  - ***A national coalition focusing solely on MS4s***
  - ***Members are organizations, not individuals***
- **Motivation for Formation**
  - To represent MS4 permittees at the national level by providing a **unified voice**
  - To lead changes in regulation both **proactively and reactively**
  - To **connect and unite** MS4 programs
  - To promote stormwater as a **resource**
  - To improve the **public image of stormwater**
  - To create opportunities for **multi-benefit and multi-use stormwater projects**
- **Vision for Organization**

Member Groups

- State/regional groups of MS4 permittees
- 24 state groups currently members of NMSA
  - In discussion with several more
  - Over 4,000 MS4s in network
- 3 MS4s (Washington, DC; Baton Rouge, LA; Thurston County, WA)
- 26 Affiliate Members



Background on STEPP

A Simple Question…

How well do stormwater products and practices work?

Problem Statement

There is no national organization that provides consistent, technical/credible and objective testing and verification of stormwater practices and products.

Stormwater Testing and Evaluation of Products and Practices (STEPP)

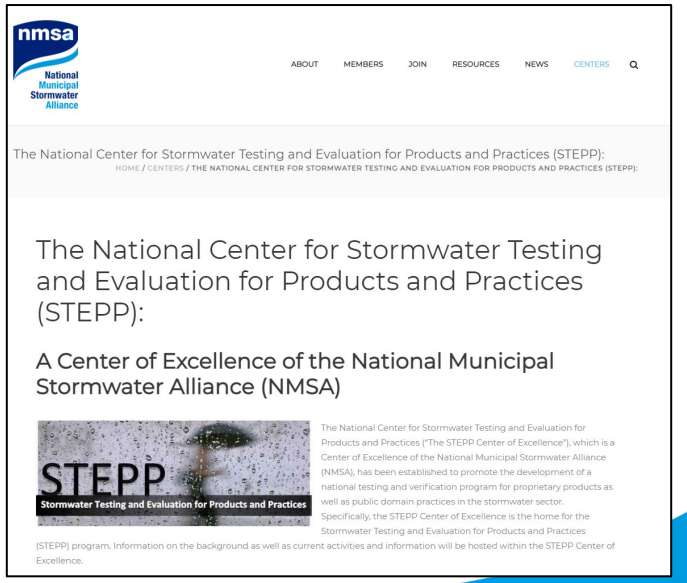
Goal: Develop a national testing/evaluation and verification program for stormwater products **and** practices

- Increase overall performance
- Create level/higher playing field
- Provide greater confidence in performance of stormwater systems
- Improve water quality

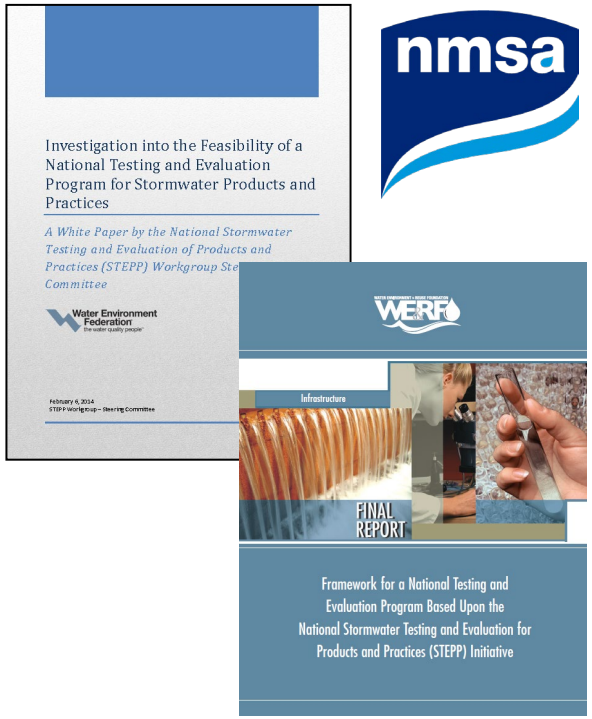
STEPP Center of Excellence (CoE)

The National Center for Stormwater Testing and Evaluation

- The home for the STEPP initiative within NMSA
- Promotes the development of performance testing standards and third-party verification of stormwater products and practices
- STEPP CoE Chair is Jay Holtz
- STEPP CoE Director is Seth Brown



Background



2012 – 2016 – Led by Water Environment Federation (WEF)

- Initial investigation
- Feasibility White Paper
- WERF STEPP framework report published (EPA SUPPORT HERE)

2017 – 2020 – Led by WEF

- Establishment of consortium of interested groups
  - ASTM, ITRC, NJ, WA, WRF
- ASTM initiating development of lab testing standards based upon NJCAT/NJDEP lab protocols
- Initiated engagement with State of Minnesota

2021 – Led by NMSA

- Accelerating the development and ultimate launch of STEPP

Technology Readiness

and

Technology Verification

Technology Readiness Levels and the Valley of Death

Technology Readiness Levels

Basic Research

1. Basic principles and research.
2. Application formulated.
3. Proof of concept.

Applied Research

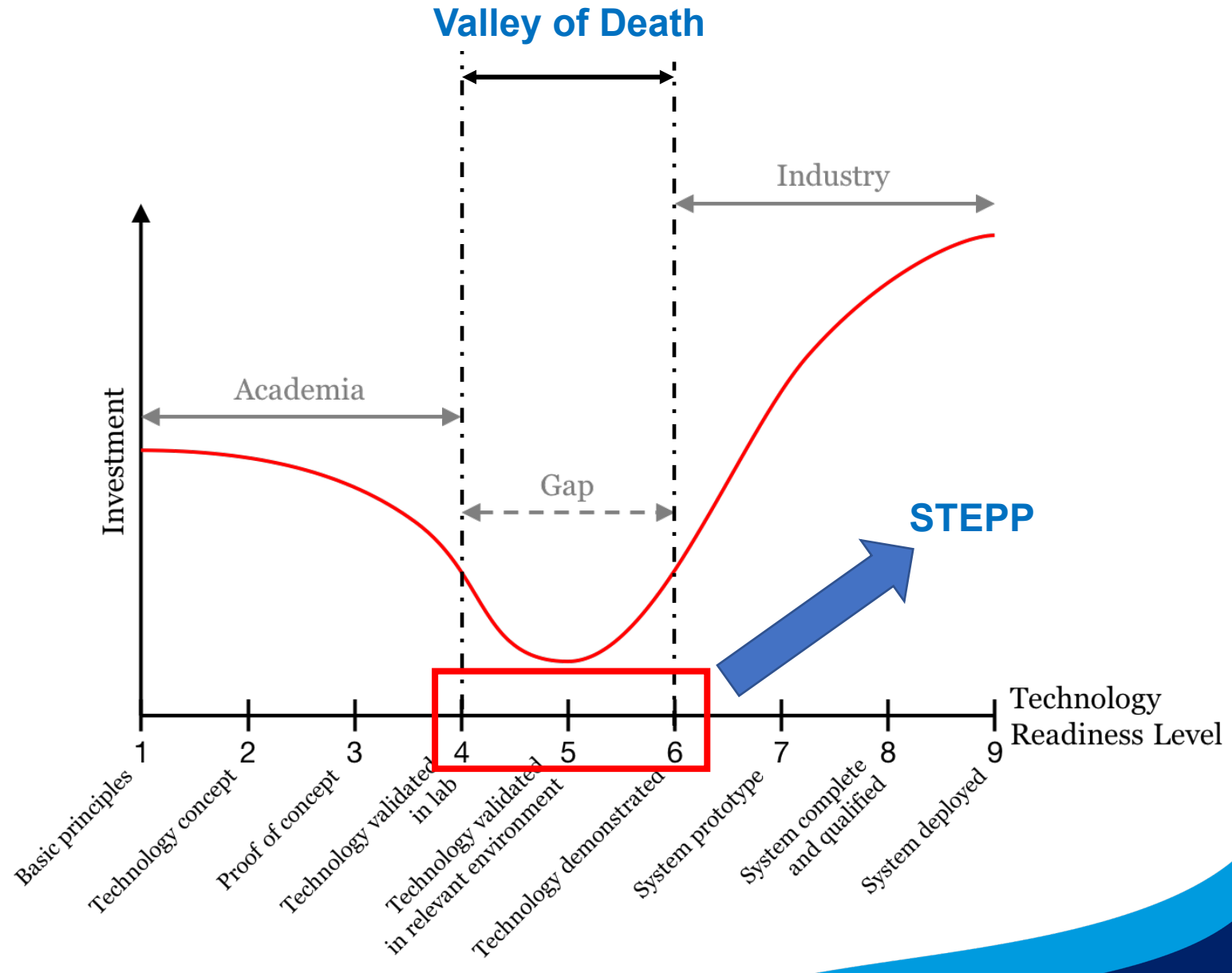
4. Components validated in a laboratory environment.
5. Integrated components demonstrated in a laboratory environment.

Development

6. Prototype demonstrated in relevant environment.
7. Prototype demonstrated in operational environment.
8. Technology proven in operational environment.

Implementation

9. Technology refined and adopted.



Basics of Environmental Technology Verification (ETV)

- Focuses on “market-ready” technologies and practices
- Provides a platform and process to verify the performance claims of technologies and practices
- Elements of an ETV:
  - Use of standardized performance test methods
  - Testing to be performed in a consistent and credible manner
    - A Quality Assurance Project Plan (QAPP) often used to capture testing information, such as equipment used, qualifications of personnel, methods used to generate test data results
  - Use of formalized test review process with independent, third-party reviewers

ETV

U.S. EPA's Environmental Technology Verification Program

ETV / ISO14034

Japan Environmental Technology Verification

ETV Ministry of the Environment

Overview of STEPP

Principles of STEPP

- Reduce cost and time to get to market
- Built upon Washington TAPE and NJCAT
- Focus on **verification**
- Recruitment
  - Need to get states and others on board
- Equity
  - Public domain **AND** MTDs
- Café Plan Approach
  - Lab and Field options
- Continual Improvement
  - Program will evolve over time
  - Incorporate new scientific techniques & evaluation tools

Importance of ASTM Standards

Benefit of ASTM Standards

- Provides technical basis for testing that is:
  - Technically credible/sound
  - Based upon consensus within the sector
  - Consistently applied across various products and practices
- **Enhances the trust in verified data produced by testing using ASTM standards**

Standardized Testing

Provides credible, consistent testing results following standardized test methods and processes

Verification

Reviews standardized testing process and personnel and verifies the validity of test results through qualified, independent 3rd party review

Verification vs. Certification

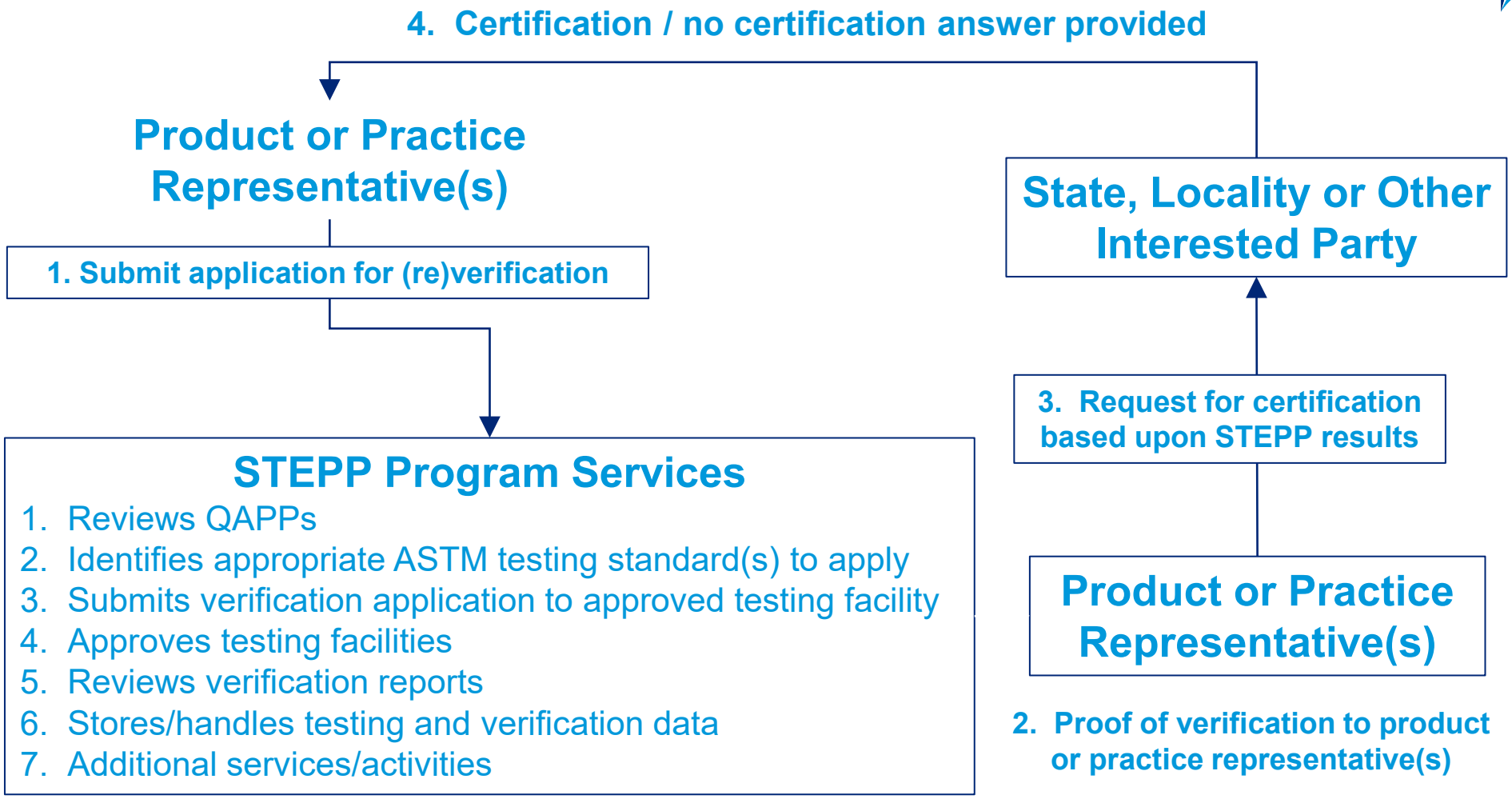
Verification

Test performance of products/practices in a standard way

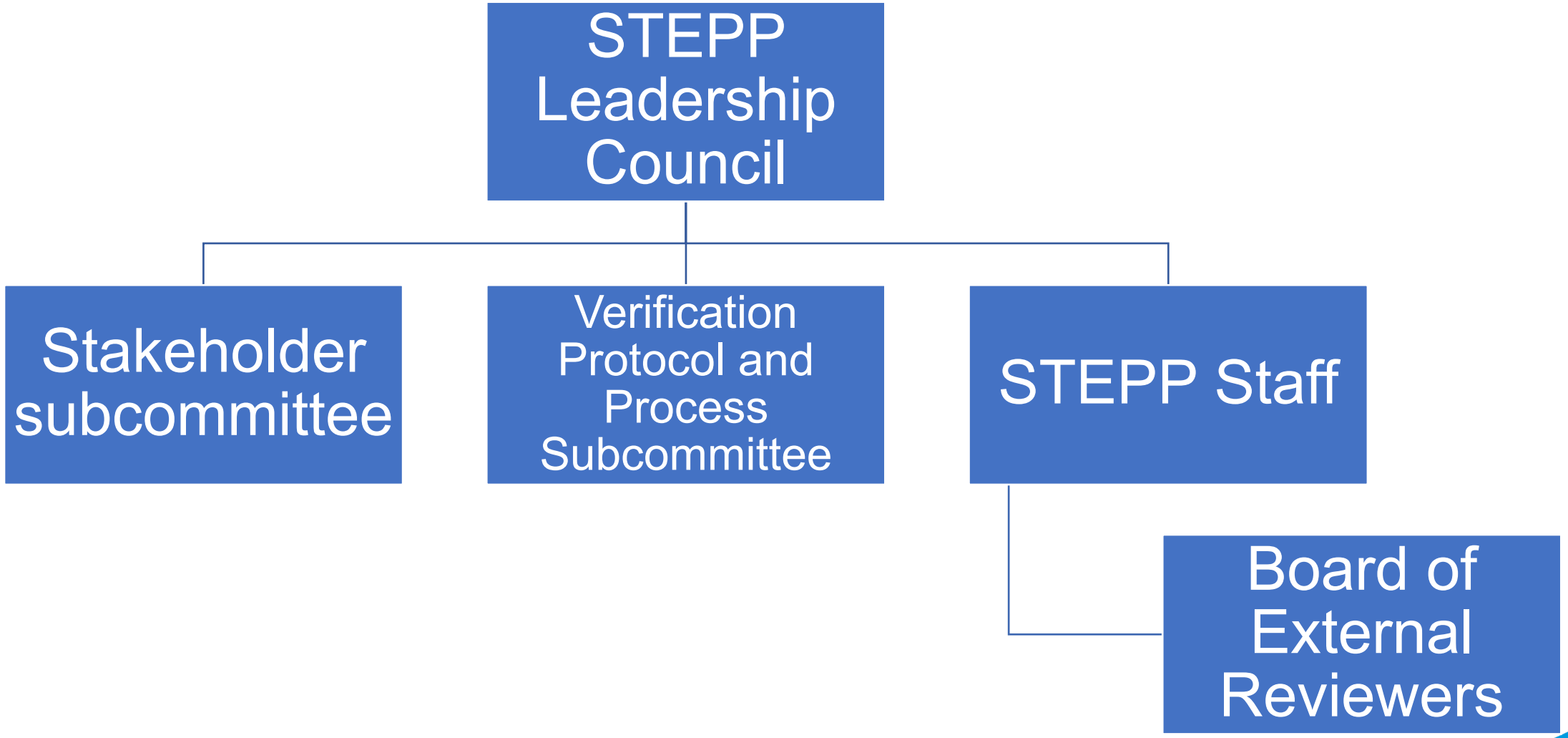
Certification

Performance of verified products/practices meets regulatory performance standards

STEPP Process



STEPP Governance Framework



Path from Products to Practices

Initial Focus on Proprietary Products

- **STEPP focuses initially on proprietary products**
- **ASTM Stormwater Committee develops standards for MTDs initially**

Transition to Proprietary Products / Public Domain Practices

- **Development of standards for public domain stormwater practices**
- **STEPP expands policies and processes to public domain practices**

Mature Proprietary Products / Public Domain Practices Program

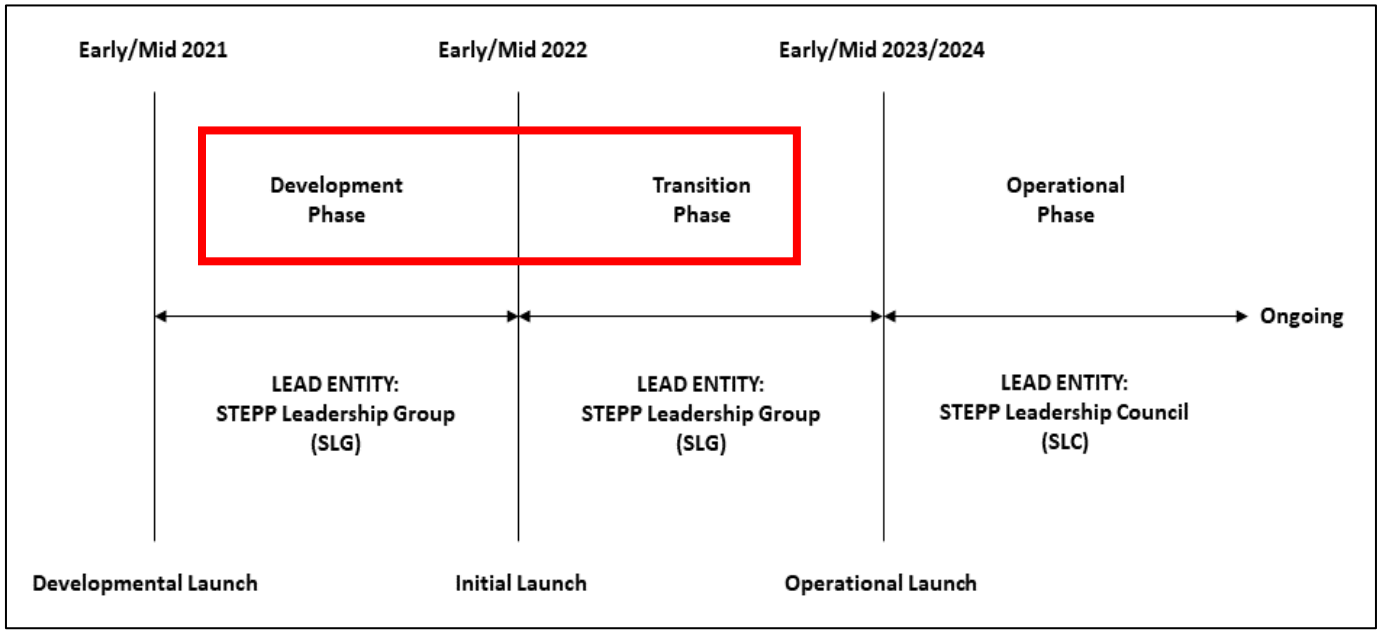
- **Testing standards established for** major **public domain practices and MTDs**
- **STEPP provides testing/verification services for all products/practices with standards**

Updates on STEPP

Year 1 and Beyond

Multi-phase plan

- Year 1 (2021-2022) = Development Phase
- Year 2-3 (2022-2023 or 2024) = Transition Phase
- Post Year 2-3 (after 2023 or 2024) = Operational Phase



State/Municipal Engagement

- Working with State of Minnesota
  - A pilot program on integration of STEPP into state program
  - Can inform on how other states can engage with STEPP
- Engagement with other key states
  - GA, MA, CA, VA, CO, others…
- Ongoing work with ACWA
- Engagement with key municipalities

ASTM E64 Updates

- ASTM E64 Committee on Stormwater Control Measures
  - https://www.astm.org/COMMITTEE/E64.htm
- Lab Testing
  - NJCAT lab-based protocols being standardized
    - Focus on HDS and filter systems
    - Completion expected in next 6 months
  - Trash capture standard finalized
- Field Testing
  - WA TAPE protocol field-based test methods standards initiated
    - Completion could be in next 12-18 months

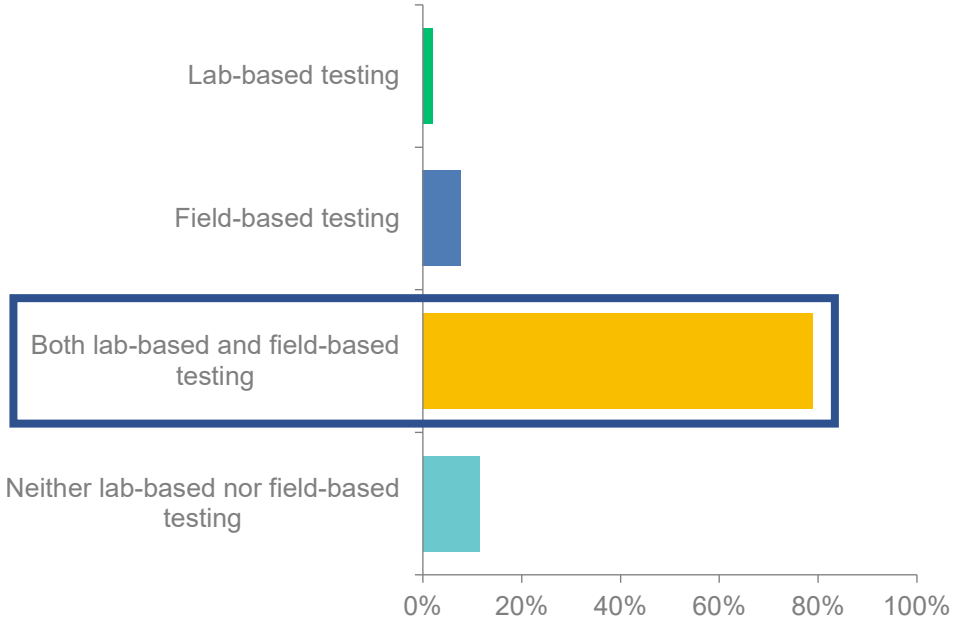
ASTM INTERNATIONAL

State/MS4 Survey on Stormwater Testing

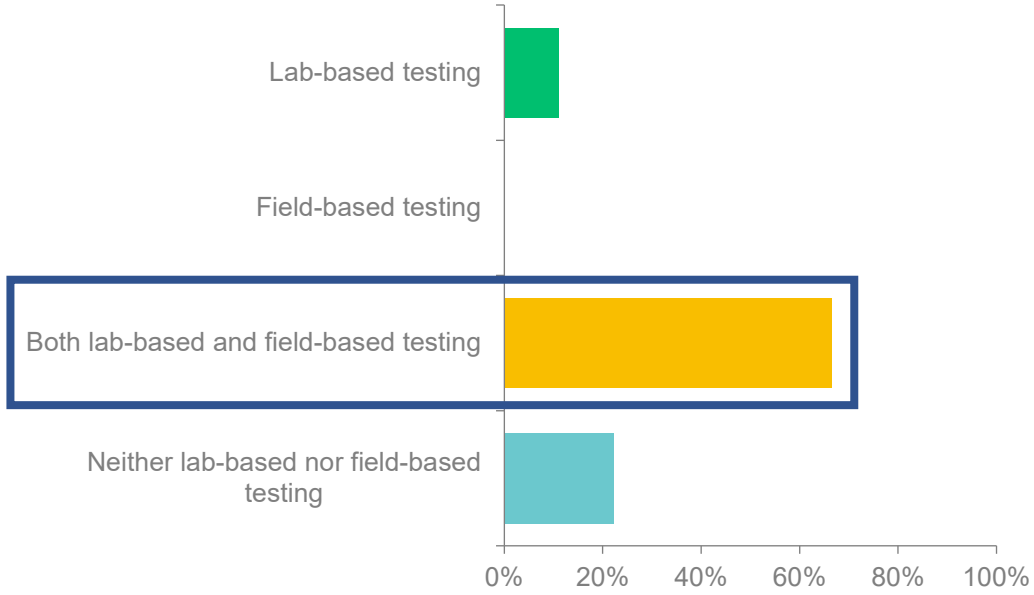
National STEPP Survey

Do you anticipate your program making decisions on stormwater products/practices based upon lab-based testing, field-based testing, both, or neither?

MS4 Results



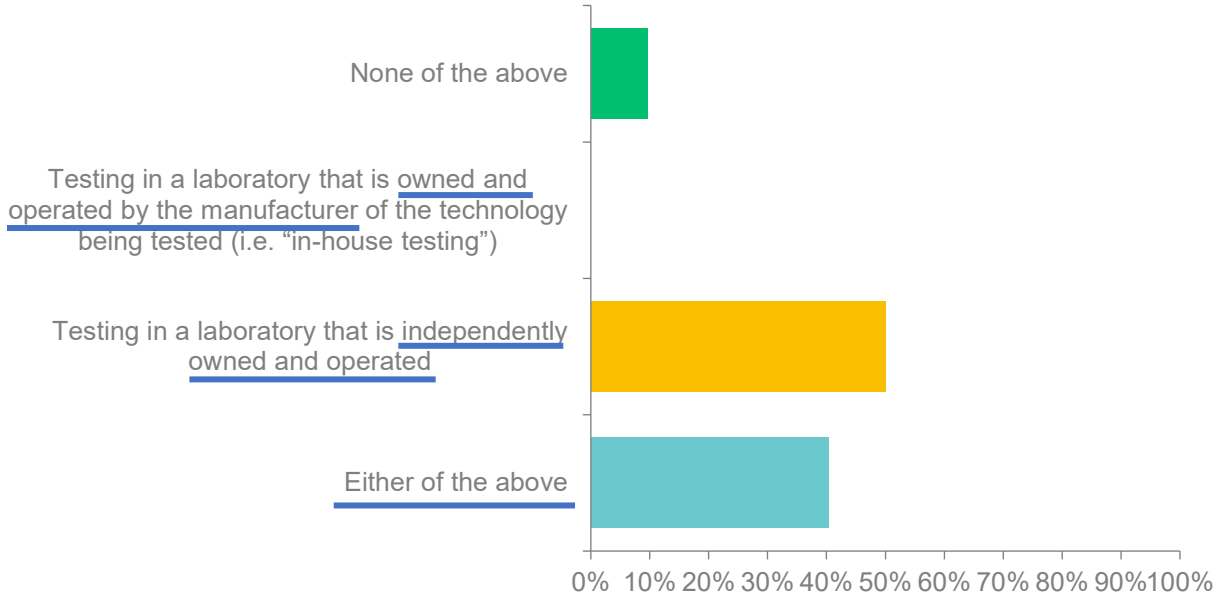
State Results



National STEPP Survey

Assuming ASTM test protocols are followed, which of the following laboratory testing arrangements would you accept?

MS4 Results



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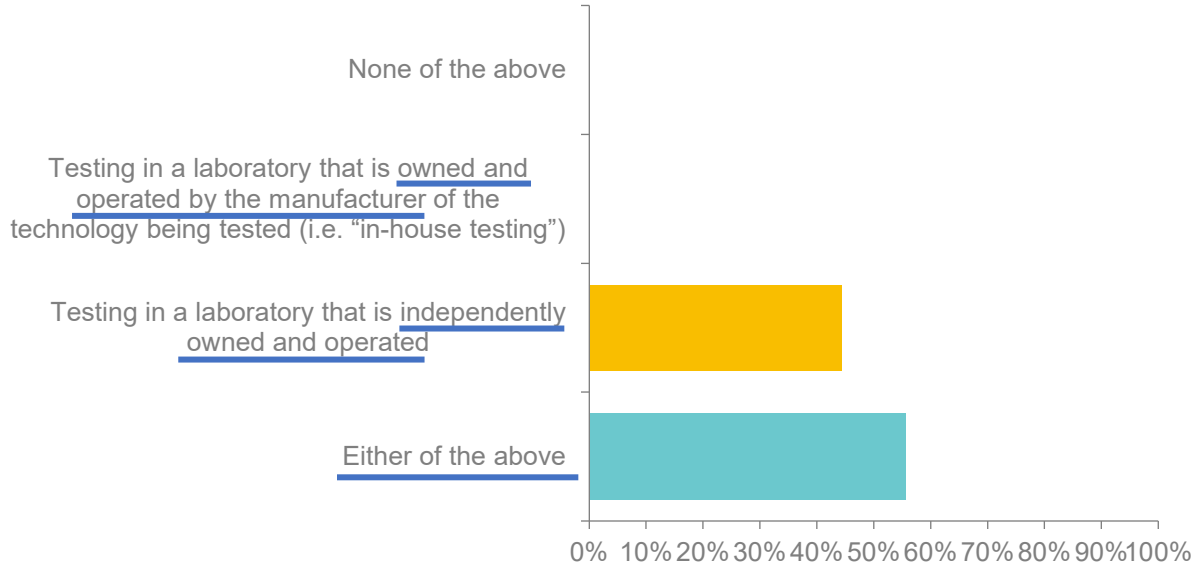
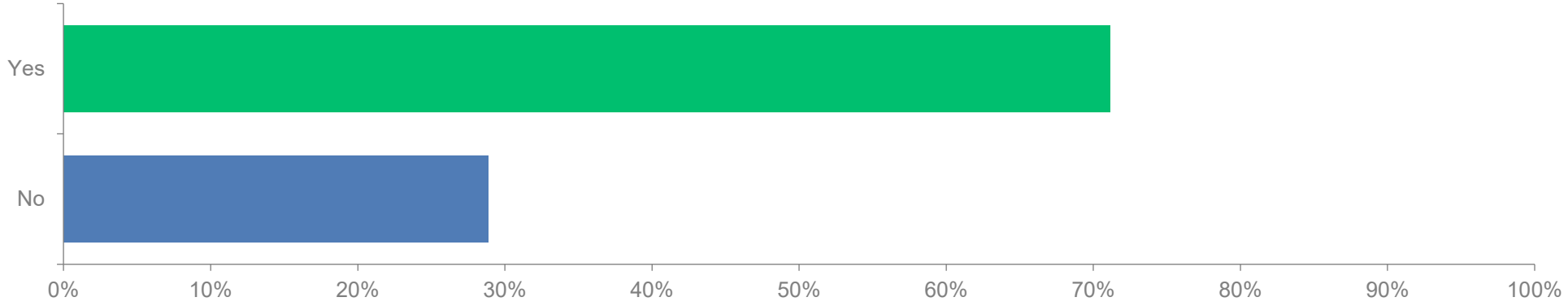
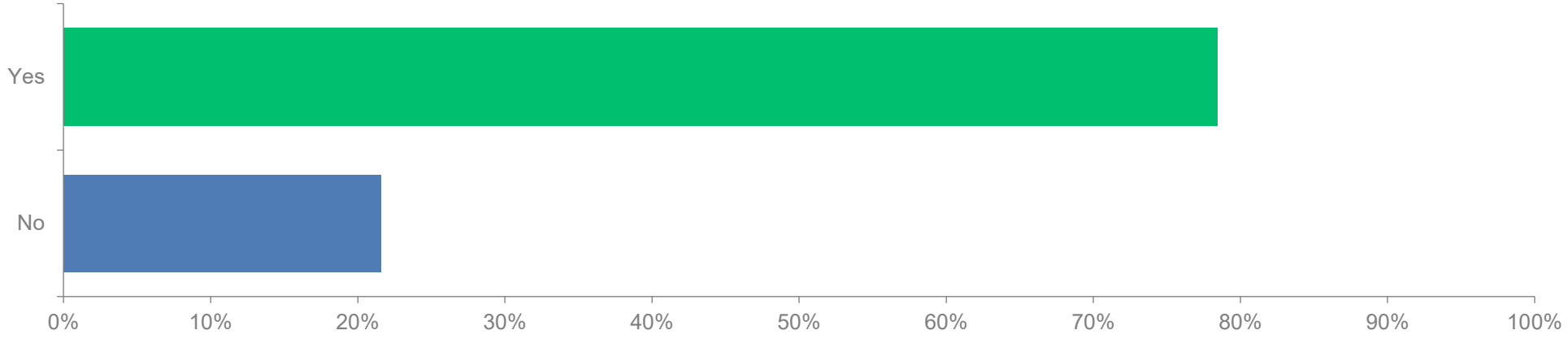


National STEPP Survey (MS4)

If highly-qualified testing professionals with no conflicts of interest observe performance testing, would you accept in-house testing results for lab-based performance testing?



If highly-qualified testing professionals with no conflicts of interest led the performance testing, would you accept in-house testing results for lab-based performance testing?



National STEPP Survey (State)

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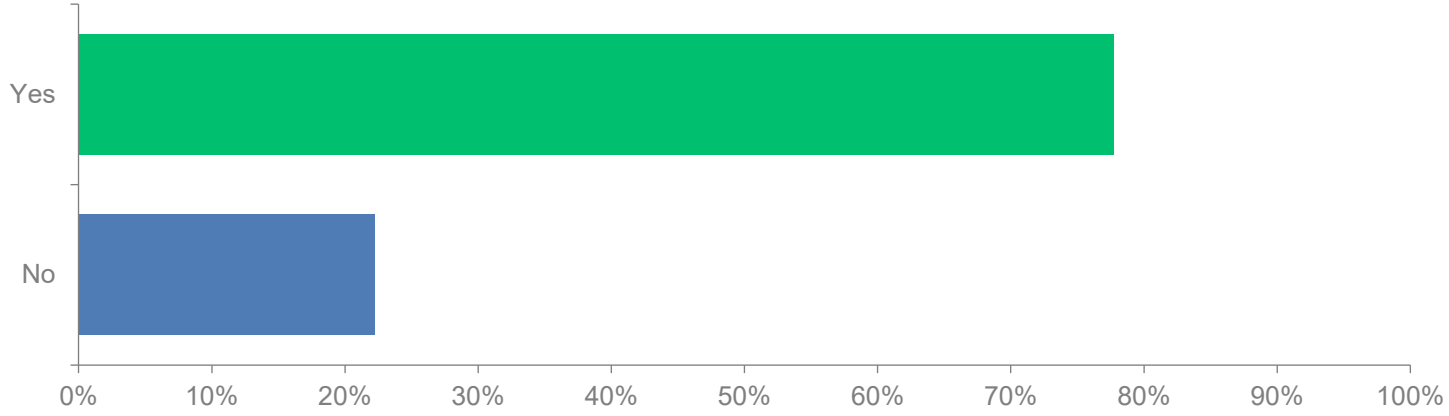

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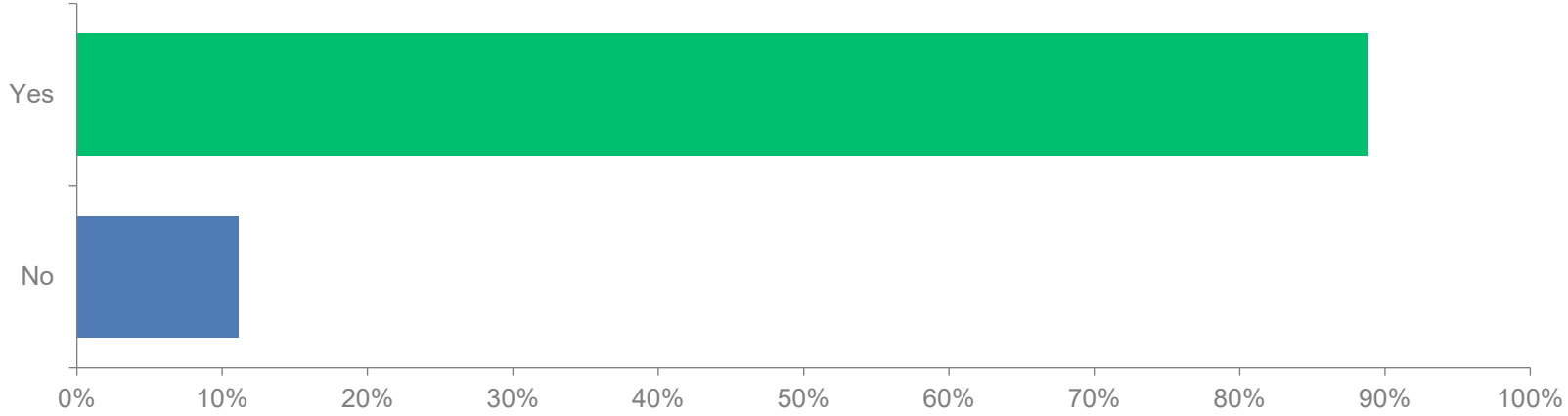
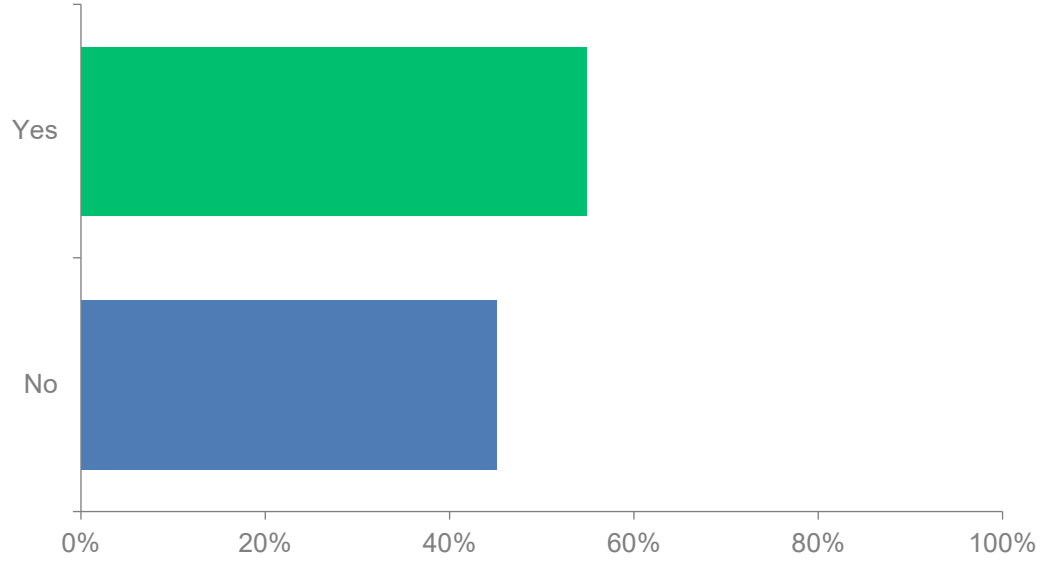


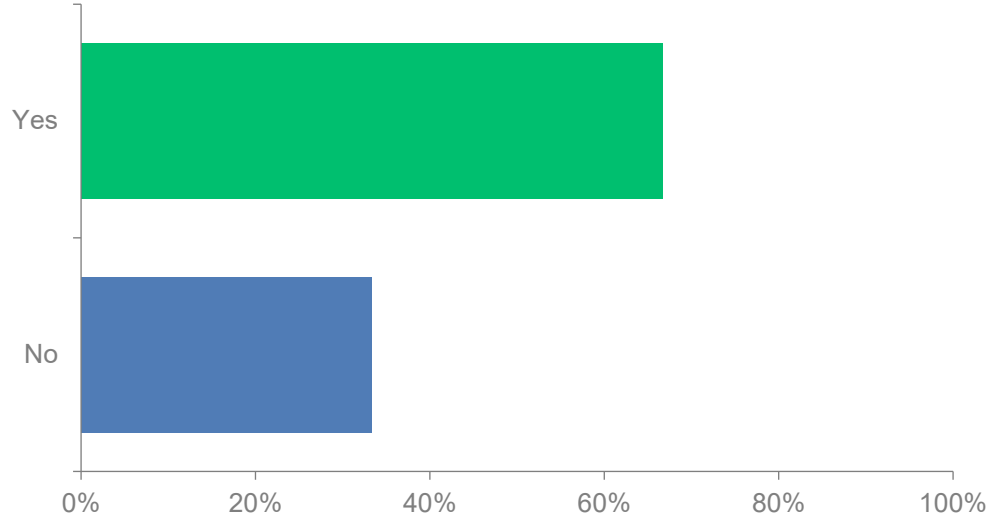
National STEPP Survey

Does your program currently rely on a performance-based testing and evaluation program when making decisions on approval for the use of stormwater products and practices and/or treatment crediting?*

MS4 Results



State Results

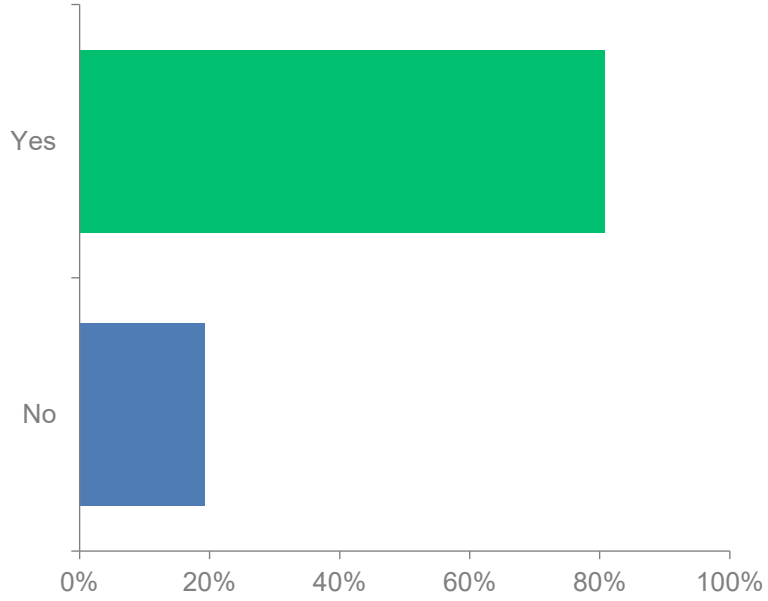


*Examples include TAPE, NJCAT/NJDEP, TARP, International Stormwater BMP Database etc.

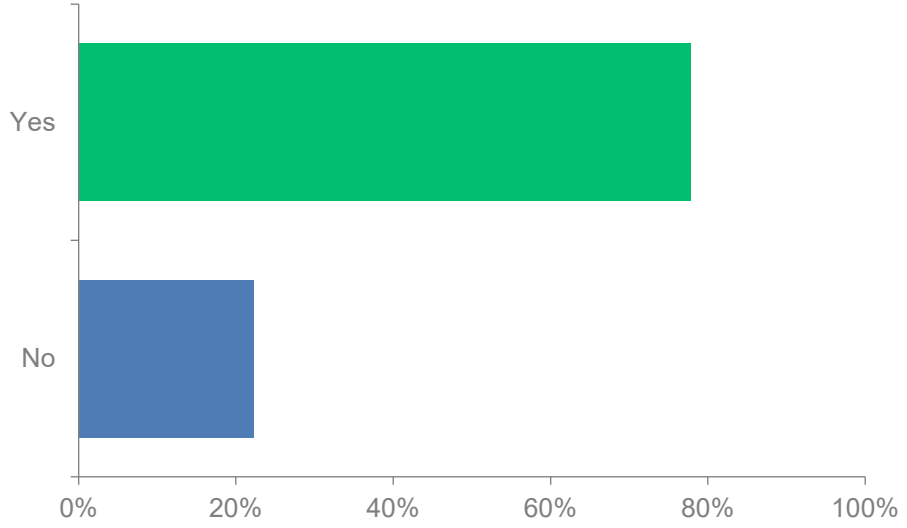
National STEPP Survey

If a national performance testing and evaluation program for stormwater products and practices were available, would your program defer to it?*

MS4 Results



State Results

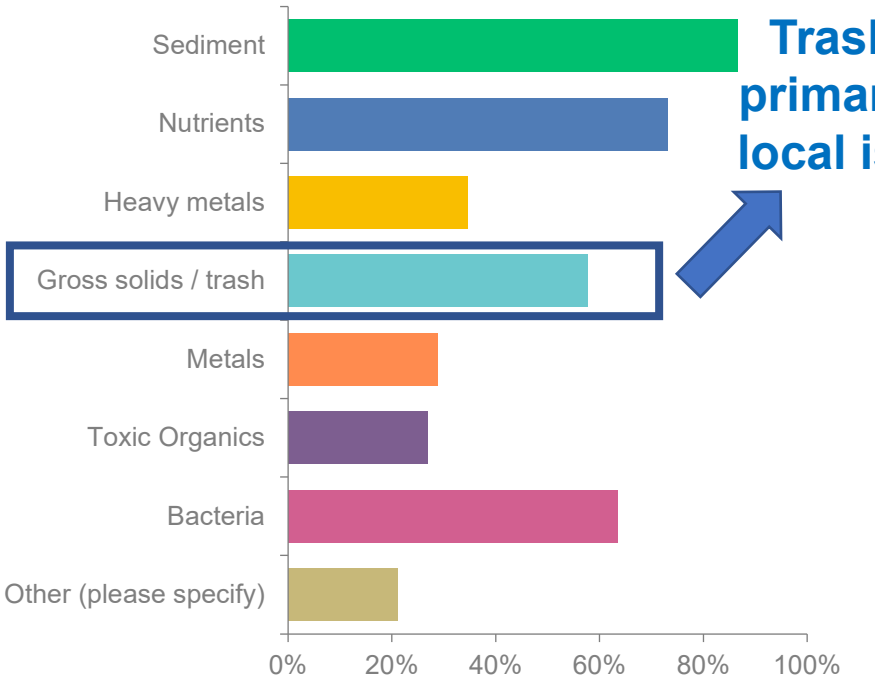


*Assuming this program utilizes similar or identical protocols used in existing state or regional programs (TAPE, NJDEP)

National STEPP Survey

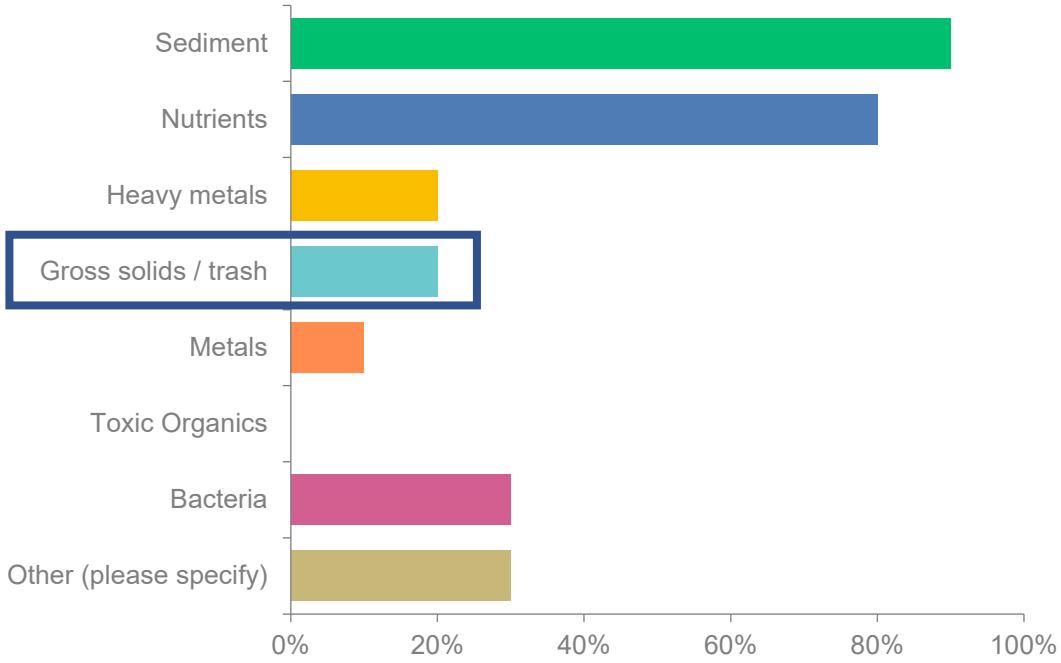
What are the current stormwater related pollutants of most interest or priority in your MS4 program?

MS4 Results



Trash is primarily a local issue

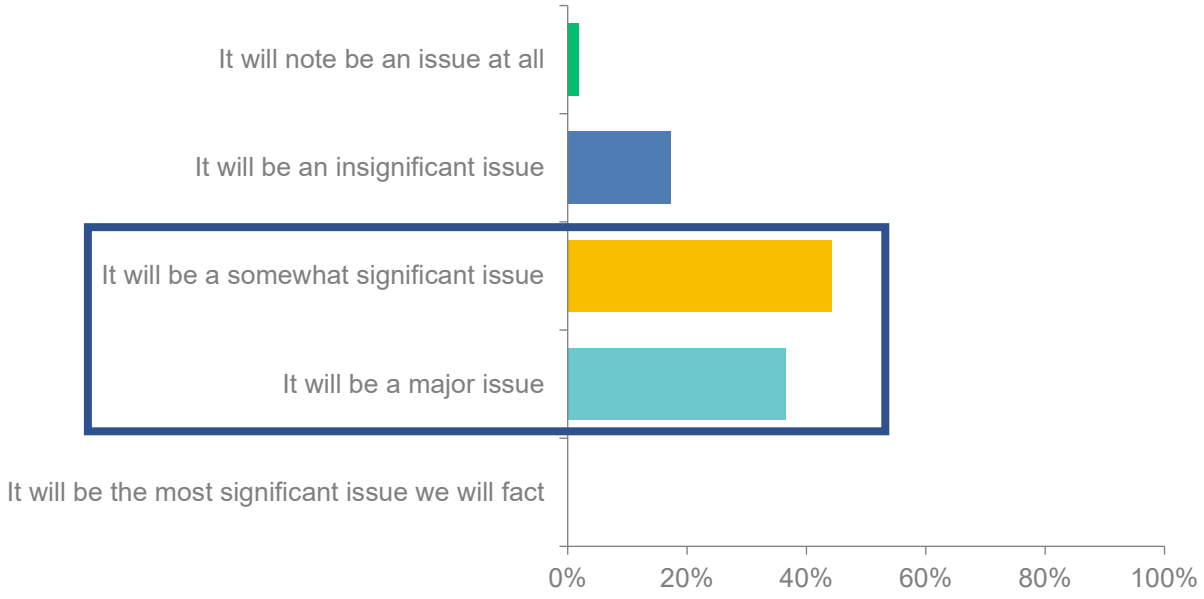
State Results



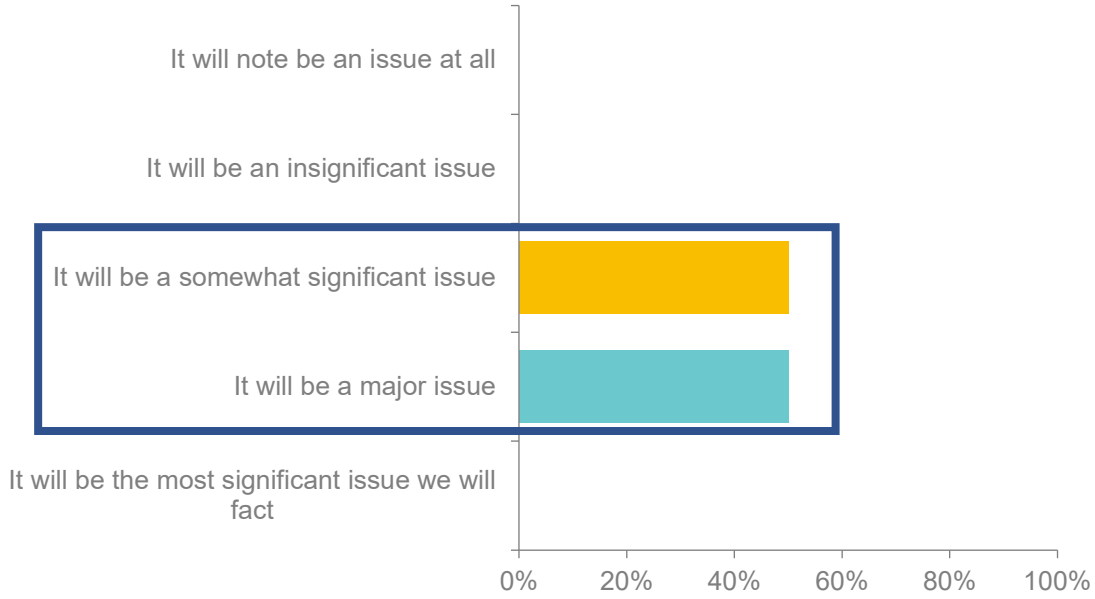
National STEPP Survey

What role do you think emerging contaminants (PFAS, microplastics, 6PPD, etc.) will play in your MS4 stormwater program in the future?

MS4 Results



State Results



STEPP Survey Take Aways

States and MS4 responses were very similar

- States and MS4s are well-aligned on the topics covered – that are critical to STEPP

Majority of MS4s and states rely on testing programs and there is strong interest in STEPP

- There is value in STEPP as seen by both states and MS4s

There is a need for STEPP to support both lab and field testing

- STEPP should continue on this path and continue to develop field testing standards in ASTM

STEPP Survey Take Aways

Pollutants of Interest

- Nutrients and sediment are leading pollutants of interest – no surprise there
- Bacteria and trash are not far behind! This is (somewhat) surprising
- Going with trash for STEPP soft launch could be very valuable and needed

Emerging pollutants are of interest, too

- STEPP should plan on going beyond nutrients, sediment, trash and bacteria
- PFAS could be a MAJOR player in the near future – do ASTM standards exist? Will PFAS TMDLs be developed soon?

Moving Forward…

STEPP Updates of Note

UPDATES

- Survey illustrates high support and need for STEPP
- *Focus on trash capture technologies for soft launch by March 2023*
  - Establishing governance bodies
  - Finalizing and establishing verification processes and documentation
- Sediment will be included soon after soft launch
- Significant interest from a number of states and jurisdictions

STEPP Fees by State

Tier Schedule

- Fees are annual
- Scaled by several factors:
  - Size
  - Population
  - Level of urbanization
- Ranges from $5,000-$35,000
- Fees are generally in line with survey WTP

STEPP membership services include:

- Access to all verified testing data and associated information
- Training and guidance to understand how to apply verified data at the state and local level
- Support in developing a certification process, if requested
- Representation in STEPP governance to enable feedback

Tier 1 Fee	Tier 2 Fee	Tier 3 Fee	Tier 4 Fee
$5,000	*$10,000*	*$20,000*	*$35,000*
Alaska	Arkansas	Arizona	California
Delaware	Iowa	Colorado	Illinois
Idaho	Kansas	Indiana	Massachusetts
North Dakota	Kentucky	Maryland	New Jersey
Wyoming	Mississippi	Minnesota	New York
	Nebraska	Missouri	North Carolina
	New Hampshire	Washington	Pennsylvania
	New Mexico	Wisconsin	Virginia
	Oklahoma	Connecticut	
	Utah	Washington, D.C.	
	West Virginia	Hawaii	
	Alabama	Maine	
	Louisiana	Michigan	
	Montana	Nevada	
	Rhode Island	Ohio	
	South Carolina	Oregon	
	South Dakota	Texas	
	Tennessee	Vermont	
		Georgia	
		Florida	

Wrapping Up

Why Consider Supporting STEPP?

- The **TAPE and NJCAT** programs are **likely to be discontinued** in the not-so-distant future – STEPP will supplant these programs
- In the near term, STEPP members will get to help to **shape the program** as it develops and ensure that the program works for them/their state
- STEPP membership benefits

Please consider engaging with survey!

- https://www.surveymonkey.com/r/STEPP_State

Questions?

Visit our website at **nationalstormwateralliance.org**

www.nationalstormwateralliance.org/stepp

View recording of STEPP overview at NMSA YouTube channel:

https://www.youtube.com/watch?v=4nx80dwo2Ew&t=265s

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