

# 2022 NATIONAL MS4 NEEDS ASSESSMENT SURVEY

**A one of a kind national survey that attempts to understand MS4 sector challenges, drivers, and needs**

For more information visit: <https://wefstormwaterinstitute>

## ACWA National Stormwater Round Table

Presented by: Bianca Pinto, WEF's  
Stormwater Practice Lead

October 19<sup>th</sup>, 2022

# Agenda

- MS4 Needs Assessment Survey Background
- Why is it important for the Sector?
- Past Survey Results and 2022 Updates
- Survey questions and schedule
- Difference between CWNS and MS4 Needs Assessment Survey
- Q&A

# Why did the Stormwater Institute decide to Assess the Sector's needs?

Elevate the  
Stormwater  
Sector

Collaborate  
on  
Technical  
Updates

Execute  
Targeted  
Projects

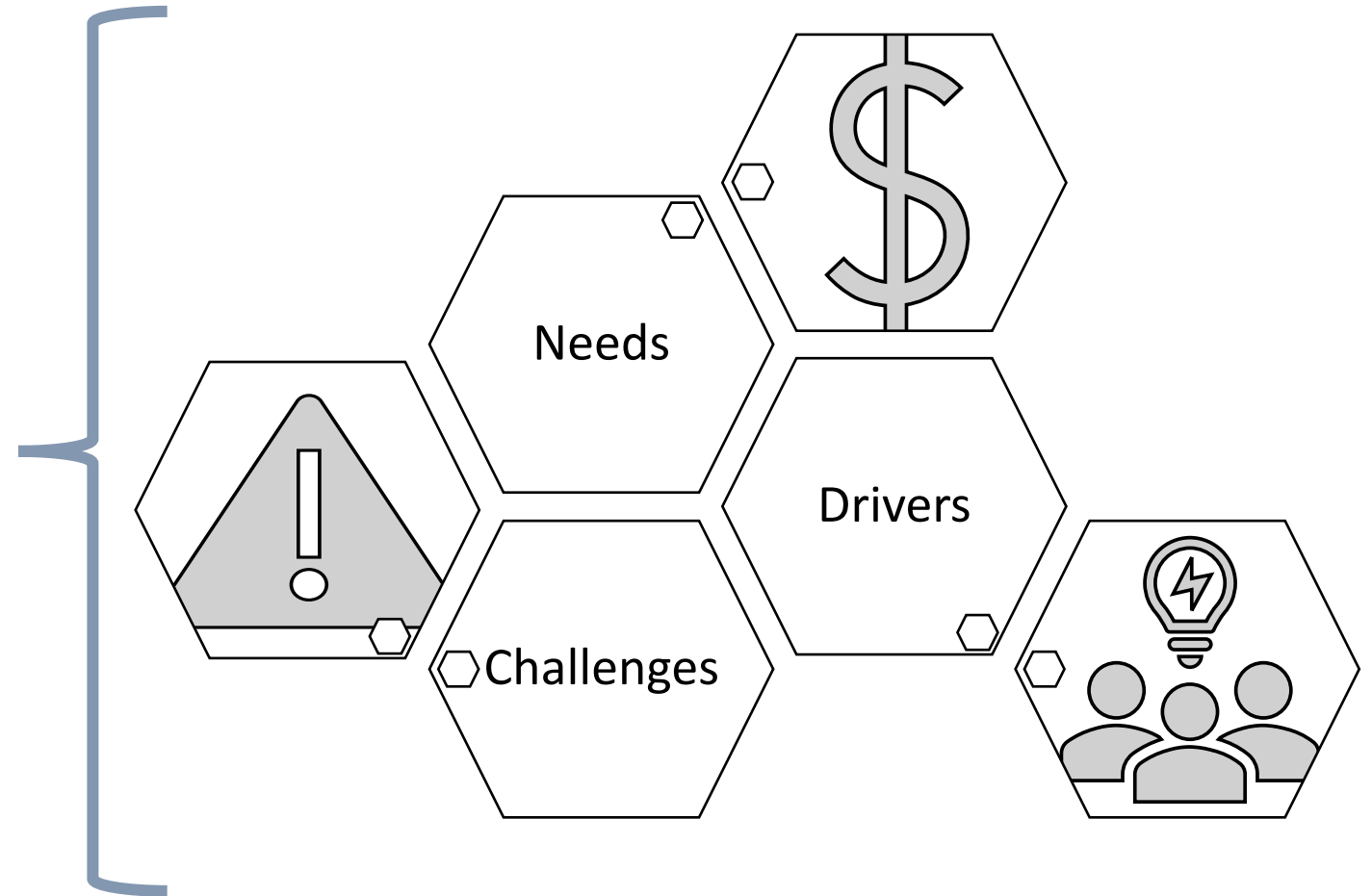
Advance  
Advocacy  
on Key  
topics

Provide  
Relevant  
Education

# What is the goal of this survey?

## Surveys help us:

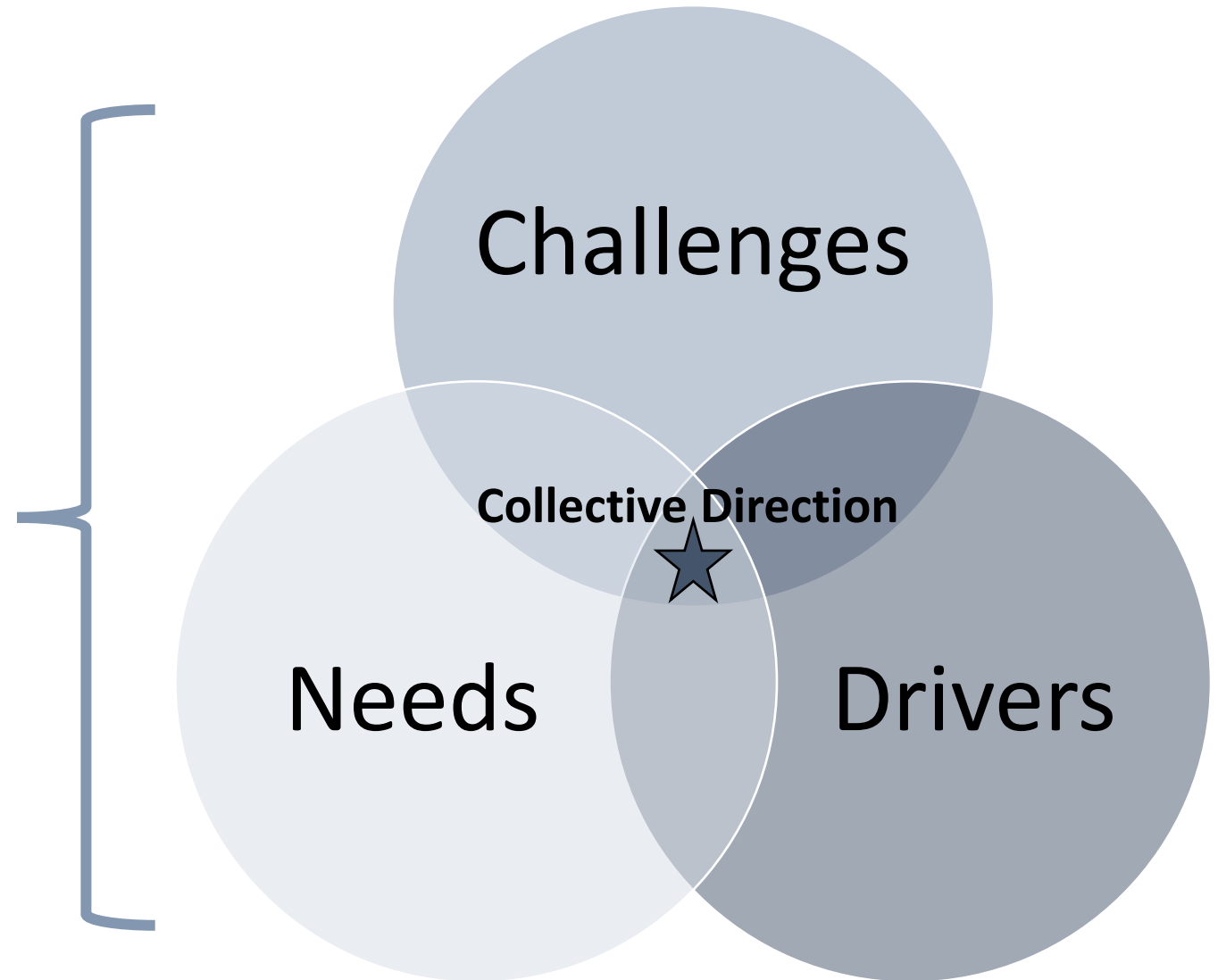
- Build a database
- Study Stormwater trends over time
- Develop metrics



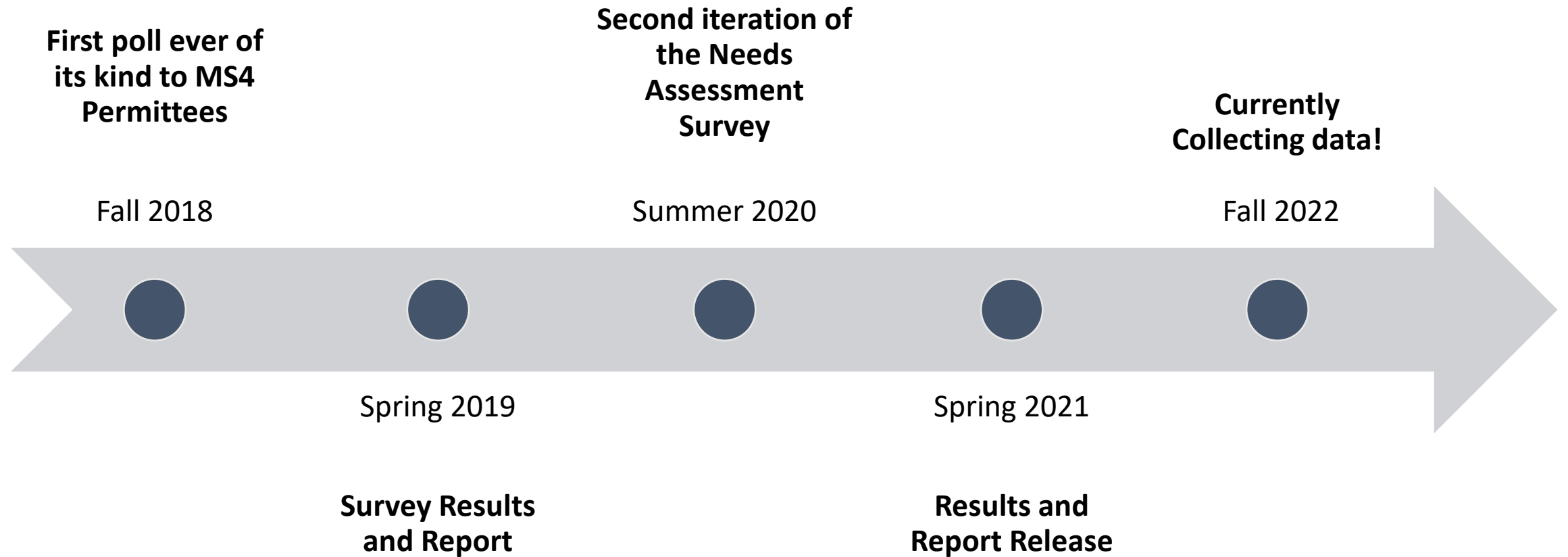
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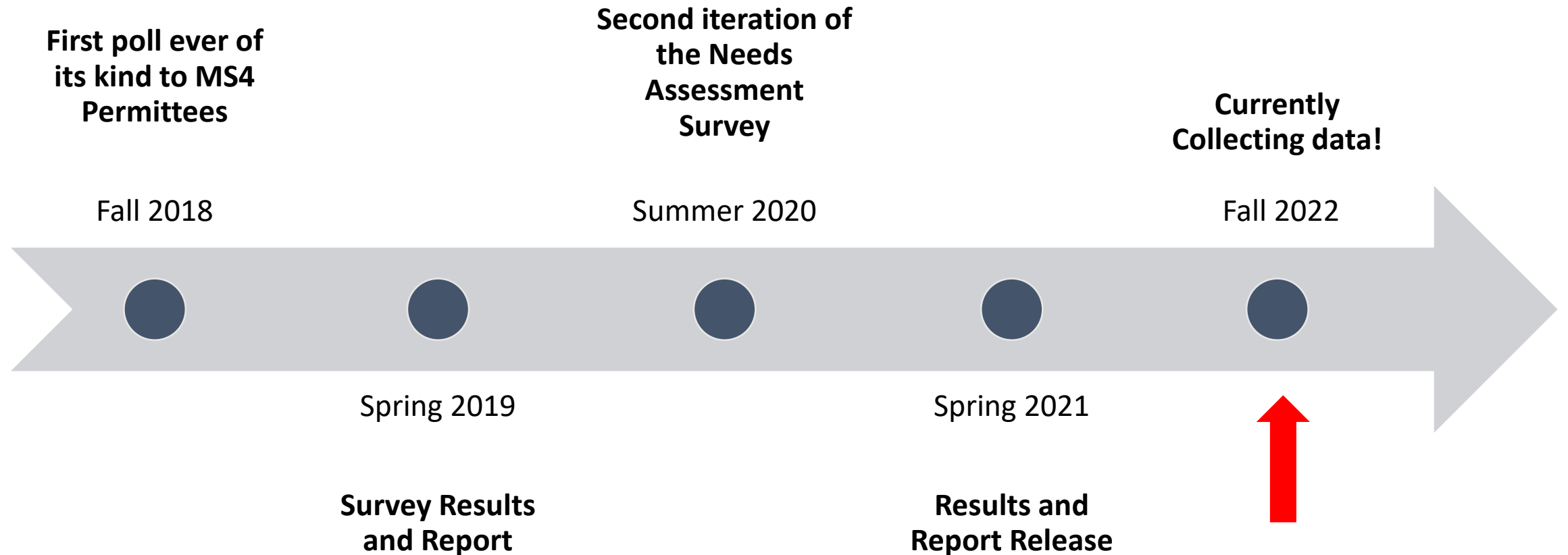
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# MS4 Needs Assessment Survey Background



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# Overview of Past Surveys

	2018 Survey Results	2020 Survey Results
Key Drivers for investment	Regulatory/TMDL compliance, local flooding, water quality, and habitat restoration	Aging Infrastructure, Water Quality, Land development
Key Challenges	Funding, aging infrastructure, increasing regulations	Funding, aging infrastructure, increasing regulations
Key Information Need	Funding and Financing, GI and Innovative Best Practices	Funding and Finance, Asset Management, Watershed-based Stormwater Planning
Estimated Annual Funding Gap	\$7.7 Billion	\$8.5 Billion



# Impact of responses received

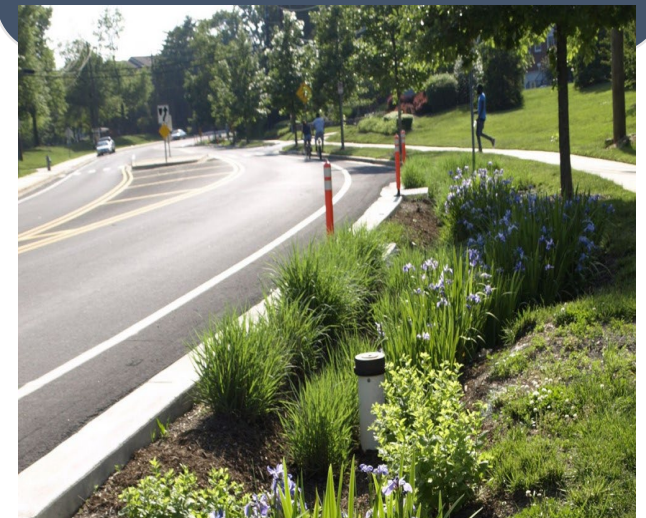
Stormwater  
Recommendations  
to Congress



Stormwater  
Category as part  
of the ASCE  
Infrastructure  
Report Card



Stormwater Asset  
Management  
Project



# Who can and should take the survey?

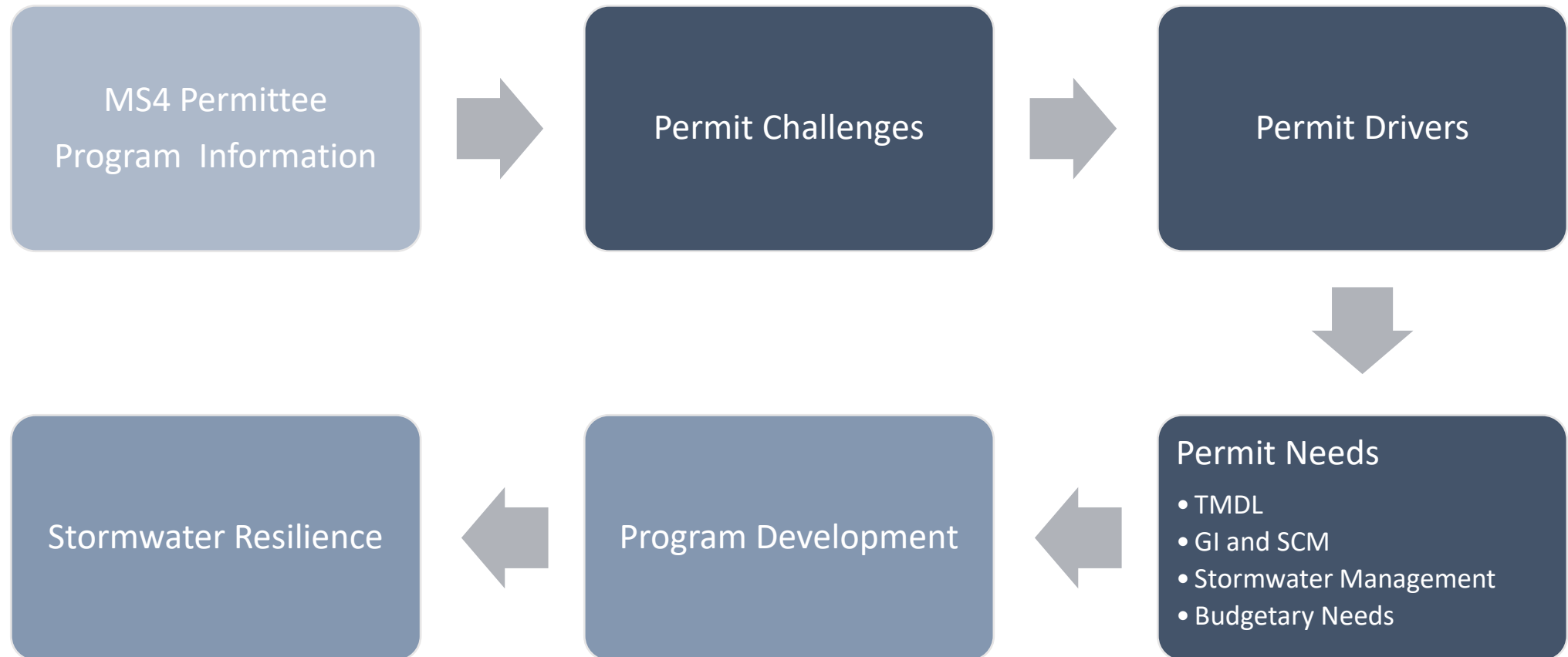
## Roles:

- Employee of a municipality, agency, or organization with an MS4 permit
- Consultant answering on behalf of MS4 permittee

## Types of MS4 Permittees:

- Phase I Communities
- Phase II Communities
- Phase II non-traditional permittee
- State department of transportation (DOT)

# How is the 2022 MS4 Needs Assessment Survey structured?



# How and where can you take it?

The Survey is LIVE!



## National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey 2022 National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey – [Now live](#) – [Click here to access the survey!](#)

WEF's Stormwater Institute (SWI) is on a mission to better understand the challenges, drivers, and resource needs across the MS4 sector. As such, SWI is launching its *third iteration of the National Municipal Separate Storm Sewer System (MS4) Needs Assessment Survey* which was originally established in 2018 to collect on a biannual basis. The primary **objectives** of the survey is to:

- better understand MS4 program challenges and drivers,
- identify the information and resource needs of MS4 permittees, and
- approximate current funding levels and estimated funding needs in the MS4 sector.

The **target audience** of the survey is:

- MS4 Permittee holders
- Program Managers that manage their client's MS4 Permit

The **impact of this survey** ranges from advocating with our partner organizations for:

- closing the funding gap, which in 2020 was estimate to be \$8.5 billion, through the [Stormwater Recommendation Document](#)
- using the data to elevate the stormwater sector as it was with the [efforts of developing a dedicated Stormwater Category](#) as part of the [ASCE Infrastructure Report Card](#) – which in 2021 Stormwater had its dedicated



<https://wefstormwaterinstitute.org/programs/ms4survey/>

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# Impact of responses received

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# How does the MS4 Needs Assessment Survey differ from the CWNS?

## CWNS:

- Federal-based survey
- **Assessment of capital investment needed nationwide** for publicly-owned wastewater collection and treatment facilities to meet the water quality goals of the Clean Water Act
- Data collection through EPA website and state coordinators

## WEF's MS4 Needs Assessment Survey:

- Non-profit based
- **Assessment of sector needs, challenges, and drivers.** Helps understand what is the **current funding gap specifically for stormwater.**
- Third party software (Survey Monkey)

# What do the MS4 Needs Assessment Survey and CWNS have in common?

## CWNS and WEF's MS4 Needs Assessment Survey:

- Working with MS4 Permit holders
- Have had issues collecting data in the past due to the nature of the sector
- Need your help to continue to elevate the stormwater sector

***Disclaimer: filling the MS4 Needs Assessment Survey does not substitute the CWNS or vice-versa***



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Questions?

Bianca Pinto (bpinto@wef.org)

# Bullpen Slides



# Background

## History

- 2018 and 2020 surveys – both are statistically significant

## Purpose

- Identify information and technical resource needs of MS4 permittees
- Better understand MS4 program challenges
- Approximate current MS4 program budgets and estimate funding needs (funding gap)

## Importance of Conducting a Survey

- Lacking data on MS4 sector needs
- A sector-wide survey has never been done before
- First-of-its kind effort
- Nature of the sector makes data collection difficult

# 2020 MS4 Survey Work Team

<b>Scott Taylor, P.E., D.WRE (Chair)</b>	National Municipal Stormwater Alliance
<b>Fernando Pasquel</b>	Arcadis U.S., Inc.
<b>James Gibson, Jr.</b>	Sanitation District No. 1 of Northern Kentucky
<b>Fatemeh Babakhani, Ph.D., P.E.</b>	Hubbell, Roth & Clark, Inc.
<b>Michael Beezhold, CPM</b>	Kansas Department of Health and Environment
<b>Garrett Bergey</b>	SDE, Inc.
<b>Tyler Carson</b>	Arcadis
<b>Zach Henderson</b>	Woodard & Curran
<b>Matthew Jones, Ph.D., P.E.</b>	Hazen and Sawyer
<b>Adrienne Nemura, P.E.</b>	Geosyntec Consultants
<b>Dan Radulescu</b>	
<b>Andrew Sauer, P.E., ENV SP</b>	Burns & McDonnell
<b>James Schlaman, P.E., ENV SP</b>	Black & Veatch Corporation
<b>Andrew Smith, P.E., CFM, ENV SP</b>	Black & Veatch Corporation
<b>Mark Van Auken, P.E., ENV SP</b>	Arcadis

# Data and Methods



# Survey Construct

## 31 total questions

- Organization Information
  - Permittee type
  - Population size
- Challenges and Needs
  - Topics of greatest interest and challenge
- Funding and Budgetary Information
  - Current budgets and additional needs
- Various open-ended questions
  - Program areas of innovation
  - Most/least developed program aspects
  - Sufficiency of Programs to meet water quality goals

# MS4 Survey Responses

Responses from 47 states, Washington, D.C. and Puerto Rico

Permittee Type	2020		2018
Phase I	186	23%	155
Phase II	540	67%	404
Phase II Non-Traditional	55	7%	44
State Department of Transportation	23	3%	19
<b>Total</b>	<b>804</b>		<b>622</b>

# 2020 Respondents by EPA Region

EPA Region	States in Region	Percent of Survey Respondents	Percent of All MS4 Permittees
1	CT, ME, MA, NH, RI, VT	9%	6%
2	NJ, NY, Puerto Rico, Virgin Islands	4%	7%
3	DE, MD, PA, VA, WV, DC	9%	12%
4	AL, FL, GA, KY, MS, NC, SC, TN	19%	13%
5	IL, IN, MI, MN, OH, WI	25%	31%
6	AR, LA, NM, OK, TX	7%	12%
7	IA, KS, MO, NE	11%	4%
8	CO, MT, ND, SD, UT, WY	6%	3%
9	AZ, CA, HI, NV, Guam, Samoa	5%	5%
10	AK, ID, OR, WA	8%	7%



# Challenges and Needs

## Ranking Methodology

- Linkert-style ranking from 1-5
- Weighted average of ranking produced single ranking for each question response

## Topics Covered - Challenges

- Funding and/or availability of capital
- Aging infrastructure
- Expanding regulations
- Public and/or political awareness and support
- ...and others

## Topics Covered - Needs

- Funding and financing
- Asset management
- Watershed-based or MS4 program planning
- GI and innovative practices and policies
- TMDL compliance
- ...and others

# Results



# Budgetary Information

What is your **most recent annual stormwater program budget** including approximate expenditures for programmatic, capital, operations, and maintenance activities?

## Average Amount by Permittee Type

- Phase I = \$9,902,000
- Phase II = \$1,411,500
- Non-traditional = \$687,000
- State DOT = \$4,438,000

Is there **additional money being spent in your jurisdiction on the stormwater program** for other sources not quantified in the previous answer? If yes, please estimate a dollar amount:

## Average Amount by Permittee Type

- Phase I = \$1,115,000
- Phase II = \$915,000
- Non-traditional = \$111,000
- State DOT = \$2,185,000

## Total Average Amount by Permittee Type

Phase I = \$11,017,000  
Phase II = \$2,326,500  
Non-traditional = \$798,000  
State DOT = \$6,623,000



Generates an estimated total annual budget for MS4 programs to be between \$18-\$24 billion

# Additional Funding Needs

Do you have an annual budget gap for your stormwater program? In other words, are you deferring some expenditures due to lack of funding?

Permittee Types	Yes	No	Null
Phase I	58.6%	28.5%	12.9%
Phase II	59.3%	28.9%	11.9%
Non-traditional	45.5%	49.1%	5.5%
DOTs	56.5%	26.1%	17.4%

# Additional Funding Needs

*To be fully funded to meet stormwater goals our agency needs approximately \$\_\_\_\_ MORE per year (please enter a dollar amount that represents the additional funding needed):*

## Average Amount by Permittee Type

- Phase I = \$8,239,000
- Phase II = \$1,262,000
- Non-traditional = \$368,000
- State DOT = \$4,580,000

**Generates an estimated total annual funding gap for MS4 programs to be \$8.5 billion**

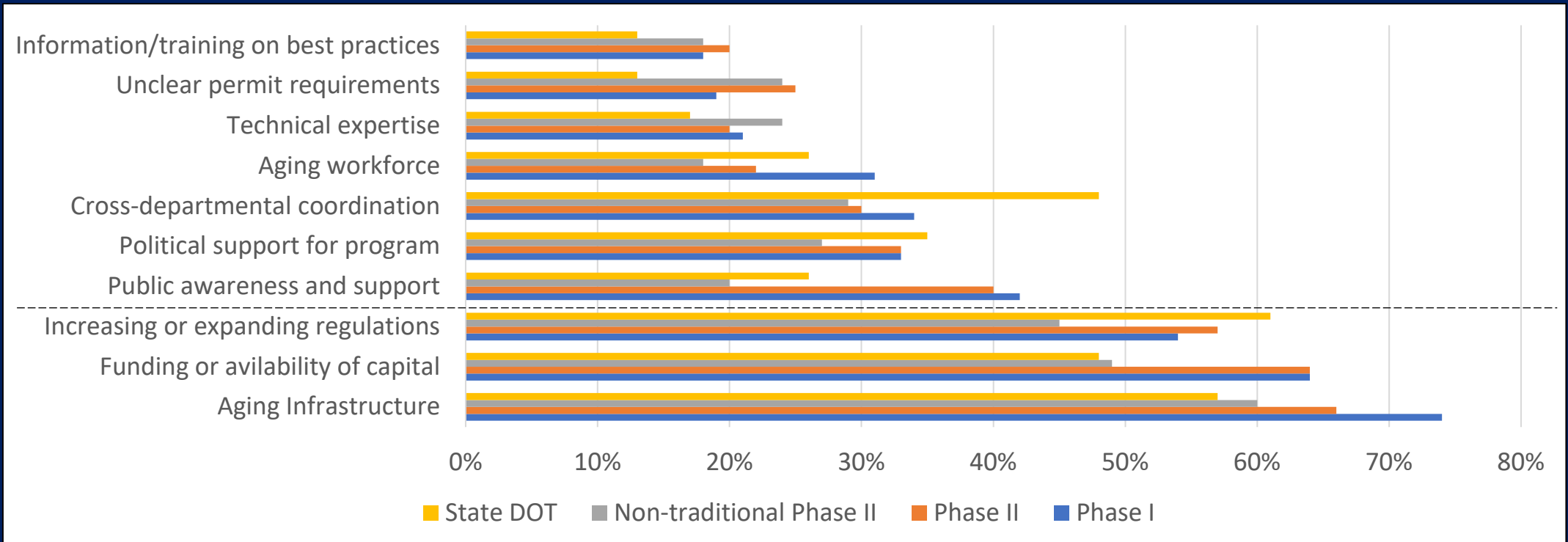
This represents a funding gap that is between 35% and 47% of existing MS4 budgets

# Funding Gap Analysis

## Two Methods: Simple and Complex

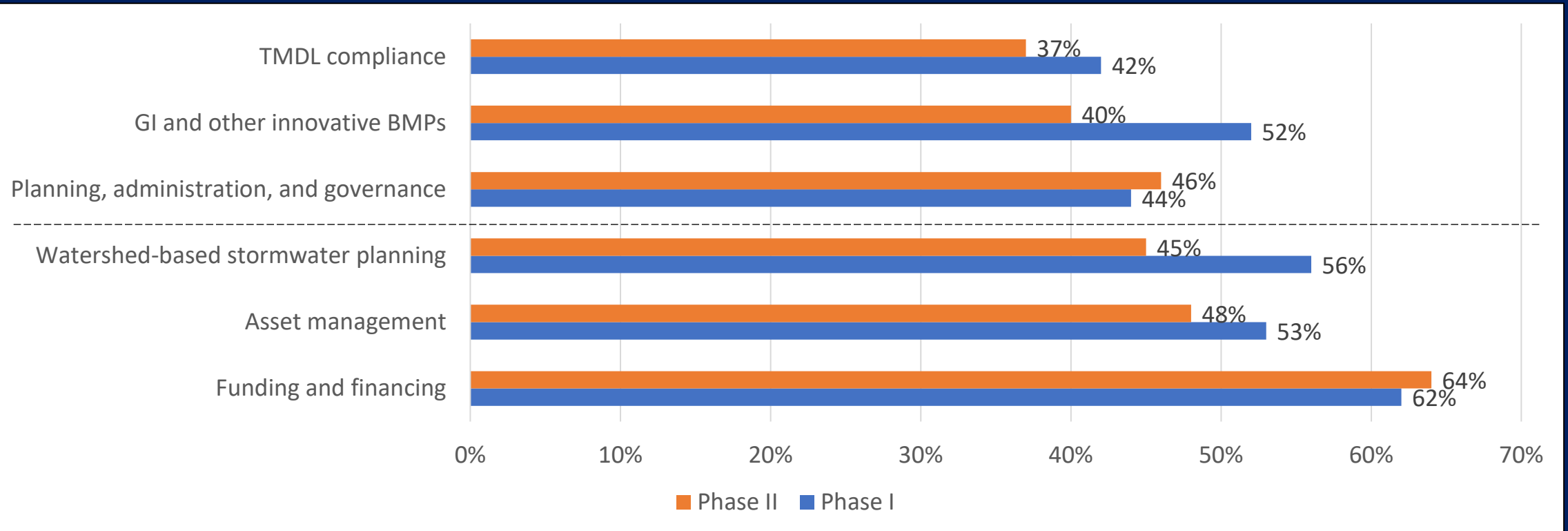
- Simple – Based upon Permit Type
- Complex – Based upon population bin
  - <10K, 10-50K, 50-100K, 500K-1M+
  - Adjustments made to reflect characteristics of MS4 programs

# MS4 Program Challenges



Rank	Topic	% Challenging or Very Challenging
1	Aging infrastructure	66%
2	Funding or availability of capital	64%
3	Increasing or expanding regulations	56%

# Information and Resource Needs



Rank	Topic	% High or Very High Need
1	Funding and financing	62%
2	Asset management	49%
3	Watershed-based stormwater planning	47%



# Asset Management

Do you have a stormwater asset management plan?

Permittee Group/Type	Yes (%)	No (%)	Unsure (%)
All Permittees	46%	44%	10%
Phase I	52%	38%	10%
Phase II	44%	46%	10%
Phase II Non-traditional	34%	57%	9%
State DOT	50%	32%	18%

# Sufficiency of National MS4 Program

Do you think the overall federal stormwater program is sufficient to meet clean water goals in the long term?

Permittee Group/Type	Yes (%)	No (%)	Unsure (%)
All Permittees	36%	32%	32%
Phase I	27%	40%	33%
Phase II	40%	29%	31%
Phase II Non-traditional	30%	28%	42%
State DOT	27%	36%	36%

# Conclusions, Take Aways, and Next Steps

# Conclusions/Summary

- 2020 survey is statistically significant
- Higher response rate/data set
- Higher rates of identified budgetary needs
- Estimated existing annual budget for MS4 programs in U.S. is \$18-\$24B
- Estimated annual funding gap for MS4 programs in U.S. is \$8.5B

# Take Aways and Next Steps

- Survey helped to make stormwater in ASCE Infrastructure Report Card a reality
- Funding/financing continues to be a major need and challenge (aging infrastructure is an emerging issue, too)
- Approximately half of MS4 programs have some type of asset management in place
- No clear consensus on sufficiency of national MS4 program
  - Revisit the current federal stormwater program?  
Or
  - Better alignment between community/non-regulatory goals and Clean Water Act goals?
- Data dashboard provides opportunities for user-led analysis

# Discussion Points

- How can this survey be a practical tool for MS4s?
- Resilience & climate change issues?
  - Survey presents fragmented information on these issues
- Other observations or conclusions from survey results?