

1 Section 3(C) whether such sources of funding are sufficient to support capital expenditures and long-
2 term operation and maintenance costs necessary to meet the stormwater infrastructure needs of
3 municipalities

4 **1. Introduction**

5 Determining the extent of capital and long-term operation and maintenance costs necessary to
6 meet the stormwater infrastructure needs of municipalities in the United States is a challenging
7 task. Numerous surveys and studies have been conducted over the past 30 years, each with its
8 own limitations. The surveys and studies presented below were largely developed within the last
9 four years and are represent only a small subset of the broader pool of resources. However, these
10 resources collectively indicate the following:

- 11 • There are no large-scale, comprehensive and nationally representative numbers on total
12 stormwater capital and operations and maintenance needs.
- 13 • The existing surveys evaluated and summarized below have estimated needs ranging
14 from:
 - 15 ○ A combined \$1.7 billion for the next five years and \$3.3 billion for the next ten
16 years for 137 stormwater utilities in Florida alone, to
 - 17 ○ \$19.2 billion in EPA-estimated total national need over five years, to
 - 18 ○ 20-year capital improvement need is \$9.7 billion in capital improvement needs
19 over 20 years for 67 stormwater utilities in the southeastern U.S.

20 The limitations of these and other surveys are discussed below, and point to a potentially
21 significant underrepresentation of total national need.

- 22 • Needs specific to operations and maintenance are even less well captured and defined.
- 23 • Revenue for established stormwater programs may be largely generated from user fees,
24 which can vary significantly across the country, and capital improvements may be more
25 commonly cash-financed than debt-financed.
- 26 • In some communities, there is a moderate to significant gap between annual revenue and
27 capital and operations and maintenance needs, and lack of funding and financing is a
28 significant concern and priority for stormwater programs/utilities.
- 29 • While public perception of water infrastructure within one’s own community is positive,
30 public perception of the nation’s water infrastructure is less positive. There is widespread
31 support for making investments in the nation’s water infrastructure, even if this requires
32 moderate increases in customer charges.

33 A more detailed summary of the resources evaluated is provided in the following subsections.

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35 **1.1 American Support for Investments in Water Infrastructure (2019)**

36 In February 2019, as part of the U.S. Water Alliance’s Value of Water campaign, public opinion
37 researchers conducted a national phone-based voter survey with 1,000 voters in 47 states
38 (excluding Hawaii, Oklahoma, and West Virginia). The goal of the campaign is to raise
39 awareness of the importance of water and water challenges facing the nation. This survey
40 focused broadly on water infrastructure through the lens of drinking water and wastewater
41 infrastructure and did not include an explicit stormwater component.

42 Of the 1,000 respondents, 79 percent ranked rebuilding America’s infrastructure as “extremely to
43 very important,” which is consistent with information gathered during similar 2017 and 2018
44 surveys. In 2019, 83 percent of respondents rated the water infrastructure in their local
45 communities as “very good” or “somewhat good” (on par with 2016 responses, accounting for
46 reported margin of sampling error). However, only 49 percent of respondents rated the condition
47 of the nation’s water infrastructure as “very good” or “somewhat good”, while 36 percent believe
48 the nation’s water infrastructure is in “somewhat bad” or “very bad” condition.

49 While public opinion of the condition of water infrastructure in their own communities remains
50 positive, nearly four in five respondents indicated that they support developing plans to rebuild
51 America’s water infrastructure and support an increase in federal investment to do so. Of note,
52 80 percent of respondents indicated that their drinking water and wastewater rates were
53 affordable and would be willing to pay a modest amount more to improve local water
54 infrastructure. Additionally, two-thirds of surveyed voters believe that investments in
55 comprehensive upgrades, replacements, and improvement should be made today, rather than
56 addressed over time as the need arises. The survey did not distinguish between investments in
57 capital improvements and operations and maintenance.

58 **1.2 Black & Veatch Stormwater Utility Surveys (2016 and 2018)**

59 National consulting firm Black and Veatch has been conducting biennial stormwater utility
60 surveys for over 25 years. The 2016 online survey included 74 participants from 24 states. The
61 2018 online survey included 75 participants from 21 states.¹ Combined, the survey included local
62 utilities that served populations from 86 to 1.5 million people. Respondents to the 2018 survey
63 have a median population served of 110,500 people and 33,000 accounts. In 2018, 28 percent of
64 respondents indicated that their stormwater operations were governed as a stand-alone
65 stormwater utility, while 23 percent were combined with a department of public works and 20
66 percent each with a water and/or wastewater utility or other entities.

67 In the 2016 and 2018 surveys, as well as numerous previous surveys, respondents cited funding
68 or availability of capital as the most important challenge to enhancing their utility’s stormwater

¹ The following states did not participate in the 2016 and 2018 surveys: AK, AL, AR, AZ, CT, HI, ID, IN, LA, MA, ME, MI, MS, ND, NH, NJ, NM, NV, NY, RI, SD, UT, VT, WI, WV, and WY. The following additional states did not participate in the 2018 survey: NE, OK, and MD. In 2018, 33 respondents represented three states, Florida (16), Texas (10), and Colorado (7).

69 management. In 2018, 94 percent of respondents reported that more than 75 percent of their
70 revenue is derived from user fees. Additionally, survey results showed that the majority (87
71 percent, on par with 2016 and 2014 responses) of capital improvement projects are cash-
72 financed, as opposed to debt-financed.

73 Respondents' 2018 annual stormwater capital improvement program budget ranged from \$1,800
74 to \$143.9 million, with an average of approximately \$7.6 million. According to the 2016 survey,
75 88 percent of respondents indicated that they do not have adequate funding to meet all the needs
76 for their stormwater program, while 85 percent of 2018 respondents indicated that funding was
77 not adequate. This aligns with survey responses to the same question from the 2010, 2012, and
78 2014 reports. Neither the 2016 nor the 2018 survey explicitly discussed funding and needs for
79 operations and maintenance activities, although 2018 survey respondents indicated that
80 stormwater utility budgets generally do capture costs for inlet and outfall maintenance and best
81 management practice (BMP) inspection and maintenance.

82 **1.3 Clean Watershed Needs Survey 2012 Report to Congress (2016)**

83 The EPA conducted its most recent Clean Watersheds Needs Survey (CWNS) in 2012. The
84 CWNS estimates the capital investment necessary to meet the nation's stormwater and
85 wastewater treatment and collection needs, based on Clean Water Act requirements. Water
86 quality improvement investments considered in the CWNS included stormwater management,
87 among others. This category captured costs associated with the planning and implementation of
88 structural and non-structural measures to control runoff in Phase I, Phase II and non-traditional
89 MS4s.

90 Participation in the survey is voluntary, and captures needs across most states, Puerto Rico, the
91 District of Columbia, and U.S. Territories ("states"). While the goal of the survey is to capture
92 20-year need nationwide, because states had limited documentation to demonstrate needs over
93 this longer timespan (most projects will be completed within a 5-year period), most of the needs
94 captured in the 2016 report only reflect 2012 to 2017 needs.

95 Information provided by the states captured needs for over 27,000 wastewater facilities and
96 water quality projects. Of the estimated \$271 billion required to meet documented needs, total
97 stormwater-related needs were estimated at \$19.2 billion. This represents a 60 percent decrease
98 from the 2008 CWNS, however, this decrease is due in part to lower participation in the 2012
99 CWNS. Three fewer states participated in 2012, and seven states reported no needs in 2012,
100 which accounted for \$7.2 billion in needs in the 2008 survey. Additionally, EPA only included in
101 the estimated projects that had a "storm water quality benefit" and thus did not include needs
102 associated with flood control projects in the estimates. As a result, states reported that this
103 modification made it difficult to meet EPA's documentation criteria for stormwater in 2012. Of
104 the total \$19.2 billion estimated stormwater needs, 45 percent is attributed to conveyance
105 systems, 32 percent for the treatment of stormwater runoff (e.g. ponds, manufactured devices),
106 and the remaining 15 percent for low impact development and green infrastructure projects.

107 Additionally, the CWNS only includes projects with site-specific solution to a known water
108 quality problem with detailed cost information. Needs associated with water quality problems
109 without a known solution and/or cost estimate were not captured.

110 **1.4 Florida Stormwater Association Stormwater Utility Report (2016 and 2018)**

111 In 1995, the Florida Stormwater Association (FSA) began performing biennial Stormwater
112 Utilities Surveys to provide stormwater program information to state and local government
113 managers and policy makers. The FSA provides questionnaires to the 67 counties and 410 cities
114 in Florida. Of those 477 entities, FSA estimates that 165 local governments have established
115 stormwater utilities. In 2016, 124 utilities responded to the questionnaire and in 2018 FSA
116 received 137 responses. In 2016, 88 respondents (71 percent) cited user fees as their primary
117 approach to revenue generation. In 2018, 91 respondents (66 percent) reported the same. In both
118 surveys, approximately 70 percent of respondents indicated that fees were primarily based on
119 impervious area.

120 Eighty-two entities in 2016 and 89 entities in 2018 reported that their stormwater operating
121 budget is funded solely by their stormwater fee. The remainder of the entities (42 in 2016 and 47
122 in 2018) indicated their budget was covered by fees and other “non-fees” including, but not
123 limited to, ad valorem taxes, sales tax, and gas tax. The 2016 survey indicated that 44 percent of
124 stormwater capital construction programs were funded only by fees, while the remainder was
125 funded by fees and non-fees. Responses were very similar in 2018.

126 In 2016, 66 percent of respondents reported that their operating budgets are funded only through
127 fees. Of the 34 percent for which fees and other non-fee funds fund their operating budgets, 45
128 percent reported ad valorem taxes as the source of non-fee revenues. Responses to these
129 questions were nearly identical in 2018.

130 The 2016 report identifies the annual average revenue generated by each entities’ utility fee as
131 \$3.6 million whereas the 2018 report lists the annual average as \$3.9 million. Respondents
132 reported a combined projected capital improvement need of \$1.7 billion for the next five years
133 and \$3.3 billion for the next ten years (per-utility average of \$14 million and \$35.1 million,
134 respectively). This represents an increase from 2016 reported total respondent needs of \$1.4
135 billion (5-year need) and \$3.1 billion (10-year need). Respondents were also asked whether
136 stormwater fee revenue was sufficient to meet administration, operations and maintenance, and
137 capital improvement needs. In 2018, 33 percent of respondents indicated that fees were sufficient
138 to meet all or most needs, while 26 percent reported that fees were not adequate to meet urgent
139 needs. In 2016, responses to the same questions were 39 percent and 37 percent, respectively
140 Respondents were not given the option to indicate whether fees were not adequate to meet non-
141 urgent needs.

142 **1.5 Georgia Stormwater Utilities Report (2017)**

143 From August 2016 to February 2017 the University of North Carolina’s Environmental Finance
144 Center and the Georgia Environmental Finance Authority conducted a survey of 48 stormwater

145 utilities within 27 Georgia counties regarding stormwater fees. Of the 48 respondents, 23
146 reported collecting fees through a utility bill, while 20 reported collecting fees through property
147 tax bills, and 5 through a stand-alone bill. Of the participants, 31.2 percent indicated they apply
148 unique multi-family residential fee structures. Within the state of Georgia, flat fee structures are
149 commonly utilized to apply fees for multi-family and single-family residential properties. Lastly,
150 93.8 percent of respondents indicated that they charge an equivalent residential unit (ERU)-based
151 fee for non-residential properties, which is based on the amount of impervious surfaces on a
152 property.

153 **1.6 Southeast Stormwater Association Utility Report (2019)**

154 The Southeast Stormwater Association (SESWA) conducted its seventh biennial survey of
155 stormwater utilities in 2019, capturing information from 103 respondents representing
156 stormwater utilities from 136 jurisdictions in Georgia, South Carolina, North Carolina, Alabama,
157 Tennessee, Florida, and Kentucky. Ninety four percent of respondents reported generating
158 revenue from a user fee, largely based on the amount of impervious area on a property. Annual
159 reported revenue generated by the stormwater utility fee ranged from \$32,000 to \$71.1 million,
160 with an average of \$4 million. Average monthly utility rates ranged from \$0.62 in Alabama to
161 \$5.36 in South Carolina.

162 Across 67 respondents, the estimated total 20-year capital improvement need is \$9.7 billion, with
163 an average of \$144.8 million in need per respondent.

164 **1.7 The Chesapeake Stormwater Network Select Results of the MS4 Needs Survey** 165 **(2016)**

166 In 2016 the Chesapeake Stormwater Network (CSN) conducted a survey of Phase I and Phase II
167 MS4 Permittees within the Chesapeake Bay watershed (Virginia, Maryland, Delaware, West
168 Virginia, Pennsylvania, New York, and Washington, D.C.) to identify funding needs. A total of
169 137 respondents provided input for the survey. Seventy-three percent of respondents indicated
170 that their stormwater program is somewhat (45 percent) or very (28 percent) underfunded.
171 Respondents also cited resource limitations and scale of permit requirements as the most
172 significant challenges to permit implementation.

173 The majority (65 percent) of Phase I Permittees responded that they have an approximate annual
174 budget of over \$1 million. The remaining Phase I Permittees indicated the following: 8 percent
175 operating on a budget of less than \$25,000, another 8 percent operating on a budget between
176 \$25,001 and \$100,000; 5.4 percent operating on a budget between \$500,000 and \$1 million; and
177 13 percent were unsure of their operating budget.

178 The majority of Phase II Permittees (36 percent) indicated that they have less than \$25,000 to
179 implement their program. The remaining Phase II Permittees indicated the following: 21 percent
180 operating on a budget between \$25,000 and \$100,000; 8 percent operating on a budget between
181 \$500 and \$1 million; 7 percent operating on a budget between \$100,001 and \$500,000; and

182 another 7 percent operating on a budget of more than \$1 million, and 18 percent of Phase II
183 Permittees were not sure of their budget allotment.

184 **1.8 Water Environment Federation (WEF) MS4 Needs Assessment Survey Results**
185 **(May 2019)**

186 WEF’s Stormwater Institute conducted a national survey of MS4 permittees in 2018 to identify
187 permittees’ information and technical resource needs and better understand the challenges facing
188 MS4 permittees. A total of 622 respondents represented 48 states and Washington, D.C. The
189 sample size was statistically significant and generally representative of the distribution of MS4
190 programs across the United States, including municipal, non-traditional, and state department of
191 transportation permittees. The survey determined the total annual funding gap for stormwater
192 programs in the MS4 sector to be \$7.5 billion nationally.

193 Phase I and Phase II MS4 respondents cited lack of funding or availability of capital, aging
194 infrastructure, and increasing or expanding regulations as the most significant challenges to their
195 stormwater programs. Close to 50 percent of Phase I and II municipal permittees indicated that
196 they do not have enough money to meet program goals, and that a respective 52 percent and 136
197 percent annual budget increase is needed. Respondents also indicated a need for more
198 information on methods for securing funding and financing. Specifically, respondents indicated
199 needing additional information on “leveraging additional sources of funding based on co-
200 benefits.”

201 WEF indicates that the number of MS4s with inadequate annual budgets may be
202 underrepresented due to unwillingness to answer questions that might only raise further
203 questions about their budgeting process or regulatory compliance.

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205 **1.9 Western Kentucky University Stormwater Utility Surveys (2013, 2016, 2018, and**
206 **2019)**

207 Western Kentucky University (WKU) has been conducting a regular survey of stormwater
208 utilities since 2007. The WKU team mines publicly available on-line data on stormwater utilities,
209 in addition to conducting phone surveys. The survey aims to identify as many stormwater
210 utilities as possible within the United States and Canada.

211 The number of identified stormwater utilities has been increasing in each survey. The 2013
212 survey identified 1,417 stormwater utilities in the U.S., compared to 1,583 in 2016, 1,681 in
213 2018, and 1,716 in 2019. The 2019 survey reported that 800 of these utilities fund their programs
214 with ERU-based user fees. These reported monthly fees have generally increased through the
215 years from \$4.57 in 2013 to \$5.85 in 2019 (median of \$4.75), even though the average
216 impervious area based on the ERU has varied. This is largely attributed to the application of
217 tiered fees and the fee structure that is applied to residential and non-residential properties.

218 This task has clearly identified the need for a national survey of stormwater needs that includes
219 all costs related to managing stormwater from water quality to flood control. The American
220 Society of Civil Engineers has been preparing a report card on the nation’s infrastructure since
221 1998 and in the next report card will add stormwater infrastructure as a specific category. Until
222 that time and lacking a national measure of the need, this taskforce believes, based on the many
223 existing surveys on stormwater funding needs, that a significant gap exists, well into the billions
224 of dollars per year and left on the current course, that gap will continue to grow.

225 In addition to a review of available surveys and estimates on a broad scale, taskforce members
226 developed illustrative case studies of stormwater programs in more than one dozen communities
227 across the country. While not meant to be statistically representative of stormwater programs
228 across the nation, these case studies highlight the funding challenges faced by both large
229 metropolitan communities like Atlanta, Chicago and San Diego to smaller communities like
230 Coralville, Iowa; Griffin, Georgia and Washtenaw County, Michigan. In nearly all of these
231 communities, significant gaps exist between current funding levels for annual operations and
232 maintenance programs as well as capital investment needs. Stormwater programs align their
233 level of service with available funding, not typically with an asset management generated, data
234 supported program ensuring adequate maintenance levels are achieved and adequate investment
235 is being made in renewal and replacement of stormwater infrastructure. Some communities
236 acknowledge the impact of more intense and more frequent storm and flooding events is not
237 being addressed in their current programs. These case studies can be found in Appendix 1.

238 Based on previous studies, surveys and the illustrative case studies the taskforce believes the
239 funding gap for stormwater operations and maintenance as well as capital investment is
240 significant. The gap does not appear to be related to lack of access to capital as there is
241 significant capital available through the Federal revolving loan programs, WIFIA, the
242 Department of Agriculture, as well as private capital whether accessed through the municipal
243 bond market or through other public-private partnerships. The gap also does not appear to be
244 related purely to affordability, defined as the ability to pay. Communities across the nation have
245 implemented local stormwater fees that, in isolation, do not create undue financial burdens on the
246 majority of customers. The gap appears driven by the lack of political will to increase revenues
247 dedicated to stormwater investment at the local, state and federal level.

248 Acknowledging the significant gap in funding for stormwater infrastructure and the lack of will
249 to increase revenues, the expertise and energy of the taskforce members was focused on a
250 variety of ways the gap could be narrowed through modifications and changes to stormwater
251 policies, regulations, programs and practices that could narrow the gap by reducing the costs of
252 compliance. A few additional new revenue sources have been included as well as recommended
253 realignments of existing Federal revenues to direct a portion of existing revenues to stormwater
254 related programs. The focus was on actions that could be taken by the Federal government as
255 this report is a product of the US EPA.

256 These recommendations were developed by a subgroup of the taskforce. They identified several
257 potential ways to reduce costs, increase efficiencies, leverage other agencies’ funding or create
258 new stormwater revenue streams. These concepts were further developed into the
259 recommendations that follow. These are high level recommendations that will require
260 significant work to fully develop and implement. With the very tight timeline and limited
261 resources, the goal was to provide enough background with each recommendation to allow EPA
262 staff or contractors to pick each up and fully develop in the coming years.

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