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## **ENVIRONMENTAL PROTECTION**

### **WATERSHED AND LAND MANAGEMENT**

#### **Stormwater Management Rules**

#### **Flood Hazard Area Control Act Rules**

#### **Repeal and Adoption of New Rule: N.J.A.C. 7:13 Appendix 1**

**Adopted Amendments: N.J.A.C. 7:8-1.2, 1.6, 2.1, 5.4, 5.6 and 5.7; and 7:13-1.1, 1.2, 3.3, 3.4, 3.6, 6.7, 10.1, and 12.6**

Proposed: December 5, 2022, at 54 N.J.R. 2169(a)

Adopted: \_\_\_\_\_, by Shawn M. LaTourette, Commissioner, Department of Environmental Protection.

Filed: June 2, 2023, as \_\_\_\_\_, with **non-substantial changes**.

As to N.J.A.C. 7:8: N.J.S.A. 12:5-3, 13:1D-1 et seq., 13:9A-1 et seq., 13:19-1 et seq., 40:55D-93 through 99, 58:4-1 et seq., 58:10A-1 et seq., 58:11A-1 et seq., and 58:16A-50 et seq.; and

As to N.J.A.C. 7:13: N.J.S.A. 13:1D-1 et seq., 13:1D-29 et seq., 13:20-1 et seq., 58:10A et seq., 58:11A-1 et seq., and 58:16A-50 et seq.

DEP Docket Number: 08-22-10.

Effective Date: \_\_\_\_\_

Expiration Dates: May 20, 2028, N.J.A.C. 7:8

July 8, 2028, N.J.A.C. 7:13

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**Take notice** that the New Jersey Department of Environmental Protection (Department) is adopting amendments and new rules in the Stormwater rules and Flood Hazard Area Control Act rules to account for current and future increased precipitation conditions in New Jersey. As proposed on December 5, 2022, the rules ensure the use of current precipitation data and reliable climate science to aid New Jersey communities in better preparing to confront climate change induced increases in the intensity of precipitation events and the resulting effects of additional stormwater runoff on stormwater management systems and flood elevations in fluvial areas. The rules incorporate climate-informed precipitation data to better align with current precipitation conditions. They include adjustment factors that update published precipitation data provided by the national Oceanic and Atmospheric Administration’s (NOAA) Atlas 14 Point Precipitation Frequency Estimates and include change factors to project NOAA’s precipitation data into the future to account for the anticipated aspects of climate change. Additionally, they apply greater factors of safety to provide protection to areas that are currently experiencing, or expected to experience, worsening flooding impacts associated with increased precipitation events.

**Agency initiated changes.** The Department is adopting non substantive changes to the structure of N.J.A.C. 7:13-12.6. In the notice of proposal the Department stated, “ proposed new paragraph (b)2 would apply to a “public transportation entity,” a term which is also proposed to be defined at N.J.A.C. 7:13-1.2....The requirements for public transportation entities would be found at proposed paragraph (b)2 and would establish the scope of when a public transportation entity cannot meet the requirements at paragraph (b)1. Pursuant to proposed subparagraph (b)2i,

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this scope would include projects that consist of safety or state of good repair improvements to lawfully existing railroads or roadways....Additionally, projects that have progressed through a public transportation entity's project development process such that significant modifications to the project design are infeasible, as proposed at N.J.A.C. 7:13-12.6(b)2ii, would be eligible for consideration pursuant to the factors at paragraph (b)3, pertaining to strict compliance exceptions.” (See 54 N.J.R. 2179). However, the rule text at N.J.A.C. 7:13-12.6(b)3 did not contain the factors for consideration (rather they are contained in N.J.A.C. 7:13-12.6(b)1 and 2) and instead introduces the subsequent list of demonstrations that would have to be made to support the individual permit application for a waiver from strict compliance. Therefore, the Department is recodifying N.J.A.C. 7:13-12.6(b)3 as N.J.A.C. 7:13-12.6(c) and (c)1. Similarly, N.J.A.C. 7:13-12.6(b)4, which requires the placement of signage along railroads and roadways that are not elevated in accordance with paragraph (b)1, is recodified as N.J.A.C. 7:13-12.6(c)2. Finally, N.J.A.C. 7:13-12.6(b)5, which provides that the Department will review and identify, during its completeness review of the application, any deficiencies in the information provided by the public transportation entity submitted in accordance with this section, is recodified as N.J.A.C. 7:13-12.6(d). These amendments result in the need to recodify subsections (c) through (f) as (e) through (h), respectively, with no change in content. The Department is adopting changes to clarify these elements of the adopted rule.

The notice of adoption can be viewed or downloaded from the Department's website at <http://www.nj.gov/dep/rules>.

**Summary of Hearing Officer's Recommendations and Agency Response:**

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The Department held a virtual public hearing on January 11, 2023. The hearing was conducted through Microsoft Teams, and a link was provided on the Department's Division of Land Resource Protection's website. A total of 53 people provided oral comments. Mr. Vincent Mazzei, Jr., P.E., New Jersey Floodplain Administrator, served as the hearing officer. After reviewing the comments received during the public comment period, the hearing officer has recommended that the rulemaking be adopted. The Department accepts the hearing officer's recommendations.

The record of the public hearing is available for inspection in accordance with applicable law by contacting:

Department of Environmental Protection

Office of Legal Affairs

Attn: Docket No. 08-22-10

401 East State Street, 7<sup>th</sup> Floor

Mail Code 401-04L

PO Box 402

Trenton, New Jersey 08625-0402

This adoption document can also be viewed or downloaded from the Department's website at <http://www.nj.gov/dep/rules/adoptions.html>.

**Summary of Public Comments and Agency Responses:**

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The following people submitted written comments and/or gave oral testimony on the notice of proposal:

1. Ajay Kaisth
2. Matthew Adlai-Gail
3. Evan Accardi
4. Jean Public
5. Tracy Buckley
6. Barbara Chaudhery
7. Richard Butsch
8. Bettina Hempel
9. Joseph Basralian
10. Arlene Aughey
11. Tracy Foster
12. Tirza Wahrman, Law Office of Tirza Wahrman, LLC
13. Christine Koehler
14. Ann Van Hise
15. Tom Beatini
16. Denis Zafiroopoulos
17. Annette Coomber
18. Robert Tallon, Crafts Creek Watershed
19. Elaine Mann
20. Frank Brincka

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21. John Offer
22. Nadine Sapirman
23. John Petrolino
24. Sandra Van Sant
25. Phyllis Fast
26. Janice Grasso
27. Bill Wolfe
28. C R Vadala
29. Denise Lytle
30. Martin Judd
31. Patricia Luciotti
32. Edward Reichman, Golem Technology LLC
33. Jason Stevens, Cranford Environmental Commission
34. Tracey Heisler
35. Heather Natoli
36. Holly Cox
37. Mayor Richard Onderko, Borough of Manville
38. Kristie Garcia
39. Agnes Marsala, SaveOldYork.org, People Over Pipelines
40. Yanett Ramirez
41. Anneke van Rossum, Delaware Riverkeeper Network
42. John Hurley

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43. Jennifer Books
44. Joseph Nitzberg
45. Mark Canright, Comeback Farm Organic Produce
46. Mary Charlotte Gitlin
47. Suzanne Wilder, Musconetcong Mountain Conservancy
48. Stacey Fox, Mercer County Defense League
49. Dallas Hetherington, C-Change Conversations, Raritan Headwaters Association
50. Susan Brahaney, Princeton Garden Club
51. Margaret Navitski
52. Jane Davidson
53. Luis Fernando
54. Daurie Pollitto
55. Robert Pollitto
56. Noel Stroll
57. Nancy Pollitto
58. Barbara Cochrane
59. Eric Sween
60. Abd Elazeem Youssef
61. Thomas Koven
62. Barbara & Daniel Bowen-O'Shea
63. Rajdeep Usgaonker
64. Philip Grofsik

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65. Kani Ilangovan
66. Brad Tombs
67. David Rousseau, Independent Colleges & Universities NJ
68. Brian Tarantino, Stop Warehouses and Trucking (SWAT)
69. Caitlin Quirk
70. Kirk Barrett
71. Thomas Tonon, Scientists for Action on Global Warming (SAGW)
72. Dennis Hart, Chemistry Council of New Jersey
73. Leslie Floyd, Mercer County Planning Department
74. Donna Wharton
75. James Guenther
76. Valeriya Efimova
77. Thomas Foster
78. Alex DeSantis
79. Michelle Young, Bohler Engineering
80. Rose Ann Scotti
81. John Wheeler
82. Louise Haberman
83. Michael Christian
84. Lynn Hendee, League of Women Voters Montclair
85. Rita Singer
86. Judith Mann

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87. Benjamin Spinelli, New Jersey Highlands Council
88. Carol Herts
89. Douglas Chabrak
90. Douglas Szabo
91. John Landau, Morris Township Environmental Commission
92. Patricia Volger
93. Jennifer Coffey, Association of New Jersey Environmental Commissions  
(ANJEC)
94. Allison McLeod, New Jersey League of Conservation Voters
95. Rachel Davis, Waterspirit
96. Lauren Wasilauski, Montgomery Township Environmental Commission
97. Joseph Barris, Monmouth County
98. Kimberley Irby, Jersey Water Works Climate Resilience & Green Infrastructure  
Committees
99. Raymond Cantor, New Jersey Business & Industry Association (NJBIA)
100. Vikram Sikand
101. Jennifer Bouek
102. Joann Szlea
103. Susan DePalma
104. Daniel LaMothe
105. Lisa Glavan
106. Brad Soltoff

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107. Carolyn Dorflinger
108. Sarah Dougan
109. Martin Andersen
110. Abigail Malyon
111. Maria Evans
112. Julia Purtill
113. Evan Piscitelli, The National Utility Contractors Association of New Jersey  
(NUCA)
114. Dan Kennedy, Utility & Transportation Contractors Association of New Jersey  
(UTCA)
115. Stacey Roth, New Jersey Pinelands Commission
116. Viveca Sulich
117. DB Bohn
118. Luanna Pierce
119. High Garst, Coalition for the Delaware River Watershed
120. Medora Falkenberg
121. Marie Curtis
122. Mark Antozzeski
123. Gerhard Franz
124. Mary Reilly
125. Connie Nobile
126. David Morris, Tectonic Engineering

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127. Andrew Laffey
128. Dipali N
129. Lucy Almeida
130. Takako Ishii Kiefer
131. Sally Hodge
132. Laurie Babicki
133. Michael Egenton, New Jersey State Chamber of Commerce
134. Tabbetha Dobbins, Rowan University
135. Margaret Gallos, Association of Environmental Authorities
136. Melissa Wheatcroft, Rowan University
137. Byron Riggins, Delaware Riverkeeper Network
138. Kip Cherry, Sierra Club New Jersey
139. Maria Lopez-Nunez, Ironbound Community Corporation
140. Rosemary Agrista
141. Nicholas Kikis, New Jersey Apartment Association
142. Michael McGuinness, NAIOP New Jersey
143. Marc Leber
144. Maya van Rossum, Delaware Riverkeeper Network
145. Christopher Gulics, PSE&G
146. Valerie Hrabal, Greenman-Pedersen, Inc.
147. Andrew Banff
148. KyuJung Whang, Princeton University

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149. Gina Sullivan, Engineers Labor-Employer Cooperative Local 852
150. Philip Echevarria, The Nature Conservancy, New Jersey
151. Bruce Shapiro, New Jersey Realtors
152. Harrison Uhl
153. J. Michael Broyles, Bayshore Regional Sewerage Authority
154. Angela Knowles, Somerset County Planning
155. Melissa Marks, League of Women Voters New Jersey
156. James Williams, Fair Share Housing Center, Inc.
157. James Rhatican, Hartz Mountain Industries, Inc.
158. Dan Miola, Langan Engineering and Environmental Services, Inc.
159. Patricia Hilliard, Sierra Club - Hudson County
160. Ryan Headley, City of Vineland
161. Ashley Kerr, New Jersey Farm Bureau
162. Dave Weinstein, Rutgers University
163. Jeromie Lange, Active Acquisitions LLC
164. Lindsey Sigmund, New Jersey Future
165. Thomas Decker, Jacobs
166. Edward Vienckowski
167. Evelyn C Murphy, League of Women Voters Monmouth County
168. Grant Lucking, New Jersey Builders Association
169. Paul Schorr
170. Christopher Crane, Dynamic Engineering Consultants PC

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171. Zuzana Mulkerin, Voices of Water, Bio4Climate
172. Charlotte Michaluk
173. Sonja Michaluk
174. S Pasricha
175. Bianca Engelking Wright
176. Joseph DiLorenzo, Middlesex Borough, City of Rahway, Najarian Associates
177. Shinath Kotdawala, Kashi Consulting Company Inc.
178. Jennifer Burns
179. Nancy Haaren
180. Kate Boicourt, Environmental Defense Fund
181. Pamela Borek, Township of Hillsborough
182. Wilma Frey
183. Roger Dreyling
184. Hallie Bulleit
185. Teresa Callahan
186. Dorothea Stillinger, Great Swamp Watershed Association
187. Louise Bagby
188. Marie Henselder Kimmel
189. Sheila Rosen
190. Robert von Zumbusch
191. Robin Suydam
192. Michael Kearney

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193. Theresa Thorsen
194. Lara Moon
195. Holly McDonald
196. Daniel Rubenstein
197. Craig Andersen
198. Marc Chiappini
199. Robert Szuter
200. Margaret Esposito
201. Terry Cooper
202. Catherine Duckett
203. Jeremy Delaney
204. Nicholas Homyak
205. Susan Blubaugh
206. Alexandra Tabibnia
207. Carole Balmer
208. Elizabeth Brown
209. Peggy Gallos
210. Amy Hansen
211. Eric Benson
212. Alan Hunt
213. Willa Inlender
214. William Kibler

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- 215. Rachel Lokken
- 216. Katherine McCaffrey
- 217. Sean Mohen
- 218. John Mulcahy
- 219. Darbary Niloofer
- 220. Jo O'Connell
- 221. Doug O'Malley
- 222. Mike Pisauro, The Watershed Institute
- 223. Nancy Piwowar
- 224. David Pringle, Empower New Jersey, Clean Water Action
- 225. Anjuli Ramos-Busot
- 226. Kathryn Riss
- 227. Judith Rosenthal
- 228. Anne Ryan
- 229. Elliott Ruga
- 230. Jeff Tittel
- 231. Niyati Shah
- 232. Fred Stein
- 233. Jody Stewart
- 234. Andrew Tandler
- 235. Ellie Gruber
- 236. Stephen Francis

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- 237. Dawn Golding
- 238. Richard Clemson, James Sassano Associates, Inc.
- 239. Ana Lomba
- 240. Ana Mulcahy
- 241. Maura Thibault
- 242. Donna Kaye
- 243. Daniel Weiss
- 244. Yingchao Zhang
- 245. Leel Dias
- 246. Daya Kiran Sunkara
- 247. Corey Safran
- 248. Brian Hobbs, Matrix New World Engineering
- 249. Gaydra Chapulis
- 250. Abeer Carol Sharrouf
- 251. Gary Maltz
- 252. Stephan Demes
- 253. Holly Hibbard
- 254. Margaret & Thomas Coughlin
- 255. Stephen Trainor, WSP
- 256. Warren Mitlak
- 257. Mark Brugger
- 258. Felicia & Mario DeVincenzi

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259. Anthony Russo, Commerce and Industry Association of NJ

260. An identical letter was submitted by 319 individuals. The Department has designated this standard letter as commenter 260. Where individuals added comments in addition to those appearing on the form letter, their name is listed separately in the commenter list.

261. Jess Fasano

A summary of the comments timely submitted, and the agency's responses follow. The number(s) in parentheses after each comment correspond to the commenter(s) listed above:

### **Inland Flood Protection Rule General Comments**

1. COMMENT: The builders' lobby is not looking out for the best interests of New Jersey.  
(48)
  
2. COMMENT: Do not let the builder's lobby delay this rulemaking or slip through loopholes that allow them to negatively impact New Jersey. Citizens lives and taxpayer dollars used to restore immeasurable losses are more important than business profits.  
(178)
  
3. COMMENT: The commenter urges the Department to not be influenced by the business industry. (260, 183, 193, 184, 185, 194, 195, 197, 187, 188, 189, 198, 190, 200, 201, 202, 203)

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4. COMMENT: The commenter urges Department to limit the influence of the building community on the proposed rule. (23, 36, 39, 48, 62)
5. COMMENT: The building community will adapt to the proposed rule changes. (24)
6. COMMENT: Residents and not businesses should have priority in the rule. (86)
7. COMMENT: The builder's lobby has too much control over the Murphy Administration. (48)

RESPONSE TO COMMENTS 1 THROUGH 7: When anticipating rule making, the Department must seek input and information from all stakeholders that may be affected by the proposed new or amended rules, which is consistent with our principle to "listen to all sides." Not only is this important for the stakeholders, but it also helps the Department understand the issues that may arise as a result of a proposed rule. Building and business are important to the economic well-being of New Jersey residents and therefore, the Department must listen to and understand their positions. The Department also abides the principle of finding the "best balance" and also believes that the goals of economic growth and protecting communities are not mutually exclusive. Rather, taking steps to protect the communities and lives of those who live and work in New Jersey ensures the robust health of our economy. Therefore, the rules are being adopted herein.

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8. COMMENT: We support the Department going through the rulemaking process and not proceeding with the emergency process originally contemplated. All rules should proceed with at least 60 days of public comment, public hearings, and other stakeholder engagement. (114)

RESPONSE: The Department acknowledges the commenter's support for the process it ultimately used to bring this rulemaking to completion.

9. COMMENT: Flooding increases mosquito populations. These mosquito populations can harbor disease that would put the public at risk. (202)

RESPONSE: The Department acknowledges that protecting people and property from flooding may also provide benefits like mosquito control.

10. COMMENT: Water supply contamination from runoff is a concern. (167)

RESPONSE: Although this comment is beyond the scope of the proposal, the Department notes that the existing SWM rules at N.J.A.C. 7:8-5.5 address water quality from stormwater runoff.

11. COMMENT: When streams, brooks or creeks are clogged, to whom do members of the public turn for assistance to unclog the waterway? (223)

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RESPONSE: Without more details, it is difficult to give a definitive response to this comment. The Department recommends contacting the local municipality for further assistance in determining who may be able to assist with a clogged waterway.

12. COMMENT: The commenter expresses concern for how flooding will affect historical properties. (193)

RESPONSE: The Department acknowledges that flooding and the overall effects of climate change may have negative effects on historical properties. Because historic properties predate these rules, it is unlikely that the rules will directly affect them, other than to identify that they may be in an area of increased flood risk.

13. COMMENT: The commenter calls for tree plantings, river dredging, river enlargement, and river cleanup of any radiological contamination that may be remaining at industrial sites affected by the flooding. (28)

RESPONSE: Tree planting is beyond the scope of this proposal. However, there are other parts of the adopted rules (for example, the provisions that protect the riparian zone and that require riparian zone mitigation) that encourage tree planting. River dredging or enlargement are highly regulated and beyond the scope of this proposal because they do not have the perceived benefits of reducing flooding. These activities may be ecologically damaging as well as simply move the source of any flooding issues from one location to another. Finally, while the cleanup of hazardous

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waste is beyond the scope of this proposal, the Department acknowledges that protecting people and property from flooding may also help to protect industrial facilities from flooding and this is important because flooding these facilities could result in hazardous materials being washed into flood waters. Also, the Department has in place, specific rules and regulations that govern the cleanup of hazardous waste materials and during the permitting process, the various Divisions in the Department work together to ensure that all of the specific concerns on a site are addressed for the safety of the public.

14. COMMENT: Both within and accompanying the adoption of this rulemaking, user-friendly specific guidance on preferred measures is needed, such as has been developed by the State of Florida for their Sea Level Rise Impact Projection (SLIP) tool or the Waterfront Edge Design Guidelines (WEDG) rating system. (180)

RESPONSE: Applicants may use the “Tidal Climate Adjusted Flood Elevation” for New Jersey layer which is an approximate delineation resulting from an additional 5-foot flood water height added to the Federal Emergency Management Agency (FEMA) coastal Special Flood Hazard Area (SFHA) for the New Jersey counties of Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Hudson, Mercer, Middlesex, Monmouth, Ocean, Salem and Union. In addition, applicants may access the tool at [www.njfloodmapper.org](http://www.njfloodmapper.org) to get a preliminary idea of where their property may fall given the effects of climate change. The Department also has a FHACA Technical Manual that is updated periodically, and which has been updated to reflect the adopted rules. These tools, together with employing a well-informed professional can assist

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property owners who may be considering construction projects determine what if any measures may need to be taken and if their property is subject to permitting.

15. COMMENT: The Department should put all resources toward fast tracking preventative inland flood related projects and policies. (95)

RESPONSE: The Department assumes that the policies to which the commenter refers are the rules being adopted herein. However, it is unclear to what inland flood related projects the commenter is referring.

16. COMMENT: The Department should incorporate climate change risk considerations into all grant, loan, contracting, planning, and policy programs and guidance. (150)

RESPONSE: The Department anticipates incorporating climate change considerations into future rulemaking. However, mandating the use of such data across every program the commenter references is beyond the scope of this rulemaking.

### **Personal Experiences With Impacts of Flooding**

17. COMMENT: The commenter shares experiences of flooding and extreme weather in New Jersey. (7, 22, 36, 39, 42, 48, 62, 71, 38)

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18. COMMENT: The commenter shares their experiences of devastation during extreme weather in Hurricane Sandy and Tropical Storm Irene. (39)
19. COMMENT: The commenter is in support of the rule because of experiencing the flooding and the aftermath from Hurricane Ida firsthand and therefore sees the need to address resiliency in future planning of development moving forward. (154)
20. COMMENT: Our corporation strongly supports the proposed inland flood protection rule as we have seen the devastation caused by flooding in our community from both major storms and regular rainfall which causes combined sewer overflows. We need strong flood protection rules to help protect environmental justice communities. (139)
21. COMMENT: The rising flood risks are real, and we have experienced them first-hand. (260, 183, 193, 184, 185, 194, 195, 197, 187, 188, 189, 198, 190, 200, 201, 202, 203)
22. COMMENT: The commenter shared a personal story of property loss and devastation that occurred during Ida. (203)

RESPONSE TO COMMENTS 17 THROUGH 22: The Department acknowledges these comments in support of the rules. We appreciate the first-hand experience the commenters provided further demonstrating the need to adopt these rules as soon as possible.

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**General Support For the Inland Flood Protection Rules**

23. COMMENT: Changes to the regulations are far overdue and beyond being urgent. There have been three 100-year flood events in the past 3 years, and it is time to think ahead. People's lives are at risk. (226)
  
24. COMMENT: As development density has increased, the frequency and intensity of flooding has as well. The commenter expresses concerns about the ability of first responders to reach people in need during even minor flood events. (116)
  
25. COMMENT: Addressing flooding and stormwater runoff in New Jersey should be addressed in a manner that benefits human health, the environment, and businesses. (259)
  
26. COMMENT: The commenter is in support of the rules because they will benefit human health, natural resources and the plants and animals comprising our rich ecosystems. (173)
  
27. COMMENT: Commenter supports the Design Flood Elevation 2-foot raise. (164)

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28. COMMENT: Regulations should be based on updated rainfall rather than decades old data so that buildings, roads, stormwater management facilities, and other structures withstand today's flood conditions as well as those of the future. (261)
29. COMMENT: The Department appears to have sufficient cause to modify the FHACA rules to protect inland waters from additional flooding impacts that may be associated with climate change due to recent occurrences of historic, post-tropical storm events like Ida and Irene. (176)
30. COMMENT: We are facing a climate emergency and need a plan to protect current and future residents and critical natural resources. (155)
31. COMMENT: Increased precipitation across the state is happening. (160)
32. COMMENT: Please don't delay these rules any further. It is more cost effective to implement stringent rules than deal with the aftermath of excessive flooding and stormwater damage. Additionally, please use the most recent data available. (205, 206)
33. COMMENT: The Department must protect the county from those who would profit at the expense of environmental and public safety, health, and well-being. (258)

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34. COMMENT: Failure to implement strong flood rules will harm the public. The DEP should adopt this proposal immediately. (112, 120, 123, 129, 130)
35. COMMENT: The commenter urges Governor Murphy to fulfill the promises of the Climate Change Resilience Strategy. (48)
36. COMMENT: The commenter shares that recent developments in their area are causing concern to the ability of the environment to absorb water. (28)
37. COMMENT: The commenter shares the difficulties of paying flood insurance. (35)
38. COMMENT: The commenter urges the Department to use its authority in protecting the environment. (16)
39. COMMENT: Extreme weather events like Hurricane Ida, poor drainage, and increased development have caused flooding in areas that have never previously experience flooding. (38)
40. COMMENT: The commenter expressed support for the rule. (1, 2, 3, 5, 6, 8, 9, 10, 11, 13, 15, 17, 19, 20, 21, 22, 24, 25, 26, 30, 43, 46, 47, 51, 52, 58, 61, 62, 63, 64, 69, 87, 93, 94, 106, 108, 118, 120, 121, 164, 167, 168, 181, 186, 195, 208, 252, 258)

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41. COMMENT: The commenter expressed support for the efforts to bring stormwater and flood rules up to date by looking at current scientific numbers for climate change. (99)
  
42. COMMENT: The commenter supports the proposed rule and asks the Department to proceed with adoption as soon as possible. (8, 9, 11, 12, 13, 14, 15, 17, 20, 22, 25, 26, 30, 32, 34, 36, 43, 49, 50, 54, 55, 56, 57, 62, 65, 42, 74, 75, 77, 81, 84, 103, 137, 138, 141, 155, 179, 210, 225)
  
43. COMMENT: The New Jersey regional chapter of the National Utility Contractors Association commends the DEP for taking steps to address the threats caused by extreme rainfall events. Ensuring that vulnerable areas are better identified, and that the best available data is being used when designing and constructing projects makes sense. (113)
  
44. COMMENT: The commenter supports the rulemaking's objectives, intent, and use of rainfall data. (162)
  
45. COMMENT: The commenter agrees with the objectives of the rule changes, as well as the importance of using climate-informed precipitation data and the expected effects of climate change on precipitation events to project estimated increased storm intensity in a stormwater analysis. (148)

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46. COMMENT: The commenter supports the rule because the rule recognizes the effects of climate change and incorporates the additional 2 feet to the required elevations for development in the regulated areas. (167)
47. COMMENT: The commenter expresses support for the proposed Rules. Regulations should not rely of decades old data when 100-year storms are happening more frequently. (231)
48. COMMENT: the commenter expresses support for the proposed Rule. Many new developments that are being proposed are putting new and unsuspecting residents in harm's way. The proposed regulations are a step in the right direction. (232)
49. COMMENT: The commenter expresses support of the Rule. Significant flooding is being experienced in areas not identified as flood hazard areas in increased frequency and intensity. (182)
50. COMMENT: The commenter expresses support for the Rules. Recent flooding due to Ida has caused widespread damage to properties. Due to climate change, these types of storms have increased in intensity and frequency. (96, 261)
51. COMMENT: More current data utilization will help keep new development out of the floodplain and require stormwater measures to be sized more appropriately for future

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storms. This gets to the root of the issue and helps to keep residents and first responders safer. (96)

52. COMMENT: The effort to apply science to protect against flooding and protect wetlands and natural lakes is supported. (159)
53. COMMENT: The need for improved flood protection is indisputable, and the proposal provides historical facts in support. (166)
54. COMMENT: The consideration of impacts on economics, jobs, environmental justice, and public safety is appreciated, and the issues affected business and public interests has been appropriately balanced. (155)
55. COMMENT: Elevation of the flood plain by two feet will prevent more flooding based on future predictions. (155)
56. COMMENT: Please create strong inland flood protection rules. Middlesex County floods frequently. Severe weather events are increasingly more common and over-development is exacerbating this problem. (174)
57. COMMENT: The commenter urges the Department to adopt the strongest, most protective Inland Flood Protection Rules as possible while using the most up-to-date

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flooding and climate data. (4, 49, 50, 59, 69, 166, 175, 183, 184, 185, 192, 193, 194, 195, 197, 187, 188, 189, 198, 199, 190, 191, 200, 201, 202, 203, 204, 205, 206, 210, 213, 224, 260)

58. COMMENT: The proposed amendments will ensure designs use more accurate data and will account for the impacts of climate change on flooding and stormwater. The amendments will have a positive impact on the environment and the resiliency of structures, keeping New Jersey's floodplains, surface water, and ground water at high quality. (127)
59. COMMENT: The amendments will have a positive social impact as flood risks will be more clearly identifiable, promoting greater awareness amongst communities. This will promote climate resilience planning and preparedness by ensuring structures and infrastructures consider the increased risk of flooding during the life of the improvement. (127)
60. COMMENT: The rulemaking will have a positive environmental impact and will increase the State's resilience to flood events and improve the quality of waterways. (127)
61. COMMENT: Current New Jersey rules and regulations are based on precipitation data dating back to 1999 which is outdated. This rule is written to consider real world data

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and future climate change and will direct the placement of development and includes safety standards as well. These approaches will enhance the health and safety of the State. (85, 93)

62. COMMENT: The commenter supports the rule since it will help alleviate flooding by limiting impervious cover. (88)
63. COMMENT: The commenter supports this rule since it makes large scale developers responsible for incorporating measures that will protect the general public from the costs associated with known risks of flooding, fire, etc. (91)
64. COMMENT: The commenter supports the rule as a strong step to incorporate climate change into flood regulations. (92, 93)
65. COMMENT: The commenter supports the rule to limit damage to people and the environment. (105)
66. COMMENT: The Department and local governments should adopt the proposal as soon as possible. (78, 81)
67. COMMENT: The threat of flooding is especially apparent in heavily populated areas of the State. As such, the proposal needs to be adopted. (82)

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68. COMMENT: Please immediately adopt the proposal without legacy provisions, exceptions, or loopholes. (65, 251, 249)
69. COMMENT: The rule proposal is critical to the well-being of New Jersey. Old data does not consider climate change and worsening weather events. (254, 106, 257, 256)
70. COMMENT: This rule will help protect the public from future climate events. (260, 183, 193, 184, 185, 194, 195, 197, 187, 188, 189, 198, 190, 200, 201, 202, 203)
71. COMMENT: The commenter emphasizes the importance of enforcing the rules once adopted. (186)
72. COMMENT: The commenter asks that New Jersey stops development and reform public transportation and housing. (194)
73. COMMENT: Land use decisions must be made with all New Jerseyans in mind. (187)
74. COMMENT: The Department must use the most up to date data in this rule change. (188)
75. COMMENT: Water is a valuable resource and needs to be protected. (189)

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76. COMMENT: The proposed rule changes are not strong enough, but it they are a good step forward. (190)
77. COMMENT: Current information on flooding must be used in the rule changes. (201)
78. COMMENT: The commenter expressed support for the rules, noting that while there has been a lot of focus on the shore after Sandy, there appears to have been less attention given to the flooding that has occurred in inland waterways and adjacent areas from storms like Irene, Isiah, and Ida. (212)
79. COMMENT: Flooding is caused by overdevelopment and building. This rule is an important step towards requiring builders to bear some of the cost for flooding, or to limit their development in flood-prone areas. (214)
80. COMMENT: The commenter supports the rule and urges the Department to move forward to further protect our communities and build a safer, more equitable New Jersey. (216)
81. COMMENT: The commenter is in support of the rules not only for the human benefits that controlling stormwater and flooding provide, but also for the ecological benefits provided to the health of our waterways. (172)

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82. COMMENT: The commenter agrees with the objectives of the rule changes, as well as the importance of using climate-informed precipitation data and the expected effects of climate change on precipitation events to project estimated increased storm intensity in a stormwater analysis. (148)
83. COMMENT: The commenter supports the use of climate-informed precipitation data and the expected effect of climate change on precipitation events in the rules. (58, 59)
84. COMMENT: The commenter supports the use of updated flood maps. (1, 2, 3, 47)
85. COMMENT: The commenter supports the rule because it increases the Design Flood Elevation and addresses gaps in the New Jersey Model Code Coordinated Ordinances for floodplain management. (3)
86. COMMENT: The commenter supports the rule because flood risks will be clearly identifiable to the public, thereby promoting greater climate resilience planning and preparedness, by ensuring that structures and infrastructure are constructed in ways that consider the increased risk of at least one flood event occurring during the life of the improvement. (59, 44)

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87. COMMENT: The commenter supports the rule because raising the flood plain by two feet above New Jersey's current height and three feet above FEMA's standard is necessary to keep people safe. (45)
88. COMMENT: The commenter supports the use of future projected stormwater scenarios in development to create a resilient New Jersey. (46)
89. COMMENT: The commenter supports the rule because it provides New Jersey with wide-ranging and progressive tools for flood water management. (3)
90. COMMENT: It is essential that new rules, requiring latest weather data and updated maps, are adopted to protect the residents and resources of New Jersey. (7)
91. COMMENT: The commenter states the proposed rule changes are long overdue and are necessary to protect health, property, the environment, agriculture, and transportation. (18)
92. COMMENT: The commenter states that the proposed rule changes should not be scaled back or moderated. (21)
93. COMMENT: The commenter urges the adoption of the rule as proposed without modifications that would diminish impact. (23, 62, 65)

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94. COMMENT: The commenter supports the rule changes as it will have a positive impact on the environment, the resiliency of structures, and will help keep New Jersey's floodplains, surface water, and ground water in high quality. (47, 51, 59, 61, 45, 64)
  
95. COMMENT: The commenter supports the positive social impact of the rule change. (59)
  
96. COMMENT: The commenter supports the rule because it uses accurate and up-to-date data and will take into account the impact of climate instability and its impact on flooding and stormwater in New Jersey. (61, 45, 64)
  
97. COMMENT: The commenter states that government agencies are wise to pay for preventative measures rather than wait for the inevitable, when the cost to repair damage is exponentially higher. (62)
  
98. COMMENT: The use of decades old data underestimates the increase in precipitation totals of current and future events, as evidenced by severe flooding in New Jersey resulting from climate change. Development in New Jersey must be designed and constructed to manage both current flood conditions and significantly higher precipitation levels anticipated to occur in the future. (115)

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99. COMMENT: Reconstruction efforts after recent storm events such as Ida should be designed in a manner that will reduce impacts from future flooding events. (181)

RESPONSE TO COMMENTS 23 THROUGH 99: The Department acknowledges these comments in support of the rules. As the commenters expressed, the rule uses the most current scientific data to better align current precipitation conditions and the expected effect of climate change on precipitation events. Further, the rules will result in increased protection of public safety in fluvial areas through the application of greater factors of safety to provide protection to areas that are currently experiencing, or are expected to experience, worsening flooding impacts associated with increased precipitation.

100. COMMENT: The commenter is in support of the immediate implementation of the rule and would like to see amendments to the FWPA rules and CZM rules to better protect critical resources. (32, 36, 74, 75, 138, 167)
101. COMMENT: The Department should propose REAL amendments immediately. (81)
102. COMMENT: The Department should propose amendments to the FHACA, FWPA, CZM and SWM rules immediately. (171)

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103. COMMENT: The commenter urged the Department to move forward with additional rules to further protect our communities and build a safer, more equitable New Jersey. (93, 211)

RESPONSE TO COMMENTS 100 THROUGH 103: The Department acknowledges these comments in support of the rules and anticipates that changes to the FWPA rules, and additional changes to the FHACA rules, CZM rules, and SWM rules (also known as the Resilient and Environmental Landscape amendments or REAL) should soon be forthcoming.

104. COMMENT: The commenter expresses support for the Rules. Regulations must be based on future projections of climate change in order to protect the public from flooding from increasingly intense storm events. The commenter further expresses support for the balance between business and public interests. (235)

RESPONSE: The Department acknowledges this comment supporting the rules which are based on data that projects into the future. While it's critical to balance business and public interests, taking steps to protect the lives of those who live and work in New Jersey supports the business community, contributes positively to the State economy, and therefore is within the public interest.

105. COMMENT: The Department should strengthen the inland flood protection rules to ensure wetlands are preserved and impervious surfaces don't excessively propagate throughout the State. (172)

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RESPONSE: The adopted rules are intended to ensure that current precipitation data are used to assist in addressing stormwater runoff and flood elevations in fluvial areas. If wetlands exist in an area subject to these regulations, a separate and additional wetland permit will be required in accordance with the wetland rules at N.J.A.C. 7:7A. Finally, the SWM rules, while not preventing the placement of impervious surfaces, regulate runoff from impervious surfaces.

106. COMMENT: We support the rule but improvements are needed. (41)

RESPONSE: The Department acknowledges this comment in support of the rules. However, without further specificity, the Department is unclear what improvements the commenter believes are needed.

### **General Critiques of the Inland Flood Protection Rules**

107. COMMENT: The “environmental groups” are exaggerating the benefits of the proposed rule and are making false claims about the proposal. (4)

RESPONSE: It is unclear what benefits the commenter believes are being exaggerated and what claims the commenter believes to be false.

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108. COMMENT: The rule addresses future flooding issues however, it does not address the State's current flooding situation. (168)
109. COMMENT: The commenter calls for the Department to address flooding due to overdevelopment. (29)
110. COMMENT: The commenter expresses support for the Rule. More access to help to homeowners in improving existing homes to be more resilient should be made available. (228)
111. COMMENT: Although the rule will regulate new development and re-development projects, it does not aid the existing flood prone properties. (104)
112. COMMENT: The Rule proposal will not result in a proactive change by existing homeowners. (143)
113. COMMENT: The Stormwater Management and Flood Hazard Area Control Act rules are not helping to prevent property damage to those areas that were injured in Tropical Storm Ida. The amendment to the rules will not help the recurring property damage. All the rules do is restrict newer growth adjacent to the current flood hazard areas and no remedies are being proposed for the properties facing increased flooding risks. The

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Department and lawmakers of New Jersey should allocate funding to reduce flooding-related damages to property and human life by considering better rainfall data. (177)

114. COMMENT: The rule seeks to further regulate a few pursuing new developments, while not providing proper public protection, and providing a false sense of security to the public. (99)
115. COMMENT: The Department must address the impact of existing development and infrastructure implemented under inadequate rules. (190)
116. COMMENT: The rules should address the amount of impervious cover that already exists in the watershed and if any more should be allowed. (37)
117. COMMENT: The concept of resilience is as flawed as the use of sea walls, beach replenishment, and flood control projects. It leads to a false sense of security, is highly costly, and does not work. Reliance on engineered structures will not combat flooding. (4)

RESPONSE TO COMMENTS 108 THROUGH 117: The Department's Division of Land Resource Protection is a permitting agency that uses its statutory authorities to review proposed new development, additions to existing development, and reconstruction of development, in regulated areas including floodplains, wetlands and the coastal zone. . While the rules provide

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criteria and safety factors for new development, they are not intended to force reconstruction, retrofitting, or removal of existing, legal, development. The Department acknowledges that those living in flood-prone areas will still be living in flood-prone areas after adoption of these rules. However, applicants and the Department will stop using backward-looking data to justify adding more unprotected development into flood-prone areas. Further, the rules will now also include additional areas that should be subject to these rules based on updated precipitation data, to ensure they are constructed in such a way to protect future residents.

118. COMMENT: It is the commenter's opinion that the rules should be withdrawn until such a time when the Department provides a scientifically valid basis and background for the proposed flood elevation increases along with mapping. The Department should estimate the number of structures, businesses and properties that will be impacted by these rules, including whether or not these entities have been subject to damaging flooding and the recurrence interval of the floods the rules are designed to protect against. The Department should also provide a revised economic analysis that takes into account the true cost of these rules and their limited legacy provisions, including the costs to state, local municipalities, property owners and market-rate and affordable housing projects. (168)

119. COMMENT: The Department must analyze the impact of the development within flood hazard areas to ensure development achieves equitable, affordable housing. (156)

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RESPONSE TO COMMENTS 118 AND 119: The rules were developed on a scientifically valid basis. Updates to NOAA Atlas 14 precipitation values, and the projection thereof, were informed by a peer-review study performed by the Northeast Regional Climate Center. In addition to this study, the Department also researched the severity of past flood events and compared associated flooding against available mapping. As indicated in the proposal, the Department found that flooding from recent storms such as the remnants of Tropical Storm Ida and Hurricane Irene were record-setting and exceeded the flood limits indicated by available flood mapping. Data from these sources informed the revision of the flood hazard area limits described by the adopted rules.

It is not possible to provide the exact limits of the adopted new flood hazard area on every parcel in New Jersey or to provide an exact tally of the buildings and structures that would likely be located within the adopted new flood hazard area without undertaking detailed analyses of every regulated water in the state, which is beyond the Department's ability. However, the process by which the Department, as well as a property owner or prospective applicant, can determine the extent of future flooding on a given site is clearly articulated in amended N.J.A.C. 7:13-3. Furthermore, the Department can verify the limits of the flood hazard area on a site pursuant to the process set forth at N.J.A.C. 7:13-5 or, in some cases, may be able to determine that a site or project is located outside the flood hazard area under an applicability determination request pursuant to N.J.A.C. 7:13-2.5.

It should also be noted that this rulemaking applies only to new and reconstructed or improved structures and does not otherwise affect existing structures. Given that structures constructed or improved in the near future are likely to still be in use at the end of the century, it is imperative that the proposed new flood elevations are adopted now in order to protect these

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structures from anticipated future flood conditions. Withdrawing the proposal as the commenter suggests would endanger public health, safety, and welfare.

120. COMMENT: Commenter supports sound measures to protect the State's infrastructure and private development from flooding, but the proposal is flawed, will only put additional burdens on private property owners, inhibit critical redevelopment, and upset financing and tenancy operations. (157)

RESPONSE: The Department does not agree that the rules are flawed. They require the use of updated data regarding precipitation and require that construction include safety factors for anticipated future conditions. The rules regulate new development and ensure that it is constructed safely and in a manner that will continue to protect it, and its inhabitants, into the future. The rules are being adopted because they are important for the health and safety of New Jersey residents.

121. COMMENT: New Jersey leadership must stop delaying the adoption of the rule changes. (95)
122. COMMENT: The commenter points out shortcomings of the Murphy Administration including stopping the emergency rule and allowing potentially harmful projects to continue. (48)

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123. COMMENT: These rules have been repeatedly delayed and ignore the need for urgent action given the more powerful and intense storms wrought by climate change. (74, 32, 75)
124. COMMENT: The commenter expressed frustration over a lack of action by Governor Murphy and the Department on legislation relating to climate change. (224)
125. COMMENT: The Department has missed deadlines for this rule at the hands of corporate interests. (36)
126. COMMENT: The implementation of the Inland Flood Protection Rules and NJPACT has been mismanaged by the Murphy Administration. (48)
127. COMMENT: The Department needs to provide an explanation for the delay of these rules. (49)

RESPONSE TO COMMENTS 121 THROUGH 127: The magnitude and scope of rule amendments to address climate change required extensive analysis of current science and data, stake-holder outreach, and serious consideration. The Department has moved as expeditiously as possible to complete the adoption contained herein.

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128. COMMENT: The Department should create a dedicated workforce specifically for permitting transportation projects in order to prevent delays. (149)

RESPONSE: Applications under the FHACA rules are subject to the Ninety-Day Construction Permits Law, N.J.S.A. 13:1D-29, et seq., under which the Department must render a decision on complete applications within ninety calendar days of receipt, with the option of one thirty-day extension if the applicant and Department agree. Should the Department fail to act in accordance with this statute, the application is automatically approved. As such, the Department's management evaluates programmatic needs and allocates available staff accordingly and will dedicate adequate staff to ensure that all applications received are expeditiously processed and in accordance with N.J.S.A. 13:1D-29, et seq.

129. COMMENT: Current staffing issues at DEP and DOT should be addressed, as delays will only increase with the adoption of new regulations. Third party professionals should be considered to provide additional support. (149)

130. COMMENT: The Department does not have the capacity to deal with the issues that will arise from this proposal. The Department should disclose its plan to address staffing issues and supplement internal application review with qualified engineers from private firms. (114)

RESPONSE TO COMMENTS 129 AND 130: As noted in the response to comment 128 above, project review personnel are reallocated in response to workload considerations as the need arises.

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With regard to increasing the number of Department project review personnel, funding for State-agencies, including staffing, comes by way of the annual State budget. Finally, regarding the suggestion that the Department should consider employing third party professionals to provide additional support, the Department will consider this if it should become necessary. However, past experience shows that employing third party professionals is not generally helpful to address short term increases in workload such as may occur following this rulemaking. Given the relatively small increase in the geographic extent of the flood hazard area reflected in this rulemaking, the Department does not anticipate a significant increase in the number of applications under the FHACA rules.

131. COMMENT: The formatting of the proposal is flawed. The entirety of the proposed regulation should be included, not just additions and deletions. Revised standards conflict with unchanged provisions. (147)

RESPONSE: The Department follows a rule-making manual created by the Office of Administrative Law. It dictates how the rule changes should be presented. Publication of the entire rule is not required and would be confusing. By limiting what is published to those sections proposed to be amended, commenters know which parts of the rules are subject to amendment and open for public comment. Portions of the rule that are not published are not the subject of amendment and are not open for public comment. The commenter did not specify which rules they believe to be in conflict. However, the Department strives to ensure that the amended rules will not conflict with unchanged portions of the rules.

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132. COMMENT: The Department cannot follow the 90-Day Construction Act Law. Instead, the Department post-dates documents. The Department should be held accountable. Backlogged reviews decrease the Department's credibility. Such practices indicate that the Department will not be able to implement the proposal without increases in funding. (147)

RESPONSE: The Department strictly adheres to the 90 Day Construction Law. It cannot and does not post-date documents. Documents are dated when they arrive in the office mailroom. Further, current protocol requires that applications be submitted electronically so there is a date automatically associated with that filing, making "post-dating" impossible. When the 90-day clock is expiring, there are three options available to the Department: approve the application; deny the application; or ask the applicant to voluntarily withdraw the application. Denial or withdrawal of an application may occur when the applicant has not provided the relevant data necessary for the Department to make a positive finding on an application. The amended rules will not affect these processes.

133. COMMENT: The rules should either not be adopted or should be modified before adoption. (60)

RESPONSE: The Department does not agree that the rules should not be adopted since they are important for the health and safety of the residents of New Jersey. They require the use of updated

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data regarding precipitation and require that construction include safety factors for anticipated future conditions. Finally, due to the comment's lack of specificity, the Department does not know what type of modifications the commenter would recommend.

134. COMMENT: The Department proposes to add a goal to the rules to address environmental and socioeconomic impacts. The definition of flood hazard area design flood is proposed to be amended to explicitly include climate change, but this is deceptive. The change factors result in the Department regulating to a near 500-year flood instead of the 100-year flood, and the Department lacks the authority to do that.
- (66)

RESPONSE: Pursuant to N.J.S.A. 58:16A-50, DEP is charged with identifying and regulating flood hazard areas which constitute a threat to the safety, health and general welfare from flooding. The proposal explains that flooding is getting worse, which the rulemaking addresses. While the change factors increase the precipitation amounts associated with the 100-year storm, they are still representative of the 100-year storm. They represent what the 100-year storm and its associated flood are expected to be by the year 2100, when structures being built today are expected to still be standing. That the 100-year precipitation amount looks to the future is not deceptive, but rather incorporates the latest science. Looking at both present and future precipitation levels directly protects public health, safety, or welfare from the 100-year flood now and in the near future.

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135. COMMENT: New construction should provide higher ground to allow local retreat from rising floodwaters. (152)

RESPONSE: It is unclear how the commenter is suggesting that higher ground be provided. The only mechanism to elevate the ground is to add fill material. However, adding fill material to the floodplain exacerbates flooding because it reduces the area that holds flood waters and simply redirects flood waters to neighboring locations. Building elevation may put people and structures higher and safely above flood waters but is not necessarily a “local retreat.” To the extent that these rules regulate both filling and the elevation of buildings in the floodplain, the rules may indirectly address the commenter’s concern.

136. COMMENT: The proposed Rule does not go far enough. The science indicated the need for even higher design flood elevations. (229)

RESPONSE: The Department believes that this rulemaking adequately captures the extent of expected future flooding, based on the best available science.

137. COMMENT: The rule proposal is flawed because it ignores land use planning in favor of resiliency. (4)

RESPONSE: In the State of New Jersey, land use planning is primarily a function of local, rather than State government. Further, the Department’s rules only apply to those proposing to develop

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in regulated areas like floodplains or wetlands, which does not facilitate comprehensive evaluation of development. Therefore, the Department does not strive to influence land use planning but rather to use the best available science to guide the review and construction of new development, that has likely already been approved by a municipality, when proposed in regulated areas.

138. COMMENT: The proposed rules should be rejected. The Department should step back and engage in another stakeholder process. Such a process would allow the Department to refine the rule to minimize impact on developing projects like market-rate and affordable housing while improving flood resiliency. (141)

RESPONSE: These rules have undergone an extensive and robust stakeholder process. The rules, which were originally part of a larger package of rules (known as Protection Against Climate Change or PACT) underwent several stakeholders meetings beginning in 2019, first as part of the PACT rules, and then again independently in October 2022 when they were separated from the larger package. Further delaying the rules would result in additional development and redevelopment in high-risk areas using outdated data for precipitation and flood elevations, which would mean knowingly putting people at risk. The Department believes there is a sense of urgency and that the rules need to be adopted without further delay.

139. COMMENT: There is too much impervious surface in New Jersey, and the Department should work to fix it. (22)

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RESPONSE: The SWM rules do not directly regulate the amount of impervious surface that can be constructed. Rather, the SWM rules set forth standards on how the stormwater runoff leaving those surfaces must be managed. This ensures that new impervious surfaces that are being constructed do not result in any adverse impacts offsite resulting from improperly managed stormwater runoff. However, these rules do not apply to existing impervious surfaces. Under the 2023 Tier A MS4 permit at Part IV.H, the Department has required municipalities to create a “watershed improvement plan” over the next five years. This plan will include a full assessment of the impairments and total maximum daily loads (TMDLs) within the municipality, as well as an inventory of stormwater related infrastructure, and projects to be implemented to address those TMDLs and impairments. While this does not specifically require existing impervious surface to be removed, it is anticipated that existing impervious surfaces without stormwater management systems could be removed (if they are not needed) or could have stormwater management systems installed to reduce the impacts of unmanaged stormwater runoff on those impaired waters.

### **Statutory Considerations**

140. COMMENT: The 90-day clock should be paused during the design process, and a new permitting process should be implemented to serve as a “conceptual design certificate” to ensure basic stormwater management requirements are met during the design process based on real conditions, not on rule standards that may not be accurate. (147)

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RESPONSE: The Department appreciates the suggestion but finds that the current permitting process and pre-application process meets the needs of applicants. While it is unclear what the commenter means by the design process being based on “real conditions, not on rules standards that may not be accurate,” the stormwater design will have to be based on rule requirements as they relate to a specific project. Thus, the Department strongly urges applicants to avail themselves of the preapplication process (see N.J.A.C. 7:13-17) if there are questions regarding stormwater project design under the FHACA rules, or if they are unsure about how to apply the stormwater rule standards to a specific project. An application should be submitted to the Department only when the applicant is confident that a project, as designed, will meet the permitting standards.

141. COMMENT: The rainfall amounts set forth in the proposal should sunset, or expire, every 15 years. (147)

RESPONSE: Pursuant to the Administrative Procedure Act, specifically N.J.S.A. 52:14B-5, all rules sunset or expire every seven years. The Department closely monitors the best available science, and if rainfall amount predictions change, a future rule proposal would address any issues with changing precipitation predictions.

142. COMMENT: Proposed language at N.J.A.C. 7:13-1.1(c) should be eliminated because the Department lacks statutory authority to make such statements. (147)

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RESPONSE: It is unclear exactly which standards at N.J.A.C. 7:13-1.1(c) the commenter is referring to in this statement. However, the Department proposed updating the Purpose and scope provision to make clear that minimizing damage to life and property from flooding caused by development within flood hazard areas includes more nuanced considerations due to planning for the future due to climate change. Under the Flood Hazard Area Control Act, N.J.S.A. 58:16A-50, et seq., the Department has broad authority to protect the safety, health, and general welfare of the people of the State. The changes do not change the scope of statutory authority; rather they provide more nuanced examples of said authority.

143. COMMENT: The Department does not have the authority under the Administrative Procedure Act to mandate a specific form to submit public comments on a rule proposal, as done through the comment portal at <https://www.nj.gov/dep/rules/comments/>. (27,168)

RESPONSE: The Department strongly encourages the submission of comments through the comment portal so that comments are logged, tracked, and accessible. However, use of this portal is not required, and a physical address to provide written comments was provided in the notice of proposal. See N.J.S.A. 52:14B-4(a)3. While the vast majority of comments are received through the portal, some individuals prefer to submit email or paper comments, which the Department treats the same as any comments received through the portal. Additionally, a public hearing occurred on January 11, 2023, where individuals provided oral testimony as to the notice of proposal.

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144. COMMENT: Other government entities (such as municipalities) may impose stricter standards than the State, specifically to protect from stormwater runoff and increased flood risk, referencing *Rothenberg v. Township of Long Branch*, 2013 N.J. Super. Unpub. LEXIS 1168, certif. denied 2016 N.J. 364 (2013). (1)

RESPONSE: Municipalities, and other government entities, have statutory authority to pass ordinances, regulations, rules, and by-laws of a stricter nature than the existing statutory framework, provided they are not contrary to State or Federal law and are necessary and proper for good government and for the preservation of public health, safety, and welfare of the municipality and its inhabitants or necessary to carry out conferred powers and duties. See N.J.S.A. §40:48-2; also N.J.S.A. §40:55D-2, N.J.S.A. §40:48-1, N.J.S.A. §40:42-4.

145. COMMENT: The housing affordability impact analysis fails to identify or estimate the number of affordable housing units impacted by the proposal, and the Department's claims that the proposal will not impact housing affordability is dubious. The analysis should be supplemented to include as components required by statute. The Department should map and quantify the extent of the new areas to fall under regulatory jurisdiction. Strategies should be identified to address the impact of the proposal on pending housing development applications before the Department, which would be affected by the expanded jurisdictional area. (156)

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146. COMMENT: The Department's housing affordability analysis fails to fully address the components within N.J.S.A. 52:14B-4; a description of the types and estimate of the number of housing units to which the rules will apply and a description of the estimated change in the average housing cost due to the implementation of the regulation. The focus on initial construction costs to comply with the new regulations does not consider the required descriptions. We disagree with the Department's conclusion that this rulemaking will have no impact on housing affordability, and recommend the Department supplement its housing affordability analysis to review the regulations impact on the number of housing units and the estimated housing cost change. The Department should map the location and extent of new areas subject to this regulation. Any housing development with pending permit applications that would be affected by this rulemaking should be included in the cost analysis. (156)
147. COMMENT: The Department's smart growth analysis is incomplete; it failed to estimate the number of housing units to be affected by the proposed expansion or the change of available, affordable housing within the expanded flood hazard area. The Department should supplement its smart growth analysis to comply with N.J.S.A. 52:14B-4, meaning the Department should calculate and quantify the expansion of land by acres, county, and municipality to determine the total land area, as well as any land or developments with current permits that are impacted by this rulemaking. By publishing affordable housing units within the flood hazard area, the Department would provide the required estimate number of housing units impacted by the rulemaking.

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The Department should also calculate and quantify, in acres, the expansion for flood hazard areas in Planning Areas 1, 2, and designated centers by county and municipality.

(156)

RESPONSE TO COMMENTS 145 THROUGH 147: The Department has provided the requisite impact analysis as required by the Administrative Procedure Act, N.J.S.A. 52:14B-4.1b and rules N.J.A.C. 1:30-5.1(c), and the notice of proposal was reviewed by the Smart Growth office. As stated in the proposal, “[a]mending the existing flood hazard area elevation standards and incorporating the best available data on precipitation, both current and climate projected, would provide protection to New Jersey residents and businesses in flood hazard areas and will help individuals and communities avoid future flood losses. This would in some cases cause the lowest floor of buildings that are being reconstructed and elevated to be situated higher than was required prior to this rulemaking. However, it is anticipated that the added cost of compliance in such a case will be offset over the life of the structure as a result of lower flood insurance rates applicable to elevated structures. As the proposed amendments, repeal, and new rule are limited to areas of the State within fluvial flood hazard areas, and any initial construction costs are anticipated to be minor, there is an extreme unlikelihood that the rules will evoke a change in the overall average costs associated with housing in the State.” The adopted rules would not impact projects that have already applied for their permits before the date of this adoption.

The Department has promulgated flood mapping, as well as non-regulatory tools to assist in planning within the state. While today’s mapping is instructive, land depicted outside of the flood hazard areas on these maps may now be in the flood hazard area, especially where there is

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little topographic relief. In such situations, the Department encourages potential applicants to contact the Department for assistance in determining whether their properties are in a revised flood hazard area. See response to comments 634 through 650 below for an additional discussion related to the availability of revised flood mapping.

### **Roles and Responsibilities of Local Government Entities**

148. COMMENT: The rule conflicts with many Municipal Redevelopment plans and developmental growth areas in the New Jersey State Plan. (168)

RESPONSE: Neither the State Plan nor the vast majority of municipal plans had access to the most current/best available information when they were developed. Plans, like science, evolve as we gain new information and understand the impacts to the environment and public health. It is our expectation that updates to the State Plan will consider the best available science and most current information, such as increased precipitation and flooding, when determining growth areas. The State Planning Commission has already proposed rule amendments that incorporate climate considerations, such as increased flooding, as a mandatory requirement for State Plan Endorsement of the development and redevelopment plans of local governments, as directed by Governor Murphy's Executive Order 89. It is further our expectation that municipalities will consider climate impacts, including but not limited to increased flooding, in their planning documents consistent with the 2021 amendments to the Municipal Land Use Law ([P.L.2021, c.6](#)), that require inclusion of a climate change-related hazard vulnerability assessment as part of their land use plan elements

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and which shall “rely on the most recent natural hazard projections and best available science provided by the New Jersey Department of Environmental Protection.”

149. COMMENT: The Municipal Land Use Law definition of building height should be changed to specify that height is measured from the flood hazard area design flood elevation set by DEP regulations in N.J.A.C. 7:13-3. (142)

RESPONSE: The Department acknowledges this comment. However, the recommendation is outside the scope of this rulemaking as definitions within the Municipal Land Use Law are statutory in nature and beyond the Department’s authority.

150. COMMENT: Town councils should educate decision makers on the importance of designing renewable infrastructure designed to reduce impervious surfaces, and the social/public impact of water hazards. Flooding hazards are closely linked to overdevelopment. (171)

RESPONSE: Municipal board actions are beyond the scope of this rulemaking, and the Department’s authority.

151. COMMENT: Climate change and overdevelopment cause flooding. Engineers at town planning meetings provide nonfactual information that doesn’t protect against flooding. (4)

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RESPONSE: This comment is beyond the scope of this rulemaking.

152. COMMENT: Local governments should adopt new related coastal, wetland, and stormwater regulations as soon as possible. (32)

RESPONSE: The commenter's recommendation for local government action is beyond the scope of this rulemaking. The Department has the responsibility to implement these statutes through rules at the state level. Local governments may have further authority to adopt local ordinances, but these rules will apply statewide.

153. COMMENT: The commenter expresses support for the Rule. However, it appears that in the past the regulations have not been applied to all county and municipal governments. The rules need to be equally applied to all county and municipal governments. (227)

RESPONSE: The Department acknowledges the comment in support of the rules. However, it is unclear why the commenter believes that past rules have not been applied to all county and municipal governments. To the contrary, these adopted rules, as well as the previously existing rules, apply equally to every development project that requires a Department permit under the FHACA rules or Stormwater rules, unless the rules provide a specific exception. For example, there are a limited special set of circumstances for a project that is a "public roadway or railroad"

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or those conducted by a “public transportation entity” as defined in the rules. Additionally, within one year of the adoption, local government units will be required to adopt ordinances in compliance with the FHACA and stormwater management standards.

154. COMMENT: The regulations fail to account for height restrictions and other zoning limitations imposed on the local and county level. Numerous instances exist where prior improvements could not be rebuilt in place since the required elevation of the ground level, under the Flood Hazard rules, would result in elevating the structure to a height not permitted by local zoning. There is no requirement that local authorities waive the height limit or grant a variance. (133)

155. COMMENT: The Department should help municipalities modify their local ordinance to accommodate properties that are required to elevate or amend state statutes to avoid the need for a local variance in these cases. (151)

RESPONSE TO COMMENTS 154 AND 155: Municipalities and local governments have the power through the Home Rule Act §40:48-2 and other statutes to take actions (such as waivers or variances) they deem necessary, provided they are not contrary to the laws of New Jersey or the United States. If a municipality finds that there are many variances being requested to accommodate the need to elevate buildings, they have the authority, without the Department’s assistance, to revise local ordinances so that variances are no longer needed in these cases. Additionally, with regard to the concern that local height requirement restrictions may prohibit

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raising the lowest floor of buildings, this issue was addressed by the legislature in 2017 in response to Superstorm Sandy through amendments to the Flood Hazard Area Control Act at N.J.S.A. 58:16A-103, which ensures that buildings being modified or reconstructed to meet new flood elevations adopted by FEMA or the Department are exempt from local height restrictions.

156. COMMENT: The commenter urges local governments to adopt new stormwater regulations as soon as possible. (8, 11, 13, 15, 17, 20, 22, 25, 26, 30, 43, 74)

157. COMMENT: Local governments should adopt new related coastal, wetland, and stormwater regulations as soon as possible. (112, 120, 123, 129, 130)

RESPONSE TO COMMENTS 156 AND 157: The commenters' recommendations for local government action are beyond the scope of this rulemaking. The Department has the responsibility to implement these statutes through rules at the state level. Local governments may have further authority to adopt local ordinances, but these rules will apply statewide.

158. COMMENT: Clarify the timing of the rules regarding the requirement for municipalities to update the local ordinances so that counties can assist the municipalities in their efforts. (154)

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RESPONSE: The amendments to both the FHACA rules and the SWM rules will be effective immediately upon adoption. Municipalities will need to update their local floodplain and stormwater ordinances to reflect the changes adopted in this rulemaking. Municipalities will have one year from the date of adoption of this rulemaking to modify both of these ordinances. Specifically, pursuant to Part IV.A.1.b. of their MS4 permit, municipalities have one year to update their stormwater control ordinance. Similarly, municipalities will have one year to update their floodplain ordinances pursuant to N.J.S.A. 58:16A-57, which requires that “the affected municipality or other responsible entity shall adopt rules and regulations [ordinances] concerning the development and use of land in the flood fringe are within 12 months after the promulgation of standards by the department and within 12 months after the delineation of any flood hazard area.”. . However, irrespective of when a municipality amends its ordinances, all projects within the newly adopted flood hazard area will need to comply with the FHACA rules upon adoption of this rulemaking, since any such development within the new flood hazard area requires a flood hazard area permit or authorization from the Department prior to construction. Further, where an applicant proposes a major development that requires a Department approval under the FHACA rules, the FWPA rules (N.J.A.C. 7:7A), the CZM rules (N.J.A.C. 7:7), or the Highlands Water Protection and Planning Act Rules (N.J.A.C. 7:38), compliance with the amended requirements of the SWM rules is required upon adoption of this rulemaking.

159. COMMENT: The commenter urges the Department to work with county and municipal agencies to help them develop their own resiliency regulations and goals.

(98)

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RESPONSE: Within the Department’s Division of Resilience Engineering and Construction, the Bureau of Flood Engineering provides floodplain management assistance to municipalities through FEMA’s NFIP. While the Department does not broadly review local ordinances, the Bureau assists municipalities in developing and maintaining local laws that are NFIP-compliant. In particular, the Bureau provides a model local ordinance and map adoption language. It also reviews local ordinance amendments for NFIP compliance.

160. COMMENT: Require local governments to proactively restore watercourses and provide proper drainage regardless of the cost to prevent future loss of property, etc. (109)

RESPONSE: This comment is beyond the scope of the rule proposal.

161. COMMENT: The commenter posits that large apartment complexes in small towns are hazardous to the environment and overwhelm local public services. (200)

RESPONSE: This comment is beyond the scope of the rule proposal.

### **Recommendations for Additional Resources**

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162. COMMENT: The State Legislature should provide a dedicated funding source to update flood maps, including grants to State Universities, who can provide appropriate scientific guidance. (147)

RESPONSE: This comment is beyond the scope of the rule proposal.

163. COMMENT: The State should provide funds that encourage essential inputs at the local level to ensure that local areas, especially those in sensitive areas are not compromised as development changes water flow. (196)

RESPONSE: This comment is beyond the scope of the rule proposal.

164. COMMENT: The Department should withdraw the rules until funding is provided to offset financial burdens associated with the Department's selection of extreme levels of flood protection. (176)

165. COMMENT: The State should fund armoring and flood protection in critical areas, now. (147)

RESPONSE TO COMMENTS 164 AND 165: The ongoing and increasing risks of flooding caused by climate change presents an immediate economic challenge for homeowners, business owners and the general public alike. The scope and purpose of this rulemaking, and the FHACA

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rules overall, is to ensure that new development and redevelopment is designed and constructed to reflect the best available flood data. The Department cannot compel development or fund flood protection activities or structures through the FHACA rules. With regard to the cost of implementing the requirements of the adopted rule, this is offset by the reduction of the State's exposure to flood risk and the associated economic impacts associated with the aftermath of flooding such as clean up, evacuation, emergency services, providing temporary housing to displaced residents and businesses, lost revenue from business interruption, etc.

### **Current and Future Precipitation Changes in New Jersey**

166. COMMENT: Should NOAA update rainfall amounts, the year 2100 storm adjustments will be invalid. (147)

RESPONSE: The Department expects that the adjustments will remain valid for years to come. NOAA-initiated updates for New Jersey's precipitation are not anticipated for several years. Regardless, when such a time arrives that NOAA has updated and projected precipitation data, the Department will analyze those findings and, if necessary, update both the FHACA rules and the SWM rules accordingly. Nonetheless, the year 2100 precipitation amounts are based on, and represent, the most current science.

167. COMMENT: We support creation of an advisory committee to discuss the highlights and challenges of the proposal. (170)

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RESPONSE: During the development of this rulemaking, and prior to the proposal of the adopted standards, the Department sought input from interested parties to discuss the highlights and challenges of the proposal through many informal stakeholder sessions and other discussions. This input proved to be valuable to the Department as it considered and developed the new flood hazard area and stormwater management requirements adopted by this rulemaking. Further, the Department seeks input and provides opportunity for public input both for rulemaking in accordance with the Administrative Procedure Act and for permit applications with the potential for significant impact in accordance with the notice provisions contained in its rules. The Department also holds numerous meetings with applicants and their technical and legal representatives prior to, and after the submission of an application. Through these mechanisms, challenges in rule implementation are satisfactorily addressed. In addition, the Department offers routine and recurring trainings on rule requirements and implementation. This serves as another venue in which the highlights and challenges of the rules are discussed. Therefore, an advisory committee is unnecessary.

168. COMMENT: The year 2100 is an arbitrary selection. The Department should establish a protocol for additional studies and recalibrate on a regular basis. (170)

RESPONSE: The year 2100 is a reasonable time frame to capture the life of structures to be constructed in the near term. In fact, the AASHTO LRFD Bridge Design Specifications define the design life of a bridge as 75 years. Reference to this was made in the Federal Highway

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Administration's publication entitled, "Highways in the River Environment – Floodplains, Extreme Events, Risk, and Resilience," also known as Hydraulic Engineering Circular (HEC) 17. This publication contemplates designing transportation structures with flood resiliency in mind. Based on that timeframe, infrastructure being built today is expected to still be standing by 2100. In addition to infrastructure, it is not uncommon for buildings to remain in use many decades after construction. A recent report identified 1968 as the median year homes in New Jersey were constructed, indicating that the median age of homes in New Jersey is 55 years (<https://www.towncharts.com/New-Jersey/New-Jersey-state-Housing-data.html#>). This is corroborated by a compilation of data from the U.S. Census Bureau, which indicates the median age of homes in New Jersey in 2020 was 53 years (<https://todayshomeowner.com/home-finance/guides/median-home-age-us>). With regard to commercial buildings, another recent report indicates that the age of the average U.S. commercial building was roughly 53 years at the end of 2022 (<https://www.commbuildings.com/ResearchComm.html>). Given the constantly improving construction standards established by the International Code Council, as incorporated and implemented by New Jersey's Uniform Construction Code, it is therefore reasonable to expect that a large number of homes and other buildings built today and in the near future will be in use at the end of this century. For this reason, selection of the 2100 horizon for this rule proposal is appropriate. Finally, it should be noted that the Department routinely monitors for the best available science. As its base of knowledge concerning the future of flooding grows, that will serve as the foundation for future calibration and rule revision.

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169. COMMENT: The rules should encourage other infrastructure projects like stormwater improvements, elimination of combined sewer overflows or projects designed and intended to provide greater flood protection by providing exemptions or expedited approvals. (133)

RESPONSE: While the Department agrees that there are some proactive projects that may be undertaken to provide greater flood protection, exempting those projects from regulation would not be advisable. It is important to review all projects to be sure they are being constructed to the requirements contained in the rules, to ensure that they will result in only positive benefits and will not have unintended consequences. There are projects touted as good for flood control, that are unnecessary, inappropriate and that would result in serious, negative ecological consequences. Instead, the Department categorizes the scope and complexity of various proposed activities and places those activities into permits by rule, general permits, or individual permit categories. In this way, simpler activities with lesser potential for harm will require a lesser amount of review than another activity that is more complex or would have wider-reaching impacts. Finally, the speed with which a project is reviewed is a function of the complexity of the project, the number of projects currently pending, and the thoroughness of the application when it is received.

170. COMMENT: The regulations fail to account for height restrictions and other zoning limitations imposed on the local and county level. Numerous instances exist where prior improvements could not be rebuilt in place since the required elevation of the ground level, under the Flood Hazard rules, would result in elevating the structure to a

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height not permitted by local zoning. By way of example a 25-foot high two-story home cannot be replaced when the new ground floor must be elevated 5 feet higher and that new height exceeds the limits of local zoning. There is no requirement that local authorities waive the height limit or grant a variance. (133)

RESPONSE: Building in a flood hazard area is different than building outside of a flood hazard area. The FHACA rules require the lowest floor elevation to be constructed at least one foot above the flood hazard area design flood elevation, no matter the depth of flooding on a given site. Doing so is one of the main mechanisms by which the Department can best serve public health, safety, and welfare. With regard to the concern that local height requirement restrictions may prohibit raising the lowest floor of buildings, this issue was addressed by the legislature in 2017 in response to Superstorm Sandy through amendments to the Flood Hazard Area Control Act at N.J.S.A. 58:16A-103, which ensures that buildings being modified or reconstructed to meet new flood elevations adopted by FEMA or the Department are exempt from local height restrictions.

171. COMMENT: The Department should provide an action plan and engage in stakeholdering for supporting guidance documents. (164)

172. COMMENT: The State should issue or endorse a design manual to guide future development, especially related to New Jersey Resilient Environments and Landscapes and NJ PACT. (164)

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RESPONSE TO COMMENTS 171 AND 172: The Department's SWM rules have an accompanying BMP Manual, and the FHACA rules have an accompanying technical manual. . Both documents will be updated and publicly available as of (date of this adoption).

173. COMMENT: The Department should provide guidance for municipal and regional stormwater management plans that take climate change into account (with periodic revisions). (87)

RESPONSE: The Department intends to provide assistance with all municipal and regional stormwater management plans, not just those that consider climate change.

174. COMMENT: The Department should publish a Technical Manual to provide guidance on the updated Rule at the same time of the Rule publication in order to minimize delay and streamline review during the permitting process. (165)

RESPONSE: The Department SWM rules have an accompanying BMP Manual, and the FHACA rules have an accompanying technical manual. Both documents will be updated and publicly available as of (date of this adoption).

175. COMMENT: In order to realize the intent of the proposal to provide a positive environmental impact, legislation must be implemented to retrofit existing infrastructure. (143)

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RESPONSE: This comment is beyond the scope of the proposal

176. COMMENT: The Department should end logging in publicly owned wildlife management areas, parks, and forests because trees hold water helping mitigate against climate change. Specifically, there should be no more logging in the Pinelands and Sparta Mountain. (4)

RESPONSE: This comment is beyond the scope of the proposal.

177. COMMENT: Mandating a broad debatable theory circumvents the democratic process. The NJDEP has a duty to be honest and avoid political encroachment to have credibility. New laws must not be created by the regulatory process and the NJDEP must be specific with the impact risks. (66)

RESPONSE: This comment is beyond the scope of the proposal.

178. COMMENT: The Department should take a more active role, through the resulting regulatory program following these rules, to ensure that developers understand risk and incorporate measures that prioritize best practices. (180)

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RESPONSE: The rules, as adopted, provide a set of criteria that apply to development that falls within the areas subject to the rules. Complying with the adopted criteria, for example applying the required adjustment factor to determine the current 100-year precipitation depths, ensures that applicants following the rules will be addressing the risk and incorporating best practices.

179. COMMENT: The commenter is concerned that agriculture may need a special permit which is not necessary as agricultural buildings and structures are different from commercial and residential buildings, and elevation of these by two feet may be unnecessary and not feasible. (161)

RESPONSE: The Department believes that elevating or flood-proofing habitable agricultural buildings, in cases where new development or substantial improvement occurs, is necessary for the protection of public health and safety. The rule as adopted is not expected to have an impact on cropland and management of vegetation activities.

180. COMMENT: The commenter is concerned about the blanket application of these changes across the state without considering varied land use, topography, and geology, especially to the southern region. (160 – City of Vineland)

181. COMMENT: The commenter expressed concern over the economic impact on the greater Vineland area, as there is a significant amount of undeveloped stream corridors with wide floodplains and sandy/loamy soil. The impact of large-scale storms are

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typically minimized for property damage and loss of life. Stakeholder meetings focused on central and northern New Jersey which has a history of being overbuilt and having high impervious areas, stormwater issues, and minimal floodplains. The commenter agrees that in these areas, there is major concern. These rules should be based on regional or geological levels for actual conditions across southern New Jersey. A regional approach is better across the whole state. (160 – City of Vineland)

RESPONSE TO COMMENTS 180 AND 181: A flood hazard area verification establishes the flood hazard area design flood elevation, flood hazard area limit, floodway limit, and/or riparian zone limit on a site or any portion of a site. While the adopted rule applies to the entire State, the specific criterion for permitting allows for the individuality of a project site to be considered during application review. Further, both the current precipitation adjustment factors and the future precipitation change factors have been calculated individually for each county. Thus, the rule requirements have been considered on a regional basis and are not the same statewide.

182. COMMENT: The Department should encourage local governments to adopt coastal, wetland, and stormwater regulations as soon as possible. A way to provide such encouragement is for the Department to allocate money towards implementing and publicizing greywater incentives, such as tax credits and reimbursements. For example, towns could establish a rainwater harvesting rebate, up to \$2,000, for water-harvesting earthworks. Capturing precipitation could occur through gutters, cisterns, tanks, etc. Property owners would have to receive education as a prerequisite to receiving funds.

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Additionally, the Department should allocate funds for the education, training and consultants who will work on these projects. (171)

RESPONSE: Rules are not the vehicle to provide encouragement to the local governments by the offering of cash incentives. Rather, they provide a set of criteria that apply to development that falls within the jurisdiction of the rules. Therefore, this comment is beyond the scope of the rule proposal.

183. COMMENT: Establish riparian areas by soil testing and restore them to natural conditions with prohibitions on any land clearing activities that would impair infiltration. (36, 74, 32, 75, 171)

184. COMMENT: The Department should expand riparian areas to assist with stormwater management and further building must be strictly controlled. (174)

185. COMMENT: Do not grant variances to developers encroaching on riparian, wetland areas. (174)

186. COMMENT: Increase the width of riparian zones, restore natural vegetative cover, and limit tree clearing. Enact BMPs to limit flood damage and eliminate combined sewer overflows. (100, 109)

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187. COMMENT: The Department should focus on improving riparian areas and fortifying native plant species as they are natural buffers to flooding and ecological damage. The inland flood rules should be strengthened to preserve and improve these riparian areas. (173)
188. COMMENT: Riparian areas should be restored to a natural vegetated condition. Wetlands are being lost and are necessary for flood control. Wetlands help mitigate flooding. (116)
189. COMMENT: Wide riparian areas defined by soil testing should be established beyond the regulated floodplain. They should be restored to a natural vegetated condition and disturbance should be prohibited to help with precipitation infiltration, pollutant processing, and protection of ecological systems and habitats. (77, 112, 120, 122, 123, 128, 129, 130, 132, 140)
190. COMMENT: The Department should prohibit tree cutting, land clearing, or disturbance of native vegetation in the regulated floodplain to aid in precipitation infiltration, pollutant processing, and environmental protection of ecological systems and habitats. (138)
191. COMMENT: The rule proposal does not stop the loss of natural lands, including forests, wetlands, and stream buffers. (4)

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192. COMMENT: The Department should establish wider riparian areas that extend beyond the regulated floodplain. These riparian areas should be defined by soil testing and restored to a natural vegetated condition. (138)

RESPONSE TO COMMENTS 183 THROUGH 192: While not specifically addressed in this rulemaking, the existing FHACA rules at N.J.A.C. 7:13-4.1 establish riparian zones along regulated waters, which extends 50, 150 or 300 feet outward from the top of bank of the feature depending on the resource classification of the water. In cases where the flood hazard area of a regulated water is relatively small, the riparian zone can extend outside the flood hazard area. By preserving and protecting vegetation within these riparian zones, and thereby maintaining vegetated stream corridors, better flood amelioration and water quality preservation is achieved. The rules, as adopted, strictly regulate but do not prohibit, land clearing including the removal of trees and native vegetation in regulated areas, provided disturbance is avoided where possible, minimized and adequately mitigated. To prohibit these activities entirely in the floodplain would be excessively restrictive since waterways with their floodplains wind throughout all areas of the State, from farm fields to industrial and commercial properties, to residential lots within the largest cities.

193. COMMENT: The State should develop strict guidelines that allow for empirical and modeling evidence and expertise to help set statewide standards that make it clear that public and nature's wellbeing are the State's first concern. (196)

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RESPONSE: The context of the comment is not clear. The purpose and scope of the Stormwater Management and FHACA rules is to apply the best available precipitation and flood data to new and redeveloped properties in order to ameliorate flood risk and preserve surface water quality. Design professionals developing stormwater management and flood hazard area plans use a variety of empirical and modeling methods to demonstrate compliance with these rules.

194. COMMENT: The commenter suggests that developments in their community are not complying with the Highland Commissions rules, increasing flood risks and environmental impacts. (197)

RESPONSE: This comment is beyond the scope of the rules.

195. COMMENT: There should be better communication between DEP offices regarding the applicability of a consistency determination to a specific project. (207)

RESPONSE: This comment is beyond the scope of the rules, however, the Department programs work collaboratively together routinely, and there is a program to assist applicants, the Office of Permitting and Project Navigation <https://dep.nj.gov/oppn/>.

196. COMMENT: The commenter is in support of the rules. Flooding events lead to the destruction of rugs and other furniture items that are then placed in the trash. This leads

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to increased demand for Department of Public Works personnel to remove those materials placing a strain on their human resources. (217)

RESPONSE: The Department acknowledges this comment in support of the rules and the great service provided by Public Works staffers throughout the State when cleanup is necessary after flooding events.

197. COMMENT: DEP needs to be more discerning regarding issuing permits in sensitive areas. (223)

RESPONSE: The Department is governed by the statutes and rules it implements. Once rules are adopted based on statutory authority, applicants are required to comply with those rules. If there is perceived ambiguity in a rule, the Department strives to apply that rule consistently and fairly for all applicants. When an application meets permit requirements, a permit is issued. Thus, there is very little need to discern whether a permit should be issued—it either meets the rules or it does not.

198. COMMENT: The proposed rules do not appear to have any enforcement provisions or fines. (223)

RESPONSE: N.J.A.C. 7:13-24 contains enforcement provisions for violations of the FHACA rules; this subchapter was not amended in this adoption. The Stormwater Management rules do

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not contain separate enforcement provisions, as the main purpose of these rules is to establish design criteria for controlling runoff rates and volume, preserving surface water quality and promoting groundwater recharge. The Department determines compliance with these standards during its review of applications for FHA, FWW and CZM permits and authorizations. Thus, violations of the standards set forth in N.J.A.C. 7:8 are enforced through these other rules, since the Department does not review for compliance with the Stormwater Management Rules unless the project needs Department approval.

The Department additionally requires municipalities to enforce N.J.A.C. 7:8 through their MS4 permits, under the Clean Water Enforcement Act (CWEA), P.L. 1990, c. 28. This statute requires the Department to inspect permitted facilities and municipal treatment works at least annually. Additional inspections are required when the permittee is identified as a significant noncomplier. The CWEA also requires the assessment of mandatory minimum penalties for violations of the Water Pollution Control Act that are considered serious violations and for violations by permittees designated as significant noncompliers.

199. COMMENT: The commenter questions if Ida is an appropriate justification for the rulemaking and asserts data did not show that new construction fared worse than older construction. (141)

RESPONSE: As explained in the proposal, this rulemaking was not informed solely by the remnants of Tropical Storm Ida. The severity of, and damage resulting from, other recent flood events also informed the adopted rules. In addition to floods that have already occurred, findings

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from two Northeast Regional Climate Center studies revealed that precipitation amounts have increased over the past 20 years and will continue to increase in the coming decades. Such information, taken as a whole, informed the rulemaking. With regard to a comparison of how older and newer construction may have sustained damage, it is unclear how this would inform this rulemaking. As noted previously, the adopted design and construction standards are established in response to data indicating that extreme precipitation and flooding are worsening and are likely to continue to worsen through the end of the century. Thus the Department believes that it is appropriate to establish protective standards for new construction and redevelopment based on this data.

200. COMMENT: The commenter advocates for rules to regulate housing developers and ensure safe drinking water. (19)

RESPONSE: The Department's Division of Land Resource Protection is a permitting agency that reviews proposed new development, additions to existing development, and reconstruction of development, in regulated areas including floodplains, wetlands and the coastal zone. The rules adopted herein are specifically aimed at providing criteria and safety factors for new development in regulated areas-- they do not regulate "housing developers" per se, if they are not working in regulated areas. Finally, the rules contained herein address stormwater runoff which, while not the purpose of these amendments, does have the potential to affect drinking water.

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201. COMMENT: The rules should include provisions educating the public about over development and the impact of dumping in waterways. Over development has exacerbated the flooding problem (223).

202. COMMENT: New Jersey is overdeveloped and remaining open space should be protected. (39)

RESPONSE TO COMMENTS 201 AND 202: In the State of New Jersey, land use planning, development and the preservation of open space are primarily a function of local, rather than State government. Further, the Department's rules apply to those proposing to develop in regulated areas, such as flood hazard areas or freshwater wetlands, which does not facilitate comprehensive evaluation of development outside these areas across the state. The purpose of this rulemaking is to apply the best available climate science to guide the design and construction of new development, that has likely already been approved by a municipality, when proposed in regulated areas.

203. COMMENT: River towns suffer from less stringent policies of upstream municipalities and have no means to hold irresponsible developments accountable. (33)

RESPONSE: The adopted rules apply equally throughout the State. The rules strive to make it more difficult to approve development that simply shifts stormwater and flood waters offsite to others' properties downstream.

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204. COMMENT: NJDOT, other New Jersey Departments, and local governments are urged to incorporate the proposed rule and its standards into their rules. (8, 9, 11, 13, 15, 17, 20, 25, 26, 43)

RESPONSE: The Department acknowledges this commenters' support of the rule, and it is the Department's hope that other State and local governing bodies follow the example of the adopted rules by adopting their own rules which encourage applicants to build more resilient structures within regulated areas.

#### **New Jersey Department of Environmental Protection- Blue Acres Program**

205. COMMENT: Land use planning, backed by regulation, is the most effective approach to managing stormwater and addressing flooding, particularly in light of climate change. This would empower the Blue Acres program, restrict the right to rebuild storm-damaged properties, promote strategic retreat from flood prone lands, and deter development in flood prone places and environmentally sensitive areas. Instead, the Department has openly opted for a slogan of resilience. (4)
206. COMMENT: The Department should provide additional Blue Acres funding. Future Blue Acres purchases should be utilized to construct BMPs used for attenuation in areas developed prior to regulations. (143, 100)

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207. COMMENT: Increase funding to Blue Acres. Any funding from the IRA, or other programs, should be prioritized for Blue Acres. (36, 74, 32, 75, 40, 171, 77, 81)
208. COMMENT: Please finance the Blue Acres program. (109, 159)
209. COMMENT: Removing people from flood prone areas via Blue Acres buyouts should be a priority along with restoring floodplains to their natural condition. (137) (41) (141)
210. COMMENT: Some businesses and homes existing in flood areas should be removed. (159)
211. COMMENT: The social impact statement is insufficient. The Blue Acres program provides voluntary buyouts and fosters climate resilience in at-risk areas for flooding. However, acquisition is slow and cost prohibitive for low-income homeowners. Outside costs include appraisals, legal fees, moving expenses, etc., and those are not addressed and remain financial barriers. (156)
212. COMMENT: The proposal's social impact statement identifies the Blue Acres Program as a resource available to municipalities to provide voluntary buyouts of at-risk properties in flood-prone areas. But that program is small compared to the scale of the problem and cannot be considered the main answer to climate resiliency for

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- lower-income communities. These communities lack to financial resources to participate in the program. The Department needs to identify resiliency building resources. It needs to identify how the proposal will distinguish between increasing resilience of existing development in these communities and new development outside these communities. (156)
213. COMMENT: The State should buy property along all major waterways prone to flooding and preserve it as parkland. (21)
214. COMMENT: The commenter urges New Jersey to take steps to reduce structures in already existing or new floodplains. (50)
215. COMMENT: The commenter shares the success of FEMA buying nearby properties to mitigate flooding and asks the Department to follow suit. (35)
216. COMMENT: Funding should be provided and used to buy out repeatedly flooded properties. (120)
217. COMMENT: The State should start retreating the public from flood zones. (7, 198)

RESPONSE TO COMMENTS 205 THROUGH 217: The Department acknowledges the role the Blue Acres program plays in addressing flooding. As part of the Office of Climate Resilience and

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under the direction of the State Chief Climate Resilience Office, Blue Acres is increasing its staff, deepening its buyout planning and resilience presence, aggressively seeking federal grant funding, fostering partnerships with federal, state, and local government partners, improving its public presence and amplifying its communication efforts to ensure that the program serves as an effective tool for homeowners and communities seeking to address chronic flooding and climate change inequities.

Funding for Blue Acres is a combination of dedicated state funding from the corporate business tax and federal grants. To date the program has received five state funding appropriations from 2009-2019 ranging from \$3 million to \$12 million to effectuate buyouts in flood prone areas. Most recently the FY2023 Garden State Preservation Trust appropriation recommendation proposed Blue Acres receive an infusion of \$10.5 million (\$10 million for buyouts and \$500,000 for administrative costs). Federal funding for Blue Acres buyouts increased dramatically after Superstorm Sandy, when over \$200 million was made available to fund buyouts in more than twenty municipalities. In the ten years since the storm, Blue Acres has acquired more than 350 acres of flood prone land from willing sellers, demolished the structures, and preserved the properties in perpetuity for natural flood storage, parkland, and other community benefits. After Ida impacted New Jersey in September of 2021, Blue Acres was allocated \$50 million in FEMA grant funds for buyouts and \$34 million in HUD CDBG-DR funds for buyouts. These funds are actively being utilized and, at present, Blue Acres is awaiting federal grant approvals to begin buyout implementation with nearly 100 homeowners impacted by that storm.

As buyouts and managed retreat efforts gain momentum in flood prone areas across the country, Blue Acres is engaging and learning from other buyout practitioners to identify policy

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improvements and efficiencies that can make New Jersey's program faster, more equitable for homeowners and more cost effective to administer. Blue Acres is acutely aware that buyouts are a climate justice issue and that often they must be part of a suite of solutions to correct housing inequities in low-income communities. Thoughtful and proactive resilience and relocation planning along with the application of supplemental assistance to socially vulnerable homeowners are process improvements that have been introduced to ensure post-Ida Blue Acres buyouts are done quicker and more justly.

Planning, grant making, real estate closings and demolition are important parts of the Blue Acres process but so is post buyout land use and restoration. The scale of restoration opportunities in flood prone, buyout areas are influenced by the amount of land or open space available and sufficient time as several rounds of buyouts may be needed to achieve the desired resilience effect. Given these variables, Blue Acres encourages communities to think in stages as they plan and implement buyouts. Communities are encouraged to engage community members in visioning exercises focused on ideal future land uses and to build partnerships with organizations, restoration professionals and nonprofits that can encourage post buyout land uses that will improve natural flood storage and provide a larger community benefit.

### **Environmental Justice**

218. COMMENT: The APA requires these types of affordable housing issues be addressed in the procedural requirements. The impact statements are cursory and insufficient especially as to existing communities of color and lower income. (156)

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219. COMMENT: The proposal insufficiently analyzed its impact on communities of color and lower-income communities as well as the future of affordable housing development. (156)

220. COMMENT: The Department is encouraged to ensure policy decisions are based in equity and care towards preserving and expanding affordable housing, as it is a racial, ethnic, and socioeconomic issue. To this end, the rulemaking's impact must be quantitatively measured for how it will change resilience in minority and low-income communities. The rules, and lack of Department issued permits in flood hazard areas, may make it so resilience is impossible for these communities to achieve, further harming them by keeping them susceptible to the harms of our changing climate. (156)

RESPONSE TO COMMENTS 218 THROUGH 220: The Department has provided an economic impact analysis as required by the Administrative Procedure Act, N.J.S.A. 52:14B-4(a)(2) and rules N.J.A.C. 1:30-5.1(c). The economic impact statement must “describe [] the expected costs, revenues, and other economic impact upon governmental bodies of the state, and particularly any segments of the public proposed to be regulated. N.J.A.C. 1:30-5.1(c)3.” As noted in the Economic Impact Statement, the economic impacts of flooding to communities are well documented. Lower income communities are likely to be less resilient when flood damage occurs and therefore investments in resilience, such as climate informed flood elevation, are particularly important in these areas. The benefits of reduced flood risk are expected to accrue over time and therefore result

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in an overall positive economic impact. The adopted rules do not restrict development but rather require due consideration of flood risk and resilient project design for regulated activities, including new development and reconstruction. Thus, the adopted rule will benefit all communities by mitigating flood risk and enhancing resilience.

221. COMMENT: Regulations must also be equally applied to affordable housing projects due to associated dense impervious areas. (167)

RESPONSE: The adopted rules do not differentiate affordable housing projects from other development projects but rather apply equally to all regulated housing development.

222. COMMENT: The proposal does not adequately address racial and economic justice. (156)

223. COMMENT: The Department should examine the impact of these rules on existing communities of color and lower-income communities. The rules make it impossible for these communities to make their homes more resilient to climate change and effectively isolates these communities. The rules restrict development instead of guiding it in a more resilient manner. (215)

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224. COMMENT: The proposal makes it impossible for lower-income people and people of color to make their housing more resilient to climate change, thereby isolating them through restricted development. (156)

RESPONSE TO COMMENTS 222 THROUGH 224: The Department has adopted these rules to protect the people and communities of New Jersey from the devastating impacts of current and future flooding. This is particularly important for overburdened communities that may be less resilient to the damaging impacts of flooding. The adopted rules do not restrict development but rather require due consideration of flood risk and resilient project design for regulated activities, including new development and reconstruction. Thus, the adopted rule will benefit all communities by mitigating flood risk and enhancing resilience.

225. COMMENT: The largest percentage of existing affordable housing is located in flood hazard areas. More affordable housing opportunities should be created, and the proposed rules can play an important role in guarding against climate gentrification of lower income and black and brown people. (215)

226. COMMENT: Increased threat of more frequent and catastrophic flooding events negatively impacts the affordable housing shortage and places more burden on already historically and systemically overburdened racial and socioeconomically affected communities. Currently, a disproportioned percentage of affordable housing is in flood hazard areas, especially the older public and assisted housing facilities that have

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decades of “deferred maintenance.” The commenter states that “climate gentrification” of lower-income people and people of color in floodplains with greater flood risks is a serious issue, and this rulemaking could play an important role in combatting this issue. (156)

227. COMMENT: To address climate change as a state, we need to limit growth in the most at-risk areas and promote redevelopment/development in less flood prone areas. The low-income seniors, disabled, and working families are historically pushed into increasingly unaffordable housing, with many being in flood prone areas where affordable housing has historically been built. Sect. 1.5.3 of the 2021 State Climate Resilience Strategy does not appear in the rule proposal. The commenter requests recognition and addressing the issue that many areas that make sense to build in a climate perspective are exclusionary (e.g., white suburbs, older office buildings, shopping centers), and have the resources to create roadblocks with the permitting process even in environmentally appropriate areas. Housing needs to be in less risky areas, not just make it harder to create housing in areas more at risk. (156)

RESPONSE TO COMMENTS 225 THROUGH 227: The adopted rule is intended to ensure protection of life and property from flood impacts. The Department acknowledges the importance of affordable housing opportunities within New Jersey, as well as the importance of ensuring that all housing, including affordable housing, is constructed to minimize risks to residents and foster the continued viability of the community through enhanced resilience. The adopted rules are not

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intended to create or limit opportunity for development of housing but rather to ensure that it is designed and constructed in a protective manner.

228. COMMENT: Flooding has a greater effect on those in overburdened communities. (40)

229. COMMENT: New development does not benefit those in overburdened communities. (40)

RESPONSE TO COMMENTS 228 AND 229: The Department agrees that climate change is likely to have a greater impact on overburdened communities, which may be less resilient as a result of being overburdened. The adopted rule is intended to protect communities from the impacts of flooding by requiring that development is designed to minimize flood risk. Pursuant to the Environmental Justice Law, N.J.S.A. 13:1D-157 to 161 and the promulgated rules, N.J.A.C. 7:1C-1.1 to 10.3 the Department may deny, or condition permits for certain pollution generating facilities that would cause or contribute to adverse cumulative environmental and public health stressors and disproportionately impact overburdened communities. All individual permit applications submitted to the Department are currently screened for Environmental Justice (EJ) involvement and referred to a specialized group in the Department for evaluation. Permit applications cannot be declared “administratively complete” if they qualify as an EJ facility until they fulfill the EJ requirements. If the facility applied prior to the passage of the Environmental Justice Law, N.J.S.A. 13:1D-157, the facility would have to satisfy the requirements set forth in Administrative Order #2021-25. If the facility applied after the passage of the Environmental

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Justice Law, the facility would have to comply with the Environmental Justice Law and the promulgated Environmental Justice Rules, N.J.A.C. 7:1C-1.1 to 10.3.

While the notice of proposal addressed the economic and social impact as well as the impact on housing affordability of the new amendments, the Environmental Justice Law, the EJ rules at N.J.A.C. 7:1C-1.1 et seq. and Administrative Order #2021-25 will work in concert with these adopted rules to move towards environmental justice throughout the State.

230. COMMENT: Weak flood protections upstream unfairly and disproportionately impact already overburdened communities downstream, so this rule must be strengthened and expedited. (224)

RESPONSE: The adopted rule does not amend existing provisions that carefully regulate activities to prevent or minimize downstream impacts. The FHACA rules apply equally everywhere a regulated flood hazard area exists and will continue to do so.

231. COMMENT: The proposal does not consider environmental justice impacts. It will result in less investment in the State's urban centers and increase development pressure in suburban and rural areas. Such development pressure will lead to additional flooding in downstream urban centers and increase urban blight. The proposal will result in decreased property values, which will encourage the population to leave. (147)

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RESPONSE: The adopted rule is intended to protect New Jersey’s communities from the impacts of flooding. The rule achieves this by requiring thoughtful consideration of flood risk and design and construction that minimizes the risk of damage and loss of life in all communities equally. While existing and future flooding events can impact property values negatively, investments in flood mitigation and resilience are well understood to accrue benefits over time and to foster the continued viability of a community. The Department is committed to furthering environmental justice in New Jersey as well as economic growth that is balanced with protection of public safety and the environment. The Department disagrees that design standards that mitigate flood risk in New Jersey, and which continue to evaluate downstream impacts, will foster urban blight. To the contrary, failure to prepare for flood impacts and enhance flood resilience can result in unnecessary flood damage from which it is particularly challenging for overburdened communities to recover.

232. COMMENT: This proposal provides important protection for environmental justice communities. It is essential that these rules account for affordable housing under the “Mount Laurel Doctrine.” These projects should not be in flood prone areas where construction harms natural resources. Allowing construction in these areas is not appropriate for wetlands, streams, recharge areas, or the public. Additional measures are necessary to protect these projects. (155)

RESPONSE: The adopted rule is intended to protect New Jersey’s communities and natural resources from impacts associated with flooding. The adopted rules do not differentiate affordable

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housing projects from other development projects but rather apply equally to all regulated housing development.

233. COMMENT: This rulemaking does not address the following issues to address adaptation, mitigation, and resilience in communities and infrastructure. There should be recognition of the current development patterns where people live in areas subject to climate change, especially lower-income and people of color to make these communities more resilient, and not have housing in harm's way that will isolate them instead of guiding in a climate resilient way. The 2021 Climate Resilience Strategy, 1.4 specifically, recognizes New Jersey needs increased resilience in existing communities already vulnerable to climate change, as opposed to the idea that these communities will be relocated. (156)

RESPONSE: The adopted rule is intended to protect New Jersey's communities from the impacts of flooding. The rule achieves this by requiring thoughtful consideration of flood risk and design and construction that minimizes the risk of damage and loss of life in all communities equally. The adopted rules do not restrict development or foster relocation but rather require due consideration of flood risk and resilient project design.

234. COMMENT: Vulnerable and marginalized communities need access to flood-proofing and risk mitigation measures, which should be identified by the Department. It is requested the Department show how the rules will distinguish between increasing

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resilience of existing communities and new development outside of those communities.

(156)

RESPONSE: Pursuant to N.J.A.C. 7:13-2.4, there are several types of regulated activities under the FHACA rules, including "construction, reconstruction, repair, alteration, enlargement, elevation, or removal of a structure." The adopted rule requirements apply only to work falling under these categories. In addition, new construction is regulated slightly differently than existing development. For example, modifications of existing buildings need not result in a requirement to elevate the lowest floor, provided that those modifications do not result in building expansion or in a substantial improvement. Contrast that with new construction, in which low floors must be elevated. In such ways, the rule contains appropriate flexibility for projects involving resiliency for existing development.

235. COMMENT: The Department should prohibit rent increases resulting from the cost of compliance with the new rule to minimize the economic impact on low- and moderate-income renters as they are the most vulnerable residents and often live in environmental justice communities. They should not have to bear the cost of the new rule which is designed to make them safe. (139)

RESPONSE: This comment is beyond the scope of this rule. The Department does not have jurisdiction over rent and mortgage rates.

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### **Real Estate And Housing Issues**

236. COMMENT: The immediate implementation of the rule may negatively impact residential developments that are subject to the Planned Real Estate Development and Full Disclosure Act (PRED). If compliance with the rule necessitates a reduction in the number of units initially proposed in a PRED development, this may lead to an increased cost being passed on to the future homeowners including those who are not in the related FH area but are still part of the development. This situation should become a reason for granting a hardship waiver. (168)

RESPONSE: The Department has adopted these rules to protect the people and communities of New Jersey from the devastating impacts of current and future flooding. The adopted rule does not restrict development but rather requires due consideration of flood risk and resilient project design for regulated activities, including new development and reconstruction. The associated benefits of reduced flood risk are expected to accrue over time and therefore result in an overall positive economic impact for New Jersey.

237. COMMENT: The Department is urged to consider both the short- and long-term economic consequences of the rule as related to the State's affordable housing deficit. (168)

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238. COMMENT: The commenter advocates for a more detailed analysis of the projected cost of the rule given the magnitude of the current and future development that the rule would impact. (168)

RESPONSE TO COMMENTS 237 AND 238: The Department has provided a detailed economic impact analysis as required by the Administrative Procedure Act, N.J.S.A. 52:14B-4(a)(2) and rules N.J.A.C. 1:30-5.1(c). See 54 N.J.R. 2180. For this rule, the costs being evaluated are the costs that would occur in the absence of the proposed rules amendments—that is the costs of continued flooding in the absence of changes to building requirements. To do that evaluation and in completing the economic impact statement, the Department evaluated a February 2021 report by First Street Foundation that found that there are 94,146 residential properties in New Jersey that currently have substantial flood risk. First Street calculated an expected collective annual loss of \$415.4 million (First Street Foundation, 2021). The impact statement further noted that with estimates of 60 percent of flood damage going unfunded by the National Flood Insurance Program (NFIP), private markets, or disaster relief (Congressional Budget Office, 2020), New Jersey properties within flood hazard areas face significant financial risk and vulnerability. In the 2021 report cited above, First Street Foundation projects that over the next 30 years, an additional 10,870 New Jersey properties are expected to incur financial loss due to flooding and average annual loss per property is expected to increase by 53 percent over the same period (First Street Foundation, 2021). Further, a study by researchers from Climate Central, Rutgers University, and Stevens Institute of Technology showed that approximately 13 percent (\$8.1 billion) of the \$62.7 billion in losses incurred by New York, New Jersey, and

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Connecticut following Superstorm Sandy can be attributed to climate change. The Statement further notes that increasing severity and frequency of flooding also present additional challenges to public entities that fund disaster relief, such as FEMA. The average flood claim payout from FEMA's NFIP between 1996 and 2019 in New Jersey was \$37,600 (FEMA, 2020), with approximately 12 percent of claims for properties outside the flood hazard area (direct communication). Recent events show that in any given year, extreme weather events can place substantially more properties outside of FEMA's 100-year floodplain at risk. As of October 6, 2021, of the 195 NFIP claims following Tropical Storm Henri, 75 (38.5 percent) were from outside the flood zone. Similarly, 31 percent of the NFIP claims submitted by October 6, 2021, for the remnants of Tropical Storm Ida-related damages were from outside FEMA's 100-year floodplain (direct communication). FEMA estimates that more than \$26.2 million in Federal grants, loans, and flood insurance programs have been approved for residents and businesses recovering from the remnants of Tropical Storm Ida (FEMA, 2021), with average New Jersey claim payouts averaging \$28,000 (direct communication). According to a July 2020 report by the Rutgers NJ Climate Change Resource Center, "As of August 2019, New Jersey [NFIP] policyholders had cumulatively received roughly \$5.268 billion (2018 USD) in total payments on 160,169 claims" (Bradt et al., 2020). The Department considered all of the above when developing its economic impact statement for the adopted rules.

239. COMMENT: The commenter asserts that disclosing that a property is a flood risk decreases value by 4 percent. The elevations required in the rule will increase the

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number of properties that fall into the flood risk category which will have an economic impact that needs to be studied by the Department. (168)

RESPONSE: Property values are derived from multiple factors. The extent to which flood risk disclosure impacts property values is contested in the economic literature. It is not at all clear that all property values will decrease by 4 percent in the impacted areas. However, it is likely that in some cases owners will see the market value of their properties decline in line with the risk those properties face from climate-related flooding. It is also worth noting that: (1) property owners outside impacted areas may see their values increase as the proposed rulemaking clarifies the flood risk facing New Jersey, (2) private firms are already incorporating future flood risk in valuation, suggesting that property values may be impacted in areas associated with flood risk regardless of this rulemaking, and , according to a 2021 report by the United Nations Environment Program Finance Initiative, increased depreciation for non-resilient commercial buildings is likely to occur as a result of increasing climate threats ([https://www.unepfi.org/wordpress/wp-content/uploads/2021/08/Climate-risk-and-real-estate-value\\_Aug2021.pdf](https://www.unepfi.org/wordpress/wp-content/uploads/2021/08/Climate-risk-and-real-estate-value_Aug2021.pdf)).

240. COMMENT: The commenter would like to know if the Department looked at the number of properties that will be affected by the increase in the flood elevation requirements and if the newly included properties had a history of past flooding to justify the increased elevation requirements. (168)

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RESPONSE: As the proposed rulemaking is designed to reduce the economic losses from future climate-related flooding, it would be inappropriate to use historic damages as a measure of risk.

241. COMMENT: Until the Department quantifies and calculates the geographic extent and impact of the proposed rules, we cannot determine their impact on future affordable housing. (215)

RESPONSE: At present there is no detailed mapping of every regulated water in the state, or its associate flood hazard area and therefore such calculation is not currently possible. Please see response to comment 634-650 for information regarding flood plain mapping and the variety of nonregulatory tools available to assist in the planning of all activities in the regulated area, which were identified in the notice of proposal. Additionally, applicants may acquire flood hazard area verifications to determine if their proposed projects are within a regulated area where these rules would apply. Increased precipitation and changes to the frequency of flooding events will impact different areas of the State due to many factors such as current development and topography.

242. COMMENT: The notice of proposal will negatively impact affordable housing. Such projects may never be constructed. The affordability of existing homes in flood zones would be negatively impacted. (151)

243. COMMENT: The Inland Flood Rule will impose onerous requirements that will needlessly result in less affordable housing and higher costs for New Jersey residents. (141)

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244. COMMENT: The proposed rule would cause some affordable housing developments to not be built as they are not economically feasible for the developer. (141)

RESPONSE TO COMMENTS 242 THROUGH 244: Estimates are that approximately 16 percent of the State is in the floodplain. The adopted rules will change that number modestly to 17 percent. That means that 83 percent of New Jersey's land is outside the floodplain and therefore not subject to these rules. Additionally, placement of housing in flood zones may pose risk to public health, safety, and welfare, but in many cases there will be adjustments that can be made to make planned projects and existing homes safer for residents in the event of flooding events, which will be more likely to occur in the future. Additionally, as addressed in the economic impact statement, investments in resilience have positive impacts and can be realized over the life of the structure. Protecting the public, health, safety, and welfare requires balancing the risk of flooding with many factors, including increased building or design costs. Resilience measures (e.g., flood proofing measures, use of different materials, elevation) may result in some increases in costs when the structure is constructed, but balancing the economic costs with the long-term protection of the residents of these housing units is essential. While there may be modest investments in safe measures in the design and building phase, these will be realized over time as the projects are resilient and protective of the residents. The adoption of these rules will apply to all developments under the jurisdiction of these rules, and the economic feasibility of specific projects cannot be directly ascertained due to the unique balances of each project and the needs of the community. The Department encourages early consultation to address these and other concerns.

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245. COMMENT: The Department should provide a cost analysis of the impact of the rule on affordability of housing. The proposal could lead to a decrease in affordable housing units. Developers may pass increased costs caused by the proposal along to homeowners in order to offset those costs. (151)

RESPONSE: Impact analyses, including those on economics and affordable housing were provided in the notice of proposal. Protecting the public, health, safety, and welfare requires balancing the risk of flooding with many factors, including increased building or design costs. Additionally, as addressed in the economic impact statement, see 54 N.J.R. 2180, resilience measures (e.g., elevating the structure, flood proofing measures, use of different materials) may result in some increases in costs when the structure is constructed, but will result in greater protection for the residents and other long-term benefits. Research generally shows a positive return-on-investment for flood mitigation. For example, elevating an existing home is far more expensive than building a new one to a higher design standard. However, even in this case, the National Institute of Building Sciences found that a dollar invested in elevation retrofits produced \$1.74 in avoided property damages, along with an additional 23 cents in additional benefits (National Institute of Building Sciences, 2019). Even absent a flooding event, property owners may see savings since business owners, government entities, and individual homeowners that elevate their buildings and/or residences will likely see a reduction in flood insurance premiums; according to FEMA, elevating a home is the fastest way for individual homeowners to reduce their flood insurance costs (FEMA, 2021). Further, there are additional long-term benefits associated with the adopted rules. In the previous example, an individual homeowner that experiences an

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immediate reduction in flood insurance premiums will continue to see those reduced premiums over time. Also, as flood risks increase over time, the relative savings will also increase when compared to properties that are not elevated. In addition, if there is a significant flooding event, the elevated building is less likely to suffer major damage.

246. COMMENT: New Jersey is in the midst of a housing crisis with a deficit of over 200,000 affordable homes and over 14,000 New Jersey households experiencing homelessness annually, which is exacerbated by unprecedented population growth. As housing stock diminishes and rent increases, New Jersey must plan statewide for affordable housing and promote more housing opportunities for lower income residents. (156)

RESPONSE: While this comment is outside the scope of the notice of proposal, the Department encourages planning for all types of development, especially any type of housing. The Department acknowledges the importance of housing for the economic health of New Jersey and is confident that flood protection and housing growth can co-exist. The adopted rule does not restrict housing development but rather ensures that project design reflects flood risk in an effort to protect life and property.

247. COMMENT: If this rulemaking leads to more “mismatch” between housing needs and available housing, there will be economic consequences, especially on lower income and families of color. How does the limitation of development areas more vulnerable

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to flooding balance with promoting development (especially affordable housing) in areas less vulnerable to flooding consistent with environmental justice principles? The Department is encouraged to work with state and local entities to identify areas to allow for denser development for affordable housing, accounting for reduced developable land and the unintended consequences on affordable housing. The Department should calculate and quantify the additional land area of the state that would be in the fluvial flood hazard area and determine how much of that land is available for development.

(156)

RESPONSE: This comment is outside the scope of the notice of proposal, however the Department encourages planning for all types of development, especially affordable housing. The Department coordinates regularly with other state agencies that play a role in affordable housing to ensure that due consideration is given to flooding and other environmental concerns. Environmental justice principles require that all communities are afforded protections from environmental harms such as flood impacts. The adopted rule does not limit development but rather requires flood-informed project design such that life and property are protected against current and future flood impacts. With respect to calculations of land available for development, each site presents contains unique conditions and features that make such a calculation challenging. As such, applicants are encouraged to meet with the Department to discuss concerns at all stages of project development.

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248. COMMENT: Rate payers ultimately foot the bill for utility projects. Increased costs for project permitting to comply with the new rule would take funding from other safety and efficiency initiatives. (153)

RESPONSE: This comment is beyond the scope of these rules. However, resilience measures have been shown to accrue benefits over time as assets, which represent ratepayer investments, are protected from damage.

249. COMMENT: There should be clearer distinctions to address the impacts on existing homeowners undertaking minor repairs and those for public housing authorities with larger buildings. Further, the rules should allow for upgrades to existing properties and distinguish those from new developments of larger scale. (156)

RESPONSE: The existing rules contain permits known as permits-by-rule (N.J.A.C. 7:13-7), and general permits (N.J.A.C. 7:13-9) which are scaled down versions of an individual permit. Many of these permits were specially written to distinguish activities at single-family homes from larger scale development thereby allowing for a more streamlined way to apply for and obtain the necessary permits for construction for a homeowner. Permits-by-rule, which do not require a formal application to the Department or a fee, are very advantageous to homeowners allowing such activities as normal property maintenance, construction of a deck, fence, swimming pool etc. provided that the criteria of the permits are met. General permits, which do require a formal application with a fee, are also available for activities which are considered to have a larger impact

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on the flood hazard area than permits-by-rule but are also considerably more streamlined than an individual permit which usually is required for larger scaled development.

250. COMMENT: The rule should have provided enticements to encourage development in more “resilient” areas and for retrofitting existing structures since New Jersey is facing a housing crisis because of the shortage of affordable housing due to “climate change, ageing housing stock and restrictive land use and zoning policies.” (168)

RESPONSE: The adopted rules provide a set of criteria that apply to development that falls within the jurisdiction of the rules. To the extent that the criteria require compliance with certain building practices, and that certain building practices meet the rules more easily than others, the rules encourage applicants to build more resilient structures within regulated areas.

251. COMMENT: The Department needs to determine which rules should be amended that would encourage the updating or replacement of the State’s aging residential units in order to meet its resiliency goals. (168)

RESPONSE: Pursuant to N.J.A.C. 7:13-2.4, the FHACA rules apply protective design and construction standards to the "construction, reconstruction, repair, alteration, enlargement, elevation, or removal of a structure.” Specifically, pursuant to N.J.A.C. 7:13-12.5, any new or substantially improved building must be designed and constructed to be suitably elevated or flood resistant to one foot above the new design flood elevation. While the Department cannot compel

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property owners to replace or update buildings unless and until the owner proposes improvements, when those improvements are made, the FHACA rules apply and will help to ensure that the improved building meets the flood safety requirements of new buildings. Finally, it is worth noting that the Department has undertaken a comprehensive review of the requirements for specific activities in the context of the amendments on which the Department has been engaging stakeholders as part of the upcoming REAL rule, which the Department intends to propose later this summer.

### **Economic Impacts**

#### **Flood Insurance Issues**

252. COMMENT: Properties located outside of the FEMA Flood Hazard Area and that have never experienced flooding may now be located within the expanded flood hazard area of the rule. The cost of obtaining flood insurance in these areas will be substantial for areas that have little risk of flooding. (168)

RESPONSE: Based on the evidence provided in the proposal summary, the Department disagrees with the commenter's assertion that the land added into the flood hazard area faces "little risk of flooding." Rather, this rulemaking was undertaken to ensure that buildings and infrastructure built in the near future remain as safe as possible for future users as flooding continues to worsen across the state and encroach into areas that were not previously subject to flooding. This rulemaking

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therefore expands the flood hazard areas based on the Department's careful review of the data that shows that there is a significant risk of flooding in areas located immediately outside of the previously-mapped flood hazard areas.

With regard to flood insurance, this rulemaking does not affect the need for insurance or the premiums that would apply to buildings located within or outside of FEMA-mapped flood hazard areas. However, it would be prudent for property owners located within the expanded flood hazard area to purchase flood insurance. Flood insurance is an effective way to help offset the potential financial hardships associated with the increased climate-related risk described in the rule summary. Further, because the areas added to the Department's flood hazard area jurisdiction as a result of this rulemaking lie outside of FEMA's SFHA, property owners should expect to pay less for coverage than those within Zone AE.

253. COMMENT: People that do not live in flood areas should not have to subsidize those that live in flood zones. (198)

RESPONSE: Flood insurance is subsidized at the national level through the NFIP program, which is outside the scope of this rulemaking.

254. COMMENT: The proposed rules could affect flood insurance policy rates. FEMA recently switched the way it determines flood risk placing more emphasis on how likely a property is to flood from a nearby flood source and less on structural mitigation. Although the risk of flooding for a property doesn't differ between a pre and post rule

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change, the inclusion of a site in a floodplain could be perceived by FEMA or private insurers as a higher flood risk for the policy holder, thus affecting policy rates. (97)

RESPONSE: Flood insurance policy rates are based on FEMA mapping, which is not affected by this rulemaking. Rather, the adopted two-foot increase in the design flood elevation is intended to establish a more protective flood elevation for the design and construction of buildings and infrastructure so that these structures have greater resilience during their expected lifespan. The Department does not anticipate that raising the design flood elevation in this rulemaking will have any effect on flood insurance rates.

255. COMMENT: The Rule proposal will result in the creation of new regulated areas. The Department should clarify whether properties within new regulated areas will now require flood insurance. The Department should clarify whether landowners are to be made aware that their properties are now within a flood hazard area and they should be purchasing flood insurance. (143)

RESPONSE: As noted in the response to comment 252 above, this rulemaking does not affect the need for insurance or the premiums that would apply to buildings located without or outside of FEMA-mapped flood hazard areas. However, it would be prudent for property owners located within the expanded flood hazard area to purchase flood insurance as this is an effective way to help offset the potential financial hardships associated with the increased climate-related risk. As described in the proposal summary, New Jersey is increasingly experiencing flooding in

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areas where flooding has not occurred previously. As our climate changes and extreme precipitation events increase in frequency the expansion of flood hazard areas is likely to continue. The proposed rules amend the FHACA delineated jurisdictional area to ensure that construction in these areas remains protected as the climate changes. The published 500-year flood plains mapped by FEMA can provide a general, though incomplete, sense of what the expanded areas are. Such information is available through the New Jersey Flood Risk Tool, which may be found on the Department's Inland Flood Protection Rule webpage at located at <https://dep.nj.gov/inland-flood-protection-rule/flood-tool/>.

With regard to whether landowners are to be made aware that their properties are now within a flood hazard area, the FHACA rules apply only to new and improved structures and do not affect existing structures that are not slated for improvement. Where new construction or improvements to existing structures are proposed, the FHACA rules require disclosure of flood risks on the deed of the property and in any rental or lease agreements. The Department intends to further expand the disclosure requirements under an additional rulemaking intended for publication later this summer.

256. COMMENT: The commenter experienced flooding in an area that is not in a flood zone, making it difficult to get flood insurance. (184)

257. COMMENT: The commenter asks for the status of flood insurance as provided by the New Jersey Government to New Jersey residents. (44)

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RESPONSE TO COMMENTS 256 AND 257: As noted by FEMA, “It doesn’t matter how many times your home, apartment or business has been flooded. You are still eligible to purchase flood insurance provided that your community participates in the NFIP.” (<https://www.fema.gov/press-release/20230425/fact-sheet-myths-and-facts-about-flood-insurance>.) Flood insurance is available through the NFIP, administered by FEMA and through private insurers. Flood insurance can be obtained for any property regardless of whether it is depicted as a special flood hazard area on a FEMA flood insurance rate map. In addition, preliminary FEMA claim data shows that approximately one-third of claims in New Jersey caused by the remnants of Tropical Storm Ida originated outside of the extent of FEMA’s published 100-year flood plain. The state of New Jersey does not offer flood insurance. Furthermore, the requirement to purchase insurance is not related to the FHACA rules.

258. COMMENT: The Department has not provided mapping that will allow property owners to determine if their property falls within the expanded flood hazard area, making it difficult to determine if flood insurance is needed and to what extent of coverage is needed. (168)

259. COMMENT: Despite the Department’s assurance that existing development will not be affected by the proposed rule amendments, homeowners located in the newly expanded portions of the FHA may purchase FEMA flood insurance, which costs nearly \$1000 for the required elevation certificate survey, and an additional ~\$500 annual premium for flood insurance premiums. If they are unaware or unwilling to

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purchase flood insurance, then they will have to pay upwards of \$100,000 to elevate their home should it be substantially damaged by flooding. (176)

RESPONSE TO COMMENTS 258 AND 259: As noted in response to comment 252 above, this rulemaking does not affect the need for insurance or the premiums that would apply to buildings located within or outside of FEMA's special flood hazard area (SFHA). However, as noted by one commenter, since the areas added to the Department's flood hazard area jurisdiction as a result of this rulemaking lie outside of the SFHA, property owners should expect to pay less for coverage than those within Zone AE.

Should a building outside the SFHA sustain substantial damage, the building will need to be restored and, where necessary, improved to meet current UCC requirements as well as the newly adopted flood elevations. This could in some cases include abandoning existing basements and/or elevating the structure. Under N.J.A.C. 7:13-12.5(j)1, which applies to substantially damaged buildings, the lowest floor of the building must be constructed or modified where necessary to be situated one foot above the design flood elevation to the extent feasible, provided that the lowest floor of any residential building is not set below FEMA's 100-year flood elevation, as doing so would violate minimum NFIP standards.

Should flood insurance not cover the full cost of compliance as noted above, or where the property owner does not have insurance, there are several State and Federal programs that may be able to offer assistance, such as the Department's Blue Acres Program or flood mitigation funding through the FEMA's Community Development Block Grant Mitigation Program, and flood

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mitigation projects through the U.S. Army Corps of Engineers. Further, FEMA funding for buyouts prioritizes buildings that have been substantially damaged. Finally, where the owner of a substantially damaged building demonstrates that elevating the building to meet the new flood elevation would constitute an exceptional and undue hardship, the Department can apply additional flexibility to the restoration of the building under the hardship exception provisions at N.J.A.C. 7:13-15.1.

### **Economic Impact Statement**

260. COMMENT: The Department's economic impact statement ignores the impact of the unit hydrograph, because of the loss of viable, developable land and the increased cost of public and private infrastructure. (163)

RESPONSE: Regardless of the unit hydrograph used to calculate flood elevations, the higher flood elevations and more expansive flood hazard areas in the adopted rules do not result in the loss of viable, developable land because the adopted rules do not prohibit development in these areas. Rather, including these additional areas under the jurisdiction of the adopted rules puts the owners and prospective developers of those lands on notice of the risks inherent in building in those areas and requires that any development be properly elevated or otherwise flood-proofed as required by the existing applicable permits to address that risk. As detailed in the proposal, while there may be increased short-term costs as a result of the adopted rules, economic savings over time will

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occur as development within these expanded flood hazard areas is made more resilient via the adopted rules.

261. COMMENT: The proposal's economic impact statement is not adequate. The Department should explain how the limitation of development in areas more vulnerable to flooding will be balanced by promoting development, especially affordable housing development, in areas less vulnerable to flooding consistent with environmental justice principles, and modify the rule accordingly. (156)

RESPONSE: The adopted rules do not prohibit development in areas subject to flooding. Rather they require that development proposed to be located in the flood hazard area be constructed in such a way as to safeguard the building and its future inhabitants from the deadly and damaging effects of flooding. These protections are owed to all homeowners, regardless of whether they inhabit market-rate or affordable housing units. It is anticipated that the added cost of compliance for buildings will be offset over the life of the structure as a result of lower flood insurance rates applicable to elevated structures. Since the adopted rules are limited to areas of the State within fluvial flood hazard areas, and any initial construction costs are anticipated to be minor, the Department believes it is unlikely to evoke a change in the overall average costs associated with housing in the State.

262. COMMENT: The Economic Impact Statement provides no estimate of the added financial burden for municipalities, and many of their property owners. (176)

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RESPONSE: While the new design and construction standards set forth by this rulemaking could increase short-term expenses for some municipal governments and property owners who are intending to construct or improve buildings and infrastructure, the added cost of compliance with the new standards will likely be offset by increased protection from climate-related flooding for decades to come. It is important to note that flood damage is a significant financial burden on municipalities and property owners and that FEMA has declared flooding to be New Jersey's number one natural hazard.

263. COMMENT: The Economic Impact Statement should be revised to reflect the true cost and burden on existing homes, businesses, property owners, other structures, and municipalities, within the expanded FHA, with a realistic assessment of flood risk. The flood risk is clearly dependent on the recurrence interval of the proposed rise in the FHA DFE, which has not been defined. (176)

264. COMMENT: The economic impact analysis mentions the increased costs of construction but dismisses this as being compensated for by protecting the structure from flooding. However, the Department has failed to establish the recurrence interval to which the new FHA design flood elevations will be protective and thus the flood risk and need for increased regulation. (176)

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RESPONSE TO COMMENTS 263 AND 264: The amendments to the FHACA rules are informed by the best available science provided by Northeast Regional Climate Center and by a comparison of the extent of flooding seen in more recent flood events compared to what was shown in published mapping. As noted in the proposal summary for this rulemaking, the 100 and 500-year recurrence intervals depicted by existing State and FEMA flood mapping are based on hydrologic data from decades ago, and which therefore do not accurately reflect current or future flood risk. For example, the federal flood gage along the Raritan River at Bound Brook recorded that the 500-year flood elevation has been exceeded three times since 1999, indicating that the actual flood recurrence interval at this location is quite different than the historic models would otherwise suggest (<https://water.weather.gov/ahps2/hydrograph.php?gage=bdkn4&wfo=phi>).

With regard to the flood recurrence interval associated with the adopted new flood elevations, there is no specific recurrence interval that can be assumed by adding three feet to FEMA 100-year flood mapping. Flood dynamics vary significantly from one watercourse to another and are affected by a variety of factors including contributory drainage area, slope and geometry of the channel, and the presence of water control structures such as bridges and dams. Determining the exact recurrence interval at a given location requires a hydrologic and hydraulic analysis, which is beyond the Department's ability to accomplish for the entire state. Nevertheless, it has been the Department's experience that the design flood elevation mapped on Department delineations is on average one foot above FEMA's 100-year flood elevation, which is why flood hazard area Method 3 previously used this elevation to determine the design flood elevation where no higher Department delineation was present. It is further the Department's experience that the

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500-year flood elevation, where mapped by FEMA, on average lies approximately two to three feet above FEMA's 100-year flood elevation. Therefore, the recurrence interval resulting from adding three feet to FEMA's 100-year flood elevation is expected to be roughly equal to at least the 500-year flood and in certain cases somewhat more. Thus, use of published 500-year flood plains mapped by FEMA can provide a general, though incomplete, sense of what the expanded areas are. Such information is available through the New Jersey Flood Risk Tool, which may be found on the Department's Inland Flood Protection Rule webpage at located at <https://dep.nj.gov/inland-flood-protection-rule/flood-tool/>.

With regard to the commenter's concern related to the cost and burden on existing homes, businesses, property owners, other structures, and municipalities within the expanded FHA, this rulemaking applies only to new development and reconstruction activities. Existing buildings and infrastructure will not be affected unless and until the owner intends to modify or improve the structure.

265. COMMENT: The Economic Impact Statement ignores potentially serious financial consequences for some property owners located in the expanded portion of the State-regulated FHAs, if their existing homes are substantially damaged. As soon as the rule changes are enacted, these homeowners will be required to pay for raising their homes should they be substantially damaged in a storm, which typically costs upwards of \$100,000 in New Jersey. Most of these homeowners do not have FEMA flood insurance to offset such costs because they are not required to purchase it outside of FEMA's SFHA, and because most of them never experienced flooding. (176)

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RESPONSE: Flood insurance is a cost-effective tool for mitigating the financial consequences of flooding. While many homeowners in this area have not experienced flooding, defining the areas expected to see increased climate-related flooding in the future provides a clear signal to these homeowners that flood insurance may be prudent. Homeowners who continue to decline flood insurance accept the risk associated with future damages.

266. COMMENT: To assist residents, the rules will result in the need for municipalities to hire floodplain administrators to review the work of hired surveyors, engineers, design professionals and/or the property owner to assure compliance with local/state/federal floodplain management regulations. This is an unfunded mandate that was not addressed by the Economic Impact Statement. Further, as many applicants do not have the ability or data to conduct detailed flood studies, the municipalities will have to assist and evaluate the regulatory status of many more properties, even if farther from the regulated waters. This will require hiring additional staff, which will undoubtedly translate into the need for employees and raising taxes -- at the same time when that tax base may be reduced due to reduced property values in the expanded flood zones. (176)

RESPONSE: Each community that voluntarily participates in the NFIP adopts a floodplain management ordinance and appoints a floodplain administrator, who is responsible for ensuring that all development within FEMA's special flood hazard area meets minimum NFIP requirements as well as any additional standards incorporated by the community into their ordinance. The

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municipal floodplain administrator should additionally make applicants within the Department's flood hazard area aware of the need for approval under the FHACA rules, which is a necessary prior approval under the UCC, when applicants seek local building permits. While the expansion of the flood hazard area resulting from this rulemaking is likely to cause an increase in the number of flood hazard area permit applications received by the Department, this added review work is borne completely by the Department and should not increase the number of building permits received by the municipality or cause a significant increase in the number of property owners being advised by the local floodplain administrator. This rulemaking will therefore not place additional burdens on municipalities as noted by the commenter or compel communities to hire additional professionals. The Department is tasked with reviewing and approving development within the State's flood hazard areas, including inspection of authorized structures and enforcement.

267. COMMENT: The commenter supports the Department's evaluation that the rule will have positive economic benefits. (98)

RESPONSE: The Department acknowledges this comment in support of the rules and the Department's Economic Impact evaluation.

268. COMMENT: Commenter requests the Department's economic methodology for savings over time. (141)

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269. COMMENT: The Department has not provided data to back-up the anticipated economic benefits of the rule which protects properties from future flooding events.  
(168)

RESPONSE TO COMMENTS 268 AND 269: The Department's Economic Impact evaluation published in support of this rulemaking details the many ways in which the added flood resilience afforded by these adopted new standards will result in long-term savings for property owners, businesses, communities, insurers, and government agencies. (See 54 N.J.R. 2180.)

Due to the nature of climate-related flood risk, it is difficult to express the level of avoided costs resulting from this rulemaking in precise monetary terms. However, research generally shows a positive return-on-investment for flood mitigation. For example, elevating an existing home is far more expensive than building a new one to a higher design standard. However, even in this case, the National Institute of Building Sciences found that a dollar invested in elevation retrofits produced \$1.74 in avoided property damages, along with an additional 23 cents in additional benefits (National Institute of Building Sciences, 2019).

Even absent a flooding event, property owners are likely to see long-term savings since business owners, government entities, and individual homeowners that elevate their buildings and/or residences in accordance with the adopted higher flood elevations will likely see a reduction in flood insurance premiums. Elevating a home is the fastest way for individual homeowners to reduce their flood insurance costs (FEMA, 2021). Further, as flood risks increase over time, the relative savings will also increase when compared to properties that are not elevated. In addition, if there is a significant flooding event, the elevated building is less likely to suffer major damage.

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While the most easily identifiable costs of flooding include loss of life, injury, and property damage and destruction, additional flood-related expenses include clean up, evacuation, emergency services, providing temporary housing to displaced residents and businesses, lost revenue from business interruption, increased cost of capital in at-risk areas, and the opportunity costs of any relief funds provided. These additional costs have a clear economic impact, which will be ameliorated by the adopted new standards.

For example, in New Jersey, it is estimated that, "... approximately one-third (36 percent) of the cost of flood damages over 1988 to 2017 is a result of historical precipitation changes ..." (Davenport et al., 2021). With estimates of 60 percent of flood damage going unfunded by the National Flood Insurance Program (NFIP), private markets, or disaster relief (Congressional Budget Office, 2020), New Jersey properties within flood hazard areas face significant financial risk and vulnerability. Moody's Investors Service further determined that "New Jersey's adoption of stronger building codes, especially along the state's 130-mile coastline, is 'credit positive'" and indicated that "New Jersey's economic vulnerability to increased flooding is substantive" and that "total storm damage in New Jersey since 1980 is equivalent to 5.7 percent of the State's gross domestic product, compared with 3.1 percent for the United States for the same time period." Another recent found that an additional 10,870 New Jersey properties are expected to experience financial loss from flood damage over the next 30 years; average expected annual loss per property is expected to increase by 53 percent over that same time period (First Street Foundation, 2021). Given this significant financial exposure, the reality is that investment in resilience leads to savings in recovery.

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Further, the ongoing and increasing risks of flooding caused by climate change also present an immediate economic challenge for homeowners and the housing market. Bernstein et al. (2019) show that in coastal communities, properties with greater flooding risk show a decline in price appreciation over time, even if the property itself does not experience a flood. Following a flooding event, a decline in property value for the flooded home is well documented (Bin and Polasky, 2004; Carbone et al., 2006; Hallstrom and Smith, 2005; and Bin and Landry, 2013). Climate-related flooding risk can additionally have a negative impact on the housing market beyond falling property values. Nuisance flooding increases the risk of default by placing downward pressure on home values. Bin and Landry (2013) found that home prices typically recover 10 years after a flooding event. However, if a community experiences repeated flooding events during that time, the homeowner will not have a chance to recover equity. The Union of Concerned Scientists (UCS) predicts that homeowners who experience this chronic inundation will choose to abandon their homes (Union of Concerned Scientists, 2018). The UCS also identifies New Jersey as one of the states most at risk for climate related flooding.

This rulemaking will result in increased protection for people and property by ensuring that structures are planned and constructed in a manner that is informed by likely changes during the life of the structure by requiring the use of projected precipitation data and adding an additional factor of safety to the fluvial flood hazard area design flood elevations established by available mapping products and approximation. This rulemaking will additionally reduce flood risk exposure by requiring the consideration of projected precipitation amounts at N.J.A.C. 7:8 to ensure that stormwater BMPs are adequately designed to manage the observed and expected increases in precipitation due to climate change. Given the above, the Department anticipates that

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this rulemaking will result in increased public safety, minimization of property damage, and reduced need for relief measures, all of which will result in long term economic savings related to decreased damages and loss of property in the event of a flood that exceed the short-term costs of compliance with the adopted new standards, ultimately resulting in a net positive economic impact.

270. COMMENT: The State should complete a proper economic study to determine the true long-term cost-benefit analysis, which includes slower population growth. (147)

RESPONSE: It is unclear how this rulemaking would lead to a decrease in population growth for New Jersey since the adopted rules require that development proposed to be located in the flood hazard area be constructed in such a way as to safeguard the building and its future inhabitants from the deadly and damaging effects of flooding. To the contrary, those considering moving to New Jersey from other States may find it attractive to know that development in New Jersey should be safe to inhabit even if newly constructed in the flood hazard area.

While the overall economic benefits of this rulemaking are expected to outweigh the costs, as articulated in the response to comments 268 and 269 above, the Department recognizes that the adopted new flood elevations would likely result in increased short-term costs for certain individuals, firms, agencies, and communities that are required to implement additional flood resilience measures when building within areas that are subject to dangerous flood conditions. As noted previously, the Department anticipates that the adopted new flood elevations will increase the amount of land and property in the State that is within a regulated fluvial flood hazard area. As

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such, the Department anticipates that the number of properties requiring a permit to conduct regulated activities within fluvial flood hazard areas may increase. This could result in increased costs for application fees, site evaluation, engineering, design, raw materials, and labor. The Department notes, however, that many of these costs are standard expenses incurred by development or redevelopment, regardless of whether the property is within a flood hazard area, or not, and that relevant consideration is marginal cost increases of flood protection which are expected to be minor. For example, when retrofitting an existing home, the cost of elevation is driven by the following factors: the size of the home, the number of floors, the type or stability of the foundation, local and State permitting, and current rates for labor and materials. Generally, the main driver is the type or stability of the foundation (slab on grade, raised slab, piers) that is required and/or chosen by the homeowner or business. Generally, increasing the elevation height of a home will marginally increase the total project cost.

271. COMMENT: The claim that there is an economic need to reduce the risk of flooding as risks are large and increasing is authoritative and doesn't satisfy legal standards. The claim that the proposed amendments would generate economic benefits by reducing costs of floods is unsupported and false. The unnecessary regulatory burden of the rules increase cost, and the rules are political. (66)

RESPONSE: Based on the best available science, there is a significant threat of increased flooding throughout the state, which will have economic consequences for property owners. While the

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proposed rulemaking may increase short-run costs in some areas, it will reduce the financial risk associated with flooding, therefore reducing long-run costs.

272. COMMENT: The commenter recognizes that this rulemaking is not the place to address capital investments, but such a regulatory reform should be part of a more comprehensive package to address capital needs. Billions of federal funding was recently provided from both the COVID and American Rescue Plan appropriations, which do not appear to be directed to these threats to public safety that pose an imminent threat. (99)

RESPONSE: As the commenter notes, this comment is beyond the scope of this rulemaking.

273. COMMENT: Commenter expresses concern for existing properties and homeowners. Raising an existing home to the proposed design elevation may not be possible due to costs. (233)

RESPONSE: Existing homes are not required to elevate unless they are substantially damaged or substantially improved.

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### **Jobs Impact Issues**

274. COMMENT: The Department should institute a local hiring and prevailing wage requirement so local residents can benefit from the jobs created by this rule. (139)

RESPONSE: While the Department acknowledges the importance of keeping jobs in local communities, especially overburdened communities that may also be vulnerable to flooding, the commenter's suggestion is beyond the scope of the Department's statutes and this rulemaking.

275. COMMENT: The Department's job impact analysis arrives at unsubstantiated conclusions; the cost of this rulemaking will deter development, even though the new jobs in community resilience will increase. (156)

276. COMMENT: The job impact statement does not substantiate how the extent of development or redevelopment will be deterred by the proposal or how new jobs will "likely outweigh" the loss of development. Redevelopment must remain a viable strategy for affordable housing. The Department must quantify the impacts on redevelopment. (156)

277. COMMENT: The Department's claim that in "some instances" the Rule proposal "may lead to greater job growth" is unsubstantiated opinion. (143)

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RESPONSE TO COMMENTS 275 THROUGH 277: As noted in the proposal, the Department anticipates that the increase in construction work related to compliance with this rulemaking will likely outweigh the minor deterrence to development. The Department does not anticipate large-scale changes in patterns of development throughout the state as a result of this rulemaking. As to whether the adopted rules will result in job growth, as the Department noted in the Jobs Impact Statement, in some instances, the application of these amendments may lead to greater job growth, and possibly more private sector jobs, in the construction and/or building industry, including, but not limited to, elevation and/or flood-proofing of structures, installation of green infrastructure stormwater management systems, and more flood resistant infrastructure, including roadways and utility lines.

278. COMMENT: The rule will make large areas of the State undevelopable resulting in negative impact on economic growth and job creation. (142)

RESPONSE: The proposed rulemaking does not make any areas in the State undevelopable. Rather, it provides criteria and standards for constructing in the flood hazard area to safeguard the building and its future inhabitants from the deadly and damaging effects of flooding.

**Legacy Provision, N.J.A.C. 7:8-1.6 and N.J.A.C. 7:13-2.1**

279. COMMENT: The commenter would like clarification regarding the “legacy” requirements found at N.J.A.C. 7:8-1.6(b) and (c). (90)

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RESPONSE: The Department has routinely included provisions for legacy applications, which are applications determined to be completed in advance of the effective date of revised rules. Such provisions are therefore included as part of this rulemaking, as reflected in adopted N.J.A.C. 7:8-1.6(b) and (c). The amended standards will not apply to any major development that does not require permits from the Department under the statutes listed at N.J.A.C. 7:8-1.6(c), provided that the applicant has submitted an application for one of the approvals listed at N.J.A.C. 7:8-1.6(b)1i through v prior to the effective date of this rulemaking. Similarly, adopted standards will not apply to any major development that does require Department approval under the aforementioned statutes, provided that the Department has received an administratively and technically complete application that includes a stormwater management review component prior to the effective date of this rulemaking. This is consistent with the FHACA rules at N.J.A.C. 7:13-21.1(e), which affirms that, in reviewing an application, “the Department shall apply the requirements of this chapter in effect at the time the application is declared complete for review.” As the SWM rules were previously amended as recently as March 2, 2020, with an effective date of March 2, 2021, amendments are made at proposed N.J.A.C. 7:8-1.6(b)2, 3, and 4i and ii to continue the legacy provisions of the March 2, 2020 amendments.

280. COMMENT: The “legacy” provisions should be expanded to include applications under the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.), for preliminary or final site plan approval, final municipal building or construction permit, minor subdivision

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approval where no subsequent site plan approval is required, or preliminary subdivision

approval where no subsequent site plan approval is required. (168)

281. COMMENT: The “legacy” standards in the rule penalize existing projects which were designed to avoid the FH regulated areas on a site and have received a Flood Hazard Verification but have not yet started construction whereas projects that received a FH permit under the existing rule have “legacy” privileges. (168)
282. COMMENT: If the rule does not have a delayed implementation date, residential projects should be able to obtain “legacy” status in much the same way as roadway projects due to major investments in planning, permitting, etc. (168)
283. COMMENT: Don’t delay in implementing these rules and don’t give any exemptions, especially not to large scale developments or infrastructure; climate change is impending with its disastrous consequences. (175)
284. COMMENT: While the commenter supports proposed N.J.A.C. 7:13-2.1(c)4, it is necessary for the Department to not only update the standards so that they reflect current conditions but require new development be designed to the anticipated conditions of the future. (222)

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285. COMMENT: The rules should include additional “legacy” provisions such as expanded provisions in the rule or delayed implementation of the rule. Without such provisions, many projects currently in planning, permitting, or legal phases of development will be left in limbo. (168)

RESPONSE TO COMMENTS 280 THROUGH 285: This rulemaking is in response to compelling data that has been collected and analyzed for New Jersey, as described in the proposal summary at 54 N.J.R. 2169 through 2185, which demonstrates upward trends in extreme precipitation in the last two decades, and projects that this increase in extreme precipitation will continue through the end of the century. Further, as evidenced by flood events over the previous decade, it is the Department's observation that flood hazard areas in the state are increasing in size because surface waters are necessarily carrying greater peak flow rates due to this increased runoff from extreme precipitation.

The Flood Hazard Area Control Act mandates that the Department establish design and construction standards for activities within areas of the state that are prone to flood risk, in order to protect public health, safety and welfare. For this reason, the Department has determined that establishing a grace period for applicability or otherwise expanding the legacy provisions beyond what was provided in the prior FHACA rule would not adequately protect the public. However, as discussed below, and in response to concerns raised by a number of commenters regarding the proposed legacy provisions for projects that did not require a flood hazard area approval prior to the adoption date of this rulemaking, but which are now located within the expanded new flood

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hazard area resulting from this adoption, as addressed under proposed N.J.A.C. 7:13-2.1(c)4, the Department is amending the paragraph as follows.

N.J.A.C. 7:13-2.1(c) provides four scenarios whereby a regulated activity or project can be exempt from requiring a flood hazard area approval, based generally on the need for (or receipt of) an approval prior to the adoption of new standards and, in some circumstances, the level of investment in design and approvals that have already been received. As proposed, this rulemaking included amendments to two of these scenarios, at N.J.A.C. 7:13-2.1(c)1 and 4.

N.J.A.C. 7:13-2.1(c)1 exempts from newly applicable regulations activities that are part of a project that was received by the Department as complete for review prior to the date of this adoption, provided the application is subsequently approved. The purpose of this provision is to exempt from regulation certain activities that are part of an FHACA approved project which were initially proposed outside of the flood hazard area prior to this rulemaking, but which are now located within the expanded flood hazard area as a result of this rulemaking. To be exempt, the regulated activity must be part of a project for which a complete flood hazard area application was submitted prior to the effective date of this rulemaking, provided that application is subsequently approved. As proposed and adopted, N.J.A.C. 7:13-2.1(c)1 continues the prior exemption described above, except that November 5, 2007, is replaced with the effective date of this rulemaking as noted above.

Prior to this rulemaking, N.J.A.C. 7:13-2.1(c)4 exempted regulated activities that were part of a project that was subject to neither the FHACA rules nor CZM rules prior to November 5, 2007, provided that prior to this date either the regulated activity was authorized under certain approvals pursuant to the Municipal Land Use Law (listed at N.J.A.C. 7:13-2.1(c)4i) or the activity

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did not require such approval and had begun to be constructed (pursuant to N.J.A.C. 7:13-2.1(c)4ii). This provision addressed situations where a project was located outside the jurisdiction of the FHACA and CZM rules prior to November 5, 2007, but which were located in the newly created riparian zones and/or expanded flood hazard area that were adopted on that date. This provision was initially adopted in recognition of the potentially significant development investments that often occur during the design and local approval process which can make altering a design to accommodate new standards impracticable.

As articulated in the proposal summary at 54 N.J.R. 2176, the legacy provision for projects in the situation described above was proposed to be limited to apply only to projects that had both received all necessary local approvals and had begun to be constructed prior to the adoption date of the rules. Specifically, under proposed N.J.A.C. 7:13-2.1(c)4, for a regulated activity that did not have a complete application pending with the Department to not be subject to the adopted standards, the activity would have had to have not been subject to the regulated area of the chapter prior to the effective date of these rules; that is, the activity would have had to have been wholly and completely outside the flood hazard area and riparian zone prior to this date. As proposed, the activity would additionally have needed to have received all necessary Federal, State, and local approvals such that construction could have lawfully commenced prior to the effective date of this rulemaking. Finally, the regulated activity would have had to have commenced prior to the effective date of this rulemaking.

However, in response to concerns raised by a number of commenters, and upon reevaluation of the proposal to limit the legacy provision under N.J.A.C. 7:13-2.1(c)4 to only those projects that had begun construction, the Department is amending N.J.A.C. 7:13-2.1(c)4 on

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adoption to retain the same exemption structure as the FHACA rules prior to this adoption, with two exceptions. First, the exemption date of November 5, 2007, is replaced with the effective date of this rulemaking, as proposed. Second, the description of what constitutes commencement of construction at N.J.A.C. 7:13-2.1(c)4ii(1) is adopted as proposed to replace prior N.J.A.C. 7:13-2.1(c)4ii(1)-(3).

Thus, under adopted N.J.A.C. 7:13-2.1(c)4, if an activity did not require approval under the FHACA or CZM rules prior to the effective date of this rulemaking, it remains exempt from the adopted new rules provided that either (1) the regulated activity was authorized under one or more of the MLUL approvals listed at (c)4i prior to this date; or (2) the regulated activity did not require an approval identified in (c)4i, and the activity had commenced prior to the effective date of the rules, meaning that one or more of the construction activities described at (c)4ii(1) had taken place.

The Department has determined that it is appropriate to retain the existing legacy structure at N.J.A.C. 7:13-2.1(c)4 for several reasons. Specifically, the Department has concluded that it is unreasonable to retroactively apply the proposed standards of this chapter to certain projects that satisfied requirements that were in place at the time the activity was undertaken. In the cases set forth at adopted N.J.A.C. 7:13-2.1(c)4, the project has likely already begun construction or else will begin construction in the near future and, in either case, a significant investment has likely been made by the applicant. Under adopted N.J.A.C. 7:13-2.1(c)4i, such a project would have already been reviewed by a local government agency, which necessarily includes a review under the UCC and its accompanying flood codes. In the case described at adopted N.J.A.C. 7:13-2.1(c)4ii, the regulated activity does not require MLUL approval and certain construction activities

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must have already been completed onsite prior to the adoption date of these new rules. This provision addresses situations such as State or county roadway projects and other activities that do not require approval under the MLUL. In such a case, the Department will not require an approval listed at proposed N.J.A.C. 7:13-2.1(b), since a significant investment has been made by the applicant and retroactively applying the new flood elevations would result in a redesign that would likely be impracticable.

Adopted N.J.A.C. 7:13-2.1(c)4ii(1) defines what constitutes commencement of regulated activities for the purposes of this exemption, consolidating and replacing prior N.J.A.C. 7:13-2.1(c)4ii(1)-(3). The adopted language mirrors 44 CFR 60.3, which is used by FEMA to ensure that a regulated activity within the flood hazard area has reached a certain milestone of construction to address situations where flood mapping has changed after the regulated activity is authorized, and further incorporates examples of construction activities listed at previous N.J.A.C. 7:13-2.1(c)4ii. Depending on the level of development that has already occurred when a flood map is amended, it may not be practicable to alter the design to reflect the new flood elevation. For example, a person may have a building permit to construct a house immediately outside the prior flood hazard area limits, but within the newly expanded flood hazard area. If construction of the house has not commenced by the time the regulatory area changes, it often can be possible to amend the design to meet the new flood elevation, which would be in the best interest of the long-term integrity of the structure and the safety of future occupants. Conversely, where the foundation of the building has already been constructed by the time the regulation changes, amending the lowest floor elevation would likely be impracticable and place an undue burden on the developer.

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Therefore, regulated activities that have commenced in accordance with N.J.A.C. 7:13-2.1(c)4ii(1) have reached a point where they cannot practicably be modified to account for a higher flood elevation.

Where an activity that is situated outside the existing flood hazard area limits, but within the newly expanded flood hazard area, is not covered by N.J.A.C. 7:13-2.1(c), a flood hazard area approval pursuant to N.J.A.C. 7:13-2.1(b) is required prior to commencement. In such a case, the development would be required to comply with the newly adopted standards in order to be constructed in a suitably resilient manner, but complying with these new standards should not result in the property being undevelopable. Should it be demonstrably impracticable for such an activity to be amended to comply with the FHACA rules, the applicant can request a hardship exception pursuant to N.J.A.C. 7:13-15.

286. COMMENT: The regulated community would benefit from clarification as to what triggers a legacy protection. To protect investments made prior to constructing a building foundation, the term “construction” should include site clearing and grading of any portion of a site. (157)

RESPONSE: Under the SWM rules at N.J.A.C. 7:8-1.6, complete applications that have been submitted for certain types of approvals prior to the adoption date of this rulemaking are not subject to the new standards. Similarly, pursuant to the FHACA rules at N.J.A.C. 7:13-2.4(c), newly regulated activities that were part of a project for which a complete application for a FHA or CZM permit was submitted to the Department prior to this rulemaking, and which are subsequently

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approved, are not subject to the adopted new standards. An additional exemption is provided at N.J.A.C. 7:13-2.4(c)4 to address situations where a project previously located outside the jurisdiction of this chapter, such as immediately outside the flood hazard area, is now located within the expanded flood hazard area adopted by this rulemaking. As explained in the response to comments 280 through 285 above, regulated activities that have received one or more MLUL approvals listed at (c)4i, or which are not subject to the MLUL and have begun construction prior to this rulemaking pursuant to (c)4ii, would not be subject to the newly adopted standards of this chapter. Under adopted N.J.A.C. 7:13-2.1(c)4ii(1), the Department intentionally identified construction activities that involve excavation or the placement of permanent structures. Clearing or grading the site does not necessarily denote a level of investment or planning that would warrant an exemption. The Department believes that it is appropriate to set the bar high for exemptions from the adopted new standards given the compelling data showing how New Jersey's flood risks are ever increasing. Therefore, to protect public health, safety and welfare, it is necessary to limit exemptions from these adopted new stormwater management and flood hazard area standards to the situations set forth at N.J.A.C. 7:8-1.6 and N.J.A.C. 7:13-2.4(c), respectively.

287. COMMENT: Do the grandfathering provisions apply to phased developments where regulated activities have commenced for at least one phase? (79)

RESPONSE: Under the FHACA rules, each regulated activity is considered separately. Therefore, in order to be covered by the adopted exemptions described in response to comment 286 above, each phase of the development would need to comply with the exemption provisions listed therein.

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For example, under N.J.A.C. 7:13-2.4(c)1, a regulated activity is exempt from the adopted new standards if it is part of a project for which all elements that were subject to the FHACA rules in effect prior to the effective date of this rulemaking have been approved under a flood hazard area permit or authorization, provided: (1) the regulated activity is specifically approved under the permit, or was not subject to the FHACA rules prior to the effective date of this rulemaking; and (2) the permit application was received by the Department and was complete for review prior to the effective date of this rulemaking. For example, if an applicant proposes to construct a residential subdivision of ten units, but only nine of the units are located within the flood hazard area prior to this rulemaking, if the applicant submitted a complete application for a flood hazard area permit prior to the adoption date of this rulemaking, and the application is subsequently approved, all ten units would be exempt from the new standards, including the one unit that prior to this rulemaking was not located within a flood hazard area. However, should these ten units constitute phase one of a larger subdivision, for which no flood hazard area approval was applied for or received, the additional phases not addressed by the permit for the ten units would not be exempt from the new standards adopted in this rulemaking.

288. COMMENT: Legacy provisions should be provided for projects that are already in the DEP permitting process under other Programs such as Water Quality Management Plan Amendments. (168)

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289. COMMENT: The Department takes too long to approve site specific amendments of water quality management plans, and as a result, those projects will lose their ability to continue. (99)

RESPONSE TO COMMENTS 288 AND 289: Pursuant to the Water Quality Management Plan rules at N.J.A.C. 7:15-3.2(a), “The Department shall not issue a permit or approval that conflicts with an adopted areawide plan or this chapter.” Thus, while flood hazard area permit applications can be received and accepted as complete for review, the Department cannot approve a flood hazard area application if the permitted activity is sewage generating and lies outside the sewer service area. In situations where an applicant applies for a sewer service area amendment, the process involves many steps, including public input and publication in the New Jersey Register, which would in almost all cases necessarily extend past the 90-day statutory review period set for flood hazard area applications. Further, submittal of a sewer service area amendment does not guarantee that the amendment will be approved. Thus, the Department does not believe that it is appropriate to exempt a project from the protective new standards adopted in this rulemaking when the applicant has simply applied for a sewer service area amendment. However, for any site-specific WQMP amendment application that has been pending with the Department for a prolonged time as of the date of this rule’s adoption, the Department will make every effort to work with the applicant to issue a determination or otherwise address the issue in a timely manner.

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### **Questions On Implementation Applicability**

290. COMMENT: There should be a one-year grace period in the effective date of the proposal. (170)
291. COMMENT: The commenter objects to the immediate implementation of the rule upon adoption and advocates for a one-year grace period to allow the regulated community to prepare. The immediate implementation of the rules would have a negative economic impact. (142, 168)
292. COMMENT: The Department should delay the implementation of these rules for one year for all projects so they may attempt to meet the grandfather standards. (99)
293. COMMENT: The Department should implement a longer implementation/grace period, at least six months. (146)
294. COMMENT: A one year grace period should be granted after adoption of the proposed Rule. (158)
295. COMMENT: Grandfathering should be expanded to one year from adoption. (149)

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296. COMMENT: The operative date of this rule should follow precedent set by the “Green Infrastructure Stormwater Rule” such that it will be made effective five months after adoption and made operative one year after that. The rules should ensure that essential public works projects move forward without harmful and unnecessary delays. (113, 114)
297. COMMENT: The proposed rules should allow a one-year grace period or phase-in from the date the rule is adopted to when it becomes effective. Like the provision in the Green Infrastructure Stormwater rules, this one-year grace period would allow municipalities time to update their stormwater ordinances and apply the new regulation correctly and without confusion. It would also allow the development and business community to prepare for and respond to the new regulation and avoid financial hardships that are certain to occur if the regulation is effective immediately upon adoption. (133)

RESPONSE TO COMMENTS 290 THROUGH 297: The climate emergency is such that allowance for a one-year grace period in the effective date of the proposal would place structures and stormwater management facilities currently being designed at an unacceptably high risk of damage due to the worsening flooding expected over the lifetime of those structures. This rulemaking is being undertaken in response to the Department’s statutory obligation to establish standards suitably protective for public health, safety and welfare, for flood prone areas of the

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state. Therefore, to minimize this risk to the maximum extent practicable, the Department cannot make allowances for such a grace period.

While the Department employed a one-year grace period for the 2020 version of the SWM rules, this was in part due to the significant change in the way that version of the rules required stormwater management systems be designed, but also because those rule amendments only changed the method by which the existing standards needed to be met, so the Department did not anticipate public health, safety, or welfare concerns associated with a delay in implementation. These amendments include changes to the underlying standards, rather than just the methods, and these changes to the standards are intended to protect public health, safety, and welfare. While the size of a stormwater management system will increase because of the proposal, and while additional investment in a proposed project may therefore be necessary, the Department contends that not having a grace period is necessary in order to properly mitigate the flood risk and best protect the public health, safety, and welfare.

While implementation will not be delayed, the Department notes that it shared a courtesy copy of the proposal approximately one year before its adoption. This provided the regulated community with additional time to plan and prepare for amended requirements.

298. COMMENT: As an alternative to delaying implementation, there should be a grace period when applications can be submitted under the current rules so these projects could be grandfathered under the technically complete application standards. Additionally, the substantial investment reliance test could be codified to ensure a developer who has built a project relying on those rules will be given the benefit. (99)

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RESPONSE: As noted in response to comments 290 through 297 above, N.J.A.C. 7:13-2.1(c)1 exempts from regulation activities that were part of a project that was received by the Department as complete for review prior to the date of this adoption, provided the application is subsequently approved. An additional exemption is provided at N.J.A.C. 7:13-2.1(c)4, under which, as adopted, a regulated activity is not subject to the adopted new standards in cases where the activity was not located within a regulated area prior to the effective date of these rules, provided the activity has received one or more MLUL approvals listed at approvals listed at (c)4i, or is not subject to the MLUL and has begun construction prior to this rulemaking pursuant to (c)4ii. As such, a project that has already been built, as in the commenter's example, should not be required to be modified to comply with the adopted rules. Given the compelling data indicating that flooding and extreme precipitation continue to worsen across the state, the Department believes that expanding grandfathering beyond what is established in this rulemaking would not adequately serve the interests of public health, safety and welfare. Applicants for projects that are not grandfathered may appeal through the hardship exception process set forth at N.J.A.C. 7:13-15.1, under which the Department can apply the requirements of this chapter flexibly and consider the level of investment that occurred, provided the applicant can demonstrate that strict compliance with the FHACA rules would create an exceptional or undue hardship.

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### **Suggestions on Legacy Provisions**

299. COMMENT: Regarding N.J.A.C. 7:13-2.1(c)4, the Department must decline the proposition that the mere submission of a Sewer Service Area amendment should qualify as “permit” that would allow the entire proposal to be grandfathered. The Department must additionally decline the proposition that the submission of a land development application to the relevant municipalities should also qualify to be “grandfathered” under the old rules. (222)
300. COMMENT: No grandfathering should be allowed. (40, 42, 65, 69, 48, 12, 226, 252)
301. COMMENT: No compromises should be made due to high expenses. (226)
302. COMMENT: The new regulations should be applied to all developments, including current applications, and grandfathering should not be allowed. (36, 37, 39, 48, 87, 231)
303. COMMENT: Grandfathering should not be allowed for projects, regardless of the stage in which they are in. (258)
304. COMMENT: Grandfathering of builders and developments should not be provided, and the rule should be applied equally to all applications. (155)

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305. COMMENT: Don't grandfather any projects, especially if they are over 1 acre. Any project started since the rule was submitted on December 5, 2022, needs to be redesigned. (175)
306. COMMENT: Projects that have not entered the design phase by the time the rules are in effect should not be exempt and should be subject to the rulemaking. Please don't delay these rules any further. (192, 205, 206, 204)
307. COMMENT: There should be no grandfathering associated with these rules. (214)
308. COMMENT: Since the rules were proposed developers have been moving quickly to obtain approvals before the new rules are adopted. Therefore, there should be no grandfathering or other exceptions for these developments. (220, 221)
309. COMMENT: The proposed rule changes should apply to any pending development application. (68)
310. COMMENT: Regarding N.J.A.C. 7:13-2.1(c)(4), the Department should not accede to the request to utilize the time of application rule more expansively than proposed. (222)
311. COMMENT: The rules should be applied immediately to pending applications, especially those that are going to have a destructive impact. (218)

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312. COMMENT: The rules should be applied immediately to pending applications, especially those that are large and that were designed using outdated flood maps from 1999. (219)

313. COMMENT: The Department should have used updated flood maps for pending projects. (1, 12)

RESPONSE TO COMMENTS 299 THROUGH 313: As noted in response to comments 290 through 297 above, the Department has determined that it is appropriate to provide limited exemptions from the proposed adopted new standards. Specifically, exemption from the adopted new standards apply narrowly and only where: (1) an applicant has submitted a complete permit application to the Department prior to the adoption of this rulemaking; or (2) a project was previously located outside the previous flood hazard area and has received one or more of certain MLUL approvals, or, where no MLUL approval is required, has commenced construction. These limited exemptions could apply, for example, where an applicant avoided construction within the previous flood hazard area only to find the project located within the newly expanded flood hazard area. It should be noted that the Department cannot lawfully apply the newly adopted standards of this rulemaking retroactively to applications that have been received prior to the effective date. As the exemptions provided by this rulemaking are limited as described above, the Department believes that the vast majority of projects located within the existing and new flood hazard area will be subject to the protective new standards adopted in this rulemaking.

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### **Moratorium Suggestions**

314. COMMENT: There should be an immediate emergency adoption of the Rule, along with a moratorium on any new construction within the expanded floodplain. (229)
315. COMMENT: This should be an emergency such as originally intended, and CAFRA and others must follow shortly. No new permits should be issued until these rules are adopted. (155)
316. COMMENT: An immediate moratorium on pending applications should be issued and no grandfathering should be allowed. (116)
317. COMMENT: If the rules cannot be applied immediately, the DEP should put a moratorium on permitting until such time that the rules are adopted. (120, 211, 213, 214, 216, 218, 221)
318. COMMENT: No new development permits should be issued until the Rule is implemented. (235)
319. COMMENT: The regulations are incompetent in that they do not ban development in current flood hazard areas. (4)

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320. COMMENT: Consideration should be made to change in land use as conversion to more impervious area causes exacerbated downstream impacts. There should be areas that are off limits to development due to flooding. (230)
321. COMMENT: A commenter's development in Hillsborough has been adversely affected by major storms in the last 20 years, each causing more flooding than previously. They feel this is due to the widening of Route 206 and continued development along Route 206. The roadway to the development floods, making it inaccessible for emergency vehicles and putting people's lives in danger. Two current applications along Route 206 have been submitted to the township, one of which was denied for flooding issues. These applications cannot be approved and must be reviewed under this rule proposal. A moratorium on pending permits should be put into place until the Inland Flood Rule is strengthened and adopted. (116)
322. COMMENT: New Jersey is in peril and will succumb to the effects of climate change. We will see more intense storms coupled with sinking land and rising oceans. A moratorium on pending permits should be issued and no permit should be grandfathered. (116)
323. COMMENT: The Governor should impose a moratorium on any construction approvals and activities in the regulated areas until this rule is approved to prevent a

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push to approve and construct development ahead of the stricter regulations in the rule.

(92)

324. COMMENT: The Department should look to Governor Kean's Executive Order 175 and put a moratorium on all flood hazard applications. (222)

325. COMMENT: The Governor should follow the precedence of previous governors and issue a moratorium on pending permits. (224)

326. COMMENT: There should be a hold on all applications associated with a watershed especially for potable water supply resources until the rules are adopted. (207)

327. COMMENT: The proposal should not have exceptions or grandfather clauses. A builder's one-time economic loss does not justify perpetually spending billions in relief funding or loss of life. (254, 106, 257, 256)

RESPONSE TO COMMENTS 314 THROUGH 327: As noted in response to comments 290 through 297 and in response to comments 299 through 313, the Department has determined that it is appropriate to provide limited exemptions from the proposed adopted new standards. Further, the Department does not have statutory authority to place a moratorium on development under the Flood Hazard Area Control Act. Rather, this statute mandates the Department adopt standards for

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development of flood prone areas in order to protect public health safety and welfare, and which necessarily must apply to applications received after the date of any rulemaking.

### **Verifications, N.J.A.C. 7:13-5.3**

328. COMMENT: If an FHA Verification has been approved prior to the adoption of the proposed rule and has not expired, is a re-verification required? If so, what is the process? Will Method 6 Verifications require a new hydrologic analysis using the precipitation adjustment factors? (79)
329. COMMENT: The rules indicate verifications are valid for a minimum of 5 years when issued, and that the verification runs concurrently with a supplementary flood hazard general or individual permit, but the rules do not update the provision, N.J.A.C. 7:13-5.3 Duration of a Verification. This has the potential to invalidate the rulemaking without additional N.J.R. notice. FHACA permits cannot be issued on a previously issued verification because of this proposal. Thus, it appears a verification issued under the current rules remains for 5 years, and future permits can be issued on this verification without further analysis. (147)
330. COMMENT: Will Flood Hazard Area verifications obtained under the existing rules remain valid when the new rules are adopted? (70)

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331. COMMENT: Current FHA verifications should remain valid as was the previous practice. (142)
332. COMMENT: Explain if the proposal will invalidate a flood hazard area applicability determination. (170)
333. COMMENT: The commenter would like a clarification regarding the validity of Flood Hazard Verifications issued prior to the adoption of this rule; specifically, will they remain valid even if no permit was obtained. (89)
334. COMMENT: Flood hazard area verifications should be grandfathered. (170)

RESPONSE TO COMMENTS 328 THROUGH 334: Pursuant to N.J.A.C. 7:13-5.3(e):

“A person who is issued a verification pursuant to this subchapter shall be entitled to rely on the determination of the Department, concerning the presence, absence, or extent of flood hazard areas, riparian zones, or floodways for the term specified at (a) through (d) above, unless the Department determines that the verification is based on inaccurate or incomplete information, in which case the Department may void the original verification and issue a new verification reflecting the actual conditions on the site. For example, the verification may be revised to reflect additional flood hazard areas or riparian zones identified after verification issuance; or if a threatened or endangered species habitat is

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disclosed or discovered after the verification was issued, the Department may correct the width of the riparian zone.”

This provision anticipates situations where the Department verifies the location of the flood hazard area, but site conditions or other factors change the flood hazard area limits after the verification is approved. Applicants are thereby placed on notice that the verification is valid only as long as the determinations of the verification accurately reflect site conditions and the extent of the flood hazard area and riparian zone. Under this rulemaking, the flood hazard area design flood elevation is raised by two feet for those applicants choosing to use state or federal flood mapping as a means of determining the Department’s jurisdiction under the FHACA rules. Given the urgent nature of the need to respond to a changing climate to protect public health, safety and welfare, the Department cannot allow projects to be designed based on flood mapping that fails to reflect actual flood risks and ignores future flood conditions. Applications for permits and authorizations submitted to the Department after the date of this rulemaking must therefore be based on the newly adopted standards. Thus, an applicant who received a verification of the flood hazard area design flood elevation prior to this rulemaking would need to design subsequent permit applications based on a flood elevation that is two feet higher than previously verified.

The Department recognizes that raising the design flood elevation two feet can affect the elevation of roads and buildings, alter flood storage volume displacement calculations, and can affect the ability to provide dry access to a site. However, the Department remains confident that the majority of projects being designed today will be able to meet the adopted new standards and obtain Department approval, thereby helping to ensure the resilience of such development for years to come. Further, the Department will, pursuant to N.J.A.C. 7:13-5.4, automatically reissue a

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revised verification when an application for a permit or authorization is submitted. Specifically, “If the Department issues a verification that is valid for five years and subsequently approves an authorization under a general permit or an individual permit for a regulated activity that references or relies upon the verification, the Department shall automatically reissue the verification upon approval of the authorization or permit to align the expiration date of the verification with the expiration date of the authorization or permit,” provided certain conditions are met, including that the verified design flood elevation and flood hazard area limits are amended to reflect present conditions as informed by the permit or authorization being issued.

### **Science**

335. COMMENT: The commenter supports the efforts of the DEP in drafting the rule in the face of climate change. However, the Department should consider using more than one precipitation study when drafting rules. (168)

RESPONSE: The Department acknowledges this comment and has incorporated the best available New Jersey specific science for the ruling at this time. Increasing precipitation intensities are supported by other studies at various scales (State, regional, national, international).

336. COMMENT: The commenter objects to the use of the “year 2100-time horizon and the 17th percentile chance of occurrence as the basis for these rules”. Citing various studies, the commenter appears to hold the opinion that future rainfall cannot be

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accurately predicted and that studies, including the Northeast Regional Climate Center study, demonstrates the inconsistent variability. (168)

RESPONSE: The Department acknowledges this concern of high variability in precipitation data and an inability to accurately predict future rainfall amounts. However, climate models consistently indicate increasing precipitation intensities in New Jersey and the northeast region, as a warmer atmosphere has greater capacity for holding moisture. Observational data in recent decades shows that annual totals and precipitation amounts have increased. It is prudent to plan accordingly by accounting for probable increases of precipitation intensity into the future.

337. COMMENT: Based on the analysis of a privately retained meteorologist, it is the commenter's opinion that the Department should use "median range for precipitation and the 2050 time horizon with mandatory updates every ten years". This methodology would better reflect the large variances in the study used in drafting the rule. (168)

338. COMMENT: Applied Weather Associates (AWA), the meteorological firm retained by the commenter, advocates the use of median outcomes instead of the 83rd percentile as a predictor in climate modeling since utilizing the average outcome better captures the overall range of outcomes. (168)

339. COMMENT: The commenter, based on AWA's findings and the variability of climate studies, urges a phased-in approach to rulemaking; advocating the use of the median

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projections from the year 2050 with updates performed every 10 years as climate science evolves. (168)

340. COMMENT: The commenter supports the “Current Precipitation Adjustment Table” in the rule since it utilizes the latest measurable data. (168)

341. COMMENT: The commenter again urges the use of the 2050 median precipitation projections as a basis for determining the 2-, 10- and 100-year storms. (168)

RESPONSE COMMENTS 337 THROUGH 341: The Department uses the likely range (17th to 83rd percentile), consistent with recent IPCC reports. The median leaves a 50 percent chance of exceeding a given value, which would mean greater risks for property and public safety. The 83rd percentile leaves only a 17 percent chance of exceeding a given value, which accounts for the full likely range and is more appropriate for risk reduction. The data are not calculated for a 2050 timeline, but instead include a 50-year time frame (2050-2099) to assure an adequate sample size for extreme value analysis. In addition, the service life of infrastructure goes beyond 2050. Roads, bridges, buildings, and other structures are designed with an expected useful life of 75 years or more. Should new information on climate change and precipitation data become available, which warrants a different approach or set of calculations, the Department will adjust the design and construction standards of the FHACA rules accordingly so as to rely on the best available science.

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342. COMMENT: Although the commenter agrees that the number of flooding events in the State has increased, the elevation requirements in the rule need further study and should be on an individual floodplain basis and not statewide. Additionally, The Department has not provided a study that shows New Jersey specific data regarding increased streamflow and flooding to justify the increased elevations. (168)

343. COMMENT: The storms used by the Department to justify the proposal had extenuating circumstances. The Department should analyze the intensity, duration, and proximity of past events rather than rely on unverified studies and widely variable predictions of future flooding events. (170)

RESPONSE TO COMMENTS 342 AND 343: As noted in response to comments 337 through 341 above, this rulemaking is based on the best available climate science and is informed by recently measured and observed trends toward more extreme precipitation and deeper floodwaters in riverine systems. Most individuals rely on State or FEMA flood mapping to assess the flooding risk on a given property. However, as discussed in the proposal summary, this mapping relies on hydrologic data from decades past and does not reflect current or future flood conditions. For this reason, in cases where an applicant chooses to rely on State or FEMA flood mapping, the Department is adopting an additional two feet factor of safety in the design flood elevation to account for changes in flood depths that have already occurred and will continue to increase toward the end of the century. Where an applicant believes that the additional safety factor being added to

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State and FEMA mapping overestimates the extent of flooding on a given property, they may calculate the future flood elevation using Method 6 as set forth at N.J.A.C. 7:13-3.6.

With regard to the commenter's suggestion that the Department should analyze the intensity, duration, and proximity of past flood events rather than rely on predictions of future flooding events, doing so would not capture the changes in flooding that are presently occurring. Analyzing past flood events is not an accurate predictor of future flood risk. For example, flooding along the Raritan River at Bound Brook has exceeded FEMA's 500-year flood elevation three times since 1999. This indicates that the actual flood recurrence interval at this location is quite different than what has been determined by FEMA through analyzing historic flood data, which focuses solely on past events as suggested by the commenter (<https://water.weather.gov/ahps2/hydrograph.php?gage=bdkn4&wfo=phi>). Thus, in order to ensure that buildings and infrastructure designed and constructed today will be flood resilient throughout the lifetime of the structure, it is imperative that the Department adopt more protective flood standards. The decision to add a two-foot factor of safety when an applicant chooses to rely on State or FEMA flood mapping is based on the Department's confidence in the science as well as the urgency of taking action.

344. COMMENT: It is inappropriate to limit the Department's state-wide elevation requirements to the flooding experienced during the Hurricane Ida event. Only certain data was utilized from the event considering only the areas that flooded and not taking into account the areas that did not flood but received the same amount, or more, of rainfall. (168)

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RESPONSE: Since 1999, FEMA's 100-year flood elevations have been exceeded as many as four times in some areas of the State. While flooding resulting from the remnants of Tropical Storm Ida provided additional evidence to support the need for increasing the design flood elevation, observed increases in the magnitude and frequency of extreme precipitation and flooding have been recorded over prior decades which also demonstrates a need to increase the design flood elevation. Recent studies, including Davenport et al. 2021, have shown there is a relationship between recent increases in precipitation and flooding events. Adjusting the rules to account for extreme conditions is warranted considering observed and projected extreme precipitation data. Applicants may also perform a hydrologic and hydraulic analysis using the projected precipitation to calculate the anticipated extents of future flooding for a specific watercourse.

345. COMMENT: The commenter urges that the 25 percent increase in the 100-year peak flow rate safety factor for calculating elevations be removed since using the year 2100 and 83rd percentile should provide enough of a safety factor. (168)

RESPONSE: Using the 83rd percentile ensures the full likely range of projected extreme rainfall values is accounted for over the period of 2050-2099. The 25 percent increase in the anticipated future 100-year peak flow rate is included to provide a factor of safety above the anticipated future 100-year elevation and a differentiation between the flood hazard area design flood elevation and the 100-year flood elevation, consistent with the prior rules.

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346. COMMENT: The rule uses a “one-size fits all” approach to requirements instead of a watershed basis. (142)

RESPONSE: The Department disagrees that the ruling proposes a “one-size fits all” approach. The proposed rule uses change factors for the upper end of the likely range of projected extreme precipitation data at the county level, which varies across the State and provides flexibility in allowing the use of site-specific data.

347. COMMENT: Clarify if the increased rainfall estimates through 2100 will be applied to the water quality design storm. (142)

RESPONSE: The adjustment factors adopted into the SWM rules apply only to the 2-year, 10 year, and 100-year storm events and do not alter the definition, intensity or volume of the water quality design storm. The water quality design storm is set at one and one-quarter inches of rainfall, rather than being tied to a specific return frequency like the two-, 10-, and 100-year storm. The rainfall of the two-, 10-, and 100-year storms need to be adjusted to maintain the same return frequency for those storms. Since the water quality design storm is set at a specific rainfall total, it does not require adjustment.

348. COMMENT: In light of advancements in data collection techniques and equipment, the requirement to increase the calculated 100-year peak flow rate by 25 percent should

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be reevaluated. The use of rainfall projections should remove at least some portion of the uncertainty that originally justified the use of the 25 percent factor of safety. (163)

RESPONSE: Any number of changes in the hydrologic and hydraulic characteristics of a watershed can increase expected flood flows at a given location. Upstream development, removal or modification of upstream bridges and dams, channel improvements, sediment removal projects, changes in hydrologic conditions in portions of a watershed and alterations in weather patterns may all contribute to exacerbate flooding. Floodplain modeling of fluvial systems is thus necessarily based on factors and assumptions that cannot always be precisely measured or predicted. For these reasons, when the Department has undertaken the delineation of flood hazard areas for its jurisdictional mapping, a flow rate of 25 percent greater than the 100-year flood has been historically utilized in order to adequately preserve public safety.

The State's continued flooding problems, despite the historic application of this 25 percent factor of safety, clearly demonstrate that this safety margin is necessary. The Department believes that it would be inappropriate and could put public health and safety at risk to assume that the additional protections contained in these new rules will fully address the problems that currently exist without continuing to require the factor of safety. Given this approach to riverine modeling, which has been maintained throughout the entire history of the Department's flood mapping efforts that date back over 40 years, it is reasonable to require the same assumptions and factors of safety in modeling performed by the public sector in the absence of State flood hazard area delineation.

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349. COMMENT: The Northeast Regional Climate Center Precipitation Studies should be repeated in the fall of 2023 to determine whether rainfall projections are consistent with observed climate change data. (138)

RESPONSE: The Department acknowledges the request to repeat the Northeast Regional Climate Center (NRCC) studies in the future. However, it is unclear why this exercise would be necessary. The NRCC projections from the fall of 2022, provide a distribution of precipitation amounts for a range of return periods over a 50-year time frame. Also, precipitation data over time is highly variable. With only a few additional years of data, a comparison of projected and observed data is not expected to represent the extreme values projected over 50 years.

350. COMMENT: The Department should use higher emissions scenarios in calculating flood plains and storm events. According to the most recent IPCC report, “[t]otal net anthropogenic GHG emissions have continued to have risen during the period 2010-2019.” Therefore, the requirements of these rules to account for future climate change may not be sufficient in light of actual conditions in the future. The protection of lives and properties would be better achieved with the standards in this proposal to be based on a worse-case scenario, i.e., a high emissions scenario, instead of the moderate emissions scenario currently utilized. (222)

RESPONSE: The Department understands this concern and considered moderate and high emission scenarios for this ruling. The moderate emissions scenario is consistent with current

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global climate policies and corresponds with the three degree Celcius temperature trajectory many scientists believe we are heading toward. This scenario offers flexibility if some global policies are reversed. The high emissions scenario was not used because of the strong likelihood that it will not align with future emissions forecasts. For more information see Hausfather and Peters 2020 and Burgess et al. 2021 as cited in the notice of proposal.

351. COMMENT: Regulatory changes are based on research performed by the Northeast Regional Climate Center. This research should not be utilized for regulatory change without authorization from the State Legislature. The research has not been evaluated by the scientific and engineering community. Instead, it was only peer reviewed by the Department. (147)

RESPONSE: In addition to critique from the Department, peer review was conducted by the NJDEP Science Advisory Board. This Board is an independent group of technical experts from academia, environmental consulting, and industry. Additionally, the models employed by the author to develop the projections are well established and frequently used and vetted through peer-review.

352. COMMENT: The proposal should not be implemented. State universities should evaluate and review analyses. It may be that flooding problems are a result of poor regulations, not actual flood events. (147)

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RESPONSE: The NJDEP Science Advisory Board's Climate and Atmospheric Science Standing Committee includes members from academia, environmental consulting, and industry that provided peer review of the Northeast Regional Climate Center studies. Observational data can be found online, which shows increases in precipitation amounts and flood events in recent decades. See the NOAA storm events database, <https://www.ncdc.noaa.gov/stormevents/>, and the Climate at a Glance Tool, <https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/statewide/>.

353. COMMENT: Future precipitation values are crucial to the height of bridges and culverts and will dictate the cost of replacing thousands of structures at the taxpayer expense. The global climate change model used to determine the future precipitation values is not empirical and cannot be confirmed as accurate. The Supreme Court reviewed a climate change modeling effort by the Environmental Protection Agency (EPA) regarding emission performance rates which would empower EPA to order the reconstruction of any industrial sector based only on its discretionary assessment. Climate change is a vague and imprecise political term and should be avoided by the Department. The proposed rules instill fear to create new laws and claim unnecessary jurisdiction. The claim the NOAA Atlas 14 Precipitation Frequency data uses backwards-looking methodologies that don't account for impacts of climate change falsely assumes the data is inaccurate. The Department's future precipitation data is a broad guess. (66)

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RESPONSE: The Department agrees that future precipitation amounts are important for investment in State infrastructure. Climate models take into account the physics, chemistry, and biology of the oceans, land, and atmosphere, which must use some of the largest supercomputers in the world to provide projection outputs. These models are useful for simulating the evolving conditions that are already occurring due to climate change. Climate change is a standard scientific term and there is no reasonable doubt that human activities are causing climate change, which has already resulted in widespread and rapid changes to the planet. NOAA Atlas 14 data are not assumed to be inaccurate for the period they represent, but are outdated and do not represent current conditions. See the Northeast Regional Climate Center studies, <https://www.nj.gov/dep/dsr/publications/nj-rainfall-studies-summary.pdf>, for more information, including how future extreme precipitation estimates were calculated from downscaled climate models.

354. COMMENT: No evidence has been provided to describe a calculatable nexus between increasing precipitation and flood elevations. The 2020 New Jersey Scientific Report on Climate Change does not reference any studies which focus on increased fluvial flooding or the effects of increased precipitation on floodplain size and depth. (114)

RESPONSE: Given the realities of climate change, hydrologic modelling based on data collected decades ago is no longer an accurate indicator of future flood trends. Increasing trends are shown for both observed and projected precipitation data (see Northeast Regional Climate Center studies). The 2020 New Jersey Scientific Report on Climate Change does reference Goudie 2006,

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[http://skyschool.arizona.edu/wp-content/uploads/2013/02/06\\_Goudie\\_Geomorph.pdf](http://skyschool.arizona.edu/wp-content/uploads/2013/02/06_Goudie_Geomorph.pdf). The Department acknowledges the need for further research on this topic. Recent studies, including Davenport et al. 2021, <https://www.pnas.org/doi/pdf/10.1073/pnas.2017524118>, have shown there is a relationship between recent increases in precipitation and flooding events.

355. COMMENT: The Department should partner with higher education institutions in the state, like Rowan University, to inform the stormwater regulations. Rowan is able to provide data on soil and roadway materials pre- and post-storm. Rowan's GIS and remote sensing infrastructure and experience can contribute to the establishment of flood mapping and safety factors. Rowan's Virtual Reality Center can educate and inform decision making through storm water system simulations using rainfall intensity, duration, topography, and land use. Rowan's research can also assist the Department in understanding climate change impacts and risks. (134)

RESPONSE: The Department acknowledges this comment that Rowan University may be a helpful contributor in further studying the State's precipitation and flooding risks.

356. COMMENT: The impact of climate change on rainfall rate does not have full scientific consensus. (176)

RESPONSE: While precipitation patterns are changing differently depending on location, New Jersey observational data showing increasing patterns and projections indicate this pattern is likely

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to continue. According to the Fourth National Climate Assessment, <https://www.nrc.gov/docs/ML1900/ML19008A410.pdf>, in the Northeast United States, the amount of precipitation falling during the heaviest 1 percent of all daily events has increased by 55 percent between 1958 and 2016. The IPCC's Sixth Assessment Report, [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_SPM.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf), states "The frequency and intensity of heavy precipitation events have increased since the 1950s over most land area for which observational data are sufficient for trend analysis (high confidence), and human-induced climate change is likely the main driver."

357. COMMENT: Currently utilized rainfall data is outdated and does not take into account climate change. (252)

RESPONSE: The Department agrees that NOAA Atlas 14, currently used by practitioners, does not adequately represent current probable extreme rainfall values that have been affected by climate change, nor does it account for the likely increases into the future.

358. COMMENT: The Department should justify the use of a single observed storm event with effects centralized at routinely flooded areas, to the entire state. (146)

RESPONSE: Extreme precipitation events are increasing in intensity. FEMA claims data shows that approximately one-third of claims in New Jersey caused by the remnants of Tropical Storm Ida originated outside of the extent of FEMA's published 100- year flood plain. Case studies from

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Tropical Storm Ida were used as observational data for extreme events. While flooding resulting from the remnants of Tropical Storm Ida provided additional evidence to support the need for increasing the design flood elevation, observed increases in the magnitude and frequency of extreme precipitation and flooding, as outlined in the rule proposal, have been recorded over prior decades which also demonstrate a need to increase the design flood elevation throughout the State.

359. COMMENT: Additional studies should be evaluated for the chosen rainfall data sets. The rainfall data from the Northeast Regional Climate Center is too conservative and does not necessarily reflect rainfall data that will occur in the year 2100. (158)

RESPONSE: The Northeast Regional Climate Center studies represent the best New Jersey-specific, peer-reviewed data available for preparing the State for resilience against increasing precipitation patterns from climate change. There are no competing, peer-reviewed, New Jersey-specific precipitation studies that indicate these rainfall projections are overly conservative as suggested by the commenter. The Northeast Regional Climate Center studies provide projected extreme rainfall values for 50-year periods, including from 2050-2099. The Department chose the period extending to 2100 because it covers the expected functional life of most buildings and infrastructure being built today.

360. COMMENT: The Department should use the precipitation projections up to the year 2050, as there is uncertainty in data past this. The Department should then continue to

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test projected data against real data as time goes on and update the standards for projections moving forward. (114, 149)

RESPONSE: Limiting the ruling to midcentury projections would not be adequately protective because infrastructure being built today is expected to last well past that date. This would put public safety and property at undue risk, given the best available science on climate change impacts to precipitation patterns. The Department anticipates conducting further scientific studies to continue to evaluate changing precipitation patterns and inform future State planning efforts.

361. COMMENT: The proposal does not accurately anticipate the larger storms expected by the year 2100. Climate models predict storms even larger than the 500-year storms that have occurred in the State. (4)

RESPONSE: The Department acknowledges the concern of not incorporating larger events with longer return periods, such as the 500-year storm, and will consider including such estimates as they become available.

362. COMMENT: The two-foot elevation standard may not be sufficiently supported by science. Commenter argues that this two-foot elevation was just an observation, and a more comprehensive analysis must be selected based on historical flood elevation standards. (99)

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RESPONSE: The additional 2 feet of flood protection applied to historic flood mapping is being adopted in response to increases in extreme precipitation that have been recorded over prior decades as well as recent flood events that show flooding in New Jersey continues to increase. In cases where an applicant feels that this added factor of safety to historic flood mapping inappropriately demarcates flooding on a given property, the Department encourages the use of method 6, which more accurately computes flooding on a site, rather than relying on historic flood mapping. However, where applicants choose to use historic flood mapping as the basis of their design flood elevation on their property, the Department is confident that the additional 2-foot factor of safety incorporated by this rule making adequately protects public health, safety and welfare.

363. COMMENT: The commentator recognizes that with a warming planet we can expect more rainfall and a higher intensity during certain storms. The commenter takes no position on the Northeast Regional Climate Center precipitation reports. (99)

RESPONSE: The Department acknowledges this observation.

364. COMMENT: Climate models are speculative and further weather predictions based on such models are an additional speculative factor. Climate models are not inclusive of natural variables and conditions such as ocean currents, solar flares, and volcanos, and these variables are ignored in models and the Department's analysis. (99)

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365. COMMENT: Commenter argues against regulation based on “speculative climate and weather models.” Commenter argues for the use of the “likely” rainfall target as a fair midpoint prediction. (99)

RESPONSE TO COMMENTS 364 AND 365: The Department acknowledges concerns that climate models are not able to account for all potentially influential variables, as there are natural events that are not predictable. In part, this is why it is important to review and consider a range of emissions scenarios to consider likely and extreme impacts of climate change. Specifically, the likely range of precipitation intensities (17th to 83rd percentile), consistent with recent IPCC reports, is used in this rulemaking. Using the median value leaves a 50 percent chance that rainfall intensities could exceed the median, which would mean greater risks for property and public safety. The 83rd percentile leaves only a 17 percent chance of rainfall exceeding a given value, which accounts for the full likely range and is more appropriate for risk reduction.

366. COMMENT: I oppose the Inland Flood Rule on the basis that it uses speculative data to set levels based on probabilities of future precipitation. (141)

RESPONSE: Recent extreme precipitation and flooding events have recurrently exceeded current standard extreme precipitation values used for structural design. Observational data shows increases in annual total amounts and extreme precipitation amounts for New Jersey. Climate models project further increases for New Jersey, and infrastructure in the State will need to withstand these changing conditions.

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367. COMMENT: Ida being listed as a precipitating factor for the rule does not accurately reflect why flooding “took place miles” from any streams, caused extensive damage and loss of life. What was not clear in stakeholder sessions was that much of the severe flooding during this storm came not from streams overflowing their banks (fluvial flooding) but from the inability of existing stormwater systems to handle the rainfall and runoff. There is not a direct correlation between increased rainfall and floods; while increased rainfall can exacerbate flooding, but in the case of Ida most inland flooding was caused by failing infrastructure that could not handle the precipitation. (99)

RESPONSE: The Department acknowledges that much of the devastation experienced as the remnants of tropical storm Ida passed through New Jersey resulted from extreme precipitation that caused an exceptional volume of runoff which, due to the intensity of the precipitation, was unable to be safely conveyed by existing drainage systems. This led to flash floods in many areas that are not currently mapped as flood hazard areas, some of which is captured by the adopted increase in the design flood elevation. However, it should be noted that the purpose of this rulemaking is targeted and intended to ensure that new construction and redevelopment activities are designed and constructed in light of recent and anticipated trends in extreme precipitation and flooding in New Jersey and specifically include amendments to the Stormwater Management rules to ensure newly constructed stormwater facilities are sized to manage increased rainfall. The Department is currently developing a subsequent rulemaking to be proposed this summer which would address some issues related to improving runoff from existing areas. However, the Department's authority

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under these rules is limited to development and redevelopment activities. The Department cannot compel individuals to retrofit or reconstruct stormwater management systems unless improvements are being proposed by their owners.

**Flexibility for Public Transportation authorities, N.J.A.C. 7:8-1.6(f) and 7:13-16.2**

**Consideration of Factors Leading to Public Transportation Authority's Flexibility**

- 368. COMMENT: The commenter urges NJDOT and all agencies that build roads to follow the proposed rule changes and incorporate its standards into all proposed roads. (8, 9, 11, 13, 15, 17, 20, 25, 26, 43, 74, 32)
- 369. COMMENT: The exemptions for NJDOT, highways, and roads should be removed. (36, 42, 74, 32, 75, 40, 217, 235, 224)
- 370. COMMENT: Transportation agencies should not receive an exemption. Solutions that do not pass impacts on to others should be implemented. (229)
- 371. COMMENT: The highway lobby should not be given a free pass when it comes to climate change and the impacts of climate change. (260)

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372. COMMENT: The commenter disagrees with NJDOT exceptions in the rule and would prefer the rule apply equally to NJDOT since roadways are the main contributor of stormwater contaminants into the groundwater and reservoir systems. (167)
373. COMMENT: NJDOT projects should not receive exemptions as the expansions of impervious cover of roadways can affect groundwater and flooding, as seen during Ida. (167)
374. COMMENT: The exemption for parking areas owned by public transportation entities should be removed as they have huge impacts on flooding and must be regulated better. (139)
375. COMMENT: Public transportation agencies should be required to follow the same flood hazard standards as private entities and other types of public development. (147)
376. COMMENT: The rule allows for flexibility in the review of transportation projects that are and will be subject to flooding. The rule should be revisited to minimize or eliminate exceptions to strict compliance for transportation projects so that commuters will not be stranded, and emergency response will not be hindered by the flooding of roadways/parking areas that were not required to strictly adhere to the regulations. (93, 100, 107, 111)

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377. COMMENT: NJDOT should not be exempted from the rule since many of the deaths that occur during a flooding event comes from flooded cars on roadways. The NJDOT as well as all entities constructing roadways should implement these rules immediately to provide safe roadways. (93, 100, 107, 111)
378. COMMENT: Public transportation agencies must not be exempt from the requirements of the proposal because a majority of severe events and deaths occur on roads from flooded vehicles. They should be held to the same standards as everyone else. Road safety is paramount to their mission. (81)
379. COMMENT: Provision N.J.A.C. 7:13-12.6(b)2 is opposed. Allowing these projects not to meet the new standards is improper and perpetuates conditions that continue to put lives at risk. (222)
380. COMMENT: N.J.A.C. 7:13-12.6(b)2ii is outdated, not protective, and puts the public and first responders in harm's way. (222)
381. COMMENT: The New Jersey Department of Transportation and other government agencies that build roads should immediately incorporate the proposed rules into their designs. (138)

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382. COMMENT: The language regarding transportation projects is too loose, allowing transportation projects to be constructed without adhering to the enhanced flooding standards in the proposed rules. (93)
383. COMMENT: The exemption for NJDOT and highway projects should be removed. NJDOT and road projects should be required to comply with the same standards as all other applicants and projects. (120)
384. COMMENT: The exemption for NJDOT and highway projects should be removed. NJDOT and road projects should be required to comply with the same standards as all other applicants and projects. NJDOT is the largest developer in the State, controlling more impervious cover and impacting more stream miles than anyone else. (214)
385. COMMENT: The exemption for NJDOT and highway projects should be removed. DOT and road projects should be required to comply with the same standards as all other applicants and projects. When storms hit, people use the roadways to leave an area, so the roads need to be safe during flooding. (221)
386. COMMENT: N.J.A.C. 7:8-1.6(f) allows for flexibility for projects under broad and undefined conditions. As part of the provision, a public roadway or railroad project where the sponsor has selected the preferred alternative prior to the effective date of

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this rule, does not have to comply with the newer standards. This provision is outdated, not protective, and puts the public and first responders in harm's way. (222)

387. COMMENT: The exemption for NJDOT and highway projects should be removed. NJDOT and road projects should be required to comply with the same standards as all other applicants and projects. It is irresponsible to exempt NJDOT projects from this Rule. Doing this does not protect the public. There should never be a compromise in order to protect lives, especially as severe weather will continue to intensify in terms of strength and occurrence. We need to be building for the future fifty years from today, not only five years from now. Will the roads built using the exemptions continue to be safe in fifty years? (225)

388. COMMENT: State agencies should incorporate these new rules and standards into projects. (87)

RESPONSE TO COMMENTS 368 THROUGH 388: The flexibility afforded to certain public transportation projects at N.J.A.C. 7:8-1.6(f) and N.J.A.C. 7:13-12.6(b) should not be viewed as a blanket exemption from strict compliance with the Department's Stormwater Management or FHACA rules, but rather a recognition of the implementation challenges unique to public transportation entities who often engage in significant advanced planning and design processes with the result that minimal feasible alternatives may be available at later design stages. Projects eligible for flexibility include large-scale linear projects that have been the subject of significant

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advanced planning and design such as public engagement, development of land acquisition plans within limited right-of-way, and commitment of public funding to implement selected designs from multiple possible alternatives. A public transportation project that reaches this level of design and planning has minimal opportunity for significant project redesign in the latter stages of planning, such as would be required to meet the newly adopted standards under this rulemaking. The Department further recognizes that, as a reflection of their commitment to protecting public health, safety, and the environment, public transportation entities commonly adhere to internal environmental, sustainability, and climate resilience practices through which they routinely seek to meet or exceed applicable environmental standards, including, but not limited to, stormwater management standards.

The Stormwater Management and FHACA rules approach protection of public health, safety, welfare and the environment in a similar manner. Highly protective standards are established as the baseline from which compliance is measured, balanced by the Department's recognition that full compliance with one or more standards might not be achievable or feasible for a particular applicant or project, in which case alternate standards would apply. As noted above, these rules further recognize that many projects undergo advanced planning and investment well prior to application to the Department for authorization. For this reason, previous and current N.J.A.C. 7:8-1.6 and N.J.A.C. 7:13-2.4 apply the design and construction standards of the Stormwater Management and FHACA rules, respectively, to those projects submitted to the Department after amendments to the chapter are made. However, the Department believes that additional flexibility is warranted in cases where significant advance planning, such as is common for public transportation projects, is made.

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For example, prior N.J.A.C. 7:13-12.6(b) required public transportation entities to either: (1) set the travel surface of any new or reconstructed railroad or public roadway at least one foot above the design flood elevation; or (2) demonstrate that it is not feasible to construct the travel surface of the proposed railroad or public roadway to this elevation, in accordance with N.J.A.C. 7:13-12.6(e), and instead construct the travel surface as close to this elevation as feasible. Adopted N.J.A.C. 7:13-12.6(b) retains this provision, with added requirements that must be met for a public transportation entity to demonstrate that constructing the travel surface one foot above the design flood elevation is impracticable. Specifically, the FHACA rules provide flexibility to public transportation entities in three cases.

Pursuant to N.J.A.C. 7:13-12.6(b)2i, flexibility is provided in cases where the project is limited in scope and consists solely of safety or state of good repair improvements to a lawfully existing railroad or roadway, such that there is no reasonable opportunity to elevate the railroad or roadway as part of the project's overall scope and purpose. Examples of such projects include guiderail repair or replacement, intelligent transportation system installation and modification, rockfall mitigation, safety signage repair or replacement, pavement preservation and resurfacing, intersection safety improvements, in-kind bridge deck or superstructure repair or replacement, installation of ramps that comply with the Americans with Disabilities Act, and safety projects that are limited in scope. Flexibility is provided to a second category of railroad or roadway projects at N.J.A.C. 7:13-12.6(b) under which a public transportation entity must demonstrate that, prior to the effective date of this rulemaking, the project has reached a milestone in its development and design such that elevating the railroad or roadway one foot above the design flood elevation would

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necessitate reevaluation of the selected preferred alternative or equivalent milestone, a significant redesign of the project, or significant modifications or additions to private land acquisition plans.

Finally, it should be noted that even where a project has not yet reached a milestone in its development and design under N.J.A.C. 7:13-12.6(b)2ii, there are numerous factors that would make construction or reconstruction of a railroad or roadway one foot above the design flood elevation impracticable. For example, a segment of roadway may intersect numerous driveways and crossroads, which also would need to be elevated should the roadway be reconstructed at a higher elevation. Significant adverse drainage problems can additionally result from such a design and raising roadways in certain cases may exacerbate local flooding. For example, an existing railroad or roadway that crosses a regulated water may be low enough that the design flood easily passes over the roadway. Raising the railroad or roadway one foot above the design flood elevation would necessitate a bridge or culvert design that would pass the entire flood beneath the travel surface. While this is safer for the public utilizing the railroad or roadway, the entire volume of water in the floodplain may not be able to be accommodated by a bridge or culvert and, as a result, the passage of floodwaters could be obstructed and exacerbate or cause additional flooding upstream. The Department acknowledges that railroad and roadway design must balance the long term safety and resilience of the structure, the frequency at which the structure will be overtopped by floodwaters, the intended use of the railroad or roadway, local flooding dynamics and the overall conditions of the watershed.

Given the above, adopted N.J.A.C. 7:13-12.6(b)2iii provides a framework under which the Department will consider approval of railroads or public roadways lower than one foot above the design flood elevation and is similar to the requirements found at existing N.J.A.C. 7:13-12.6(e),

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but adds new considerations at N.J.A.C. 7:13-12.6(b)2iii(1) through (5) that include a demonstration of one or more of the following in order to qualify for flexibility: (1) prohibitively high construction costs or costs that exist proportionally high compared with the benefit of strict compliance; (2) excessive flood storage volume displacement; (3) a design that does not meet necessary transportation safety, geometric design, or access point requirements, such as those adopted by the American Association of State Highway and Transportation Officials; (4) a design that causes adverse environmental impacts; or (5) a design that exacerbates flooding or causes other adverse impacts to properties or drainage patterns. N.J.A.C. 7:13-12.6(c) sets forth additional standards that must be met related to the safety of the railroad or roadway and its users, including an analysis of risk and a demonstration that the railroad or roadway is raised to the extent possible and designed to the maximum extent practicable to resist damage, displacement, and loss of service due to anticipated flooding based on the projected rainfall depths used in this chapter.

389. COMMENT: Projects that have not yet entered the design phase by the time these rules are in effect should not be exempt. (95, 260, 183, 193, 184, 185, 194, 195, 197, 187, 188, 189, 198, 199, 190, 191, 200, 201, 202, 203)

390. COMMENT: Regarding N.J.A.C. 7:8-1.6(f), public agencies should be required to use the standards in the proposed Inland Flood Protection rule from the date of proposal. Therefore, any project that selects the preferred alternative on or after December 5th should be required to use the proposed standards. (222)

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391. COMMENT: The commenter proposes that all state agencies should be required to incorporate the proposed standards into all capital projects currently in design. (30)

RESPONSE TO COMMENTS 389 THROUGH 391: The SWM rules at N.J.A.C. 7:8-1.6(f) apply flexibility only to projects that reached a preferred alternative or equivalent milestone before the effective date of this rulemaking. The FHACA rules at N.J.A.C. 7:13-12.6(b)2ii apply similar flexibility to projects that reached a preferred alternative or equivalent milestone before the effective date of this rulemaking, specifically in cases where elevating the railroad or roadway one foot above the design flood elevation would necessitate reevaluation of the selected alternative, a significant redesign, or significant modifications or additions to private land acquisition plans. Projects that have not yet entered the design phase by the date of this rulemaking are not covered by either provision and are therefore subject to the standards adopted in this rulemaking.

392. COMMENT: Please eliminate the provisions that exempt infrastructure and transportation projects due to “prohibitively high cost”, as human life is put at risk by not having the safest possible flood protections in place. (95, 260, 193, 182, 184, 185, 194, 195, 197, 187, 188, 189, 198, 190, 191, 200, 201, 202, 203, 192, 205, 206, 204)

393. COMMENT: Inclusion of exceptions for public transportation agencies indicates that the State does not intend to use public money to build to required standards. The Federal government may withdraw nationally important funding support. (147)

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394. COMMENT: While the Department and Murphy Administration is commended for adding important updates to the proposed rule, there should be little to no exemption for transportation and infrastructure entities due to “prohibitively high costs.” (119)

RESPONSE TO COMMENTS 392 THROUGH 394: As noted in response to comments 368 through 388 above, there are numerous factors that would make construction or reconstruction of a railroad or roadway one foot above the design flood elevation impracticably costly. Public transportation entities are tasked with maintaining their transportation networks in safe working condition within the confines of existing funding. While raising a railroad or roadway itself may not necessarily be cost prohibitive, addressing the potentially significant adverse drainage and flooding impacts that could result on adjacent properties could result in astronomical expenses related to design, construction and acquisition of land. The Department acknowledges that railroad and roadway design must balance the long-term safety and resilience of the structure, the frequency at which the structure will be overtopped by floodwaters, the intended use of the railroad or roadway, local flooding dynamics and the overall conditions of the watershed.

395. COMMENT: If the Department includes the public transportation entity exemption in the proposed rule change, an adaptive management plan should be required for the inevitability that these roadways will be impacted by increased flooding if located in the newly designated flood prone areas. (150)

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RESPONSE: The Department agrees public transportation entities proposing railroads and roadways impacted by increased flooding as articulated in this rulemaking should include an adaptive management plan that would address the long-term viability and safety of the transportation network under review. The Department can request such a plan as part of the general application requirements for individual permits and general permit authorizations pursuant to N.J.A.C. 7:13-18.4(a)7 through 9.

396. COMMENT: The majority of severe flood event deaths occur on roads. DOT and highways should be held to the same stringent standards as everyone else and should not be exempt from the proposed rules. Providing safe roads is paramount to the mission of the state Department of Transportation and other agencies building roads so they should not wait to incorporate the new rules into their design. (112, 120, 123, 129, 130)

397. COMMENT: The rules should not exclude transportation projects. Most of the deaths from Hurricane Ida came from people drowning in their cars. The New Jersey Turnpike Authority has plans to spend billions of dollars on new highways, including \$10.7 billion to expand the Turnpike spur from Newark through Jersey City along waterways that are subject to substantial flooding. The rules must apply to transportation projects. (260)

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398. COMMENT: The proposed DOT exemption does not protect communities from increased storms and other issues that contribute to flooding. There is a history of permits for impervious roadways construction, and projects such as highway widening contribute to more development, impervious cover, and redirection of groundwater flow. Advanced planning should not exempt DOT from these rules, they should be accountable to these rules. Over two dozen deaths during Ida were caused by roadway flooding. (155)

399. COMMENT: Transportation projects should not receive special treatment under the rules since most lives lost during Ida were on roadways. (133)

RESPONSE TO COMMENTS 396 THROUGH 399: The Department acknowledges the profound tragedy of the 30 individuals who lost their lives as the remnants Tropical Storm Ida passed through New Jersey in September 2021. As noted by the commenters, the majority of these deaths were related to individuals trapped in their vehicles on roadways that were subject to flash flooding. It is for this reason, and the long term safety of the state's transportation network and the traveling public that, to the extent practicable, roadways should be constructed to be resilient and, where possible, elevated so that such tragedies may be avoided in the future. As noted in response to comments 368 through 388 above, the Department recognizes the significant complexity in addressing this issue and further recognizes that it might not be practicable in all cases to elevate railroads and roadways one foot above the design flood elevation. For this reason, the limited

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exceptions and flexibility provided to public transportation entities at N.J.A.C. 7:8-1.6 and N.J.A.C. 7:13-12.6 are appropriate.

400. COMMENT: With the increase in rainfall, the rule should include non-green infrastructure without the need for an exemption. (104)

RESPONSE: The Department adopted green infrastructure requirements on March 2, 2020, and the incorporation of those rules into stormwater management systems became effective one year later on March 2, 2021. Any technically complete application for a major development that was received by the Department after this date is subject to the green infrastructure requirements. In limited cases transportation projects may qualify for flexibility under N.J.A.C. 7:8-5.2(e), particularly for projects that reached a preferred alternative or equivalent milestone before March 2, 2021, and specifically in cases where incorporating green infrastructure into a stormwater management design would necessitate reevaluation of the selected alternative, a significant redesign, or significant modifications or additions to private land acquisition plans.

401. COMMENT: Public roadways should not be exempt from the new requirements; the definition should be narrowed to federal and state transportation entities. (164)

402. COMMENT: Public roadways and private roadways should be held to the same standards. (168)

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403. COMMENT: The definition of a “public roadway” should be expanded to include privately built roads that will be dedicated for public use. (158)

RESPONSE TO COMMENTS 401 THROUGH 403: The FHACA rules at N.J.A.C. 7:13-1.2 define "public roadway" to mean, “a roadway for use by vehicles, including a driveway or access road, which is intended for public use and is constructed by or on behalf of the Federal, State, county, or municipal government. A public roadway does not include a roadway constructed as part of a private development, regardless of whether the roadway is ultimately to be dedicated to and/or maintained by a governmental entity.” The newly adopted SWM rules at N.J.A.C. 7:8-1.2 expands this definition to apply to public transportation entities and to include railroads. The distinction between public and private roadways is necessary because the substantive standards at N.J.A.C. 7:13-12.6 apply differently to private and public roadways. While all roadways are held to a high standard, existing public roadways face unique challenges that are not always present with the construction or improvement of private roadways. For example, a public roadway is generally situated within an established right-of-way that limits the ability of public transportation entities to make significant changes in the elevation or geometry of the roadway absent expanding the right-of-way by acquiring private land through its powers of eminent domain. Further, numerous driveways and other private roadways often connect to or intersect public roadways, which further complicates changes in the elevation of the travel surface, since raising a public roadway would necessarily result in having to raise all adjoining roads, both public and private. Private roadways, however, are constructed within parcels of land being developed for private use.

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As such, design professionals generally have more flexibility as to where to locate a private roadway on a given development plan and how to design the elevation and geometry of said roads.

In response to the different constraints and challenges of constructing or improving public and private roadways, under N.J.A.C. 7:13-12.6(c), the Department shall issue an individual permit to construct or reconstruct a private roadway or parking area in a fluvial flood hazard area that serves a critical building or serves a multi-residence building that is not part of a redevelopment project only if the roadway is elevated one foot above the design flood elevation, unless the applicant can demonstrate that such an elevated roadway already accesses the critical building or multi residence building. Railroads and public roadways under N.J.A.C. 7:13-12.6(b) are held to a similar standard, but with flexibility that is based on the unique challenges facing existing transportation networks articulated above. Finally, roadways and railroads constructed as part of a private development are not included in the definition of public railroad or roadway to ensure that the flexibility afforded at N.J.A.C. 7:13-12.6(b) is limited only to railroads and roads intended for public use constructed by or on behalf of the federal, state, county or municipal government.

404. COMMENT: Local governments should be given the ability to define or designate “public infrastructure projects that are critical to maintaining public safety.” (97)

RESPONSE: Local governments are encouraged to define or designate public infrastructure projects that are critical to maintaining public safety for their community. Such designations inform the relative safety of development in certain areas, which is used by the Department in consideration of flood hazard area permit applications that require dry access to multi-residence

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and critical buildings under N.J.A.C. 7:13-12.6(c). Additionally, the Department intends to propose a rulemaking later this summer that would acknowledge public infrastructure designated by their communities as critical to maintaining public safety by establishing protective new standards for roadways so designated.

**“Preferred Project Alternative” and Equivalent Milestone, N.J.A.C. 7:8-1.6 and 7:13-12.6**

405. COMMENT: Where a Public Transportation Entity seeks relief from the requirements of the proposed new rules pursuant to N.J.A.C. 7:8-1.6 and 7:13-12.6, the Department should expand its process for evaluating such requests and better describe the milestones for accepting these exceptions for preferred alternatives, while encouraging best practices to the maximum feasible extent. (180)
406. COMMENT: In relation to the exceptions for public transportation entities, the Department should expand upon what an “equivalent planning milestone” and other exceptions include. Also, the Department should detail what the process for approval would be. (150)
407. COMMENT: In regard to N.J.A.C. 7:8-1.6(f), the phrasing “or reached an equivalent planning and design milestone” causes concern. Projects that have reached this “equivalent” are also not required to utilize the proposed precipitation change factors to demonstrate compliance with N.J.A.C. 7:8. Absent a definition of “equivalent

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planning and design milestone” any project could purport it has reached an “equivalent milestone” leading to subjective decisions and inappropriate exemption determinations. (94)

408. COMMENT: The Department should clearly define what will be considered an “equivalent milestone. (146)

409. COMMENT: Clarify what would be considered an “equivalent milestone” and other exceptions regarding exceptions for public transportation entities. (154)

410. COMMENT: The commenter wishes the Department to expand upon the equivalent planning milestone and other exceptions including on what the approval process looks like. (164)

411. COMMENT: Commenter wishes for the Department to clearly define an equivalent planning milestone and other exceptions and what the process of approval would be. The Department should attempt to define what the cost of inaction would be as well as what parameters for a cost benefit analysis for compliance would entail. (164)

RESPONSE TO COMMENTS 405 THROUGH 411: The adopted SWM rules at N.J.A.C. 7:8-1.6(f) and FHACA rules at N.J.A.C. 7:13-12.6(b)2 provide flexibility for a “public roadway or railroad project conducted by a public transportation entity that has determined a preferred

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alternative or reached an equivalent milestone before the effective date of this rulemaking.” As defined in N.J.A.C. 7:8-1.2 and N.J.A.C. 7:13-1.2, a public transportation entity means “a Federal, State, county, or municipal government, an independent State authority, or a statutorily authorized public-private partnership program pursuant to P.L. 2018, c. 90 (N.J.S.A. 40A:11-52 et seq.), that performs a public roadway or railroad project that includes new construction, expansion, reconstruction, or improvement of a public roadway or railroad.”

Each public transportation entity has its own process for determining the preferred alternative design for a given project. For NJDOT, the Project Delivery Process begins with an evaluation of potential transportation problems in the Problem Screening Phase. During evaluation, NJDOT researches the problem statement to have a clear understanding of the problem and its impact. It determines how important that problem is relative to other transportation problems. These problems are then ranked by priority and importance. Project planning occurs during the Concept Development Phase. During this phase, NJDOT considers the problems associated with the project and looks at alternative solutions. An alternative is selected after data collection, consultation with subject matter experts and local stakeholders, and is evaluated based on environmental constraints/impacts, right of way, access, utilities, constructability, community involvement, cost effectiveness, how effectively the alternative addresses the project need, and if the project can be constructed in a timely manner. This selected alternative becomes the Preliminary Preferred Alternative (PPA).

For public transportation entities other than NJDOT, “equivalent milestone” refers to a stage in the entity’s project delivery process in which the preferred alternative for the design is formally determined based on the same evaluation and analysis undertaken by NJDOT to reach

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PPA for a given project as described above. Pursuant to N.J.A.C. 7:8-1.6(f), a major development for any public roadway or railroad project conducted by a public transportation entity that has determined a preferred alternative or reached an equivalent milestone before the effective date of this rulemaking, shall be subject to the stormwater management requirements in effect prior to the effective date of this rulemaking. A similar provision is found at N.J.A.C. 7:13-12.6(b)2ii for flood hazard area approvals, with the added qualifier that, in order to qualify for flexibility with regard to constructing the travel surface of the roadway one foot above the design flood elevation, the project must have reached a milestone in its development and design, such that elevating the roadway would necessitate reevaluation of the selected preferred alternative or equivalent milestone, a significant redesign, or significant modifications or additions to private land acquisition plans, whether in fee or easement.

Given the above, public transportation entities must therefore demonstrate that the project seeking flexibility or relief under N.J.A.C. 7:8-1.6(f) or N.J.A.C. 7:13-12.6(b)2ii has reached this milestone. Under N.J.A.C. 7:13-12.6(c), the public transportation entity must additionally provide a certification from a licensed professional engineer and supporting documentation that certain additional standards are met, which demonstrate the impracticability of elevating the roadway and support the public transportation entity's assertion that the project design has passed the point where significant alterations would be necessary to comply with the newly adopted standards. Finally, any applicant for a coastal zone management, freshwater wetlands or flood hazard area authorization or permit must certify, pursuant to N.J.A.C. 7:7-23.2(j), N.J.A.C. 7:7A-16.2(j), N.J.A.C. 7:13-18.2(j), respectively, that the information submitted in the application is "true, accurate, and complete" to the best of their knowledge. Thus the public transportation entity is

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responsible for both providing all necessary supporting documentation that demonstrates the project has reached a preferred alternative or equivalent milestone in its design, and certifying the veracity of this documentation.

Finally, adopted new N.J.A.C. 7:13-12.6(b)2iii provides a framework by which the Department will consider approval of railroads or public roadways lower than one foot above the design flood elevation similar to the requirements found at N.J.A.C. 7:13-12.6(e), but adds new considerations at N.J.A.C. 7:13-12.6(b)2iii(1) through (5) that include a demonstration of one or more of the following in order to qualify for flexibility: (1) prohibitively high construction costs or costs that exist proportionally high compared with the benefit of strict compliance; (2) excessive flood storage volume displacement; (3) a design that does not meet necessary transportation safety, geometric design, or access point requirements, such as those adopted by the American Association of State Highway and Transportation Officials; (4) a design that causes adverse environmental impacts; or (5) a design that exacerbates flooding or causes other adverse impacts to properties or drainage patterns. N.J.A.C. 7:13-12.6(c) sets forth additional standards that must be met related to the safety of the railroad or roadway and its users, including an analysis of risk and a demonstration that the railroad or roadway is raised to the extent possible and designed to the maximum extent practicable to resist damage, displacement, and loss of service due to anticipated flooding based on the projected rainfall depths used in this chapter.

412. COMMENT: The Department should clearly define what will constitute a change to the “preferred alternative” and would void this exemption. (146)

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RESPONSE: In order to qualify for flexibility with regard to constructing the travel surface of a railroad or roadway one foot above the design flood elevation, N.J.A.C. 7:13-12.6(b)2ii provides that the project must have reached a milestone in its development and design, such that elevating the railroad or roadway would necessitate: (1) “reevaluation of the selected preferred alternative or equivalent milestone;” (2) “a significant redesign, or significant modifications to the project;” or (3) “additions to private land acquisition plans, whether in fee or easement.” Thus, where adapting a railroad or roadway design to meet the adopted new flood hazard area standards would result in any of these conditions, flexibility is provided at N.J.A.C. 7:13-12.6(b)2. For example, in order to elevate a railroad or roadway one foot above the design elevation, the travel surface may need to be raised several feet. Such a change in the profile of the railroad or roadway could result in the need for a much wider limit of disturbance to accommodate the new geometry, as well as potentially significant alterations of drainage systems, bridge or culvert size or orientation, and numerous other factors that may result in additional acquisition of land to accommodate the new design. It should be noted that in addition to meeting the requirements of N.J.A.C. 7:13-12.6(b)2, a public transportation entity seeking flexibility from setting the railroad or roadway one foot above the new design food elevation must additionally meet the qualifications any considerations required at N.J.A.C. 7:13-12.6(c), which ensure that the applicant has made every reasonable effort to construct the railroad or roadway as close to the target elevation as practicable. In so doing, the Department will consider access to existing railroads or roadways whose travel surfaces are at an elevation lower than the design flood elevation. N.J.A.C. 7:13-12.6(b)3ii also requires that a railroad or roadway should be designed, to the maximum extent practicable, to resist damage, displacement, and loss of service due to anticipated flooding based on projected rainfall, and

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subparagraph (b)3iii requires a showing that no extraordinary risk is posed. Finally, subparagraph (b)3iv requires that information is provided to support the threshold determination that the project meets the conditions at subparagraphs (b)2ii or iii, as applicable.

**Definition of “Public Transportation Agency,” N.J.A.C. 7:8-1.2 and 7:13-1.2**

413. COMMENT: The definition of “public transportation agency” and its application in 12.6(b) requires clarification. As written, the definition is unclear on its application to municipal and county public works, making eligibility for exceptions ambiguous. In light of the lives lost on roadways during Hurricane Ida, exceptions for roadway projects are of great concern. (94)

414. COMMENT: Commenter requests clarification on how the exceptions from the phrase “public transportation entity” will work and how the Department is defining planning milestones, benefits of compliance, and other parameters. (164)

415. COMMENT: Excluding state agencies from the requirements imposed on others indicates that the regulation is so complex and difficult to administer that the State is above the law. Federal agencies will dismiss the regulation. (147)

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416. COMMENT: The Department should clarify the phrase public transportation entity for both areas and exceptions related to projects. Additionally, the Department should indicate what entities qualify as a “public transportation entity”. (164)

417. COMMENT: Commenter recommends municipalities and counties be removed from the new definition of public transportation entity. (164)

RESPONSE TO COMMENTS 413 THROUGH 417: N.J.A.C. 7:8-1.2 and N.J.A.C. 7:13-1.2 define “public transportation entity” as “a Federal, State, county, or municipal government, an independent State authority, or a statutorily authorized public-private partnership program pursuant to P.L. 2018, c. 90 (N.J.S.A. 40A:11-52 et seq.), that performs a public roadway or railroad project that includes new construction, expansion, reconstruction, or improvement of a public roadway or railroad.” Thus, in addition to NJDOT projects, the definition includes projects by New Jersey Transit, New Jersey Turnpike Authority, South Jersey Transportation Authority, Port Authority of New York and New Jersey, Delaware River Joint Toll Bridge Commission, and similar entities. Further, any public transportation project proposed by a political subdivision of the State such as a county or municipality is included in this definition and is eligible to seek flexibility under N.J.A.C. 7:8-1.6 and N.J.A.C. 7:13-12.6(b). It is appropriate to extend flexibility to all levels of government proposing public transportation projects since the challenges facing public infrastructure are not unique to each level of government. Therefore, due to challenges such as limited rights-of-way associated with roadway improvements, municipalities and counties face the same technical issues in achieving full compliance with the requirements in this proposal as do

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State entities such as NJDOT. For this reason, it is not appropriate to exclude non-state public entities from the definition.

### **Further Considerations Regarding Flexibility**

418. COMMENT: Transportation agencies should be exempt from the proposed rule because they are critical to State functionality. Requiring roadways to be raised under this rule will lead to unmaintained infrastructure because the cost associated with compliance is too high. (60)

419. COMMENT: Commenter supports the provisions regarding public transportation projects under the stormwater and flood hazard rules. (99)

RESPONSE TO COMMENTS 418 AND 419: The Department acknowledges the commenters' support of the adopted rules.

420. COMMENT: The flexibility afforded to transportation entities at N.J.A.C. 7:13-12.6 to not elevate roadways should also apply to utility projects. Elevation of improvements associated with the expansion of existing facilities may not be feasible due to engineering and safety limitations, such as interconnection with existing equipment at lower elevations. Utilities cannot always be located outside of flood hazard areas. (145)

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421. COMMENT: Utility projects should be treated the same as transportation projects such that they can proceed without a redesign if they reach a sufficient and comparable milestone prior to this rule making. The applicable stormwater management requirements should be those in effect when the project was designed. (113)
422. COMMENT: A similar exemption to that proposed for transportation projects should be available to other public infrastructure projects, for example, above and below-ground utility transmission and distribution projects. Often these projects are intended to provide greater reliability and enhance public safety and are already required to be designed to meet national safety standards. (133)
423. COMMENT: The commenter supports the preferred alternative approach for transportations projects. This should be expanded to include additional public projects. (149)

RESPONSE TO COMMENTS 420 THROUGH 423: The relief and flexibility provided at N.J.A.C. 7:8-1.6(f) and N.J.A.C. 7:13-12.6(b)2 are limited to railroads and roadways proposed by public transportation entities due to the unique challenges facing this type of linear, public infrastructure. Public utilities face different challenges unlikely to be affected by the adopted increase in the design flood elevation. For example, with the exception of a utility line attached to a bridge or culvert, underground utility lines are not subject to elevation standards of the FHACA rules. Therefore, raising the design flood elevation two feet will not affect such a project. Similarly,

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overhead utility lines are generally situated well above the design flood elevation and will not be affected by the adopted new design flood elevation. With regard to the SWM rules, an exemption is already provided for above and belowground utilities at N.J.A.C. 7:8-5.2(d). Thus, it is unclear how expanding the provisions at N.J.A.C. 7:8-1.6 would benefit public utilities for such projects.

Notwithstanding the above, the Department does recognize that nonlinear utility development such as electrical substations and wastewater treatment plants will be subject to, and could be affected by, the new design flood elevation. However, as articulated in the proposal summary, the Department believes that it is imperative for our public and private development and redevelopment to consider the realities of a changing climate. Thus, it is in the best interest of public health, safety and welfare to make these elements of critical infrastructure projects as resilient as possible, by meeting the standards of the FHACA rules to the extent practicable. Where such projects cannot feasibly meet the new design flood elevation, relief is available through the hardship exception process at N.J.A.C. 7:13-15.1.

424. COMMENT: The Department should narrow down the elements required for an exemption at N.J.A.C. 7:13-2.1(c)4 to simply a project obtaining all necessary approvals. At this point, applicants have expended significant investments in a project. Requiring a redesign and re-permitting would place significant burden on a utility and ultimately cost ratepayers. Additionally, it would take longer to complete projects and leave the system vulnerable to reliability issues and COVID-related delays in labor and supply chain. (145)

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425. COMMENT: The exemptions for projects that previously did not require a flood hazard permit should be expanded. As proposed the rule requires that for an exemption to be applicable, physical construction would have to commence before the effective date of the rule. This is unworkable for many projects where developers may have invested significant money for site acquisition and permitting but have been unable to commence construction. This is particularly problematic in circumstances where the property was not previously subject to flood hazard regulation and a developer invested and designed a project assuming that no flood hazard permit is required. Requiring compliance with the permit requirements in this circumstance will immediately devalue the property. The exemption should be expanded to allow parties who can demonstrate that they had a reasonable investment backed expectation in being able to develop without the need for a flood hazard permit to be exempt from the permitting requirements. (133)
426. COMMENT: A similar exemption to that proposed for transportation projects should be available to other development projects because the reasons provided in the proposal for exempting transportation facilities may also apply to these other projects. Large scale developments may also involve public funding, be the subject of constitutionally mandated affordable housing programs, involve needed capital investment in our State or involve much needed redevelopment and reuse, go through years of planning and design, public comments, and permitting, and similarly encounter significant design constraints due to changing stormwater requirements. (133)

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427. COMMENT: A similar exemption to that proposed for transportation projects should be available to other public infrastructure projects, for example, public water supply and wastewater treatment facilities because the reasons provided in the proposal for exempting transportation facilities (for example, siting and location limitations) apply equally to these other public projects. (153)
428. COMMENT: A similar exemption to that proposed for transportation projects should be available to other public infrastructure projects, for example, public water supply and wastewater treatment facilities because the reasons provided in the proposal for exempting transportation facilities (for example, siting and location limitations, achieving certain milestones) apply equally to these other public projects. (135, 153)
429. COMMENT: If wastewater facilities are not exempt from the proposed new rules, where such facilities are within the flood hazard area and require inspection, repair or updates, the rules should allow these activities to occur using a permit by rule. (135)
430. COMMENT: Exemptions should take into account prior investments of capital, time, and efforts. Exemptions should be made for projects which have applied for MLUL approvals prior to the effective date of the regulations. (143)

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431. COMMENT: The Department has recognized the public interest in transportation facilities, and that same recognition should be afforded to affordable housing to recognize the significant investments in addressing the constitutional obligation. (156)
432. COMMENT: A similar exemption to that proposed for transportation projects should be available to other public infrastructure projects, for example, public water supply and wastewater treatment facilities because the reasons provided in the proposal for exempting transportation facilities (for example, siting and location limitations) apply equally to these other public projects. (153)

RESPONSE TO COMMENTS 424 THROUGH 432: As articulated in the proposal summary, the purpose of this rulemaking is to adapt the Department's Stormwater Management and FHACA rules to the reality of increasing extreme precipitation as documented through recent scientific studies and as observed by changes in flood conditions across the state over previous decades. The Department has undertaken this rulemaking in order to fulfill its statutory mandate to protect public health, safety and welfare from the deleterious impacts of flooding. In light of the data and evidence that have been provided to the Department, it is in the best interest of the public to ensure that new development and redevelopment in the state is flood-resilient not only for today's conditions but for anticipated future flood conditions as well. Further, as discussed in response to previous comments, the limited relief and flexibility provided at N.J.A.C. 7:8-1.6(f) and N.J.A.C. 7:13-12.6(b)2 are appropriate for railroad and roadway projects that meets certain conditions, due to the unique nature of these challenges facing such activities and the often long and detailed

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planning processes that accompanies such projects. However, it is not appropriate to apply the same type of flexibility to all projects that have been contemplated or designed, for the reasons enumerated below.

First, raising the design flood elevation by two feet as adopted in this rulemaking will affect different projects in different ways. The lowest floor of buildings that are proposed in flood hazard areas will need to be constructed or floodproofed two feet higher than previously required. However, it has been the Department's experience after Superstorm Sandy that constructing or retrofitting buildings to higher elevations generally leads to increased resilience of the structure, significant reductions in flood insurance rates throughout the lifetime of the structure, and a measurable increase in public protection. Second, as noted in response to previous comments, public utilities proposing linear infrastructure improvements are not likely to be affected by the change in design flood elevation except that a larger portion of the state would be subject to the requirements of the FHACA rules. Expanding the flood hazard area will result in more land subject to the flood storage displacement requirements at N.J.A.C. 7:13-11.4 but also increases the base volume of food storage on a site. As such, the Department does not believe that raising the design flood elevation two feet will prevent development or generally result in a loss of units or other proposed structures in order to comply with the new design flood elevation.

Finally, given the available data and our experiences in New Jersey, it would not be in the best interest of public health, safety and welfare to categorically exclude from the newly adopted standards buildings and structures that people will live in and rely upon, such that they are constructed lower than the best available data indicates. The added increased cost of compliance with the higher design flood elevation will be offset by reduced flood damage potential, an overall

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decrease in the adverse socioeconomic impacts of flooding, likely fewer individuals being personally impacted by future flood events, and possibly lower flood insurance. The impacts of flooding on a community are borne by all the residents of the state. Thus it is imperative that the Stormwater Management and FHACA rules reflect the best available data. In cases where strict compliance with one or more standards of the flood hazard rules would create an exceptional or undue hardship on an applicant, relief can be found as provided at N.J.A.C. 7:13-15.1.

As discussed more fully in the response to comments 280 to 285, the Department has determined that it is appropriate to retain the existing legacy provisions at N.J.A.C. 7:13-2.1(c)4 in order not to apply the newly adopted standards retroactively to a project that is far along in the development process and is likely to have been reviewed by a local government agency under the UCC and its accompanying flood codes. The Department is therefore not adopting certain proposed changes to N.J.A.C. 7:13-2.1(c)4i such that a regulated activity that has obtained one of the listed MLUL approvals will not be subject to the new standards.

433. COMMENT: The proposed signage for flood prone routes will not prevent travel during storm events and instead gives an illusion of safety to projects that do not meet the standards. (94)

RESPONSE: The FHACA rules have historically included requirements to place signage in certain areas where the traveling public can be at risk. The purpose of signage in this rulemaking is to alert the public of the potential flood risk that may be associated with using the roadway. Through the enhanced requirement for signage adopted as part of this rulemaking, the Department anticipates

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that individuals will, by virtue of more complete disclosure of flood risks, make better and more well-informed decisions as to where to drive during a flood event.

434. COMMENT: Section 12.6(b) requires further explanation of how “strict compliance exceptions” will be made because as written, no criteria or thresholds are identified. An explicit decision-making flowchart should be included for exception determinations on public transportation projects. (94)
435. COMMENT: Regarding N.J.A.C. 7:13-12.6(b)2iii, the provisions do not require an alternatives analysis when determining where these hardship exceptions are available. (222)
436. COMMENT: Regarding N.J.A.C. 7:13-12.6(b)2iii, the Department needs definitions and standards by which “construction costs” will be weighed against benefits. What are the factors that will be considered in calculating costs and benefits when there could be lives at risk? (222)
437. COMMENT: Clarify how the Department will determine how it will determine if the raising of a roadway is “impractical”. (168)

RESPONSE TO COMMENTS 434 THROUGH 437: Adopted N.J.A.C. 7:13-12.6(b)2iii provides a detailed framework for which the Department will consider approval of railroads or public

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roadways lower than one foot above the design flood elevation and is similar to the requirements found at existing N.J.A.C. 7:13-12.6(e), but adds new considerations at N.J.A.C. 7:13-12.6(b)2iii(1) through (5) that include a demonstration of one or more of the following in order to qualify for flexibility: (1) prohibitively high construction costs or costs that exist proportionally high compared with the benefit of strict compliance; (2) excessive flood storage volume displacement; (3) a design that does not meet necessary transportation safety, geometric design, or access point requirements, such as those adopted by the American Association of State Highway and Transportation Officials; (4) a design that causes adverse environmental impacts; or (5) a design that exacerbates flooding or causes other adverse impacts to properties or drainage patterns. N.J.A.C. 7:13-12.6(c) sets forth additional standards that must be met related to the safety of the railroad or roadway and its users, including an analysis of risk and a demonstration that the railroad or roadway is raised to the extent possible and designed to the maximum extent practicable to resist damage, displacement, and loss of service due to anticipated flooding based on the projected rainfall depths used in this chapter.

With regard to the evaluation of construction costs, the Department will work with public transportation entities to determine whether elevating a railroad or roadway one foot above the design foot elevation as required at N.J.A.C. 7:13-12.6(b)1 is practicable given that the cost of doing so may be prohibitive. This necessarily involves a level of alternative analysis to demonstrate to the department that the railroad or roadway is designed to optimize public safety, constructability and responsible use of public dollars. The Department recognizes that public transportation entities are responsible for maintaining their infrastructure structured network using

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allocated funds. Not every road in the state can be raised, either from a cost perspective or a constructability perspective.

### **Inland Flood Protection Rules Impact of Development in the State**

438. COMMENT: Retrofitting and/or replacing aging residential development should be prioritized to provide the greatest economic and environmental benefit; reducing the risks of flooding to residents since the flood-prone structures would be relocated to a more suitable location or retro-fitted to accommodate existing flood risk. (168)

439. COMMENT: Because state policy will not be to fully relocate communities in harm's way, the proposal needs to better allow for upgrades to existing properties to be undertaken and distinguish such upgrades from new construction on a greenfield. (156)

RESPONSE TO COMMENTS 438 AND 439: The Department encourages improvements to buildings that will improve their resilience and has in prior rulemakings incorporated incentives and process improvements to facilitate relocating and retrofitting non-compliant buildings and other buildings at risk of flooding. Additionally, the FHACA rules incorporate protective design and construction standards for redevelopment activities and substantial improvements to buildings, as well as all new construction. The Department does not have the statutory authority to require retrofitting, replacing, or relocating a building unless the building is being rebuilt, improved or modified by the owner, in which case, the standards of the rules would apply.

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440. COMMENT: The requirement to elevate a building creates a massive demand for fill and will reduce the supply of available fill because of unreasonable beneficial reuse policies. (157)

RESPONSE: The requirement to elevate does not necessarily create a demand for fill, as alternatives exist to minimize the need for fill. For example, a building can be elevated on columns with a crawl space beneath the lowest floor. It is also important to note that the flood storage volume displacement standards at N.J.A.C. 7:13-11.4 remain in effect, which requires a balance of cut and fill operations in fluvial flood hazard areas. This will also minimize the need for fill. It is unlikely there will be a higher demand for fill, or a reduction in the supply available. Beneficial reuse policies are part of the Department's Solid Waste Regulations at N.J.A.C. 7:26 and the Technical Requirements For Site Remediation at N.J.A.C. 7:26E, and any changes to those regulations are beyond the scope of this rulemaking.

441. COMMENT: We oppose the proposal because it will result in substantial cost increases and delays for construction. (151)

442. COMMENT: There are affordable housing developments that have been planned for many years, with local approvals, some with state funding, and applications are pending before the Department. These are not easy to relocate in towns with exclusionary zoning. (156)

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443. COMMENT: We oppose the proposal because it will conflict with local zoning ordinances, especially since the lowest floor elevations requirements of the proposal will increase the height of buildings. This will force the owner to seek a local variance or make other modifications at additional cost to them. (151)
444. COMMENT: Additional fill requirements will result in smaller and less marketable buildings. Building heights will be reduced, thereby negatively impacting long-term leasing and investment opportunities. This will cause a loss of jobs and ratables in areas that need both. Lenders will be reluctant to finance projects, causing an upheaval in commercial real estate financing. (157)
445. COMMENT: Commenter takes appropriate design and construction precautions for its properties that are at risk of flooding in order to make them more marketable and financeable. However, the rules will prohibit reconstruction, resulting in total losses for building owners and lenders. This may be an intended outcome by the Department. (157)
446. COMMENT: This rulemaking would create a decrease in the amount of land available for development and any reduction in potential development would have adverse effects on the affordable housing market. This belief cannot be tested until the

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Department quantifies and calculates the affected areas impacted by this rulemaking.

(156)

447. COMMENT: The proposed rules will increase the cost of development and thereby decrease the number of construction projects, impacting New Jersey families. The rules should be modified so this doesn't happen. (60)

448. COMMENT: Anyone planning development, redevelopment, and home improvement projects will be required to set the FHA elevation and obtain an FHA permit. Associated costs will add to the price of these projects. (176)

449. COMMENT: The Rule proposal will have a detrimental impact on commercial, residential, and industrial development and will result in large areas of the State being made off limits to development. The Rule proposal will stifle economic growth and job creation. (158)

RESPONSE TO COMMENTS 441 THROUGH 449: It is unclear how specifically this rulemaking will result in substantial cost increases or delays for construction or prevent development of affordable housing or other improvements from being constructed. This rulemaking does not prohibit development in flood hazard areas but rather provides design and construction standards intended to ensure that such developments proposed within the state's flood hazard areas, as they are anticipated to be by the end of the century, remain safe for the occupants and users of the

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proposed development during the useful life of the structures. Further, development within flood hazard areas prior to this rulemaking already required authorization from the Department. Such permitting is, and continues to be, governed by the Ninety-Day Construction Permits Law, N.J.S.A. 13:1D-29, et seq., which sets a strict timeframe in which permitting decisions must be provided. This rulemaking: (1) changes the design and construction standards within that flood hazard area; and (2) expands the flood hazard area to include a small portion of the state that currently lies outside mapped flood hazard areas but which have been identified as constituting a threat to the safety, health, and general welfare from flooding. Only those projects that lie within this expanded area would now be subject to the standards to which they previously were not. However, as articulated in this rulemaking and the proposal summary, the Department has concluded that these amendments are necessary to protect public health, safety, and welfare, in accordance with the mandates of the Flood hazard Area Control Act.

The Department acknowledges that, by raising the design flood elevation two feet as accomplished in this rulemaking, the lowest floor of buildings and the travel surface of some roadways will need to be designed and constructed higher than previously required. This will in some cases raise the highest point of proposed buildings or require additional fill for elevated roadways. With regard to the concern that local height requirements restrictions may be violated by raising the lowest floor of buildings by two feet, this issue was addressed by the legislature in 2017 in response to Superstorm Sandy through amendments to the Flood Hazard Area Control Act at N.J.S.A. 58:16A-103, which ensures that buildings being modified or reconstructed to meet new flood elevations adopted by FEMA or the Department are exempt from local height restrictions.

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The Department additionally recognizes that buildings over certain heights require incorporation of additional components under the Uniform Construction Code, which can increase construction costs. While this may result in an increase in construction costs for some developments, the Department believes that the significant benefit of increased public health, safety and welfare that will result from safer development warrants minor, incremental increases in up-front costs associated with construction. See response to comment 450 below for further discussion of potential costs associated with complying with the adopted new flood elevations. Finally, it should be noted that complete permit applications received by the Department prior to this rulemaking are not subject to the adopted new standards.

450. COMMENT: DEP indicates that costs associated with the proposed rules and floodproofing will be minor. However, no evidence is provided to support this claim.

(176)

RESPONSE: As noted in response to comments 441 through 449 above, the Department acknowledges that, by raising the design flood elevation two feet as accomplished in this rulemaking, the lowest floor of buildings will need to be designed and constructed higher, or floodproofed higher, than previously required. The prior FHACA rules required residential and critical buildings to be elevated one foot above the design flood elevation, while all other buildings can be flood proofed to this elevation if elevating is shown to be impracticable. Only the design flood elevation is being changed in the adopted rules, not the standards to which a building must be constructed. While the increased elevation may result in an increase in construction costs for

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some developments, the Department's experience is that a reduction in flood insurance rates resulting from elevating or flood proofing buildings to a higher elevation, which offsets the increased cost of compliance with the higher elevation standard. Further, the occupants of these building and the contents stored within are less likely to be subject to flood damage.

For new construction activities, constructing or flood proofing two feet higher than previously required will in some cases increase the cost of construction. This would not generally be borne by the owner of substantially damaged buildings that are being repaired, since the increased cost of compliance component of their flood insurance will generally cover the added cost of meeting local construction codes. Further, in the newly expanded flood hazard area that results from this rulemaking, the flood depth will, by definition, be less than two feet. Buildings and roads are rarely built at grade and so it is likely that many buildings and roads in this expanded flood hazard area will already be designed to be somewhat above ground level. Therefore, the Department does not expect that significant costs or changes in design will be needed for buildings in this area provided they do not have basements, which are prohibited in the flood hazard area.

With regard to flood proofing costs, the Department acknowledges that there are limits to how high a building can be flood proofed before it becomes cost prohibitive or impracticable. For example, a developer may propose a commercial building in an area where the design flood elevation previous to this rulemaking was three feet above ground. The floor of the building would likely be set somewhat above the ground elevation, so the design flood elevation may only be one or two feet above the proposed lowest floor in this scenario. Flood proofing is required to protect the building to one foot above the design flood elevation. So, in this example, the commercial building would need to be flood proofed two or three feet above the lowest floor. By raising the

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design flood elevation by two feet as accomplished in this rulemaking, this same building would now need to be flood proofed an additional two feet. There may be situations, therefore, where the added cost of flood proofing makes the project impracticable. However, it is the Department's experience that, through use of a suite of options to reduce flood risks, costs can be reduced. For example, the lowest floor of the building might be constructed somewhat higher to offset the added cost of flood proofing to a higher elevation. Alternately, where meeting this requirement would effectively prevent a building from being constructed, applicants can appeal to the flexibility provided in the hardship exception process at N.J.A.C. 7:13-15.1.

Given the above, the Department believes that the significant benefit of increased public health, safety and welfare that will result from safer development warrants minor, incremental increases in up-front costs associated with construction.

451. COMMENT: The commenter calls for the Department to manage new development and redevelopment. (35)
452. COMMENT: The risk of lives lost in extreme weather events is greater than the risk of any lost investment in a development project. (48)
453. COMMENT: The economic impact of failing to prohibit development in the floodplain far outweighs any economic impact experienced by developers. (137, 141)

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RESPONSE TO COMMENTS 451 THROUGH 453 the Department agrees with the commenters' assertion that the risk to public health, safety and welfare resulting from anticipated flooding warrants swift and protective measures to be instituted based on the available science, as is accomplished in this rulemaking. The Department regulates both new development and redevelopment activities in flood hazard areas of the state, and it is the Department's belief that by raising the design flood elevation two feet, buildings, roads and infrastructure, as well as the people who rely upon them, will be safer in years to come.

454. COMMENT: The proposed increase in fluvial flood elevation by two to three feet and the use of projected 2100 rainfall data across the entire state is not warranted. These measures should be focused on the areas of the state where significant flooding and property damage has occurred. Application across the state will negatively affect economic growth in areas where it may not be necessary. (158)

RESPONSE: As the proposed rulemaking is designed to reduce the economic losses and threats to public safety from future climate-related flooding, it would be inappropriate to use historic damages as a measure of risk. It is important to remember that flood damaged properties create a drag on local economics and reduce economic growth, as well as putting occupants at risk. The proposed rulemaking relies on best available science to predict which areas are expected to have increases in flooding in the future to minimize these losses.

### **Comments on Warehouse Development**

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455. COMMENT: Large warehouse projects that are pending should be investigated to understand the flooding and stormwater implications on and around the site. (138)
456. COMMENT: Large, pending warehouse projects may exacerbate flooding due to the use of outdated rainfall data, contaminants from runoff, risk to historic and environmental assets. (258)
457. COMMENT: Large warehouse projects lead to increased flooding and stormwater runoff impacts to already flood prone areas. (252)
458. COMMENT: Large warehouse projects that are the subject of pending applications should be denied. Calculations should not be based on outdated data. (250, 106)
459. COMMENT: The commenter is disappointed with the Department for approving the flood hazard permits for large warehouse projects (1, 12)
460. COMMENT: Increases in warehouse developments cause concern for already flood prone areas. Developments should be designed based on updated flood maps and precipitation data in order to account for climate change. (106)

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461. COMMENT: Developments designed based on decades old data is likely to result in impacts on stormwater management, flooding, and stream contamination, including exacerbating existing issues. (106)
462. COMMENT: Reliance on outdated flood maps on a site that contains wetlands and flood hazard areas already subject to intense flooding will endanger the community and surrounding area. West Windsor, Princeton, and Lawrence already experience severe flooding, and the massive addition of impervious cover will exacerbate this. (65, 251, 249)
463. COMMENT: Pending applications for large warehouse development should be denied in the interest of public health and safety. The stormwater management calculations are insufficient. Loss of invested monies by the developer aren't considered losses when lives are in the balance and when billions of dollars of emergency relief funds will be needed in the future. (65, 251, 249)
464. COMMENT: Large pending warehouse projects will add more stormwater runoff to an already flood-prone region. Applications are based on outdated data and will likely devastate stormwater management, flooding, and water quality. Adopt the proposal immediately and apply it to all pending warehouse projects. (254, 106, 257, 258, 256)

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465. COMMENT: The runoff from large warehouse projects will carry dangerous contaminants throughout the environment. (258)
466. COMMENT: Large warehouse projects will damage the historic nature of the surrounding area. (258)
467. COMMENT: The commenter expresses concern for the impacts of the warehouse project in West Windsor. (2, 12, 65, 68, 71)
468. COMMENT: The commenter does not support the use of outdated maps for the warehouse project in West Windsor. (53, 65)
469. COMMENT: The commenter asks the Department to stop the warehouse project in West Windsor. (65, 71)
470. COMMENT: Regarding the West Windsor warehouse project, it is essential that the proposed rules apply to land use applications that were filed but not yet approved. (68)
471. COMMENT: The commenter states that a warehouse project in West Windsor will increase flooding in an area that already experienced flooding during Hurricane Ida. (68)

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472. COMMENT: The proposed warehouse project in West Windsor is close to a large apartment complex whose renters were not properly served with notice of the development. (12)
473. COMMENT: The commenter reminds the Department, in reference to a warehouse project in West Windsor, that N.J.S.A. 40:55D-10.5, the time of application rule, contains an important exception for health and public safety. (12)
474. COMMENT: The warehouse project in West Windsor would have a detrimental effect on traffic. (12)
475. COMMENT: The newly planned 880,000 square foot warehouse near Sparta will eliminate the ecosystem services on the existing land and substantially increase the parcels heat generation. New Jersey is being over-developed, becoming a paved state with poor hydrological connections and water management. (171)

RESPONSE TO COMMENTS 455 THROUGH 475: The Department received a number of comments concerning ongoing warehouse development across the State, and the potential for such development to exacerbate flooding. Comments were also made with regard to specific warehouse projects that have already been approved by the Department or for which permit applications were submitted prior to this rulemaking. In cases where an applicant has proposed a major development and applied for a flood hazard area, freshwater wetlands, or coastal zone management permit,

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which triggered a review of stormwater management, the rules in effect at the time of the application govern the Department's review of the project. The Department cannot retroactively apply newly adopted standards to projects that have already been authorized or which were submitted prior to the rulemaking in question. However, the Department acknowledges the potential deleterious effects on flooding and water quality that can occur as a result of unchecked development and improperly managed stormwater runoff. For this reason, the Department has incorporated protective standards throughout its rules, which seek to balance public health, safety and welfare, protection of the environment, and needs of the state's residents.

476. COMMENT: Please deny the freshwater wetlands application for pending, large warehouse projects if the region has a serious issue with stormwater runoff because of the number of buildings being constructed. (65, 251, 246)

RESPONSE: The freshwater wetland regulations are beyond the scope of this rule proposal. Applications for freshwater wetland permits will be reviewed in accordance with the Freshwater Wetland Protection Act rules at N.J.A.C. 7:7A.

**Stormwater Management rules, N.J.A.C. 7:8**

477. COMMENT: We support the amendments to the Stormwater Runoff Quantity Standards at N.J.A.C. 7:8-5.6 which require current and projected precipitation totals be utilized to estimate pre- and post-construction conditions. (127)

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478. COMMENT: The rule proposal incorporates climate-informed precipitation data to better align with current precipitation conditions and the expected effect of climate change on precipitation events. The Pinelands Commission supports this proposal for adoption, in particular the adoption of adjustment factors to be applied to precipitation data from NOAA Atlas 14. Since the Pinelands Comprehensive Management Plan (CMP) incorporates by reference N.J.A.C. 7:8-4.6, 5 and 6, once adopted, the proposed adjustment factors will update NOAA's precipitation data and be automatically incorporated by reference into the CMP to calculate runoff rates for development in the Pinelands Area. (115)

479. COMMENT: We support the proposal. Stormwater management data used to calculate drainage needs to include updated and future projections. (83)

480. COMMENT: We support the amendments to N.J.A.C. 7:8-5.6 Stormwater Runoff Quality Standards requiring that both current and projected precipitation totals will be used for the 10- and 100-year flood for both pre and post construction conditions. (59, 45)

RESPONSE TO COMMENTS 477 THROUGH 480: The Department acknowledges the commenters' support for these amendments.

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481. COMMENT: The rules should not be immediately implemented upon adoption and there should be a one-year grace period for the stormwater rules. The immediate implementation of the rules would have a negative economic impact on projects which have already substantially designed their stormwater facilities. (168)

482. COMMENT: The immediate implementation of the stormwater amendments is a violation of the Residential Site Improvement Standards (RSIS) that requires a minimum six-month grace period for any technical changes (N.J.A.C. 5:21-1.10). (168)

RESPONSE TO COMMENTS 481 AND 482: The Department anticipates that the immediate implementation of these amendments will result in an overall positive economic impact as discussed in the Economic Impact Statement contained within the proposal of these amendments. For more information regarding the operative date of these amendments, see response to comments 290 through 297. The six-month grace period mentioned by the commenter at N.J.A.C. 5:21-1.10(e) applies to the Residential Site Improvement Standards only, and not the Stormwater Management Rules. This rulemaking makes no amendments to the Residential Site Improvement Standards. As such, the grace period is not applicable to these amendments.

483. COMMENT: The proposal should include an exemption from the water quantity requirements for projects discharging directly to tidal waterbodies. (157)

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RESPONSE: The SWM rules at N.J.A.C. 7:8-5.6(b)4 provide an exemption from stormwater runoff quantity standards for certain stormwater runoff discharges in tidal flood hazard areas, provided that the conditions set forth at N.J.A.C. 7:8-5.6(b)4 are met. No changes to this exemption are contained within this rulemaking.

484. COMMENT: The proposed requirement to design stormwater management facilities using projected rainfall data, while supported, could unintentionally incentivize the use of “gray” infrastructure techniques (structural solutions) in areas where real estate values are high, since green infrastructure can require a larger footprint to manage the same amount of stormwater as “gray” infrastructure. (180)

485. COMMENT: Increasing stormwater management requirements could unintentionally incentivize the use of “gray” infrastructure techniques (structural solutions) in areas where real estate values are high, since green infrastructure can require a larger footprint to manage the same amount of stormwater. Alternatives should be evaluated to determine what works best for an intended project and community. Design guidelines which require green infrastructure would be helpful. (139)

486. COMMENT: While we are generally supportive of the rule amendments, there is concern that scaling stormwater management requirements will lead to the expansion of gray infrastructure in preference to green to meet the requirements. (164)

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487. COMMENT: The Department should require BMPs for stormwater and green infrastructure so as not to incentivize grey infrastructure techniques over the green infrastructure techniques. (98)

488. COMMENT: The Department should include design guidelines or other measures that explicitly require or prioritize the use of best practices and green infrastructure, which could be accomplished by improving its Best Management Practices manual as well as working with the Department of Community Affairs to improve its Residential Site Improvement Standards. (180)

RESPONSE TO COMMENTS 484 THROUGH 488: The SWM rules at N.J.A.C. 7:8-5.3 require the use of green infrastructure to comply with the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards. As such, these amendments should not lead to incentivization or an expansion of gray infrastructure, as the use of gray infrastructure will not meet the SWM rules unless a waiver or variance is granted, which can only be granted in limited circumstances. Further, the Department's BMP Manual includes Department approved designs for green infrastructure BMPs that can be utilized to demonstrate compliance with the SWM rules, local stormwater control ordinances, and the stormwater management requirements of the Residential Site Improvement Standards.

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489. COMMENT: The Department should provide sample stormwater plans and guidelines that will aid counties and municipalities in incorporating resiliency into their stormwater ordinances and management plans. (154)
490. COMMENT: The Department should develop clear guidance for users and municipalities to support the best implementation of these rules and for planning purposes such as for stormwater management plans. Additionally, many smaller, less-resourced municipalities may need support and technical assistance to effectively and proactively integrate updates to their municipal plans. (180)
491. COMMENT: The commenter desires for the Department to release guidance on the rulemaking that gives support for municipal and regional stormwater management through a model stormwater management plan. (164)
492. COMMENT: The Department should provide sample language and recommended resilience related actions that area leaders may include in the municipal and regional stormwater management policy plans by publishing stormwater management plans with detailed guidance on incorporating climate crisis in stormwater management plans. (95)
493. COMMENT: The Department should provide sample language and recommended resilience actions that communities might include in their municipal and regional

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stormwater management plans by publishing model stormwater management plans and ordinances with detailed guidance. (150)

494. COMMENT: The Department should provide sample language and detailed recommended resilience actions that communities can include in their municipal and regional stormwater management plans to incorporate climate change. (139)

495. COMMENT: The Department should provide guidance for municipal and regional stormwater management plans that take climate change into account (with periodic revisions). (87)

RESPONSE TO COMMENTS 489 THROUGH 495: The Department provides guidance and model stormwater management plans, ordinances, and regional stormwater management plans in the Department's BMP Manual, which is available at [https://nj.gov/dep/stormwater/bmp\\_manual2.htm](https://nj.gov/dep/stormwater/bmp_manual2.htm). These models will be updated in accordance with these amendments.

496. COMMENT: The Department should reinforce Stormwater Rules and Residential Site Improvement Standards and best management practice guide related to use of nature based or green infrastructure approaches for capturing new rainfall patterns as opposed to larger basins or structures. (150)

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RESPONSE: The SWM rules already contain standards requiring green infrastructure BMPs in stormwater management at N.J.A.C. 7:8-5.3, which have been operative since March 2, 2021. The Stormwater BMP Manual has also been revised to include green infrastructure BMPs. Regarding the need for larger basins or structures, when designing stormwater BMPs to manage larger quantities of rainfall, it is necessary to increase the size of the BMPs to handle the additional stormwater runoff volume generated from the increased rainfall.

497. COMMENT: What is the definition of a technically complete application relative to the exemptions listed at N.J.A.C. 7:8-1.6? (79)

498. COMMENT: The portion of the proposal dealing with the SWM rules should be modified to require administrative, instead of technical completeness. The Department often incorrectly deems complete applications as incomplete. (147)

RESPONSE TO COMMENTS 497 AND 498: As defined in the CZM Rules at N.J.A.C. 7:7-1.5, the FWPA Rules at N.J.A.C. 7:7A-1.3, and the FHACA rules at N.J.A.C. 7:13-1.2, “administratively complete” means that every item required on the application checklist is included in the application. Whereas “technically complete” means that each item included in an application provides sufficient information for the Department to declare the application complete for review, public comment, or public hearing. Modifying the rule to require administrative completeness instead of technical completeness would allow applications that have been submitted but do not contain sufficient information to be exempted from these amendments. It would not be

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appropriate to exempt applications that do not contain sufficient information for the Department to move the application through the regulatory process. An administratively complete application may not provide sufficient information for the Department to review its stormwater management and determine if the design meets the rules prior to the effective date of the proposed rules.

499. COMMENT: Designing for the 2, 10, and 100-year current and future storms is overly complex. It should be satisfactory to evaluate existing peak flow rates with 2023 rainfall rates and proposed conditions with 2100 rates. (147)

RESPONSE: Requiring applicants to utilize current rainfall for pre-construction conditions and projected rainfall for post construction conditions is not supported by science. While it would reduce the number of calculations required, it would involve comparing pre-construction peak flowrates to post-construction peak flowrates for rainfall events with different probabilities of occurrence. The intent of the stormwater runoff quantity control standard is to compare pre- and post-construction conditions for rainfall events of the same probability of occurrence. While this method does involve running calculations for 12 total storm events, rather than 6, those calculations are done using a computer model and inputting additional storm events into the model does not, in itself, involve significant additional complexity. Interpreting the results of the modeling, and designing the stormwater management system to comply with the requirements for those additional storm events does add some complexity, but that additional complexity is necessary to fairly analyze the stormwater management system's performance under both current and projected rainfall scenarios. However, the suggested method would be likely to produce

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conservative results and, as such, the Department will consider including an example of this more simplified, but conservative, method of performing the calculations in the revised Stormwater BMP Manual.

500. COMMENT: The proposal conflicts with the Stormwater BMP Manual, which will now need to be revised. The absence of a revised BMP Manual, which is treated as a regulation instead of a guideline, should be published in the New Jersey Register for public comment. (147)

501. COMMENT: The BMP Manual is flawed. Its current version was not available for review and public comment. Where compliance with the BMP Manual is not achievable, the municipality should be able to grant a deviation. There is no current procedure in place to allow for a deviation in design. (147)

RESPONSE TO COMMENTS 500 AND 501: The current version of the BMP Manual is available at [www.njstormwater.org](http://www.njstormwater.org). The Department is working on updates to the BMP Manual in accordance with the amendments and any substantial changes will be posted on the Department's website for comment. The BMP Manual is not regulatory, but contains, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department to help applicants to achieve the stormwater management standards specified in the SWM rules. The comment related to alternative design is outside the scope of this rulemaking. However, it should be noted that the SWM rules at N.J.A.C. 7:8-5.2(g) allow an alternative

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stormwater management measure to be approved by the municipality if the design engineer demonstrates the capability of the proposed alternative stormwater management measure and/or the validity of the alternative rate or method to the municipality.

502. COMMENT: The target reduction factors should be applicable only to current storm events, not future storm events. They should be re-evaluated to address current concerns of the administration. (147)

503. COMMENT: Will BMPs need to meet rate reductions for events 70 years into the future? It is not likely these BMPs or site improvements will be in place at that time. The benefits of applying future rainfall to current design won't ever be realized. (170)

504. COMMENT: It is inappropriate to use future rainfall amounts for the two-, 10-, and 100-year storms. If the concern is flooding, then the focus should be on only the 100-year storm events, limited to half of the Probable Maximum Precipitation to ensure functionality of an emergency spillway. (147).

RESPONSE TO COMMENTS 502 THROUGH 504: As stated in the rule proposal, 54 N.J.R. at 2173, the design life of development may exceed 75 years and it is not uncommon in New Jersey for homes and other buildings to be occupied for more than 75 years. Stormwater management measures serving the development for more than 75 years but only designed for today's rainfall events will not be sufficient to provide the required peak flow reductions for future rainfall events

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in light of the increasing rainfall in New Jersey. As a result, a basin designed only using today's rainfall would no longer manage the same level of risk as rainfall increased. Therefore, it is necessary to design the basin in consideration of future rainfall to minimize the future risk of increased flooding resulting from the development. Additionally, it is important that the basin manage not only the 100-year storm, but smaller, more frequent storm events as well. A stormwater basin would not be considered successful if it reduced peak flowrates and prevented downstream flooding during the 100-year storm but allowed increased peak flowrates in the much more common two- and 10-year storms. Further, the selection of half the probable maximum precipitation instead of the use of projected rainfall is not supported by the science available to the Department.

505. COMMENT: The regulations fail to consider the design of an outlet control structure. The proposal will result in unrealistic stormwater models and stormwater management features that are complex and not possible. (147)

RESPONSE: Currently, outlet control structures are designed to meet the stormwater runoff quantity standard for the two-, 10-, and 100-year design storms. These amendments will require that the outlet control structure design also consider the projected two-, 10-, and 100-year storms. Increasing from three design storms to six will introduce a small measure of additional complexity, but it is not unrealistic or impossible to design an outlet control structure in accordance with these amendments. In many cases, an outlet control structure designed for the projected two-, 10-, and 100-year storms will inherently meet the requirements for the current two-, 10-, and 100-year

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storms. In those cases, no additional complexity will be introduced. In those other cases, some additional complexity may be introduced to ensure the outlet control structure works for all of the storm events, but those designs are generally performed using computers that can generate the results of the calculations rapidly. Some additional iterations of the calculations may be needed to ensure the outlet control structure/basin design works for both the current and projected rainfall, but it will be possible to find a design that works. Department staff is also available to provide guidance when needed.

506. COMMENT: Utilizing frequency modeling should be abandoned. Outlet control structures should be monitored for proposed discharge similar to sewerage treatment plants. Discharge multipliers should be established for each HUC-14 watershed. Flow and volume discharged from the outlet structures should be measured for annual certification to show compliance with the permit. (147)

RESPONSE: The comment is outside the scope of this rulemaking. While a change in the way stormwater systems are modeled in New Jersey may be a future possibility, it is not something that can be done in this rulemaking. Such a concept would need to be broadly stakeholdered and discussed long before implementation, since completely changing the methodology used to model stormwater system in the State would be an enormous undertaking requiring a significant educational component, none of which has happened to date. The commenter is encouraged to bring this suggestion to future stakeholder meetings for discussion.

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507. COMMENT: Phased development should be subject to the stormwater regulations in place at the time that the original phase was approved. (170)

508. COMMENT: Will amended approvals be subject to the proposal as it relates to stormwater management? Amended site plan and subdivisions approvals should be exempt. (170)

RESPONSE TO COMMENTS 507 AND 508: The SWM rules at N.J.A.C. 7:8-1.6 describe what projects are exempt from the rules. Specifically, projects that have already received certain approvals are exempt from these amendments. However, that exemption is void if revisions are made to a project, unless the review agency determines that the revisions would have a de minimis impact on water resources, as described at N.J.A.C. 7:8-1.6(e). This exemption is also limited to the land area and scope of the project in its approval. It would not be appropriate for a project's later phases to be exempted if they were not included in the original phase's application or subsequent approval, as they were not designed and approved under the previous standards like the original phase's application.

509. COMMENT: How will the rules avoid future increases in discharge rates into detention basins from accelerating the rate of deterioration of existing stormwater systems? (152)

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510. COMMENT: The proposed rules do not indicate how maintenance and upgrades of existing stormwater control structures will be funded. For privately owned structures, is this an unfunded mandate and does this constitute a taking? (152)

RESPONSE TO COMMENTS 509 AND 510: Maintenance of a stormwater management measure is addressed under the SWM rules at N.J.A.C. 7:8-5.8, which has not been amended in this rulemaking. The adopted amendments do not require upgrades of existing stormwater control structures, but maintenance is required as a condition of the original approval of the system, which includes repairing any deterioration. The maintenance plan approved with the original project should identify the party responsible for providing the required maintenance. The concept of an unfunded mandate does not apply to privately owned structures, nor would this constitute a taking as the existing stormwater system referenced by the commenter would be associated with a development project that was permitted on the property.

511. COMMENT: Is there a current and complete list of State-owned stormwater control structures and does this include the present status (such as vulnerable structures)? What about an inventory of structures not owned by the State? (152)

RESPONSE: The inventory of stormwater facilities is beyond the scope of this rulemaking. However, it should be noted that MS4 permits under the New Jersey Pollutant Discharge Elimination System require the inventory and maintenance of stormwater facilities. Several GIS layers showing the location of stormwater facilities are available at <https://gisdata->

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[njdep.opendata.arcgis.com/](http://njdep.opendata.arcgis.com/). These layers can be found by entering “MS4” in the search field. These layers were created by the Department using the maps provided by each MS4 permittee that provided their mapping.

512. COMMENT: How will the safety of stormwater structures be monitored and enforced?  
(152)

513. COMMENT: Will owners of privately owned stormwater control structures be allowed to remove them to avoid the cost of maintenance? (152)

RESPONSE TO COMMENT 512 AND 513: The maintenance and safety of stormwater facilities is beyond the scope of this rulemaking. However, it should be noted that the SWM rules and the Tier A MS4 permit address the maintenance and safety requirements for stormwater management facilities. The safety standards are enforced when applications for development are submitted to the Department or the municipality for review. The SWM rules at N.J.A.C. 7:8-5.2(m) and (n) also require a deed notice to restrict the alteration to the stormwater management measures. Private property owners could be subject to enforcement action if they remove stormwater management measures to avoid the cost of maintenance or any other reason without approval from the Department and/or municipality.

514. COMMENT: If no physical measures for stormwater control are currently needed, when will they be deemed appropriate or essential? (152)

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RESPONSE: A stormwater management measure is required when a development or redevelopment meets the definition of a major development at N.J.A.C. 7:8-1.2. Measures to address stormwater runoff quality are required when a major development proposes more than one-quarter acre of regulated motor vehicle surface.

515. COMMENT: Will the 2004 Stormwater Management Rule FAQs be replaced by 2020 and 2023 rule FAQs? (79)

RESPONSE: The Department will create a new FAQ document in accordance with the adopted amendments. The 2004 and 2020 FAQs will still be available as they cover much broader topics within the rules than the portions affected by these amendments.

516. COMMENT: Adjustment factors for the 25-year event should be added to the regulations for downstream stability and storm sewer sizing calculations. (79)

RESPONSE: The standards for storm sewer design and stability of outlet pipes are set forth in the Residential Site Improvement Standards and Soil Erosion and Sediment Control Standards are outside the scope of this rulemaking. Aside from the water quality design storm, the SWM rules only utilize the two-, 10-, and 100-year storms. As such, those are the only storms with associated adjustment factors included in the rules.

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517. COMMENT: Should BMPs be designed to function during the current and future storms events without modification or should BMP construction be phased to accommodate each storm? (79)

RESPONSE: The amended rules require stormwater management measures to be designed for both the current and future storms without any planned modification or phased construction during their lifespan.

518. COMMENT: If the terms “future” and “projected” have the same meaning, only one term should be used to avoid confusion. (79)

RESPONSE: While there is no particular distinction intended between these terms, “projected” is used to describe precipitation after the adopted adjustment factors are applied, namely the “projected 2, 10 and 100-year storms.” The term “future” is used primarily in the FHACA rules to discuss the future condition of the 100-year floodplain which is based on the projected precipitation amounts. Should the use of these terms prove confusing, the Department will clarify the issue in a future rulemaking.

519. COMMENT: Cumberland County climate change adjustment factors are lower for the 100-year event than for the 2-year and 10-year events. Is this due to a similar relative increase across all storm events or relative to a 30 percent increase of “wet years” over the last 20 years? The 100-year adjustment factor should be equal or greater than the

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2-year and 10-year. Burlington County climate adjustment factors show a decrease in the 2-year precipitation. If the intent is to show a 30 percent increase of “wet years” then the 2-year event should stay the same or increase slightly. What role does the past 150 years of recorded data play in the calculation of the adjustment factors? (60)

RESPONSE: There is no intent to show any particular percentage increase in “wet years.” The adjustment factors reflect the additional weather station data up to 2019. The previous rainfall totals were only determined upon data up to 2000. It is possible that the past precipitation data collected by weather stations have different trend and degrees of changes. Therefore, it is not necessarily true that the larger storm events will have larger adjustment factors. Those adjustments are calculated based on the updated data.

520. COMMENT: Proposed N.J.A.C. 7:8-1.6(f) which provides a justifiable path for public roadway and railroad projects to proceed without redesign after a reasonable point in the project design should be amended such that it also applies to public and local utility projects. (114)

521. COMMENT: Proposed N.J.A.C. 7:8-1.6(f) which provides flexibility for public roadway and railroad projects to proceed without redesign after a reasonable point in the project design should be amended such that it also applies to electric and gas infrastructure projects. These projects are necessitated by other planned development and require significant planning and design. Implementing the amendments will likely

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have significant impact on electric and gas infrastructure projects which can cause delays and additional cost. The flexibility is critical to achieving the clean energy goals of New Jersey. (145)

RESPONSE TO COMMENTS 520 AND 521: The SWM rules already provide significant flexibility for both above and below ground utility projects. Specifically, N.J.A.C. 7:8-5.2(d)1 exempts the construction of an underground utility line, such as the construction of gas infrastructure, provided that the disturbed areas are revegetated upon project completion. Further, N.J.A.C. 7:8-5.2(d)2 exempts the construction of an aboveground utility line, such as the construction of electric infrastructure, provided that existing conditions are maintained to the maximum extent practicable.

522. COMMENT: The definition for “public roadway or railroad” should be amended to include roadways constructed as part of a private development that will ultimately be dedicated to and/or maintained by a governmental entity. (114)

RESPONSE: As stated in the proposal at 54 N.J.R. at 2174, a roadway constructed as part of a private development project, regardless of whether the roadway is ultimately to be dedicated to and/or maintained by a government entity, is not within the definition of public roadway or railroad. While public roadways constructed by the listed public entities are subject to unique constraints that can impact the ability of such a project to comply with stormwater requirements, such unique circumstances are not present in roadways constructed as part of a private

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development project. An internal roadway that is part of a private development project will often have a greater amount of adjacent area owned by the private entity within which to incorporate stormwater BMPs. As such, roadways constructed as part of a private development do not require the same flexibility being afforded to public roadways.

523. COMMENT: We support the definition of “public transportation entity” as proposed.  
(114)

RESPONSE: The Department acknowledges the commenter’s support of the definition of “public transportation entity.”

524. COMMENT: Certain key definitions relevant to the utility contractor industry should remain consistent across statutes. The terms “utility project,” “local utility” and “public utility” should be defined in the rules such that they are consistent with current state laws set forth in P.L. 2022, Chapter 107; P.L. 2021, C. 263; P.L.1946, c.138 (C.40:14A-1 et seq.); P.L.1957, c.183 (C.40:14B-1 et seq.); R.S.48:2-13. (113, 114)

RESPONSE: This comment is beyond the scope of this rulemaking, as the amendments adopted herein do not contain any usage of the referenced terms. Further, it is unnecessary to define terms that are not used within a given rule. The terms “utility project” and “local utility” do not appear in either the existing or amended SWM rules or FHACA rules. The term “public utility” is also not used in the FHACA rules but does appear once in the SWM rules at N.J.A.C. 7:8-5.3(e).

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Considering that it is used only that one time, is listed with the example of a sewerage company, and is only used in the context of agencies undertaking separate or combined sewer improvement projects, the Department believes including a definition of “public utility” is not necessary at this time since its intended meaning is already clear in the context of its usage.

525. COMMENT: Clarification is needed as to whether engineers will be required to prepare a stormwater runoff quantity analysis with pre-construction and post-construction runoff hydrographs using current precipitation depths followed by another analysis to compare the pre-construction and post-construction runoff hydrographs with projected precipitation depths. (154)

RESPONSE: Yes. Engineers will need to perform stormwater runoff quantity control calculations using both the current and projected precipitation depths. Compliance with the stormwater runoff quantity control standard is required for both analyses. The Department will update the BMP Manual with examples of how to conduct the stormwater runoff quantity analysis.

526. COMMENT: The rule should apply to all development projects, including affordable housing, to limit the impervious coverage and allow for less stormwater runoff into sensitive potable water supply areas and environmentally sensitive areas. (167)

RESPONSE: The SWM rules do not specifically limit the impervious coverage that can be proposed as part of a development. Rather, they provide standards that must be met by the

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stormwater generated from the development. Developments below the threshold of major development are not subject to the rules, but all major developments, regardless of whether they constitute affordable, or market rate housing are subject to the rules. It would not be reasonable for the rules to apply to small developments that generate minimal stormwater runoff. It should also be noted that municipalities often limit impervious surface outside of the Stormwater Management rules through ordinances that set maximums on impervious surface that can be placed on a site.

527. COMMENT: Standards and manuals such as the Residential Site Improvement Standards, the Department's BMP Manual, and other resources like these will need to be updated to ensure nature-based solutions are utilized over gray infrastructure. (164)

RESPONSE: The Department has updated the BMP Manual in accordance with the green infrastructure amendments to the SWM rules and it is currently being updated in response to these amendments. The Residential Site Improvement Standards under the jurisdiction of the Department of Community Affairs refer to the stormwater runoff design and performance standards in the SWM rules as the stormwater management standards for residential developments.

528. COMMENT: The Department should define an "equivalent milestone" regarding exemptions from these amendments for State funded sidewalk projects that are not subject to any municipal or NJDEP approvals. (146)

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RESPONSE: Projects conducted by municipalities are subject to their local stormwater control ordinance. Projects conducted by counties, the NJDOT, and other State Agencies or Authorities would not typically be subject to municipal approval. However, the entities that fit within those categories that would conduct sidewalk projects are MS4 permittees through the Highway Agencies MS4 permits. This permit already contains the requested exemption at Part IV.B.4.i. Specifically, projects that have received federal or state authorization to initiate final design prior to the operative date of amendments to the SWM rules shall be subject to the rules in effect one day before the operative date of the amendments.

529. COMMENT: United States Department of Agriculture, Natural Resource Conservation Service, Technical Release 55 (TR-55) is no longer a valid publication and therefore any reference should be deleted. (146)

RESPONSE: Even though TR-55 itself has not been updated, it is still a valuable reference for describing and outlining the entire method in one document. As such, the Department determined it was appropriate to maintain a reference (and a link) to this document in the rule. However, the existing rule language at N.J.A.C. 7:8-5.7(a)1i (which has not been amended) allows the use of “The USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Dimensionless graph, as described in Chapters 7, 9, 10, 15, and 16, Part 630, Hydrology National Engineering Handbook.” The adopted rule further states that this “methodology is additionally described in Technical Release 55—Urban Hydrology for Small Watersheds (TR-55), dated June 1986.” Chapters 7, 9, 10, 15, and 16, Part 630, Hydrology

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National Engineering Handbook have been incorporated into the rules by reference. TR-55 is also referenced as an additional source of information on the method and is incorporated by reference as well. Both sources are incorporated by reference, as amended and supplemented. Technically, the applicable chapters of the National Engineering Handbook will govern the use of this methodology for compliance with the SWM rules, not TR-55, as those chapters of the National Engineering Handbook are the updated supplements to the TR-55 methodology.

530. COMMENT: The new stormwater runoff calculations are logical, but arbitrary. It cannot be definitively determined that rainfall amounts are increasing when the State's data does not demonstrate any trends. (143)

531. COMMENT: Climate change adjustment factors cannot be accurately predicted and will result in oversized stormwater facilities. This will decrease the number of public and private development projects. A single climate change adjustment factor should be used to minimize the amount of extra modeling required. (60)

RESPONSE TO COMMENTS 530 AND 531: The Northeast Regional Climate Center study reports titled "Changes in Hourly and Daily Extreme Rainfall Amounts in NJ since the Publication of NOAA Atlas 14 Volume" and "Projected Changes in Extreme Rainfall in New Jersey based on an Ensemble of Downscaled Climate Model Projections" have been through a peer review conducted by the Climate and Atmospheric Science Standing Committee of the New Jersey Department of Environmental Protection's Science Advisory Board. The study reports concluded

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that the rainfall depths for the two-, 10-, and 100-year storms have already increased and will likely increase significantly more by the year 2100. Stormwater management facilities designed on this projected rainfall data are likely to be sized appropriately to manage the two-, 10-, and 100-year storm events for the lifespan of the project and stormwater facility. Unfortunately, the results of the studies do not show a single adjustment factor for each storm event and location. So, it is necessary to use a different factor for each storm event and those factors are dependent on the location of the project.

532. COMMENT: The Department should clarify whether the rainfall factors will be updated on a regular basis as more climate change data is published. (143)

RESPONSE: The Department intends to update the adjustment and change factors where necessary as new additional information becomes available. Those changes would have to be proposed in future rulemaking.

533. COMMENT: The use of the Current Precipitation Adjustment Factors is unclear. The Department should provide an example on how to apply these factors in the context of a pre vs post runoff analysis. (143)

RESPONSE: The current precipitation adjustment factor is intended to be applied to the rainfall data available from NOAA's Atlas 14. The factor simply needs to be multiplied by the information from NOAA to obtain the rainfall amounts that should be used to model current conditions. The

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Department will update the BMP Manual and provide a design example for using Current Precipitation Adjustment Factors and Future Projection Change Factors in stormwater management calculations.

534. COMMENT: The Department should clarify whether any other states are implementing similar systems. (143)

RESPONSE: Although the Department is unaware of other states adopting regulations requiring the use of future projection rainfall data in stormwater management design, there is other state legislation requiring mitigation of climate change or the use of updated and future projected rainfall data related to stormwater management or permitting. For example, Maryland's Stormwater Management Law, Environment Article 4-201.1 (MD. Environment Code Ann. § 4-201.1 (2020)), requires the Maryland Department of the Environment to report the most recent precipitation data available and update Maryland's stormwater quantity management standards for flood control. Maryland is planning to develop and implement revised stormwater quantity management regulations that factor in climate change, including more frequent and intense storms, and future precipitation projections. (<https://mde.maryland.gov/Documents/A-StorRMreport.pdf>). New York State's Community Risk and Resiliency Act, amended 2019, requires applicants for environmental permits to demonstrate that future physical climate risk due to sea-level rise, storm surge, and flooding has been considered in project design and requires the New York Department of Environmental Conservation to consider incorporating these factors into certain facility-siting regulations. (<https://www.dec.ny.gov/energy/102559.html>).

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535. COMMENT: The Department should adopt regulations based on a stream-based watershed approach similar to that of New York and Pennsylvania. Under this approach, different attenuation rates of rainfall events should be established based on a site's location within the watershed in order to avoid overlapping peaks throughout the stream corridor and therefore avoid localized flooding and downstream impacts. (158)

RESPONSE: Adopting regulations with different attenuation rates depending on a site's location within the watershed would require modeling of watersheds throughout the State that is not available to the Department at this time. As such, the Department cannot make the suggested changes.

536. COMMENT: The definition of "major development" should expand the regulated floodplain to include the 500-year floodplain rather than the 100-year as the calculated flood hazard area based on rainfall. (171)

RESPONSE: The intent of this comment is unclear to the Department. The definition of "major development" which determines the applicability of the Stormwater Management rules, makes no reference to the 100-year flood, and it is unclear where any reference to the 500-year flood would appropriately be included in the definition of "major development." Major development is not tied to its location (or not) within the flood hazard area, but rather the amount of disturbance, impervious surface, and motor vehicle surface proposed to be constructed.

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537. COMMENT: Implement changes to require municipalities to use rainfall depth and intensity estimates based on future rain events, not historic. (171)

538. COMMENT: Municipalities should be required to use rainfall depth and intensity estimates based on future rain events instead of past ones. (77, 81, 112, 120, 122, 123, 128, 129, 130, 132, 140)

RESPONSE TO COMMENTS 537 AND 538: The Department agrees with these comments. The adopted rules require municipalities to use both updated current and projected rainfall data associated.

539. COMMENT: Define and add data to “Major development” in Subchapter 1 General Provisions at N.J.A.C. 7:8-1.2. A recent study has observed that demand for industrial real estate in the US will exceed 1 billion sq feet by 2025, because 96 percent of existing industrial space is already in use. (171)

RESPONSE: Major development is already defined at N.J.A.C. 7:8-1.2. It is not clear how the information the commenter suggests adding to that definition could be incorporated. The total demand for, or percentage of, industrial space in use is not related to the definition of “major development.”

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540. COMMENT: The proposal fails to indicate changes to N.J.A.C. 7:8-5.4(b)1. The Department relies on a flawed NRCS groundwater recharge spreadsheet, which will need to be adjusted to reflect adjustments to annual rainfall rates. The spreadsheet is inaccurate and should be discontinued. (147)

541. COMMENT: Will the Groundwater Recharge Spreadsheet (NJGRS) be updated? (79)

542. COMMENT: The Department should clarify any updates to the groundwater recharge spreadsheet. (158)

RESPONSE TO 540 THROUGH 542: The adoption includes amendments to N.J.A.C. 7:8-5.4(b)1. Specifically, 5.4(b)1i remains unchanged, but 5.4(b)1ii has been amended to require that the projected 2-year storm be utilized in the groundwater recharge calculations if that method of compliance is selected by the design engineer. Further, the overall amendments require the use of updated and projected rainfall data for the two-, 10-, and 100-year storm events, rather than annual rainfall totals. Regarding the groundwater recharge spreadsheet, the Department continues to reexamine and revise the BMP Manual (in which the spreadsheet is contained) when new information and/or data become available. As such, the Department may update the groundwater recharge spreadsheet's annual rainfall in the future.

543. COMMENT: Increases in precipitation amounts are only a one-sided look at the equation. The BMP manual has long not accounted for high infiltration rates in

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southern soils. The commenter routinely tests infiltration rates (according to Department testing standards) in excess of 40 inches per hour; while the design restrictions do not allow the use of infiltration greater than 10 inches per hour. This has a significant negative impact on the Vineland area and requires stormwater management measures that are too large and remain dry most of the year. (160)

RESPONSE: Since stormwater management basins are designed to mitigate the risk from a storm that has only a 1 percent chance of being equaled or exceeded in a given year (the 100-year storm), it would not be unusual for a basin to be dry most of the year. While the comments related to the infiltration rates used in the design calculation are beyond the scope of this rulemaking, it is important to note that there is high variability in the rate of infiltration through the soils below a basin and that those rates may be significantly less than the tested infiltration rate of the pre-construction soil. In general, only a portion of the soil below the basin can be tested and other areas may have lower infiltration rates. Soils may be compacted or otherwise altered during construction, which would adversely affect the infiltration rate. Tests are often performed improperly, in a layer of the soil that is not the most restrictive, or errors are made in calculating the infiltration rate from the data obtained in the tests. Further, infiltration rates in basins slow over time as sediments are captured. While proper maintenance and post construction testing of the basin may partially mitigate some of these factors, the Department's MS4 audit program inspects basins both owned by the municipality and those approved by the municipality on private property, and many of those inspected across the State have been poorly maintained and post construction testing was rarely performed. While this may not be the case in Vineland, these rules and the guidance in the

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Stormwater BMP Manual are intended to be applied state-wide. Department staff is available to discuss proper sizing of stormwater management measures to ensure they are adequate to meet the standards in the SWM rules, but also to ensure that they are not constructed significantly larger than is necessary.

544. COMMENT: Runoff continues past properties. A watershed approach to managing stormwater runoff is preferable, and everyone should be required to detain stormwater to allow for increased infiltration. (175)

545. COMMENT: Stormwater Best Management Practices should be enacted to retain precipitation and prevent any increase in flood damages downstream. This will allow it to infiltrate into the ground and vegetation and keep it out of waterways and communities. (77, 81, 112, 120, 122, 123, 128, 129, 130, 132, 171)

RESPONSE TO COMMENTS 544 AND 545: The Department agrees that a watershed approach to managing stormwater is preferable and previously established a pathway to a watershed approach of managing stormwater issues in the SWM rules at N.J.A.C. 7:8-3. The Department has also taken the concept of requiring onsite retention of the water quality design storm to stakeholder review. The Department is still evaluating that concept and may propose it in future rulemaking efforts.

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546. COMMENT: All Combined Sewer Overflows should be eliminated. (36, 74, 32, 75, 77, 112, 120, 122, 123, 128, 129, 130, 132, 171)
547. COMMENT: Combined sewer overflows should be eliminated. Developers have a responsibility to improve conditions and not burden existing infrastructure. The sewer systems are outdated. The Department has a responsibility to the welfare of the citizens of New Jersey. (116)

RESPONSE TO COMMENTS 546 AND 547: These comments are beyond the scope of this rulemaking. However, the Department may choose to undertake rulemaking regarding Combined Sewer Overflows in the future.

548. COMMENT: The groundwater recharge standards in the SWM rules will do nothing to reduce flooding given extreme weather. (4)

RESPONSE: The groundwater recharge standard at N.J.A.C. 7:8-5.4 is not intended to significantly reduce flooding resulting from extreme weather. It is intended to ensure that sufficient groundwater recharge is maintained after development occurs, which would otherwise reduce the level of groundwater recharge because of the changes to the land cover resulting from the construction. On the other hand, the stormwater runoff quantity standard at N.J.A.C. 7:8-5.6 is intended to prevent downstream flooding resulting from the construction of major developments.

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549. COMMENT: The rule proposal ignores changes in land use and impervious surface that generate huge volumes of stormwater that result in deadly flooding. It ignores existing development and won't be effective in influencing new development. The only hope to reduce flooding is to require municipalities to retrofit existing development with stormwater management facilities. (4)

550. COMMENT: The dangers of flooding are ubiquitous, but nothing is done to mitigate the problem. Instead, approvals for new development exacerbate the problem by introducing more impervious coverage. Please adopt the proposal. Alternatively, please ensure that municipalities keep their storm sewers cleaned to better aid in flood abatement. (77)

RESPONSE TO COMMENTS 549 AND 550: The SWM rules regulate the construction of major developments and do not require retrofitting existing developments. While additional impervious surfaces may be constructed, the adopted amendments are intended to ensure that the stormwater management measures associated with those increases in impervious surfaces be designed using the most updated rainfall information available and mitigate the effects of flooding for the entire lifespan of the project. Regarding the cleaning of storm sewer systems, municipalities are required through their MS4 permit to ensure that their existing stormwater management system is maintained to function properly. Specifically, the 2023 Tier A MS4 permit requires maintenance of municipally owned stormwater facilities at Part IV.F.3 and requires that municipalities ensure that private property owners maintain their stormwater facilities at Part IV.F.4. Flooding resulting

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from inadequately maintained storm sewer systems should be reported to the municipality to ensure the municipality is aware of the maintenance issue. Additionally, these flooding issues can be reported to the Department at 1-877-WARN-DEP.

551. COMMENT: The commenter asks the Department to make Stormwater Utilities more manageable and attractive to municipal leaders. (191)

RESPONSE: This comment is outside the scope of this rulemaking. However, the Department has developed guidance regarding the formation of stormwater utilities, which can be found here: [https://www.nj.gov/dep/dwq/SWU\\_stormwaterutility.html](https://www.nj.gov/dep/dwq/SWU_stormwaterutility.html). Further, the Department is offering \$2 million in technical assistance for feasibility studies on stormwater utility formation for eligible entities. The application period for this technical assistance is now closed, but the Department intends to fund as many feasibility studies as the funding will allow.

552. COMMENT: The commenter supports the proposed amendments to N.J.A.C. 7:8-1.2 and N.J.A.C. 7:8-1.6(f) as they afford a practical level of flexibility to public transportation agencies, respecting the delicate balancing of responsibilities to the goals of public safety, inclusivity and access, the efficient use of public funds, and avoiding or mitigating environmental harm. (73)

RESPONSE: The Department acknowledges the commenter's support for these amendments.

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553. COMMENT: The commenter states communities need to also be incentivized to use green infrastructure to address flooding and stormwater runoff. (45)

RESPONSE: The Department agrees that green infrastructure should be utilized to manage stormwater, and as a result, the Department adopted amendments to the SWM rules on March 2, 2020 that require the use of green infrastructure to comply with the groundwater recharge, stormwater runoff quality, and stormwater runoff quality standards.

554. COMMENT: The commenter urges local governments to adopt new stormwater regulations as soon as possible. (8, 11, 13, 15, 17, 20, 22, 25, 26, 30, 43, 74)

555. COMMENT: The commenter proposes that the rule changes should require local governments to adopt new stormwater regulations as soon as possible. (9)

556. COMMENT: The Department should clarify when municipalities will be required to update their local ordinances. (164)

RESPONSE TO COMMENTS 554 THROUGH 556: Pursuant to the Tier A MS4 Permit at Part IV A.1.b., municipalities will be given one year from the effective date of this rulemaking to implement the changes to their programs that will result from these amendments, which includes updating their stormwater control ordinance. However, municipalities may adopt these amendments sooner.

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557. COMMENT: This rulemaking is all about stormwater infrastructure, or it should be, but the Department has not made a serious effort to promote capital investment to solve the real problem which is inadequate stormwater facilities. (99)

558. COMMENT: Old water infrastructure should be inspected and improved. New infrastructure is also needed. (124)

559. COMMENT: The commenter states that the Department should focus on increasing the capacity of stormwater systems. (28, 30)

RESPONSE TO COMMENTS 557 THROUGH 559: While the Department supports increasing the capacity of stormwater systems, where such an increase will not cause adverse impacts downstream, the SWM rules do not regulate the size of existing stormwater systems. Rather, the rules focus on how stormwater should be managed when projects are planned that will affect stormwater volumes, rates, or quality. When increasing the capacity of stormwater systems, it is important to ensure that the increased rate of discharge through those systems is properly analyzed to ensure that its increase does not result in additional flood damages downstream. Existing stormwater infrastructure is required to be maintained by the municipality or, if privately owned, the property owner. Specifically, the 2023 Tier A MS4 permit requires maintenance of municipally owned stormwater facilities at Part IV.F.3 and requires that municipalities ensure that private property owners maintain their stormwater facilities at Part IV.F.4.

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560. COMMENT: The commenter calls for a uniform emergency standard for the calculation of stormwater runoff in order to build resiliency and mitigate flooding. A uniform standard that acknowledges the depth of the problem and climate models that unambiguously show that rainfall totals will continue to climb is a coherent strategy to minimize loss from flood events. While the 2021 standards ensured that municipalities and the developers were required by law to improve the drainage on the property, the rainfall data used is old and does not reflect reality. These proposed rules will ensure that New Jersey acknowledges the problem and begins to take adequate steps to reduce loss and suffering for those in flood prone areas. Therefore, the commenter strongly favors the adoption of these rules. (33)

RESPONSE: The Department acknowledges the commenter's support for these amendments.

561. COMMENT: The Department should enact Stormwater Best Management Practices that recharge precipitation through natural systems. (36, 74, 32, 75)

RESPONSE: The SWM rules at N.J.A.C. 7:8-5.4 require that major development projects incorporate green infrastructure BMPs that either maintain the average annual groundwater recharge from pre-construction conditions to post-construction conditions or infiltrate the increase in stormwater runoff volume from pre-construction to post-construction for the projected two-year

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storm. Major development projects are required to be designed to meet that groundwater recharge standard through the use of green infrastructure.

562. COMMENT: The commenter shares that their municipality is allowing more development to enter the stormwater system without increasing capacity, and their municipality justifies this as it is within the 100-year volume predictions. (42)

RESPONSE: The SWM rules do not contain specific requirements on the sizing of municipal stormwater management systems. Therefore, these rules do not specifically require that those systems be expanded when the stormwater from new developments discharge into those systems. However, existing N.J.A.C. 7:8-5.6(c) requires that the stormwater runoff quantity standards be applied “at the site’s boundary to each abutting lot, roadway, watercourse, or receiving storm sewer system.” The required analyses should ensure that the peak flowrate being discharged into that receiving storm sewer system is decreased, though the volume of stormwater would likely be increased overall.

563. COMMENT: Increased intensity of precipitation events and the resulting effects of additional stormwater runoff on stormwater management systems and flood elevations in fluvial areas is a justified concern that requires attention. Infrastructure that is designed to be resilient is in the best interest of New Jersey taxpayers. There are a number of infrastructure projects in active review by the Department due to increased federal and state funding for infrastructure which are not yet permitted to begin

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construction. Unnecessary delays in project delivery could erode public support of overdue infrastructure investment in New Jersey and nationwide. (114)

RESPONSE: The Department agrees that infrastructure that is designed to be resilient is in the best interest of New Jersey's residents. It is for this reason the Department has undertaken this rulemaking, to ensure that development and redevelopment activities are resilient in light of a changing climate. It is unclear however how this rulemaking would delay infrastructure projects. Proposed activities submitted as complete applications prior to the adoption of this rulemaking are not subject to the new standards. Permit application submitted after the date of this rulemaking must be designed in accordance with these new standards, which are necessary to protect public health, safety and welfare.

564. The Department should calculate heat island and hydrological changes under the SWM rules. (171)

RESPONSE: The purpose of this rulemaking, and the Departments SWM rules overall, is to ameliorate flood risk and protect surface water quality, as may be impacted by proposed development and redevelopment activities. While hydrological changes in a given watershed are taken into consideration during the computation of stormwater management calculations, the Department does not through its SWM rules study hydrological changes or calculate heat island effects. Therefore, this comment is outside the scope of this rulemaking.

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565. COMMENT: University and college campuses are ideally positioned to provide a campus-scale or regional approach to stormwater management (versus a project-by-project approach), using a combination of dispersed green infrastructure and centralized flood mitigation techniques to manage stormwater in an efficient manner that mimics natural systems most closely. The proposed rules, in combination with the previously adopted stormwater rules, do not provide the flexibility to plan and implement campus- or district-scale, stormwater strategies. They will preclude the use of innovative green infrastructure design measures and halt forward-looking research designing a more holistic and ecologically sustainable approach to landscape and stormwater design and management. (148)
566. COMMENT: Without the ability to plan and implement campus- or district-scale, stormwater strategies, the proposed rules may lead to unanticipated adverse development consequences like sprawl and fragmented stormwater systems and may lead to missed opportunities for optimizing stormwater and open space networks for added resilience benefits. (148)
567. COMMENT: The Stormwater rules should allow large contiguous landowners to use district-scale solutions (versus a project-by-project approach) for flood mitigation in combination with site-based green infrastructure techniques to address groundwater recharge, water quality, and small storm water quantity. (148)

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568. COMMENT: The commenter recommends N.J.A.C. 7:8-5.2(f) be updated to allow for large contiguous landowners, such as universities and colleges, to develop a district-scale stormwater management approach using a combination of green infrastructure and flood mitigation strategies. (67)
569. COMMENT: N.J.A.C. 7:8 should be updated to allow for large contiguous landowners, such as universities and colleges, to develop a stormwater management plan that establishes a compliance path for a watershed-based approach to managing stormwater using green infrastructure and flood mitigation strategies. (136, 148)
570. COMMENT: The Department should support creative GI research/solutions by allowing campus based landowners flexibility in regional stormwater management. (162)
571. COMMENT: The March 2021 SWM rules in combination with this rulemaking will impact ability to experiment with and implement regional campus stormwater strategies including GI, landscape and stormwater design and management. (162)

RESPONSE TO COMMENTS 565 THROUGH 571: It is unnecessary to modify the SWM rules to allow large contiguous landowners, such as universities and colleges, to develop a district-scale stormwater management approach using a combination of green infrastructure and flood mitigation strategies, as the rules already allow this approach for large contiguous landowners. The

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SWM rules must be met before the stormwater runoff would leave the site. In the case of a large contiguous property like a college campus, the standards would need to be met before the stormwater runoff leaves the property owned by the college. The standards do not necessarily need to be met on a project-by-project basis, on each individual plot, or within each individual project's limits within the campus, as long as they are met before the stormwater leaves the overall property. In fact, the Department encourages large landowners to plan their stormwater management on a property-wide basis rather than for each individual project. However, it should be noted that this planning may need to be updated when rule amendments are adopted, as having a plan of future projects and associated stormwater management measures would not be sufficient to exempt those future projects from amendments to the SWM rules. Under these amendments, for example, an approval or, at least, the submission of a technically complete application for an approval prior to the date of adoption would be required in order to be exempt from these amendments.

Additionally, these adopted amendments would not preclude the use of innovative green infrastructure design measures or halt forward-looking research. First, the voluntary construction of a stormwater basin for the purpose of research where one did not previously exist is allowable under the SWM rules, as the project would create no regulated impervious or motor vehicle surface and would not alter the topography or land cover in a way that increases stormwater runoff rates or volumes. Second, the SWM rules at N.J.A.C. 7:8-5.2(g) already contain a pathway for alternative stormwater management measures to obtain approval from the municipality and/or Department, as applicable. An innovative green infrastructure design can potentially be approved through that subsection if sufficient information is provided to the review agency to demonstrate the capability of the innovative design.

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572. COMMENT: The use of planned district scale stormwater management is a common and scalable practice on university and college campuses. However, developments and associated BMPs planned prior to the March 2021 amendments to the SWM rules may no longer satisfy the SWM rules. Some consideration should be given because these facilities were pro-active in designing their comprehensive stormwater plans, even though the plans have not yet been entirely implemented, because they are scheduled to be implemented in phases as the development occurs. (136, 148)

RESPONSE: The Department appreciates any efforts undertaken to proactively plan stormwater management for future developments. However, planning efforts are not sufficient to exempt future development applications from potential amendments to Department rules or local ordinances. For a development at a college campus to be exempt, a complete application for the development must be submitted or approved in accordance with N.J.A.C. 7:8-1.6. It is not possible for the Department to exempt developments that were planned in past years, where approvals have not yet been sought. Even if Department approval is not required, the Municipal Land Use Law requires that development applications be evaluated under the ordinances(s) in effect at the time of application (see N.J.S.A. 40:55D-10.5.) Colleges and Universities that are not subject to local ordinances must still ensure that the development projects they are implementing meet the SWM rules through their MS4 permit. Even obtaining approval is not sufficient to exempt a development project from rule amendments indefinitely, as approvals eventually expire and if the development was not constructed, subsequent approvals will be subject to any amended rules or ordinances. As

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such, any district scale planning efforts should be undertaken with the understanding that they must periodically be re-evaluated and updated, particularly when amendments to applicable rules or ordinances are adopted. The Department recommends that any college or university that has undertaken campus-wide stormwater management planning efforts that no longer meet the requirements of the SWM rules contact the Department to discuss how these plans can be amended to comply with the new standards.

573. COMMENT: The rules do not consider the challenges and impacts in applying the rules to urban redevelopment sites, sites with poor underlying soil conditions, and university and college campuses that are developed over many years with systems extending beyond the limits of individual development projects. (148)

RESPONSE: The Department has considered how the SWM rules are applied to urban redevelopment projects, sites with poor underlying soil conditions, and university and college campuses. As a result, the Stormwater BMP Manual includes numerous BMPs that can be used at urban redevelopment projects and in situations with poor underlying soil conditions. There is no specific BMP that can't be used in urban redevelopment projects, though pervious paving systems may be preferred since they do not occupy any developable land area, can meet all of the requirements and can be designed with or without underdrains. Regarding situations with poor soil conditions, grass swales, green infrastructure manufactured treatment devices, pervious paving systems with underdrains, small-scale bioretention systems with underdrains, and vegetative filters strips can all be used toward compliance with the stormwater runoff quality and quantity standards

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without utilizing infiltration. Also, bioretention systems with underdrains (without the small-scale limitation), standard constructed wetlands, and wet ponds designed to be green infrastructure can additionally be used for compliance with the stormwater runoff quantity standard. Excavation and replacement of a hydraulically restrictive layer of soil may also be an option to allow infiltration in some situations.

574. COMMENT: The DEP should solicit input from stakeholders on potential modifications to the New Jersey Stormwater BMP Manual that would provide the flexibility needed for large storm flood mitigation, particularly in areas with poor soils within the design specifications, to eliminate the need for a waiver. (148)

RESPONSE: Stakeholders are free to submit suggested Stormwater BMP Manual edits to the Department at any time. The Stormwater BMP Manual provides, in part, design specifications, removal rates, calculation methods, and soil testing procedures approved by the Department as being capable of contributing to the achievement of the stormwater management standards specified in the SWM rules. The BMP Manual contains several BMPs that can be utilized for large storm flood mitigation, even in areas of poor soils, such as pervious paving systems with underdrains, bioretention basins with underdrains, wet ponds designed to be green infrastructure, and constructed wetland basins. Considering the Department and municipalities have approved many development projects with large scale green infrastructure stormwater management measures designed for stormwater runoff quantity control in areas with poor soils, additional

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flexibility is not warranted. Further, such flexibility could not be added to the Stormwater BMP Manual without first amending the rules to include that flexibility.

575. COMMENT: The Stormwater rules should be amended to allow, without a waiver, the use of N.J.A.C. 7:8, Table 5-3 BMPs for projects located in areas of unsuitable soils (that is, less than the BMP's minimum subsoil design permeability rate), provided the water quality requirements are met using green infrastructure BMPs from Tables 5-1 and/or 5-2. (148)

576. COMMENT: The Department should allow universities and campus-based landowners to deviate from Tables 5-1, 5-2, and 5-3 without the need for a waiver when compliance with water quality, recharge, and quantity requirements can be demonstrated. (162)

RESPONSE TO COMMENTS 575 AND 576: The Department does not agree that campus-based landowners should be permitted to deviate from the requirement to use green infrastructure to meet the groundwater recharge, stormwater runoff quality, and stormwater runoff quantity standards without the need for a waiver. Unlike smaller development sites that are constrained by the limits of their property and the soil, groundwater, and topographic conditions of the property, campus-based landowners have large areas of land where stormwater management measures can be successfully implemented. Considering that traditional developments on smaller sites are able to meet the requirement to use green infrastructure in almost all cases, there is no reason that a campus-based development would be unable to meet those same standards. Additionally, there are

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numerous options available for use in situations where the soils are not conducive to infiltration, depending on the standard that the stormwater management measure is intended to address. Grass swales, green infrastructure manufactured treatment devices, pervious paving systems with underdrains, small-scale bioretention systems with underdrains, and vegetative filters strips can all be used toward compliance with the stormwater runoff quality and quantity standards without utilizing infiltration. Also, bioretention systems with underdrains (without the small-scale limitation), standard constructed wetlands, and wet ponds designed to be green infrastructure can additionally be used for compliance with the stormwater runoff quantity standard. Excavation and replacement of a hydraulically restrictive layer of soil may also be an option to allow infiltration in some situations.

577. COMMENT: The Stormwater rules should allow the use of centralized flood mitigation in the form of traditional or structural stormwater management practices (for example, detention basins) because such practices help in the prevention of “worsening flooding impacts” from the 2100-year storms, particularly if the flood mitigation is coupled with the use of green infrastructure BMPs to mitigate smaller storms, promote groundwater recharge, and treat stormwater. (148)

RESPONSE: The SWM rules at N.J.A.C. 7:8-5.3 require the use of green infrastructure to comply with the stormwater runoff quality, groundwater recharge, and stormwater runoff quantity standards. A traditional detention basin does not meet the definition of green infrastructure, and, therefore, cannot be used for compliance with those standards. However, the Department agrees

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that a more centralized approach to flood mitigation is acceptable, and this is reflected at N.J.A.C. 7:8-5.3(c), which allows large-scale BMPs to be utilized for compliance with the stormwater runoff quantity control standard. So, while a traditional detention basin cannot be used, the rules allow for the use of large-scale infiltration basins, bioretention basins, and sand filters, as well as constructed wetland basins and wet ponds (if designed to be green infrastructure.)

578. COMMENT: The Stormwater rules should allow the use of an "enhanced" extended detention whereas the enhancement could be a ten-foot-wide (or greater) strip of native vegetation, designed to encourage and promote greater evapotranspiration in exchange for less-than-optimal opportunities to infiltrate to groundwater. (148)

RESPONSE: The SWM rules cannot allow the use the suggested "enhanced" extended detention basin without a waiver, because such a design would not meet the definition of "green infrastructure." To meet the definition of green infrastructure a BMP must manage stormwater close to its source by treating stormwater runoff through infiltration into subsoil, treating stormwater runoff through filtration by vegetation or soil, or storing stormwater runoff for reuse. An extended detention basin, even one enhanced with a strip of native vegetation, does not meet any of those criteria, as a simple strip of native vegetation would not be sufficient to treat stormwater runoff and an extended detention basin provides no infiltration or storage for reuse. On the other hand, a vegetative filter strip, which is one of the BMPs in the Stormwater BMP Manual, is considered green infrastructure. The concept is similar to the suggested strip of native vegetation but requires flow to enter it as sheet flow (which would not be possible inside a

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detention basin) and generally requires a much longer length and flatter slope than would be possible on the side slope of a detention basin. It is the sheet flow through an extended length of vegetation that enables the vegetative filter strip to treat stormwater runoff using vegetation. Note that due to the way it functions, a vegetative filter strip cannot be used to provide stormwater runoff quantity control. Alternatively, a bioretention basin is also green infrastructure and can be used to meet the stormwater runoff quantity control standard. It is similar to the concept of the enhanced extended detention basin, but instead of a strip of native vegetation, the entire basin is underlain by a bioretention planting media and vegetation is planted throughout the basin.

579. COMMENT: The Department should consider a rule to ensure that any increase in impervious surface should not have an effect on neighboring properties. (4)

RESPONSE: The SWM rules regulate major developments that disturb one or more acres of land or increase one-quarter acre of regulated impervious surface or regulated motor vehicle surface. The Stormwater Management rule requires that stormwater management systems for major developments be designed to maintain levels of groundwater recharge, provide water quality treatment, and to reduce peak flowrates of stormwater. These requirements are intended to prevent adverse offsite impacts resulting from development, including the associated increases in impervious coverage. Further, a municipality can also adopt its own ordinance to manage stormwater from developments that fall below the threshold of a major development.

**Stormwater Management rules, N.J.A.C. 7:8, Technical Provisions**

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580. COMMENT: The proposal eliminates usage of the Rational and Modified Rational Methods, based on variability inherent in the method. However, the same type of variability exists with the NRCS methodology, which is not being eliminated. Therefore, usage of the Rational and Modified Rational Methods should not be eliminated. (170)

RESPONSE: The Rational and Modified Rational Methods are based on an oversimplification of complex hydrological processes in which the volume of runoff is estimated from three basic variables: a dimensionless runoff coefficient, rainfall intensity, and the size of the contributory drainage area being analyzed. There are three additional reasons outlined in the proposal at 54 N.J.R. at 2175 for the removal of the rational method, which are summarized here. First, there is no single authoritative source or set of values to use in the Rational Method. Second, the Rational Method assumes that rainfall intensity is uniform across a storm event. Third, there is no consensus on when the Rational Method can be applied. While variability is discussed within the explanation of those reasons for removal, it is in reference to the variability of selecting appropriate values for use in the calculations and when it can be applied since there is no authoritative source to rely upon. None of these reasons for removal are inherent in the NRCS method, including the referenced variability.

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581. COMMENT: The Rational and Modified Rational Methods should still be allowed for drainage areas less than 5 acres in size and for uniform contributory drainage areas. (163)
582. The Department should clarify that the Rational Method is still allowable for use in the design of storm sewer conveyance systems. (163)
583. COMMENT: Removal of the Rational and Modified Rational Methodologies is not necessary. Instead, limiting the drainage area to 5 acres will solve the issues with the methods because they assume uniform rainfall throughout the drainage area. (60)
584. COMMENT: Clarify if design engineers are permitted to use the rational method and modified rational method to calculate peak runoff flows for the purpose of sizing storm sewers in the rule. (154)
585. COMMENT: Can the rational method be used for pipe sizing calculations? (170)
586. COMMENT: The Department should clarify that the Rational Method is still allowable for storm sewer pipe design. (157)

RESPONSE TO COMMENTS 581 THROUGH 586: The reasons for removing Rational and Modified Rational Methods from the rules outlined in the proposal at 54 N.J.R. at 2175 also apply

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to the use of those two methods in small drainage areas. The rational method is an oversimplification and has no single authoritative source of values or even applicability. Therefore, the Department believes creating an exception that allow the use of those methods for smaller drainage would be inappropriate. Storm sewer design regulated under the Residential Site Improvement Standards at N.J.A.C. 7:21 is not under the Department's jurisdiction and will not be affected by this rulemaking.

587. COMMENT: Can municipalities allow rational and modified rational methods for non-major developments? Similarly, can the rational and modified rational methods be used to design stormwater facilities to lessen downstream impacts for projects that aren't major developments? (79)

RESPONSE: The SWM rules regulate major developments only. A municipality may adopt its own ordinances to regulate non-major developments.

588. COMMENT: The Department should connect with Rutgers Cooperative Extension Green Infrastructure Program alumni throughout the state to help with assessments, resource gathering and ongoing maintenance of projects. (95)

RESPONSE: The comment is outside the scope of this rulemaking.

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589. COMMENT: Regarding N.J.A.C. 7:8-5.4, the Department should require an applicant to either recharge 100 percent of the average annual pre-construction groundwater recharge volume or the increase of the stormwater runoff volume from pre-construction to post-construction for the projected two-year storm -- whichever is greater. (222)

RESPONSE: The groundwater recharge volume calculated by maintaining 100 percent of the average annual pre-construction groundwater recharge volume is based upon the annual volume of rainfall and groundwater recharge, which utilizes many design storms in the calculation. On the other hand, infiltrating the increase of stormwater runoff volume from pre-construction to post-construction for the two-year storm is calculated based on a single design storm. Additionally, the annual analysis requires the design to maintain the level of groundwater recharge, while the two-year storm method only relies on infiltration. While similar concepts, they are not identical. Not all infiltrated stormwater becomes groundwater recharge, as some of the water will remain in the soil or be evapotranspired rather than recharging the groundwater. As such, they are not directly comparable, and it would not be meaningful to require the design to use the greater of those two calculation results.

590. COMMENT: In N.J.A.C. 7:8-5.4, the average annual pre-construction groundwater recharge should be defined to reflect the impacts of climate change on historical records. (222)

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RESPONSE: Pursuant to N.J.A.C. 7:8-5.7(b), the average annual pre-construction groundwater recharge volume is calculated in accordance with “The New Jersey Geological Survey Report GSR-32 A Method for Evaluating Groundwater-Recharge Areas in New Jersey.” This comment is in reference to the average annual pre-construction groundwater recharge volume reference at N.J.A.C. 7:8-5.4(b)1i, which has not been amended and is therefore beyond the scope of this rulemaking.

591. COMMENT: Designing stormwater BMPs for six storm events results in unnecessary design iteration without creating an additional factor of safety. The 2, 10, and 100-year storms should be left unaltered in favor of applying quantity reduction to the 500-year event or adding some other factor of safety. (170)

RESPONSE: The projected rainfall depths for the timeframe of 2050 to 2099 are from the Northeast Regional Climate Center study, which considers and integrates various global warming scenarios and climate change models that are well-recognized by the scientific community. This study also uses updated weather station rainfall data up to 2019 to estimate the projected rainfall depths. In contrast, the rainfall depths of the 500-year storm event available from NOAA’s published data are not up to date. Using outdated rainfall depths of the 500-year storm as a surrogate to project the rainfall depths of the 100-year storm for a future time is unsupported by scientific evidence. The study estimates that the projected 100-year design storm for the timeframe from 2050 to 2099 has rainfall depths 1.29 to 1.5 times greater than the current 100-year storm.

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Therefore, the use of the proposed projection of 2100 rainfall depths will create the recommended factor of safety.

592. COMMENT: How will standards, such as the water quality design storm and required freeboard be applied? (170)

RESPONSE: Water quality design storm and the water quality design and performance standards are not amended in this rulemaking. As such, those requirements remain the same as they were prior to this rulemaking. The comment related to freeboard is outside the scope of this rulemaking, as there is no freeboard requirement in the SWM rules.

593. COMMENT: Before applying projected rainfall data to the quantity control storms, the Department should review the performance of existing stormwater basins to determine how effectively they operate. Consider additional freeboard for these storm events instead of using current conditions that won't exist in the future. (170)

594. COMMENT: The proposal should allow control of the future 100-year event via freeboard and emergency spillways. (170)

RESPONSE TO COMMENTS 593 AND 594: The projected rainfall depths for the 100-year design storm do not uniformly increase at a fixed amount or percentage for all locations in New Jersey. Further, stormwater management basins can be designed with many different surface areas

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and slopes, thus the volume of stormwater contained in a set depth of freeboard, for example one foot, would vary depending on the design of the basin, as would the level of flood protection provided by that freeboard. As a result, a requirement of a certain height of freeboard is not practical. The Department is also unable to review the performance of existing stormwater basins as it relates to projected rainfall. Since those changes in rainfall are projected to occur in the future, the performance of existing stormwater management basins during those future projected storms cannot be measured today. Regarding the use of an emergency spillway, the SWM rules require certain peak flowrate reductions from the developed site, but do not specifically dictate the exact method in which those reductions are achieved. While typically, an emergency spillway is the last resort to prevent a stormwater management measurement from overtopping and causing flooding of nearby development by directing the overflow to a predetermined direction, the rules do not specifically prevent it from being used to aid in providing the required peak flowrate reductions. However, as the flowrate over an emergency spillway is generally high, it would be likely that the allowable peak flowrates would be exceeded when the spillway is utilized. Therefore, meeting the required reductions in the rule may not be easily achievable while discharging over an emergency spillway.

595. COMMENT: Adopting only the hydrology chapter of the National Engineering Handbook creates conflicts in interpretation of the remainder of the handbook that also deal with establishing model parameters. (170)

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RESPONSE: The applicable chapters of the National Engineering Handbook have been incorporated by reference into the SWM rules since 2004 and this rulemaking includes no amendments to what chapters are adopted. The list of adopted chapters was updated in the amendments the Department adopted on March 2, 2020, since the National Engineering Handbook had been revised and the reference in the SWM rules was outdated at that time. The specifically referenced chapters are incorporated by reference because those chapters outline the methodology used to design stormwater management systems in New Jersey. Other chapters were not incorporated by reference because the information contained is not relevant to the SWM rules. Further, in the nearly 20 years of this portion of the National Engineering Handbook being incorporated by reference, the Department is unaware of any conflict that has arisen. Should the SWM rules be amended in the future in such a way to warrant adoption of other chapters of the National Engineering Handbook, the Department will propose rulemaking to do so.

596. COMMENT: NRCS methodology is published as guidance. There are instances where its usage is not applicable. Alternative methodologies should be vetted and allowed prior to adoption. (170)

597. COMMENT: Alternatives to the NRCS curve number method should be allowed to avoid modeling limitations. (170)

RESPONSE TO COMMENTS 596 and 597: It has been the Department's longstanding experience that the NRCS method is appropriate for all land covers in New Jersey. As such, the NRCS method

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is widely used in the state, and both design and review engineers are familiar with this method. Therefore, excluding average annual groundwater recharge calculations, which are calculated pursuant to N.J.A.C. 7:8-5.7(b), the Department accepts the use of the NRCS method for all stormwater management system designs. The Department also allows the use of alternate methodologies if an applicant demonstrates that another calculation method more accurately models conditions at a given site. However, including additional calculation methods in the rules would require significant revision to the Department's Stormwater BMP Manual and a large training effort to ensure both design and review engineers are equipped to use that new method accurately. In addition, the Department is not aware of other methods that would be equally appropriate for use in all or most situations, and the commenter did not suggest any particular alternative methodology. As such, the Department has not adopted any new calculation methods at this time.

598. COMMENT: The NRCS curve number method is limited in accuracy for smaller rainfall depths, such as the water quality design storm. Therefore, alternative methodologies of analysis should be considered. (170)

RESPONSE: There is inherently error in using any hydrologic method to estimate runoff resulting from rainfall. The NRCS method can be used for rainfall from zero up to at least 40 inches according to Chapter 10 of the National Engineering Handbook. If the calculations are performed following the procedures set forth in the National Engineering Handbook and the Stormwater BMP

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Manual, the Department has determined that the level of error is minimized such that it can be accepted. Therefore, no alternative method is required.

599. COMMENT: Rainfall data should be published instead of rainfall multipliers based on referenced sources. If referenced sources change, this would be outside of the Department's vetting process and damage reliability of the rule. (170)

RESPONSE: Because the rainfall depth of a design storm depends on the location and different values will exist for different development sites, even in the same county, it is impossible to publish rainfall depths for all locations in New Jersey within the rule text. NOAA's website has an interactive function to find the rainfall depth for a specific location; however, NOAA's website does not provide updated rainfall depth nor the projected rainfall depth for 2100. Therefore, the Department is adopting the adjustment and change factors from the Northeast Regional Climate Center studies. Design engineers may apply those factors to the rainfall depths for a specific development site obtained from NOAA's interactive website to find the current and projected rainfall depths to be used in the calculations.

600. COMMENT: The Department should accept the signed and sealed engineering design as compliant with the BMP Manual and green infrastructure without question. The municipality should be allowed use their own qualified technical professional to provide regulatory relief. (147)

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RESPONSE: The Department disagrees with this comment. Review of stormwater management designs submitted to the Department over the last 20 years has shown that significant non-compliance with the requirements in the rules would result from allowing design engineers to design stormwater management systems without regulatory oversight. The vast majority of major development projects submitted to the Department require modifications to bring them into compliance with the SWM rules. This is not to say that design engineers intentionally fail to meet the requirements, but they are required to design projects to meet a variety of requirements with the SWM rules being just one of the many. As such, the design engineer cannot be expected to have the same level of expertise with the SWM rules as a review engineer who works for, or is trained by, the Department and, in many cases, has reviewed 100s of development projects for compliance. Additionally, projects often go through a myriad of revisions from the initial design to final approval and construction. Sometimes these revisions are requested by the Department, but just as often the project is revised for other reasons, such as municipal or county review or simply a preference of the applicant. Many times, these revisions result in inconsistencies between the stormwater management design calculations and the development plans. Even something as seemingly small as an inconsistency in the elevation of a basin's outlet control structure between the plans and calculations can result in the difference between compliance and causing offsite flooding. Since preventing adverse impacts to water quality and flooding is one of the Department's core missions, it would be inappropriate for the Department to approve development projects without reviewing the stormwater management design for compliance with the SWM rules.

It is unclear what exactly the commenter means by the "municipality should be allowed use their own qualified technical professional to provide regulatory relief." Municipalities are

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permitted to both approve alternative BMP designs under N.J.A.C. 7:8-5.2(g) and able to grant variances from their local stormwater control ordinance in accordance with N.J.A.C. 7:8-4.6 provided a mitigation plan is available. In both cases, the municipality must notify the Department of such an approval, but the Department does not approve such requests unless they are associated with a Department permit, such as a Flood Hazard, CAFRA, or Freshwater Wetlands permit. Municipalities, logically, often contact the Department for guidance before approving alternative BMPs or granting variances since they could be subject to penalties for non-compliance with their MS4 permit if they inappropriately grant such approvals. However, the final decision to grant or deny such requests lies solely with the municipality, unless the development project needs permits from the Department as well.

601. COMMENT: Will deteriorated stormwater control structures increase the risk of downstream flash floods as they fail? Will this also result in cascading failures of stormwater systems? (152)

RESPONSE: The maintenance of a stormwater management measure is required under the SWM rules at N.J.A.C. 7:8-5.8. If a stormwater control structure is deteriorating, it should be required to be repaired or replaced by the approving agency. The approving agency is likely the municipality, but in some cases may be the Department. It is suggested that detection of a deteriorating stormwater control structure be reported to the municipality and/or Department to ensure that maintenance by the responsible party be required. It is impossible for the Department to predict the exact effects of the failure of an outlet control structure. If it collapses or is clogged, it may

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prevent stormwater from leaving the basin, which initially may seem to reduce downstream flows, until the basin is overtopped and flows leaving the basin significantly increase. The exact effects, including those on any downstream stormwater systems, would depend on the basin's design, its location, and the exact nature of the failure.

602. COMMENT: Should the 2-year, 24-hour rainfall depth used for time of concentration calculations be based on the current or future precipitation adjustment factor? (79)

603. COMMENT: Should drain time calculations for BMPs use NOAA Atlas 14 data, current precipitation adjustment factors, or future precipitation adjustment factors? (79)

RESPONSE TO COMMENTS 602 AND 603: The time of concentration calculation should use both the current and projected rainfall depths for the current and projected two-, 10-, and 100-year storm events, respectively. The current two-year storm would be used to calculate the time of concentration used with the current two-, 10-, and 100-year storm calculations and the projected two-year storm would be used to calculate the time of concentration for the projected two-, 10-, and 100-year storm calculations. While similarly performing both analysis for drain time would be acceptable, it likely is only necessary to provide drain time calculations for the largest storm event. Since, if the basin is able to drain in sufficient time during the largest storm event, it should also be able to drain in sufficient time during smaller events. The Department will update the BMP Manual to provide guidance on calculations and design.

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604. COMMENT: The rules need the flexibility to select, without a waiver, appropriate Best Management Practices (“BMPs“) to address large storm water quantities in areas of urban and poor soil conditions for example, HSG D type soils, and some HSG C type soils, which provide below the subsoil design permeability rate for a given BMP. While the rules allow green infrastructure measures to meet water quantity standards as detailed in Tables 5-1 and 5-2 of N.J.A.C. 7-8-5.2(f), if an area is underlain with poor soils, the number of feasible water quantity measures is less than what is presented in the tables which would result in the need for a waiver. (148)
605. COMMENT: The Stormwater rules should be amended to allow, without a waiver, the use of N.J.A.C. 7:8, Table 5-3 BMPs for projects located in areas of unsuitable soils (that is, less than the BMP’s minimum subsoil design permeability rate), provided the water quality requirements are met using green infrastructure BMPs from Tables 5-1 and/or 5-2. (148)

RESPONSE TO COMMENTS 604 AND 605: While the Department understands that some of the BMPs in the tables are not suitable in certain scenarios, the Department disagrees that this results in the need for a waiver. The tables and the Stormwater BMP Manual provide various types of green infrastructure BMPs, which includes BMPs that do not rely on infiltration or can be under-drained for locations on subsoils with low permeability. Further, in implementation of these requirements since March 2, 2021, the Department has not granted any waivers from the requirement to use GI for development projects, despite reviewing many projects located in

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urbanized areas and areas with low soil permeability. While it has been challenging for applicants in some cases, after discussion with the Department, the design engineer is usually able to find an acceptable GI BMP to address the requirements of the SWM rules.

606. COMMENT: It is not appropriate to suggest that Green Infrastructure (GI) Best Management Practices (BMPs) manage both quality and quantity of stormwater and should be expected to prevent worsening flooding impacts resulting from expected effects of climate change (2100-year storms). GI BMPs are more appropriately used for managing water quality and mitigating stormwater runoff quantity from smaller storm events. The additional storage capacity to temporarily store stormwater during extreme flood events does not necessarily require nature-based GI solutions to be beneficial; it merely needs to provide detention/flood storage capacity. (148)

RESPONSE: There is no scientific reasoning to support the claim that it is inappropriate to utilize green infrastructure to manage stormwater runoff quantity. Green infrastructure systems can be small-scale and distributed throughout a development site, as is required for groundwater recharge and stormwater runoff quality. Green infrastructure systems can also be designed to be larger-scale, as the rules permit for stormwater runoff quantity control. Certain green infrastructure systems, such as wet ponds and constructed wetlands, need to be designed to be large-scale in order to have sufficient hydrology to maintain the permanent pools associated with those types of BMPs. Further, other types of green infrastructure, such as bioretention basin and infiltration basins, can be designed to be either small-scale or large-scale. Those systems are designed with

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the infiltration or bioretention function in the lower portion of the basin but can also be designed to have storage volume for larger storms above.

607. COMMENT: The Department should clarify the requirements for design flows in roadway drainage system analyses. (165)

608. COMMENT: The Department should clarify any changes to peak flow reduction compliance under the SWM Rules. (165)

RESPONSE to COMMENTS 607 AND 608: These amendments do not alter the peak flow reductions required at N.J.A.C. 7:8-5.6(b)3. The amendments require that the analysis be performed for both the current and projected rainfall, but do not alter the peak flow reduction requirements. Further, the Department does not regulate design flows in roadway drainage systems. Roadway projects that meet the definition of major development will be subject to the SWM rules, but those rules do not contain any specific requirements about the design flow of roadway drainage systems.

609. COMMENT: The application of the factors listed in Table 5-5 to the NOAA Atlas 14 rainfall will result in higher “current” rainfalls which will result in an increase in allowable outflows from BMPs, resulting in adverse impacts downstream. (146)

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610. COMMENT: Arbitrarily increasing precipitation for future conditions has adverse environmental impacts not considered. Increasing flows directs a designer to increase weir sizes resulting in increased flows compared to existing precipitation. The objective is to reduce peak flows, but the regulations accomplish the opposite. There are already cautionary measures in place to accommodate events larger than the 100-year storm.
- (66)

RESPONSE TO COMMENTS 609 AND 610: Although the current rainfall depths adjusted with the factors in the proposed Table 5-5 may increase the pre-construction runoff and the allowable runoff discharging from a development site, the adjustment of the rainfall depths reflects the fact that higher rainfall depths are already occurring in New Jersey, as evidenced by the updated weather station data from 1999 through 2019. Continuing the use of smaller rainfall depths based on NOAA's outdated data in the design of stormwater management is unjustified and unrealistic and would result in stormwater management basins that seem work on paper, but do not actually have the required volume to store the stormwater runoff from current rainfall when constructed. Further, increasing the precipitation for future conditions will not result in increased weir or other outlet control structure sizes. While the peak flowrate of the allowable discharge under projected rainfall condition may increase, the design will need to meet the peak flowrate requirements for both current and projected conditions. As such, the design will need to ensure lower discharge peak flowrates to meet the current rainfall condition.

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611. COMMENT: The “future precipitation change factors” in Table 5-6 are based on assumptions that have never been peer reviewed and will result in excessively large BMPs. These factors should be reduced. (146)

RESPONSE: The Northeast Regional Climate Center study reports, titled “Changes in Hourly and Daily Extreme Rainfall Amounts in NJ since the Publication of NOAA Atlas 14 Volume” and “Projected Changes in Extreme Rainfall in New Jersey based on an Ensemble of Downscaled Climate Model Projections,” have been through a peer review conducted by the Climate and Atmospheric Science Standing Committee of the New Jersey Department of Environmental Protection’s Science Advisory Board. The peer-review result is available at Science Advisory Board’s website at <https://dep.nj.gov/sab/>.

612. COMMENT: The Department should evaluate the potential for the implementation of intermittent detention basins in order to control runoff as well as to serve as reservoirs during drought events. (169)

RESPONSE: It is unclear exactly what the commenter intends to mean by the use of the term “intermittent” detention basins, as all detention basin function inherently on an intermittent basis – when it rains. Further, it normally not practical to store stormwater runoff in a detention basin for later use during drought events. The stormwater would need to remain in the basin for an extended period of time, which would prevent the basin from storing runoff from future storm events. A wet pond, instead of a detention basin, does store stormwater runoff in a permanent pool

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below the outlet control structure, which can be used for irrigation or other non-potable uses. However, stormwater runoff generally contains a variety of pollutants, which would need to be treated before the basin could be utilized as a reservoir and it is not feasible to have drinking water treatment systems available at stormwater basins.

613. COMMENT: Stormwater management should use updated federal information on river currents and flood stages. Current federal regulations are 50 years out of date, and do not provide information on up-to-date current and flood data, and New Jersey has been developed past those old standards. (4)

RESPONSE: The intended meaning of this comment is unclear to the Department. Further, it is unclear what federal regulations are referenced. It should be noted that the New Jersey SWM rules do not utilize federal data on river currents or flood stages and do not directly require compliance with federal standards. The requirements are all contained within the SWM rules themselves, which are not 50 years out-of-date as they were amended in 2020 and are being amended herein as well. Likewise, the FHACA rules have been routinely updated in the past and are amended again as part of this rulemaking, in order to keep them current with the known and projected flood risks.

614. COMMENT: During Ida, no rainfall events showed more than the current design rainfall used for the Stormwater Management computation for 100-year storm events in the FHACA using Method, based on review of “Ida Remnants Strike NJ” by Dr.

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David A. Robinson New Jersey Climatologist. Figure 9 shows the rainfall data.

Adding higher rainfall intensity will increase suburban sprawl. (177)

RESPONSE: Taken in its entirety, total rainfall amounts from the remnants of Tropical Storm Ida exceeded the precipitation depths associated with the 100-year storm in several locations in New Jersey. However, such precipitation needs context to be informative. A key finding of State Climatologist's report is the severity of the rainfall the State received. For example, a number of recording stations indicate that the intensity of precipitation over one, two, three, and six-hour intervals did equal or exceed the 100-year recurrence interval. Corresponding flooding, about which the adopted rules are concerned, did exceed the 100-year recurrence interval in certain areas.

Furthermore, regardless of whether or not rainfall during Ida exceeded the current 100-year storm rainfall totals, the scientific evidence is clear that rainfall in the State has increased and will continue to increase. To ensure stormwater basins are designed to reduce flooding risk throughout their service life, it is necessary to both update the rainfall data we are using for current rainfall and to design those basins for to manage future projected rainfall. The studies utilized to update and project the rainfall data are not based on rainfall totals during Ida. So, a comparison to Ida is inappropriate. The use of the rainfall totals from these studies will not result in increased suburban sprawl but will require stormwater management basins to manage a higher volume of stormwater runoff, resulting in an increase the size of basins.

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615. COMMENT: The proposed rule at N.J.A.C. 7:8-1.6(b) does not allow the municipal board to waive submission requirements that are not germane to a specific application and still satisfy the Department's criteria. (163)

RESPONSE: The Department believes that the determination of a complete application for municipal approval lies with the municipality. If a submission requirement is legally waived by the municipality and they determine the application to be complete, then the project should be considered exempt from any amendments to their ordinance, as it would be reviewed in accordance with the ordinance that was in place at the time of a complete submission pursuant to N.J.S.A. 40:55D-10.5.

### **Flood Hazard Area Control Act Rules, N.J.A.C. 7:13**

#### **General Flood Hazard Area Control Act Rules, N.J.A.C. 7:13**

616. COMMENT: The Department should clarify whether the updated rainfall data is required to be utilized in the design of temporary conditions greater than six months. (165)

RESPONSE: In all cases where a Major Development is proposed or where an applicant performs hydrologic calculations to determine the flood hazard area limits under method 6, the updated rainfall data is required to be utilized.

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617. COMMENT: The commenter supports implementing natural barriers and mitigation to prevent floods, including allowing for oyster reefs and other natural barriers to regenerate. (45)

RESPONSE: The Department acknowledges the commenter's support for existing standards in the Department's rules that promote and support implementing natural barriers and mitigation to prevent floods. Additionally, the Department intends to undertake a rulemaking this summer that would encourage the use of nature based solutions.

618. COMMENT: Increased rainfall amounts mean that individual property owners must take action to contain the rainfall on their property. As an example, properties with swimming pools pass the flooding to their neighbors as runoff. Accessory uses to a house drain to neighboring properties, and only those within 200 feet are notified of activities under a permit, while impacts affect those further than the notification distance. It is suggested that 900 feet is appropriate. (4)

RESPONSE: Activities such as swimming pools are in some cases authorized under a flood hazard area permit-by-rule because the impact of such structures to flooding and the environment are often minimal. While it is true that swimming pools and other open waters are considered as impervious surfaces, and can increase runoff volumes from pre-construction conditions, the Department's SWM rules would apply only where such activities constitute a major development.

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Therefore, a swimming pool that occupies less than one-quarter acre of land would not be subject to the SWM rules because the change in runoff resulting from such a project is considered de minimus. However, the Department acknowledges that some projects, if incorrectly designed, can result in alterations to off-site drainage patterns, which can cause or exacerbating nuisance flooding. Under the Residential Site Improvement Standards at N.J.A.C. 5:21, as well as other municipal ordinances that enable the municipality to review and permit land disturbance, the municipal engineer or construction official would have the authority to review the proposed drainage patterns surrounding a proposed development in order to ensure the avoidance of such adverse impacts to offsite properties.

With regard to the commenter's assertion that notifying property owners within 200 feet of the site of an intended project is inadequate, it has been the Department's longstanding experience that properties situated greater than 200 feet from a proposed project site are not likely to be impacted by development in light of the fact that the FHACA and SWM rules are intended to ameliorate flood impacts and ensure that existing drainage patterns are maintained. Finally, the 200-foot notification parameter is consistent with notification requirements set forth in the Municipal Land Use Law at N.J.S.A. 40:55D-12.b. Any changes to the Municipal Land Use Law to increase the notification requirements are beyond the scope of this rulemaking and the Department's authority.

619. COMMENT: Hillsborough has a problem with flooding which is being exacerbated by continued development. It becomes an island and when medical emergencies happen, there is no way for help to get in or out. Safety of residents depends on the

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consideration of flooding impacts when planning for excessive building so medical emergencies can be adequately managed. (131)

RESPONSE: The Department acknowledges the challenges facing many communities where emergency responders cannot reach individuals who are trapped in place by floodwaters. It is for this reason that the Department has undertaken this rulemaking to help ensure that new and reconstructed roadways are to the maximum extent practicable safer, and, as noted in response to comment 770 below, to ensure that people occupying critical buildings or multi-residence buildings have a means of safely leaving the building as well as for emergency responders to access these buildings during a flood.

620. COMMENT: The rules do not propose a stream-wide or watershed-based flood mitigation and infrastructure upgrades. (99)

RESPONSE: The purpose of this rulemaking is to incorporate best available science for the design and construction of stormwater management systems and the calculation of flood hazard area limits. By incorporating the amendments of this adoption, future construction and reconstruction activities will be held to a more protective standard, which will in the long term increase the resilience of our infrastructure and ameliorate flooding.

621. COMMENT: Projects that are now within the flood hazard area are unjustly being forced to redesign their projects to meet new standards. This is unfeasible and will

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destroy some projects and overall, the costs far outweigh the potential benefits. Commenter does not understand why projects that were outside of the flood hazard zone are being held to a higher standard than those which were completely or partially within a preexisting flood hazard area. (99)

RESPONSE: As evidenced by recent extreme weather events, and as supported by recent studies indicating the upward trend of extreme precipitation in New Jersey through the end of the century, the Department has determined that flood hazard areas continue to grow across the state and that action must be taken to protect future development. Therefore, in order to meet the department's statutory mandate to protect the public from the adverse impacts of flooding, it is necessary to expand the jurisdiction under this chapter to protect proposed construction and reconstruction activities that are situated near existing flood hazard area limits which are very likely to lie within a flood hazard area today or in the future. Given that the design foot elevation is being raised by two feet, proposed buildings and roads in this newly expanded flood hazard area would likely only require minor adjustments in order to accommodate a higher road surface or floor elevation. For example, a home that was planned to be built on land that previously was one foot above the design foot elevation will now be one foot below the new design flood elevation. However, buildings are generally not built precisely at existing grades and are often somewhat raised in order to provide positive drainage. So it is likely that the lowest floor of the building in this example will already be planned to be set above the new design flood elevation. The Department does recognize, however, that there could be situations where a person had planned to construct a basement in the newly expanded flood hazard area and would now be prevented from doing so. However, the

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Department believes that the severe risk of having a basement within an area that is likely to be subject to flooding warrants such protections. It should finally be noted that projects within the newly expanded flood hazard area that have received all local approvals and have begun construction prior to the date of the adoption of these rules are not subject to these new standards.

622. COMMENT: The commenter asserts engineering cannot be a sufficient solution to increasing severe weather and stormwater flooding hazards. Additionally, the commenter casts skepticism and doubt on resilience, particularly with how the Department has chosen to pursue rulemaking through a lens of resilience and not land use planning. Further the Department should analyze existing development and analyze retrofitting applications. (27)

RESPONSE: The overall intent of the FHACA rules and of this rulemaking is to establish areas of the state where flooding is likely to occur and to help ensure that development and redevelopment within these flood hazard areas are designed and constructed to be safe for residents while not adversely impacting other properties. Flooding is a complex issue that requires a suite of strategies to effectively combat. While protective regulations are an important component in achieving this goal, comprehensive land use planning, additional infrastructure investment, targeted buyouts, and relocation and elevation of repetitively flooded structures, are all equally necessary. Such complementary strategies are beyond the scope of these rules, but can include targeted buyouts of repetitive loss structures under the Department's Blue Acres program, flood

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mitigation funding through the FEMA's Community Development Block Grant Mitigation Program, and flood mitigation projects through the U.S. Army Corps of Engineers.

623. COMMENT: The Department should propose changes to the Water Quality Management Planning Rules and the State Development and Redevelopment Plan and Map. The newly identified design flood elevation raising fluvial flood elevation by two feet and sea level rise guidance should inform the approval and update of sewer service area in the Water Quality Management Planning Rules and the identification of areas designated for growth in the State Development and Redevelopment Plan and Map. (150)

RESPONSE: These changes are beyond the scope of this rulemaking, but the Department notes the commenter's suggestion.

624. COMMENT: The sunseting of exceptions discussed in N.J.A.C. 7:8 should be mirrored in section 12.6 so that future projects are not deemed exempt when they have updated precipitation data well in advance of project design. (94)

RESPONSE: It is not clear what specifically the commenter is referring to. The flexibility extended to public transportation entities is similar under both N.J.A.C. 7:8-1.6(f) and N.J.A.C. 7:13-12.6(b)2 in that the adopted rules recognize the unique challenges facing public transportation projects that have achieved a significant level of design prior to the advent of this rulemaking.

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Under both rules, the new precipitation amounts must be used, unless with the flexibility extended by these provisions applies.

625. COMMENT: Projects that help protect in the present (and ongoing into the future) should have priority. (152)

RESPONSE: It is unclear to the Department what the commenter means. It appears that perhaps the commenter is suggesting that projects that address the new, revised floodplain elevations, which also will be built to be protective into the future should be given priority. The Department does not prioritize projects. Rather, it evaluates proposed projects to determine if they meet Department rules. An applicant that meets the new rules, which will provide protection for the project now and into the future will receive a permit. In fact, the purpose of this rulemaking is to ensure that projects being constructed today and which will likely be present for decades to come are designed and constructed to a safer, more resilient standard both for now and for the future.

### **Availability of Flood Mapping**

626. COMMENT: The Department should update flood mapping with scientifically valid and accurate, updated Flood Hazard Area (FHA) Design Flood Elevations (DFE). In fact, the Flood Hazard Control Act (N.J.S.A. 58:16A-50) specifically tasks NJDEP with updating the maps on a regular basis and cites 15 years as the benchmark for remapping under section 58:16A-52. (176)

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627. COMMENT: Is the Department is planning on updating the existing mapping? (154)

RESPONSE TO COMMENTS 626 AND 627: Pursuant to the Flood hazard Area Control Act at N.J.S.A. 58:16A-52(a), “The department shall, within the limits of funds appropriated or otherwise made available therefor, update delineations of flood hazard areas as appropriate as provided in subsection b. of this section. The department shall update its delineations of flood hazard areas at least once every 15 years and shall prioritize the preparation of updates based upon flood risk.” To date, sufficient funding has not been provided to the department to reevaluate all of its promulgated flood maps. Nevertheless, the Department has been continually working to update its flood mapping. In 2006, the Department and FEMA signed a Cooperating Technical Partnership Agreement (CTP) to perform map production together to build the next generation of FEMA and State flood mapping. One of the goals of this partnership is to combine State flood mapping with FEMA flood mapping. The process is ongoing. While maps recently updated under the partnership agreement do not account for climate change, the Department expects future revisions to do so. Use of published 500-year flood plains mapped by FEMA can provide a general, though incomplete, sense of what the expanded areas are. However, since many regulated waters throughout the State lack state or federal flood mapping, it is not possible to know the exact extent to which flood hazard areas have expanded as a result of the amended rules. However, property owners can estimate the likely flood risk on a given site by accessing the New Jersey Flood Risk Tool, which may be found on the Department’s Inland Flood Protection Rule webpage at located at <https://dep.nj.gov/inland-flood-protection-rule/flood-tool/>. Prospective applicants are

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encouraged to speak with Department staff to determine the likelihood of flooding on a given site. Additionally, a consulting engineer can be employed to delineate flood hazard areas with greater accuracy.

628. COMMENT: The rules should not be adopted until the Department properly studies and remaps the FHAs in the state, along with FEMA. (176)

RESPONSE: Providing detailed flood mapping of the state is not necessary for the Department to employ the adopted new design flood elevation. Many regulated waters do not possess flood mapping, leading prospective applicants over the years to instead determine the flood hazard area limits along these waters using hydrologic calculations and hydraulic modelling. While applicants choosing to rely on State or Federal flood mapping will need to add two feet to the previous design flood elevation, should a prospective applicant disagree with the flood hazard area determined in this way, can employ a consulting engineer to delineate the flood hazard area boundary with more accuracy as noted in the response to comment 626 and 627 above. The Department examined flooding caused by recent storm events and compared them to published flood mapping. The Department also contracted with the Northeast Regional Climate Center to project changes in precipitation by the year 2100. What was learned from these undertakings was sufficient to inform the requirements of the Inland Flood Protection Rule proposal. Because buildings and infrastructure being constructed both today and in the near future are expected to last for decades to come, delaying the rules in favor of an extensive remapping effort would place people and property at a much considerably higher flood risk than is necessary. It would increase flood

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vulnerability and decrease flood resiliency, which is counter to the purpose of the amended SWM rules and FHACA rules.

629. COMMENT: NJDEP failed to provide any data regarding (a) how far FHAs will expand; and (b) the number of additional structures in the expanded portion of the Flood Hazard Area (FHA) that will be regulated under the amended rules. (176)

RESPONSE: Adding two feet to the design flood elevation when State or Federal flood mapping is used, as proposed and adopted in this rulemaking, will increase the size of flood hazard areas. Estimates using available GIS mapping layers of FEMA 100 and 500-year floodplains indicate that this rulemaking adds approximately 0.7 percent of the state's land area into the flood hazard area subject to this chapter. Since between 15 and 20 percent of the land area of New Jersey lies within a flood hazard area, this represents an increase of roughly four percent (between 3.5 and 4.7 percent) of the size of the flood hazard area previous to this adoption. However, since many regulated waters lacking either Department or FEMA flood delineations throughout the State, it is not possible to know the exact extent to which flood hazard areas have expanded as a result of the amended rules. Use of published 500-year flood plains mapped by FEMA can provide a general, though incomplete, sense of what the expanded areas are. Such information is available through the New Jersey Flood Risk Tool, which may be found on the Department's Inland Flood Protection Rule webpage at located at <https://dep.nj.gov/inland-flood-protection-rule/flood-tool/>.

Even if the precise boundaries of the expanded flood hazard area were known, it would be difficult to determine the exact number of structures that are located in these areas. In addition,

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because the rules apply primarily to new development and reconstruction, and in many cases the required standards can be met with minimal additional cost, the number of existing structures in these areas is not a good measure of their impact. More importantly, the Department has determined on the basis of the best available science provided by the Northeast Regional Climate Center and a comparison of the extent of flooding seen in more recent flood events compared to what was shown in published mapping, that properties in the expanded flood hazard area are or in the near future will be subject to significant risk of flooding. The Department therefore appropriately determined that the adopted rules are necessary to protect public health, safety and welfare.

630. COMMENT: Were taxpayer dollars wasted for existing stream studies and will more taxpayer dollars be spent on restudying these streams? (60)

RESPONSE: Stream studies have been undertaken in New Jersey since the late 1970's. Those studies reflect the best science at the time and have been used by thousands of people over the past 40 years. Each time the maps were used to inform the location and/or elevation of proposed development, the taxpayers recouped their money from this investment. Additionally, the adopted amendments use the existing stream studies as the basis for the safety factors to be added to development elevations, again reusing these highly useful studies and saving the taxpayers from having to pay for new mapping.

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631. COMMENT: The commenter encourages the State to pursue updated mapping in partnership with other State and Federal agencies. (98)

RESPONSE: The Department has already entered a partnership with FEMA. Since 2006, the Department has been coordinating revision of both Department and FEMA flood delineations to create a unified source of updated flood mapping under a Cooperating Technical Partnership Agreement. The effort is ongoing. While these efforts were started before the Department considered the effects of climate change on the State's flood hazard areas, future mapping will need to take these impacts into account.

632. COMMENT: DEP claims it has no budget to prepare new flood maps. That is unacceptable for a Department with a robust GIS section and that will receive substantial permit fees from thousands of new applicants as a result of the rule changes. (176)

RESPONSE: Preparing new flood maps is not only a budgetary issue. There are also technical issues that prevent the Department from expeditiously updating each individual map. There are approximately 2,500 miles of Department-delineated watercourses. Each flood delineation is independent and separate from the others, unlike the tidal flood studies that originate from one larger, common body of water – the Atlantic Ocean. Unlike the tidal flood studies, the published fluvial flood maps do not readily lend themselves to conversion to a GIS format. Conversion

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cannot be done in an expeditious manner, based upon the foregoing, it would not be a prudent use of the Department's resources.

633. COMMENT: Commenter recommends the Department develop accurate flood maps, with new data and reflect past extreme events. State agencies should incorporate these new rules and standards into projects.

RESPONSE: The focus of the rulemaking is how to account for future flooding along all regulated waters, including those that are mapped and unmapped, as well as how to adjust stormwater facilities to best account for that. Unfortunately, the age of Department delineations does not lend them to a straightforward process to update them to account for additional flooding. As such, the Department is not able to update them coincident with this rulemaking. The adopted rules will apply to all applicants, including state agencies. However, the adopted rules contain provisions for public transportation agencies that provide flexibility based upon their unique needs to the public.

634. COMMENT: The commenter urges the Department to fast-track the implementation of new, updated flood maps. (53)

635. COMMENT: The rule regulates areas that are outside of the FEMA mapping therefore, detailed mapping should be provided in conjunction with the implementation of the rule to better inform the regulated community of the possible impacts of the rule on

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- their properties and to inform the regulated community of the flooding risks to their properties. (168)
636. COMMENT: Mapping which shows the most recent flood studies should be provided to the public to not only show how they will be affected by the rule but also provide information on their risk of flooding. (168)
637. COMMENT: The Department should take steps to ensure that people who live in a flood zone know they live in a flood zone. (95)
638. COMMENT: Instead of increasing the elevations state-wide, the Department should allocate resources to study areas that have been subject to repeat flooding events and re-map these areas based on the data from the studies. (168)
639. COMMENT: The Department should expeditiously update existing flood delineations and coverage to ensure that the public has the best available information regarding flood risk. (163)
640. COMMENT: Given that past storms have exceeded two feet above existing flood hazard areas in some locations, the addition of two to three feet of freeboard to existing maps is logical given that these reflect best available data in many areas. However, it should be a high priority for the state to develop (in partnership with federal agencies,

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where appropriate) a more accurate set of flood maps depicting current and future risks.

Accurate flood mapping would provide important and more seamless specificity rather than relying on the proposed adjustments to existing flood mapping. (180)

641. COMMENT: The State should delineate all regulated floodplains using the most current data and available technology. This would create less confusion in determining the extent of regulated floodplains as well as the appropriate design flood elevation for individual properties. This approach would allow easier permitting and code enforcement as well as alleviate time and expense on the property owner making it more cost effective for property owners to mitigate their flood risk properly. (97)

642. COMMENT: The Department should quantify the additional land area that will be in the fluvial flood hazard area and determine how much of that land is developable. (156)

643. COMMENT: Commenter recommends the Department release a map depicting the expansion of regulated FHAs and release it to the public. (164)

644. COMMENT: The State should delineate all regulated floodplains using the most current data and available technology. This would create less confusion in determining the extent of regulated floodplains as well as the appropriate design flood elevation for individual properties. This approach would allow easier permitting and code

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enforcement as well as alleviate time and expense on the property owner making it more cost effective for property owners to mitigate their flood risk properly. (97)

645. COMMENT: The commenter supports the proposed design flood elevation that raises the riverine elevation map by two feet, leading to an increase in land area subject to the requirements of the rule. The Department should release a plan of action around mapping the newly defined areas of risk, including projects that use Method 6 to calculate flood elevations. (164)
646. COMMENT: The commenter supports the rule however flood maps should be updated since current construction projects are utilizing outdated flood maps in their planning and design. (86)
647. COMMENT: The Department should update all State study mapping, flows, and hydrographs to reflect the flood hazard area/floodway based on the proposed rainfall data. (165)
648. COMMENT: The rule changes will expand significantly the areas regulated by the FHA rules. The rule proposal does not provide any information on how many new homes, other structures, and properties will be impacted. Available information shows a substantial increase in the size of the regulated FHA in many communities, especially in older, densely development communities having broad floodplains. (133, 176)

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649. COMMENT: The State should delineate all regulated floodplains using the most current data and available technology. This would create less confusion in determining the extent of regulated floodplains as well as the appropriate design flood elevation for individual properties. This approach would allow easier permitting and code enforcement as well as alleviate time and expense on the property owner making it more cost effective for property owners to mitigate their flood risk properly. (97, 133, 135)

650. COMMENT: The commenter recommends that the Department develop accurate flood maps, with new data, and reflect past extreme events. (87)

RESPONSE TO COMMENTS 634 THROUGH 650: As noted in the response to comment 629 above, adding two feet to the design flood elevation, as proposed and adopted in this rulemaking, will increase the size of flood hazard areas, and estimates using available GIS mapping layers indicate that this rulemaking would add approximately 0.7 percent of the state's land area into the regulatory flood hazard area. However, without detailed mapping of every regulated water in the state, it is not possible to accurately assess the number of structures and properties that lie outside the flood hazard area prior to this rule making which are now incorporated into the flood hazard area. Furthermore, a concerted statewide effort to provide updated flood mapping for every regulated water is well beyond the ability of the Department to undertake without a large appropriation earmarked for such a task. As such, the adopted amendments raise the design flood

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elevation 2 feet in cases where any applicant chooses to use state or federal flood mapping. Alternately, applicants can use method 6 at N.J.A.C. 7:13-3.6 to more accurately delineate the flood hazard area along a given water using the updated precipitation data provided in the adopted rules. Through the verification process set forth in N.J.A.C. 7:13-5, an applicant can request the Department to verify the limits of flood hazard areas on a site. Additionally, through the applicability determination process at N.J.A.C. 7:13-2.5, the Department can provide guidance to a prospective applicant as to the need for a flood hazard area permit and may, in some cases, be able to determine that a proposed project is not subject to flooding.

Notwithstanding the current absence of complete mapping for the state, it is nevertheless essential that structures in the expanded flood hazard area be protected from future flooding, as well as flooding that has occurred in recent years, such as that which we endured from the remnants of tropical storm Ida. Therefore, while it is not possible to know the exact number of structures that will be incorporated into the flood hazard area as a result of this rulemaking, the Department believes that it is necessary to expand the flood hazard area to include such properties in order to meet the statutory intent to protect the public health safety and welfare of our residents. The Department further believes that the existing procedures for determining whether a property is located in the flood hazard area are sufficient to allow property owners to determine when a property is subject to these rules, while the illustrative tool available at [www.njfloodmapper.org](http://www.njfloodmapper.org) can help raise public awareness of where flood risks are higher.

651. COMMENT: While the rulemaking includes graphics depicting the proposed expansion of the flood hazard area, the Department should provide additional clear

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graphics depicting preferred methods for achieving design flood elevation (DFE) for structures, which differentiate between DFE and flood elevation. (180)

652. COMMENT: Provide clear graphics that show the preferred method(s) for achieving DFE in differing scenarios and structure type. (98)

RESPONSE TO COMMENTS 651 AND 652: The Department recognizes the value in including clear graphics to illustrate the various regulated areas under the rules, both to increase understanding of the jurisdiction and impact of the rules, as well as to help guide applicants who are seeking authorizations or permits. An illustration of the floodway, flood hazard area, and riparian zone is included in the existing rules in section 2.3. The Department anticipates providing additional graphics in an upcoming rulemaking that will be proposed this summer.

653. COMMENT: Because new maps are not being provided by DEP, the regulated public and municipalities will have to determine the updated Flood Hazard area for any sites on which development, redevelopment or improvements are proposed. In the fluvial flood zone, regulated water surface elevations vary along the river center line and are shown on FEMA and DEP mapping at various cross-sections. In between, the elevations must be interpolated. It is not easy to determine the location of a property on the NJDEP plan and profile view maps, or even on the FEMA maps beyond the current mapped flood hazard areas, and then interpolate the elevations from mapped cross-sections to the property of interest. (176)

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RESPONSE: Elevations between cross-sections shown on either Department or State flood mapping need not be interpolated. Such interpolation has already been done as seen in the profiles accompanying both the Department and FEMA flood delineations. Profiles for Department delineations are shown either on a plan view showing the extent of flooding or on a separate profile map that accompanies the plan view. Profiles for the FEMA delineations are in the accompanying flood insurance studies booklets.

While it is true that some mapping does not include information outside of the mapped flood plain boundaries, any difficulty should be attenuated via the use of aerial photography to locate visual benchmarks that facilitate the location of a given property in reference to a stream cross-section shown on State or FEMA mapping. If that does not, for any reason, facilitate ease of reference, the Department's flood hazard engineering staff is always happy to help identify the location of a site on a flood map. Further, through the Department's verification process set forth in N.J.A.C. 7:13-5, an applicant can request that the Department verify the limits of flood hazard areas on a site. Additionally, through the applicability determination process at N.J.A.C. 7:13-2.5, the Department can provide guidance to a prospective applicant as to the need for a flood hazard area permit and may, in some cases, be able to determine that a proposed project is not subject to flooding.

654. COMMENT: In the proposed rule, the Department should include a process for quickly updating maps based upon new data. (95)

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RESPONSE: The FHACA rules already have a process to update Department delineations, as specified at N.J.A.C. 7:13-3.7. In addition, FEMA has an established process to update its flood mapping via the Letter of Map Change process.

**Flood Hazard Area Control Act, N.J.S.A. 58:16A-50 et seq.**

655. COMMENT: The rule ignores the Flood Hazard Act requirement to identify subportions of the Flood Hazard area for reasonable use. (168)

RESPONSE: The Flood Hazard Area Control Act at N.J.S.A 58:16A-52a provides that, “the department shall study the nature and extent of the areas affected by flooding in the State. After public hearing upon notice, and pursuant to the "Administrative Procedure Act," P.L.1968, c.410 (C.52:14B-1 et seq.), the department shall adopt rules and regulations which delineate as flood hazard areas such areas as, in the judgment of the department, the improper development and use of which would constitute a threat to the safety, health, and general welfare from flooding. These delineations shall identify the various subportions of the flood hazard area for reasonable and proper use according to relative risk, including the delineation of floodways necessary to preserve the flood carrying capacity of natural streams.” The Department is following this mandate in this rulemaking. Specifically, the Department has studied the nature and extent of the areas affected by flooding in the state by virtue of comparing recent flood events to available flood mapping, as well as recognizing recent studies discussed above that indicate extreme precipitation in New Jersey has increased, in some places significantly, since 1999 and is likely to continue to increase through

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the end of the century. In order to ensure that homes, businesses, roadways and other structures are suitably protected from not only today's flood conditions but also likely future flood conditions, it is imperative that the Department responded to the data at its disposal as incorporated by this rulemaking. With regard to the requirement to identify sub-portions of the flood hazard area for reasonable use, this rulemaking does not affect the distinction between the floodway and the flood fringe. Development in the flood fringe is permitted provided appropriate design and construction standards are met, which are necessary to protect public health, safety and welfare. Development in the floodway continues to be restricted because of the direct threat to public safety for developing in this area. This rulemaking does not alter or affect the boundaries of the floodway, the restrictions on development in the floodway, or the conditions pursuant to which development is permitted in the existing and expanded flood fringe.

656. COMMENT: The climate change factors result in regulation of storm events at approximately the 500-year event which is not supported by the Act. Climate change is a politically biased and requires debate and legislation before it can be included in the rules. (66)

RESPONSE: As noted in the response to comment 655 above, the Department is mandated with studying the nature and extent of the areas affected by flooding in the state, and pursuant to N.J.S.A. 58:16A-55, adopting standards that are commensurate with the risk of developing such areas. N.J.S.A. 58:16A-55.2 further states that no "structure or alteration within the area which would be inundated by the 100 year design flood of any nondelineated stream shall be made, rebuilt or

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renewed by any person without the approval of the department and without complying with such conditions as the department may prescribe for preserving such area and providing for the flow of water therein to safeguard the public against danger from the waters impounded or affected by such structure or alteration.” This rulemaking adheres to this mandate, and simply redefines the 100-year design flood to include the effects of increasing extreme precipitation that have occurred in recent decades and which has been evidenced by recent flooding, in cases where an applicant chooses to use state or federal flood mapping as their resource. While the term 500-year flood is not used in this rulemaking, the Department recognizes that adopting a 2-foot increase to the design flood elevation could match or possibly exceed the 500-year flood as mapped by FEMA in some locations. However, this is appropriate, as evidenced by recent flood events. For example, the Raritan River at Bound Brook has experienced three 500-year flood events since 1999 according to USGS gauge data. This is due to the fact that state and federal flood mapping has in many cases not been updated to use current hydrologic conditions. In cases where an applicant believes that the use of state or federal flood mapping with the added 2-foot factor of safety incorporated by this rulemaking overestimates flooding on a site, the applicant can instead delineate the floodplain using method 6 at N.J.A.C. 7: 13-3.6.

### **Raising the Design Flood Elevation Based on Mapping by Two Feet, N.J.A.C. 7:13-3**

657. COMMENT: Modeling based on future projections due to climate change instead of historical data is an improvement. The two-foot rise in floodplain elevation is needed as weather is changing. (121)

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658. COMMENT: Stormwater management must be taken seriously. All inland waterways must assume water will rise at least 7 feet. New Jersey must be prepared, or many citizens won't have homes. (124)

RESPONSE TO COMMENTS 657 AND 658: The Department agrees that adding a 2-foot factor of safety to historic flood maps, which are generally based on hydrologic conditions from decades ago, is necessary to protect public health, safety and welfare. With regard to the suggestion that all inland waterways must assume flooding will increase by at least 7 feet, the Department does not have data to support this concept at this time.

659. COMMENT: By utilizing an "arbitrary" 2-foot flood elevation increase, the rule ignores both floodplain size and depth. (168)

660. COMMENT: The arbitrary addition of elevation to a flood map does not consider flood storage volume. Nor does it consider areas with gentle slopes. (147)

661. COMMENT: How will raising the Base Flood Elevation by 3 feet slow the growth of flooding due to projected increases in precipitation? (152)

662. COMMENT: The Department should clarify the cases in which the new 2–3-foot increase in water surface elevation and new discharges. (146)

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663. COMMENT: One hundred year flood limits should not be used, and development should instead be based on 500 or 1,000-year floods. Utilizing the 1900 100-year flood does not account for the conditions of today. As an example, the Millstone River and other waterbodies are already flooding to the 500-year limit. (4)
664. COMMENT: The proposal for a fixed increase in flood elevations along all portions of a waterway is illogical. The Department should provide a more flexible approach outside of a Method 6 analysis. (143)
665. COMMENT: Costs don't outweigh the benefits and the commenter disagrees with the Department's use of "speculative" information to justify the two-foot rise in inland flood levels and future precipitation. (141)
666. COMMENT: We acknowledge that many areas of New Jersey outside the current flood hazard area boundaries were inundated by flooding while other areas that are within current flood hazard areas had no recorded instance of flooding. Expanding the flood hazard areas by adding 2 feet to the flood elevations does not address this problem since it will create broader flood hazard areas where there has been no flooding. The rules should provide a methodology for using the absence of flooding as a basis for narrowing the flood hazard area. (133)

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667. COMMENT: The commenter disagrees with application of the addition of two feet to the Design Flood Elevation for Department delineations state-wide and advocates the use of other methods to determine the elevations according to the natural fluctuations of the specific flood plain. (154)
668. COMMENT: Has there been a study which shows the 3-foot rise in base flood elevation might not be enough or might be too much in different places? If the rise in base flood elevation doesn't work everywhere, the rules are arbitrary and capricious. The absence of a study evaluating the proposed approach shows the absences of reasonable due diligence. (152)

RESPONSE TO COMMENTS 659 THROUGH 668: The rules in place prior to this adoption directed applicants in fluvial flood hazard areas to use the design flood elevation depicted on a Department delineation, or to set the design flood elevation to be one foot above the 100-year water surface elevation reported on FEMA mapping, whichever results in a higher flood elevation. This rulemaking adds a 2-foot factor of safety to the previous design flood elevation set forth in this chapter. As such, this rulemaking establishes the design flood elevation to be 2 feet above the design flood elevation depicted on a department delineation or 3 feet above the 100-year flood elevation shown on FEMA mapping, whichever is higher. The additional 2 feet of flood protection is not arbitrary but is rather being adopted in response to increases in extreme precipitation that have been recorded over prior decades as well as recent flood events that show flooding in New Jersey continues to increase (See DeGaetano, A. (2021). Projected Changes in Extreme Rainfall

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in New Jersey based on an Ensemble of Downscaled Climate Model Projections. Northeast Regional Climate Center. Department of Earth and Atmospheric Science. Cornell University, Ithaca, NY. [www.nj.gov/dep/dsr/publications/projected-changes-rainfall-model.pdf](http://www.nj.gov/dep/dsr/publications/projected-changes-rainfall-model.pdf). See also: DeGaetano, A., Tran, H. (2021). Changes in Hourly and Daily Extreme Rainfall Amounts in NJ since the Publication of NOAA Atlas 14 Volume. Northeast Regional Climate Center. Department of Earth and Atmospheric Science. Cornell University, Ithaca, NY. [www.nj.gov/dep/dsr/publications/nj-atlas-14.pdf](http://www.nj.gov/dep/dsr/publications/nj-atlas-14.pdf).) By establishing this higher design flood elevation, new and reconstructed structures will be designed and constructed to have increased resilience against future flood events. This change in the Department's definition of the design flood elevation does not slow the growth of flooding, but rather responds to the projected increases in precipitation discussed in this rulemaking by ensuring that development located in flood prone areas is designed to be resilient to the increased flooded.

With regard to the comment that the flood hazard area will be expanded through this rulemaking to include areas that are not currently delineated as a flood hazard area, the Department believes this is appropriate based on the hydrologic trends and precipitation increases that have occurred and are likely to continue to occur through the end of the century. By adding 2 feet to the design flood elevation, the Department is incorporating an additional factor of safety to protect public health, safety and welfare for structures being constructed today that are likely to be present in 50 or 75 years or longer. In cases where an applicant feels that adding this factor of safety to historic flood mapping inappropriately demarcates flooding on a given property, the Department encourages the use of method 6, which more accurately computes flooding on a specific site. However, where applicants choose to use historic flood mapping as the basis of their design flood

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elevation on their property, the department is confident that the additional 2-foot factor of safety incorporated by this rulemaking adequately protects public health, safety and welfare.

669. COMMENT: The commenter disagrees with the apparently arbitrary addition of two feet to the Design Flood Elevation for Department delineations, the addition of three feet of elevation to the FEMA 100-year flood elevation and the addition of a one foot safety factor to Method 5. (168)

RESPONSE: The safety factors added to each of the Department delineation, FEMA delineation, and the approximated delineation are not arbitrary. As stated in the proposal summary, the Department reviewed stream gauge data, flood mapping, and preliminary FEMA claims. Considering that the hydrology used for the majority of the Department delineations and FEMA delineations is based on data that is decades old, additional safety factors were needed to retain the regulatory utility of the published mapping. The use of 2 additional feet simultaneously updates and projects the flood data to the year 2100. The above safety factors notwithstanding, an applicant is not required to rely on these numbers. As an alternative, and in accordance with N.J.A.C. 7:13-3.2(b) and (c), unless a Department delineation was adopted on or after January 24, 2013, the applicant may calculate the flood limits using precipitation adjusted to the year 2100.

670. The addition of three feet of freeboard will devalue a farmer's property, considering it is topographically flat. (147)

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RESPONSE: This rulemaking raises the design flood elevation two feet above its previous definition in cases where an individual chooses to utilize flood mapping to determine flood hazard area limits. While it is true that raising the flood elevation extends the flood hazard area farther into a site, more so if the topography is relatively flat as compared with areas with steeper slopes, it is unclear how this will devalue agricultural land. Ongoing agricultural activities are permitted-by-rule from the FHACA rules and are not therefore affected by a change in the design flood elevation. If the commenter's concern relates to the potential value of the property to future developers who may intend to convert the agricultural land into housing or other projects, it is the Department's position that adopting duly protective standards in present and future flood hazard areas is, in the long term, more cost effective than not responding to the measured and projected changes in precipitation and flooding that have occurred and will continue to occur through the end of the century.

### **Recommendations to Utilize FEMA's 500-year floodplain**

671. COMMENT: If climate change is not a political term, then the objectives of the rules can be met with a more precise 500-year rainfall event. (66)
672. COMMENT: Using the 500-year floodplain would increase the flood zone but not as much as the FEMA plus 2 or plus 3 feet. (168)

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673. COMMENT: The Department should expand the regulated floodplain to include all of the 500-year floodplain and base the area on future rainfall. (36, 74, 32, 75, 40)
674. COMMENT: The proposal should base the flood hazard area on the 500-year flood instead of the 100-year flood. (77)
675. COMMENT: The proposed regulations do not go far enough. Regulations should look at a minimum at the 500-year flood, as we have had three 500-year floods this century. (230)
676. COMMENT: The regulated floodplain should be expanded to include the 500-year floodplain plus the calculated flood hazard area based on rainfall. (41, 77, 112, 120, 122, 123, 128, 129, 130, 132)
677. COMMENT: The Department should not permit building in areas that have a high risk of flooding. (183)
678. COMMENT: There have been numerous “500-year” floods recorded. The proposed rule is based on an obsolete standard and a heightened 500-year storm standard should be implemented. (27)

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679. COMMENT: The regulated floodplain should be increased from the 100-year floodplain to a 500-year floodplain with the flood hazard area calculated using rainfall data. (100, 101, 107, 109, 111)
680. COMMENT: The rule proposal is flawed and obsolete because it is based on the 100-year storm, despite the fact that New Jersey has already suffered several 500-year storms. The Department should use the 1000-year storm. (4)
681. COMMENT: New Jersey is repeating mistakes made in New Orleans by continuing to rely on the 100-year storm. This is a mistake that has cost billions of dollars. The remnants of Tropical Storm Ida caused flooding at various locations in New Jersey that have exceeded the 100-year flood stage by 2.5 feet – 3.5 feet. Flooding in Bound Brook exceeded FEMA’s 100-year flood elevation four times and FEMA’s 500-year flood three times since 1999. There is an upward trend in the number and severity of floods in the State. Despite the fact that New Jersey is already experiencing 500-year floods, the rule proposal does not rely on the 500-year flood in the proposal. (4)
682. COMMENT: The 500-year flood plain has been delineated along many NJDEP- and FEMA-studied streams using established modeling techniques. Until the Department or the Federal government has sufficient funds to update the flood elevations and mapping, why did the Department choose not to use the 500-year zone (which has scientific validity), as the future PACT flood zone? (176)

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683. COMMENT: No further development or rebuilding should be done within the floodplain up to the 500-year flood. (226)

684. COMMENT: The regulated floodplain should be increased from the 100-year floodplain to a 500-year floodplain with the flood hazard area calculated using rainfall data. Construction should be prohibited in the 500-year floodplain and flood hazard areas to keep people out of harm's way. (81, 100, 101, 107, 109, 111)

RESPONSE TO COMMENTS 671 THROUGH 684: Knowing how flooding is expected to change in the future and that buildings and infrastructure being built today will be impacted by future flooding, the Department could not delay the Inland Flood Protection Rule until new mapping was produced. The Department did not utilize the 500-year flood zone because the basis of jurisdiction under the Flood Hazard Area Control Act is the 100-year flood plain. See, e.g. N.J.S.A. 58:16A-55.2. Therefore, it was necessary and appropriate for the Department to regulate to a projected 100-year flood plain, rather than a 500-year published flood plain map that relies on data that is backward looking.

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**Factors of Safety and Calculation Methods, N.J.A.C. 7:13-3**

685. COMMENT: The proposal retains all current peak flow rate calculation requirements. This is excessive and results in excessive flow rates that have no credible scientific basis. (163)
686. COMMENT: Conservatism is warranted where there is a real flooding risk to people and property and when that risk is worth the regulatory cost. However, excessive conservatism results in flow rates that are substantially higher by hundreds or thousands of cubic feet per second than what proper modeling would yield. (163)
687. COMMENT: The 25 percent safety factor is insufficient to protect against the now heightened “500-year” severe weather events. (27)
688. COMMENT: There are enough factors of safety in place that make the flood hazard area extremely conservative in nature. The 25 percent safety factor should be eliminated. (170)
689. COMMENT: The Department has long recognized that impervious cover and stormwater infrastructure govern the amount of flooding which is why there is a 25 percent safety factor in presumed flood elevation where Department maps are used; but this factor was not based on climate change analysis or increases in rainfall, instead a

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recognition that increases to impervious cover in parts of the state increase runoff rates without adequate stormwater infrastructure. Where necessary rainfall projections should be adjusted, but the proposal fails to keep citizens safe without addressing existing stormwater infrastructure. There have been no significant investments to address the infrastructure problem, as the rule targets new developments and redevelopments in the flood hazard area. (99)

690. COMMENT: The use of the 25 percent safety factor added to the 100-year flood exceeds statutory authority. (147)

RESPONSE TO COMMENTS 685 THROUGH 690: The 25 percent factor of safety that the Department has added to its delineations and which is required by individuals utilizing Method 6 at N.J.A.C. 7:13-3.6, has been utilized since the 1970s as a means of approximating the effect that development has on the hydrologic conditions of a watershed. It is well known that new development and added impervious surface increases the volume of runoff that is received and ultimately conveyed by surface waters. While the Department's SWM rules help to ameliorate the impact of this increased volume, the cumulative effect of development within a watershed can result in dramatic impacts to the peak rate of flow during flood events. Further, as noted in response to comment 655 above, N.J.S.A 58:16A-52a provides that, "the department shall study the nature and extent of the areas affected by flooding in the State... [and] shall adopt rules and regulations which delineate as flood hazard areas such areas as, in the judgment of the department, the improper development and use of which would constitute a threat to the safety, health, and general

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welfare from flooding.” The 25 percent factor of safety discussed above, which has been used for almost 50 years in New Jersey, meets this requirement.

691. COMMENT: If the rules are not amended to apply a safety factor (for elevations) on a more case by case basis that considers existing development intensity/land use and location in the state, the amended rules should include provisions to grandfather existing industrial/commercial properties or to provide design exceptions that do not require a hardship exemption. (72)

RESPONSE: The 2-foot factor of safety added through this rulemaking to the previous design flood elevation applies only where an applicant chooses to use state or FEMA flood mapping to determine the design flood elevation. Should an applicant determine that the use of available flood mapping with this added factor of safety is too conservative on a given site, the applicant can utilize method 6 to determine more accurately calculate the extent of flooding on a property.

692. COMMENT: The increase in design flood elevation in N.J.A.C. 7:13-3.3 is supported. Additionally, the Department should not limit its ability to increase the design flood elevation solely to increased precipitation, but to broadly reserve those abilities to include other environmental factors and land use development patterns. (222)

RESPONSE: The Department acknowledges the commenter’s support. Under this rulemaking, the added 2-foot factor of safety added to the design flood elevation is to account for changes in

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precipitation that have occurred since the mapping was developed as well as to account for increases in extreme precipitation due to climate change through the end of the century. This is separate from the 25 percent factor safety added to calculations under method 6, which is intended to account for changes in the watershed due to development upstream of a given site.

693. COMMENT: While N.J.A.C. 7:13-3.6(c) is supported, it should be made clearer. Drainage areas should include the site and all downstream areas where the discharge could influence volume. For example, at N.J.A.C. 7:13-3.6(c), “existing land use cover” is not defined. Does that reflect the land use cover that has been constructed as of the date of the application, does it include project under construction but not completed, or does that mean the development that has been approved by the applicable land use board? Finally, please clarify the source of the data in provision N.J.A.C. 7:13-3.6(c). (222)

694. COMMENT: In N.J.A.C. 7:13-1.2, the drainage area should be redefined. The definition does not require the applicant to examine the impacts of that discharge downstream in the watershed. Drainage area should be defined to include downstream areas. (222)

RESPONSE TO COMMENTS 693 AND 694: For the purposes of calculating the peak flow rate in a water body under Method 6, the drainage area to the point of analysis is of primary relevance, since only runoff from upstream areas can reach the point of analysis. While it is true that

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unchecked development can cause increases in downstream flooding, the main purpose of this chapter is to avoid, ameliorate and prevent increases in flooding both upstream and downstream of a project. Whereas N.J.A.C. 7:13-3.6 provides a method to delineate the flood hazard area on a site, projects built within the flood hazard area must meet the design and construction standards of rules in subchapters 6 through 12. With regard to the term “existing land cover,” that refers to the land use cover as of the date of application. With regard to the source of the data provided at N.J.A.C. 7:13-3.6(c), on November 18, 2021, the Department released two reports prepared by the Northeast Regional Climate Center – “Changes in Hourly and Daily Extreme Rainfall Amounts in NJ since the Publication of NOAA Atlas 14 Volume,” downloadable at [www.nj.gov/dep/dsr/publications/nj-atlas-14.pdf](http://www.nj.gov/dep/dsr/publications/nj-atlas-14.pdf) and “Projected Changes in Extreme Rainfall in New Jersey based on an Ensemble of Downscaled Climate Model Projections,” downloadable at [www.nj.gov/dep/dsr/publications/projected-changes-rainfall-model.pdf](http://www.nj.gov/dep/dsr/publications/projected-changes-rainfall-model.pdf). Both reports were used to inform the current and future precipitation amounts. These New Jersey-specific reports are the most recent and best available studies, which are part of a growing body of research that highlights the increasing commonness of these economically, environmentally, and socially damaging storm events. (For a more complete discussion regarding this data, see 54 N.J.R. 2169 et seq.)

695. COMMENT: The Department should provide guidance on the future tidal flood rule adoption. Many properties are on the edge of whether the tidal or fluvial flood will dictate and this current Rule proposal and any future rule proposals will affect the design of projects on these properties. (158)

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RESPONSE: This rulemaking increases the design flood elevation along fluvial waters and does not alter the design flood elevation along tidal waters. Increasing the fluvial flood elevation along a regulated water will in many cases relocate the interface between fluvial and tidal influence further downstream. The Department is intending to undertake another rulemaking this summer that would propose to increase the design flood elevation along the coast related to sea level rise. If and when that rulemaking is adopted, it will increase the design flood elevation in tidal areas and relocate the interface between fluvial and tidal influence further upstream. The Department recognizes that in this interim period, where fluvial flood elevations have been increased but not tidal flood elevations, special attention needs to be placed on projects in and around the area of interface between tidal and fluvial flooding.

696. COMMENT: The use of future projected precipitation in calculating flood elevations is problematic as the rainfall data modeling have not been peer-reviewed, which may result in projections well above other models, causing undue farming burdens. (161)

RESPONSE: The report on projected precipitation was peer-reviewed by the NJDEP Science Advisory Board. This Board is an independent group of technical experts from academia, environmental consulting, and industry. Additionally, the models employed by the author to develop the projections are well established and frequently used and vetted through peer-review.

697. COMMENT: Adding a 25 percent safety factor to the current 100-year storm event is not adequate. (4)

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698. COMMENT: The Department does not use current precipitation data and relies on an obsolete 100-year storm with a 25 percent safety factor. (4)

699. COMMENT: The proposed rule increases precipitation depths for the two, 10, and 100-year storm events for the purposes of stormwater management to ensure that buildings, roads, stormwater management features, and other structures will be protective for today's flooding conditions and future conditions. However, using a 25 percent safety factor for the 100-year storm cannot ensure protective designs for either today's flood conditions or future conditions. The levels of flooding described in the proposal are already being exceeded today, as seen in the flooding associated with Hurricane Irene in 2011, in which 33 USGS stream gauges recorded peak flow rates equal to or greater than the 100-year recurrence interval. Reliance on the 25 percent safety factor during the 100-year storm proves that regulating to the 100-year flood is flawed.

700. COMMENT: The Department should calculate the flood hazard area based on future rainfall knowing the destruction from the climate crisis. (40, 74, 32, 75)

RESPONSE TO COMMENTS 697 THROUGH 700: The Department agrees that the 25 percent factor of safety applied alone to the 100 year flood is not adequate to predict flood hazard areas that are likely to be experienced both today and in the future. For this reason, the Department has

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undertaken this rulemaking to require additional factors of safety when applicants choose to utilize existing state or federal flood maps to determine the flood hazard area limits on a site, and also, where an applicant chooses to use method 6 to compute the design flood elevation, applicants must use projected precipitation intensities for the year 2100. By using future precipitation to calculate peak flow rates, and then adding an additional 25 percent factor of safety to account for development of the watershed, the Department believes that public health, safety, and welfare is suitably protected.

701. COMMENT: It is unclear how to adjust known flow rates to account for the increased flood elevations described in the proposal. Is an iterative process supposed to be followed until a flow rate that yields the flood hazard area design flood elevation is found? This seems arbitrary. It can also be challenging for bridge projects, and it can result in huge changes in flow rate in situations where floodplains are flat and expansive. (255)

RESPONSE: The iterative process described by the commenter would occur only where Method 4 at N.J.A.C. 7:13-3.4(f) is selected by the applicant. This method is intended for analysis of proposed projects that are situated within a channel or floodway, such as a bridge or culvert. In such a case, the hydraulic model for the regulated water would need to be adjusted to account for the increased factor of safety added to the design flood elevation through this rulemaking. Pursuant to N.J.A.C. 7:13-3.4(f)1i, "A hydraulic analysis, such as a standard step backwater analysis, shall be performed to determine the flood elevation using 125 percent of the 100-year flow rate reported

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by FEMA flood mapping for the regulated water (see (c)3i above). The flood hazard area design flood elevation pursuant to this method shall be equal to two feet above the flood elevation determined in accordance with this subchapter.” Therefore, calculations must be performed to find the flow rate associated with flooding 2 feet above the previous design flood elevation in order to determine the peak flow rate for use under this method. Alternately, applicants can choose to use Method 6 to calculate the flood hazard area more accurately, particularly in cases where an applicant believes that using Method 4 overestimates flooding at a site.

#### **Floodway Calculations, N.J.A.C. 7:13-3.6**

702. COMMENT: Clarify which storm will be used to calculate the floodway under a Method 6 Flood Hazard verification. (104)
703. COMMENT: The amendment to N.J.A.C. 7:13-3.6 is supported; however, the proposal does not update the floodways to account for current conditions nor does it require adjustment for future conditions. This makes it difficult to determine compliance with the rule. (222)
704. COMMENT: Under Method 6, the Flood Hazard Area Design Elevation will be calculated using the future climate change adjustment factors while the floodway will be calculated using the current climate change adjustment factors. They should be calculated one way or the other. (60)

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RESPONSE TO COMMENTS 702 THROUGH 704: Whereas the design flood elevation is based on a flood that is larger than FEMA's 100-year flood, floodways are a subset of the flood hazard area and are calculated nationally based on the 100-year flood. Where State or Federal flood mapping is available at a given location, the predetermined floodway limits depicted on the mapping can be relied upon to demonstrate compliance with this chapter. This is appropriate since the Department does not intend to require applicants to recalculate the floodway along every regulated water. Therefore, where State or Federal mapping are utilized, this rulemaking does not affect the boundaries of the floodway.

Where floodways are not mapped, or where a prospective applicant chooses to employ a consulting engineer to delineate the flood hazard area and/or floodway on a site, the floodway must be calculated via Method 6 based on the peak flow rate for the current 100-year flood for the regulated water using the adjustment factors listed in table 3.6A, which ensure that current precipitation rates are used for these hydrologic calculations. In contrast, applicants intending to delineate the flood hazard area limits must use the adjustment factors listed in table 3.6B, which is based on projected future rainfall conditions in the year 2100. .

As noted above, when applicants choose to use State or Federal flood mapping, the floodway as depicted on these maps may be used even though the design flood elevation is now 2 feet higher than previously. This is appropriate since the floodway is not based on a flood elevation, per se, but is a calculated subset of the overall flood hazard area and therefore cannot be accurately approximated. However, where floodways are calculated via Method 6 they should be reflective of at least today's conditions, as is required at N.J.A.C. 7:13-3.6(c)iii.

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705. COMMENT: The allowance to calculate a floodway utilizing Method 6 is supported. However, this is time-consuming and costly. The Department should create a process that if multiple applications within a region use a Method 6 calculation which shows different elevations than Department-issued design flood projections, those elevations in that region should be recalculated by the Department. (114)

RESPONSE: Applicants can choose to rely on existing state or federal flood mapping, with appropriate factors of safety added via this rulemaking, or to recalculate the floodway and flood hazard area using Method 6. While Method 6 is more costly and time consuming than relying upon state or federal flood mapping, it generally results in more accurate flood elevations and floodway limits. However, it is not the Department's intent to require applicants to recalculate the floodway along every regulated water. Therefore, where State or Federal mapping are utilized, this rulemaking does not affect the boundaries of the floodway

With regard to the commenters suggestion that Department delineations be amended if they are found to be incorrect, the FHACA rules at N.J.A.C. 7:13-3.8 require the Department to amend its mapping in such cases. Specifically, N.J.A.C. 7:13-3.8(a) states that where the Department determines that "an existing Department delineation ... underestimates the extent of the floodway and/or flood hazard area, and that it is in the best interest of public health, safety, and welfare to revise a delineation," the Department shall undertake a revision of the mapping.

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### **Use of Unit Hydrographs, N.J.A.C. 7:13-3.6**

706. COMMENT: The Department should allow, and require, the use of the appropriate unit hydrograph for a watershed when calculating current and future 100-year peak flow rates, as it does for stormwater management calculations. (163)
707. COMMENT: The southern half of New Jersey is disproportionately affected by the use of the 484 unit hydrograph. There is no scientific justification for its usage. This affects significantly more land area in the southern part of the State than it does in the northern part. (163)
708. COMMENT: Clarify if the unit hydrograph may be used to determine the flood hazard area design peak flow rate. (170)

RESPONSE TO COMMENTS 706 THROUGH 708: The use of the standard 484 unit hydrograph is not required throughout the State. The Department permits the use of the Delmarva unit hydrograph within the coastal plain of New Jersey, provided the selection of this hydrograph is in accordance with guidance provided by USDA's Natural Resource Conservation Service for the watershed in question. Please see the Flood Hazard Area Technical Manual for an in-depth discussion as to where the Delmarva unit hydrograph is appropriately utilized for flood hazard area delineations.

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### **Further Restrict Floodplain Development**

709. COMMENT: The Department should focus on discouraging construction in the floodplain. Specifically, the Department should prevent new, reconstructed, enlarged, or elevated structures in the 500-year floodplain or flood hazard area, whichever is greater as defined by projected rainfall calculations. (138)
710. COMMENT: The rulemaking should prohibit new, enlarged, expanded, or elevated structures, impervious surfaces, fill, removal of native vegetation, tree cutting and soil compaction in the regulated floodplain. (41)
711. COMMENT: The Department should prevent any construction of enlarged or elevated structures within the 500-year floodplain. (171)
712. COMMENT: Construction should be prohibited in the 500-year floodplain and flood hazard areas to keep people out of harm's way. (100, 101, 107, 109, 111)
713. COMMENT: The rules should prevent any new, reconstructed, enlarged, or elevated structures within the 500-year floodplain or flood hazard areas that would allow people to remain in the path of a flood. (5, 36, 74, 32, 75, 40, 77, 83, 112, 120, 122, 123, 128, 129, 130, 132, 140)

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714. COMMENT: The rules should prevent new construction within the 500-year floodplain. (40, 116)
715. COMMENT: The commenter calls for a stop to development in all risk zones. (8)
716. COMMENT: In order to be effective in safeguarding people and property, new, reconstructed, modified, or elevation structures should not be allowed within the 500-year flood plain or other areas with a flood hazard. (77)
717. COMMENT: Additional development should be prohibited in the 500-year floodplain. (100, 101, 107, 109, 111)

RESPONSE TO COMMENTS 709 THROUGH 717: The Flood Hazard Area Control Act empowers the Department to adopt standards for the design and construction of structures within flood hazard areas of the state, but not to prohibit all development in all flood hazard areas. In addition, given that between 15 and 20 percent of the New Jersey lies within a flood hazard area, encompassing tens of thousands of homes, businesses, and roads, as well as countless residents, and given that in some cases entire communities lie within the flood hazard area, it would not be practicable to prevent all development or redevelopment activities within these areas. The purpose of this chapter is to ensure that, where development does occur, it is done with all possible amelioration of flood risks and avoidance of the most dangerous portions of the flood hazard area such as floodways.

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718. COMMENT: The Department should clarify and incentivize practices that maximize environmental benefits and natural and nature-based infrastructure in development within the floodplain, such as practices ranging from increased setbacks from floodplains and natural areas to establishment of living shorelines. (180)
719. COMMENT: Stop taking away trees and land for apartments and warehouses. Open spaces should be left to prevent flooding and provide land for wildlife. (125)
720. COMMENT: The Department should focus on limiting/reducing development on open space. (28, 31)

RESPONSE TO COMMENTS 718 THROUGH 720: The Department recognizes the widespread benefits of employing natural and nature-based solutions and the establishment of vegetated stream corridors as an effective means of flood amelioration and water quality enhancement. For this reason, the Department has in previous rulemakings adopted protective standards for activities within riparian zones including protections on existing vegetation. Since there is no provision in the flood hazard rules for constructing large buildings within riparian zones, these areas are protected so they can perform their essential functions.

721. COMMENT: The commenter believes the rulemaking is putting in standards that are already being exceeded by severe weather patterns. The commenter remarks

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impervious surfaces are a large contributing factor for flooding and stormwater runoff generation. (27)

RESPONSE: The Department agrees that impervious surfaces are a large contributing factor for flooding and the generation of stormwater volume. For this reason, this rulemaking implements adjustments to previously calculated extreme precipitation amounts and includes projections for rainfall in the year 2100 to ensure that development in the state is designed to ameliorate where possible flood impacts not only for today's flood events but for future floods as well.

722. COMMENT: The commenter proposes a stop to all logging in wildlife management areas, parks, and forests. (4)

RESPONSE: The comment is beyond the scope of the rules.

723. COMMENT: The proposal does not repeal the rollback of the 300-foot buffers along C1 waters, which allows new development to encroach upon streams. (4)

724. COMMENT: The State should allocate more funds to land use and land over modeling and educate leaders on the benefits of integrated land and water management, additionally adding these subjects into the Stormwater rules. Erosion, deforestation, and other negative impacts of over-development will increase severe weather events and alter water availability. (171)

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RESPONSE TO COMMENTS 723 AND 724: The purpose of this rulemaking is to adapt the Department's Stormwater Management and FHACA rules to data that demonstrates increases in precipitation and flooding that have occurred in prior decades and the likelihood that this trend will continue through the end of the century. The Department intends to undertake a comprehensive rulemaking this summer, which will include amendments to these rules as well as the Freshwater Wetlands Protection Act rules and Coastal Zone Management rules, and which will include amendments to address some of the additional concerns raised by commenters.

### **Risk-Based Floodplain Management**

725. COMMENT: The proposal will equally apply to sites in flood zones that never flood and those that flood routinely. A better approach would be to apply the rules depending on asset class and flood history. (157)

726. COMMENT: The Department should ensure areas at most significant risk will be clearly defined and that new and reconstructed assets in these areas are designed accordingly. (95)

RESPONSE TO COMMENTS 725 AND 726: The design and construction standards of this Chapter are intended to be commensurate with the relative risk of the structure being erected, specifically the risk to end users and others who will rely upon the structure. For example, the

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existing rules require higher standards for critical buildings such as hospitals, schools and for multi-residence buildings such as apartments, than for small retail and commercial buildings. The reason for this is that large numbers of individuals reside in, or rely upon, these structures, whereas the likelihood of someone being trapped in a retail store during a flood is much lower. The Department believes that through this rulemaking, in conjunction with the existing rules, appropriate standards are established for the wide variety of structures proposed within current and future flood hazard areas.

727. COMMENT: The Department should understand and accommodate the wide range of structure types and contexts where appropriate through a range of pathways to reach Design for Environment (DFE). (95, 180)

728. COMMENT: For different types of structures and projects, it may be important to have the flexibility to achieve DFE through setbacks, or wet/dry floodproofing or a combination of these methods as well as elevation. This can be achieved by using the Waterfront Edge Design Guidelines (WEDG) tool by the Waterfront Alliance, available online at <https://wedg.waterfrontalliance.org>. (180)

RESPONSE TO COMMENTS 727 AND 728: The Department acknowledges that there are numerous paths to designing projects to reduce or eliminate flood risks and to enhance the environment. The protective design and construction standards of these rules, such as the requirement to elevate or flood proof buildings, elevate roads where practicable, limitations on

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flood storage displacement, and protection of riparian zone vegetation, work together to achieve these goals. The Department additionally appreciates the suggestion that other tools could be used in conjunction with this chapter to design safer and more environmentally friendly projects.

### **Flood Insurance Implications**

729. COMMENT: Will FEMA be adopting the proposed 2 foot increase in 100-year flood elevations for basis of requiring flood insurance? (104)

RESPONSE: This rulemaking does not affect the need for flood insurance or the actuarial rates determined by insurers. The FHACA rules establish design and construction standards for activities within flood hazard areas and riparian zones in New Jersey under the authority granted to the Department by the FHACA statute. The Department has, for over 40 years, regulated a flood that is larger than FEMA's 100 year flood in fluvial areas. This rulemaking raises the design flood elevation by two feet in cases where an applicant chooses to use flood mapping as a resource. The design and construction standards of the flood hazard rules, which the Department acknowledges applies to a larger land area than is incorporated by FEMA's special flood hazard area, has no bearing on flood insurance rates or requirements. To the Department's knowledge, FEMA has not indicated that it is considering changing its mapping protocols to incorporate future flood conditions or to adopt the Department's addition of 2 feet to the design flood elevation when mapping is used.

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**Flood Hazard Area Control Act Rules, N.J.A.C. 7:13**

**Promulgated Permits, N.J.A.C. 7:13-6 through 9**

730. COMMENT: The Department should consider re-proposing the rule to include additional general permits, permits-by-rule, or certifications to streamline the time and cost to obtain permits in appropriate cases. (133)

731. COMMENT: Vegetation maintenance is currently permitted in riparian areas using a permit by rule. These activities must continue to be authorized under permits by rule regardless of whether the flood hazard area has been expanded. (135)

732. COMMENT: “Permit by Rule exemptions” for swimming pools should be reconsidered due to the impact to groundwater due to the additional obstruction by the concrete lining. (126)

RESPONSE TO COMMENTS 730 THROUGH 732: While beyond the scope of this rulemaking, which does not consider amendments to promulgated permits, the Department is currently undertaking a review of its permits and anticipates proposing amendments to its permits this summer.

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**Buildings, N.J.A.C. 7:13-12.5**

733. COMMENT: The increase in first floor building elevation requirement for contaminated project sites will result in a substantial amount of additional fill. Due to the requirement for NJDEP preapproval, this may cause significant delays in these types of projects. (158)
734. COMMENT: The requirement to rebuild 3 feet above the FEMA 100-year elevation is not only economically infeasible, but also impossible to comply with the zero-percent flood storage displacement requirement. Elevating a building necessarily violates the flood storage displacement standard and makes many sites undevelopable. (157)
735. COMMENT: Elevating existing structures in the floodplain, while a step forward, is not an effective approach to mitigate flooding as such structures prevent the floodplain from functioning as a floodplain. (138)
736. COMMENT: The Department should provide an example of an industrial type of project that has reached a point where it cannot be practicably modified to account for a higher flood elevation. (143)

RESPONSE TO COMMENTS 733 THROUGH 736: This rulemaking raises the design flood elevation 2 feet above previous standards. Under existing permitting requirements that are not

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being changed in this rulemaking, residential and critical buildings need to be constructed such that the lowest floor of the building is set at least one foot higher than the new design flood elevation, and noncritical/nonresidential buildings such as retail and industrial buildings may instead be dry flood-proofed to this new elevation. By elevating or flood proofing a building 2 feet higher than previously required, the building will be more resilient during and after a flood event, and the end users or residents of the buildings will be safer as a result. Therefore, while elevating or flood-proofing buildings does not solve flooding, it can significantly ameliorate the adverse impacts of flooding on a community.

In cases where residential buildings are being erected within the flood hazard area, raising the lowest floor can in some cases reduce net fill because the area underneath the building can be constructed as a crawl space with flood vents, allowing floodwaters to enter the enclosure below the building and thereby not displacing flood storage volume. In cases where a building is flood proofed, the entire building would displace flood storage volume regardless of the elevation of the lowest floor. The Department therefore believes that constructing or flood proofing the floor of a building 2 feet higher, as required under this rulemaking, should not represent a significant net fill issue for the majority of applicants. However, the Department recognizes that, in certain cases, where the ground elevation of a site is raised to accommodate a higher building, importing the additional fill would displace additional flood storage volume which needs to be compensated for either onsite or offsite pursuant to N.J.A.C. 7:13-11.4. This could additionally be the case where dry access to and from a building must be created, thereby warranting additional fill for access roads or areas immediately adjacent to the proposed buildings. However, it should be noted that the newly expanded flood hazard area will provide additional areas for onsite flood storage volume

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compensation, and will, in many cases, enable offsetting the additional fill that might be needed for certain projects in order to meet the new design flood elevation.

### **Intersection with State and Federal Laws: Uniform Construction Code and National Flood Insurance Program**

737. COMMENTS: We support efforts to align the FHACA rules with the NFIP. We encourage the Department to limit flood hazard requirements to match federal standards. (170)

RESPONSE: The Department acknowledges the support for the amendment to ensure that projects meet or exceed minimum NFIP standards. However, the commenters assertion that the Department should limit the requirements of this chapter to match federal standards would in some cases significantly reduce the added flood protections afforded by this chapter. In the majority of cases, projects within the special flood hazard area are subject to more protective standards under the FHACA rules than those set forth in minimum NFIP standards. The Department has determined that compliance with these standards is necessary to adequately protect public health, safety, and welfare and provide adequate resilience to flood hazards.

738. COMMENT: Commenter expresses concern about the Department's rules requiring compliance with FEMA flood standards to ensure national flood insurance program compliance. Commenter argues against FEMA flood standards being implemented in

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State regulatory mandates as they are long, confusing, internally inconsistent, and impossible at times to implement. There is no need for the Department to attempt to codify the federal FEMA standards. (99)

RESPONSE: Through this rulemaking, the Department is ensuring that activities authorized under the chapter will not violate minimum NFIP standards. This rulemaking does not incorporate specific standards from FEMA, but rather ensures that the Department will not issue an authorization or permit that violates federal standards.

739. COMMENT: The terms “structure” and “building” should be distinguished in the proposed rules such that it is clear to which developments the design and construction standards of the Uniform Construction Code (UCC) and Federal Flood Reduction Standards apply. “Post” and “pipe” assemblages, for example, would not be applicable to the UCC or Federal Flood Reduction Standards. (145)

RESPONSE: The Department agrees with the commenter that the UCC applies only to buildings (referred to as “structures” in the UCC). The Federal Flood Reduction Standards apply to a wider range of activities within FEMA’s Special Flood Hazard Area. Under the federal standards, if a community adopts more protective flood amelioration measures, the standards adopted by the community become the minimum standard that must be met in order to comply with the NFIP. For example, while the Federal Flood Reduction Standards don’t refer specifically to limitations on flood storage displacement (net-fill), since the State of New Jersey, through the FHACA rules, has

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adopted this standard, FEMA expects that this standard will be upheld in the Department's permitting decisions.

740. COMMENT: The proposal should address how to handle a scenario in which FEMA adopts a predictive, future flood plain. Without it, adding three feet in elevation to that model would be excessive. (170)

RESPONSE: The adopted 2-foot factor of safety (on top of the previous 1-foot factor of safety when using FEMA mapping) is intended to account for the effects of both future development within the watershed as well as additional runoff from increasingly intense precipitation, based on data described in the response to previous comments. FEMA Flood Insurance Rate Maps are created to reflect the flooding conditions at the time the mapping is promulgated and do not account for potential increases in peak flood flows due to a changing climate. The Department is not aware of any intent by FEMA to incorporate forward looking modeling into its mapping, but if FEMA were to change its methodology in the future, the Department would consider the impact of such changes and determine if further rulemaking was warranted.

#### **Hardship Exceptions, N.J.A.C. 7:13-15.1**

741. COMMENT: Commercial development should have the same access to hardship waivers as NJDOT since they too may have invested large sums of money into the proposed project. (142)

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742. COMMENT: The proposed rules should simplify the waiver process for public projects if strict compliance would result in a hardship as presented in 7:13-12.6(b)2 (Individual permit criteria for constructing or reconstructing a railroad or public roadway). (97)
743. COMMENT: The proposed rules should provide a structured appeal process for any denial of a public entity's request for a waiver. (97)
744. COMMENT: The rules should apply with no exceptions, as too often developers utilize the "hardship" provision, which does not increase resiliency and sets things back further. (166)
745. COMMENT: The rules rely on the ability to obtain a hardship exception to address commenters' concerns about the expansion of the regulatory requirements. However, the criteria for granting hardship exceptions are vague and subjective. The rules need to be revised to provide for viable, clear criteria for hardship exceptions. (133)
746. COMMENT: Hardship waivers do not provide meaningful relief to development in areas where large expanses of the roadways are below flood elevation. The waivers are constructed to be deliberately limiting and difficult to obtain. (168)

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747. COMMENT: Hardship exemptions are unpredictable except for those associated with NJDOT projects. (142)

RESPONSE TO COMMENTS 741 THROUGH 747: Applicants for public projects or any other project can seek relief from one or more standards of N.J.A.C. 7:13-11 and 12 provided a demonstration can be made that, “Due to an extraordinary situation of the applicant or site condition, compliance with this chapter would result in an exceptional and/or undue hardship for the applicant and/or would adversely impact public health, safety, and welfare.” (See N.J.A.C. 7:13-15.1(c)1.) Additional standards pursuant to N.J.A.C. 7:13-15.1(b) through (e) ensure that offsite properties are not adversely impacted if the Department grants the requested relief. The hardship exception process has been a longstanding provision in the FHACA rules that has served to balance the need to fulfill the Department’s mandate to protect public health, safety, welfare and the environment, while also recognizing the needs of the applicant and/or community. The requirements are designed to address any number of potential issues that could arise during the application review process. Rather than having “vague and subjective” standards, as one commenter asserts, the standards for qualifying for a hardship exception are appropriately flexible and as predictable as possible while taking into consideration the individual circumstances of each project. Finally, any applicant who considers themselves aggrieved by a Department decision under this Chapter can appeal the Department’s action pursuant to a request for an adjudicatory hearing under N.J.A.C. 7:13-23.

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**Pre-Application Conferences, N.J.A.C. 7:13-17; and Completeness, N.J.A.C. 7:13-18**

748. COMMENT: The Department should provide a detailed list of items that will result in an application not being accepted for completeness. (165)

RESPONSE: Application requirements in the FHACA rules are enumerated at N.J.A.C. 7:13-18. General application requirements are listed in detail at N.J.A.C. 7:13-18.2, and additional standards for general permits-by-certification, general permits and individual permits are set forth in N.J.A.C. 7:13-18.3 and 18.4. Finally, the requirements for an engineering report as required for certain applications, as well as an environmental report, are set forth at N.J.A.C. 7:13-18.5 and 18.6, respectively. The Department believes that these requirements are suitably prescriptive. Applications that provide this information will be deemed complete for review. The rules also allow the applicant to request a preapplication meeting (See N.J.A.C. 7:13-17) if there are issues for which the applicant needs assistance before completing or submitting an application.

749. COMMENT: The Department should add language that states that items discussed and agreed upon in pre-application meetings will be binding. (165)

RESPONSE: The Department disagrees with the commenter that substantive guidance provided by the Department at a pre-application conference should be binding on the Department. The pre-application conference is intended to be an informal forum where the Department and potential applicant can frankly discuss the positives and negatives of a proposed application, and what may

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need to change in a formal application for Department approval. Since formal detailed plans and detailed calculations are not required for a pre-application conference, and the fact that any material submitted by the potential applicant is not given complete and thorough Department review to confirm its accuracy and relevance, it cannot be expected that Department guidance would be binding.

750. COMMENT: Due to the increasing complexity of regulations and technical manuals, the Department should create an option for a binding pre-application conference for land use applications involving stormwater management and flood hazard review. This would allow for mutual agreement on key technical issues prior to the expenditure of substantial time and money by the applicant and review resources by the Department.
- (163)

RESPONSE: Preapplication conferences are largely based on the information submitted by the potential applicant. This information may range from very conceptual designs to completely fleshed-out plans. Since projects may undergo multiple revisions based on the guidance provided by the Department at a pre-application meeting, as well as design changes requested at local levels, the initial guidance provided may not apply in the same manner. It would not be prudent for the Department to provide an option for a binding pre-application conference since the project that is submitted in the final permit application may be substantially different than the initial project presented at the preapplication meeting and the Department may not be given all relevant information at the time of the pre-application meeting.

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**Infrastructure, Bridge, Culvert and Roadway Design, N.J.A.C. 7:13-12.6 and 12.7**

751. COMMENT: The commenter supports the proposed amendments to N.J.A.C. 7:13-1.2 and N.J.A.C. 7:13-12.6 as they afford a practical level of flexibility to public transportation agencies, respecting the delicate balancing of responsibilities to the goals of public safety, inclusivity and access, the efficient use of public funds, and avoiding or mitigating environmental harm. (73)

RESPONSE: The Department acknowledges the commenter's support of this provision.

752. COMMENT: The rules do not change standards for culverts or bridges, which can be backup points for streamflow, despite stating that climate change will exacerbate flooding risk. While acknowledging rainfall has increased, and will increase further, the blockage points remain which will create worse conditions for flooding. (99)

753. COMMENT: The Department must justify the premise that if one bridge is affected by an extreme event, then all other regulated crossings should be designed for extreme events. There are hundreds or more regulated crossings where existing peak flow overtops the roadway profile. Previously, the Department did not force transportation agencies to raise roads when the 100-year storm crossed over the roads. The proposed rule mandates roads must be raised or prove it is not feasible for future storms. This is

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vague and solely at the discretion of NJDEP. Crossings can be feasibly designed compliant but will cost too much, representing a procedural flaw. (66)

754. COMMENT: The Department has not demonstrated that a high risk applies to the thousands of roadway crossings. The hazard to life for crossings below the current or proposed 100-year flood boundary is relatively minor based on history and emergency procedures. Increased protection of public safety is hardly evident with minimal risk. (66)

RESPONSE TO COMMENTS 752 THROUGH 754: The purpose of N.J.A.C. 7:13-12.6 is to establish that public roadways should, where feasible, be elevated, balanced with the recognition that in many cases full compliance with the standard cannot be achieved. For that reason, the rule provides a number of exceptions whereby the Department can determine that flooding has been ameliorated where possible and the public is not put at increased risk as a result of the proposed work. The adopted provisions are not meant to be categorical but rather recognize the unique nature of each road and bridge and culvert by establishing a target standard of raising the road surface one foot above the design flood elevation, while acknowledging that this may in many cases not be achievable.

Floodplain dynamics, especially in and around bridges and culverts, are highly complex and a number of standards in the FHACA rules apply in order to ensure the public health, safety and welfare are protected. Specifically, the FHACA rules seek to balance competing interests of ensuring that flooding is not exacerbated upstream or downstream of the bridge or culvert being

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replaced, while also attempting to increase the resilience of the roadway being flooded, raising the road where possible to ameliorate flood risk to the traveling public, and in some cases opening up bridges and culverts to allow more flow to pass, thereby dropping upstream water surface elevations. All of this, however, must be balanced with potential downstream impacts of enlarging bridges and culverts or potential upstream impacts by raising roadways. To the extent that a bridge or culvert that is being replaced can safely pass more water during a flood event without exacerbating flooding downstream, the Department encourages this type of design. Where elevating roadways associated with bridge and culvert replacement is practicable and will not exacerbate flooding upstream of the roadway, the Department additionally supports that type of design.

755. COMMENT: The objective is to raise bridges and culverts above a future floodplain boundary based on a prediction of climate change. This affects thousands of crossings by increasing design and construction costs by perhaps billions of dollars. The rules create a non-predictable standard and gives the agency total discretion on risk-analysis factors without supporting legislation. The Department is overstepping its jurisdiction.  
(66)

RESPONSE: This rulemaking does not constitute an overstepping of jurisdiction. Rather, by adopting these new rules and amendments, the Department is following its statutory mandate to establish standards for development within flood hazard areas of the state, such that public health, safety and welfare are preserved to the maximum extent practicable. The rules in place previous

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to this adoption required public roadways to be elevated one foot above the design flood elevation where practicable. This rubric still exists in the FHACA rules, with the exception that the design flood elevation is now 2 feet higher than previously, and also the demonstration of infeasibility of elevating a roadway to the target elevation is more fully articulated. This rulemaking does not compel public transportation entities to raise all roadways, but merely establishes future flood conditions as a target to be achieved where practicable, while balancing the many complicated factors that apply to roadway design which may prevent raising roadways to the target elevation.

756. COMMENT: The proposed definition of public roadway or railroad ensures that the increased flexibility proposed is limited to specific types of projects. However, the opposite occurs by creating an arbitrary burden with less flexibility that is not justified. Specifically, proposed new N.J.A.C. 7:13-12.6(b)2iii provides a framework for which the Department will consider approval of railroads or public roadways lower than one foot above the design flood elevation which is also found at existing 12.6(e) but additional considerations are added. "Relative risk" should be primary. Increased protection is arbitrary without a causal risk study. (66)

RESPONSE: N.J.A.C. 7:13-12.6(b)2iii and N.J.A.C. 7:13-12.6(e) are similar and are both intended to address the Department's acknowledgement that constructing or reconstructing roads and railroads such that the travel surface is one foot above the new design flood elevation may not be achievable for a variety of factors. The requirements at N.J.A.C. 7:13-12.6(b)2iii(1) through (5) are intended to address the unique issues that face public roadways and railroads and provide

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flexibility in cases where raising the roadway or railroad would: (1) Result in prohibitively high construction costs or costs that exist proportionally high compared with the benefit of strict compliance; (2) Require excessive flood storage volume displacement; (3) Necessitate a design that does not meet necessary transportation safety, geometric design, or access point requirements, such as those adopted by the American Association of State Highway and Transportation Officials; (4) Require a design that causes adverse environmental impacts; and (5) Require a design that exacerbates flooding or causes other adverse impacts to properties or drainage patterns. Applicants unable to meet these standards may find additional relief through the hardship exception process at N.J.A.C. 7:13-15.1.

757. COMMENT: The proposed rule at N.J.A.C. 7:13-12.6(b) circumvents the law as “relative risk” is defined in the law. The Department mandates an assumed risk-related action and creates a format of what must be addressed which excludes risk through an exhaustive regulatory burden. (66)

RESPONSE: The Flood hazard Area Control Act at N.J.S.A. 58:16A-51(d) defines "relative risk" to mean “the varying degrees of hazard to life and property in a flood hazard area which are occasioned by differences in depth and velocity of flood waters covering and flowing over it.” N.J.S.A. 58:16A-52(a) further mandates that the Department’s delineation of flood hazard areas “shall identify the various sub-portions of the flood hazard area for reasonable and proper use according to relative risk, including the delineation of floodways necessary to preserve the flood carrying capacity of natural streams.” N.J.A.C. 7:13-12.6(b) meets the statutory obligations in

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several ways. First, the standards for roads, railroads and parking areas are commensurate with the relative risk of those using this infrastructure. For example, a roadway leading to a commercial development is held to a less stringent standard than a roadway that serves a critical building such as a hospital or school, because the relative risk to those shopping during a flood event is less than for people who may be unable to easily evacuate a building during a flood such as patients and school children. Second, N.J.A.C. 7:13-12.6(b) recognizes that roads, railroads and parking areas cannot in all cases be elevated practicably to one foot above the design flood elevation. This rubric existed in the rules prior to this adoption and is continued with added flexibility.

758. COMMENT: The amendments are necessary to ensure that reconstruction efforts undertaken as a result of damage caused by recent storms are designed to reduce the likelihood of future flooding impacts on the residents of New Jersey. However, a comparison of the damage caused versus the increased protection hasn't been analyzed and is misleading. The Department is making authoritative claims without supporting merit. The premise is that if one bridge is affected by an extreme event, all other structures must be designed for extreme events. The Department hasn't provided evidence of the number of damaged bridges and culverts. Railroad and roadway emergency risk analysis promotes no travelling on flooded road and rail systems, such as when rail travel and the Parkway were shut down during Hurricane Sandy. The Department's proposal promotes driving during extreme storm events and thus requires extreme event infrastructure. The NJDEP interpreted EO 100 to give themselves higher authority to dictate what transportation agencies should do and mandates a regulatory

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burden to raise road and rail systems above a future flood boundary. This will impact thousands of culverts and bridges at enormous taxpayer cost. The events presented in the proposal, such as Hurricane Ida, instilled a misleading fear and avoided the actual risk causation issues. Planning infrastructure for extreme events to eliminate risk to human life is an unusually high standard and not disclosing taxpayer cost is not transparent. (66)

RESPONSE: The FHACA rules do not encourage individuals to travel on roads during floods. Rather, the rules establish protective standards so that new roads and reconstructed roads can, where practicable, be elevated to ameliorate flood risk. The unfortunate fact is that people often choose to drive through floods when they may often be safer sheltering in place. In September 2021, the remnants of Tropical Storm Ida resulted in a significant number of flash floods across central New Jersey, leading tragically to the death of 30 individuals. Many of these victims were trapped in their cars and unable to escape the flooding on the roadway they were driving on. According to NOAA's National Weather Service, people trapped in vehicles on roadways constituted 63 percent of all flood fatalities across the U.S. in 2020 (<https://www.weather.gov/arx/usflood>). Given that hundreds of thousands of New Jersey residents live, work, or commute through flood zones, it is imperative that government entities work together to ensure that our transportation network is as safe as practicably possible. Further, it must be noted that the FHACA rules do not force roads to be raised or culverts or bridges to be replaced. Rather, where a transportation entity determines that improvements must be made to existing roads, railroads, bridges or culverts, this chapter establishes protective standards and provides a target for

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design professionals to reach, where practicable, with the goal of ameliorating flood risks across the state. By establishing these protective standards, the Department is meeting its statutory requirement mandate to protect the public from the adverse socioeconomic impacts of flooding.

759. COMMENT: Raising road profiles increases floodplain fill and freshwater wetland impacts. Applicants must reduce wetland impacts where feasible but are required to impact wetlands to raise the roads. The two rules conflict with one another which results in unpredictability in the application of the rules. (66)

760. COMMENT: Most rural road crossings which are overtopped by modeled 100-year flows have minimal, temporary risk. Structures with greater risk may have signage or other precautions and emergency procedures. Raising the road could create a dam regulated under a different Act or have other environmental consequences such as floodplain and wetland fill. The modeled peak flows are not real and assumed using arbitrary future projects. Real impacts are not addressed. (66)

RESPONSE TO COMMENTS 759 AND 760: The adopted provisions regarding the construction and improvement of public roadways at N.J.A.C. 7:13-12.6(b) are intended to encourage roadways to be elevated to safer elevations to the extent practicable. The Department recognizes that in many cases, constructing or elevating the travel surface of a public roadway one foot above the design flood elevation may not be practicable due to a number of factors such as potential increases in flooding near the elevated roadway, right-of-way constraints, and general limitations on roadway

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geometry amendments. For this reason, N.J.A.C. 7:13-12.6(b)2 provides flexibility for public transportation entities that can demonstrate that compliance with the elevation standards are met where possible.

The Department additionally recognizes that reconstructing roads at a higher elevation may expand the footprint of the roadway to accommodate wider side slopes. In cases where wetland ditches or other wetlands complexes lie adjacent to roadways, some wetlands disturbance would occur as a result. The Department's FWPA rules provide a number of means by which this can be accomplished. For example, general permit 7 at N.J.A.C. 7:7A-7.7 provides for disturbance to human-made ditches or swales in headwaters and general permit 10A and 10B at N.J.A.C. 7:7A-7.10A and 10B, respectively, provide for freshwater wetlands disturbances associated with road crossings of various types. Where these general permit standards cannot be satisfied, an individual permit can be obtained. The Flood Hazard Area Control Act places public health, safety and welfare as the primary goal of the FHACA rules and the Department is confident that elevated roadways can be designed in such a way that they meet both the FHACA rules and FWPA rules.

761. COMMENT: Determining risk is best served by subsidiary agencies instead of a master agency having no liability. (66)

762. COMMENT: The Department should demonstrate what type of roadway crossings should be raised that would provide meaningful benefit to hazard reduction. It is likely that only a small number of crossings meet the unusually high standard. Instead, the

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Department placed the regulatory burden on the subsidiary agencies for each project.

The decision to raise the roadway should be left to the subsidiary agency. (66)

763. COMMENT: The Department should disclose if their studies have coordinated a risk analysis with the transportation agencies. The proposed rules assume a nearly 500-year event is estimated for the future 100-year event. This will impact many regulated roadway crossings. Transportation agencies are better suited to study risk-related issues and NJDEP is assuming authority over the transportation agencies regarding risk analysis, cost, and feasibility without legislation. (66)

764. COMMENT: Local governments should be given the ability to define or designate “public infrastructure projects that are critical to maintaining public safety.” (97)

RESPONSE TO COMMENTS 761 THROUGH 764: Throughout the development of this rulemaking, the Department coordinated its efforts and the proposed rule language with the N.J. Department of Transportation and other public transportation entities. While the Department recognizes that public transportation entities have a primary role in determining and ensuring the safety of their transportation networks, the Department is statutorily mandated to establish design and construction standards that ameliorate flood risk wherever practicable. The Department believes that, through this rulemaking and in conjunction with its ongoing coordination with public transportation entities, New Jersey’s roads and railroads will be safer, injuries and fatalities will likely decrease, and the long-term resilience of our transportation network will be enhanced. The

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Department recognizes the additional costs and other challenges associated with reconstructing roadways higher to meet these new rules. However, the State of New Jersey believes that these added costs are appropriate to protect our transportation network from extreme weather events during the lifetime of the network.

765. COMMENT: Creating flood-free roads for extreme events is unattainable and the NJDEP is using it for political advantage. (66)

RESPONSE: It is to everyone's advantage if roadways and railroads are more resilient and less subject to inundation during flood events. As previously noted, the Department recognizes the many challenges facing transportation public transportation entities who seek to elevate roadways. For this reason, these rules balance the feasibility of achieving the target of reconstructing the travel surface of a roadway or railroad one foot above the design flood elevation with the practical considerations that must be made with such a design, including the potential for increased flooding, excessive costs, impact to regulated or protected resources, and other adverse impacts. The Department believes that adopted N.J.A.C. 7:13-12.6 strikes the reasonable balance between protecting the public and recognizing that many roadways cannot practicably achieve the target elevation.

766. COMMENT: Is realigning an existing public roadway a new activity in relation to the flood hazard area design flood elevation? (79)

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767. COMMENT: Often transportation authorities require a developer to alter existing roads to receive approvals for projects. Do the provisions of N.J.A.C. 7:13-12.6 apply to these proposed improvements? If not, will they require a special exception? If alterations to roads are required in this scenario and cause a loss in flood storage, will that have to be compensated for on the private property? (79)

RESPONSE TO COMMENTS 766 AND 767: The design standards at N.J.A.C. 7:13-12.6 apply to any roadway, railroad or parking area within a flood hazard area or riparian zone, whether new, reconstructed, realigned, or otherwise improved. However, the standards in this section of the rules are intended to be commensurate with the relative risk of the particular project in light of its intended use, and the criticality of the infrastructure to public health, safety and welfare. If a public transportation entity requires a developer to alter an existing road to receive approvals, the altered road would be subject to the requirements of N.J.A.C. 7:13-12.6 and, if the altered road is private, then the flood storage displacement standards at N.J.A.C. 7:13-11.4 would apply. However, the department recognizes that this could represent an undue burden for some applicants, who could therefore appeal to the hardship exception process at N.J.A.C. 7:13-15.1.

768. COMMENT: Much of the justification of this proposal surrounds failed existing infrastructure while the proposal focuses on new major developments. The positive impacts of this proposal, increased public safety, minimization of property damage, and reduced need for relief measures, will be minimal. The positive impacts will be fully attained by a concerted effort from the Federal and State governments to accelerate the

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improvement of existing infrastructure. Serious infrastructure upgrades are necessary to protect the lives and property of New Jersey residents. (114)

RESPONSE: The Department agrees that the most impactful flood amelioration would be through a concerted effort from the Federal and State governments to improve existing infrastructure. It is for this reason that this adoption establishes enhanced standards to protect public health, safety and welfare by increasing the design flood elevation by 2 feet and requiring both new and reconstructed roadways to be set one foot above the design flood elevation or as close to this elevation as practicable. While establishing these more protective standards for new and improved roadways will not solve all our flooding problems in New Jersey, it nevertheless sets an appropriate target to be achieved for roadway design. Furthermore, it should be noted that the FHACA rules and SWM rules apply to all construction and reconstruction activities under their jurisdiction. Over time, as roads, railroads, buildings and other structures are replaced or improved, the standards of these rules will apply to such activities, thereby systematically reducing flood risks in years to come.

769. COMMENT: No applicant should have to raise public roads or do anything offsite of their property. Where an existing flooding problem exists, NJDEP should coordinate with the local government to ensure emergency flood plans are in place. Permittees should receive automatic waivers from having to raise access roads if it would require access or disturbance to areas not in their control or ownership. (133)

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RESPONSE: The commenter is referring to the existing requirement in the FHACA rules which is not being altered in this rule adoption that at least one road serving critical buildings or multi-residence buildings must be elevated to allow occupants to safely leave the building during a flood and to facilitate emergency responders who need to access such buildings. The Department believes that this standard is a critical component to improving public health, safety and welfare, by ensuring that critical buildings will be able to continue to serve the needs of a community during and after a flood, and that the multitude of people who could be trapped in multi-residence buildings during a flood will be able to leave if necessary. While this standard is not intended to dissuade occupants of these buildings from sheltering in place, it has been the Department's experience that reports of buildings on fire and other emergencies have occurred during a flood. If the road network serving the building is not elevated properly, these individuals would be trapped and potentially placed in great harm. Prospective applicants who are considering constructing critical or multi-residence buildings must be mindful of the risk that will be assumed by the end users of these buildings. Where flooding is so deep that roadways cannot be suitably elevated to meet this standard, the first choice is appropriately not to place such buildings in these areas. Conversely, where there is a compelling public need for a critical building such as a hospital or school to be placed in the community, and there is no practicable alternative location that would reduce or avoid flood risk to future occupants, applicants can appeal to the hardship exception standards set forth at N.J.A.C. 7:13-15.1, which allow the Department to apply additional flexibility where warranted.

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770. COMMENT: There are currently no measures being presented to mitigate against people dying in their cars during upcoming storm seasons. The rule only vaguely suggests providing signage in newly developed and redeveloped areas which are not one foot above the flood hazard area design flood elevation. There is no plan to expand signage to all roads that become impassable during storm events. Such signage would help educate drivers in advance to avoid such roads during future storms. Additionally, more active warning systems, such as a smartphone app, could be created. (152)

RESPONSE: Under the applicable statutes, the requirements of the FHACA rules apply to new and reconstructed or improved structures. The Department cannot compel a public transportation entity to place signage or make other improvements absent receipt of a proposal to construct, reconstruct or improve a structure. Where a public transportation entity or other party intends to erect a road that justifiably is not elevated one foot above the design flood elevation, the placement of signage along the subject portion of roadway will help to alert the traveling public that potential flood risks are present. The FHACA rules do not require public transportation entities or other parties to erect signage along existing roadways in all flood hazard areas of the state because the trigger for application of the FHACA rules is an applicant's intention to construct, reconstruct or improve a structure. Nevertheless, the Department agrees with the commenter that enhanced signage and active warning systems as have been adopted by some communities can significantly reduce flood risks.

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771. COMMENT: The Department should provide guidance and examples of what will be accepted as “reasonable effort” taken to elevate a railroad, roadway, or parking area.  
(165)

RESPONSE: Pursuant to N.J.A.C. 7:13-12.6(b)3, an applicant seeking to construct or reconstruct a railroad or roadway less than one foot above the design flood elevation would need to demonstrate, through a certification by a licensed professional engineer and supporting documentation, that the applicant has made “every reasonable effort” to construct the railroad or roadway as close to the target elevation as practicable. The Department recognizes that there are a myriad of challenges facing public transportation entities seeking to elevate roadways. For example, an excessive amount of adjoining roadways could need to be improved to facilitate the higher roadway design, or elevating the roadway could result in additional flooding or significant drainage obstructions. Where constructing or reconstructing the travel surface one foot above the design flood elevation would adversely impact off-site properties or result in other adverse impacts enumerated in this section, the Department would not require the roadway to be so elevated. Therefore, “reasonable effort” in this context refers to the ability and willingness of a public transportation entity to practicably elevate a railroad or roadway and thereby increase safety in cases that support such improvements.

772. COMMENT: The Department should provide guidance and examples of what will be considered a “significant redesign”. (165)

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RESPONSE: The commenter references the standard at N.J.A.C. 7:13-12.6(b)2ii whereby a public transportation entity seeking to demonstrate that constructing the travel surface of a proposed railroad or roadway at least one foot above the design flood elevation is not practicable because, prior to the effective date of this rulemaking, “the project reached a milestone in its development and design,” such that elevating the railroad or roadway “would necessitate reevaluation of the selected preferred alternative or equivalent milestone, a significant redesign, or significant modifications or additions to private land acquisition plans, whether in fee or easement.” A distinction here is that in some cases a roadway or railroad could be elevated as required in this section without necessitating a significant redesign, whereas in other cases a significant redesign would be unavoidable. For example, a proposed railroad or roadway may have already been designed to be very close to one foot above the design flood elevation, in which case further raising the structure would not require additional acquisition of land, affect the proposed storm water management system, or change local drainage patterns. In other cases, the Department recognizes that elevating a railroad or roadway as required by this section could cause the scope of the project to be reconsidered. For this reason, this rulemaking establishes the preferred alternative or equivalent milestone as determined by the public transportation entity as the benchmark for whether a project can practicably be amended to meet the requirements of this section without a significant redesign. Due to the high number of variables that come into play for any given project, the Department will work with public transportation entities on a case-by-case basis to determine the practicability of amending a design after it has reached the designated milestone.

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773. COMMENT: The proposed ambivalence regarding roadways and transportation is concerning as these are among the first affected when flooding occurs. (121)

RESPONSE: It is unclear in what way the commenter believes the rulemaking approaches roadways and transportation with ambivalence. Rather, the Department has undertaken this rulemaking in order to meet its statutory mandate to protect public health, safety and welfare from the adverse impacts of flooding by establishing protective new standards for roadways and railroads that will help ameliorate flood impacts throughout the life span of the structure.

774. COMMENT: The need to elevate properties that are now in the flood plain will require the use of clean fill. There are limited sources of clean fill. If the clean fill is used for these flood plain projects, it will become more difficult to obtain clean fill for remediation projects. In some cases, the Department allows the use of alternative fill for site remediation projects, but the use of alternative fill requires DEP approval which can be difficult and time-consuming to obtain. The NJDEP Land Use and Site Remediation programs should work together to formulate guidance or policies to address processing and approving requests to use alternative fill to raise elevation at sites undergoing remediation. (133, 142)

RESPONSE: The FHACA rules do not require properties to be elevated. Only a subset of habitable buildings and travel surfaces of roads are required to be elevated, pursuant to the requirements at N.J.A.C. 7:13-12.5 and 12.6. Where a building is required to be elevated, elevation

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need not be achieved through the placement of fill. The building can be elevated by other means, such as building atop piles. Such a strategy minimizes reliance on fill. Roadways are typically elevated on fill, but even here there is opportunity to reduce the amount of fill needed to elevate a roadway. Employment of steeper side slopes or retaining walls will minimize the need for fill. With respect to the use of alternative fill, the Watershed and Land Management Program and the Site Remediation programs have been coordinating its use for over a decade. This collaboration is evident in the Department's "Fill Material Guidance for SRP Sites," released in October 2021.

775. COMMENT: The elevation requirements along with the zero net fill requirements will render some sites undevelopable and the commenter asks the Department to re-evaluate the net fill rule. (142)

RESPONSE: The zero percent flood storage displacement (net fill) requirement has been a regulatory requirement since 1977, when it applied to project sites located within the Central Passaic Basin. Starting in 1984, properties subject to fluvial flooding outside of the Central Passaic Basin were limited to displacing a maximum of 20 percent of the available flood storage volume. The 2007 version of the FHACA rules amended the 1984 standard by requiring zero percent net fill in all fluvial flood hazard areas, not just those of the Central Passaic Basin. This amendment was specifically designed to prevent increases in the frequency and intensity of flooding that the State was experiencing at that time, despite having implemented the 20 percent limitation for over 20 years. In making the amendment, the Department had determined that preserving flood storage is essential for ensuring that flooding will not exacerbate over time due to development. Adopting

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a statewide zero percent net fill standard in fluvial flood hazard areas was therefore determined to be in the best interest of the public safety, health, and general welfare of the residents of New Jersey. Preserving flood storage remains essential and for this reason, the Departments finds that it is not appropriate to reconsider the net fill standard at this time.

Since imposition of the zero percent net fill standard across all fluvial flood hazard area in 2007, the Department has issued numerous permits to developers who complied with the standard. This is evidence that the rules did not leave sites undevelopable. As such, the Department does not expect the proposal to render sites undevelopable.

776. COMMENT: With the increase in fill to be required to meet the requirements of the proposed Rule, the Department should ensure that there are to be no additional adverse impacts due to the make up of the fill being utilized. (126)

RESPONSE: Fill placed within any regulated area must meet the Department's stringent standards to prevent the spread of contaminants or pollutants.

777. COMMENT: Changes to the zero net fill requirements should be considered to allow minimal fill in the floodplain to help minimize flooding for new development and re-development. (104)

RESPONSE: In 2007, the Department adopted the FHACA rules' current zero-percent flood storage displacement (net fill) rule statewide in fluvial areas. This important and proactive step

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was made in response to the historic flooding that has occurred throughout the state over past decades, and the impact that lost flood storage has on such flooding. For this reason, new development with limited exceptions must meet these floods towards displacement limits. It should be noted that fill can be placed on one site and compensated for by the creation of additional flood storage volume on another site nearby, provided the requirements of N.J.A.C. 7:13-11.4 are met. Prospective applicants who believe that the meeting the Department' zero-percent flood storage displacement requirement would result in an exceptional and undue hardship can seek relief under the hardship exception process at N.J.A.C. 7:13-15.1.

778. COMMENT: By requiring that access roads/driveways be elevated above the flood elevation and terminate outside of a flood zone the length of the access roads/driveways may increase substantially. (142)

779. COMMENT: The proposed requirement for driveways and access roads to either be elevated or terminate outside of the flood hazard area may result in access roads being constructed thousands of feet in length instead of a few feet in order to connect to a public roadway. (158)

RESPONSE TO COMMENTS 778 AND 779: The Department acknowledges the sometimes significant design alterations that would need to be made in order to meet the requirements of this rulemaking to elevate travel surface of a railroad or roadway one foot above the design foot elevation. It should be noted that the standard to elevate railroads and public roadways to the extent

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practicable has existed in the FHACA rules for many years. This rulemaking adjusts the design flood elevation and provides additional guidance and flexibility for public transportation entities who are unable to meet these elevation requirements. Specifically, N.J.A.C. 7:13-12.6(b)2 sets forth a detailed framework that will guide public transportation entities seeking to construct or reconstruct railroads or roadways. Where a public transportation entity demonstrates that elevating its roadways or roadways that intersect with it is impracticable, alternate requirements can be met as set forth in this paragraph.

780. COMMENT: Regulated entities should receive automatic waivers from raising access road elevations if this would require disturbance to roadways outside of their ownership/control. (142)

781. COMMENT: The proposal requires private developers to elevate public roads. This is costly, infeasible, or impossible, and unprecedented. Many worthwhile redevelopment projects will need to be abandoned and will result in regulatory takings. The State would be better served by providing resources to municipalities and counties to remedy problems with public roads. The burden should not be borne by private developers. (157)

782. COMMENT: The rule does not include provisions for relief for “unattainable” standards for access roadway construction in the context of areas where development is considered desirable such as brownfield redevelopment and transit-centric

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development, stimulating low- and moderate- income housing, and addressing environmental justice concerns in impoverished communities. (168)

RESPONSE TO COMMENTS 780 THROUGH 782: The commenters are referring to the standards at N.J.A.C. 7:13-12.5(o) and 12.6(c) related to “dry access” during a flood to critical buildings, such as hospitals and schools, and multi-residence buildings such as apartment complexes and condominiums. In some cases, such buildings have been placed in areas where the public and private roadways reaching the site become impassable for extended periods during flood events. As a result, residents have become trapped in these buildings and emergency responders have been unable to access these buildings. This is especially problematic for non-ambulatory individuals who must rely on others to rescue them. Tragically, many lives have been lost in this way, due to the numerous buildings that are inaccessible during flood events, some of which have caught on fire or collapsed during floods. While this rulemaking cannot undo the poor decisions of the past with regard to the placement of certain types of buildings upon which numerous people rely, the Department strongly believes that the placement of such buildings within flood hazard areas should be constructed only where dry access above the design flood elevation is already available or is able to be created. The Department does not therefore require off-site roads to be elevated. Rather, the Department requires that wherever a developer intends to place a critical or multi-residence building, it must be accessible by vehicles during a flood. In some areas that flood, this can be achieved by raising roads or by other means. However, the Department does not require such actions to be taken absent a proposal from a developer to place a critical or multi-residence building within an unsafe area.

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783. COMMENT: The Department should amend the rule changes to include that public transportation entities should be encouraged to implement BMPs (including green infrastructure) in their roadway designs. (150)

RESPONSE: The SWM rules at N.J.A.C. 7:8-5.3 set forth standards related to the implementation of green infrastructure techniques, which are required to be incorporated in all major developments, with limited exceptions. Thus, public transportation entities are required to meet the green infrastructure standards of the rules unless otherwise permitted at N.J.A.C. 7:8-5.2(e).

784. COMMENT: The Department should consider state roads are evacuation routes in future phases of NJPACT rulemaking. (164)

RESPONSE: The Department relies on NJDOT to determine which state roads are considered evacuation routes. Where NJDOT so designates a road, the Department considers the criticality of elevating that roadway in its permitting decisions.

**Flood Hazard Area Control Act Rules, N.J.A.C. 7:13: Technical**

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### **General Flood Hazard Area Control Act Rules, N.J.A.C. 7:13**

785. COMMENT: The rules do not differentiate between flood damage due to inadequate infrastructure, for example, under-sized storm drains and culverts which will not be affected by this rule change in many areas, versus that which occurred due to overbank flow of streams. (176)

RESPONSE: The rules do not differentiate because the focus of the rules is on flooding and flood damage caused when a regulated water overtops its banks. Flooding caused by undersized storm drains located outside of the flood hazard area is not regulated. However, an undersized culvert can directly contribute to flooding and flood damage that involves a regulated water overtopping its banks. For example, an undersized culvert crossing a stream will back up water behind it, which can cause the stream to flood upstream of the culvert and the damage that is caused is not distinguishable from a stream that floods without the presence of such a culvert. For this reason, the capacity of a culvert is regulated under the FHACA rules.

786. COMMENT: The commenter supports the revised mapping of the regulated area and the ability to use the Method 6 FHA verification when the existing mapping is in dispute. (154)

RESPONSE: The Department acknowledges this comment in support of the rules. It is important to note however, that Method 6, also known as the calculation method, may only be used provided

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that the mapping in question is not a Department delineation adopted on or after January 24, 2013. If it is a Department delineation adopted on or after January 24, 2013, then an applicant must make an application to the Department for a revision of the delineation pursuant to N.J.A.C. 7:13-3.7.

787. COMMENT: The regulations should be rewritten. Flooding problems will continue, but the proposal will punish those who construct correctly. The State will no longer be viable to improve. (147)

RESPONSE: The adopted rule requirements protect people and property that are within jurisdiction and increase flood resiliency within the built environment. This will lead to less flood damage, which will benefit public health, safety, and welfare. These rules are thus neither punitive nor do they prohibit development. They facilitate more flood resilient development. By looking towards the future, application of these rules will better protect investments being made today.

788. COMMENT: The requirement to be significantly into construction prior to the rule proposal becoming effective is too stringent and ignores all the time, effort, and cost associated with obtaining all land use approvals. When all other jurisdictions have approved a project, what mechanism is in place to confirm the new rules are not applicable and who is responsible for assessing applicability? (170)

RESPONSE: N.J.A.C. 7:13-2.1 explains the process by which an application is subject to regulation. As noted in response to comments 280 through 285 above, upon reevaluation of the

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proposal to limit the legacy provision under N.J.A.C. 7:13-2.1(c)4 to only those projects that have begun construction, the Department is amending N.J.A.C. 7:13-2.1(c)4 on adoption to retain the same exemption structure as the FHACA rules prior to this adoption. Thus, under adopted N.J.A.C. 7:13-2.1(c)4, a regulated activity is exempt from requiring a flood hazard area approval provided it did not require approval under the FHACA or CZM rules prior to the effective date of this rulemaking and prior to this date, either (1) the regulated activity was authorized under one or more of the MLUL approvals listed at (c)4i; or (2) the regulated activity does not require an approval identified in (c)4i and the activity commenced prior to the adoption of the rules.

Further, the proposal to amend the description of what constitutes commencement of construction for the purposes of the legacy provision described above is adopted at N.J.A.C. 7:13-2.1(c)4ii(1). The previous description exempted projects that included completion of one or more of the following: (1) the foundation for at least one building or structure; (2) all of the subsurface improvements for a roadway; or (3) the installation of all of the bedding materials for a utility line. The adopted description clarifies and supplements the previous list and focuses on “the first placement of permanent construction of a structure on a site” with examples including: “the pouring of slab or footings, the installation of piles, the construction of columns, the placement of subsurface improvements for a roadway, the installation of all of the bedding materials for a utility line, or any work beyond the stage of excavation.” Further, the adopted description clarifies that permanent construction does not include land preparation, such as clearing, grading, and filling. The adopted description mirrors 44 CFR 60.3, which is used by FEMA to ensure that a regulated activity within the flood hazard area has reached a certain milestone of construction to address situations where flood mapping has changed after the regulated activity is authorized.

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The Department has determined that it is appropriate to retain the existing legacy structure at N.J.A.C. 7:13-2.1(c)4 for several reasons. Specifically, the Department does not believe that it is reasonable to retroactively apply the proposed standards of this chapter to certain projects that satisfied requirements that were in place at the time the activity was undertaken. In the cases set forth at adopted N.J.A.C. 7:13-2.1(c)4, the legacied project has likely already begun construction or else will begin construction in the near future and, in either case, a significant investment has likely been made by the applicant. Under adopted N.J.A.C. 7:13-2.1(c)4i, such a project would likely have already been reviewed by a local government agency, which necessarily includes a review under the UCC and its accompanying flood codes. In the case described at adopted N.J.A.C. 7:13-2.1(c)4ii, construction activities would have already begun onsite prior to the adoption date of these new rules. This provision addresses situations such as State or county roadway projects and other activities that do not require approval under the MLUL. In such a case, the Department will not require an approval listed at proposed N.J.A.C. 7:13-2.1(b), since a significant investment has been made by the applicant and retroactively applying the new flood elevations would result in a redesign that would likely be impracticable.

789. COMMENT: The rulemaking is inadequate and inappropriate in addressing future flooding and impacts to New Jerseyans based on what was experienced during Hurricane Ida. (137, 141)

RESPONSE: It is unclear why the commenter believes that the rules are inadequate or inappropriate. The rules are specifically designed to address future flooding. First, the Department evaluated, and updated precipitation numbers based on documented rainfall. Then, using the

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Northeast Regional Climate Center study, the Department projected rainfall from 2020 to 2069, and 2050 to 2099. Using these projections, the Department derived precipitation change factors for each county. These factors result in wider floodplains thereby bringing additional areas under the jurisdiction of the rules. Finally, the rules require a safety factor to be added to the FEMA flood map or existing State studies. While the Department cannot guarantee that future storms will not exceed expectations, the adopted regulations use every tool currently available to ensure that future development and inhabitants are less vulnerable to storms that have been occurring with greater frequency.

790. COMMENT: A prohibition on development within the 500-year floodplain is needed. Reforestation of flood prone areas is needed to protect wetlands and commercial fisheries. Previously permitted projects within the 100-year floodplain that have not been developed should not be allowed to proceed given current and projected conditions. The rulemaking should prohibit new, enlarged, expanded, or elevated structures, impervious surfaces, fill, grandfathered structures, removal of native vegetation, tree cutting and soil compaction in the regulated floodplain. (137, 141)

RESPONSE: It would not be reasonable for the Department to prohibit all development within the 500-year or 100-year floodplains nor would it be fair to those who have invested time and money, or own property and have legally obtained permits, to prohibit construction. Furthermore, the Flood Hazard Area Control Act, N.J.S.A. 58:26A-55.1, prevents the Department from disallowing repair or reconstruction of lawful preexisting structures that suffered damage from

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flooding or other means. While it is important for the Department to protect the environment and public health, safety, and welfare, the Department cannot be mindless of the people who own the land and have economic needs which contribute positively to the State's overall economic health. These rules seek to balance those needs.

791. COMMENT: Combined sewer overflows may require the installation of new pumping stations. The proposed rules may complicate or delay compliance of certain elements of Long-term Control Plans intended to address combined sewer overflows, as well as in all other instances where construction or maintenance by water utilities is necessary in regulated areas. Such activities should be authorized under a permit-by-rule. (135)

RESPONSE: The comment references a desire to include regulated activities under a permit-by-rule. The Inland Flood Protection Rule adoption does not address permitting mechanisms, e.g. permits-by-rule, general permits-by-certification, general permits, or individual permits, so this comment is beyond the scope of this rulemaking. However, the Department anticipates proposing rules that would address permitting mechanisms in the summer of 2023.

792. COMMENT: The Flood Hazard Area Permit for Colts Neck Manor in Colts Neck Township should be null and void as the original permit was approved for 48 units, and the current project has 360 proposed units. The Department should review the permit again under the proposed rule changes. (138)

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RESPONSE: This rulemaking does not alter requirements under which a permittee is required to obtain additional approvals for modifying an authorized project. Therefore, this comment is beyond the scope of the rulemaking.

793. COMMENT: Has the New Jersey Water Supply Authority analyzed the contribution of the diversion of runoff from the Delaware? Could diversions from the Delaware and Raritan Canal offset costs of upstream construction and maintenance of stormwater detention facilities? (169)

RESPONSE: The Department is unable to provide a response regarding the responsibilities of the New Jersey Water Supply Authority and in relation to the Delaware and Raritan Canal. Therefore, this comment is beyond the scope of the rulemaking.

794. COMMENT: Port Mercer experienced flooding four times in 50 years due to levees breaching. The levee system doesn't have a hardened spillway and is therefore "not accredited" or reliable. This is an engineering failure as the levee system hasn't been upgraded or maintained as legally required. The Stony Brook Flood Basin can impound approximately 500 acre-feet of water which exceeds the threshold given in the New Jersey Dam Safety Act. The levee system can release several times the 500-year discharge when it breaches which amplifies the magnitude of flash floods. The levee system stands in violation of established New Jersey law and presents a public safety

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hazard. Priority should be given to enforcing existing laws as a fully hardened spillway would have prevented the Ida breach in Port Mercer. (152)

RESPONSE: This comment is beyond the scope of the rules.

### **Justification for Increasing the Design Flood Elevation**

795. COMMENT: Without proper scientific justification, the Department is proposing to raise the Flood Hazard Area (FHA) design flood elevations by approximately 2 feet, to a level that is 3 feet or more above FEMA's base flood elevation along every waterbody with a FHA. This change, which expands regulated FHAs significantly throughout New Jersey, is universal, without any consideration of local conditions or any FEMA updated mapping. (176)

RESPONSE: If an applicant disagrees with adding three feet to FEMA's published 100-year base flood elevation, then unless that FEMA map has been adopted as a Department delineation, the applicant can calculate the flood hazard design flood elevation on their own. This may help account for local conditions in cases where the applicant feels that adjustments to FEMA mapping don't do so. Adding three feet to FEMA's 100-year based flood elevation may not account for updated FEMA mapping, but this is out of necessity. Updated FEMA maps do not account for increases in flooding expected to occur due to climate change. These maps also do not have hydrology updated to today's conditions. Though updated, they remain backwards looking in

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time. In order to retain the utility of a FEMA map in light of climate change, the Department found it necessary to add three feet to the 100-year base flood elevation.

796. COMMENT: Even if an increase in precipitation is assumed at the rates projected by NJDEP, the Department has not demonstrated that these increases will result in flood elevations that are 3 feet above the FEMA 1 percent flood elevations. (176)

RESPONSE: As explained in the proposal, FEMA mapping is largely based on hydrology calculations that have been unrevised since the 1970s and 1980s. In addition, there have been a number of flood events that have exceeded FEMA's 100-year base flood elevation in the past 24 years. For example, as a result of the remnants of Tropical Storm Ida, flooding along portions of the Raritan River peaked at approximately three feet above FEMA's 100-year flood elevation. Similarly, flooding along portions of the Millstone River, peaked at 2.5 feet above FEMA's base flood elevation. Field reconnaissance by the United States Geological Survey indicated that one-third of flood claims in the State caused by the remnants of Tropical Storm Ida originated outside of FEMA's 100-year flood plain. FEMA mapping is underpredicting the extent of flooding today.

Not every watercourse experienced peak flooding levels as extreme as the examples mentioned above. However, flooding has been trending in that direction in the recent past through today. Given the severity of recent flooding, defining the flood hazard area based on three feet of additional flooding over FEMA's one percent flood elevation is appropriate in order to preserve the utility in the FEMA mapping for flood plain management purposes. However, unless FEMA

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mapping has been incorporated into a Department delineation adopted on or after January 24, 2013, the applicant need not rely on that mapping. Instead, the applicant may calculate flood limits themselves, in accordance with the requirements set forth in adopted N.J.A.C. 7:13-3.6. In situations where the FEMA mapping has been incorporated into a Department delineation, the applicant need only add two feet to the flood hazard design flood elevation shown thereon.

797. COMMENT: Instead of providing traditional scientific justification for the proposed increase in flood elevations, NJDEP has identified the flooding caused by the remnants of Hurricane Ida, in the most impacted areas of the state, as the benchmark and justification for the proposed modifications to the rules, while also citing flooding from previous Hurricanes Irene and Floyd. However, NJDEP has not indicated the recurrence interval of such storms or the associated protection level of the proposed rule change. (176)

RESPONSE: The proposal indicates that the remnants of Tropical Storm Ida exceeded the published 100-year flood elevation, and it compares that with flooding associated with Hurricane Floyd. Though this data focuses on the central part of the State, it may still inform the degree of flooding elsewhere in the State.

To build the record for other parts of the State, according to the USGS, Hurricane Irene produced the highest ever recorded flood peaks at 13 of its 24 long-term continuous-record discharge gauging station in the Passaic River Basin. At the time that Hurricane Irene devastated the State, the stations at the Passaic River near Millington, the Wanaque River, and Ramapo River

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at Pompton Lakes recorded the highest flood peaks experienced in those areas in over 90 years of recordkeeping. In addition, peak flooding at the Rockaway River near Boonton and the Ramapo River near Mahwah exceeded previous flood peaks by greater than 2 feet. Furthermore, the Saddle River near the Lodi gage recorded its highest level in 87 years of recordkeeping. Overall, across the State, 33 gages recorded flood peaks greater than the 100-year recurrence interval due to Hurricane Irene. This held true at gages in the Hackensack River, Passaic River, Elizabeth River, Raritan River, Manasquan River, Toms River, Maurice River, Rancocas Creek, Cohansey River, Musconetcong River, Raccoon Creek, and Salem River Basins. See <https://www.usgs.gov/news/summary-flooding-new-jersey-caused-hurricane-irene-august-27-30-2011>.

Based on the above, for the purposes of this rulemaking, the Department did not need to characterize the recurrence interval of these most recent floods. The level of protection offered by the rules is expected to exceed the 100-year recurrence interval as it exists today.

798. COMMENT: Past rules have tried to strike a balance between the added protection the rules may provide versus the burden and cost that they may impose on both regulated property owners and on municipalities that will be required to administer them. For example, flood damage management is typically geared toward protecting from the 1 percent (100-year recurrence) or in some cases the 0.02 percent (500-year recurrence) storm event, not the worst possible flood that may occur in a limited portion of the State. Regulators have determined that the cost of regulating for rarer and more

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extreme storms than 100-year or 500-year events exceeds the potential benefit. This rule appears to be regulating to an unusually high or extreme level of protection. (176).

RESPONSE: The Department disagrees with the commenter's assertions that it is regulating to storms more extreme than 100-year or 500-year events, that the cost of regulating exceeds the potential benefit, and that this rulemaking regulates to an unusually high or extreme level of protection.

Research in the scientific community has concluded that the general assumption that future climate trends can be accurately predicted from observing and analyzing past climate data is no longer valid. Among other things, this means that flooding will worsen over time. What is considered a 100-year or 500-year event today will correlate to a flood event with a shorter recurrence interval in the future. In other words, the 100-year and 500-year storms/flood events will be more severe in the future than they are today and have been in the past. This rulemaking defines the amount of precipitation and flooding associated with today's 100-year recurrence interval and projects them to their expected equivalents by the year 2100, when structures being built today are expected to still be standing. Therefore, the degree of flooding to which the Department is regulating is still based on the 100-year recurrence interval, just as it has done prior to this rulemaking. The Department is not regulating to more extreme events or to an unusually high or extreme level of protection. As such, the cost of regulating does not exceed the benefits. Nor does this rulemaking result in directing flood plain management to the worst possible flood that can occur in a limited area of the State. More extreme flooding is possible than that covered by the amended standards. The worst possible flood would theoretically occur based on the

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greatest amount of precipitation that could occur. This would be much greater than the 100-year flood of the past, present, or future.

799. COMMENT: The Department appears to be basing these rules on the flooding associated with Hurricane Ida that occurred in certain areas. The rules do not appear to consider results from areas that experienced similar rainfall but did not experience the catastrophic flooding. In some areas, overflow of inadequate stormwater infrastructure caused flooding of roads and structures, but also detained the runoff sufficiently that streams did not overflow or overflowed only in a limited way. (176)

RESPONSE: The remnants of Tropical Storm Ida are not the basis for this rulemaking. The Department had been contemplating the impacts of climate change for almost two years prior to that flooding event. Instead, the remnants of Tropical Storm Ida are illustrative of the pattern of worsening flooding the State has experienced in the past 25 years, and exemplify the fact that we need to build to standards reflective of current, and future precipitation data.

The Department acknowledges that in addition to flooding generated from streams, rivers, and other watercourses, flooding also occurs due to inadequate stormwater infrastructure. Since the Department also recognizes the value of proper stormwater management such as detention of runoff, this rulemaking amended the SWM rules in addition to the FHACA rules. However, it cannot be construed that proper stormwater management will, on its own, sufficiently protect the population from worsening flooding that is expected to result from climate change. Stormwater

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management is a powerful tool, but it is only one part of a larger strategy to lead the State to better flood resiliency.

800. COMMENT: The rule changes will expand significantly the areas regulated by the FHA rules. The rule proposal does not provide any information on how many new homes, other structures, and properties will be impacted. Available information shows a substantial increase in the size of the regulated FHA in many communities, especially in older, densely developed communities having broad floodplains. (133, 176)

RESPONSE: Amendments to the rule will result in expanded flood hazard areas, but it is anticipated this increase will be approximately 0.7 percent of the State's land area. Given the vast number of regulated waters that lack Department or FEMA flood delineations, it is not possible to know the number of homes, properties, and structures that are located in the flood hazard area as a result of this rulemaking. Despite this, the expansion of the flood hazard area is justified since flooding is expected to increase over time due to climate change. In fact, as stated in the proposal, a significant number of properties situated outside of FEMA's 100-year flood plain suffered damage due to the remnants of Tropical Storm Ida. Approximately 31 percent of FEMA claims due to this storm were outside of this flood plain. Similarly, approximately 38.5 percent of FEMA claims due to Tropical Storm Henri were for properties outside of the FEMA's 100-year flood plain. As older, densely developed communities expand and rebuild, they will fall under the protection of the FHACA rules. Such protection is warranted.

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801. COMMENT: Contrary to DEP's assertion that there will not be a significant increase in the number of homes affected by the rules, the Rutgers Water Risk and Equity Mapping tool indicates that hundreds of additional buildings will be thrust into the newly expanded FHA in the City of Rahway, including many located far beyond the 500-year flood zones. (176)

RESPONSE: A February 2021 report by First Street Foundation found that there are 94,146 residential properties in New Jersey that currently have substantial flood risk. Estimates using available GIS mapping layers of FEMA 100 and 500-year floodplains indicate that this rulemaking would add approximately 0.7 percent of the state's land area into the flood hazard area subject to this chapter. However, it is not possible for the Department to determine the exact extent of the expansion of the flood hazard under the adopted rules, either statewide or in a specific municipality, because many of the State's regulated waters lack either Department or FEMA flood delineations. It is also important to note that the City of Rahway contains both fluvial and tidal floodplains, and the adopted amendments alter the design flood elevation along only fluvial waters. Regardless, it is necessary to amend the rules based on the best available science to reflect current conditions and to make them look to the future instead of backwards in time in order to adequately protect public health, safety and welfare. It is also important to note that the scope and purpose of this rulemaking is to ensure that new development and redevelopment is designed and constructed to reflect the best available flood data. It does not require retrofits to existing buildings that may now be in the flood hazard area unless those buildings are substantially damaged or substantially improved, as these terms are defined at N.J.A.C. 7:13-1.2.

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802. COMMENT: The Department should have used available Hazard Mitigation Planning data on flooded and repetitive loss properties throughout the state to determine an appropriate increase in elevation for updated FHAs. (176)

RESPONSE: The Department has considered the State Hazard Mitigation Plan but as explained further below, the Plan does not address all of the issues this rulemaking faces. Based on information from the Office of the New Jersey State Climatologist, Section 5.6.4.2 of the 2019 version of the State Hazard Mitigation Plan (Plan) states, “Both northern and southern New Jersey have become wetter over the past century. Northern New Jersey’s 1971-2000 precipitation average was over five inches (12 percent) greater than the average from 1895-1970. Southern New Jersey became two inches (5 percent) wetter late in the 20th century.” In addition, according to findings from the New York City Panel on Climate Change in 2009, the Plan states, “Average annual precipitation is projected to increase in the region by 5 percent by the 2020s and up to 10 percent by the 2050s. Most of the additional precipitation is expected to come during the winter months.” The Plan concludes, “With this increase in frequency of precipitation, New Jersey may experience more flooding events.” Information in the Plan confirms that the State’s climate is changing, but it does not quantify its impact on flooding.

Furthermore, in its vulnerability assessment in section 5.6.6, the Plan relies on data from FEMA mapping from 2018 or earlier. This likewise does not inform what future flooding may look like. While the Plan indicates that counties don’t have an equal flood hazard, it also does not indicate what the future flood risk will be. To overcome this issue, the Department employed a

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dual approach. First, it contracted with the Northeast Regional Climate Center to both update and project NOAA Atlas 14 precipitation data. The study represents the most recent and best available science that will inform the degree of future flooding for any party wishing to calculate the expected future extent of flooding. Second, for those wishing to retain the utility of existing State and FEMA delineations, the Department examined the recent degree of flooding from past flooding events such as those from the remnants of Tropical Storm Ida. The Department was conservative in its approach to published delineations, but believes this will adequately protect people and property from the effects of increasing flooding. If an applicant disagrees with adding a preset elevation to those maps, that applicant may opt to calculate the extent of future flooding as described at adopted N.J.A.C. 7:13-3.6, provided that any Department delineation that exists was adopted prior to January 24, 2013. For Department delineations adopted on or after this date, the applicant may seek to revise the delineation in accordance with N.J.A.C. 7:13-3.7.

803. COMMENT: The Department should have reviewed data regarding repetitive losses, in concert with the proposed expanded flood zones, to determine approximately what percentage of included properties have flooded during these major storms or are near flooding. Prior or proximate flooding may support some proposed zone expansion.  
(176)

RESPONSE: Past flood damage can inform flood risk, but such information does not aid in the prediction of the future flood hazard particularly in the face of climate change. For this reason,

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the Department did not consider an examination of locations or buildings that have suffered repetitive loss in trying to discern future flooding.

804. COMMENT: Section 51-16A-61 of the Flood Hazard Area Control Act states, “Local assessors shall consider the impact of rules or regulations issued pursuant to this act in establishing full value of lands designated as floodways or as flood fringe areas.” In the proposal, the Department acknowledges that flood zone mapping can cause a decline in property values and slowing sales, which increase default and foreclosure rates. Without a scientific basis for the increase proposed, many more homes will be subject to these declines, even if they have never, and may never, flood during the lifetime of the structure. (176)

RESPONSE: The proposal does not acknowledge that flood zone mapping can cause a decline in property values or slowing sales. Instead, it states that properties with greater flood risk show a decline in price appreciation over time. It is climate change that increases flood risk, which in turn factors into property values and informs changes in flood mapping.

As written in the proposal, the Union of Concerned Scientists identified New Jersey as one of the states most at risk for climate related flooding. The purpose of expanding the limits of the flood hazard area in this rulemaking is to acknowledge the additional flood risk posed by worsening flooding that is expected over time. If anything, the expanded flood hazard areas regulated under this rulemaking should lead to an overall positive economic impact on the State

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by ensuring that structures are planned and built in a way informed by the likely changes in flooding.

805. COMMENT: Given that published state studies are based on gauge data and transfer equations as opposed to rainfall depth, explain if an evaluation of gauge data was performed to determine if stream flows have measurably changed over time. Such data should be incorporated into the proposal before it is adopted. (170)

RESPONSE: An evaluation of gauge data to determine if stream flows have changed over time was not performed to support this adoption. As stated in the proposal document, gauge data was evaluated which showed 33 USGS stream gauges recorded peak flow rates equal to or exceeding the 100-year recurrence interval during Hurricane Irene. Additionally, gauges recorded more than 12 rivers exceeding their 100-year flood elevations during the remnants of Tropical Storm Ida. Gauges at Bound Brook have recorded elevations which exceed FEMA's 100-year flood elevation four times and FEMA's 500-year flood elevation three times since 1999, showing an upward trend in the number and severity of flood events. The Department feels this gauge data sufficiently demonstrates that the currently published 100-year flood elevations, which are generally based on hydrologic conditions from decades ago, are inadequate in protecting public health, safety, and welfare and that a larger factor of safety is warranted.

806. COMMENT: Explain the scientific basis for using two feet as an appropriate increase in published flood elevations. One would expect variability in the change in flood

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elevation given the variability in the parameters that determine it, as is apparent in the tables used to describe the approximation method. (170)

RESPONSE: The additional 2 feet of flood protection is being adopted in response to increases in extreme precipitation that have been recorded over prior decades as well as recent flood events that show flooding in New Jersey continues to increase. Three case studies of rivers impacted by the remnants of Tropical Storm Ida showed an average exceedance of FEMA's 100-year flood elevation of approximately 3 feet, which is 2 feet higher than the current design flood elevation. While it is expected that different watersheds would exhibit varying responses to increased precipitation, without precise data, it is currently not possible to determine how each watershed's response varies. Based upon the Department's review of preliminary stream gauge data, existing flood mapping, and preliminary FEMA claims, as well as extensive experience and technical expertise in developing and administering the methodologies by which floodplains throughout the State are determined and verified, increasing the design flood elevation by two feet is the most appropriate course of action to account for the observed and expected impacts of fluvial flooding throughout the State.

807. COMMENT: Instead of providing traditional scientific justification for the proposed increase in flood elevations, NJDEP has identified the flooding caused by the remnants of Hurricane Ida, in the northeastern portion of the State as the benchmark and justification for the proposed modifications to the rules. Rather than assigning blanket flood protection factors for the entire state that could be prohibitive, we recommend

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that flood protection factors be assigned based on existing development intensity/land use and state-wide information to identify any discrepancies in other portions of the state. (72)

RESPONSE: The remnants of Tropical Storm Ida caused damage in more than just the northeastern portion of the State. As referenced in the proposal, FEMA noted that average claim payouts associated with the remnants of Tropical Storm Ida were higher for homes outside of its special flood hazard area than within it in places including Essex, Mercer, Morris, Passaic, Union, and Warren counties. Yet, Ida was not the only flood event that informed the Inland Flood Protection Rule. It was only the most recent. The proposal recalls that Hurricane Irene caused record breaking floods on numerous streams with 33 USGS stream gauges recording peak flows that equaled or exceeded the 100-year recurrence interval. The damage was such that then-President Barack Obama signed a Major Disaster Declaration for all 21 counties in New Jersey.

The severity of flooding from recent storms was not the only factor that informed the adopted rule requirements. The Department contracted with the Northeast Regional Climate Center University to update and project precipitation depths in the State. The results of this study informed adjustment factors that varied on a county-by-county basis, and they informed the methodology to calculate the limits of the flood hazard area as described at adopted N.J.A.C. 7:13-3.6. Therefore, the rulemaking does not result in the assignment of blanket flood protection factors. It does account for regional variability. In addition, inherent in the calculation methodology is consideration of the degree of existing development intensity. Typically, NRCS methodology is employed for this purpose, and land use is a factor in that calculation.

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### **Calculating the Flood Hazard Area Design Flood Elevation, N.J.A.C. 7:13-3.6**

808. COMMENT: The rule should be amended to allow the use of Method 6 for a verification in all circumstances when an applicant disagrees with the available flood mapping or no mapping exists. (168)

809. COMMENT: The Department should clarify whether any applicant can utilize Method 6, or state that this method is limited to areas that were previously not considered in the flood hazard area and now are considered flood prone. (164)

RESPONSE TO COMMENTS 808 AND 809: Where a Department delineation was promulgated prior to January 24, 2013, a person may calculate the flood hazard area design flood elevation and floodway limits on a site, performing a localized analysis using site specific data, which may result in a refinement of the flooding dynamics at the site and produce a more accurate picture of small variations in flood elevations or floodway limits applicable to that particular site. In the absence of any Department delineation or FEMA mapping for a regulated water, the amended rules continue to allow the calculation of the flood hazard area design flood elevation using a Method 6 calculation.

For Department delineations promulgated on or after January 24, 2013, the Department is confident that such mapping represents the best available flood data. Therefore, the flood hazard area design flood elevation and floodway limits shown on these delineations must be used, and

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cannot be amended through a Method 6 verification under N.J.A.C. 7:13-6. However, an applicant can apply to amend a Department delineation through the process set forth at N.J.A.C. 7:13-13.4. Furthermore, as FEMA updates mapping promulgated under N.J.A.C. 7:13-3.3(c), these updated will be automatically incorporated as revised Department delineations.

Where FEMA mapping exists, an applicant may use a Method 6 verification instead, but if the Method 6 calculation results in a narrower floodway or lower flood elevation than FEMA has calculated, FEMA must first agree to update its flood maps accordingly. If FEMA does not agree to update a flood map, then Method 6 verifications that result in narrower floodway or lower 100-year flood elevation cannot be used. Otherwise, it would be considered a violation of the NFIP, which may subject a community to fines or suspension from participation in the program.

810. COMMENT: Varying sites in different watersheds should have hydrologic studies completed to establish approximate flood elevation increases prior to the adoption of the rule. (168)

RESPONSE: As stated in the proposal, the Department reviewed preliminary stream gauge data, existing flood mapping, and preliminary FEMA claims in determining appropriate elevation increases for published flood elevations. Where no mapping exists, an applicant may determine an approximated flood elevation in accordance with N.J.A.C. 7:13-3.5.

In determining an approximated flood elevation, the proposal recalls the 2007 version of the FHACA rules. For that version of the rules, the Department developed 14 separate equations that depicted the average 100-year water surface elevation as a function of drainage area in each

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of the State's 20 watershed management areas, plotted a trend line, raised it such that all data points fell below that line, added an additional 0.5-foot safety factor to each trend line, and rounded flood depths up to the next-highest foot. This essentially established flood depths between 0.5 and 1.5 feet above the highest FEMA 100-year flood elevation in each watershed management area. Because of this degree of conservatism, and to be consistent with proposed alterations to published flood mapping, the Department needed only an additional increase of one foot to account for climate change under the approximation method.

Based on the above, the Department has undertaken a study to approximate flood elevations sufficient for regulatory usage. However, an applicant need not rely on this approximation if they find it unsatisfactory. In this case, the applicant may conduct a hydrologic and hydraulic study of their own, utilizing NOAA precipitation data modified in accordance with Table 3.6B described at adopted N.J.A.C. 7:13-3.6(c)6.

811. COMMENT: The commenter is in support of the decision not to incorporate projections into the calculation of a floodway at N.J.A.C. 7:13-3.6(c)1iii. (168)

RESPONSE: The Department acknowledges the commenter's support.

812. COMMENT: The applicant should have the option to utilize Method 6, as described at N.J.A.C. 7:13-3.6, to determine the 100-year peak flow rate and flood hazard area design flood elevation in cases where a State-adopted flood delineation exists. (163)

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RESPONSE: Pursuant to N.J.A.C. 7:13-3.2(c)2, where a State-adopted flood delineation (Department delineation) exists, the applicant has the option to utilize a Method 6 delineation, described at adopted N.J.A.C. 7:13-3.6, provided that the Department delineation was adopted prior to January 24, 2013. A Department delineation adopted on or after this date is not eligible for a Method 6 recalculation. However, the applicant may propose a revision of the Department delineation in accordance with N.J.A.C. 7:13-3.7.

813. COMMENT: Where applicants calculate flood hazard areas under proposed Method 6, the Department should have flexibility to amend or incorporate more accurate data sets for more complex development and construction projects. (180)

RESPONSE: The methodology for computing flood elevations described in Method 6 at adopted N.J.A.C. 7:13-3.6 reflects the most up to date way to calculate a flood hazard area. Should more accurate datasets become available, the Department will review to inform future rulemaking.

814. COMMENT: Please explain how the Department will address the technical review and oversight of the use of proposed Method 6, which could be frequent should this become a preferred option for applicants, as well as any limitation on its applicability for different entities and types of projects. (180)

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RESPONSE: The Department will address a Method 6 delineation as it has done since its formal inception under the 2007 version of the FHACA rules. Subchapter 21 of these rules describes the process that has been, and will continue to be, in use.

To summarize, an application for a Method 6 verification will undergo an administrative and technical completeness review. If determined to be incomplete, the Department will issue a deficiency letter requesting submission of deficient information. This stops the 90-day regulatory review process. Once an application is deemed complete, the Department's formal review of the application will commence. During this time, the Department will request additional information as required to make a determination that the application either meets, or does not meet, regulatory requirements. The application will be approved or denied accordingly. Final decision on the application will be made 90 days from receipt of a complete application, with an option of a one-time extension of the 90-day review period to 120 days upon mutual agreement between the Department and the applicant.

The Department is well versed in the review of applications for Method 6 verifications, as numerous watercourses lack Department or FEMA delineations. Method 6 applications are allowable where there is no Department or FEMA delineation. They are also allowable in cases where an applicant disagrees with a Department delineation, provided that said delineation was adopted prior to January 24, 2013. In these cases, an applicant would need to make an application to the Department to revise the delineation in accordance with N.J.A.C. 7:13-3.7. Where FEMA mapping exists, a Method 6 delineation may be used if it does not result in a narrower floodway or lower flood elevation than published by FEMA. Otherwise, the applicant must contact FEMA about changing the published map.

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815. COMMENT: Clarify what hydrologic analyses are acceptable under a Method 6 delineation. (170)

RESPONSE: Adopted N.J.A.C. 7:13-3.6(c) mandates that a hydrologic analysis be used to determine the peak flow rate for the 100-year flood and that this flow rate be increased by 25 percent to determine the flood hazard area design flood elevation. In determining the peak flow rate, adopted N.J.A.C. 7:13-3.6(c)(1) requires the usage of adjustment factors to obtain the future flood elevation. The FHACA rules do not mandate specific hydrologic analyses that can be used. However, the NRCS method is the most widely used methodology to compute hydrology.

816. COMMENT: Consider allowing the usage of gage data to determine peak flow rates, as does FEMA. (170)

RESPONSE: The FHACA rules do not disallow the usage of gage data. Where the Department determines analysis of gage data is appropriate to determine peak flow rates, the data may be used.

817. COMMENT: Unsteady flow and two-dimensional modeling should be allowed. (170)

RESPONSE: The Department does not disallow the use of unsteady flow or two-dimensional flow modeling. Where steady or one-dimensional flow modeling are inadequate, unsteady flow and

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two-dimensional models may be used. The Department's flood hazard engineering section should be consulted for case-by-case guidance.

### **Approximation Method, N.J.A.C. 7:13-3.5**

818. COMMENT: For the approximation method, consideration should be made to allow approved design or as-built data of a bridge or culvert to establish the flood elevation upstream of the bridge or culvert. This would alleviate the financial burden associated with a Method 6 calculation and add more accuracy. (170)

RESPONSE: The approximation method requires knowledge of the elevation of a control structure, such as the low point in a roadway crossing, that may exist downstream of a site and influence the flood elevation on site. Typically, this information is obtained through surveyed or as-built data. However, the approximation method is conservative by design. Where more accuracy is needed, the approximation method is not appropriate. While Method 6 calculations can be costly, the Department routinely receives verifications based on this method.

819. COMMENT: Explain what calculations were used to establish the revised values for the approximation method and how it compares to other verification methodologies. (170)

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RESPONSE: In creating the approximation method for the 2007 version of the FHACA rules, the Department developed 14 separate equations that depicted the average 100-year water surface elevation as a function of drainage area in each of the State's 20 watershed management areas, plotted a trend line, raised it such that all data points fell below that line, added an additional 0.5-foot safety factor to each trend line, and rounded flood depths up to the next-highest foot. This essentially established flood depths between 0.5 and 1.5 feet above the highest FEMA 100-year flood elevation in each watershed management area. Because of this degree of conservatism, and to be consistent with proposed alterations to published flood mapping, the Department needed only an additional increase of one foot to account for climate change under the approximation method.

820. COMMENT: Explain the factors the Department used to assess if a flood hazard area determined via the approximation method is underestimated. (170)

RESPONSE: Appendix 1 of the FHACA rules describes how to use the approximation method. The flood hazard elevation is derived from a depth of flooding derived from Table 1 (Approximate flood depths above average streambed elevation) and comparing that to the depth of flooding derived from Table 1 (Depth of flood over roadway). Step 4 of the instruction in Appendix 1 requires the user to evaluate the low point elevation of each roadway crossing or other water control structure within one mile downstream of the site. The Department's expectation is that this distance is sufficient to capture most downstream backwater effects. However, in the event there is a larger structure causing a greater backwater condition further downstream than 1 mile

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from the applicant's site, failure to consider that could lead to the approximation method underestimating the flood hazard area.

821. COMMENT: Explain why the tables used in the approximation method are limited to a 30-square mile drainage area. Greater drainage areas should be used. (170)

RESPONSE: The approximation method need not be expanded beyond 30 square miles. The Department expects there to be either Department or FEMA delineations available for watercourses with contributory drainage areas larger than this value. Further, during the development of the approximation method, which was adopted on November 5, 2007, there was insufficient data for larger watercourses in the state to derive accurate approximations of flood depths.

822. COMMENT: The Department should clarify whether the rain-on-grid method is acceptable for the calculation of peak flow rates. (165)

RESPONSE: This comment is beyond the scope of this rulemaking.

823. COMMENT: How would the revised flood hazard area design flood elevation be accounted for in a hydraulic model that has numerous flow change locations with known downstream starting water surface elevations? Would every flow change

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location need to be adjusted by the same amount? This would be a very time-consuming process. (255)

RESPONSE: The proposal requires the applicant to determine the 100-year peak flow rate(s) based on projected rainfall data. Updated precipitation should be used throughout a hydraulic model for the purposes of calculating the flood hazard area design flood elevation per Method 6 protocol.

824. COMMENT: The Department should clarify whether the updated rainfall data is required to be used in the calculation of the 2, 10, and 100-year storms. (165)

RESPONSE: Updated and projected precipitation is required to be used for the 2, 10, and 100-year storms for the purposes of compliance with the SWM rules at adopted N.J.A.C. 7:8. As it relates to projects that may affect the hydraulic capacity of a regulated water under the FHACA rules, such as for a downstream impact analysis or a bridge or culvert project, the Department does not intend for flood events other than the flood hazard area design flood to be updated or projected to the future. Instead, the Department is mainly interested in the relative change in flood elevations in comparing existing and proposed conditions. Therefore, precipitation used to calculate the 2, 10, and 100-year peak flow rates and hydrographs need not be updated or projected to future values. The commenter is advised that N.J.A.C. 7:13-12.1 also requires analysis of the 25 and 50-year floods as well as the flood hazard area design flood in addition to the 2, 10, and 100-year floods. Of these, only the flood hazard area design flood need reflect projections to the year 2100.

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825. COMMENT: The Department should clarify whether the updated rainfall data is required to be used in the evaluation of tailwater calculations. (165)

RESPONSE: Both updated and projected precipitation data is required for tailwater calculations for the purposes of compliance with the SWM rules at N.J.A.C. 7:8. As it relates to the FHACA rules, use of projected precipitation would be required for tailwater as it relates to the flood hazard area design flood, but not for smaller flood events. Where tailwater is calculated for smaller flood events, current precipitation can be utilized.

#### **Offsite Flood Impacts, N.J.A.C. 7:13-12**

826. COMMENT: When considering off-site hydraulic impacts, clarify which rainfall data should be used for the 2, 10, 25, and 50-year storm events. (170)

RESPONSE: NOAA Atlas 14 precipitation may be used without adjustment to determine offsite impacts for flooding events less than the flood hazard design flood. Climate adjustment factors need not be applied to these flood events because the Department's concern is with the relative hydraulic impact between existing and proposed conditions, as opposed to the absolute value of the design flood elevation as amended by this rulemaking for these more frequent flood events. Nonetheless, beyond the rainfall data used, the applicant is required to correctly compute the peak flow rates and hydrographs corresponding to each of these flood events.

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827. COMMENT: Flexibility of hydraulic design standards is a key factor in raising roads, such as the flexibility afforded to wildlife crossings allowing for increased peak discharges and minor flood elevation changes. However, there is no such mechanism provided to raise roads under the proposed rules, making raising the road more complicated. This results in increased unpredictability in the rules. (66)

RESPONSE: In previous rulemakings, the Department made allowances for additional increases in downstream water surface elevations in order to accommodate installation of wildlife crossings where fragmentation of habitat had occurred. The purpose of doing so was to address significant environmental harm done to terrestrial species caused by the construction of past road crossings. The requirement to elevate the travel surface of roadways, however, does not present the same issue as the need to provide wildlife crossings. The FHACA rules have had, and continue to have, sufficient flexibility in their requirements to elevate the travel surface of a roadway such that there is no need to make allowances for additional downstream increases in water surface elevations.

Adopted N.J.A.C. 7:13-12.6(b) requires that the travel surface of a public roadway be either elevated at least one foot above the flood hazard area design flood elevation or, with sufficient justification, at a lower elevation, provided that the travel surface is constructed as close to one foot above the flood hazard area design flood elevation as possible. Where a road crossing cannot be designed without causing additional increases in downstream flood elevation, the rules allow the crossing to be constructed to a lower elevation, should no alternatives exist in bridge or culvert design that would satisfy the offsite flooding standards and the roadway elevation standard. This

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provides flexibility in design such the offsite flooding standards do not need to be further relaxed in a manner similar to how they are relaxed to accommodate the installation of wildlife crossings.

The Department disagrees with the commenter's assertion that the lack of relaxation of offsite flooding standards increases unpredictability in the rules. On the contrary, the flexibility in the rules affords the applicant more predictability. This is seen in the fact that the Department has issued a great number of permits for road crossings.

828. COMMENT: What is the permitted transition length or slope between existing roadways and private developments proposed one foot above the Flood Hazard Area Design Flood Elevation? (79)

RESPONSE: The FHACA rules do not regulate transition lengths of slopes between existing roadways and private development designed to be one foot above the flood hazard area design flood elevation.

829. COMMENT: The proposed rules will make it difficult if not impossible to provide vehicular access to development sites in the flood hazard area. The proposed rules require that access be provided from a development to a roadway that is outside of the flood zone. However, since property owners and developers have no control over the elevation of public roadways, in many instances the closest roadway outside the flood hazard area can be far from the site being developed or redeveloped. The requirement

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should only be to provide access that would minimize the distance one would need to travel over public roadways that are within the flood hazard area. (133)

RESPONSE: Elevating a roadway at least one foot above the flood hazard area design elevation serves two main purposes. The first is to reduce the hazard to the vehicle occupants during a flood event. The second is to enable safe egress from a property. Having such dry access is most important for roadways that access residential subdivisions and critical buildings.

A requirement to only provide access that would minimize the distance one would need to travel over public roadways within the flood hazard area does not achieve these objectives . It would still leave vehicle occupants in danger during a flood event. To wit, several deaths from the remnants of Tropical Storm Ida were a result of people trapped in their vehicles by floodwaters. According to an article published September 3, 2021 by MyCentralJersey.com (<https://www.mycentraljersey.com/story/news/2021/09/03/hurricane-ida-victims-nj-storm/5713276001/>), such deaths occurred in Passaic, New Providence, Bound Brook, Bridgewater, multiple instances in Hopewell, Hillsborough, and Holland. In addition, per that article, multiple people were killed as a result of being swept away by flooding after attempting to exit their vehicles.

In addition, the commenter's suggestion would leave buildings unreachable by emergency workers. For example, if there's a fire during the same time frame as a severe rain event, which occurred during the remnants of Tropical Storm Ida, firefighters must be safely able to reach the building and should not be deterred or blocked by flooded roadways.

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The Department recognizes that dry access is not feasible everywhere, and that the higher priority is on multi-residence and critical buildings. For this reason, dry access is not a requirement for commercial buildings in a flood hazard area, as the risk associated with people potentially trapped in a commercial building during a flood is low. Additionally, dry access is not a requirement for individual single family homes as it would generally be impracticable for the public roads reaching one home to be elevated. This is the rule standard that has been in place since the 2007 version of the FHACA rules and is not altered in this rulemaking.

830. COMMENT: Regarding the construction of bridges/culverts, clarify how the rule impacts the use of published flow rates and if additional analysis be required in previously studied areas. (154)

RESPONSE: N.J.A.C. 7:13-12.7 establishes the maximum increases in water surface elevations allowed for the construction and reconstruction of bridges and culverts. In so doing, it references N.J.A.C. 7:13-12.1, which requires analysis of the 2, 10, 25, 50, 100-year, and flood hazard area design floods. This rulemaking focuses primarily on how climate change will impact the flood hazard area. For projects that may affect the hydraulic capacity of a regulated water, such as for a bridge or culvert construction project, the Department does not intend for flood events smaller than the flood hazard area design flood to be modified to future projections. Instead, the Department is mainly interested in the relative change in flood elevations in comparing existing and proposed conditions. Therefore, published peak flow rate data for the flood events smaller than the flood hazard area design flood need not be modified for the purposes of analysis.

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831. COMMENT: The factors listed in Table 3.6A and Table 3.6B applied to the NOAA Atlas 14 rainfalls will result in higher rainfalls which will result in the lessening of flood storage compensation impacts, potentially resulting in adverse impacts. (146)

RESPONSE: The flood storage displacement requirements set forth at N.J.A.C. 7:13-11.4(e)3 require the applicant to analyze a site in two ways. The applicant is first required to calculate the flood storage volume onsite between the flood hazard area design flood elevation and the 10-year flood elevation. Second, the applicant is also required to calculate the volume between the 10-year flood elevation and the ground.

For the purposes of flood storage displacement calculations, the adopted rule does not require the 10-year flood elevation to be updated or projected. It may be used as it always has. Therefore, there should be no flood storage compensation impacts up to the 10-year flood elevation. While it is possible that, as a result of the adopted rules, flood storage volume could be displaced below today's flood hazard area design flood elevation, with corresponding compensation being made both above this elevation and below the projected flood hazard elevation, the Department does not believe this will result in adverse impacts. A combination of the lack of alteration of flood storage below the 10-year flood elevation coupled with the additional flood storage volume created by the larger flood hazard area should mitigate adverse impacts. The Department anticipates proposing a rulemaking this summer that will further clarify this issue.

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832. COMMENT: Clarify if full depth pavement reconstruction projects would be considered a limited scope project that is solely of safety or state of good repair improvements for the purpose of issuing a permit for a public transportation project under N.J.A.C. 7:13-12.6(b) (154)

RESPONSE: N.J.A.C. 7:13-12.6 establishes requirements under which a flood hazard authorization will be made for a railroad, roadway, or parking area. Adopted N.J.A.C. 7:13-12.6(b) requires that the travel surface of a railroad or public roadway be constructed at least one foot above the flood hazard area design flood elevation. The rule offers flexibility for this requirement, provided that the applicant is a public transportation entity, and several other requirements are satisfied. One such requirement, located at proposed N.J.A.C. 7:13-12.6(b)2i, is that the project is limited in scope and consists solely of safety or state of good repair improvements. Full depth pavement reconstruction is a type of project that would meet the requirement at 12.6(b)2i.

### **Administrative Concerns**

833. COMMENT: Can a valid individual permit be extended after adoption of the proposal? These permits should be extended and grandfathered to the version of the rule under which they were approved. (170)

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RESPONSE: The adopted rules do not modify the requirements for obtaining an extension of a permit issued under the FHACA rules. Requirements for permit extensions are discussed at N.J.A.C. 7:13-22.3. Among other requirements, N.J.A.C. 7:13-22.3(b)2 requires, “The person requesting the extension demonstrates that there has been no significant change in the overall condition of the site, including regulated waters, flood hazard areas, and riparian zones.” Because the flood hazard area has been modified as part of this rulemaking, the Department would be unable to extend a valid individual permit. Instead, a new permit would be needed, and it would need to comply with the standards adopted as part of this rulemaking.

834. COMMENT: Explain if permit modifications will be accepted for review until the rule is adopted. Explain how technical completeness of an application for a permit modification will be viewed. Permit modifications should be grandfathered. (170)

RESPONSE: Applications for permit modifications have been accepted for review prior to adoption of this rulemaking. Pursuant to N.J.A.C. 7:13-21.2, the technical completeness review applies only to an application for a verification, general permit, or an individual permit, and does not apply to an application for a modification, the application standards for which are found at N.J.A.C. 7:13-22.6.

An application for a permit modification may or may not be subject to the new rules depending on the specifics of the project. In general, a change in the flood elevation would preclude a modification from being grandfathered, since to do so would result in knowingly allowing construction that would not be protected against the perils of worsening floods. For

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example, a change in the flood hazard area could potentially result in an increase in flood storage displacement and such change would also result in the need to elevate a low floor or provide additional flood-proofing to adequately protect public health, safety, and welfare.

835. COMMENT: Explain if applications for permit extensions will be accepted by the Department prior to adoption of the proposal. (170)

RESPONSE: Applications for permit extensions have been accepted prior to the adoption of these rules, pursuant to N.J.A.C. 7:13-22.3.

836. COMMENT: Explain how permit transfers will be affected by the proposal. (170)

RESPONSE: Permit transfers in accordance with N.J.A.C. 7:13-22.4 are not affected by this adoption.

837. COMMENT: Clarify how an application is deemed technically complete. (170)

RESPONSE: "Technically complete" is a term defined in the rules at N.J.A.C. 7:13-1.2 meaning that each item included in an application provides sufficient information for the Department to declare the application complete for review, where the application is ready to be evaluated for compliance with the applicable requirements of the rules. Technical completeness is evaluated

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during the completeness review process outlined in N.J.A.C. 7:13-21.2. The definition of “technically complete” and the completeness review process are not impacted by this adoption.

### **Dam Safety Standards, N.J.A.C. 7:20**

838. COMMENT: The proposed regulations are inconsistent with Dam Safety regulations.  
(147)

RESPONSE: The FHACA rules are independent of and separate from the Dam Safety Standards. The Dam Safety Standards may regulate to an amount of flooding much greater than the precipitation events associated with the flood hazard event described by this rulemaking, as they previously have. Both sets of regulations are independent and separate, and the Department finds that they are not inconsistent.

839. COMMENT: Will the Dam Safety Regulations be modified to incorporate the precipitation adjustment factors for spillway capacity analyses? (79)

RESPONSE: The FHACA rules are independent of, and separate from, the Dam Safety Standards which regulate to the probable maximum precipitation event. This can far exceed the precipitation events associated with flooding to the flood hazard area design flood elevation. Furthermore, N.J.A.C. 7:13-12.11 has and continues to exempt the construction, replacement, repair, or removal

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of any dam from regulation if the dam does not serve as a component of a stormwater management basin provided the dam falls under the jurisdiction of the Dam Safety Standards at N.J.A.C. 7:20.

840. COMMENT: Will the proposal impact implementation of the Dam Safety Standards? To what standard will emergency spillways need to be designed? (170)

RESPONSE: The Inland Flood Protection Rule is separate and independent from the Dam Safety Standards. It will not impact the Dam Safety Program and does not regulate emergency spillways.

### **Precipitation Data**

841. COMMENT: The current precipitation adjustment factors should be eliminated. NOAA rainfall rates should be included in the regulation such that any rainfall updates will require the Department to formally revise the rules. Published rainfall rates can be easily incorporated into software models without having to change software code, which can be problematic. The proposal would be simpler and easier to understand if actual rainfall amounts, instead of adjustment factors, were used in the proposal. (147)

RESPONSE: NOAA's Precipitation Frequency Data Server (PFDS) allows point-and-click access to Atlas 14 precipitation data at scales finer than the county boundary. In addition, precipitation depths do vary within a county's boundary. Providing adjustment factors for each county instead of adjusted precipitation amounts facilitates continued ease of access in using the PFDS.

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Therefore, it was preferable for the rules not to use adjusted amounts. Additionally, software programs commonly used to prepare hydrologic calculations for the Department to review readily allow the user to make changes in precipitation depth. Software code need not be altered.

842. COMMENT: Stormwater modeling does not have the same accuracy as the adjustment factors, which go to the hundredths place. This further complicates modelling efforts. (147)

RESPONSE: The hundredths decimal place seen in both the adjustment factors and change factors in the Inland Flood Protection Rule represent whole number percentage increases to be applied to NOAA Atlas 14 precipitation data. NOAA has and continues to present its Atlas 14 data to the hundredths place. This has not led to complications in modeling efforts. For these reasons, the adjustment and change factors should not be a source of complications in modeling.

843. COMMENT: The rainfall depths should be stated in the rule, rather than referenced from an outside source. An update in the source could cause extensive redesign without warning, or could render the multipliers unnecessary. (170)

RESPONSE: Rainfall depths throughout the State of New Jersey vary and have been published by NOAA Atlas 14. NOAA's Precipitation Frequency Data Server (PFDS) allows point-and-click access to Atlas 14 precipitation data at scales even finer than the county boundary. Therefore, this

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resource is referenced as the source for these rainfall depths in order to maintain accuracy and availability.

844. COMMENT: A watershed approach, as opposed to a political boundary-approach, should be used for rainfall data. This would simplify derivations of rainfall data where waterbodies or watersheds cross political boundaries. (170)

RESPONSE: In order to project the impact of future flood risk, the Department examined the best available science provided by the Northeast Regional Climate Center as well as a comparison of the extent of flooding seen in more recent flood events compared to what was shown in published mapping. The Department is confident that this approach will adequately take into account the variance in rainfall values for different development sites in the most accurate and efficient way.

### **Flood Mapping**

845. COMMENT: Will the state quickly update its flood maps if it approves a flood hazard area delineation based on a proposed Method? (180)

846. COMMENT: Clarify if project sites that use Method 6 will be later incorporated into the mapping so that counties and municipalities will have access to the changes. (154)

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847. COMMENT: The commenter recommends that site specific data is used and inquires as to a plan of action for newly defined risk areas, especially projects that utilize Method 6 to calculate their own flood elevations. (164)

RESPONSE TO COMMENTS 845 THROUGH 847: Due to the complexity involved in updating a Department delineation, it is not practicable for the Department to update its flood mapping to incorporate flood hazard area verifications, particularly since the Department has partnered with FEMA to incorporate the NJ Flood Hazard Area Design Flood into FEMA mapping as it is revised across the state. However, the FHACA rules detail the process to be undertaken to amend its flood mapping at N.J.A.C. 7:13-3.7 and 3.8. Should an application be made to the Department to revise a Department delineation in accordance with the requirements specified therein, the Department will undertake a revision. Further, the Department intends to develop a means by which flood mapping determined by Method 6 can be sewn into a GIS layer available to the public.

### **Safety Factors**

848. COMMENT: State law regulates the 100-year storm, data for which has been published by NOAA. The use of additional safety factors, such as rainfall adjustment tables, exceeds statutory authority. (147)

849. COMMENT: The State has failed to update its flood maps since the 1970's and 1980's, which is a statutory requirement. Any flood hazard study undertaken for a verification should be incorporated into a new flood hazard database and model. The 25 percent

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safety factor should be eliminated. The statute does not promote freeboard requirements, and thus the rules exceed federal standards. (147)

RESPONSE TO COMMENTS 848 AND 849: In 2006, the Department and FEMA signed a Cooperating Technical Partnership Agreement (CTP) to jointly work on revising older flood mapping. Part of the revision effort includes combining separate Department and FEMA delineations into one mapping product. A number of these combined maps have already been published. Upon publication, they replace their corresponding, older Department delineations. Each Department delineation uses a 25 percent safety factor, in which the calculated 100-year flow rate is increased by 25 percent prior to being input into a hydraulic model that computes flood elevations. As noted in response to comment 348, any number of changes in the hydrologic and hydraulic characteristics of a watershed can increase expected flood flows at a given location. Upstream development, removal or modification of upstream bridges and dams, channel improvements, sediment removal projects, changes in hydrologic conditions in portions of a watershed and alterations in weather patterns may all contribute to exacerbate flooding. Due to the wide range of factors that can affect the hydrologic and hydraulic response of a given watershed, floodplain modeling of fluvial systems is necessarily based on many factors and assumptions that cannot always be precisely measured or accurately predicted. For these reasons, when the Department has undertaken the delineation of flood hazard areas for its jurisdictional mapping, a flow rate of 25 percent greater than the 100-year flood has been historically utilized. The Department has maintained that this 25 percent factor of safety for flood modeling is appropriate given the need to preserve public safety in light of the inherent inability of riverine modeling to

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provide an exact prediction of future flood conditions. In fact, the State's continued flooding problems, despite the historic application of this 25 percent factor of safety, clearly demonstrates that this safety margin is necessary.

In light of this, the Department believes that it would be inappropriate to simply assume the protections contained in the FHACA rules would be adequate to address the flooding problems that currently exist, even with the use of the factor of safety, or would be sufficient to protect public safety, health and general welfare without continuing to require the factor of safety. Such an assumption could put public health and safety at risk. Acceptance of modeling to eliminate the factor of safety would be inappropriate.

At N.J.S.A. 58:16A-52b(1), the Flood Hazard Area Control Act (Act) states, "the department shall wherever practicable, make flood hazard area delineations at least as protective as the floodplain delineations approved by the Federal Emergency Management Agency for the National Flood Insurance Program." Use of the phrase "at least as protective" indicates that the FHACA rules may exceed federal standards, including use of freeboard. In the same section, the Act continues, "immediately upon adoption of a floodplain delineation approved by the Federal Emergency Management Agency for the National Flood Insurance Program, the department shall include the federal floodplain delineation as the department's minimum flood hazard area delineation for that watercourse, provided that the department has determined that the federal floodplain delineation is sufficient to carry and discharge the flood flow of the watercourse and is at least as protective of the public safety, health, and general welfare as the department's delineation." That the Act establishes a federal floodplain delineation as the minimum flood hazard delineation is further evidence that the FHACA rules may exceed Federal standards. The

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Department has always added factors of safety, or “freeboard,” such as the 25 percent factor of safety to account for potential future increases in flood discharges. Lessons learned over the passage of time indicate that such freeboard is still necessary to adequately protect public health, safety, and welfare.

850. COMMENT: The 125 percent safety factor is no longer necessary, and it implies the State is guessing at future rainfall rates. The 125 percent factor should apply to current rainfall data only. If the State wishes to create new regulation, such as the 125 percent safety factor, it should first change the statute. (147)

RESPONSE: All flood hazard delineations are, at best, estimations. This is the nature inherent in modeling physical processes. However, the 25 percent safety factor referred to by the commenter is not related to future precipitation amounts, and its use is still necessary.

Future precipitation amounts used for this rulemaking are informed by a peer-reviewed study performed by the Northeast Regional Climate Center, entitled “Projected Changes in Extreme Rainfall in New Jersey based on an Ensemble of Downscaled Climate Model Projections,” and published in October of 2021. The study derived precipitation projections from 46 downscaled climate model simulations. It relied on a methodology analogous to that used in NOAA Atlas 14 to calculate annual average return period precipitation amounts. The future precipitation amounts used in this rulemaking are based on the latest science and are simply not a guess.

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The 25 percent safety factor necessarily applies to calculations of peak flow rates and hydrographs for both updated and projected precipitation amounts. As noted in the response to comments 348, and as further articulated in the response to comments 848 and 849, the State's continued flooding problems, despite the historic application of this 25 percent factor of safety, demonstrates that this safety margin is necessary, especially considering the increasing recurrence of record flooding the State has been subject to in the past 25 years, spanning from Hurricane Floyd through the remnants of Tropical Storm Ida. In light of this, the Department believes that it would be inappropriate to simply assume the protections contained in the FHACA rules would be adequate to address the flooding problems that currently exist, even with the use of the factor of safety, or would be sufficient to protect public safety, health and general welfare without continuing to require the factor of safety would be inappropriate. Such an assumption could put public health and safety at risk. Acceptance of modeling to eliminate the factor of safety would be inappropriate.

It is unnecessary for the Department to amend statutes authorizing the FHACA rules to accommodate the 25 percent safety factor. Statutes authoring these rules make allowances to accommodate such safety factors. At N.J.S.A. 58:16A-52b(1), the Flood Hazard Area Control Act (Act) states, "The department shall wherever practicable, make flood hazard area delineations at least as protective as the floodplain delineations approved by the Federal Emergency Management Agency for the National Flood Insurance Program." FEMA's basis for their NFIP program is the 100-year flood. The Act sets this as the Department's minimum standard of regulation, and the Department then determines if greater protection is necessary. Using safety factors is one way of doing that.

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851. COMMENT: FEMA routinely updates its maps and the elevations posted on its maps should be followed as is. Adding freeboard to a FEMA map is inaccurate. FEMA maps should be considered the highest standard to follow. (147)

RESPONSE: FEMA does update its maps. However, in so doing, it does not always update the hydrology calculations that ultimately inform its flood elevations. Therefore, the flood elevations shown on these maps may not be sufficiently updated to describe flooding conditions that occur today. Furthermore, current FEMA mapping does not account for the increasing flood risk that is expected to occur over time due to climate change.

It was necessary for the Department to add freeboard in order to obtain a meaningful flood hazard area design flood elevation and retain the utility of published FEMA mapping. Prior versions of the FHACA rules established that adding one foot to FEMA's 100-year base flood elevation was necessary to account for the 25 percent safety factor employed in Department delineations. This rulemaking requires the use of two additional feet to account for expected increases in flooding due to climate change. Without such freeboard, FEMA mapping would underestimate the flood risk the State faces both today and in the future. The remnants of Tropical Storm Ida revealed the inadequacy of existing FEMA mapping.

FEMA maps should not be considered the highest standard to follow. The Flood Hazard Area Control Act gives the Department the latitude to regulate to a greater degree than indicated on FEMA mapping. FEMA also calls for more stringent regulation of flood hazard areas, as seen in a FEMA NFIP Fact Sheet published in 2016 (<https://www.fema.gov/sites/default/files/2020->

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07/fema\_NFIP\_National-Flood-Insurance-Program-Fact-Sheet\_May-2016.pdf), which states, “To participate in the NFIP, a community must adopt and enforce floodplain management ordinances that meet or exceed the minimum requirements of the Program. These requirements are intended to prevent loss of life, loss of property, reduce taxpayer costs for disaster relief, as well as minimize economic and social hardships that result from flooding.”

852. COMMENT: Requiring two feet of additional freeboard is arbitrary and results in property takings. Each watershed and stream corridor behaves differently. (147)

RESPONSE: The additional freeboard prescribed by this rulemaking is not arbitrary. As stated in the proposal, the Department notes that a significant number of FEMA claims that resulted from flood damage caused by the remnants of Tropical Storm Ida (31 percent) and Tropical Storm Henri (38.5 percent) were outside of FEMA’s special flood hazard area. This points to an issue with published mapping, and alterations were needed.

In addition, the Department compared flooding depths associated with the remnants of Tropical Storm Ida to available flood mapping. Flooding exceeded the limits predicted by published mapping by several feet. The proposal also notes that flooding caused by Hurricane Irene was so significant that 33 USGS stream gauges recorded peak flows equal to or greater than the 100-year recurrence interval. To preserve the utility of published flood mapping, the Department needed to adjust the mapping. Adding two additional feet to the flood hazard area design flood elevation on a Department delineation and three additional feet to FEMA’s 100-year

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flood elevation best accounted for the severity of flooding witnessed in these recent flood events while accounting for how flooding will increase as a result of continued climate change.

Each watershed and stream corridor does behave differently. Available flood mapping captures those differences. Where the applicant is concerned that those differences are muted via the additional feet added to published values, they may perform their own calculations to determine the extent of future flooding via requirements set forth at adopted N.J.A.C. 7:13-3.6 as long as the available mapping isn't a Department delineation adopted on or after January 24, 2013. If it is, then the applicant is required to use the Department delineation, but they can apply to the Department to revise it in accordance with N.J.A.C. 7:13-3.7.

To best protect people and property, it was necessary for the Department to regulate a deeper and more extensive flood hazard area than it previously had. . Through this rulemaking, the FHACA rules do not place any restrictions on development beyond those that existed in previous versions of the rules. An applicant may have to build to a higher elevation, but this does not render a property undevelopable.

853. COMMENT: The State should only regulate to minimum requirements. Otherwise, this will harm communities who have unique regulations that consider local conditions to be abandoned under threat of fines. (147)

RESPONSE: FEMA regulates to minimum standards and encourages its regulated communities to have more stringent standards. In turn, the Department promulgates rules that are more stringent than FEMA, but does not prohibit municipalities from having even more stringent rules. In this

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way, the Department's rules have not been harmful to communities. On the contrary, regulating to the most minimum of requirements will lead to less protection from the perils of flooding and make buildings and infrastructure more prone to flood damage. It would not result in sufficient protection of public health, safety, and welfare.

### **Federal Standards Statement**

N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), requires State agencies that adopt, readopt, or amend State rules that exceed any Federal standards or requirements to include in the rulemaking document a comparison with Federal law.

The Department's authority for regulating development within flood hazard areas comes solely from State statutes, specifically N.J.S.A. 58:16A-50 et seq., 58:10A-1 et seq., 58:11A-1 et seq., and 13:1D-1 et seq. The FHACA rules are not promulgated under the authority of, or in order to implement, comply with, or participate in any program established under Federal law or under a State statute that incorporates or refers to Federal laws, Federal standards, or Federal requirements. FEMA delineates special flood hazard areas in the State for the purposes of the NFIP. However, there is no Federal agency or program that directly requires regulation of activities in flood-prone areas based on their potential flooding impacts. The Code of Federal Regulations, at 44 CFR Part 60, enables FEMA to require government entities that participate in the NFIP to adopt certain flood hazard reduction standards for construction and development in 100-year flood plains. However, a government entity's participation in the NFIP is voluntary, and FEMA does not otherwise regulate land uses in flood hazard areas. Thus, since there are no standards under

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the authority of, or that exceed Federal law, a cost-benefit analysis is not required, pursuant to N.J.S.A. 52:14B-23.

However, while the proposed amendments, repeal, and new rule do not derive authority from any Federal law or under any State statute that incorporates or refers to Federal laws, standards, or requirements, the FHACA Rules allow the use of FEMA flood insurance studies in order to determine the extent of the flood hazard area design flood. FEMA periodically updates these studies, in which case, the flood elevation at a particular location can change. This would, in turn, alter the extent of the flood hazard area and the elevation at which buildings must be constructed, in cases where an applicant chooses to use a FEMA flood insurance study.

There are several Federal programs concerning stormwater runoff and nonpoint source pollution control. The proposed amendments, repeal, and new rule do not change the limits or applicability of those Federally derived programs. Instead, they would change the way that the limits are evaluated, which is not discussed in the Federal programs. The Federal programs are discussed below.

#### *Clean Water Act*

The Federal Clean Water Act (33 U.S.C. §§ 1251 et seq.) requires permits under Section 402 of that Act (33 U.S.C. § 1342) for certain stormwater discharges. The Department's requirements to obtain such permits are set forth in the New Jersey Pollutant Discharge Elimination System rules, N.J.A.C. 7:14A, rather than in the SWM rules being proposed for amendment.

Section 319 of the Clean Water Act (33 U.S.C. § 1329) authorizes a Federal grant-in-aid program to encourage states to control nonpoint sources. The Department developed a

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management program for nonpoint source pollution control under which it issues grants to local, regional, State, and interstate agencies, as well as to nonprofit organizations to, among other things, develop or monitor BMPs to control stormwater.

The Clean Water Act's Municipal Separate Storm Sewer System (MS4) Program identifies five minimum control measures to address stormwater management at the minimum standards as described at 40 CFR 122.34(b). Specifically, 40 CFR 122.34(b)(5) requires the MS4 permittee to identify the minimum elements to address the runoff from new development and redevelopment projects. In New Jersey, the requirements to manage stormwater from new development and redevelopment projects are established in the SWM rules and municipalities are required to have stormwater programs that equal or exceed the requirements of those rules. The proposed amendments, repeal, and new rule do not modify the scope of applicability of those rules. The amendments, repeal, and new rule are specific to the rainfall data used and the calculations methods, neither of which are discussed in the Federal MS4 rules.

#### *Coastal Zone Management Act*

Under Section 6217(g) of the Coastal Zone Management Act Reauthorization and Amendments of 1990 (CZARA), P.L. 101-508, the US EPA has published "Guidance Specifying Management Measures for Sources of Nonpoint Pollution In Coastal Waters" (CZARA 6217(g) Guidance). States may opt to participate or not participate in the overall coastal zone management program, with no penalty for non-participation other than the loss of Federal grants for this program. No mandatory Federal standards or requirements for nonpoint source pollution control are imposed. The CZARA 6217(g) Guidance includes management measures for stormwater

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runoff and nonpoint source pollution control from land development, as well as many other source types. The Department has developed a coastal zone management program, including a component addressing coastal nonpoint source pollution control. The SWM rules at N.J.A.C. 7:8 are one means by which the Department implements its nonpoint source pollution control program.

As with the Federal MS4 rules discussed above, the CZARA 6217(g) Guidance does not include any specifics regarding rainfall data or calculation methods. Accordingly, N.J.S.A. 52:14B-1 et seq. (P.L. 1995, c. 65), does not require any further analysis.

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**Full text** of the adoption follows (additions to the proposal indicated in boldface with asterisks

**\*thus\*** and deletions from proposal indicated in brackets with asterisks **\*[thus]\***):

## CHAPTER 13

### FLOOD HAZARD AREA CONTROL ACT RULES

#### SUBCHAPTER 2. APPLICABILITY AND ACTIVITIES FOR WHICH A PERMIT OR AUTHORIZATION IS REQUIRED

##### 7:13-2.1 When a permit or authorization is required

(a) - (b) (No change.)

(c) Undertaking a regulated activity in a regulated area does not require an approval listed at (b) above in the cases listed at (c)1, 2, 3, or 4 below. For the purpose of this subsection, each distinct construction activity in a project, such as each building, road, or utility crossing, is considered a distinct regulated activity.

1. The regulated activity is part of a project for which all elements that were subject to the Flood Hazard Area Control rules in effect prior to (the effective date of this rulemaking), have been approved under a permit issued pursuant to those rules, provided:

i. The regulated activity is specifically approved under the permit, or was not subject to the requirements of this chapter prior to (the effective date of this rulemaking);

ii. The application for the permit was received by the Department and was complete for review prior to (the effective date of this rulemaking); and

iii. The permit is valid when the regulated activity is undertaken;

2. – 3. (No change.)

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4. The regulated activity is part of a project that was subject to neither the requirements of this chapter, nor N.J.A.C. 7:7, prior to (the effective date of this rulemaking), and **\*[both]\*** **\*one\*** of the following **\*[apply]\*** **\*applies\***:

**\*[i. The regulated activity received all necessary Federal, State, and local approvals prior to (the effective date of this rulemaking); and]\***

**\* i. The regulated activity is authorized under one or more of the following approvals pursuant to the Municipal Land Use Law (N.J.S.A. 40:55D-1 et seq.), prior to (the effective date of this rulemaking):**

**(1) Preliminary or final site plan approval;**

**(2) Final municipal building or construction permit;**

**(3) Minor subdivision approval where no subsequent site plan approval is required;**

**(4) Final subdivision approval where no subsequent site plan approval is required;**

**or**

**(5) Preliminary subdivision approval where no subsequent site plan approval is required; or**

**ii. The regulated activity **\*does not require an approval identified in (c)4i above, and has\*** commenced prior to (the effective date of this rulemaking).**

(1) For the purpose of this subparagraph, commencement of regulated activities means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, the placement of subsurface improvements for a roadway, the installation of all of the bedding materials for a

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utility line, or any work beyond the stage of excavation. Permanent construction does not include land preparation, such as clearing, grading, and filling.

(d) - (e) (No change.)

## SUBCHAPTER 12. ACTIVITY-SPECIFIC REQUIREMENTS FOR INDIVIDUAL PERMITS

### 7:13-12.6 Requirements for a railroad, roadway, and parking area

(a) (No change.)

(b) The Department shall issue an individual permit to construct or reconstruct a railroad or public roadway only if one of the following requirements is satisfied:

1. The travel surface of the railroad or public roadway is constructed at least one foot above the flood hazard area design flood elevation; **\*[or]\* \*or\***

2. The applicant is a public transportation entity and any of the following apply:

i. - ii. (No change on adoption.)

iii. Strict compliance with (b)1 above would result in one of more of the following:

(1) - (4) (No change on adoption.)

(5) A design that exacerbates flooding or causes unavoidable adverse impacts to offsite properties or preexisting drainage patterns **\*[;]\*\*.\***

**\*[3.]\*\* (c)\*** An applicant seeking authorization pursuant to (b)2ii or iii above shall **\*[demonstrate]\* \*.\***

**\*1. Demonstrate\*** through a certification from a licensed professional engineer and supporting documentation that:

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i. Every reasonable effort has been taken to construct or elevate as much of the railroad or roadway as close as practicable to the elevation required at (b)1 above given the scope of the project\*[\*]\* \*;\*.\*

(1) Access to railroads or roadways that are lower than the elevation requirements of this section will be considered in the evaluation of reasonable effort\*[\*]\* \*;\*.\*

ii. The railroad or roadway is designed to the maximum extent practicable to resist damage, displacement, and loss of service due to anticipated flooding based on the projected rainfall depths used in this chapter\*[\*]\* \*;\*.\*

iii. No extraordinary risk is posed to any person using each proposed railroad or roadway that is constructed at an elevation less than required at (b)1 above\*[\*]\*\*; **and**\*

iv. The project meets the requirements at (b)2ii or iii above, as applicable; **\*and\***

\*[4.]\* **\*2.\*** \*[Any project authorized in accordance with this section shall provide]\* **\*Provide\*** an adequate number of permanent signs that are posted in prominent locations along any new, reconstructed, or expanded section of railroad or roadway that does not meet (b)1 **\*[or 2]\*** above, alerting the public to the likelihood of flooding based on the projected rainfall depths used in this chapter\*[\*; **or**]\*\*.\*

\*[5.]\*\***(d)**\* The Department shall review and identify any deficiencies in the information provided at \*[(b)3]\* **\* (c) \*** above during completeness review pursuant to N.J.A.C. 7:13-21.2.

\*[(c)]\* **\* (e) \*** The Department shall issue an individual permit to construct or reconstruct a private roadway or parking area in a fluvial flood hazard area, which serves a critical building or serves a multi-residence building that is not part of a redevelopment project, only if one of the following requirements is satisfied:

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1. – 2. (No change.)

\*[(d)]\* \*(f)\* The Department shall issue an individual permit to construct or reconstruct a private roadway or parking area not covered by \*[(c)]\* \*(e)\* above, only if one of the following requirements is satisfied:

1. (No change.)

2. The applicant demonstrates that each building or group of buildings is already served by one or more roadways and/or parking areas having a travel surface at least one foot above the flood hazard area design flood elevation, which is of adequate size and capacity to serve the building or group of buildings, or that it is not feasible to construct the travel surface of each private roadway or parking area at least one foot above the flood hazard area design flood elevation pursuant to \*[(e)]\* \*(g)\* below, and instead constructs the travel surface of each private roadway and parking area as close to this elevation as feasible.

\*[(e)]\* \*(g)\* An applicant, other than a public transportation entity, seeking to demonstrate that it is not feasible to construct the travel surface of a railroad, roadway, or parking area at least one foot above the flood hazard area design flood elevation, or a public transportation entity seeking to demonstrate that it is not feasible to construct the travel surface of a parking area at least one foot above the flood hazard area design flood elevation, as is required for various activities in this section, shall:

1. – 2. (No change.)

3. Demonstrate that no extraordinary risk is posed to any person using each proposed railroad, roadway or parking area that is constructed at an elevation less than one foot above the flood hazard area design flood elevation. This demonstration shall include:

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i. – ii. (No change.)

iii. Measures being proposed to ameliorate the anticipated adverse impacts described in **[(e)]** **(g)** 3i and ii above, such as the establishment of evacuation plans for individuals that would be trapped during a flood, provisions for emergency electrical service during an outage, and flood-proofing measures; and

4. (No change on adoption.)

**[(f)]** **(h)** Where a private roadway or parking area is proposed to be constructed less than one foot above the flood hazard area design flood elevation pursuant to **[(c), (d), or (e)]** **(e), (f), or (g)** above, the following requirements shall apply:

1. – 2. (No change.)

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Based on consultation with staff, I hereby certify that the above statements, including the Federal Standards Statement addressing the requirements of Executive Order 27 (1994), permit the public to understand accurately and plainly the purposes and consequences of this adoption. I hereby authorize this adoption.

Date \_\_\_\_\_

\_\_\_\_\_

Shawn M. LaTourette, Commissioner

Department of Environmental Protection