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## The Quest for Land Development Leaves Louisiana Under Water—What the Flood? An Analysis on Land Development-Induced Flooding and How Louisiana Can Stay Above Water

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**The Quest for Rapid Land Development Leaves Louisiana Under Water- What the Flood? An Analysis on Land Development-Induced Flooding and How Louisiana Can Stay Above Water.**

*Madison Gaines\**

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## INTRODUCTION

Louisiana is no stranger to hurricanes, flooding, and other natural disasters. One of the first major hurricanes recorded in Louisiana occurred in 1812.<sup>1</sup> Since then, Louisiana has been hit by several catastrophic hurricanes, including Hurricanes Katrina (2005), Rita (2005), Gustav (2008),<sup>2</sup> Laura (2020), and Ida (2021).<sup>3</sup> The catastrophic nature of hurricanes, combined with global-warming-induced sea-level rise, escalates the risk of coastal flooding.<sup>4</sup> The frequency of hurricanes and tropical storms are expected to increase due to global warming, making it imperative for Louisiana to take the necessary steps to prepare for natural disasters.<sup>5</sup> Hurricane-related flooding can occur due to heavy rainfall or storm surges; however, land development and infrastructural issues within the state can be attributed to Louisiana's recent flooding history.<sup>6</sup> In August 2016, some areas of South Louisiana experienced a historic

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1. Cecelia Hock, *Was an 1812 Hurricane the Worst Storm to Ever Hit New Orleans?*, THE HISTORIC NEW ORLEANS COLLECTION (June 11, 2021), <https://www.hnoc.org/publications/first-draft/was-1812-hurricane-worst-storm-ever-hit-new-orleans> [https://perma.cc/W2JJ-5PW9].

2. David Roth, *Louisiana Hurricane History*, NAT'L WEATHER SERV. 10, <https://www.wpc.ncep.noaa.gov/research/lahur.pdf> [https://perma.cc/G782-AUBH] (last modified Apr. 8, 2010).

3. *Hurricane Ida*, NOAA: NAT'L WEATHER SERV., <https://www.weather.gov/mob/ida> [https://perma.cc/UL8V-HLVU] (last updated Sept. 2021).

4. Tom Knutson, *Global Warming and Hurricanes*, GEOPHYSICAL FLUID DYNAMICS LAB'Y, <https://www.gfdl.noaa.gov/global-warming-and-hurricanes/> [https://perma.cc/L5H6-Z3BV] (last updated July 12, 2022).

5. *Id.*

6. C. P. Konrad, *Effects of Urban Development on Floods*, U.S. GEOLOGICAL SURV., <https://pubs.usgs.gov/fs/fs07603/> [https://perma.cc/8C4Y-9ZLD] (last modified Nov. 29, 2016, 5:57 PM).

rainfall—between 20 and 30 inches of rain—within a two-day period.<sup>7</sup> While hurricanes and heavy rainfall cannot be prevented, improving Louisiana's infrastructure and regulation of land development will mitigate the effects of flooding. Louisiana flooding illustrates the state's infrastructural and land development shortcomings.

Moreover, as Louisiana's population continues to grow, demand for housing and commercial developments will grow as well. Developers continue to construct housing and commercial developments quickly to meet the needs of the rising population.<sup>8</sup> However, poorly planned, rapid development depletes the land's ability to naturally absorb and divert water.<sup>9</sup> Thus, the same people who eagerly move into their new homes or commercial developments experience flooding and other flood-related adverse effects in those new developments. The push for development without proper planning combined with the need to address the current infrastructure issues will continue to frustrate Louisianians with high flood risks. In order to protect its citizens, Louisiana must improve its zoning and planning regulations to reduce the risk of flooding. Louisiana's local and state governments must work together with the federal government to mitigate the flooding that continues to threaten the livelihoods of Louisianians.

Louisiana's inadequate infrastructure and insufficient regulation of land development led to a destructive increase in flooding. Floods occurring in the decade preceding this Comment highlight existing flood control and mitigation issues across the state. For example, the Flood of 2016 created an estimated \$8.7 billion in damages.<sup>10</sup> Hurricane Ida struck Louisiana in 2021, causing an estimated \$584 million in damages in agriculture alone.<sup>11</sup> Louisiana's inadequate and poorly maintained

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7. *What Caused the Historic August 2016 Flood, and What are the Odds it Could Happen Again?*, THE ADVOCATE (Aug. 5, 2017, 2:00 PM), [https://www.theadvocate.com/louisiana\\_flood\\_2016/article\\_3b7578fc-77b0-11e7-9aab-f7c07d05efcb.html](https://www.theadvocate.com/louisiana_flood_2016/article_3b7578fc-77b0-11e7-9aab-f7c07d05efcb.html) [<https://perma.cc/2LYH-K524>] [hereinafter *Historic August 2016*].

8. See EDWARD A. GLICKMAN, AN INTRODUCTION TO REAL ESTATE FINANCE 25 (1st ed. 2014).

9. Konrad, *supra* note 6.

10. Chris Dolce, *Louisiana's Historic August Flooding Cost More Than \$8 Billion, Officials Say*, THE WEATHER CHANNEL (Sept. 7, 2016), <https://weather.com/news/weather/news/historic-august-louisiana-flooding-billion-dollar-disaster> [<https://perma.cc/9J6Z-SJ4D>].

11. *AgCenter: Ida Agriculture Damage at Least \$584M in Louisiana*, AP NEWS (Sept. 23, 2021), <https://apnews.com/article/hurricane-ida-business-louisiana-environment-floods-1114aa50c0165154f526c9a12bd081dc> [<https://perma.cc/MT5Q-UR7M>].

infrastructure earned a grade of a “D+” in 2017 from the American Society of Civil Engineers.<sup>12</sup> Substandard infrastructure maintenance inhibits the infrastructure’s effectiveness in decreasing flood risks.

Furthermore, Louisiana ranks second in the nation for the proportion of properties categorized as having a “substantial” flood risk.<sup>13</sup> Approximately 1 in 5 Louisiana properties fall into the category of “substantial”<sup>14</sup> flood risk.<sup>15</sup> By 2050, it is estimated that the number of properties with a substantial flood risk will increase by 70%—which would be about 809,800 properties statewide.<sup>16</sup> Rapid land development contributes to increased flooding as the composition of land changes over time.<sup>17</sup> The majority of Louisiana’s population growth occurs in large cities and suburbs in South Louisiana.<sup>18</sup> As the population grows, neighborhoods and schools will continue to expand at an alarming rate within their communities. For example, the town of Zachary, located north of Baton Rouge, has more than doubled its population since 1980 as people migrate towards the suburbs for better education and housing.<sup>19</sup> Many parishes continue to develop large subdivisions or other commercial developments without adequately addressing and resolving pre-existing infrastructure problems.

Current regulations, including the Louisiana Constitution and Louisiana Revised Statutes section 33:4721–4729, do not provide enough state-level oversight of municipal regulations. The rapid and detrimental development stems from unsupervised local governments. Louisiana’s

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12. AM. SOC’Y OF CIV. ENG’RS, *Report Card for Louisiana Infrastructure*, INFRASTRUCTURE REP. CARD (2017), [https://infrastructurereportcard.org/wp-content/uploads/2021/07/Louisiana-FullReport-LA\\_2017.pdf](https://infrastructurereportcard.org/wp-content/uploads/2021/07/Louisiana-FullReport-LA_2017.pdf) [https://perma.cc/9VP4-5S63].

13. Mark Schleifstein, *Louisiana’s Flood Risk Will Skyrocket Over the Next 30 Years; Here’s Why*, NOLA.COM, [https://www.nola.com/news/environment/article\\_2566fadc-ba5a-11ea-9291-b788cbd90904.html](https://www.nola.com/news/environment/article_2566fadc-ba5a-11ea-9291-b788cbd90904.html) [https://perma.cc/P3DR-224C] (last updated July 4, 2020, 11:09 PM).

14. A substantial flood risk means that the property is likely to experience flooding.

15. Schleifstein, *supra* note 13 (in July 2020, 21.2% of Louisiana’s properties were exposed to substantial flood risk).

16. *Id.*

17. See PRAMIT VERMA, ET. AL., *URBAN ECOLOGY: EMERGING PATTERNS AND SOCIAL-ECOLOGICAL SYSTEMS* 3-16 (2020).

18. Jennifer Larino, *These are Louisiana’s 20 Fastest-growing Cities and Towns*, NOLA.COM, [https://www.nola.com/news/business/article\\_e492d6ac-7a97-5633-88b7-62605a5828d5.html](https://www.nola.com/news/business/article_e492d6ac-7a97-5633-88b7-62605a5828d5.html) [https://perma.cc/G6HW-JATA] (last updated July 22, 2019, 2:43 PM).

19. *Id.*

current flood reduction approach must be addressed and modified in order to implement better flood regulations. The departments and agencies that supervise land development, zoning, and planning are central to the overall flood mitigation within the state and must be better equipped.

The federal government is a key player in managing and improving flooding. The National Flood Insurance Program (NFIP) unintentionally worsened flooding by continuing to allow the development of flood-prone areas for better insurance rates.<sup>20</sup> This was because the NFIP “subsidized the premiums for some of the most flood-prone homes.”<sup>21</sup> The lack of program compliance and proper enforcement procedures contribute to the ever-growing flooding in Louisiana, as well as the rest of the nation. For this and other reasons, the United States’ infrastructure received a “D+” letter grade from the American Society of Civil Engineers—evidencing a dire need for improvement.<sup>22</sup> The federal government must face its own shortcomings to prepare for impending natural disasters.

To combat the increase in flooding, Louisiana's state government must work with local governments to provide better land planning and development. Current land development, zoning, and planning is decentralized, which hinders Louisiana from adequately addressing inundation issues.<sup>23</sup> The federal government must provide funding to specifically address inadequate infrastructure.

As climate change unfolds,<sup>24</sup> the frequency of storms and hurricanes will continue to increase.<sup>25</sup> Heightened global temperatures will lead to an increase in heavy rainfall.<sup>26</sup> As Louisiana recovers from Hurricane Ida’s devastating flooding, the state must engage in more effective planning and

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20. Jeff Turrentine & Brian Palmer, *It’s Time to Fix Our Water-Logged National Flood Insurance Program*, NRDC (July 22, 2022) <https://www.nrdc.org/stories/time-fix-water-logged-national-flood-insurance-program> [<https://perma.cc/WV4Y-45VP>].

21. *Id.*

22. AM. SOC’Y OF CIV. ENG’RS, *America’s Infrastructure Grade, 2017 INFRASTRUCTURE REP. CARD*, <https://2017.infrastructurereportcard.org/americas-grades/> [<https://perma.cc/668F-BYF7>] (last visited Sept. 7, 2022).

23. LA. REV. STAT. § 33:4727 (2022).

24. Climate change is a change in the average weather patterns. *Global Warming vs. Climate Change*, NASA, <https://climate.nasa.gov/resources/global-warming-vs-climate-change/> [<https://perma.cc/5DP4-DF62>] (last visited Sept. 26, 2022).

25. *What Climate Change Means for Louisiana*, EPA (Aug. 2016), <https://19january2017snapshot.epa.gov/sites/production/files/2016-09/documents/climate-change-la.pdf> [<https://perma.cc/6VVM-R7DS>] [hereinafter *Climate Change*].

26. *Id.*

act to decrease flooding.<sup>27</sup> The current regulations allow municipal governments to oversee zoning, planning, and development without considering regional or statewide impacts. These regulations will continue to submerge Louisiana under water, gasping for breath as it attempts to rebuild each time.<sup>28</sup> Even more so, the current federal flood insurance program may help communities *after* flooding, however, it does little to prevent the damage in the first place.<sup>29</sup> Federal programs and funding are crucial components in flooding regulation, and as such, state and local governments are not fully prepared for or willing to repair flooding issues unless the federal government ties federal assistance to program compliance with flood regulations.

The level of authority given to municipalities to determine the manner and location of new infrastructure, as well as the lack of state oversight, will continue to create problems for current residents exposed to flooding. A change in the current development laws, combined with additional funding to correct and improve infrastructure and land development, will help Louisiana stay above water.

Part I of this Comment analyzes the current state of Louisiana's infrastructure. This portion also addresses land development and use, along with examples of recent land development in Louisiana. Part I uses Ascension Parish as an example of how land development and infrastructure issues affect communities at a local level. Part I of this comment also analyzes how flooding occurs, in addition to how and why it has increased in frequency in recent years. This portion focuses on the implications of land development and use and how it contributes to increased flooding in Louisiana and across the southern region of the United States.

Part II of this Comment discusses the current local, state, and national regulations and statutes that mitigate flooding. It requires an in-depth look into the NFIP. Furthermore, this portion highlights current and potential issues with flood insurance and liability for communities.

Part III addresses solutions that change existing land development regulations, as well as the process and oversight for land planning. This solution requires Louisiana to incorporate more state agents, environmentalists, and engineers in assisting local governments in their

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27. Lauren Lee, *Hurricane Ida Recovery is Slow for Louisiana Bayou Communities—and Nonprofits Need Your Help*, CNN, <https://www.cnn.com/2021/12/01/us/hurricane-ida-habitat-recovery-iyw-trnd/index.html> [<https://perma.cc/9P6R-PVMR>] (last updated Dec. 1, 2021, 11:03 AM).

28. LA. REV. STAT. § 33:4727 (2022).

29. See *Flood Insurance*, FEMA, <https://www.fema.gov/flood-insurance> [<https://perma.cc/Q5PR-VXK8>] (last updated Mar. 9, 2022).

land development decisions. Additionally, this solution proposes stricter compliance for communities participating in the NFIP. This Comment also addresses how Louisiana can use funding from the Infrastructure Investment and Jobs Act (IIJA), which was passed by the United States House of Representatives on November 5, 2021, for the proposed solutions.

## I. BACKGROUND

### *A. The Current State of Louisiana's Infrastructure*

In 2012, the American Society of Civil Engineers (ACSE) concluded that “Louisiana’s infrastructure needs immediate attention,” and their 2017 report indicated that the “system has detreated further.”<sup>30</sup> In 2017, the Louisiana section of the ACSE generated a report card for the infrastructure in Louisiana.<sup>31</sup> Overall, the ACSE gave Louisiana’s infrastructure a “D+,” concluding that the infrastructure is “poorly maintained, inadequately funded, and not designed to meet tomorrow’s demands.”<sup>32</sup> Reasons for this grade include, but are not limited to, structurally deficient bridges, coastal erosion, “high-hazard” dams,<sup>33</sup> and stressed roads and levees.<sup>34</sup>

Dams are used to control flooding.<sup>35</sup> Dams retain water in an adjacent basin and reduce flooding by controlling the release or diversion of collected water.<sup>36</sup> By releasing the water at a controlled rate, the instances of “flash flooding” decrease.<sup>37</sup> By controlling the water, dams help protect life and property for city residents. Currently, the overall quality and maintenance of dams in Louisiana do not adequately protect life or property.<sup>38</sup> Some dams only serve recreational purposes and are not used to mitigate flooding.<sup>39</sup> Additionally, 42% of dams are privately owned,

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30. AM. SOC’Y OF CIV. ENG’RS, *supra* note 12.

31. *Id.*

32. *Id.*

33. *Id.* at 24.

34. *Id.* at 38, 48.

35. *How Do Flood Control Structures Work?*, PRAC. ENG’G (Jan. 5, 2021), <https://practical.engineering/blog/2021/1/5/how-do-flood-control-structures-work> [<https://perma.cc/58B5-9M5L>].

36. *Id.*

37. *Severe Weather 101*, NOAA NAT’L SEVERE STORMS LAB’Y, <https://www.nssl.noaa.gov/education/svrwx101/floods/> [<https://perma.cc/9BX6-ZA5A>] (last visited Sept. 26, 2022).

38. AM. SOC’Y OF CIV. ENG’RS, *supra* note 12, at 24–25.

39. *Id.* at 24.



and private owners often lack the necessary funding for dam operations and repairs.<sup>40</sup>

An additional piece of Louisiana infrastructure designed to assist with flooding are levees.<sup>41</sup> The ACSE concluded that the existing levees require better maintenance and improvements to increase storm and flooding resilience.<sup>42</sup> Furthermore, the maintenance and condition of Louisiana's roads in 2017, specifically in regards to drainage, are in worse condition in comparison to 2012.<sup>43</sup> Prior to land development, vegetation, soil, and surface depressions helped to significantly decrease flooding, since the collected water had a place to go.<sup>44</sup> However, as roads and buildings were constructed, the land's capacity to store water depleted.<sup>45</sup> The process of developing land decreases outlets for water because the once untouched parcel of land is replaced with structures that increase water buildup; this causes more rapid overflow of water into ditches and other drainage structures.<sup>46</sup> Even vegetated areas in residential communities, which are planted on thinner soil, contribute to water overflow.<sup>47</sup> To handle the state's rapid land development, Louisiana's overall infrastructure must improve.

### *B. Land Development and Use*

Land development is the process of altering and "improving" land.<sup>48</sup> Developing land interrupts the natural flow of water as impermeable materials block the ground below it.<sup>49</sup> Because water cannot percolate into the ground, it quickly fills and overflows any existing drainage and ditch structures.<sup>50</sup> Rapid urban development combined with poor planning

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40. *Id.* at 25.

41. USAID, *Flood Control Structures: Addressing Climate Change Impacts on Infrastructure: Preparing for Change*, CLIMATELINKS 1 (Nov. 2012), [https://www.climatelinks.org/sites/default/files/asset/document/Infrastructure\\_FloodControlStructures.pdf](https://www.climatelinks.org/sites/default/files/asset/document/Infrastructure_FloodControlStructures.pdf) [<https://perma.cc/CJ8T-BM7N>].

42. AM. SOC'Y OF CIV. ENG'RS, *supra* note 12, at 42.

43. *Id.* at 48–50.

44. Konrad, *supra* note 6.

45. *Id.*

46. *Id.*

47. *Id.*

48. Stacey Haggerson, *Land Development Process*, CENTERPOINT INTEGRATED SOLS. (Nov. 26, 2018), <https://centerpoint-is.com/land-development-process/> [<https://perma.cc/S9N6-2XN5>].

49. *Id.*

50. *How Do Changes in Land Use Impact Water Resources?*, AM. GEOSCIENCES INST., <https://www.americangeosciences.org/critical-issues/faq/>

exacerbates existing infrastructure problems while simultaneously creating new ones.<sup>51</sup>

In addition to creating issues for residents within a community, land development contributes to air and water pollution and biodiversity problems.<sup>52</sup> Developers generally clear trees and existing vegetation from community land before laying out roads and developing plots. Deforestation contributes to an estimated 15–25% of global carbon emissions.<sup>53</sup> This highlights how rapid land development heightens other environmental problems aside from flooding. Urban development has destroyed up to 13% of the total forests in the southern region of the United States.<sup>54</sup> As these forests are demolished, the remaining land is often paved and covered with concrete.<sup>55</sup> In turn, rainwater drainage avenues are reduced, causing water to accumulate and settle for longer periods of time.<sup>56</sup>

Land use refers to the modification and management of land. Examples of land use include industrial, residential, recreational, or commercial use. Depending on its purpose, the land will be subject to certain codal or regulatory provisions. As highlighted below, land use has social and environmental impacts. Land use and land development are interrelated, and both can cause loss of forests or wetlands.<sup>57</sup> This further indicates why land use and development is particularly problematic in Louisiana.

### *1. Land Development and Use in Louisiana*

Louisiana is divided into 64 parishes, each with its own unique and distinct characteristics. Ascension Parish was the second-fastest growing parish in Louisiana between 2010 and 2020.<sup>58</sup> As the parish's population

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how-do-changes-land-use-impact-water-resources [https://perma.cc/4KUL-NTY4] (last visited Aug. 18, 2022).

51. Konrad, *supra* note 6.

52. Blake Hudson, *Land Development: A Super-Wicked Environmental Problem*, 51 ARIZ. ST. L.J. 1123, 1125 (2019).

53. *Id.* at 1129.

54. *Id.*

55. *Id.* at 1145.

56. *Impermeable Surfaces Create a Multitude of Problems for Waterways*, PENNSSTATE EXTENSION, <https://extension.psu.edu/impermeable-surfaces-create-a-multitude-of-problems-for-waterways> [https://perma.cc/Z85N-6A4K] (last updated May 13, 2020).

57. Hudson, *supra* note 52, at 1132–33.

58. David J. Mitchell, *Ascension Growth Focused in Unincorporated East Bank; Donaldsonville Losses Defy Earlier Estimates*, THE ADVOCATE (Aug. 24,

increased, Ascension Parish residents complained of the newly approved subdivision developments due to the lack of infrastructure improvements, including drainage systems to collect and remove water and other substances.<sup>59</sup> Rapid land development, urbanization, and its resulting consequences for communities are a growing problem across many parishes in Louisiana. Furthermore, the Louisiana city experiencing the most rapid development sprawl<sup>60</sup> is Baton Rouge.<sup>61</sup> This continued sprawl not only causes community problems, but also consumes natural resources, such as forests, energy, and agricultural land, at an alarming rate.<sup>62</sup>

As a result of the issues Ascension Parish residents faced from land development and poor infrastructure, a nine-month moratorium went into effect on July 15, 2021, restricting all new construction.<sup>63</sup> Moratoriums occur for reasons such as “environmental risks, building code violations, safety concerns or contractor finances.”<sup>64</sup> New residential or commercial projects were not approved during the moratorium’s ten-month period, which ended in May of 2022.<sup>65</sup> The pressing question is whether the ten-month hold was enough time to address the parish’s impending infrastructure issues, as well as begin implementing solutions to address the parish’s crucial flooding and drainage issues. The need for such solutions is evidenced by the flooding of a recently developed neighborhood in Geismar, Louisiana, which occurred in the summer of 2021.<sup>66</sup> This particular neighborhood was quickly constructed and is one

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2021, 2:00 AM), [https://www.theadvocate.com/baton\\_rouge/news/article\\_32ea78f0-040a-11ec-b87c-eb6737df178d.html](https://www.theadvocate.com/baton_rouge/news/article_32ea78f0-040a-11ec-b87c-eb6737df178d.html) [<https://perma.cc/2PMH-5WRR>].

59. *Id.*

60. Sprawl refers to urban sprawl, which is the spreading of urban developments.

61. Hudson, *supra* note 52, at 1130.

62. *Id.*

63. Zach Labbe, *Moratorium on New Construction Begins in Ascension Parish*, BRPROUD, <https://www.brproud.com/news/local-news/moratorium-on-new-construction-begins-in-ascension-parish/> [<https://perma.cc/995Y-MSHM>] (last updated July 15, 2021, 8:16 AM).

64. *Building Moratorium*, CENTURY 21, <https://www.century21.com/glossary/definition/building-moratorium> [<https://perma.cc/YE8R-69V8>] (last visited Sept. 26, 2022).

65. Labbe, *supra* note 63.

66. David J. Mitchell, *Does Ascension Parish Need Tougher Development Rules? Floods, Traffic Have Some Saying ‘Yes,’* THE ADVOCATE (May 24, 2021, 4:00 AM), [https://www.theadvocate.com/baton\\_rouge/news/article\\_1ff49cf4-ba67-11eb-be77-1fed3f974421.html](https://www.theadvocate.com/baton_rouge/news/article_1ff49cf4-ba67-11eb-be77-1fed3f974421.html) [<https://perma.cc/ND8S-GJ98>].

example of the consequences that rapid land development has had in Ascension Parish.<sup>67</sup>

The Ascension Parish moratorium did not apply to industrial zones and did not stop previously approved construction.<sup>68</sup> Industrial zone exemptions are problematic, since industrial land use is a leading factor in environmental burdens,<sup>69</sup> including water pollution.<sup>70</sup> Resolving flooding and environmental issues is imperative, since air pollution and loss of wildlife habitat occur as stormwater runoff carries toxic chemicals into streams and other bodies of water.<sup>71</sup>

*a. A Look into Fossil Fuels and Its Effect on Land in Louisiana*

While land development in general is a problem for Louisiana, fossil fuel land development in particular creates environmental and energy challenges. As mentioned earlier, land use refers to how land is modified or conserved as it is being used, such as using land for housing, transportation, industrial, and recreational purposes.<sup>72</sup> Land use and land development are closely tied to one another, and their impacts on the environment cannot be avoided.

Louisiana legislators seek to make Louisiana a “fossil fuel sanctuary” in response to President Biden’s new restrictions on oil and gas companies.<sup>73</sup> House Bill number 617 would “prohibit state agencies from enforcing any federal law or regulation that ‘negatively impacts fossil fuel energy in Louisiana.’”<sup>74</sup> This bill was referred to the Committee on Natural Resources and Environment in April 2021.<sup>75</sup> The importance of this legislation ties back to land use and its effects on different communities. As fossil fuels burn, carbon levels rise, decreasing a plant’s

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67. *Id.*

68. Labbe, *supra* note 63.

69. *Id.*

70. JunJie Wu, *Land Use Changes: Economic, Social, and Environmental Impacts*, CHOICES MAG., <https://www.choicesmagazine.org/magazine/article.php?article=49> [<https://perma.cc/N49Y-LLXK>] (last visited Sept. 26, 2022).

71. *Id.*

72. *Land Use: What Are the Trends in Land Use and Their Effects on Human Health and the Environment*, EPA, <https://www.epa.gov/report-environment/land-use> [<https://perma.cc/J7YS-H4WH>] (last updated Sept. 7, 2021).

73. ‘Fossil Fuel Sanctuary State’ Bill Stalls in Louisiana House, AP NEWS (Apr. 28, 2021), <https://apnews.com/article/louisiana-business-government-and-politics-8b77da9356683dd5df1ea9e5891b42f3> [<https://perma.cc/DH9V-NU2H>].

74. *Id.*

75. *Id.*

ability to absorb water from the air.<sup>76</sup> This leads to increased rainfall, which then increases the risk of flooding.<sup>77</sup> This Comment briefly addresses the impacts of commercial and residential land use on flooding; however, other increasingly important types of land use also contribute to flooding, such as land used for alternative energy sources.

While fossil fuel energy is not “clean,” the encouraged primary alternative, solar energy, is also detrimental to Louisiana land and will contribute to increased flooding. Proponents for clean energy require vast amounts of land to build solar farms.<sup>78</sup> There are three variables to consider for solar projects in Louisiana: (1) negotiations with landowners; (2) navigating wetlands; and (3) the regulatory process.<sup>79</sup> Navigating wetlands is crucial since wetlands prevent flooding by storing water and slowly releasing it.<sup>80</sup> While this Comment does not specifically focus on the impact of solar energy land use, it is important to note that there will be some impact, considering solar energy’s rising popularity.<sup>81</sup>

Land modification poses a threat to the surrounding environment. Fields that were once untouched now face increased flood risks as solar farms take over the land and interfere with water drainage.<sup>82</sup> While the oil and natural gas industry is still alive and well, the momentum towards solar energy is one that developers hope to utilize.<sup>83</sup> Energy land usage is not widely viewed as a large concern for flooding in Louisiana. As noted earlier, the moratorium in Ascension Parish restricts commercial and residential land usage—it does nothing to restrict industrial land use.<sup>84</sup> Environmental changes impact the risk of flooding, and the potential

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76. Kristin Strommer, *As Atmospheric Carbon Rises, so Do Rivers, Adding to Flooding*, UNIV. OF OR.: AROUNDTHEO (Oct. 2, 2020, 5:00 AM), <https://around.uoregon.edu/content/atmospheric-carbon-rises-so-do-rivers-adding-flooding> [https://perma.cc/Q7PB-6Y9P].

77. *Id.*

78. Kristen Mosbrucker, *Why These Louisiana Fossil Fuel Land Scouts Are Jumping into the Solar Power Business*, NOLA.COM, [https://www.nola.com/news/business/article\\_940ee9ea-9952-11eb-9247-2b8afece29d8.html](https://www.nola.com/news/business/article_940ee9ea-9952-11eb-9247-2b8afece29d8.html) [https://perma.cc/EM64-N8VQ] (last updated Apr. 9, 2021, 3:53 PM).

79. *Id.*

80. *Wetlands for Citizens & Land Use Decision Makers*, MONROE CNTY., <https://www.monroecounty.gov/files/health/EnvQual/eh-WMWetlandsforCitizens.pdf> [https://perma.cc/57TC-BC27] (last visited Nov. 5, 2022).

81. Mosbrucker, *supra* note 78.

82. *Solar Energy Development Environmental Considerations*, SOLAR ENERGY DEV. PROGRAMMATIC EIS, <https://solareis.anl.gov/guide/environment/> [https://perma.cc/ZSG5-VNGX] (last visited Sept. 26, 2022).

83. Mosbrucker, *supra* note 78.

84. Labbe, *supra* note 63.

takeover of solar farms over unmodified lands will likely do the same. While the threat of damage from solar farms is not yet apparent, current developments and infrastructure in Louisiana already exacerbate the risk of flooding.

*C. Flooding: Why Louisiana Continues to Submerge Under Water*

According to the Environmental Protection Agency, storms and hurricanes have worsened over the past 20 years in Louisiana.<sup>85</sup> Many populated areas in the state are below sea level, rendering these areas more prone to flooding.<sup>86</sup> Even if the frequency of storms and hurricanes decreases, the increase in rainfall alone will contribute to Louisiana's flooding.<sup>87</sup> The frequency and intensity of Atlantic hurricanes are also increasing, thereby causing more severe storm-generated surges and wave heights.<sup>88</sup> In fact, global warming doubles the frequency of Hurricane Katrina-like storms.<sup>89</sup>

Hurricane Katrina, a category five hurricane, resulted in over \$100 billion in damages and claimed 1,833 lives.<sup>90</sup> The aftermath of Katrina changed the lives of thousands, causing not only infrastructural and physical damage, but also damage to the community's health.<sup>91</sup> For example, medical centers became useless when outbreaks of diseases occurred as mold and endotoxin levels rose.<sup>92</sup> The flood water was contaminated with new bacteria that people had never been exposed to.<sup>93</sup> Additionally, the process to fix the standing water that remained in New Orleans was extended since the pumps designed to drain the city broke.<sup>94</sup>

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85. *Climate Change*, *supra* note 25.

86. *Id.*

87. *Id.*

88. Jaelyn Lopez, *From Bail Out to Righting the Course: The Commonsense Action the United States Must Take to Address its Flood Crisis*, 33 TUL. ENVTL. L.J. 1 (2020).

89. *Id.*

90. *Hurricane Katrina*, HISTORY, <https://www.history.com/topics/natural-disasters-and-environment/hurricane-katrina> [<https://perma.cc/DZ26-RZ6L>] (last visited Feb. 7, 2022).

91. Brianna Frank, *The Health Effects of Hurricane Katrina*, TEACH THE EARTH, [https://serc.carleton.edu/NAGTWorkshops/health/case\\_studies/hurricane\\_Katrina.html](https://serc.carleton.edu/NAGTWorkshops/health/case_studies/hurricane_Katrina.html) [<https://perma.cc/CDU6-ZZCQ>] (last modified Aug. 17, 2022).

92. *Id.*

93. *Id.*

94. *Id.*

Repairs were complicated because the pump models at issue were no longer manufactured.<sup>95</sup>

The effects of Hurricane Katrina accentuate the need to address land development and infrastructure issues to help Louisiana combat the increase in flooding. The current statutes and regulations must provide more instruction and clarity for municipalities concerning land development—if Louisiana wishes to stay above water.

Climate-change-induced heavy rains, which have increased substantially over the past 100 years, pose additional threats to flood-prone areas.<sup>96</sup> Major coastal cities in the United States, such as New Orleans and Houston, experienced the detrimental effects of these rains.<sup>97</sup> For example, when Hurricane Harvey struck ground in 2017, more than 60 inches of rain fell within 4 days in some Houston areas,<sup>98</sup> resulting in an estimated \$125 billion in damages.<sup>99</sup> As will be discussed below, cost plays a major role in the urgency to combat the source of flooding issues; the cost to “fix” a community after major flooding far exceeds the cost of putting safeguards and better regulations for land development in place.<sup>100</sup>

Poor drainage construction also contributes to flooding because it leads to a faster rate of water buildup and collection.<sup>101</sup> As such, Louisiana must address the poor drainage issues resulting from defective planning in order to help decrease flooding in the state. The threats caused by the consequences of rapid land development are slowly gaining more attention, resulting in more action within the state. The Mayor-President of East Baton Rouge Parish and the President of Iberville Parish announced a proposal to improve drainage between the border of the two parishes along Bayou Manchac.<sup>102</sup> This collaboration mimics a previous agreement forged between Ascension and East Baton Rouge Parishes.<sup>103</sup>

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95. *Id.*

96. Lopez, *supra* note 88.

97. *Id.*

98. *Id.*

99. Kimberly Amadeo, *Hurricane Harvey Facts, Damage and Costs*, THE BALANCE, [https://www.lamar.edu/\\_files/documents/resilience-recovery/grant/recovery-and-resiliency/hurric2.pdf](https://www.lamar.edu/_files/documents/resilience-recovery/grant/recovery-and-resiliency/hurric2.pdf) [<https://perma.cc/P3Q3-BMCB>] (last updated Jan. 20, 2019).

100. Lopez, *supra* note 88.

101. *Understanding Stormwater Inundation*, NOAA: OFF. FOR COASTAL MGMT., <https://coast.noaa.gov/stormwater-floods/understand/> [<https://perma.cc/3HQY-FBME>] (last modified Feb. 15, 2022).

102. *Mayor Broome and President Ourso Announce Bayou Manach Project*, BRLA (Oct. 12, 2021), <https://www.brla.gov/CivicAlerts.aspx?AID=878> [<https://perma.cc/668S-QCXC>].

103. *Id.*

The Flood of 2016, the result of a slow-moving storm system in the Gulf of Mexico,<sup>104</sup> devastated South Louisiana.<sup>105</sup> Houses, businesses, and road developments over the past decades stress the watersheds of rivers that help drain particular areas.<sup>106</sup> Forests and other vegetation are destroyed and converted into croplands and housing developments, thus impairing absorption of rainwater and increasing storm runoff into the watersheds.<sup>107</sup> As such, many homes and businesses experienced flooding for the first time due to blocked drainage and increased runoff.<sup>108</sup> Infrastructure such as highways and dams exacerbate flood conditions for even “normal” amounts of rain.<sup>109</sup> Land development and existing infrastructure issues magnified the effects of Louisiana’s Flood of 2016.

Hurricanes and heavy rains will continue to affect coastal areas. However, the preparation and preservation of land can mitigate the magnitude of damage that occurs to person and property. Implementing efficient and effective regulations and ordinances for land development and use allows communities to better prepare for such inevitable events.

## II. ANALYSIS- CURRENT STATE AND NATIONAL REGULATIONS TO MITIGATE FLOODING

### *A. Louisiana’s Oversight in Flood Prevention: A Look at the Locals*

The Louisiana Constitution permits local governmental subdivisions to:

- (1) [A]dopt regulations for land use, zoning, and historic preservation, which authority is declared to be a public purpose;
- (2) create commissions and districts to implement those regulations;
- (3) review decisions of any such commission; and
- (4) adopt standards for use, construction, demolition, and modification of areas and structures.<sup>110</sup>

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104. *Historic August 2016, supra* note 7.

105. Edward Richards, *Why Was the Louisiana Flood of August 2016 So Severe?*, LSU L. CENTER: CLIMATE CHANGE L. AND POL’Y PROJECT (Aug. 24, 2016), <https://sites.law.lsu.edu/coast/2016/08/why-was-the-louisiana-flood-of-august-2016-so-severe/> [<https://perma.cc/QU7F-Z8LW>].

106. *Id.*

107. *Id.*

108. *Id.*

109. *Id.*

110. LA. CONST. art. VI, § 17.



Under this provision, local governments also review their own commission's decisions.<sup>111</sup> This creates a substantial conflict of interest within the state, since local governments appear to have wide discretion for planning and construction.<sup>112</sup> While it is not realistic to presume that local governmental bodies have complete authority and control over the regulations they choose to adopt, state officials give significant deference to local government authorities. This raises the issue of how to hold local governments accountable when their decisions fall within internal oversight.

Furthermore, local legislative bodies appoint a board of adjustment, which adopts rules pursuant to Louisiana Revised Statutes sections 33:4721–4729.<sup>113</sup> The rules that the board of adjustment, zoning administrator, or other officials adopt must be approved in writing by the local governing authority—again, this allows for local government bodies to essentially create a system of checks and balances within itself.<sup>114</sup> While it is important for local bodies to be able to self-regulate, limited (or non-existent) state-level intervention allows local bodies to act essentially unsupervised.

Part of the issue with land development and usage is that the economic lure of increasing construction is far too enticing for many developers to avoid.<sup>115</sup> For example, in New Orleans there are markers along the interstate that the city hopes will attract restaurants, hotels, and other commercial developers.<sup>116</sup> While it is unrealistic to suggest that land development stop altogether, the push for land development to cause an economic boost contributes to rapid, poorly planned development of land, which results in more flooding.<sup>117</sup>

Additionally, Louisiana Revised Statutes section 33:4721 states in part that “the governing authority of all municipalities may regulate and restrict the height, number of stories, and size of structures, the percentage of lot that may be occupied, the size of yards, courts, and other open spaces, the density of population, and the location.” In other words, each city or town in Louisiana has the ultimate authority to regulate and restrict land development.<sup>118</sup> This raises issues associated with having individual cities decide, without external consultation or oversight, how to develop the land

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111. *See id.*

112. *See id.*

113. LA. REV. STAT. § 33:4727 (2022).

114. *Id.*

115. Hudson, *supra* note 52, at 1131–32.

116. *Id.* at 1132.

117. *Id.*

118. *See* LA. REV. STAT. § 33:4721 (2022).

within their municipality. These regulations create more problems since the current land development “strategies” insufficiently address flood risks, leaving citizens with degrading infrastructure and growing concerns of flooding.

For example, the city of Baton Rouge has its own building codes and regulations, along with its own planning and zoning code, which gives it the authority to determine how and where land development occurs.<sup>119</sup> Next, consider Prairieville, Zachary, and Brusly—all suburbs of Baton Rouge.<sup>120</sup> The zoning and planning within Baton Rouge can and will affect surrounding suburbs due to urban sprawl and land development which stems from an increasing need for residential living spaces and services.<sup>121</sup> Thus, the zoning and planning of one geographical area impacts surrounding neighbors.

Government at the parish level provides another example of local government authority in motion. In Ascension Parish, in order to build a wall, structure, or building, one must submit a plan of proposed work and materials to obtain a construction permit.<sup>122</sup> The Parish of Ascension Building Department, which is responsible for the administration and enforcement of the parish’s construction codes, grants these construction permits.<sup>123</sup> Judicial review is the primary oversight for any “abuse of discretion, unreasonable exercise of the police power, an excessive use of the power herein granted, or the denial of the right of due process.”<sup>124</sup> This process and setup for land use is not specific to Ascension—most parishes have similar structures for zoning, planning, and construction.<sup>125</sup>

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119. See BATON ROUGE, LA, UNIFIED DEVELOPMENT CODE § 1.1 (2019).

120. *2022 Best Suburbs to Live in the Baton Rouge Area*, NICHE, <https://www.niche.com/places-to-live/search/best-suburbs/m/baton-rouge-metro-area/> [https://perma.cc/2HTQ-5SRW] (last visited Sept. 26, 2022).

121. John Rafferty, *The Problem of Urban Sprawl*, ENCYC. BRITANNICA: SAVING EARTH, <https://www.britannica.com/explore/savingearth/urban-sprawl> [http://perma.cc/2JF3-D2LL] (last visited Sept. 26, 2022).

122. ASCENSION PAR., LA. ch. 6, art. 2, §§ 6-16, 6-22 (1993).

123. *Building Department*, ASCENSION PARISH, <http://www.ascensionparish.net/building-department/> [https://perma.cc/N27H-NUGM] (last visited Sept. 26, 2022).

124. LA. REV. STAT. § 33:4721 (2022).

125. Parishes such as East Baton Rouge Parish, St. Tammany Parish, and Natchitoches Parish have similar arrangements.

### 1. Zoning and Zoning Enforcement

Zoning regulations refer to a set of laws that regulate the use of land for that municipality.<sup>126</sup> Local authorities adopt regulations for land use, zoning, and historic preservation.<sup>127</sup> A zoning commission—which is appointed by the parish’s governing authority—enforces these regulations.<sup>128</sup> The commission “propose[s] to the legislative body of the parish a set of recommendations concerning the boundaries of zones and the regulations and restrictions to be enforced therein.”<sup>129</sup> Once again, local authorities exclusively oversee land use for that municipality, thereby avoiding proper oversight.<sup>130</sup> Common enforcement mechanisms for zoning ordinances include injunctions and private actions by local authorities.<sup>131</sup> The planning and enforcement of zoning ordinances is critical to mitigate flood risks, and as such, must be properly monitored.

### 2. State Involvement: Why the Current Lack of Oversight Has Caused Problems

Notably, land use and regulation are primarily overseen by local governing bodies and not the state. In 1926, the Louisiana State Legislature adopted the Standard State Zoning Enabling Act (SZE), which gave municipalities power to regulate buildings, structures, locations, and the use of buildings.<sup>132</sup> Louisiana intended for zoning to be a comprehensive plan, but when the state adopted the SZE, it did not mandate planning.<sup>133</sup> Furthermore, Louisiana did not require municipal governments to hold public hearings, nor did Louisiana require the reports or recommendations from zoning commissions before they made decisions.<sup>134</sup> This changed when Louisiana adopted the City Planning Enabling Act (CPEA) in 1928, which obligated municipal planning commissions to make and adopt a master plan for the development of the

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126. PETER S. TITLE, *LOUISIANA REAL ESTATE TRANSACTIONS*, § 20:2 (2d ed. 2021).

127. LA. CONST. art. VI, § 17.

128. TITLE, *supra* note 126.

129. *Id.*

130. *Id.*

131. *Id.*

132. Lauren Land, *Brief History of Planning and Zoning in Louisiana*, LA SEA GRANT (2013), <http://www.laseagrant.org/wp-content/uploads/Lafourch-Brief-History-Planning-Zoning-La.pdf> [https://perma.cc/GF99-MJLJ].

133. *Id.*

134. *Id.*

municipality.<sup>135</sup> However, when Louisiana implemented this act, unplanned zoning continued.<sup>136</sup> The CPEA allowed cities to define master planning, but the legislature failed to distinguish between planning and zoning—meaning there were no provisions for flood protection, hazard mitigation, or natural area preservation.<sup>137</sup> As a result, municipalities planned development poorly, or perhaps failed to plan altogether—a key contributor to Louisiana’s poor land development and infrastructure issues. State and local governments lack proper monitoring and regulation of land development. Effective land use and planning requires state and local governments to work together to provide the best regulations and guidelines. To say that the state should have complete and total control is futile, especially considering that Louisiana fails to uphold its own zoning and planning solutions.<sup>138</sup> Undoubtedly, Louisiana’s flawed state regulations contribute to the issue of flooding; however, the federal government also played a part in the current flooding issue.

### *B. Federal Regulation of Flood Prevention*

#### *1. The National Flood Insurance Program*

The National Flood Prevention Act of 1968 provides flood insurance for structures in communities that adopt and enforce an ordinance outlining minimal floodplain management standards.<sup>139</sup> This Act authorized the Director of the Federal Emergency Management Agency (FEMA) to create the NFIP.<sup>140</sup>

The NFIP aims to reduce the impact of floods.<sup>141</sup> NFIP insurance is available to owners, renters, and businesses and is intended to help expedite post-flood recovery.<sup>142</sup> Residential or commercial building owners in high-risk flood areas with mortgages from government-backed lenders must have flood insurance.<sup>143</sup> There are four components to the NFIP: (1) insurance, (2) risk assessment, (3) flood hazard mitigation, and (4) community-level land use and building code requirements.<sup>144</sup> These

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135. *Id.*

136. *Id.*

137. *Id.*

138. *Id.*

139. TITLE, *supra* note 126 at, § 20:18.

140. *Id.*

141. *Flood Insurance, supra* note 29.

142. *Id.*

143. *Id.*

144. *Id.*

components collectively aim to reduce and manage flood risks. There are two primary ways the National Flood Insurance Act sought to prevent future flood damage: (1) provide federally subsidized flood insurance in flood-prone areas; and (2) authorize participating communities to enact zoning ordinances to help prevent future flooding.<sup>145</sup> Somehow, this was intended to reduce federal assistance in flood disaster relief, yet the opposite occurred.<sup>146</sup>

Scholars argue that the NFIP worsened flooding and floodplain development since the insurance policies obscure the risks involved and provide discounted coverage.<sup>147</sup> The purpose of the NFIP was to prevent or limit the land development in flood-prone areas; however, this purpose contradicts the consequences of the program.<sup>148</sup> Jaclyn Lopez, a proponent for protecting imperiled species and ecosystems,<sup>149</sup> urges that the NFIP

encourages building in floodplains by providing insurance policies that private insurers find too risky to write. The less expensive it is to insure a property in floodplain against loss, the stronger the incentive to build in that floodplain and the more risk becomes concentrated in areas covered by the NFIP.<sup>150</sup>

Essentially, the NFIP offers insurance at a lower, more favorable rate, thereby attracting land developers to build in low-lying, lower cost areas. The NFIP has already paid \$68 billion in flood relief payouts to the insureds, thereby leaving the NFIP \$21 billion in debt.<sup>151</sup> FEMA has yet to address how the NFIP increased land development in flood-prone areas, which is likely to worsen.<sup>152</sup> As long as little to no risk of liability exists for developers, development of floodplains will continue due to the lower costs. Prospectively speaking, this will only cause more payouts by the NFIP and continue to attract developers to flood-prone land.

Furthermore, overdevelopment in and around existing floodplains significantly causes flooding. If the federal government seeks to fulfill its

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145. Timothy Kozlowski, *Dams and Levees Are Not Enough: The Case for Recognizing a Cause of Action Against Non-Complying NFIP Communities*, 32 WM. & MARY ENVTL. L. & POL'Y REV. 245, 247 (2007).

146. *Id.* at 248.

147. Lopez, *supra* note 88, at 1.

148. *Id.* at 5.

149. *Meet the Staff*, CTR. FOR BIOLOGICAL DIVERSITY, <https://www.biologicaldiversity.org/about/staff/> [<https://perma.cc/BZ7Z-NS93>] (last visited Sept. 26, 2022).

150. Lopez, *supra* note 88.

151. *Id.* at 5.

152. *Id.* at 20.

purpose in reducing flooding and aiding relief, the NFIP will struggle to achieve this purpose because it rewards developers for building in or around floodplains through its low insurance rates.<sup>153</sup>

Communities must enact zoning regulations to mitigate flood issues;<sup>154</sup> yet, communities have “failed to enact such ordinances to prevent future flood-related damages.”<sup>155</sup> As such, implemented ordinances do not truly aid those affected by the land-development-induced flooding.<sup>156</sup> Instead, states focus on securing aid for those affected by floods on an as-needed basis.<sup>157</sup> This raises the question of whether the NFIP actually achieves its goals. For example, if the state government only focuses on rebuilding, then little is being done to prevent or mitigate future flooding. Rather, state officials will continue to allow development in flood-prone areas and merely work to help rebuild after flooding occurs. The only “consequence” for failing to comply with the NFIP is suspension from the program—which communities may withdraw from at any time.<sup>158</sup> This raises a significant problem with the NFIP: the ineffective enforcement of its own requirements.

*a. Case Law Regarding the NFIP*

The federal government’s inability to enforce its program requirements obstructs the principal purpose of the NFIP.<sup>159</sup> However, the federal government can utilize the judicial system to enforce community compliance, or punish communities for failing to comply with the NFIP’s requirements.<sup>160</sup> Individuals can also bring suit against local governments for breach of duty:<sup>161</sup> the duty to monitor and train NFIP communities.<sup>162</sup> Unfortunately, the likelihood of plaintiff success in such a proceeding is slim.

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153. *Id.* at 6.

154. *Id.* at 49.

155. Kozlowski, *supra* note 145.

156. *Id.*

157. *Id.*

158. *Id.* at 266.

159. *Id.* at 250–51.

160. *Id.* at 253, 255.

161. *Id.* at 248.

162. Elliott Mittler et al., *State Roles and Responsibilities in the National Flood Insurance Program*, AM. INSTS. FOR RSCH. 88 (Oct. 2006), [https://www.fema.gov/sites/default/files/2020-07/fema\\_nfip\\_eval\\_state\\_roles.pdf](https://www.fema.gov/sites/default/files/2020-07/fema_nfip_eval_state_roles.pdf) [<https://perma.cc/D69B-EKWM>].

In *United States v. Parish of St. Bernard*, the federal government's argument in a breach of a contract claim failed in the Fifth Circuit.<sup>163</sup> The parish was not compliant with the NFIP's requirements, and the United States filed suit.<sup>164</sup> However, there was no cause of action explicitly stated in the statute. Thus, the Fifth Circuit held that the language in the NFIP proved that Congress did not intend to provide a cause of action against NFIP-participating communities.<sup>165</sup>

In *Saden v. Kirby*, a group of homeowners sued the New Orleans Sewage and Water Board and Plaquemines Parish for injuries suffered as a result of 12-inches of rain within a 24 hour period.<sup>166</sup> The Louisiana Supreme Court held that this was "an act of God"; however, a defendant can still be liable "for any damages that would not have occurred but for its own conduct or omission."<sup>167</sup> Here, the plaintiffs recovered since the defendants failed to maintain the water pumps properly; however, as seen in *Gabler v. Regent Development Corp.*, recovery is not always granted.<sup>168</sup> In *Gabler*, the plaintiff alleged that the parish negligently approved construction of a subdivision despite the significant risk of flooding in that area.<sup>169</sup> The court held that the heavy rainfall constituted an act of God, meaning the injuries that the plaintiffs suffered were inevitable, regardless of any precautions taken.<sup>170</sup> Inconsistency in holding communities liable for increased flooding will only result in more ineffective planning and careless land development and, subsequently, more flooding. Without accountability for such poor planning, communities are less likely to comply with the NFIP. FEMA now attempts to address these issues due to the concerns associated with NFIP compliance.

*b. FEMA's Updates to the NFIP*

FEMA has updated the rating methodology for insurance rates, naming it "Risk Rating 2.0."<sup>171</sup> Risk Rating 2.0 contains two phases. Phase

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163. See 756 F.2d 1116 (5th Cir. 1985).

164. *Id.*

165. *Id.* at 1121–22.

166. 660 So. 2d 423, 426 (La. 1995).

167. *Id.* at 428.

168. See *Saden*, 660 So. 2d 423; see also *Gabler*, 470 So. 2d 149 (La. Ct. App. 1985).

169. *Gabler*, 470 So. 2d at 150–51.

170. *Id.* at 151.

171. *Risk Rating 2.0: Equity in Action*, FEMA, <https://www.fema.gov/flood-insurance/risk-rating> [<https://perma.cc/2LDN-TV8F>] (last updated Apr. 18, 2022) [hereinafter *Risk Rating 2.0*].

I began on October 1, 2021, which subjected policyholders to new insurance rating methods.<sup>172</sup> Those that have had a decrease in their premiums can immediately take advantage of this new methodology.<sup>173</sup> Due to the methodology of Risk Rating 2.0, policyholders in some areas will see an increase in rates, while other areas will see a decrease in rates.<sup>174</sup> Phase II began on April 1, 2022, subjecting all remaining policies to the new rating method.<sup>175</sup> The primary reasons for these changes are to allow FEMA to set “rates that are fairer and ensure that rate increases and decreases are both equitable.”<sup>176</sup> By making this statement, FEMA suggested that the prior rates did not effectively match the value of the insured properties. FEMA hopes that this new rating methodology addresses rating disparities by analyzing flood risk variables to calculate rates.<sup>177</sup> These variables include “river overflow, storm surge, coastal erosion and heavy rainfall.”<sup>178</sup> FEMA addressed and acknowledged that “policyholders with lower-valued homes are paying more than their share of the risk while policyholders with higher-valued homes pay less than their share of the risk.”<sup>179</sup> This price disparity led some developers to build on land with lower, unjustified insurance premiums considering the flood risk of the area.

In light of these changes, this new risk rating methodology should decrease the incentive for developers to build in flood-prone areas. These changes to the NFIP are new, and its effects are untested. One of the major problems of the historic flood risk program was that the insurance rates for many zones and communities did not reflect the value of the property. FEMA claims this new rating system uses advanced methodologies that better serve its program participants.<sup>180</sup> However, this prompts the question of how the NFIP requirements will be enforced under this new methodology.

Under Risk Rating 2.0, it is not apparent whether Louisiana policyholders will feel pressured by the change in flood insurance rates. The majority of policyholders will experience a difference of only \$10 or less in their insurance rates.<sup>181</sup> Many Louisiana residents worry that they

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172. *Id.*

173. *Id.*

174. *Id.*

175. *Id.*

176. *Id.*

177. *Id.*

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.*



will be forced from their homes if insurance premiums skyrocket.<sup>182</sup> FEMA has attempted to reassure residents that it uses the best methods when calculating insurance premiums; however, FEMA has also acknowledged that they will have to “get [their] feet wet” when implementing this new method.<sup>183</sup> The problem with allowing FEMA to essentially test run the Risk Rating 2.0 system is that it puts Louisianians’ livelihoods at stake.<sup>184</sup>

The NFIP also has a Community Rating System (CRS), a program that encourages community floodplain management to exceed the NFIP’s requirements.<sup>185</sup> For such communities, flood insurance premium rates are discounted in order to reflect the community’s efforts in achieving the program’s goals.<sup>186</sup> The three CRS goals include: (1) reducing and avoiding flood damage to insurable property; (2) strengthening and supporting the insurance aspects of the NFIP; and (3) fostering a comprehensive floodplain management.<sup>187</sup> This program seeks to incentivize participants to adhere to the NFIP’s requirements; however, it does not address consequences for non-compliant communities. Moving forward, it is imperative that state and federal governments take action to address the increased risk of flooding.

### III. SOLUTION: PLANNING FOR THE NOW AND KEEPING LOUISIANA ABOVE WATER

#### A. Keeping the Locals Happy

For the most part, state and local governments are largely responsible for flood planning and prevention.<sup>188</sup> Local residents tend to not respond well to state intervention and are even less enthusiastic about federal intervention. If successful, local intervention could be the most effective and efficient way to resolve these flooding problems. As local awareness increases, the possibility for change shifts from quiet discussions behind closed doors to large community outcries and action. As demonstrated by

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182. Mike Smith, *Flood Insurance Premiums are About to Rise Steeply for Thousands of Louisianians*, THE ADVOCATE (Feb. 5, 2022, 6:00 PM), [https://www.theadvocate.com/baton\\_rouge/news/article\\_695638f4-8608-11ec-bbdf-0f71c130fc68.html](https://www.theadvocate.com/baton_rouge/news/article_695638f4-8608-11ec-bbdf-0f71c130fc68.html) [<https://perma.cc/EG9U-FB7X>].

183. *See id.*

184. *Id.*

185. *Risk Rating 2.0*, *supra* note 171.

186. *Id.*

187. *Id.*

188. Kozlowski, *supra* note 145, at 250–51.

the residents of Ascension Parish, communities are tired and frustrated by their homes experiencing damage as they watch new neighborhoods and other developments expand throughout their community.<sup>189</sup>

Local governments are better equipped for enforcing proper zoning and planning regulations because they have more manpower and oversight to implement such regulatory actions. In contrast, with 64 parishes that have multiple municipalities within each parish, the state government would quickly become overwhelmed trying to oversee proper zoning and planning in these communities. Each parish is unique and has its own needs.<sup>190</sup> Attempting to implement uniform, comprehensive, and statewide regulations that every municipality must adhere to would be impractical and would inadequately address the needs of individual communities. Local officials would likely resist the change and state intrusion if they feel they have no say in the decision-making process.

For this reason, a “one-size-fits-all” approach would not effectively fix the problems at hand.<sup>191</sup> Instead, Louisiana should set stricter regulations and increase involvement in the decision-making process, while allowing some flexibility for local governments to tailor the regulations to their communities’ specific needs. This is best accomplished by setting minimum standards and practices, as well as conducting a more comprehensive review of zoning. More state-level involvement is necessary because the current regulations allow almost 100% self-governance for these municipalities.<sup>192</sup> State involvement entails appointing state officials to oversee municipal plans for land development, as well as reviewing the factors that the municipalities have considered. The current methods would not be an issue if local governments sufficiently addressed the problems at hand. Unfortunately, money and politics overshadow the needs of the community, resulting in a never-ending cycle of municipal self-policing. State-level regulation and enforcement will ensure municipality compliance while still allowing local zoning and planning authority.

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189. *Id.* at 268.

190. *Id.*

191. *Id.*

192. *See* LA. REV. STAT. § 33:4721 (2022).

### *B. How the State Can Help*

One state that strengthened its involvement over local authorities is Oregon.<sup>193</sup> Oregon implemented a policy named Goal 7, comprised of four parts and multiple guidelines:

- (1) Natural Hazard Planning—Local governments must adopt comprehensive plans that reduce risk to people and property from natural hazards;
- (2) New Hazard Information—The state’s Department of Land Conservation and Development (DCLD) must consult with state and local representatives and review hazard information provided by federal and state agencies . . .
- (3) Implementation—On receiving such notice [regarding hazard information], local governments must evaluate the new information in terms of risk to people and property and, after public comment and further evaluation, incorporate such information into their comprehensive plans and implementing measures in accordance with certain risk management principles;
- (4) Coordination—Finally state agencies must coordinate their disaster management programs with those of local governments with information and technical assistance.<sup>194</sup>

Oregon’s policy is not perfect due to the lack of sufficient definitions.<sup>195</sup> For example, defining what a “comprehensive plan” is would aid local representatives in conducting their planning and development. Like Oregon, Louisiana’s current regulations left a majority of the decision-making to local governments and failed to provide clear directions for local authorities.

The importance of state-level involvement cannot be overlooked, and state officials must respond expeditiously to the state’s current flooding issues. One way to achieve this response is by establishing multiple state offices throughout the state with licensed professionals that consult municipalities about their land use, zoning, and planning regulations. This would entail a thorough review of the municipality’s regulations, as well as recommending courses of action to proceed with. Delaware’s “Task

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193. Edward J. Sullivan, *Pay Me Now or Pay Me (Much More) Later: The Practice of Avoidance in Planning for Catastrophic Events*, 43 ZONING AND PLAN. L. REP. 2, pg. 4 (2020).

194. *Id.*

195. *Id.*

Force”<sup>196</sup> found that several floodplain managers came from backgrounds unrelated to floodplain management—some of which worked only part-time.<sup>197</sup> Essentially, the task force members in charge of managing floodplains were under-qualified. This same issue occurred in Louisiana.<sup>198</sup> Engineers and environmental scientists are equipped with the specific knowledge and training required to make decisions regarding land development; thus, the best place to implement this change would be in local zoning and planning commissions. In order to make sure that local commissions do not cause issues for other communities, having an additional regional task force of engineers and environmental scientists would provide more oversight.

*1. The Behind the Scenes of Zoning and Planning in Ascension*

Consequently, the focus shifts towards local governments creating and managing zoning and planning regulations for municipalities. This may cause a problem, as many of these officials are appointed or elected and might hold their position for political or self-serving reasons, rather than for the safety of the community. Instead of certified, licensed professionals—such as engineers—in charge of zoning, planning, and enforcement of regulations, laypeople are appointed to these positions. For example, none of the six members of the Ascension Parish Zoning Commission—appointed by a Parish Council Panel—come from scientific backgrounds.<sup>199</sup> This commission was under scrutiny several times in the past for its poor land development decisions.<sup>200</sup> The residents complained that the growth and development within the parish occurred too quickly.<sup>201</sup> In response, Ascension Parish attempted to correct the flooding and drainage caused by rapid land development through its moratorium. This

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196. This task force is formally named the Delaware River Basin Interstate Flood Mitigation Task Force, and it holds the duty of recommending approaches to reduce flood damage. *Floodplain Regulations*, DEL. RIVER BASIN COMM’N, <https://www.state.nj.us/drbc/programs/flood/floodplainregs.html> [<https://perma.cc/PXD9-GG8E>] (last modified May 28, 2021). This Task Force handles the states of Delaware, New Jersey, New York, and Pennsylvania. *Id.*

197. Kozlowski, *supra* note 145, at 252.

198. *Id.* at 252–53.

199. David J. Mitchell, *Ascension Planning Chair Reappointed, Two Others Named After Revote by Key Review Panel*, THE ADVOCATE (Apr. 6, 2021, 2:15 AM), [https://www.theadvocate.com/baton\\_rouge/news/article\\_248d99f2-9490-11eb-b7f0-23c67be4b023.html](https://www.theadvocate.com/baton_rouge/news/article_248d99f2-9490-11eb-b7f0-23c67be4b023.html) [<https://perma.cc/8HYD-4Q49>].

200. *Id.*

201. *Id.*

highlights the problem of local governing bodies completely facilitating their own zoning and planning regulations without supervision or oversight. In order to prevent this from happening in the future, Louisiana must use state officials to oversee the decisions of these local municipalities.

Due to the inadequate backgrounds of zoning commission members, state regulations should require zoning commissions to appoint at least one environmental scientist and one engineer to the commission. This would help ensure that decisions made regarding land development are not selfishly decided or poorly planned. To properly and efficiently fix the flooding issue, Louisiana must jump ahead of the problem—instead of waiting for disaster to strike—by hiring competent commission members to plan effectively for these disasters. The federal government will be able to aid in this goal through the NFIP.

### *C. Correcting the National Flood Insurance Program*

The primary issue scholars identified with the NFIP was the lack of authority to enforce its regulations.<sup>202</sup> The only method of enforcement currently available is suspension from the program, which has not incentivized participating communities to comply.<sup>203</sup> As discussed above, courts cannot force compliance, since this raises constitutional property issues.<sup>204</sup> Furthermore, the Third and Fifth Circuits are currently split on the issue of forced compliance.<sup>205</sup> As it stands, the United States would have to prove that the flooding resulted from failure to comply with the regulations or a breach of contract and not from an “act of God.”<sup>206</sup> This burden will prove increasingly difficult to overcome as heavy rainfall and severe storms increase in frequency due to climate change.

To overcome this issue, the program must be amended to allow the United States to have a cause of action for breach of contract.<sup>207</sup> Additionally, officials would be able impose hefty fines for refusing to comply with the regulations within a specified time period when a community is suspended from the program. To combat voluntary withdrawal when the community fails to comply and avoid the hefty fine imposed, the program can further amend its laws to require a withdrawal fee if it finds the withdrawal results from an attempt to avoid non-

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202. Kozlowski, *supra* note 145, at 266.

203. *Id.*

204. U.S. CONST. amend. V.

205. Kozlowski, *supra* note 145, at 249.

206. *Id.* at 263.

207. *Id.* at 259.

compliance fees. This would require an inquiry as to the intent of the withdrawal, as well as a response from the community detailing the purpose of the withdrawal. Mitigating flood risks in flood prone areas hinges on compliance with the requirements of the NFIP. The NFIP lists several mandatory requirements that communities must adhere to if they are participating in the program.<sup>208</sup> FEMA lists several requirements for its participants, including:

(1) Requir[ing] permits for all proposed construction or other development in the community . . . (2) Review[ing] proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State law . . . (3) Review[ing] all permit applications to determine whether proposed building sites will be reasonably safe from flooding . . . [and] (4) Review[ing] subdivision proposals and other proposed new development.<sup>209</sup>

One issue that arises with implementing the suggested amendments to the program is the fragility of the situation at hand. When a person's home or business is flooded, a lifetime worth of belongings and memories may be lost, which may be beyond monetary value. While it is important to remain sensitive to these factors, in order to enforce rules on the participating communities, the federal government must be swift, strict, and stern when enforcing these regulations. This will likely result in a greater need for state involvement, as the federal government would likely become overwhelmed and struggle to oversee all participating communities. For example, during Hurricane Harvey, there were not enough emergency workers to aid the suffering communities.<sup>210</sup> This inadequate preparation highlighted the lack of resources and downfalls of the federal government in this area.

Notably, the federal government lacks necessary knowledge regarding the specific needs of different communities across the country.<sup>211</sup> To

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208. *Appendix E: NFIP Regulations*, FEMA pg. E-11-13, [https://www.fema.gov/pdf/floodplain/nfip\\_sg\\_appendix\\_e.pdf](https://www.fema.gov/pdf/floodplain/nfip_sg_appendix_e.pdf) [<https://perma.cc/5PZM-Z9YK>] (last visited Nov. 25, 2022).

209. *Risk Rating 2.0*, *supra* note 171.

210. Thomas Frank, *Why the U.S. Disaster Agency is Not Ready for Catastrophes*, SCI. AM. (Aug. 20, 2019), <https://www.scientificamerican.com/article/why-the-u-s-disaster-agency-is-not-ready-for-catastrophes/> [<https://perma.cc/ZRL6-QPUF>].

211. Chris Edwards, *Why the Federal Government Fails*, 777 CATO INST. 2 (July 27, 2015), <https://www.cato.org/sites/cato.org/files/pubs/pdf/pa777.pdf> [<https://perma.cc/JW63-TH48>].

expect or require such knowledge of the federal government is unrealistic. The federal government is vast, and its power to authorize and control different programming continues to expand. However, legislators and administrators are already overloaded by the current programs they have created.<sup>212</sup> Therefore, resolving the issue of land-development-induced flooding cannot—and should not—be solely left to the federal government. The federal government must work with state governments in order to carry out its duties fully and efficiently. In light of this, federal programs must lay a clear foundation outlining the expectations, purposes, and proper enforcement procedures of the NFIP. This is a critical issue to tackle, since taxpayer dollars fund these programs. As such, these taxpayers deserve to see the program's benefits properly conducted and carried out. The key to combating land development's effect on flooding is for all three levels of government to work together to hold themselves and the communities accountable.

In further consideration, the United States will remain in debt as it continues to payout billions of dollars in insurance to help rebuild, with some of this aid going to non-complying communities.

*D. Improving the Current Infrastructure: The Infrastructure Investment and Jobs Act*

Improving infrastructure is necessary to prevent disastrous flooding.<sup>213</sup> While land development contributes to the increase in flooding, the problematic infrastructure in Louisiana and across the country increases the chances of flooding as the climate continues to change.<sup>214</sup> In order to repair the infrastructure within the state, there should be a mixture of “gray” and “green” infrastructure.<sup>215</sup> Gray infrastructure, a “human engineered solution,” includes dams, floodwalls, and levees.<sup>216</sup> Investing in these structures is important to mitigate flooding by controlling the flow of water. Poor structures do little to protect citizens from horrendous damage. On the other hand, green infrastructure involves tree plantings, permeable pavement, and restoring wetlands.<sup>217</sup> With the help of the federal government, Louisiana should score better on its report

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212. *Id.* at 1.

213. Marina Dauer, *Facing Floods with Infrastructure*, WHARTON UNIV. OF PA. (May 12, 2020), <https://riskcenter.wharton.upenn.edu/studentclimaterisk/solutions/facingfloodswithininfrastructure/> [<https://perma.cc/WE5R-ACAM>].

214. *Id.*

215. *Id.*

216. *Id.*

217. *Id.*

card by investing in and improving its poorly maintained levees and dams.<sup>218</sup>

The Infrastructure Investment and Jobs Act (IIJA), a federal bill signed by President Joe Biden on November 14, 2021, can help improve these structures.<sup>219</sup> This bipartisan bill is worth \$1.2 trillion dollars, and Louisiana will receive almost \$6 billion.<sup>220</sup> The IIJA aims to provide Flood Mitigation Assistance grants for projects eliminating or reducing flood damages to NFIP-insured buildings.<sup>221</sup> Additionally, some of this funding will be used for the National Oceanic Atmospheric Administration to provide coastal resiliency against flooding by expanding natural ecosystems, “removing potentially hazardous coastal structures,” and “buffering shorelines from erosion.”<sup>222</sup> Investments in gray and green infrastructure will help Louisiana and other states shield themselves from some of the effects of climate change.<sup>223</sup>

With guidance from the federal government, Louisiana and its local governments must pinpoint areas of distress within the state that historically struggled with flooding or are currently battling rising waters. Improving the infrastructure within the state requires the cooperation of all three levels of government in order to fix inadequate highways, bridges, dams, and levees.<sup>224</sup> The state needs this funding, and local and state officials must allocate and spend it wisely.

#### CONCLUSION

The time has long since passed for Louisiana to change and implement stronger and more impactful zoning and planning regulations to combat land development-induced flooding. Many factors, such as climate

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218. AM. SOC’Y OF CIV. ENG’RS, *supra* note 12, at 24, 38.

219. *Infrastructure Investment and Jobs Act of 2021*, BALLOTPEdia, [https://ballotpedia.org/Infrastructure\\_Investment\\_and\\_Jobs\\_Act\\_of\\_2021](https://ballotpedia.org/Infrastructure_Investment_and_Jobs_Act_of_2021) [<https://perma.cc/M3QU-TQCU>] (last visited Sept. 26, 2022).

220. *La. Set to Receive Nearly \$6B from Infrastructure Investment and Jobs Act*, WAFB (Nov. 6, 2021, 8:06 AM), <https://www.wafb.com/2021/11/06/louisiana-receive-nearly-6-billion-infrastructure-investment-jobs-act/> [<https://perma.cc/W3HG-6VMB>].

221. *Infrastructure Investment & Jobs Act*, BILL CASSIDY, M.D., <https://www.cassidy.senate.gov/infrastructure-investment-and-jobs-act> [<https://perma.cc/5C5X-KZW9>] (last visited Sept. 26, 2022).

222. *Id.*

223. Marina Dauer, *Facing Floods with Infrastructure*, WHARTON UNIV. OF PA. (May 12, 2020), <https://riskcenter.wharton.upenn.edu/studentclimaterisk/solutions/facingfloodswithininfrastructure/> [<https://perma.cc/WE5R-ACAM>].

224. AM. SOC’Y OF CIV. ENG’RS, *supra* note 12, at 8, 24, 38, 48.



change, contribute to flooding. Additionally, the effect of land use—particularly use dedicated to for fossil fuels—on flooding is a pertinent issue that urgently needs to be addressed.<sup>225</sup> Requiring all land development to stop for an excessive length of time is unreasonable as the population continues to grow, and developers attempt to meet the needs of these communities. However, reckless planning and construction will only cause more damage to current residents and communities, which will eventually lead to problems for new residents.

To realistically address the needs of the community, local, state, and federal governments must implement new regulations to provide local governments with effective oversight. Placing state-level officials within local communities ensures that the necessary precautions to mitigate flooding are practiced. Additionally, state officials must become more involved in monitoring the effectiveness of the current infrastructure to prevent the state from playing “catch up” when disaster strikes. The IJA will help Louisiana improve the inadequate structures currently in place. More importantly, this bill allows for better flood mitigation as the coast, roads, levees, and drainage systems improve. Equally as important, the federal government must regulate and monitor NFIP participants to ensure the participants comply. The continuance of unsupervised zoning and planning within municipalities will force the state and federal governments to spend endless amounts of money on flood damage. Furthermore, the federal government must be allowed to enforce the program’s requirements and issuing hefty penalties should encourage compliance. The lives and properties of Louisianians are at stake, and it is up to each level of government to work together to keep Louisiana afloat.

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225. Lopez, *supra* note 88, at 4.