ACKNOWLEDGMENTS

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Workshop report developed by:

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INTRODUCTION

Louisiana is no stranger to flooding. Its flood history is not only carved into the landscape but also can be found in its culture, historic development patterns, and architecture. Over thousands of years, much of the state’s land was built as the Mississippi River and its distributaries overflowed their banks and deposited sediment. In 1927, Louisiana was inundated by a record flood that fundamentally changed the state’s relationship with the Mississippi River and the very functions and responsibilities of the federal government. In 2005, Hurricane Katrina devastated the City of New Orleans, demonstrating Louisianans’ vulnerability to extreme flood events, the importance of natural systems for mitigating flood events, and the need to change the way all levels of government prepare for and respond to natural disasters. In 2016, storms in March and August resulted in flooding that inundated more than 158,000 homes across many inland areas of the state, marking another inflection point for how Louisiana manages its land and water. In between these major disasters were several other flood events, large and small.

Despite Louisianans’ familiarity with floods, the two 2016 storm events were a sobering wake-up call to the state’s vulnerability. The total economic losses are estimated at $10 billion. More than 80 percent of the homes damaged did not have flood insurance. Whether these were homes inside or outside of the FEMA designated floodplain or required to have insurance is a moot point: insuring against risk is a fundamental principle of resilience. Without insurance, people are limited in how quickly they can recover from a flood event, which in turn limits a community’s economic recovery, impacts the return to normalcy, strains social networks, and increases dependence on social services.

Floods will continue to happen, but damage and loss can be greatly decreased. However, as demonstrated by the 2016 floods, Louisiana has some work to do.

Reducing losses and increasing the resilience of Louisiana communities will require unprecedented coordination and collaboration across local and state governments for floodplain management, economic development, and land use practices. In response, Governor John Bel Edwards issued an executive order in 2018 to establish the Council on Watershed Management composed of representatives from the Louisiana Office of Community Development (OCD), Coastal Protection and Restoration Authority (CRPA), Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP), Louisiana Department of Transportation and Development (DOTD), and Louisiana Department of Wildlife and Fisheries (LDWF). The Council is charged with developing and implementing a statewide floodplain management program, the Louisiana Watershed Initiative. This program will base its recommendations on watershed boundaries rather than the political and jurisdictional boundaries of past efforts. The goal is to facilitate how local, state, and federal jurisdictions implement regional, long-term strategies to effectively reduce Louisiana’s vulnerability to flooding.

The connection among watershed management, community planning, and environmental change has long been established and has an extensive body of research as its foundation. However, effective watershed management is dependent on local context, both the biophysical characteristics of the landscape and the sociopolitical arena in which it must be implemented. The same guiding principles and best practices for watershed management can take very different forms in different places. To help stimulate discussion and inform the development of a statewide watershed management program, the Office of Community Development sponsored a Regional Watershed Management workshop at the 2018 Louisiana Smart Growth Summit.
The workshop’s objective was to engage the diverse expertise of Louisiana Smart Growth Summit participants to discuss two central questions regarding Louisiana’s watershed management challenge.

- **How and when do you coordinate across political boundaries within a watershed?** Not all actions are equal. Determining which actions will have an impact beyond traditional political or jurisdictional boundaries can be difficult. The impacts of large projects may be obvious, but a series of smaller decisions that add up to have a large impact can be harder to identify.

- **How do you ensure equity in watershed management?** Watershed management decisions have implications for entire communities. Ensuring they do not disproportionately impact one group over another, especially marginalized communities or those enduring the legacy effects of past decisions, is critical for an effective, equitable regional watershed management approach.

The first part of the workshop featured brief presentations from state and national experts to introduce the science and practice of watershed management. The presentations included an example of how Iowa established a comprehensive watershed management approach, highlighted early efforts in Louisiana to coordinate cross-boundary watershed governance, and shared some best practices for building and development with respect to watershed management.

The workshop’s second part was a session with breakout groups. In groups of eight, approximately 80 participants discussed and answered the workshop’s central questions. Experts in attendance included landscape architects, planners, engineers, floodplain managers, disaster recovery experts, environmental scientists, attorneys, and academics. The workshop’s central questions highlighted some of Louisiana’s watershed management challenges and sought to inform guiding principles for the state’s watershed management with an explicit focus on equity.
Mr. Pat Forbes serves as the Louisiana Office of Community Development’s Executive Director and oversees the state’s Community Development Block Grant programs funded by the U.S. Department of Housing and Urban Development (HUD). Mr. Forbes’ oversight includes housing, economic development, infrastructure, and planning programs for recovery from Hurricanes Katrina, Rita, Gustav, Ike, and Isaac as well as the 2016 floods. Previously, Mr. Forbes managed the Louisiana Recovery Authority’s infrastructure section and, before Hurricane Katrina, served as an engineer in the Governor’s Office of Coastal Activities. Prior to his state service, Mr. Forbes worked as a consulting environmental engineer, owned and operated his own company, and worked at Georgia-Pacific’s Port Hudson paper mill. He earned a bachelor’s degree in Mechanical Engineering and a master’s degree in Business Administration from Louisiana State University.

Dr. Larry Weber is the Executive Associate Dean for the College of Engineering at the University of Iowa. In this position, he serves as the Chief Operating Officer for the college, with administrative responsibility for the research, teaching, and service programs of the college and its associated centers and institutes. From 2004 – 2017, Dr. Weber served as the Director of IIHR–Hydroscience and Engineering. He co-founded the Iowa Flood Center in 2009 and the Iowa Nutrient Research Center—an Iowa Regents Center located at Iowa State University—in 2013. Additionally, he was called upon by state leadership to head the transition of the Iowa Geological Survey from the Iowa Department of Natural Resources to the University of Iowa. Using his expertise in drought to flood swings and surface water and ground water processes, he has developed strong research, educational, and service programs throughout Iowa to better understand and manage issues of water quantity and water quality. He served as the principle investigator of an $8.8 million grant that demonstrated the value of this watershed approach, leading to a $96.9 million grant recently awarded to the state of Iowa by HUD’s National Disaster Resilience Competition. The Iowa’s Watershed Approach has established Iowa as a national leader in watershed resilience.

Ms. Monique Boulet is the Chief Administrative Officer of the Acadiana Planning Commission (APC), which serves Louisiana Planning District 4. In 2015, she was instrumental in creating APC, an organization that facilitates intergovernmental cooperation on a regional basis and pools local government resources to help Acadiana address common problems. Working through numerous legal and political hurdles, Ms. Boulet led the effort to regionalize transportation planning in the Lafayette urbanized area with the formation of the Acadiana Metropolitan Planning Organization. Following the 2016 Louisiana floods, APC was the Louisiana Watershed Resiliency Study’s pilot region. Ms. Boulet helped to develop what watershed planning could look like in Acadiana and worked closely with state and federal agencies, including the Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers (USACE), U.S. Economic Development Administration (EDA), Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP), Coastal Protection and Restoration Authority (CPRA), Louisiana Office of Community Development (OCD), and Louisiana Department of Transportation and Development (DOTD). Following the pilot program, she lead APC in developing a watershed project selection process, disbursing the first Hazard Mitigation Grant Program (HMGP) regional allotment of $25 million prioritized to address drainage issues. Ms. Boulet and APC continue to develop long-term, sustainable watershed programming.
Ms. Boulet was selected by the National Association of Development Organizations (NADO) to participate in the 2016 Training Program for Emerging Leaders—sponsored by the EDA—which offered regional economic development leaders the chance to travel and train together. Prior to working in regional government, she worked in the private sector helping to build a start-up oil field service company and specialized in strategic and business planning. She began her career as an executive in advertising and promotion agencies in Lafayette, LA and Houston, TX. In 2015, Ms. Boulet received her Master of Business Administration degree from the University of Louisiana at Lafayette’s Executive MBA Program.

**Ms. Janet Tharp** is the Director of Planning at the Center for Planning Excellence (CPEX) in Baton Rouge. Ms. Tharp has more than 30 years of planning experience, specializing in project management, comprehensive and special district planning, ordinance drafting, implementation, public outreach, and values research. She has practiced in both the public and private sectors, has experience directing large and mid-sized city planning departments, and served as a project manager for the East Baton Rouge Parish Comprehensive Plan. She has prepared comprehensive and special area plans as well as development ordinances throughout the country. When working with Louisiana communities and parishes, Ms. Tharp focuses on understanding residents’ and stakeholders’ values, needs, and goals and incorporating them into the community’s planning efforts. She has led planning efforts in the City of Gonzales as well as in Lafourche, East Feliciana, West Feliciana, and Pointe Coupee Parishes. She has prepared ordinance amendments in East Baton Rouge and Vernon Parishes and for the City of Gonzales. For the City of Dallas, she recently managed a citywide Complete Streets initiative and worked on a neighborhood and housing plan. Ms. Tharp serves as a smart growth instructor for the National Association of Realtors and teaches classes throughout the US.
Mr. Forbes gave a brief presentation, beginning with an introduction to the Louisiana Watershed Initiative. Led by the five state agencies on the Council on Watershed Management, the Initiative is in the early stages of developing parameters and guidelines for a statewide watershed management program. He stressed the importance of getting feedback on the effort from diverse groups of stakeholders and highlighted the ongoing Technical Workshops and Listening Tour, which made stops throughout Louisiana to discuss watershed-related topics.

Mr. Forbes noted one of the major challenges of watershed management is reconciling the various jurisdictional boundaries of authority and decision-making with watershed boundaries. For the Louisiana Watershed Initiative to succeed, there needs to be an alignment of existing programs, policies, and practices across these jurisdictional boundaries to achieve the mission of moving the state towards watershed-based floodplain management. Throughout the state, communities and decision makers must have a common foundation from which to operate, including access to data, planning capacity, and enforceable statewide standards.
Dr. Weber’s presentation started with a brief overview of the events that precipitated the Iowa Watershed Approach’s development. At the time, the Iowa Floods of 2008 were considered the sixth-largest FEMA disaster declaration in US history. The floods revealed a clear need for a comprehensive understanding of Iowa’s flood risk. Dr. Weber, with a colleague, founded the Iowa Flood Center to address this need. The Iowa Flood Center’s goals are to:

- provide accurate, science-based information to help Iowans better understand flood risks;
- develop hydrologic models for physically-based frequency estimates and real-time flood forecasting;
- establish community programs to improve flood monitoring;
- develop strategies to mitigate and prevent future flood damage; and
- develop Iowa’s workforce in flood-related fields.

In 2010, the Iowa Flood Center received a grant from HUD for a five-year project, the Iowa Watershed Project (IWP), designed to mitigate flood risk in hydrologic units, specifically four HUC 8 Iowa watersheds. Working with newly established Watershed Management Authorities (WMAs), the two phases of the project included a comprehensive hydrologic assessment (Phase 1) and the construction of demonstration projects and monitoring networks (Phase 2). At the project’s conclusion in 2016, three HUC 12 sub-watersheds were selected for construction and implementation of demonstration projects, which included more than 150 water management features.

The project’s success led to Iowa receiving a $96.9 million award through HUD’s National Disaster Resilience Competition to develop the Iowa Watershed Approach. Building on the framework of the IWP, the Iowa Watershed Approach established WMAs in additional Iowa watersheds and tasked them with creating watershed plans that identify potential projects and prioritize water management efforts. Hydrologic assessments were developed for each watershed, and monitoring networks were deployed. Based on the hydrologic assessments and watershed plans, project coordinators and volunteer landowners work to implement projects that reduce the magnitude of downstream flooding and improve water quality. Project benefits are assessed based on monitoring and modeling data.

The Iowa Watershed Approach goals

- Reduce flood risk
- Improve water quality
- Increase resilience
- Engage stakeholders through collaboration and outreach/education
- Improve quality of life and health, especially for vulnerable populations
- Develop a program that is replicable throughout the Midwest and the United States

**Iowa Watershed Approach goals**
Dr. Weber shared several insights into Iowa’s watershed management efforts that have implications for Louisiana.

**First, watershed planning efforts throughout the state need a common foundation from which to start.** This foundation should be data and modeling. Good plans and good decisions require good data. Each WMA should have access to the same datasets and accurate hydrologic models. Iowa has established real-time networks that monitor both water quantity and quality. This enables prioritization of water management needs and allows for active learning as implemented projects are evaluated and improved upon.

**Second, it is important for local jurisdictions to buy in to the process.** To form a Watershed Management Authority in Iowa, the group responsible for the developing a watershed plan, two jurisdictions in a watershed had to agree to work together. Once the WMA was formed, other jurisdictions opted to join rather than lose out on a seat at the table. With funding for projects tied to the watershed planning process, local jurisdictions were compelled to collaborate and coordinate beyond their own political boundaries to develop plans that achieved the best result for the larger watershed.

**Third, what the group is named matters.** Dr. Weber pointed out that the name Watershed Management Authority is a bit of a misnomer. The WMAs have no real authority; they are planning groups. The use of the word “authority” can discourage support because it can be associated with more regulations and bigger government. It also does not convey the WMAs’ collaborative nature. This may seem like a small point, but public perception and public support are critical to the longevity and success of effective watershed management. Dr. Weber suggested a better name would be “Water Management Coalitions.”

**Finally, the scale of coordination does not have to be the same for evaluation.** WMAs in Iowa were established at the larger, HUC 8-watershed level. However, the monitoring and evaluation for implemented projects were performed at the smaller, HUC 12-watershed level. There are a few benefits to doing this. First, it breaks the watershed management challenge into smaller, more manageable pieces from both planning and strategy perspectives. Second, acquiring the funding needed for successful projects at the smaller watershed level is viewed as more reasonable. Third, the effectiveness of the projects at the HUC 12 level can be significant (e.g., a 20 percent reduction in peak flood flows) and can help build support for additional efforts.
Ms. Boulet began her presentation with a powerful and important statistic: in the August 2016 floods, 73 percent of flood-damaged structures in the Bayou Teche, Vermilion, and Mermentau HUC 8 watersheds had less than one foot of water in them. The take-home message was clear: small improvements in stormwater management can go a long way to reducing damages and disruptions of lives and livelihoods. These improvements can be most effective and cost-effective through a coordinated effort across jurisdictions within the watershed.

Guided by the Acadiana Planning Commission, the region is leading the way in Louisiana for crossing political boundaries and viewing watershed management as a shared challenge. The commission’s board of directors is made up of the presidents from seven parishes, the University of Louisiana at Lafayette, and One Acadiana (formerly the Greater Lafayette Chamber of Commerce). After the 2016 floods, the region’s leaders recognized that the scale of the flood mitigation challenge was bigger than any single political jurisdiction. They agreed to pool their hazard mitigation funds and develop a comprehensive approach to mitigating flood risk in the region.

The Acadiana Planning Commission Board of Directors is made up of the presidents from the seven parishes that make up Louisiana Planning District 4, The University of Louisiana at Lafayette, and One Acadiana (formerly the Greater Lafayette Chamber of Commerce)
Ms. Boulet discussed the areas of focus for the ongoing shared capacity building efforts in the Acadiana region.

- Regional watershed and resiliency planning requires engaging and cultivating government officials and local government agencies in a collaborative effort.
- Increase the local use of hydrologic and hydraulic modeling in day-to-day decision-making by tapping into regional expertise. This can be leveraged by establishing partnerships with local universities.
- Develop data collection and monitoring capabilities that are critical for maintaining and improving flood models and ultimately can inform policy development.
- Outreach and engagement should be a call to action that helps develop regional stakeholder involvement and support. Stakeholder involvement should raise public awareness of the challenges the region faces and educate stakeholders on the relationship between the built environment and flood risk.

- Develop support for mitigation strategies, especially for green infrastructure development and implementation.
- Align efforts with ongoing programs, such as the National Flood Insurance Program’s Community Rating System, in order to minimize duplicative work and maximize risk reduction and cost-effectiveness.

Ms. Boulet concluded her remarks by exploring some questions that have yet to be answered or should be revisited as the watershed management program is developed and implemented.

The overarching question is, What does watershed governance look like? Will authority come from the region, the watershed, or the state? How will we pay for collaboration and implementation? What do mitigation dollars look like in the future?

Coalitions and partnerships are very important, but they need to get to the next steps of setting up a governance structure and getting buy-in from stakeholders.

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**Stakeholders for Resilience and Sustainability:**

**Stakeholder Entities**

- Elected officials and governments
- Government agencies
- Regional hydraulic and hydrology expertise
- The built community-education and cultivation
- General public education

**Representative Examples**

- Federal/State partners
- City/Parish administrators
- Local planning and zoning
- Planning departments
- Public Works departments
- Local engineers- public and private
- University resources
- Developers
- REALTORS
- Home builders
- Property owners
- Commercial business owners
- Attorneys
- Utility companies
- Architects

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Acadiana Planning Commission
Ms. Tharp’s presentation focused on development, the built environment, and implications for watershed management. She stressed the need to consider the impacts of how and where we build. When the issue is raised for higher standards that limit how and where we can build, there is often pushback, claiming the cost of compliance is too high. However, she argues, we are already paying that cost. Forty percent of the flood losses in Gulf Coast parishes and counties between 1999 and 2009 occurred outside of the FEMA-designated 100-year floodplain, and eighty percent of the homes in the 2016 Louisiana floods did not have flood insurance.

Then, using Cuyahoga County, Ohio as an example, Ms. Tharp highlighted that historic development patterns have resulted in sprawling development as well as high infrastructure and maintenance costs. These circumstances strain municipal/county budgets and reduce the amount of available dollars for community needs, such as mitigation activities important for watershed management. Further, although federal dollars can be used for the construction of new facilities to serve new developments, the maintenance and operations costs fall on local residents. Many current development patterns ensure that infrastructure maintenance costs will increase, including stormwater management infrastructure. Development patterns that prioritize land conservation and implement low-impact development techniques can help mitigate flood risk and the overall cost of living. In many areas, prevailing attitudes show a preference for spread-out development. However, national trends show an increasing demand for more compact housing, with the expectation that the US will have an oversupply of large-lot housing in the future. It is important to recognize the true cost of development and the potential for broader impacts locally and throughout the watershed. Planning for and implementing more compact and mixed-use development will have long-term impacts on watershed management practices.
The strategies exist to address these development issues, but there is a need for more coordination and a wider approach is needed to implement them. At this time, few places have the tools to do it. Using Ascension Parish as an example, Ms. Tharp highlighted how guiding land use can result in significant improvements over the long term, as opposed to letting development go unguided. Expected to grow by 55,000 people by 2042, Ascension Parish has a chance to prepare for future water management issues. By guiding development, the same number of people can be accommodated using 11,000 fewer developed acres than if current development trends continue. This would entail approximately 2,500 fewer acres of impervious surfaces and less infrastructure to build and maintain.

Ms. Tharp offered three guiding principles to incorporate into watershed management efforts:

1. **Start at the community level.** Engage stakeholders of all types. At a minimum, outreach and engagement should incorporate a representative sample of the entire community. Engagement with the community is necessary for understanding what a community values, what challenges it currently faces, what the people’s vision for the future is, and how to shift development patterns while respecting community values. This establishes a foundation on which future plans, such as those necessary for regional watershed management, should be based.

2. **Incorporate stormwater management in public investments.** Public right-of-way, parks, and other public land and buildings make up a large portion of a city’s footprint, providing opportunities to address stormwater management needs as infrastructure and public amenities are upgraded or maintained. This serves the dual purpose of addressing stormwater management needs as well as...
showing private developers and property owners that the city is willing to follow the same higher standards that may be imposed on them. Examples include incorporating green practices into roadway development and planning for shared detention areas through public/private partnerships. Shared detention areas can provide more comprehensive area-wide water management while also serving as a community park and open space amenity.

3. Set clear, consistent, and transparent standards.
Throughout Louisiana, there is an acknowledged need for coordination and a wider approach to mitigate flood risk, but few places have the necessary tools to do it. Setting clear, consistent, and transparent standards creates a well-organized toolbox for addressing stormwater management issues.
The workshop component consisted of 10 breakout groups of six to eight people who worked through two predetermined questions and discussed watershed management challenges. Each group had a designated facilitator tasked to ensure multiple viewpoints were heard and to encourage deeper thinking on the issues. Workshop presenters joined the groups to lend their expertise to table discussions. All groups considered and discussed Question 1 (below). For Question 2, each group was assigned one of five different circumstances for watershed management in which equity should be a concern in decision-making.

**QUESTION 1: How and when do we coordinate across political boundaries within a watershed?**

- Are there triggers for taking such action?
- Are there different governance structures needed for different regions?

Workshop participants agreed that it is necessary to coordinate across political boundaries within a watershed. Several groups stated there should always be coordination across political boundaries and that coordination should start immediately. Another group offered a bit more nuance to their answer, stating that coordination should occur any time jurisdictions are sharing resources (e.g., waterways, groundwater, and transportation systems) and when conducting data collection related to watershed management. One group highlighted that after a disaster isn’t a good time to start a coordination effort, and proactive coordination is necessary because significant time and effort are required to plan watershed management and long-term resilience building. Beneficial coordination could also be built through operational plans tied to large federal projects, which provide opportunities to leverage resources and encourage cooperative efforts.

The question of how to coordinate across political boundaries elicited a broader range of answers. Two groups identified data collection and sharing as a foundation to help build coordination. Several groups recommended that zoning should guide development within watersheds, using each watershed’s characteristics to create zoning delineations. This led to a discussion about how zoning based on watershed characteristics could reveal a community’s watershed management challenges and provide an opportunity to inform and educate stakeholders about these issues. There was also discussion on the importance of coordinating policies across political jurisdictions, with policies set at the state level serving as a baseline watershed management standard for all Louisiana communities. A few groups focused on incentivizing desired watershed management behaviors through policies that encourage economic development, multipurpose projects, equity-based standards, or adoption of designs that slow the movement of water.

Regarding potential triggers to initiate coordination across jurisdictions, a few groups noted that, while not ideal, disasters and emergency declarations are often triggers and have eventual funding associated with them. Other triggers include studies that show new development impacts and indicate increasing risk and impacts over time. The rising cost of insurance was also cited as a trigger for changing behavior and decisions. A final group noted that even if a trigger is identified, there is often red tape to work through before coordinated actions can be taken, especially after disasters.

In consideration of what the governance structure of regional watershed management should look like in Louisiana, most groups focused on existing organizations that could be responsible for watershed management, such as regional planning commissions, metropolitan
planning organizations, water management districts, and drainage districts. While the question of who would be responsible provided a variety of answers, there was consensus that the state should avoid setting up any kind of new, single-purpose organization and instead increase planning capacity statewide. Watershed management groups could be formed with existing groups to encourage the communication and coordination necessary for a successful watershed management program. Active participation in these watershed management groups could be incentivized through state-level policies that require pre-disaster planning and other resilience building measures as necessary prerequisites for the funding of local projects.

**QUESTION 2: How do we ensure equity in watershed management?**

The five focus areas listed below for equity in watershed management were identified before the workshop. Each group was assigned to discuss one of the five focus areas. The following discussion summarizes points that emerged as groups worked through the questions.

I. Managing the Urban-Rural Divide

To ensure equity when managing the urban-rural divide in watershed management, there is a need to support the community’s voice and carry it throughout the process. Community-level outreach is necessary to understand local needs and values. Community voices, needs, and values must be considered to address any conflicts large projects and investments may bring. The trade-offs of any development project or mitigation strategy should be presented to residents with transparency. During the decision-making process for a watershed management program, the information used must be science-based, accessible, and readily available to all members of the community. At a basic level, the urban-rural divide needs to be acknowledged, which includes differences among services, infrastructure needs, and regulations. In the end, one question stood out: Who is responsible for managing the urban-rural divide?

II. Balancing Human and Ecological Needs of Land

To balance the human and ecological needs of the land, including ecosystem services and natural amenities, data must be available that helps decision makers and stakeholders understand the complex relationships between the built and natural environment. Further, at the community level, there needs to be an identification of what good natural and human systems look like to establish targets for watershed management to work towards or preserve. Some policy decisions will have to be made at the state level, and incentives for implementing those directives should be offered at the local level. Again, there was a stated need for the clear communication of trade-offs for any development project or mitigation/restoration strategy. When weighing trade-offs, special attention should be given to historically marginalized groups to avoid unintended consequences and disparate impacts from watershed management efforts.

III. Incorporating Housing and Economic Development into Floodplain Management

When incorporating housing and economic development into floodplain management, decisions must be data-driven and account for impacts to local communities and the environment. This requires the political will to acknowledge flood risk before development occurs. To manage these circumstances, parishes and municipalities could mandate that risk be considered before development is permitted or institute watershed impact fees by development type and risk level. Such policies can provide feedback that incentivizes what participants referred to as “good” development and disincentivizes “bad” development. Participants also called for the promotion of watershed projects that incorporate multiple uses or purposes, such as a transportation project that incorporates restoration and water management.
IV. Practical Approaches to Addressing Existing Housing Stock in the Context of Increased Standards for New Development

Increased standards for new development can address future flood risk, but there is a need to address flood risk for existing housing stock as well. Even new development that meets higher standards can have adverse effects on the flood risk of existing housing. Participants pointed out that strategies for existing housing stock ranges from the practical to the impractical. For example, home elevations can cost more than a home’s market value or more than a home’s complete rebuild. However, state and federal programs limit the use of mitigation funds to elevation only. A novel approach to funding mitigation was suggested: earmarking a percentage of property tax towards the future mitigation costs of the home. Building elevated homes or elevating existing homes were the most common strategies suggested. However, participants stressed the need for local input in design not only because a community may have unique needs that aren’t apparent to a designer, but also because elevation has implications for accessibility and community character. Participants also voiced support for a moratorium on fill and slab-on-grade homes in the 100-year floodplain with a few participants in favor of expanding the moratorium in the 500-year floodplain.

V. Reducing the High Impacts of Flood Events on Lower-Income Residents

For the final focus area, participants were asked how to reduce high impacts of flood events on lower-income residents. Participants suggested a data-driven vulnerability analysis to prioritize mitigation strategies for the most vulnerable populations. These mitigation strategies should include buy-out or buy-in programs that can help lower-income residents relocate to low-risk areas with better economic opportunities. The flip side of this approach is to establish stronger regulations to prevent bad development practices from increasing risk in lower-income areas. To ensure the impacts to lower-income communities are considered in watershed management, there should be a concerted effort to encourage residents to participate in watershed planning activities as well as to identify and engage the communities’ key stakeholders in the planning process, especially when redevelopment is occurring. In short, participants stressed a need to ensure these communities have a seat at the table.
EMERGENT THEMES

The Importance of Good, Readily Available and Immediately Usable Data

The most common theme throughout the workshop was the importance of good data that can be used to make informed decisions. Much of this data already exists but is not consolidated into a common clearinghouse, is geographically limited in scope, and is not in user-friendly formats. Statewide datasets that require minimal analysis to understand or processing to use are necessary for decision makers to refer to and act on. Dr. Weber showed Iowa’s statewide, real-time water quality and quantity data platform, demonstrating what such a system could look like. A similar platform in Louisiana would increase local understanding of watershed management needs and their capacity to address those needs.

Trade Offs

Watershed management is a complex challenge that requires consideration of the environment, society, and economy. Management decisions will affect each of these systems and produce trade-offs. A clear understanding by local communities of the trade-offs inherent in these decisions is necessary to garner the support needed for successful watershed management.

Mix of State-Level Regulations/Standards and Local-Level Decision-Making

Participants called for a mix of statewide standards and local-level decision-making. Statewide standards establish a baseline for local watershed management decisions. Local-level decision-making maintains the flexibility to determine how the community meets those standards. Statewide standards also minimize the chance that one jurisdiction’s best efforts are not undermined by a neighboring jurisdiction with lower standards.

Finally, statewide standards remove the political liability of establishing higher standards from local officials.

Local Input and Participation in the Planning Process

Local involvement in watershed management decisions was repeatedly held up as a means to ensure decisions are locally relevant and have the support of the community. Local involvement increases the transparency of the decision-making process, facilitates learning and knowledge sharing, and encourages buy-in to the process. Importantly, local stakeholder participation enables equity to be at the forefront of decisions and helps mitigate unintended consequences on vulnerable and marginalized populations.