



LOUISIANA  
**WATERSHED**  
INITIATIVE

working together for sustainability and resilience

# A LONG-TERM VISION FOR STATEWIDE SUSTAINABILITY AND RESILIENCE



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# INTRODUCTION

In March and August of 2016, Louisiana experienced two historic rain events that produced trillions of gallons of rainwater and impacted 56 of Louisiana's 64 parishes. The resulting floodwaters impacted more than 145,000 rental and owner-occupied homes across the state, according to FEMA verified loss data, and caused more than \$10 billion in damage with recovery efforts that remain ongoing more than two years later.

These devastating events exposed key deficiencies in Louisiana's approach to floodplain management and community planning across all levels of government. Areas that were once considered to have low flood risks were devastated in 2016. While this flooding can be attributed to any number of causes, none are acceptable to Louisiana residents who rely on various government agencies that exist to manage risk to their homes and businesses, develop effective solutions that protect the state's unique cultures, and improve quality of life.

The state is moving to address these weaknesses through the establishment of the Louisiana Watershed Initiative, and it is critical for communities and their residents to understand the long-term nature of solutions that must be put into place. While there are projects that can and should be undertaken to provide short-term relief – provided that funding is available – the reality is that proper flood risk management requires a coordinated, coherent and long-term vision for sustainability and resilience. Put simply, Louisiana can no longer afford to rely on a siloed approach to managing projects, plans and policies separate and apart from each other.

The efforts of Gov. John Bel Edwards and the Council on Watershed Management represent proactive leadership on this critical issue. The state is committed to solving watershed management collaboratively with cities, parishes, federal agencies, research and nonprofit organizations, universities and private-sector partners, with an emphasis that the status quo is simply no longer an option. Water flows downhill and does not recognize political or arbitrary boundaries; thus, it must be managed, and associated risks mitigated, in a manner that takes this behavior into account.

Decisions made and actions taken in one jurisdiction can have a downstream impact on the shape of other floodplains – expanding or contracting the risk of flooding in other areas. Such decisions or actions can impact the speed and volume of floodwater movement, which, in turn, exacerbates flood risks in existing floodplains. Any shifts to the natural and beneficial functions of floodplains, including even those that support water quality, habitat condition, and economic vitality, present potentially devastating challenges if not properly mitigated. At the same time, practices across varying levels of government are largely uncoordinated and may be inconsistent with resilience best practices, preventing the utilization of comprehensive floodplain management approaches to address drainage issues as land is developed. Furthermore, there are limits associated with existing authorities and responsibilities at the state level while local political forces often impact the ability of parishes or jurisdictions to make difficult decisions that may result in long-term success but short-term costs.

Considering the degree to which communities within a watershed are hydraulically and hydrologically connected, decisions regarding land use, policy, and infrastructure must now be coordinated, made, and implemented at the watershed level if flood risk is to be effectively managed. This interdependence is the reason why the Louisiana Watershed Initiative exists, and it is why a corresponding long-term vision to guide such an effort is critical to managing, mitigating and adapting to future flood risk.

## STATE-LEVEL WATERSHED PLANNING SUMMARY EFFORTS / 2016-2018

2014

- CPRA investigates the alignment of flood protection authorities with watershed boundaries as part of its response to Louisiana Senate Resolution 39

2016

- March and August: 145,000 homes damaged by flooding events
- Gov. Edwards directs state agencies to coordinate programs and efforts toward future flood risk mitigation
- CPRA develops Flood Risk and Resilience Program framework
- Following the 2016 floods, state agencies begin to facilitate the development of watershed coalitions, driven by the Louisiana Resilient Recovery Initiative that included parish government entities, OCD, GOHSEP and FEMA

2017

- OCD and DOTD begin to develop a hydraulic and hydrologic model of the Amite Watershed
- Cooperating agencies begin Phase I of a process to develop a statewide watershed-based floodplain management program

2018

- Gov. Edwards issues EO JBE18-16 creating the Council on Watershed Management comprising the Office of Community Development, Coastal Protection and Restoration Authority, Governor's Office of Homeland Security and Emergency Preparedness, Department of Transportation and Development, and the Department of Wildlife and Fisheries
- Cooperating agencies release a multi-phased plan, early actions, and initial Louisiana Watershed Initiative program framework to conduct watershed-based floodplain management

## BACKGROUND

In recognition of these challenges, Gov. Edwards initiated a process shortly after the 2016 floods that called for an unprecedented change in the State of Louisiana’s approach to floodplain management that would be forward-thinking, coordinated and comprehensive. In response, various state agencies began collaborating on a framework to advance the initiative with support from the Legislature.

Passed during the 2017 Regular Legislative Session, Senate Resolution 172 (SR172) directed state agencies to “provide recommendations to establish, implement, and enforce floodplain management plans for each watershed in Louisiana.” This resolution helped to reinforce the efforts that had already been initiated by state agencies to assess the feasibility of establishing a coordinated, statewide model for watershed-based floodplain management and identify the most appropriate path forward to implementing such a model. In May 2018, Gov. Edwards issued an executive order (EO JBE18-16) that further defined this level of interagency collaboration. The order established the Council on Watershed Management to oversee and coordinate Louisiana’s progress toward a statewide vision for sustainability and resilience. In issuing this executive order, Gov. Edwards highlighted the ongoing work in the Acadiana region through the Acadiana Planning Commission as a model for how local elected leaders in Louisiana are taking measures to put aside political boundaries, realizing that the whole is greater than the sum of its parts, and working toward a collaborative, cohesive approach to mitigating flood risk at a watershed level.

The state agencies that comprise this Council on Watershed Management are in the process of launching the Louisiana Watershed Initiative, a statewide, watershed-based floodplain management program. To date, significant work has taken place in establishing a coordinated approach to flood risk mitigation for floodplain across all governmental levels, including a process to synchronize local and statewide outreach and engagement, data management, policy development, technical assistance and master planning.

# PROGRAM OVERVIEW

Early elements of this process were informed by dozens of interviews with local jurisdictions, parish presidents, state legislators, federal agency representatives, national subject matter experts, state floodplain managers and others. Additional research and planning that occurred through early investigations reinforced and refined insights from these early stakeholder discussions, with key findings that include:

- Ecosystem services maximized through the natural and beneficial functions of the floodplain and effective flood risk management go hand in hand.
- The root of all wise decision-making is accurate, complete, transparent and accessible data.
- Communities and local government entities need to be empowered and supported in meeting the demands of Louisiana's changing flood risk context.
- The state should set the bar for sound flood risk management across Louisiana.
- Sustainable sources of funding are needed to implement and maintain sound flood risk management practices across the state, and existing sources can be stretched and leveraged more efficiently if put toward a common goal.
- Engagement, trust building and partnership toward collective action are necessary to maximize program effectiveness.

Experts, officials, and key stakeholders across Louisiana have already begun incorporating the results of these early investigations into Louisiana Watershed Initiative efforts, particularly through proactive coordination and collaboration of existing state programs. Meanwhile, much more work is taking place defining data needs, conceptualizing watershed models, developing strategic initiatives such as the placement of river gauges and assessing local capabilities to implement flood-risk reduction projects. Most critically, these activities have been initiated in accordance with a set of long-term outcomes established to guide all program efforts in the coming years.

# LONG-TERM RESILIENCE OUTCOMES

The Council on Watershed Management has established six strategic areas, based on Phase I investigation efforts, to guide planning, projects, and policies toward long-term intended outcomes. These are:

- **Data.** Relevant, living models and data in each watershed that are used for land use, policy decision-making, and project evaluation.
- **Engagement.** Stakeholders from all sectors and corners of the state have contributed and bought into the program and its outcomes.
- **Standards.** Jurisdictions across Louisiana demonstrate leadership in understanding and developing standards that are in alignment with state objectives, while the State of Louisiana demonstrates leadership by adopting these regulations and adhering to them before asking watershed, parish or municipalities to do so.
- **Funding.** Sustainable funding sources for each watershed to meet near and long-term project and maintenance needs, and for the State to maintain support and leadership capability.
- **Capability and Capacity.** Watersheds and their jurisdictions and the State have the resources, staff, skills, and tools necessary to effectively reduce flood risk to the existing built environment and limit risk through future development, redevelopment and project implementation.
- **Integrated Planning.** Each watershed has a plan that was developed by its member parishes, is aligned with the state plan and vice versa, and the state plan is supported by existing programs and state agencies.

While these are long-term strategies, the Council recognizes that immediate actions must be taken to demonstrate forward-looking progress to residents while working toward reduced flood risk and increased resilience across the state. As such, a number of initiatives are already underway represented by the strategic investments in statewide flood risk reduction that follow.



# PROGRAM GOVERNANCE AND COORDINATION

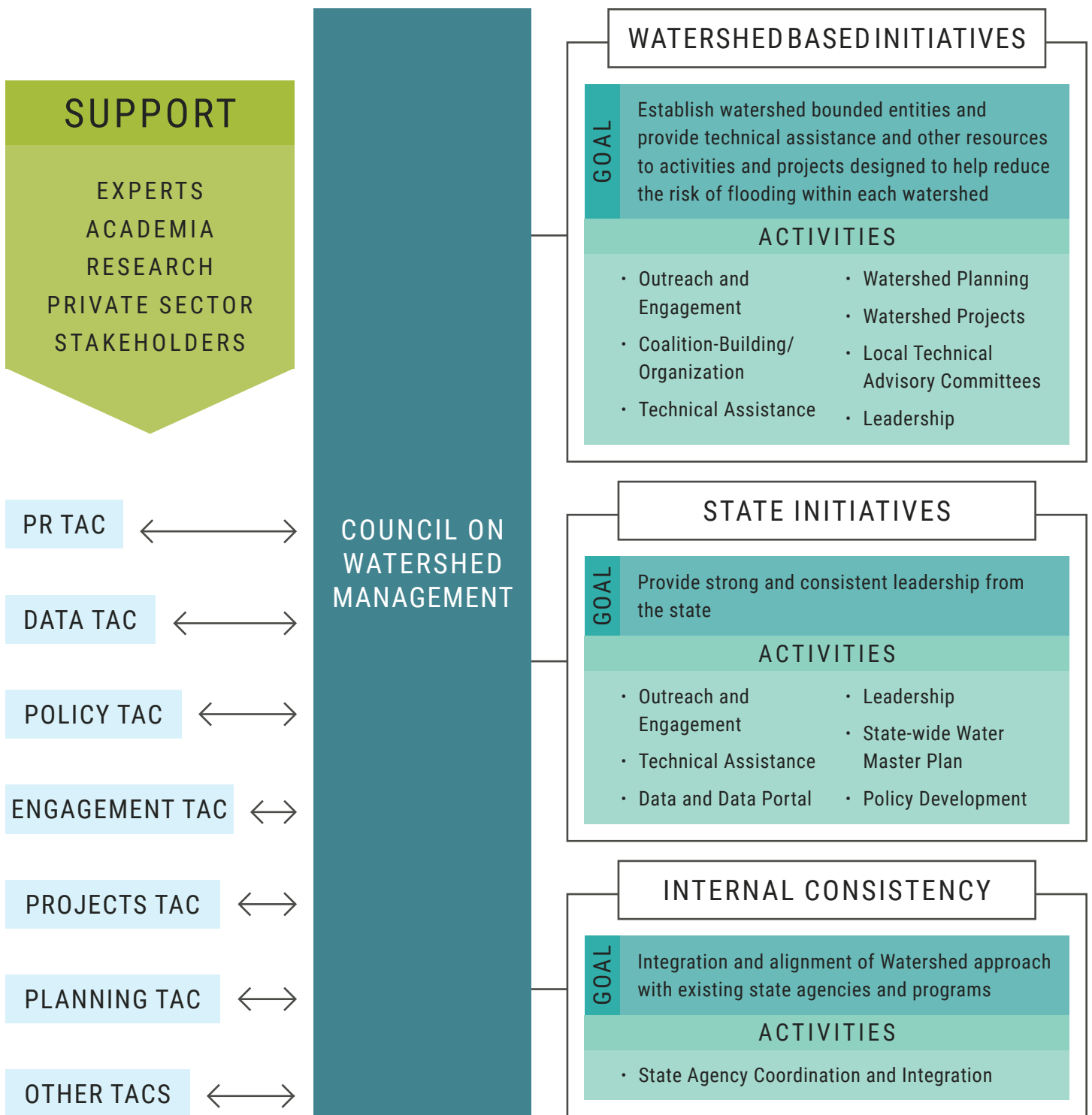
In the issuance of EO JBE18-16, Gov. Edwards provided clear direction to those named agencies and stakeholders that the status quo of floodplain management in Louisiana would no longer be an option – where responsibility and authority of state agencies is unclear, coordination around related state-managed programs is poorly defined and local jurisdictions are lacking in guidance and leadership – sending a similarly distinct message to Louisiana residents. The Council on Watershed Management is tasked with the ongoing development and implementation of this statewide, watershed-based floodplain management program with 10 corresponding goals outlined within EO JBE18-16 under which all initiatives will be structured and coordinated.

The Council's efforts and initiatives are integrally supported by subject matter experts who have been identified and charged with supporting Council initiatives through technical advisory committees, or TACs (see **Figure 1**). Each TAC is responsible for ensuring the Council operates with the best available information when making decisions that relate to statewide floodplain management efforts and seeking input from stakeholders across the state. The Council believes it is of paramount importance to build transparency into this decision-making process. Furthermore, subject matter experts from academia, researchers, private sector partners, and other key stakeholders across and in some cases external to Louisiana provide support to these TACs, collectively ensuring each operates with the necessary expertise and perspectives needed to make sound recommendations to the Council.

Most critically, local jurisdictions and interests will soon be serving key roles in the formation and evolution of each of these TACs, particularly through statewide organizations such as the Louisiana Municipal Association, Louisiana Police Jury Association, and Association of Levee Boards of Louisiana; regional organizations such as planning and development districts; and municipalities and parishes through direct agency or Council engagement.

Collectively, dozens of experts are contributing to actions that will be taken by the Council impacting millions of Louisiana residents, ensuring that objective science, best practices, and industry expertise are constants across all such decisions.

**FIGURE 1 - COUNCIL ON WATERSHED MANAGEMENT COORDINATION MODEL**



# STRATEGIC INVESTMENTS IN STATEWIDE FLOOD RISK REDUCTION

This long-term strategic approach to flood risk reduction is a clear pivot from business as usual in Louisiana. Rather than immediately injecting capital into local projects or jurisdictions in an often uncoordinated manner, the Council on Watershed Management is focused on empowering local jurisdictions and communities to implement regional, long-term solutions that follow watershed boundaries and can cross local political boundaries. This involves the delineation of programmatic, policy and coordination strategies into four areas, beginning with those initiatives that represent high benefit, low risk actions.

## 1 - WATERSHED MONITORING, MAPPING, AND MODELING

- Topography, bathymetry, and surveys of river crossing
- River gauges
- Hydraulic and hydrologic watershed models
- Data platform and portal
- Other data required to understand and address flood risk

In order to effectively reduce flood risk through decision making and project implementation, particularly when considering locally feasible strategies for pre- and post-disaster planning and flood recovery, it is critical to understand the manner in which water behaves and the interconnectivity within and between watersheds. This level of understanding is achieved through intricate hydraulic and hydrologic, or “H&H,” watershed models. When combined with statewide data and modeling performance standards, these models provide a clear picture of the relative conditions within each watershed, and they inform policy and land use decisions by allowing decision makers to compare the ability of alternative solutions to reduce risk.

Two key inputs are needed to develop and validate H&H models, the first of which involves TopoBathy, or integrated topographic and bathymetric, and river crossing data. Topographic and bathymetric data has only been procured in select areas of the state that have been able to afford it, and the datasets reside with a variety of local, state or federal agencies. Additionally, river crossings frequently serve as chokepoints for a waterway, resulting in flood water backing up behind the crossing. Moving forward, the Council has identified the need to perform gap analyses to determine the date and quality of existing TopoBathy datasets while working toward gathering such data for the rest of the state in a reliable and consistent manner.

The second is river gauge data. The U.S. Geological Survey maintains the backbone of a statewide monitoring network of major waterways. However, there are critical areas in the network that remain unmonitored. State agencies have begun working with USGS to perform a gap analysis in determining strategic locations across the state for new gauges.

Since data is at the heart of all decision making, effective sharing and coordination of data is integral to making effective decisions on behalf of disparate stakeholders and communities. Currently, Louisiana flood related datasets are held by numerous local, state and federal agencies. Recognizing these siloes and/or outdated or unavailable data in certain instances, the Council has begun developing a central data portal that will support public access to all flood-related information in Louisiana. The portal will provide data and information on modeling, best practices and state-level standards, and training and development modules to help communities use the information in making decisions at a local or jurisdictional level.

## 2 - COST SHARE ASSISTANCE AND COORDINATION

- Hazard Mitigation Grant Program (HMGP) cost sharing
- Underfunded HMGP project requests
- Cost sharing for other eligible programs

Communities affected by the 2016 floods have already procured and vetted projects that will increase their resilience to flooding. The U.S. Federal Emergency Management Agency, via the Governor's Office of Homeland Security and Emergency Preparedness, provides funding through the Hazard Mitigation Grant Program (HMGP) for qualifying projects. However, local entities end up responsible for 25 percent of the cost – an obstacle that can be insurmountable for many communities.

The Council has begun analyzing where cost-sharing gaps may exist for key flood risk reduction and resilience projects and is developing a strategy to support their implementation, provided the projects meet certain criteria for providing a regional flood mitigation benefit.

## 3 - WATERSHED-BASED PROGRAMS AND PROJECTS

- Planning, policy, technical assistance and capacity building
- Watershed improvements and waterway restoration
- Strategic land acquisition and flood easements
- Economic development

The Council recognizes that communities across the state will need help increasing their capacity to plan for and manage water regionally. Through the coordinated approach to flood risk mitigation offered by the Council and affiliated technical advisory committees, the state will work to provide technical assistance, capacity building and project funding to communities on a watershed basis.

The state's investigation into floodplain management activities showed that many communities and/or regional planning organizations do not have experience related to watershed-specific issues such as regional stormwater detention, floodplain policy development, flood protection, or waterway maintenance, which can destroy natural waterway functions and create other negative impacts. Therefore, those entities need appropriate education, training, skill building and technical assistance in order to effectively implement improvements at a watershed level, use new tools and implement related methods to support decision making.

This kind of capacity building is already taking place in coordination with program efforts such as through the Coastal Protection and Restoration Authority's Flood Risk and Resilience Program, which involves significant outreach and coordination across Louisiana's coastal communities in identifying local priorities, resource gaps and barriers with floodplain management at a watershed level. Meanwhile, the Council is working to build out additional capacity across relevant state agencies in order to better and meaningfully support and assist local jurisdictions and communities in addressing flood risk mitigation issues.

As an example of the need for effective collaboration among governmental agencies, current investigations show that while clearing and cleaning waterways serve as regular management activities, these projects often cross jurisdictional lines and impact entire watersheds in the process. There is no current governmental entity designated as the responsible party for local waterway management, leading to instances where projects authorized and implemented by one jurisdiction may create significant downstream impact on residents of an adjacent area. With support from the necessary technical advisory committees, the Council is working to develop criteria for selecting watershed-based projects for eligible river management activities based on available funding and build a funding allocation mechanism to distribute funds on a watershed level. The underlying elements of these criteria under development include objective risk assessments, return on investment analysis, project modeling, and permit approval by all relevant agencies, among others.

Another key element of flood risk reduction involves the identification and strategic use of land for stormwater detention areas or as an outlet for flooded waterways. However, these natural stormwater storage areas are often privately held and are subject to development at the will of the landowner. The Council is evaluating the possibility of leveraging strategic properties that currently serve a de facto flood abatement function to reduce flood risk in target areas. This includes identifying and empowering local jurisdictions to work with interested landowners to purchase property or establish a flood easement on the property that will allow these areas to continue absorbing or abating floodwater.

In tandem with all watershed-based projects and programs, the Council will analyze and consider the economic impacts associated with resilience measures driven by long-term strategies to preserve economic growth and mitigate economic decline in sustaining long-term quality of life and livable communities.

## 4 - LARGE SCALE PROJECTS AND PROGRAMS

- State planning
- State identified projects
- Voluntary relocation and large area buyouts

A primary focus for the Council is identifying and advancing large-scale flood protection and risk reduction projects at a regional level. These projects carry significant impact on the communities they are designed to support, though they can represent significant costs as well; for example, voluntary relocations or large area buyouts. As such, the Council is working to develop clear and objective criteria for selecting, funding, and implementing these projects with a focus on regional watershed-based risk reduction for those communities. The Council will also examine all available funding streams that can facilitate movement of plans, projects or other initiatives that are regional and watershed-based as identified and prioritized based upon these objective criteria. This evaluation will be driven by a tiered approach, with early project selections based on projects that do no harm to the surrounding area or watershed and later projects selected based on objectively defined criteria based on science, not politics.

# IMMEDIATE CATALYST: FLOOD RISK MITIGATION FUNDING ALLOCATION

In April 2018, Gov. Edwards announced the federal government's allocation of \$1.21 billion in Community Development Block Grant funding for mitigation. While the regulations surrounding the use of these funds remains unclear pending the U.S. Department of Housing and Urban Development's release of the Federal Register Notice and approval of the Louisiana's corresponding action plan, state agencies are already preparing a robust approach to using this allocation in a manner that benefits residents not only in the immediate timeframe, but also positions the state to be a leader in floodplain management for decades to come. Many of the focus areas identified by the Council stand to benefit tremendously from this funding subject to stipulations that will be included within the Federal Register Notice.

This allocation presents an extraordinary opportunity to immediately catalyze flood risk reduction and mitigation efforts across the state, using the planning and investigations that have occurred to-date to ensure any such work is coordinated, takes into account long-term objectives and is watershed-driven.

# MOVING FORWARD THROUGH COLLABORATION, COORDINATION, AND TRUST BUILDING

The Council recognizes there is much work ahead and residents want proactive strategies that reduce or mitigate how their communities may be impacted by future rainfall or flooding events, even at a neighborhood level. It is critical that this process and the Louisiana Watershed Initiative provide clarity for local communities in becoming more resilient to future disasters, both in terms of the measures taken and how the state provides leadership among multiple agencies at all levels of government to ensure investments are made wisely and in a manner that provides the greatest benefit to residents of each watershed.

This process must be transparent and engaging, recognizing that residents must be confident that local and state government agencies will make objective and wise decisions. However, this will require processes very different from how decisions are made today. To aid in this, the state is beginning to engage in extensive outreach and engagement with those communities that look to these state-level agencies for leadership and guidance in mitigating residents' flood risk. This will be a process that is driven by transparency, openness, accessibility, and science. Politics will not get in the way of making the right decisions on policies, programs, and projects that are based on risk reduction and cost effectiveness, representing a notable shift from the status quo and one that will require unprecedented levels of buy-in from stakeholders and residents at all levels. Furthermore, the Council intends to hold interstate meetings. Other states will be invited to collaborate in determining solutions to common issues that leverage proven approaches, while sharing with other communities the successful risk reduction approaches that have been utilized in Louisiana at a watershed level, such as the ongoing work in the Acadiana region or even at the parish level in an area such as Ouachita Parish.

This new approach requires unprecedented coordination and cooperation across all facets and functions of government agencies, including the review of existing authorities and laws at both the state and local level that may impede watershed-based floodplain management. Through the interagency Council structure and programmatic approach established through the Louisiana Watershed Initiative, the state is demonstrating its commitment to this effort while asking municipalities, parishes, regional organizations and all stakeholders across the state to do the same.

Lastly, it is crucial to note that the state's vision for the long-term resilience and sustainability of all Louisiana communities is not specific to one funding source or limited to a single iteration of work that takes place. The components of this framework are designed to create a lasting impact, driven by objective data and science, and ensure that as resources become available, they are used to support long-term objectives. As such, it is expected that any such efforts will be accomplished in a way that benefits the greatest number of Louisiana residents, current and future, using an approach that is recognized as a model for others nationally and internationally.