



LOUISIANA WATERSHED INITIATIVE

working together for sustainability and resilience



2018 STATEWIDE LISTENING TOUR

KEY FINDINGS SUMMARY REPORT

JANUARY 2019



CONTENTS

Executive Summary.....	3
Background.....	5
Key Statewide Themes.....	7
Key Themes: Acadiana Region.....	16
Key Themes: Northeast Louisiana.....	18
Key Themes: Central Louisiana.....	21
Key Themes: Northwest Louisiana.....	24
Key Themes: Bayou Region.....	26
Key Themes: Southwest Louisiana.....	28
Key Themes: Northshore Area.....	31
Key Themes: Capital Region.....	34
Integrating What We Have Learned.....	37



EXECUTIVE SUMMARY

In October 2018, the State of Louisiana agencies that comprise the Council on Watershed Management – along with key partners throughout the state – initiated a series of statewide meetings focused on gathering input from local and regional stakeholders, with a focus on utilizing these discussions to inform early efforts of the Louisiana Watershed Initiative. The importance of such a dialogue and active engagement cannot be understated, particularly given the shift taking place through this Initiative – away from the status quo of floodplain management in Louisiana toward one that mitigates flood risk by focusing on natural watershed boundaries.

In total, this “statewide listening tour” included more than 30 individual sessions held in eight distinct regions of the state and more than 550 attendees, representing diverse stakeholders such as local engineers, planners, floodplain administrators, public works staff, emergency responders, code enforcement staff, elected officials, and more. Each session was structured to inform how statewide investments in modeling flood risk would be most effectively directed, while gathering input from local partners and stakeholders about local considerations related to building smarter, more effective solutions for flood risk reduction in Louisiana.

Key themes that surfaced across these sessions include, but are not limited to, the following:

- In many regions, local jurisdictions are often asked to comply with higher standards or criteria rooted in advanced scientific or engineering concepts but have limited assistance or capacity to conform to these requirements due to resource or expertise gaps.
- Historically, decisions that have been made without consideration toward flood risk in land use and project planning have led to harmful downstream effects that greater use of and access to high-quality data could mitigate. Many local jurisdictions struggle with limited access to such data, whether directly or via access to shared databases or systems, as well as lacking the requisite tools and resources (e.g., river and stream gages) that could better enable the collection and management of data to guide local decision-making.
- The state should make every effort to avoid developing, or implementing, “one size fits all” solutions – and instead establish broad standards and guidance contained within an “operational framework,” through which communities and regions can work based on the unique characteristics of the surrounding area. Additionally, the state should work with regions on a watershed basis to ensure standard planning and policy measures are implemented from jurisdiction to jurisdiction – through technical assistance, sample ordinances, and other tools – building consistency in how water is managed within a given watershed and across political boundaries and driving a more predictable long-term environment within the region.
- As the state assesses and prioritizes flood risk-reduction projects, it should consider and reward those local jurisdictions that have already invested in mitigation projects and/or risk-reduction measures (e.g., in local ordinances or building codes). Additionally, project funding decisions should be made on an equitable basis statewide, utilizing consistent and specific criteria that guide such selections in alignment with a project’s “shovel-ready” status, long-term maintenance requirements, and minimized downstream impacts.
- Significant expertise exists within each of Louisiana’s local communities, formed through years of observing how water behaves and how efforts to better mitigate flooding conditions have been successful or not. This knowledge



should be leveraged and utilized across all facets of the Initiative – from advancing detailed hydraulic and hydrologic modeling efforts to understanding how flooding conditions have created adverse economic or community impacts.

The state has already begun to establish a series of actions that will take place in early 2019 to aggressively advance the objectives of this Initiative, in response to and alignment with the detailed input shared during this listening tour, as well as more than 150 detailed surveys completed and submitted by attendees. These actions and ongoing efforts include, but are not limited to, the following:

- Development of a data gap analysis for the highest priority datasets for flood risk modeling and project identification
- Establishment of a conceptual framework for data delivery based on case studies such as North Carolina, Harris County, and the Consortium of Universities for the Advancement of Hydrologic Science, Inc.
- Advancement of catalyst, near-term and long-term recommended elements related to a comprehensive web-based data portal for flood risk-reduction and modeling efforts.
- Development of recommendations related to establishing uniform higher standards for state-owned, operated, or funded facilities and projects
- Incorporation of feedback into initial project funding criteria, such as local investment in flood risk-reduction policy measures and a project's degree of downstream impact
- Development of recommendations to establish, implement and enforce watershed-based floodplain management plans on a statewide basis
- Establishment of the Initiative's Regional Capacity Building Grant Program, which will operate as a competitive grant program for local jurisdictions or regions to receive technical assistance, support, and expertise that builds capacity in local communities and assists local jurisdictions in moving toward a watershed-based approach to floodplain management
- Facilitation of a series of statewide summits focused on building understanding and informing collaboration among relevant stakeholders, including a Best Practices Summit focused on connecting and transferring knowledge from experts from regions outside of Louisiana to in-state professionals; a Neighboring States Summit, focused on collaboration across states adjacent to Louisiana with a focus on achieving watershed-level consistency and limiting downstream impact; and a Federal Partners Summit, focused on connecting in-state experts with their federal counterparts to support consistency and alignment in decision-making across all levels of government in Louisiana

In addition to these and other actions, the state is actively working to develop and implement a robust outreach and engagement plan in 2019 that is focused on leveraging input and leveraging expertise toward the ongoing evolution of the Initiative. This focus on objective and transparent decision-making, informed by experts and partners, serves as a core pillar of the Louisiana Watershed Initiative. It is in that same manner that future efforts will be organized and, like this statewide listening tour, structured to advance long-term resilience objectives in Louisiana that support safer and more sustainable communities.



BACKGROUND

In March and August 2016, Louisiana experienced two historic rain events that produced trillions of gallons of rainwater. The rising floodwaters reached more than 145,000 homes throughout the state, leaving behind an estimated \$10 billion in damage and resulting in recovery efforts that will take years to complete.

These devastating events exposed key weaknesses in Louisiana’s approach to floodplain management and risk-reduction planning at all levels of government. In response, Governor John Bel Edwards charged several state agencies with coordinating their efforts to develop a new approach to reducing flood risk throughout Louisiana. This early work included efforts ranging from the development of hydraulic and hydrologic models to the development of watershed coalitions in coordination with parish, state and federal entities. Over the course of this two-year period, the state and its partners have made significant progress, and many findings have emerged that are helping to inform the state’s shift from mitigating flood risk within jurisdictional boundaries to one that more directly considers the flow of water and its natural boundaries.

In 2017, the Louisiana Office and Community Development (OCD) and the Louisiana Department of Transportation and Development (DOTD) began efforts to develop a hydraulic and hydrologic model of the Amite watershed and, in tandem with other state agencies, worked to establish the framework for a statewide watershed-based floodplain water management program. The focus of these early investigations was not to create additional programs, policies, or state agencies but instead to identify how to coordinate more effectively with local jurisdictions, these and other state agencies or programs, and regional and federal partners – all with a focus on stronger floodplain management practices, smarter investments and reducing flood risk at the watershed level.

In October 2018, the Council on Watershed Management – established by Gov. Edwards via Executive Order JBE18-16 – announced a statewide listening tour to gather input from data experts, planning officials and local leaders on the state’s efforts to reduce flood risk and create more resilient communities through the Louisiana Watershed Initiative.

The Initiative represents a distinct shift from the status quo of floodplain management in Louisiana toward one that mitigates flood risk by focusing on natural watershed boundaries. Given the far-reaching impact such a shift will have on Louisiana communities, the state agencies comprising this Council sought to utilize this listening tour as a mechanism for gathering feedback and addressing questions or concerns of local stakeholders that would serve as key inputs to the ongoing evolution of the Initiative. In particular, the guiding process of this listening tour was structured to leverage input and expertise throughout the state toward how statewide investments in modeling flood risk would be most effectively directed – such as efforts to model the Amite watershed – while gathering input from local partners and stakeholders on if such an investment in modeling was a sound one for determining smarter, more effective solutions for flood risk reduction in Louisiana. The workshops and sessions that ensued at each regional listening tour location were organized to align with the technical advisory groups (TAGs) established by the Council to connect subject matter expertise within state agencies to the work of the Initiative, creating clear pathways for information to flow from local and regional input to state-level program officials. Each listening tour location included the following elements:



- Expert presentations on key data topics related to flood risk reduction (hydrography and watershed boundary data, LiDAR (elevation data), historical flood data, river and rain gages, water quality data, flood risk-related ecological and biological responses, hydraulic structures, bridges, roads, and closely related topics)
- An open discussion involving how data is currently managed or used in each local and/or regional environment to inform flood risk reduction efforts
- Break-out sessions with local and regional experts related to planning, policy, and project considerations that will be informed, influenced, or supported by the work taking place through the Initiative
- Discussions with elected officials within the region regarding areas of concern or opportunity at the local level the state must consider as the Initiative advances

In total, more than 500 individuals attended this series of eight regional listening tour sessions held from Oct. 8 to Nov. 15, including engineers, planners, floodplain administrators, public works staff, emergency responders, code enforcement staff, elected officials and more. Throughout the state, attendees shared key historical perspectives and anecdotes involving flooding events, planned and/or necessary projects, important considerations relative to developing policy or approaching floodplain management from a non-jurisdictional level, and how federal flood mitigation funds could be utilized to mitigate flood risk in the region. While this statewide listening tour occurred, state officials were initiating early efforts to develop action plans in advance of the U.S. Department of Housing and Urban Development releasing federal guidance involving how more than \$1.2 billion in flood mitigation funds allocated by Congress to Louisiana may be utilized. Consequently, the input of these local and regional stakeholders took on an even greater sense of importance, with the findings from this statewide listening tour serving as one of the primary inputs to how these funds will be managed and coordinated at the state level to reduce statewide flood risk in accordance with federal regulations and the state's long-term resiliency objectives.

One of the prevailing themes of the listening tour communicated by local stakeholders to state officials involved an emphasis on avoiding "one size fits all" solutions and instead urging the state to establish broad standards and guidance toward which communities and regions can work based on the unique characteristics of the surrounding area. As such, this summary of statewide listening tour key themes and findings is structured to identify broad key themes based on the manner in which each correlates to subject matter considered by each of the Initiative's technical advisory groups, as well as input segmented by the region in which it was shared, with a focus on better understanding local challenges and needs to influence long-term resilience outcomes for Louisiana and its citizens.

Already, the Initiative has begun a number of efforts aligned with and in response to these themes focused on addressing some of the most critical and prevailing needs among local and regional partners in the state. For example, in early 2019, the Initiative will release and accept applications for the Regional Capacity Building Grant Program. This competitive grant program, which is currently under development, will provide jurisdictions or regions with technical assistance, support and expertise focused on building capacity in local communities and assisting these jurisdictions in moving toward a watershed-based approach to floodplain management. The Initiative will continue advancing these and other efforts forward, as outlined within this summary report, with a clear focus on advancing this framework and demonstrating both action and accountability to Louisiana citizens – informed by honest discussions, informed feedback and transparent engagement every step of the way.



KEY STATEWIDE THEMES

Through discussions that spanned 32 individual sessions, workshops, and presentations over the course of a two-month timeframe, a number of aggregate themes emerged that featured input and feedback consistent across most if not all of Louisiana's regions. These themes are outlined below, categorized by areas of focus that mirror the manner in which the Initiative is structured to review and respond to such considerations. It is important to note that this summary is not all-encompassing and instead represents key themes and recurring points of discussion from region-to-region throughout this listening tour.

DATA THEMES

The Initiative leveraged this listening tour to pull together subject matter experts and users of flood-related data and tools through a series of eight dataset workshops covering topics such as: hydrography and watershed boundary data, LiDAR (elevation data), historical flood data, river and rain gages, water quality data, flood risk-related ecological and biological responses, hydraulic structures, bridges, roads, and other related topics.

Following these dataset workshops, each tour included a technical feedback session through which a facilitator posed key questions to the audience related to data-related needs, gaps, and opportunities. Key themes from these technical sessions include the following.

- Participants in more rural or less populated areas indicated a need for technical support to better understand and address flood risk through data gathering, processing, and evaluation as well as through the identification of policy improvements and projects.
 - Several participants indicated that this need for support stemmed from too few staff with too many responsibilities, and that more direct staff support would be needed – in addition to technical support at the state level – to address the need.
 - Many participants from more populated areas also echoed this concern – that the need for technical support included both direct staff support needs and as-needed technical expertise.
- A historical lack of considerations related to flood risk in land use and project planning has led to downstream, harmful effects that access to and better use of high-quality data could mitigate.
- The highest priority data-related work that the Initiative should advance and complete includes:
 - A website and data portal that consolidates links to key resources and data, stores other data, and provides clarity on data quality, appropriate use, appropriate monitoring and maintenance functions
 - Statewide watershed-based flood risk models
 - Increased and maintained network of stream and rain gages (e.g., numerous high-priority gages have been turned off due to lack of maintenance)
 - Education and outreach related to flood risk and better, clearer communication about flood risk before, during, and after flood events
 - Increased core technical flood risk-related competencies statewide, with the state facilitating and/or providing access to higher level technical expertise for more complex questions and issues



The feedback from these workshops and related data surveys provided a clear foundation for the development of the following critical materials to advance data-related efforts of the Initiative.

- A **data gap analysis** for the highest priority datasets for flood risk modeling and project identification, describing the dataset, status of the data, potential issues/gaps and anticipated future steps or needs related to the dataset for all priority datasets
 - Priority data sets include high quality elevation data, hydrography, river flow and stage, rainfall, conveyance structures and hydraulic structures, water quality, ecological and biological responses, assessor and built asset inventory, aerial photographs and imagery and historical flood data.
 - These reviews also include a description of the availability, quality, and potential next steps for impervious surface, land cover, buildings/structures, soils, wetlands, bathymetry and wave heights.
- Short public **white papers** that provide briefings on the use, location, availability and how to contribute to all datasets covered in the workshops
- A **data standards memorandum** that provides a summary of existing state and federal data standards for each dataset identified in the preliminary data list, comparisons of standards when more than one set exists and recommendations on standards for use by the Initiative
- A **conceptual framework for data delivery** based on case studies, such as North Carolina, Harris County, and the Consortium of Universities for the Advancement of Hydrologic Science, Inc., providing pros and cons for each possible framework along with a description of Initiative needs and recommendations
- Catalyst, near-term, and long-term recommended contents for a **comprehensive web-based data portal**, which were presented to the Council on Watershed Management at the Council's November 2018 meeting

POLICY THEMES

- The state should consider standardized policy measures such as BFE +1, zero net fill, and zero impact that establish a sound foundation for future community growth and development while achieving consistency across watersheds.
 - This could be as broad as state-issued guidance for implementation or enforcement that ties compliance to funding, with funding that scales upward based on more aggressive measures implemented in a local jurisdiction or throughout a watershed (i.e., build the framework for a bottom-up, locally-driven policy approach).
 - One consideration in tying watershed-level compliance to funding opportunities is if a jurisdiction within the watershed does not want to participate and how will the state ensure the surrounding jurisdictions aren't liable for that lack of cooperation.
 - Another consideration involves neighboring states and how to ensure policy measures adopted in Louisiana are not adversely impacted or negated due to neighboring states not adopting similar measures.
 - Sample ordinances and/or technical assistance for policy measures are necessary for those jurisdictions lacking expertise or bandwidth to ensure policies are developed in a manner that is consistent with best practices for flood risk mitigation.



- A one-size-fits-all approach should be avoided by establishing broad guidelines that achieve consistency from region to region but allows the local jurisdictions to determine how best to align local policies to meet those guidelines in the manner that makes the most sense for their area.
- Consistent implementation, abidance, and regulation enforcement is needed for inter-watershed consistency (with an emphasis on clarifying on how enforcement will occur).
- Maintaining consistency across administrations in government will be critical to ensure the long-term vision is followed.
- A regional authority can help to provide specificity at the local level, “teeth” at a regional level, and support from a statewide level.
- Implementing a policy-driven, criteria-based evaluation system provides equitability statewide while ensuring a focus on priority projects.

In response to themes related to this policy-related input, the Initiative is currently updating work plans related to both the alignment of existing programs, policies, and actions and the statewide policy investigation. The Initiative’s Policy Technical Advisory Group (Policy TAG) is developing **recommendations related to establishing uniform higher standards for state-owned, operated, or funded facilities and projects** based on case studies from Colorado, North Carolina, Maryland, California, and New York, among other practices. Additionally, the Policy TAG is developing white papers related to the benefits and key **considerations of higher standards such as freeboard and fill restrictions**, which will be distributed in 2019 as easily accessible resources for local jurisdictions and the constituents they serve to utilize. Finally, **evaluation criteria for initial project funding** will include points and considerations based on a community’s investment in flood risk-reduction policy measures, such as the adoption of ordinances or design standards consistent with flood risk-reduction best practices and implementation of stormwater management considerations.

PLANNING THEMES

- The state should provide a minimum operational plan or planning framework for watersheds to follow.
- Planning should coordinate and interact with drainage districts, levee districts, and other related organizations.
- Master plans (i.e., local drainage plans) need to be incorporated into the watershed or statewide plans.
- Development of land-use planning controls need to maintain the balance between recreational, public, and private lands.

The Initiative is currently integrating this planning-related input into **recommendations to develop, implement, and enforce watershed-based floodplain management plans on a statewide basis**. These recommendations will be presented to the Louisiana Legislature during the 2019 Louisiana Legislative Regular Session, in accordance with the parameters outlined within Executive Order JBE18-16 and Senate Resolution 172 of the 2017 Louisiana Legislative Regular Session. Additionally, the Planning TAG – charged with advancing said recommendations – is actively working to integrate this input into state-level planning efforts, which will be incorporated into the implementation of these recommendations upon their approval and adoption.



PROJECTS THEMES

- An expansion of the gage network throughout the state would provide a more complete and denser dataset and provide a better foundation for the development of future projects.
- Priority projects should include those projects that are small-scale (local dredging, snagging, retention, detention, and improvement of locks and gages), shovel-ready projects and completing qualifying projects already underway.
- A clearly defined, transparent, and equitable evaluation system should provide all areas of the state an equal opportunity to participate in the Initiative.
- Proactivity of local jurisdictions that have already invested in mitigation policies, planning, and projects should be rewarded and not ignored or penalized when participating in a watershed approach.
- Existing and ongoing projects should be incorporated into the watershed-based plan to become part of the larger mitigation effort.
- Projects with lower long-term maintenance should receive higher priority when selecting and implementing projects.

The state is working to integrate this feedback into the “Round 1” criteria for initial projects funded through the Initiative and will consider this input when working through the process of aligning existing funding programs with the mission of the Initiative.

ENGAGEMENT

General Awareness

- Many regional stakeholders are unaware of what resources are already available and accessible to them.
- Public education is more difficult in rural areas where the population is less dense, in urban areas where the effects of flooding are not immediately felt, and in areas where “planning fatigue” has led jurisdictions to disengage in similar efforts.
- Partnerships and close working relationships with those directly communicating with homeowners, such as real estate agents or insurance agents, will help build buy-in within the private sector and at the resident level as to why this is necessary.
- The state must build trust through this effort and responding in a timely manner to questions or issues voiced through outreach and engagement efforts will be critical to that trust-building process.

Planning and Policy Considerations

- The incorporation of public information or education into planning will be critical for future local involvement with a focus on the impact that will be generated by these activities (particularly where opposition may exist).
- The inclusion of education, outreach, and engagement as a major component to drive the long-term vision is necessary for creating a paradigm shift from a “one-size-fits-all” approach to one that benefits from many different approaches.



- Education must be built in as a key component of policy and other areas such as modeling, the cost of not doing things differently, and the concept that building differently doesn't mean building expensively (e.g., fill vs. stilts).
- The state must clearly communicate the economic benefits of operating in a manner different than the status quo, especially when initiating actions that may create concerns among key stakeholder groups (e.g., development).

Community Engagement

- The state should create structures to encourage conversation at the regional level to facilitate communication between the state and local jurisdictions or stakeholders.
- Engagement isn't just pushing information out – it is also receiving information (push vs. pull).
- “Crowdsourcing,” such as participation in apps or citizen-driven information sharing, is an underutilized means of data gathering, especially in rural areas where it is difficult to analyze data real-time.
- Traditional engagement relies on participating in events, whereas digital engagement can happen anytime, anywhere.
- Community involvement and education through CRS-driven engagement techniques provides a benefit for and awareness to the local community, the state, and the citizens of that local area or region (e.g., newsletters and digitizing elevation certificates).
- Outreach and communication of flood mitigation techniques or programs must occur before, during, and after the event has occurred, with a focus on clear and concise communication across all agencies, officials, and stakeholders.
- The state can aid in the grassroots outreach effort by incorporating non-profits and leveraging existing resources.

In response to these and other themes, the Initiative is preparing a robust engagement plan to ensure the risk-reduction needs of local partners, citizens and stakeholders are understood and considered moving forward. This plan will focus on **significant outreach, engagement and education in 2019** through measures such as:

- The Initiative's **Regional Capacity Building Grant Program**, which will provide jurisdictions or regions with technical assistance, support and expertise focused on building capacity in local communities and assisting these jurisdictions in moving toward a watershed-based approach to floodplain management
- A **best practices interstate summit** that invites states with leading flood risk-reduction practices or models to Louisiana to discuss lessons learned and how such practices can be adapted to the Louisiana environment (estimated for February 2019)
- A **neighboring state summit** that invites states adjacent to Louisiana to discuss statewide floodplain management issues, challenges, and opportunities and determine how to ensure the floodplain management activities of one state do not elevate flood risk levels in another (estimated for March 2019)
- A **federal partners summit** that invites federal agency representatives with floodplain management responsibilities to Louisiana to discuss challenges and identify opportunities to more intentionally coordinate local, state, and federal floodplain management efforts and more holistically reduce flood risk in Louisiana (estimated for summer 2019)
- An **expanded website for the Initiative** to include features such as a public comment portal for Initiative plans, proposals, or other documents, a robust resources library for technical and non-technical users alike, access to existing flood-related datasets or data sources, and educational materials to help connect the work of the Initiative to key stakeholders as well as the general public



- A **2019 Listening Tour** focused on public and citizen engagement to educate residents throughout the state on the plans, approaches, and investments proposed to take place through the Initiative, the importance of mitigating flood risk at the watershed level and how objective science and data are being used to guide all decisions made through this effort

LISTENING TOUR SURVEY FINDINGS

In addition to the qualitative input provided by attendees at each listening tour session, attendees were asked to complete two detailed surveys based on area of expertise that were focused on further inventorying challenges, needs, and opportunities within local jurisdictions and/or regions. Each survey was distributed to relevant session attendees in hard copy. This same survey was distributed electronically to attendees following the completion of each listening tour session.

DATA SURVEY SUMMARY

In total, 104 attendees completed surveys focused on gathering input related to issues, challenges, or opportunities involving flood risk-reduction data and/or the availability of related datasets. Of those respondents, 85 percent requested future contact from the Initiative. Key data-related challenges identified through this survey included:

- Gathering of data
- Working with old data or incomplete data
- Storing data
- Having a lack in technical capacity and a lack in data

Respondents noted that the mitigation or elimination of these challenges would result in more usable data, more informed and applicable projects, and better overall risk management. In addition, if there was a state or regional information system that could support flood risk reduction and floodplain management activities, respondents requested features such as:

- A data portal or data library
- Mapping tools
- A library for best practices
- Information on funding

Respondents pointed to best practices such as standardizing the use of data to inform projects and knowing where flood-prone areas are located should be a component of any state-led data management efforts. In order to collect this data, respondents suggested standardized utilization of GIS and collection techniques around the state as critically important practices. Respondents provided additional commentary regarding the need for standardized collection and/or availability of related flood risk reduction data, including the following:



- Aerial data
- Hydrologic soil and delineated area data
- LiDAR
- Land use and land cover
- Future planned land use
- Floodways
- Floodplain Delineation
- Inventory of dams
- Inventory of water detention facilities
- Inventory of floodgates
- Inventory of pump stations
- Inventory of canals
- Rainfall data
- Stream flow data
- Flood complaint log
- Flood loss/impact data (by address)
- Depth and flood duration
- Impervious surface inventory
- Built asset inventory/assessor data
- Elevation certificates

Approximately 50 to 75 percent of respondents currently collect many of these data points, most of whom store such data locally in either physical or electronic forms. However, those same respondents believed that they should not be the ones overseeing the collection of this data, and that the state or a regional body should instead collect the data and serve as the corresponding data steward. In addition, these respondents overwhelmingly believed that consistent standards are needed for this. Exceptions to these sentiments included the collection of rainfall data, streamflow data, depth and flood duration data, and impervious surface inventories, primarily due to many respondents not actively collecting this type of data. Those who do collect such data noted similar sentiments about its collection and storage.

In summary, survey responses pointed to a considerable need for increased availability, consistency, and quality of flood risk related data of all types identified. Respondents indicated that increased availability, consistency, and quality of data would enable them to more effectively understand, address, and communicate flood risk and flood risk-reduction related actions within their jurisdictions.

PLANNING, PROJECTS, AND POLICY SURVEY SUMMARY

In addition to these data surveys, a total of 65 surveys were completed and submitted by attendees involving planning, projects and policy-related matters. Respondents noted a number of issues related to adequate data collection and management practices as key issues the Initiative should help to address, while others emphasized funding and technical capacity issues involving project selection and completion, with most respondents emphasizing the use of a regional approach to address such challenges.

Many respondents highlighted the sense of planning fatigue at the local level and the intervention of politics at the state level that may adversely impact the success of the Initiative. Other concerns involved a need to intentionally utilize the time and interest of local stakeholders, as well as available resources to accomplish short or long-term goals and to avoid implementing a top-down approach that would have limited enforcement capabilities tied to lasting watershed-level improvements.

Respondents noted that regular progress updates, invitations to participate in community workshops, notices of speaking engagements, and other meetings with local stakeholders and residents would serve as inputs to mitigate some



of these concerns while building awareness and support for the Initiative within local communities, as well as being made aware of future planning, modeling, and policy developments. Respondents noted that these methods were also effective at getting people they believed were not currently being engaged to the table.

When asked about the resources that communities currently utilize to support floodplain management activities, respondents identified previously adopted future land use mapping/zoning codes, a local certified floodplain manager, approved hazard mitigation plans in place, and/or previously adopted comprehensive/master plans. Most survey respondents concurred that watershed-based floodplain management plans should include guidance related to land use and the eligibility of projects based on specific funding sources, stipulations for watershed-to-watershed consistency and coordination, and mechanisms to consolidate flood risk management information in the region. Those who disagreed with including these components in such plans noted specific issues with project-funding, eligibility determination and land-use guidance.

Respondents overwhelmingly requested local and/or regional planning commissions serve as the lead entity in the development of a regional watershed master plan supported by relevant state and regional entities, further reinforcing survey sentiments involving the Initiative functioning in a bottom-up manner as opposed to top down. Many respondents highlighted the need for funding support from state and/or regional entities, noting chronically underfunded risk-reduction activities at the local level that include drainage, elevation and general maintenance activities.

Flood Risk Reduction Activities

The activities identified by respondents currently taking place at the local level to mitigate future flood risk can be summarized into four primary categories: projects currently in progress, projects in the planning stages, possible future projects, and projects or measures about which respondents would like to learn more for potential incorporation into their local areas. Note – respondents noted bolded items as activities or projects that may apply to other categories; however, each is placed within the category where the frequency of response was greatest.

CURRENT PROJECTS

- Land use and zoning measures
- Plan or program development
- Other policy measures
- **Dumping prevention**
- **Invasive species management**
- **Property acquisition and/or relocation**
- **Elevation/reconstruction or floodproofing**
- **Floodwater/stormwater detention and retention**
- Cleaning/restoring waterway capacity
- **Upgrading culverts, floodgates, and/or bridge crossings**
- **Utility and infrastructure hardening**



PLANNED PROJECTS

- Floodwater/stormwater detention and retention

POSSIBLE PROJECTS

- Flood and conservation easements
- Low impact development/green infrastructure
- Utility and infrastructure hardening
- Upgrading culverts, floodgates, and/or bridge crossings
- Floodwater/stormwater detention and retention
- Elevation/reconstruction or floodproofing
- Property acquisition and/or relocation
- Invasive species management
- Groundwater storage and recovery
- Floodplain and stream restoration

NEED ADDITIONAL INFORMATION

- Incentives
- Flood and conservation easements
- Floodplain and stream restoration
- Groundwater storage and recovery
- Invasive species management
- Low impact development/green infrastructure
- Dumping prevention

Two-thirds of survey respondents stated that they have attempted to implement new policies, ordinances, or other programs that would reduce flood risk within the last five years, including enhanced zoning/land use regulations and flood damage prevention ordinance standards higher than NFIP minimums. Other measures recently initiated by local jurisdictions included revenue generation efforts to fund the implementation of flood risk reduction projects. In total, respondents noted that approximately 25 percent of these projects were ultimately not adopted.



KEY THEMES: ACADIANA REGION

Listening Tour Location: LABEOC Informative Research Center, 635 Cajundome Blvd., Lafayette, LA

Listening Tour Date: October 8, 2018

Total Session Attendance: 58

DATA DISCUSSION

The data discussion in Acadiana focused on the National Geographic Dataset, Watershed Boundary Dataset, and LiDAR. Chris Cretini, National Map Liaison with the United States Geological Survey and John Sheehan, Senior GIS Analyst for the Louisiana Department of Environmental Quality, presented information on numerous resources including “The National Map”, the National Hydrographic Dataset, the Watershed Boundary Dataset, the 3D Elevation Program, and more enhanced tools such as the NHDPlus and beta-stage NHDPlus HR.

WHAT WE HEARD FROM TECHNICAL PROFESSIONALS

Expanding the Gage Network

- Placement of gages is most important in terms of data gathering and storage.
- Gages on the same datum would streamline the utilization of those readings.
- Additional data capacity and additional gages within the network should be top priorities.
- Funds would ideally be cost-shared amongst local jurisdictions and regional organizations.

Sharing of Data

- Outdated resources and data isolation have led to data hoarding.
- The state should share all the data associated with a project once it is completed.
- More data collaboration informs academia, and academia can then better inform the data.
- The state must consider short-term and long-term collection efforts to ensure the continuity and long-term integrity of data management efforts.
- The Initiative must find the balance between liability of shared data and benefit of use.
- Regarding modeling, data needs to have a specific purpose and scope for accurate use.
- The Initiative must standardize all data collection and sharing to build a foundation from which to collaborate.

Modeling

- The modeling process must be continuous; it should not be made and put on a shelf to sit.
- Models should be developed and maintained regionally and locally as opposed to at the state level.
- Use of current and/or living models to inform funding decisions will drive more efficient uses of funding.
- Layered modeling with models from different agencies can provide for a central, complex-use model.



- A balance between individual and collective statewide goals for flood risk reduction should be a priority when modeling.
- The state should prioritize expansion of the gage network, collection of rainfall data, and modeling efforts, while regional priorities should focus on discharge data, land use considerations, quality and intensity of data gathered, and integrating data into a common regional strategy.

WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- There is a need to utilize existing plans and integrate them into watershed-level planning
- Continuously updated and ongoing planning is critical to ensure the success of a long-term vision.
- Hazard mitigation planning should be as project-specific as possible and not generic on a statewide basis.
- Management functions at the watershed level should include local and regional experts and authorities.
- Implementing individual mitigation plans into “master plans” would consolidate planning and resources.

Projects

- Projects currently being advanced in the region include regional retention, dredging, repetitive loss, gages, infrastructure revitalization, and other projects with a high return on investment.
- Moving forward, projects in the region should consider downstream impacts, include proper lock control (Teche-Vermillion & Cheranton), incorporate more data to drive decision making, slow down water entering the watershed, and support goals that are realistic and attainable.

Policy Considerations

- Currently, there are no standardized policies in the region leading to challenges associated with enforcement and regulatory compliance, as well as a lack of state-level policies (e.g., BFE +1 or other standards) to guide local compliance.
- Some areas are lacking in technical knowledge or expertise to inform the manner in which policies are developed at the jurisdiction level and in a manner consistent with best practices.
- Potential alternatives to the current policy environment include considerations such as zero net runoff, floodways, monthly stormwater fees, and regional detention and retention strategies applied on a statewide level.



KEY THEMES: NORTHEAST LOUISIANA

Listening Tour Location: West Monroe Convention Center, 901 Ridge Ave., West Monroe, LA

Listening Tour Date: October 16, 2018

Total Session Attendance: 64

DATA PRESENTATION

The data discussion in northeast Louisiana focused on historical flood data. Jeffery Giering, the State Hazard Mitigation Officer with the Governor's Office of Homeland Security and Emergency Preparedness, presented information on data currently available from local, state, and federal sources. This data originates from historical events including hurricanes, riverine flooding, and rainfall-driven flooding.

WHAT WE HEARD FROM TECHNICAL PROFESSIONALS

Utilization of Academia

- Academic institutions have access to unique sources of data and knowledge of the local environment.
- Collaboration among larger areas or organizations can be driven by academic tools and resources.
- Academia can help build and clarify messages, allowing the region to speak in unison for funding.

Data Usage

- Making datasets “open by default” can drive current and future planning and execution of projects.
- Understanding where water is coming from and how it will impact an area before rainfall occurs can aid in mitigation efforts.
- Data collection efforts need to encapsulate real-time data, which is a challenge in rural areas with limited capacity.
- The region is willing to be open in providing data to the state, but needs the process to be a reciprocal one
- Unifying and standardizing data as it is collected and placed within a data portal would support greater collaboration.

Modeling

- Local communities are disadvantaged when conducting modeling, as some current maps are as old as 1978.
- Current models are most likely based off data that is not specific enough, creating flawed modeling.
- Modeling is distinctive, so having data with refined scope and distinctive purpose would drive layers of modeling, creating a more informed and precise model.

Funding

- Discussions with public- and private-sector funding sources, including state or federal project leads, allow for data one might need at the local level to inform smaller, yet significant watershed projects.



- Some historical FEMA and/or CDBG funding sources have included a resiliency component; using historical or pre-Columbian standards as a mitigation technique for future projects may be more cost effective.

WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- Any statewide planning efforts should include strategies for how to reduce flooding over time and not function as simply a static plan.
- Statewide planning efforts should furthermore link watersheds together with mechanisms for watershed-to-watershed coordination.
- Existing local, regional, and state plans should be aligned and integrated into watershed-based planning.
- The state should provide planning standards for communities within multiple watersheds.
- Any watershed plans should include a public outreach and education component.
- Watershed plans should furthermore coordinate with or flow through a parish's hazard mitigation plan and incorporate local jurisdictional plans, so that all planning efforts are fully aligned.

Projects

WHAT IS BEING DONE NOW?

- Restoration of natural stream functions
- Targeting of historically-impacted areas
- Maintenance of current mitigation techniques
- Grouping of historically problematic areas to heighten priority

WHAT SHOULD BE DONE MOVING FORWARD?

- Open data would drive collaboration
- Need equity in cost-benefit
- Need to modernize existing equipment
- Complete stagnant studies (e.g., Project 19)
- Understanding FEMA's role will dictate funding

Policy Considerations

CURRENT CHALLENGES

- Liability from watershed to watershed
- Codified working relationship



- Voluntary vs. required participation
- Policy must be sensitive to local conditions
- Need immediacy in policy enforcement
- Getting other states to comply

ALTERNATIVES TO CURRENT POLICIES

- Zero impact policy or other consistent statewide policy
- Regional authority to handle mediation
- Drainage impact statements
- Local authority with inter-watershed capacity
- Interstate summits and partnerships



KEY THEMES: CENTRAL LOUISIANA

Listening Tour Location: Pineville Community Center, 708 Main St., Pineville, LA

Listening Tour Date: October 17, 2018

Total Session Attendance: 46

DATA DISCUSSION

The data discussion in central Louisiana focused on water quality data, salinity, dissolved oxygen, and point source discharges/OSDS. Chuck Berger, Senior Engineer with the Louisiana Department of Environmental Quality, presented information on the agency's work to ensure water cleanliness in compliance with state and federal mandates and how water quality impacts biodiversity and hazard mitigation

WHAT WE HEARD FROM TECHNICAL PROFESSIONALS

Data Gathering and Use

- Focus on narrowing the scope of collected data and the need to avoid “paralysis by analysis” in order to determine the actual data that is needed to make decisions.
- Having a central repository of data would allow the consulting community to help fill a narrower scope of data, while offering local jurisdictions the ability to rely on a resource other than the National Weather Service.
- Some local offices have pamphlets and data in physical form, but these are rarely utilized and need to be digitized.
 - The key to resilience in a rural area is being able to provide information to the public in a timely manner.
 - Information can be gained from residents who can provide point-location information during an event.

Modeling

- Projects should be based on updated policies; since utilizing old policies will produce old results, modeling needs to be done in association with newer policies.
- Knowing where repetitive issues occur will drive future economic and planning decisions.
- Having the capacity to not only gather data but create meaningful and complex models, is a priority for the region.

Building Capacity

- Funding is a critical need in that it drives capacity (e.g., new maps, modeling, modernization, etc.).
- Having the funding to support the people who support the data builds technical capacity in the region.
- The state should help smaller, more rural areas build capacity, including through establishing a statewide baseline for capacity.
- Antiquated use of technology is a major concern, as LiDAR and better gages would provide better data through which more informed decisions can be made.



- Lack of technical expertise is also a major concern; the state should embed resources in local offices in need of assistance or advisory support on complex technical topics.

WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- Planning efforts should occur with the anticipation of funding as opposed to waiting on funding.
- There is a need to educate all stakeholders on what being in a hydrologically-connected area means, which will drive targeted planning efforts.
- Local plans, such as economic development and natural resource plans, should drive watershed plans.
- Understanding the state and region's overarching strategic vision will drive whether watershed planning is strategic or operational in nature, which will influence local planning.
- Need to make planning more effective through smart data and find root causes of issues; avoid planning in a vacuum.
- Providing a state-driven “menu” of options to drive planning would give local jurisdictions flexibility.

Projects

WHAT IS BEING DONE NOW?

- Final phases of multi-phase projects
- Acquisition, but is a very tough process
- Channel improvements (currently the focus of study at Northwestern State)
- Design, planning, and implementation of flap gates and upgraded pipes

WHAT SHOULD BE DONE MOVING FORWARD?

- Maintenance on older projects
- Inventory of all current drainage systems and needs
- Tie everything into master plans
- Address root causes of sedimentation and retention/drainage issues
- Engage the non-profit community
- Ensure data doesn't become overburdensome

Policy Considerations

AUTHORITY & RESPONSIBILITY

- Avoid reinventing the wheel; a regional approach can benefit from using state and local resources and planning.



- Having a bottom-up vs. top-down approach allows parishes to collaborate and drive policy.
- A regional approach should limit adverse downstream effects.
- Policies need to be mandated by the state in line with federal and state insurance laws; hard policies should not come from the bottom-up.
- Must have accountability measures written in policy to limit watershed-to-watershed effects.

ALTERNATIVES TO CURRENT POLICIES

- Having set standards and incentives would give local and regional planning commissions in rural areas a more equitable approach.
- Having a CRS-type policy approach would bring equality to funding in rural areas.
- Provide multiple “levels” or right-sized assistance opportunities through the Initiative.
- A carrot-and-stick approach would provide incentive-type access to funding.
- Decisions should be made on data and benefit-cost analyses, not politics.



KEY THEMES: NORTHWEST LOUISIANA

Listening Tour Location: Shreveport Convention Center, 400 Caddo St., LA

Listening Tour Date: October 18, 2018

Total Session Attendance: 44

DATA DISCUSSION

The data discussion in northwest Louisiana focused on river and rain gages. Four experts from different public sectors agencies presented information on the current status of the gage network in the state, including:

- Todd Baumann, Data Chief, U.S. Geological Survey
- Julie Murphy, Lead Hydrologic Technician, U.S. Army Corps of Engineers
- Emad Habib, Endowed Chair and Civil Engineering Professor, University of Louisiana at Lafayette
- Tim Rodgers, Senior Hydraulic Engineer, U.S. Army Corps of Engineers – Vicksburg District Water Council Management System

WHAT WE HEARD FROM TECHNICAL EXPERTS

Urbanization

- Rapid development in the region has outpaced mitigation, causing studies to become quickly outdated.
- Evacuation routes need to be designed on a BFE +1 or higher standard, as recent flooding has seen these evacuation routes become inundated.
- Ongoing sewer projects are becoming costly because the water table in the region is rising; infiltration and influx studies need to be completed in a timely manner to assess this impact.

Data

- Current data gaps that exist in local digital datasets are being addressed through the incorporation of master drainage plans.
- Some rivers and streams in the area have never been studied before and could greatly inform modeling.
- High water marks have been the most reliable source of data collection in the region, acting as the main measurement in the area to elevation minimums.

Modeling

- Models should be living models, and studies should be ongoing (not static).
- FEMA and state agencies should adopt local models into federal and state databases.
- Old FEMA maps have been used in the past when assessing a flood, which may be incomplete and/or outdated and thus act as an impediment to recovery.



WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- The state should assign a methodology to align all existing planning districts into a regional approach.
- All planning efforts should be required to identify downstream flooding impacts.
- Requiring the periodic update of the state's watershed plan, and including potential funding in the measure, would better inform watersheds across the state.

Projects

- Benefit-cost analyses largely dictate which projects are chosen over others.
- Farthest reaching projects with the greatest impact and long-term benefit have generally been prioritized; needs priority or greater weight in the future.
- Project selection criteria must be standardized across the state.
- Restoration of watersheds back to their original flow capacity and natural functions will mitigate raising levees in the future.
- Regional detention strategies would feature the capacity and resources to control watershed behavior at the regional level.

Policy Considerations

WHAT ARE CURRENT CHALLENGES BEING FACED?

- Limited regional coordination regarding flood risk-reduction efforts leads to a lack of consistent policies applied across the region.
- USACE prohibits alterations to the levee system, when raising or adjusting this infrastructure could fix key issues.
- Sedimentation comes from out of state and first goes through the region, with limited-to-no coordination and mechanisms to prevent this downstream impact.
- Policies such as BFE +1 may become outdated due to development activity; any policy measures should be long-range in nature and consider expected community development and/or urbanization.
- Perceptions and concerns exist regarding state agencies placing an equal focus on all communities in Louisiana.

WHAT ARE ALTERNATIVES TO CURRENT POLICIES?

- Drainage impact fee or drainage utility tied to a regional retention system
- Equitable system of grant distribution through a regional entity and appropriately distributed representation
- Separate pools of funding for different sizes of projects
- Connect policy strategies to achieve greater impact (e.g., freshwater retention and flood control measures)
- Prioritize funding-related incentives for those jurisdictions most aligned with state-level policy standards



KEY THEMES: BAYOU REGION

Listening Tour Location: South Central Planning & Development Commission, 5058 West Main St., Houma, LA

Listening Tour Date: October 23, 2018

Total Session Attendance: 60

DATA DISCUSSION

The data discussion in the Bayou Region focused on ecological and biological responses to flooding. Yvonne Allen, Spatial Ecologist for the U.S. Fish and Wildlife Service and Robby Maxwell, Biologist Supervisor with the Louisiana Department of Wildlife and Fisheries, presented information on the effect flooding has on ecological and biological processes in the state.

WHAT WE HEARD FROM TECHNICAL PROFESSIONALS

Capacity of Data

- With educational and outreach facilities such as LUMCON available in Louisiana, greater emphasis should be placed on dedicated research and data-collection facilities, especially given regional relationships with water.
- In this region, subsidence research should be considered a priority and highlights the need for research with greater capacity than gages and survey markers.

Access to Data

- Registration-based access to a data clearinghouse would limit liability for data use while providing centralized access to complex data.
- Having two portals – one public and one private – would allow anyone interested in gathered data to analyze it while also providing a portal for technical experts to access more complex data.
- Open data, especially complex data, must have a plain-text description (metadata) about what can be found within it for quick and easy use by members of academia, public citizens, and private consultants or users.
- Any data collected through the Initiative needs to contractually be made public at the conclusion of the Initiative unless there are clearly communicated legal, privacy, or funding reasons for alternate actions.

Quality of Data

- There must be a standardized QA/QC process for any data associated with a centralized data portal to limit misuse or misinterpretation (particularly for any data collected for a specific purpose).
- The scope for data usage must be defined beforehand – the problem must be defined before a viable solution can be considered.



WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- Some local jurisdictions need help in their land use planning and would like assistance from the state or regional level.
- The state should define what exactly is meant by “flooding” (e.g., rain, rushing waters from the north, and/or man-made) and incorporate those standard definitions into categorizing flood risk-reduction measures within plans.
- Each jurisdiction utilizes different enforcement measures and has varying resources; as such, sub-basin planning should be incorporated into watershed-based planning to account for this variation at the local level.

Projects

- Funding for major projects should be based on local or regional match dollars, including projects currently underway in which local stakeholders have already made significant investments.
- Pumping at the southern portion of the watershed is needed to move water out of the levee system, which protects the watershed from hurricane-driven waters.
- “Beneficial use” of sedimentation should be a major consideration, particularly considering the diversity of water use in the region and needs of mitigation projects.
- Capital improvement plans should include measures to keep plans consistent and updated, which would better inform ongoing project selection and the long-term viability of projects.
- CRS points, shovel-ready projects, and regulatory compliance should be prioritized elements of project selection.

Policy Considerations

- Policy standards must come from the state or federal level; local jurisdictions will be more likely to adopt and execute higher standards if mandated at a higher level.
- Assessing what is currently in place before implementing new policies is critical; investments have already been made in many areas relative to development and economic protection measures.
- Funding needs to be directly tied to policy and incentivizing local development activity and decisions.
- More data drives enforcement; better tools need to be utilized to better evaluate impacts on surrounding development and the environment.
- Having floodplain managers, levee board members, and other staff-level experts at local agencies driving policy decisions in the region will help separate politics from policy decisions.
- Creating model ordinances at the state level would give the local jurisdictions a framework to build policy and broad standards to work toward.



KEY THEMES: SOUTHWEST LOUISIANA

Listening Tour Location: IMCAL (SEED Center), 4310 Ryan St., Lake Charles, LA

Listening Tour Date: November 7, 2018

Total Session Attendance: 80

DATA DISCUSSION

The data discussion in southwest Louisiana focused on modeling the Louisiana Coastal Zone and transition zones. Four presenters from various institutional and federal organizations, listed below, presented information on the current data needs and modeling challenges and techniques with transition zones across coastal Louisiana watersheds.

- Emad Habib, Endowed Chair and Civil Engineering Professor, University of Louisiana at Lafayette
- Scott Hagen, Endowed Chair for Sea Grant Research and Professor, Louisiana State University
- Frank Tsai, Water Resources Engineering Professor, Louisiana State University
- Panagiotis Velissariou, Senior Coastal Scientist, National Water Center

WHAT WE HEARD FROM TECHNICAL PROFESSIONALS

Modeling

- In addition to the years it takes to build a gage system – and understanding how to run it – there is a need for more staff, technicians, and the right components to build an accurate network and subsequently accurate modeling.
- Incorporating updated software will help the region better capture all different aspects of water behavior, including tributary vs. main channels, salinity changes and tidal influences.

Data Gaps

- There is a need for open-water measuring systems; no accurate method or tool exists to understand water behavior before it reaches the coast.
- Some regional stakeholders have previously resorted to making assumptions related to data based on outdated or minimal data-gathering techniques and require better modeling and data sharing to inform future data use.
- There needs to be a consistent data schedule maintained or enforced by a central coordinating entity that helps keep data updated and consistent.

Quality of Data

- There is such a concept as “too much” data; the collision of data creates confusion and causes data to become outdated when it cannot be utilized in a timely manner or becomes “lost in the shuffle.”
- Standardization of data sharing from the collection phase to use or publication will ensure it is in a good enough condition (i.e., timely and specific) to be used for modeling inputs.



- The use of portal frameworks that already exist, such as the North Pacific portal, will aid in functionality and acceptance of advanced data analytics or modeling efforts.
- There needs to be a mechanism in place that dictates when data becomes too burdensome, studies have been exhausted, and a middle ground has been reached.

WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- Planning should focus on connecting jurisdictions within a region to encourage watershed-to-watershed interoperability and connected end goals for the watershed.
- Having broader baseline performance measures at the state level that take specific regional performance measures into account will allow planning at the regional level to be more specific and more applicable to the region.
- The statewide plan should only reinforce the regional plan; local jurisdictions should drive the planning because of their local knowledge and expertise.
- Incorporating a public information or educational component into planning will lay the groundwork for future local involvement and a more educated citizenry about the importance of watershed-based planning.

Projects

- The top priority for project selection should be based on who floods the most and who is in greatest need of risk reduction or mitigation measures.
- A significant factor in determining funding distribution is the amount of maintenance needed for a project, one that should hold true in the future.
- Minimizing project costs is critical, and project selection should consider potential burdens on local jurisdictions based on project landscape (e.g., \$5,500 for the clearing of a channel or \$700,000 to widen a ditch).
- Funding needs to only apply to future projects and prevention, not for past projects that contain wish list items.
- Defining the purpose of the project should drive project selection the most; must decide between infrastructure needs, population impact, or saving recreational land, among many other factors.

Policy Considerations

- Legislation at the state level should provide a framework for how local jurisdictions create ordinances and supporting measures.
- Incentives for funding need to be built into policies to reward proactive or compliant jurisdictions and limit those that do not comply or meet standards.
- The state must organize jurisdictions into the watersheds, as self-organization efforts at the local or regional level would not have the same long-term binding impact as a state-mandated organization.
- Policies are needed to guide and aid regions that do not have the capacity to meet standards or seamlessly interoperate with other jurisdictions from a watershed perspective.



- Regional policy manuals and local policy guidance should include considerations to ensure the private sector (e.g., engineering and consulting firms) are active participants in the watershed-based approach.



KEY THEMES: NORTHSHORE AREA

Listening Tour Location: Tangipahoa Parish Clausen Conference Room, 15845 W. Club Deluxe Road, Hammond, LA

Listening Tour Date: November 14, 2018

Total Session Attendance: 77

DATA DISCUSSION

The data discussion in the Northshore area focused on conveyance structures and hydraulic structures. Jason Chapman with the Louisiana Department of Transportation and Development and David Ramirez with the U.S. Army Corps of Engineers presented information on levees, dams, bridges, and culverts and how these conveyance and man-made structures directly affect the flow of water.

WHAT WE HEARD FROM TECHNICAL PROFESSIONALS

Data and the Local Community

- There is a need to work with the community to “crowdsource” data, which can be done in real-time during a disaster event; this can provide something as simple as a picture of flood effects or as complex as water flow, depth, and rise rate.
- The education of citizens on flooding probability in their area and how to read FEMA floodplain maps when moving into the area is a key need for future flood risk reduction; incorporating developers, insurance agents, and financial institutions into related planning efforts can supplement this focus.
- The state can aid in grassroots outreach efforts to connect data-driven decision-making to citizens by incorporating non-profits and leveraging existing resources or networks.

A Unified Voice

- Communicating flood risks can be streamlined and enhanced by creating a unified voice and message that begins with objective experts who have in-region credibility and providing local leaders with the ability to make sound decisions and emergency communications based on reliable information.
- Utilizing education, outreach, and engagement strategies can successfully drive the long-term vision, creating a paradigm shift from a top-down “umbrella approach” to one that is dynamic, regional, and benefits from many different approaches.

Data Availability

- Building a greater understanding of storm surges and their impact on population movement, compounded flooding events, and multi-watershed effects will be a key input to modeling and discussing larger-scale solutions.
- Providing easy and ubiquitous access to raw data sources helps build an environment in which “everyone can be an expert,” thereby creating situations where the most important or critical data is ignored, misunderstood, or miscommunicated.



- Creating scope and limiting uncertainty/assumptions when modeling is important when inputting data, creating boundaries for that data, and generating an output that people can understand.

Modern Approaches

- Watershed-based approaches should be informed by modern concepts and best practices; the “hurry and get the water away” approach of prior decades should be supplanted with modern techniques that benefit from informed mitigation strategies and efficient use of resources and/or natural materials.
- Use of a “water management district” approach, like other states have used, will help the state assess every impact on a long-term scale – recharging aquifers, mitigating residential flooding, improving biodiversity, etc.

WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- Comprehensive plans are outdated in many instances; as such, these plans may not be the most relevant input for watershed-based plans.
- State plans must set standards for regional plans and their development.
- Implementation and enforcement techniques are just as important as what goes into the plan.
- Incentives can be used as a means of moving plans forward and providing for appropriate use of funding, as well as implementation of risk-reduction policies.
- Experts, peer reviewers, local leaders, and local communities must be included in the development of plans, not just state officials and staff.

Projects

WHAT IS BEING DONE NOW?

- Shovel-ready projects
- Projects that have the best benefit-cost analysis
- Using elevation data to focus grant efforts based on need
- Identifying scenic streams for re-designation

WHAT SHOULD BE CONSIDERED MOVING FORWARD?

- Utilizing pervious fill areas (ditch/sand drywells)
- Dredging (especially the Bogue Falaya) to create capacity
- Drainage impact fees to create economic capacity for funding mitigation projects
- Green infrastructure in repetitive loss areas
- Closing the void in structural protection



- Pre-planning and providing more structured direction to local development

Policy Considerations

- Technical experts need to be involved in developing policy, reviewing current codes and regulations, and establishing appropriate enforcement mechanisms within those ordinances.
- Policy guidelines should be provided by the state to the regional level so that all areas “play by the same rules.”
- Local jurisdictions and their parishes sometimes work against one other, even unintentionally, creating regional conflict as a result; policy guidelines need to provide a framework that will help ensure each jurisdiction in a given watershed and/or in the state operates from the same policy foundation.
- Model ordinances need to be created and provided to local jurisdictions that include guidance informed by best practices, including measures such as no net fill, zero net impact, and green infrastructure.
- Educational elements must be included into any policy measures, such as the importance of modeling, costs associated with not doing things differently, and how building differently doesn’t carry an increased cost.



KEY THEMES: CAPITAL REGION

Listening Tour Location: BREC Administration, 6201 Florida Blvd., Baton Rouge, LA

Listening Tour Date: November 14, 2018

Total Session Attendance: 126

DATA DISCUSSION

The data discussion in the Capital Region focused on modeling approaches, specifically highlighting the Amite River Basin as a case study. Ehab Meselhe from Tulane University and Sam Crampton from Dewberry discussed community-based watershed management aspects and approaches, as well as the data driving those models.

WHAT WE HEARD FROM TECHNICAL PROFESSIONALS

Imagery

- As a common GIS exercise, utilizing different imagery resources (such as comparing LiDAR with flood maps) can inform developers and residents about how much fill is needed when building and developing.
- The intercoastal waterway to the gulf is not accurate when compared to the national map, which highlights the need for consistent and quality imagery across the board.
- Currently, stakeholders must coordinate with federal agencies to receive imagery for portions of watersheds that cross state boundaries, creating an inefficient and inconsistent process for security key data inputs.

Big Data

- More robust data gathering efforts and expanded use of data will not only inform the Initiative, but also has far-reaching effects – insurance companies can use this data to improve their tools to administer the NFIP, while floodplain managers can use big data to survey their needs and benefits involving the administration of a CRS framework in their community.
- The amount of data currently being generated is significant; it will be critical to engage colleges and universities that house much of this data and metadata, as well as offer access to faculty and supercomputers that can assist in data analysis.
- Metadata is extremely important to manage the lifecycle of the data, maintaining the integrity of the data, and inform future data collection.
- The issue is not necessarily how much data currently exists, but more so the lack of scope and direction associated with how it was originally collected.

Modeling

- The data that goes into the models and scenarios involved with models can be overwhelming – it is critical to remember that this data involves actual people and modeling efforts must ultimately connect back to how the state and local jurisdictions serve their constituents.



- It will be important to fully understand the purpose of the models, the assumptions made when developing the model and using the data, and how data was collected to ensure the accuracy and quality of the model.
- Models should inform not only an estimate of what can happen, but also what the greatest potential is; basing policies off models that project overly optimistic results as opposed to worst-case scenarios will inevitably lead to unmanaged expectations and less-than-ideal mitigation efforts based off this data.

WHAT WE HEARD FROM PLANNING, PROJECTS AND POLICY PROFESSIONALS

Planning

- Existing plans such as zoning, hazard mitigation plans, levee plans, drainage plans, and public information programs must be incorporated into any future watershed plans.
- There must be an enforcement mechanism tied to implementing watershed plans; simply building plans is not enough.
- The state must facilitate building a community around watershed plans that includes all relevant stakeholders, including but not limited to not-for-profits, business and industry representatives, academia and more.
- Consistent regulation and enforcement across watersheds is needed for ongoing adherence to baseline plans.
- Statewide plans should only be used as a guideline or foundation that facilitate and recommend funding considerations across the state.

Projects

WHAT IS BEING DONE NOW?

- Historically impacted and high susceptibility areas are considered first
- Buyouts and acquisitions to turn into drainage lots
- Projects with the greatest cost benefit are prioritized
- Water diversion projects such as the Comite River Diversion

WHAT SHOULD BE CONSIDERED MOVING FORWARD?

- Restructuring and standardization of codes
- Education of those communicating directly with homeowners (e.g., insurance agents and realtors)
- Re-naturalization of canals
- Maintenance requirements associated with completed and/or in-progress projects to help ensure their long-term viability

Policy Considerations

- Data and science should guide where shifts in policy are needed.



- The primary application of policy measures should take place at the local and/or regional level, where each parish has local permitting authority but takes action based on general guidelines produced by the state.
- Incentives should be utilized when working with local jurisdictions to support immediate coordination and watershed-level policy adoption.



INTEGRATING WHAT WE HAVE LEARNED

The feedback collected through this listening tour is already informing many of the Council's next steps with the Initiative, particularly as the state works to position itself to move swiftly upon receiving formal federal guidance on use parameters for Louisiana's Congressional allocation of more than \$1.2 billion in flood mitigation funds. Many of these next steps are outlined previously within this summary report in tandem with and in response to the key themes that surfaced throughout these discussions in October and November 2018. More immediately, the Council is preparing a series of actions in early 2019 that are in response to or directly aligned with these key themes, as outlined in the proposed schedule that follows.

JANUARY 2019

- Finalize outreach and engagement plan informed by statewide listening tour
- Continue the development of the Initiative's Regional Capacity Building Grant Program to provide targeted technical assistance to regions in need of support and expertise to align with the objectives of the Initiative
- Develop and launch of new Initiative website features, including public comment capabilities for forthcoming Initiative plans, reports, or documents, along with additional technical resources (January/February 2019)

FEBRUARY 2019

- Support DOTD's submittal of a final report to Louisiana Legislature in response to Senate Resolution 172 (SR172) of the 2017 Regular Legislative Session, outlining state agency efforts to respond to SR172 and implement this statewide watershed-based floodplain management effort
- Coordinate Louisiana Watershed Initiative Best Practices Summit to serve as a facilitated dialogue between Louisiana stakeholders and other states or large regional areas considered to be "best practices" for watershed-based floodplain management, with a focus on incorporation into ongoing Initiative efforts
- Facilitate regional meetings with municipal and parish leaders throughout the state focused on initiating early H&H modeling efforts based on available LiDAR data
- Continue development of additional program publications and technical resources, such as guidance on available data and how this data can be used to reduce flood risk

MARCH 2019

- Implement the Regional Capacity Building Grant Program, including open application periods for regions to submit requests for program grants to address capacity needs involving watershed-based floodplain management
- Coordinate Louisiana-based summit of neighboring states to discuss interstate watershed-based floodplain management approaches and how best to collaborate across watersheds that cross state lines, as well as to fully understand how actions taken in one state may impact another located downstream
- Release program-related publications such as research involving flood risk-reduction policy measures and related value propositions for local communities, funding guidance, best practices, and other items