LOUISIANA WATERSHED INITIATIVE

FREQUENTLY ASKED QUESTIONS

WATERSHED MONITORING, MAPPING AND MODELING PROGRAM

Oct. 27, 2020

OVERVIEW

1. When and how will the models be implemented?

The state plans to complete all watershed models by 2023. The modeling program is in Phase 1, which means LWI program officials are working with modeling experts throughout the state and country, as well as local and regional officials, to develop guidance for setting up, calibrating and implementing these models. Given the significance of this program and the public investment required, LWI must engage a wide range of experts and stakeholders to guide the detailed decision-making process about how these models will be built and used, which will be announced in subsequent program phases.

2. What is hydrologic and hydraulic modeling?

H&H modeling, used since the 1970s, uses computer software applications that simulate the flow of rainfall runoff to predict the rise of creek and river water levels and potential flooding, as well as test ways to reduce flooding without constructing projects.

3. What can we learn from H&H modeling?

These models inform decisions about selecting and implementing flood reduction and restoration projects. H&H modeling also satisfies regulatory requirements and ensures that flooding induced by waterway modifications does not damage natural, agricultural and social resources. H&H modeling is one of the many engineering tools used to develop and refine flood risk reduction projects.

4. Why is the state making such a large investment in this program?

The modeling program is at the heart of what LWI aims to do: reduce flood risk statewide using tools, data and science-based decision making. This program will help the state build the tools and gather the data necessary to make those decisions. Investing in this process now will save the state money in the long run by helping leaders make more effective—and difficult—decisions that will reduce flood risks, damages and recovery costs.

5. Why are so many agencies and organizations involved in this effort?

No state has ever implemented a modeling program at this level or scale. Early in the formation of LWI, the state recognized that local jurisdictions, state and federal agencies, private engineering firms, academic institutions and others offered data and expertise needed for this work. Louisiana's modeling program is designed to be collaborative and to leverage the significant capacity and resources that exist throughout the state and country.

6. Who will have access to these models once developed?

These models will be accessible to all state, federal and local partners who need this type of scientific data and information to make flood mitigation decisions locally or regionally. The state is building a robust data portal that will serve as the interface for accessing these models. Detailed business processes and workflows will guide modeling operations to ensure precision and outputs are of the highest standards.

TECHNICAL DETAILS

7. What will the output resolution of the models be?

The output resolution will vary. Key areas where high resolution is warranted will be established based on a review of the hydrologic characteristics of a given watershed and detailed communication with local stakeholders and drainage engineers. As part of their first tasks, modeling consultants will propose designs of the H&H models, including proposed resolutions. LWI will review the design and ensure adequate resolution.

8. What will the landscape resolution be?

In general, HUC8 regional models will capture the different classes of land use and land cover within the watershed.

9. How will LWI model ephemeral streams (i.e., normally dry streams that only contain stormwater during rainfall)?

The models will be developed to represent different types of streams, including ephemeral. However, while the hydrologic models will use a loss method that allows for continuous simulations, the hydraulic models will not run continuous simulations. The LWI models will focus on historical rain events and hypothetical design storms. In either case, the channels will be wet. Ephemeral channels during dry periods will not be modeled. Agencies and stakeholders interested in continuous simulations of ephemeral streams can use the outputs of the hydrologic models and run their own analyses and modeling.

10. Will the models simulate the effects of urbanized and natural landscapes?

Yes, the regional models will capture these effects as long as they are within the model resolution. This includes the effects of impervious pavement and channelized streams versus natural streams, as well as naturally vegetated areas that can absorb floodwaters in headwaters and floodplains to prevent rapid runoff.

11. Will modeling support tools capture flood damage to agriculture, forested lands and wetlands for long-term planning and project evaluation?

The LWI team is reviewing tools to evaluate direct and indirect damages to assets including agricultural assets and natural habitats.