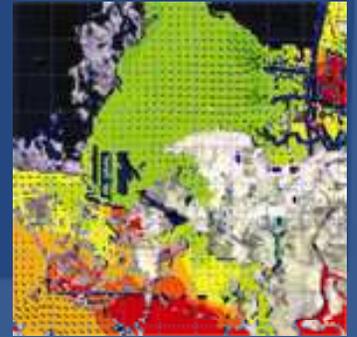




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CALCASIEU PARISH – CHOUPIQUE BAYOU AND SULPHUR BASINS STORMWATER MASTER PLAN



Project Team

C.H. Fenstermaker and Associates, Inc. and ECM Consultants have been contracted by the Calcasieu Parish Police Jury to develop a Stormwater Master Plan to address the flooding issues and future development within the Choupique Bayou and Sulphur Basins.



Project Objectives

- The main objective of the Stormwater Master Plan project is to setup hydrologic and hydraulic models to better understand the drainage system and evaluate potential projects to reduce flooding.
- Stormwater Master Plan, guided by the model results, will be developed to identify channel cleaning needs, assess structure capacities, develop a maintenance plan, and determine the impact of any future developments.

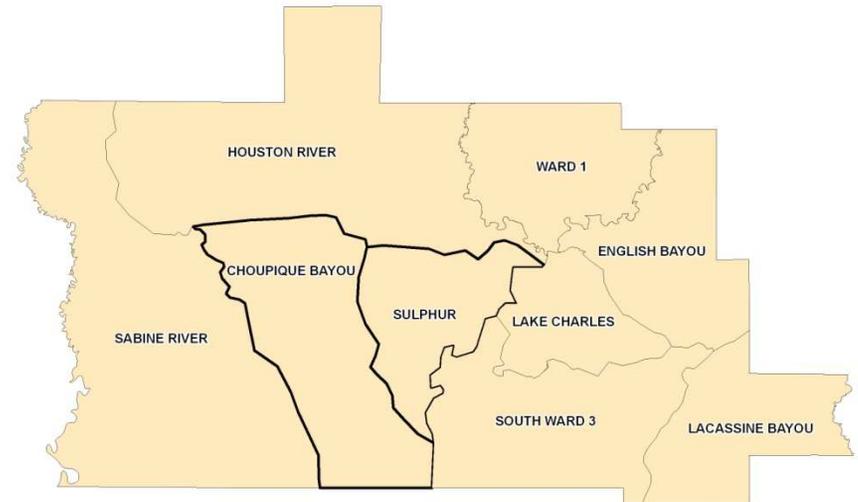
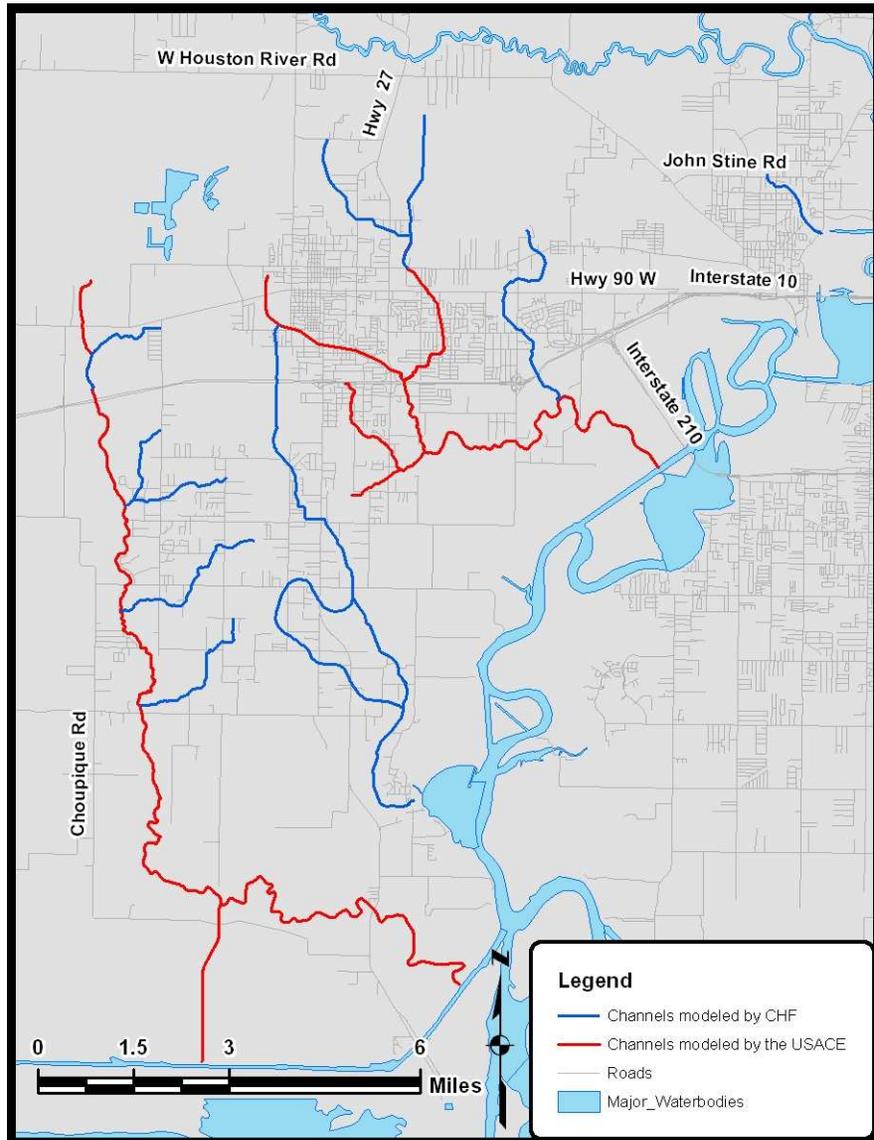


Project Schedule and Tasks

- Fenstermaker began work on this project in December, 2009 and plans to be complete by the end of December, 2010.
- Fenstermaker is performing the following tasks for the completion of this project:
 - Gather and compile existing geospatial, hydrologic and climatic , environmental, and socioeconomic data.
 - Collect topographic and bathymetric surveys on channels and structures.
 - Setup, calibration, and validate hydrologic and hydraulic models.
 - Merge the models with the models developed by the Army Corps of Engineers
 - Setup a GIS database of maps and layers pertaining to the Choupique-Sulphur study areas
 - Develop a Stormwater Master Plan
 - Transfer data for future Parish use
 - Train Parish staff to run the models.



Project Area



The Choupique-Sulphur study area is comprised of laterals located in the Choupique Bayou and Sulphur drainage basins.

Channels seen in red have been modeled by the U.S. Army Corps of Engineers and the channels identified in blue are those being modeled within this study.

Topographic Survey

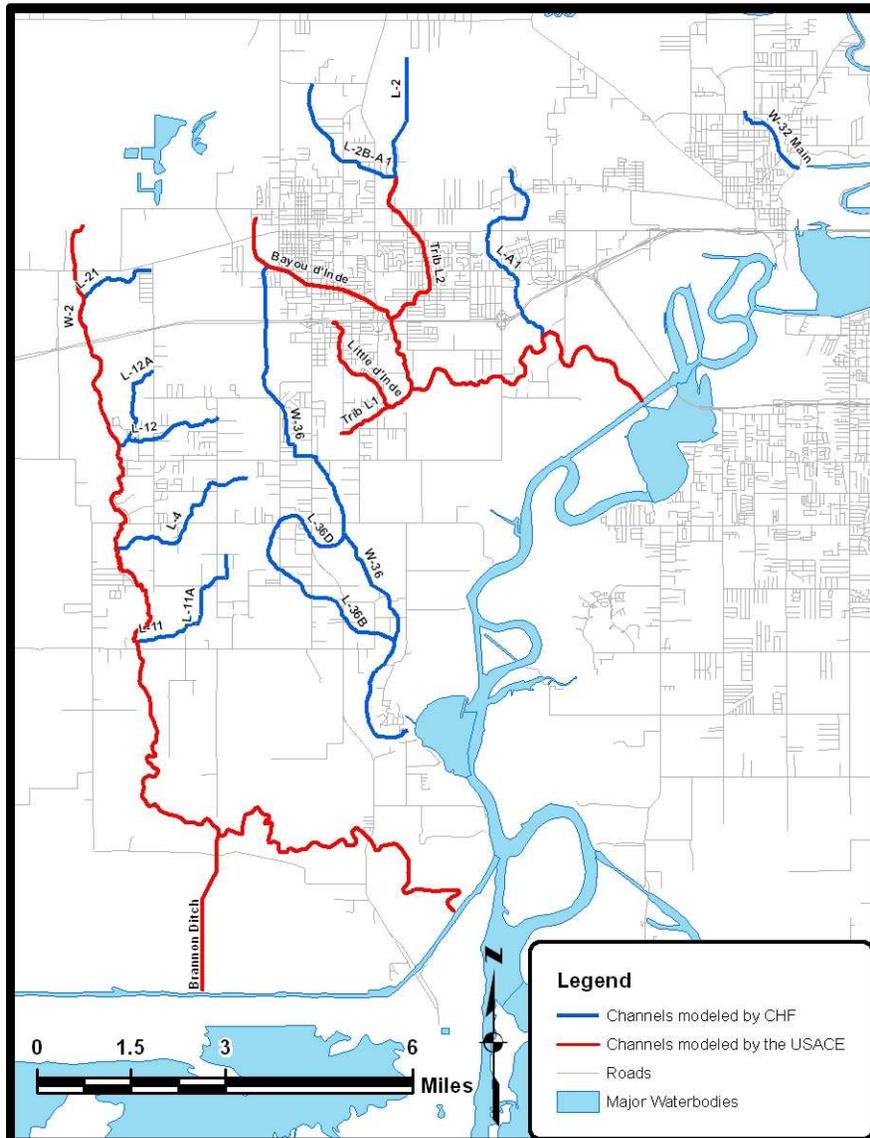
- As of January, 2010 approximately 90% of the topographic survey data has been collected and processed.
- During the months of June and July 2010 the remaining 10% of the data will be collected based on modeling needs.
- Expected Geometric Features to be Surveyed
 - 165 Cross Sections
 - 49 Bridges
 - 62 Culverts
 - 5 Pipeline Crossing



Surveyed Structures



Modeled Channels

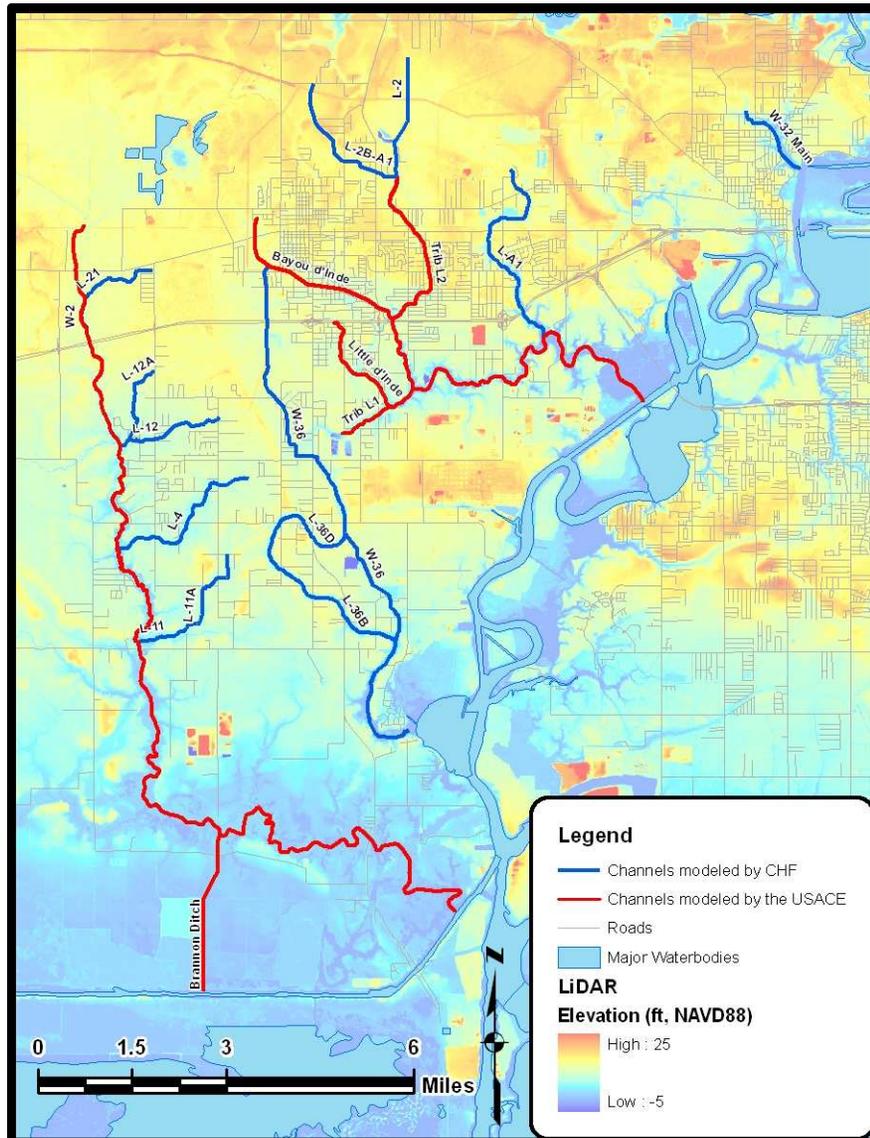


Fenstermaker is modeling the channels identified in blue using the U.S. Army Corps of Engineers hydraulic modeling software HEC-RAS.

This hydraulic model is currently being setup to include surveyed cross sections, bridges, culverts, and railroad crossings.

Once setup is complete and the Calcasieu Parish Police Jury has received the final U.S. Army Corps of Engineers models, Fenstermaker will merge the two channel networks together.

LiDAR Data



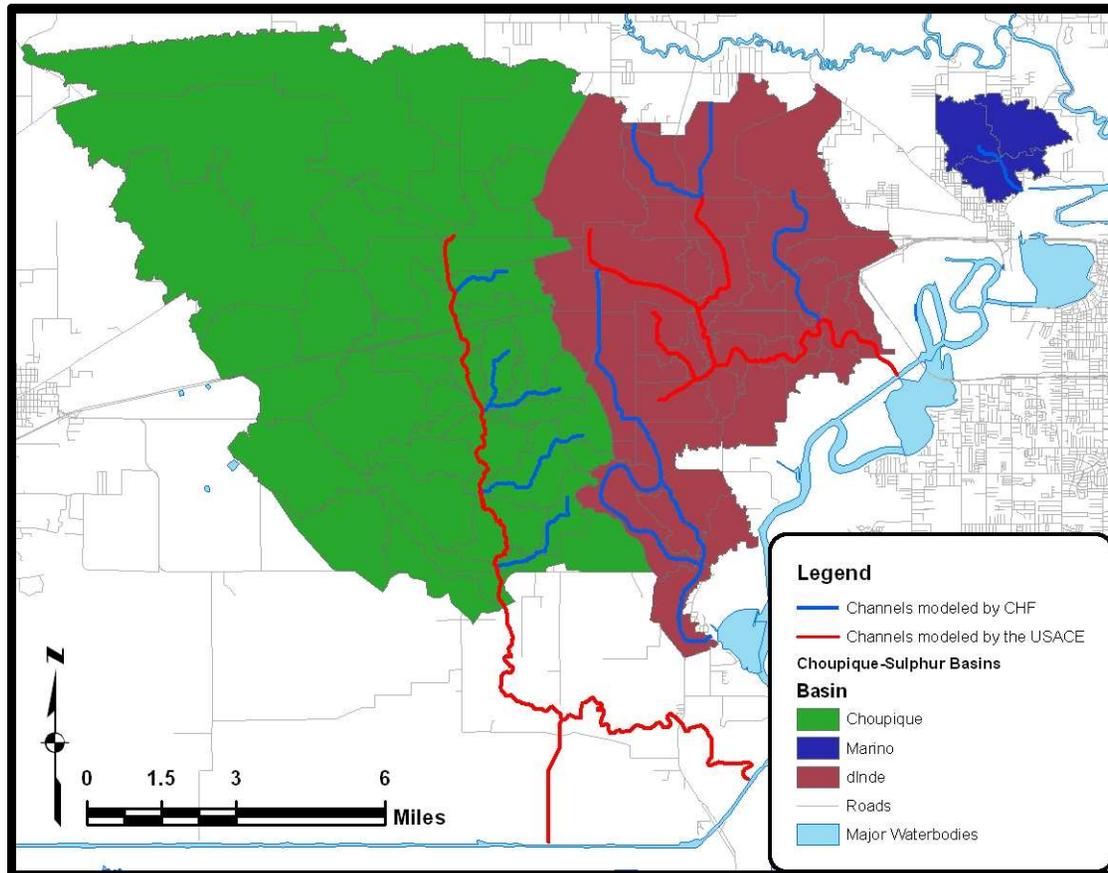
Light Detection and Ranging (LiDAR) data was used to determine the flow paths, flow direction, and basin boundaries. LiDAR data is obtained through the LSU Atlas website and provides elevation data on a 5 meter by 5 meter grid.

Basin Map

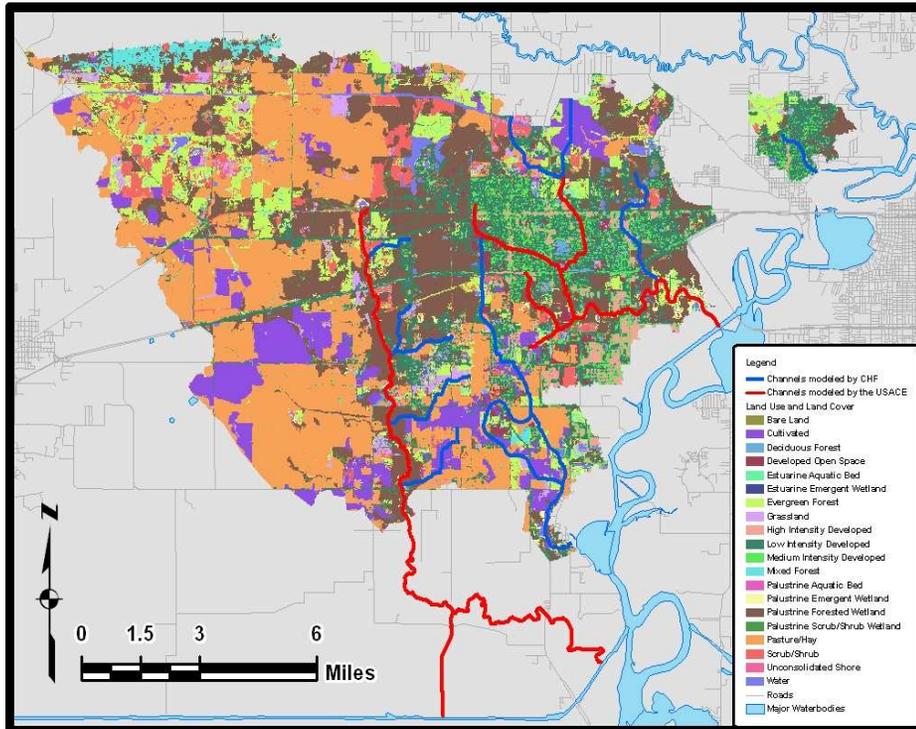
The Fenstermaker Team has identified three major basins with separate outfall points.

These basins represent the areas which are directly drained by a channel system and a network of tributaries.

Each of these basins has been divided into multiple smaller basins (sub-basins) which have been analyzed in the Army Corps of Engineers Hydrologic Modeling Program HEC-HMS to determine the total runoff from each sub-basin.

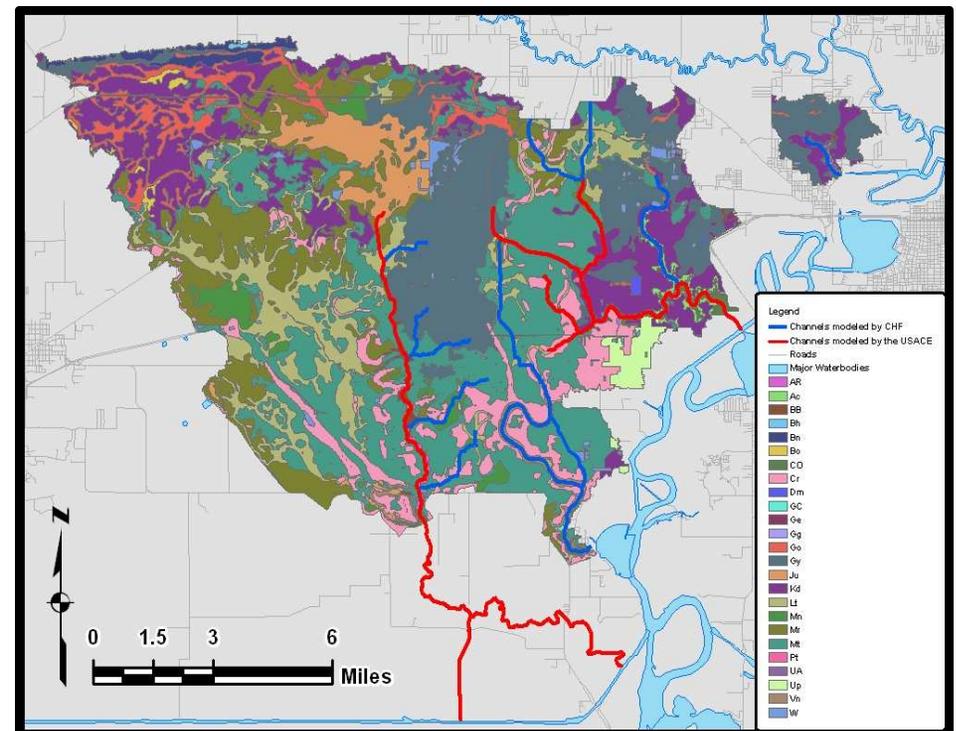


GIS Database



The Fenstermaker Team is working jointly with the Calcasieu Parish Police Jury to develop an extensive GIS database for the Choupique-Sulphur study area.

Sample GIS database files such as Soil Maps and Land Use Land Cover (LULC) data have been collected from NRCS and USGS. Such files are used to complete the hydrologic models (HEC-HMS)



Project Status

- The Fenstermaker Team is currently working on the setup of the HEC-RAS and HEC-HMS models which are being merged with the models that were developed by the Army Corps of Engineers. The models will be complete with the recommended Capital Improvement Projects by October 2010 and the final Stormwater Master Plan report detailing the maintenance plans, and recommendations for reducing the impact of future development is scheduled to be completed by the end of December 2010.

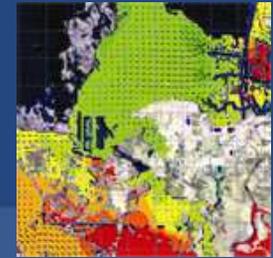
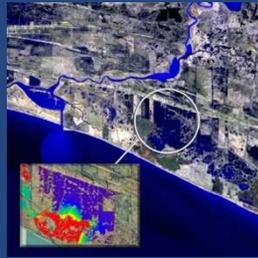


C. H.

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