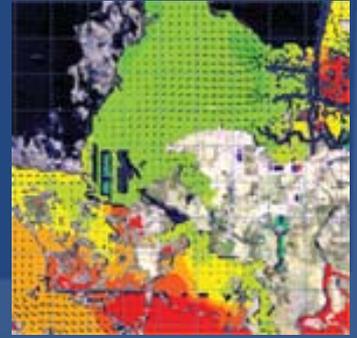




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CALCASIEU PARISH – EAST MCNEESE STREET BASIN STORMWATER MASTER PLAN



Project Team

C.H. Fenstermaker and Associates, Inc. and ECM Consultants have been contracted by the Calcasieu Parish Police Jury to complete a Stormwater Master Plan to address the flooding issues and future development within the East McNeese Street Basin area.



Project Objectives

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

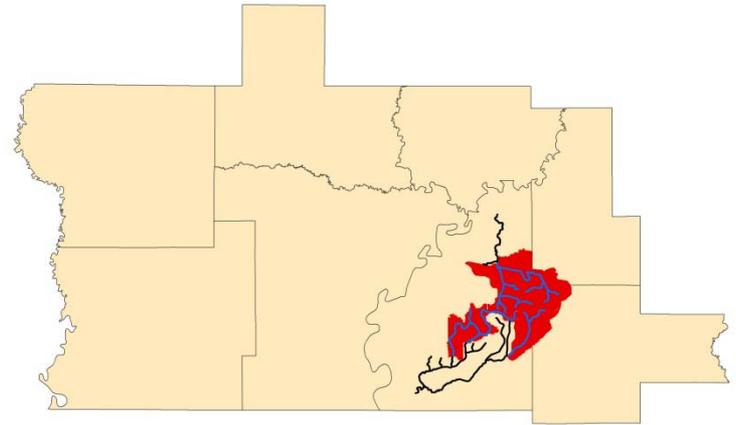
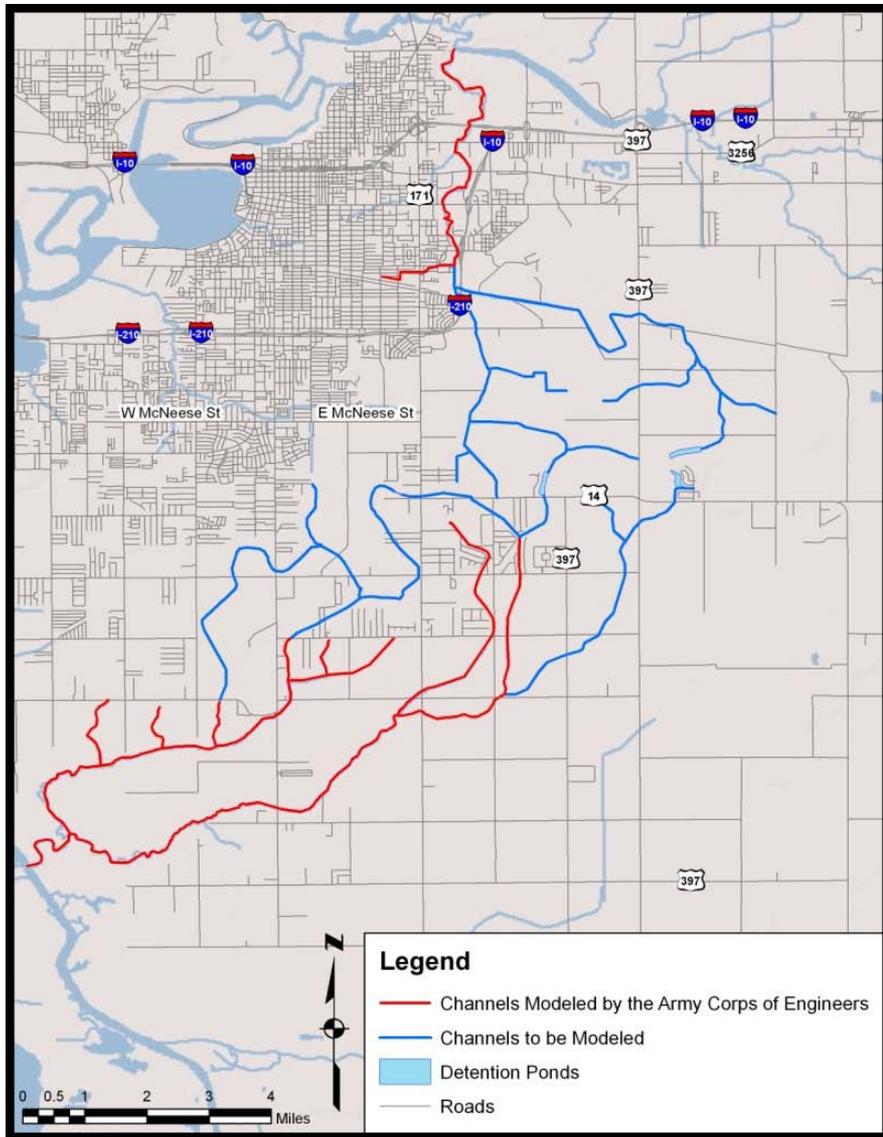


Project Schedule and Tasks

- Fenstermaker began work on this project in December, 2008 and plans to be complete by the end of September, 2009.
- Fenstermaker is performing the following tasks for the completion of this project:
 - Gathering and compiling existing geospatial data, hydrologic and climatic data, environmental data, and socioeconomic data.
 - Topographic and bathymetric surveys on all modeled channels and structures.
 - Setup, calibration, and validation of hydrologic and hydraulic models.
 - Merge the calibrated models with the models developed by the Army Corps of Engineers
 - Setup of a GIS database of maps and layers pertaining to the Calcasieu East McNeese Street Drainage Basin Area
 - Develop a Stormwater Master Plan
 - Transfer of data for future Parish use
 - Training of Parish staff to run the models.



Project Area



The East McNeese Street Basin study area is comprised of laterals located in the Lake Charles and South Ward 3 Drainage Basins.

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

Topographic Survey

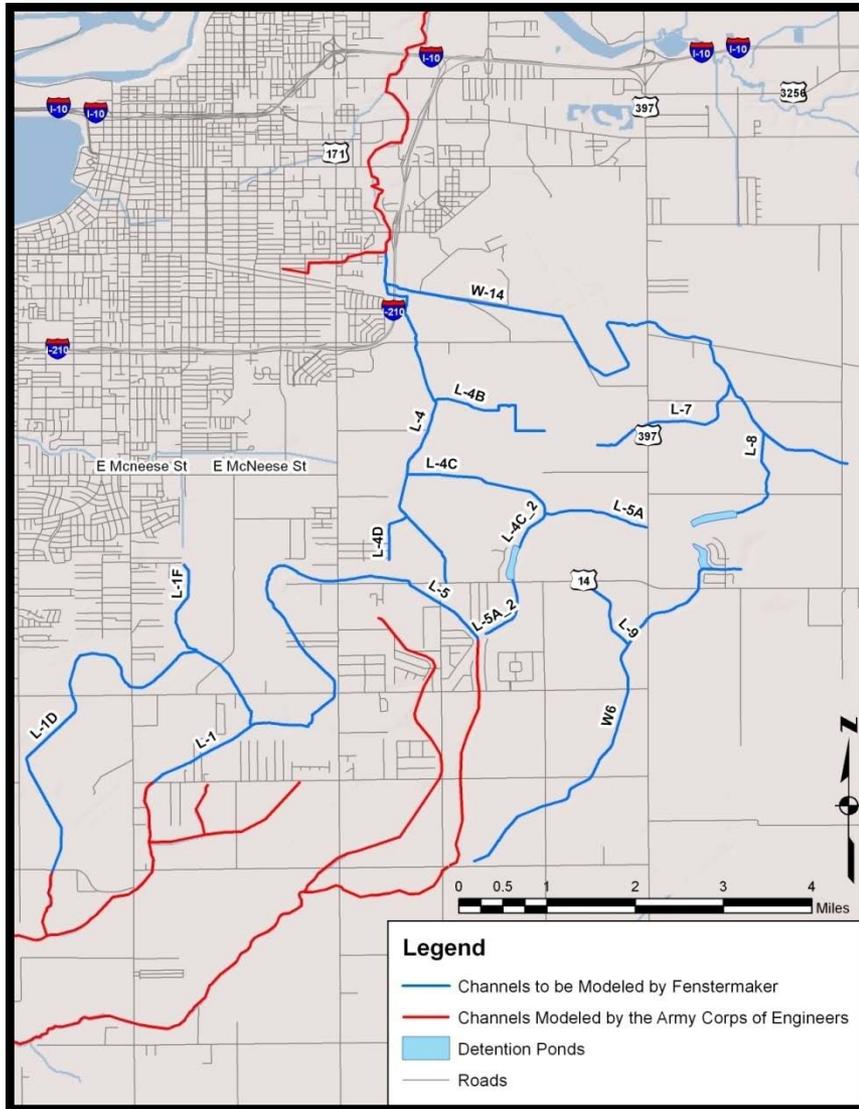
- As of May, 2009 approximately 90% of the topographic survey data has been collected and processed.
- During the months of June and July 2009 the remaining 10% of the data will be collected based on modeling needs.
- Expected Geometric Features to be Surveyed
 - 208 Cross Sections
 - 14 Bridges
 - 20 Culverts
 - 49 Private Crossing
 - 9 Railroad Crossings



Surveyed Structures



Modeled Channels

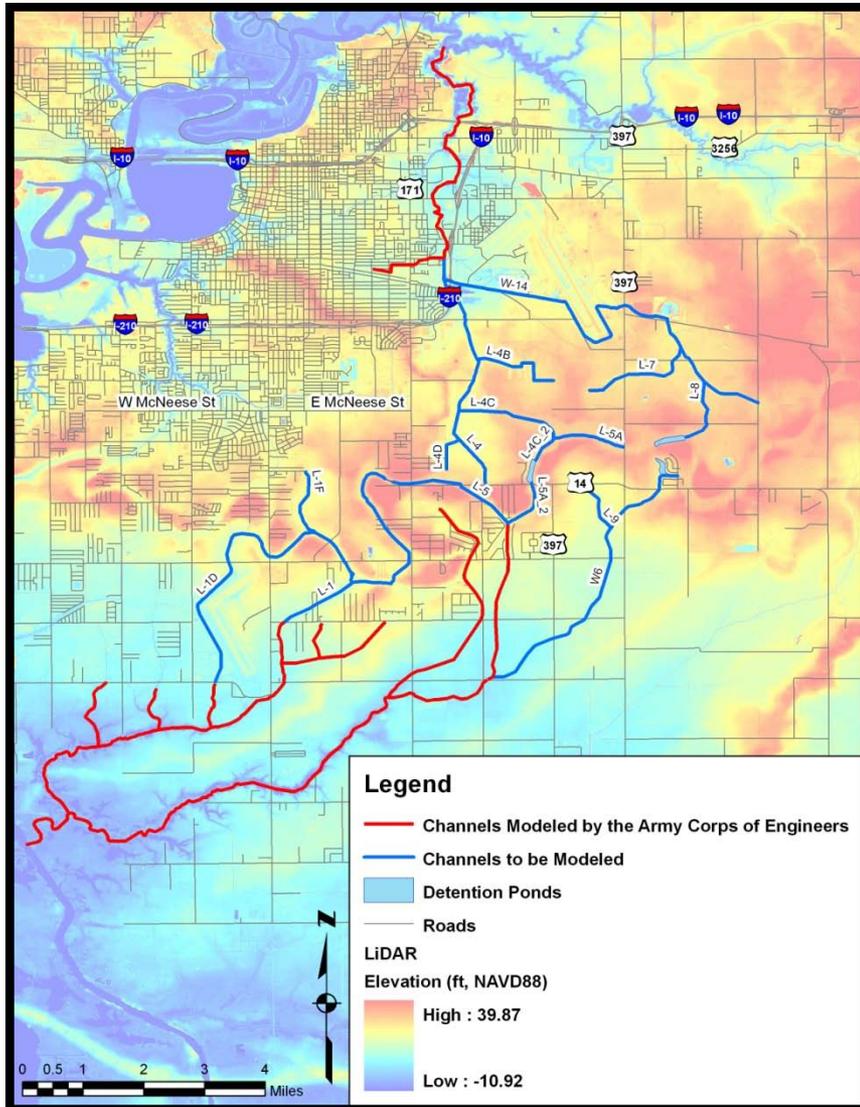


Fenstermaker is modeling the channels identified in blue using the U.S. Army Corps of Engineers hydraulic modeling software HEC-RAS.

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

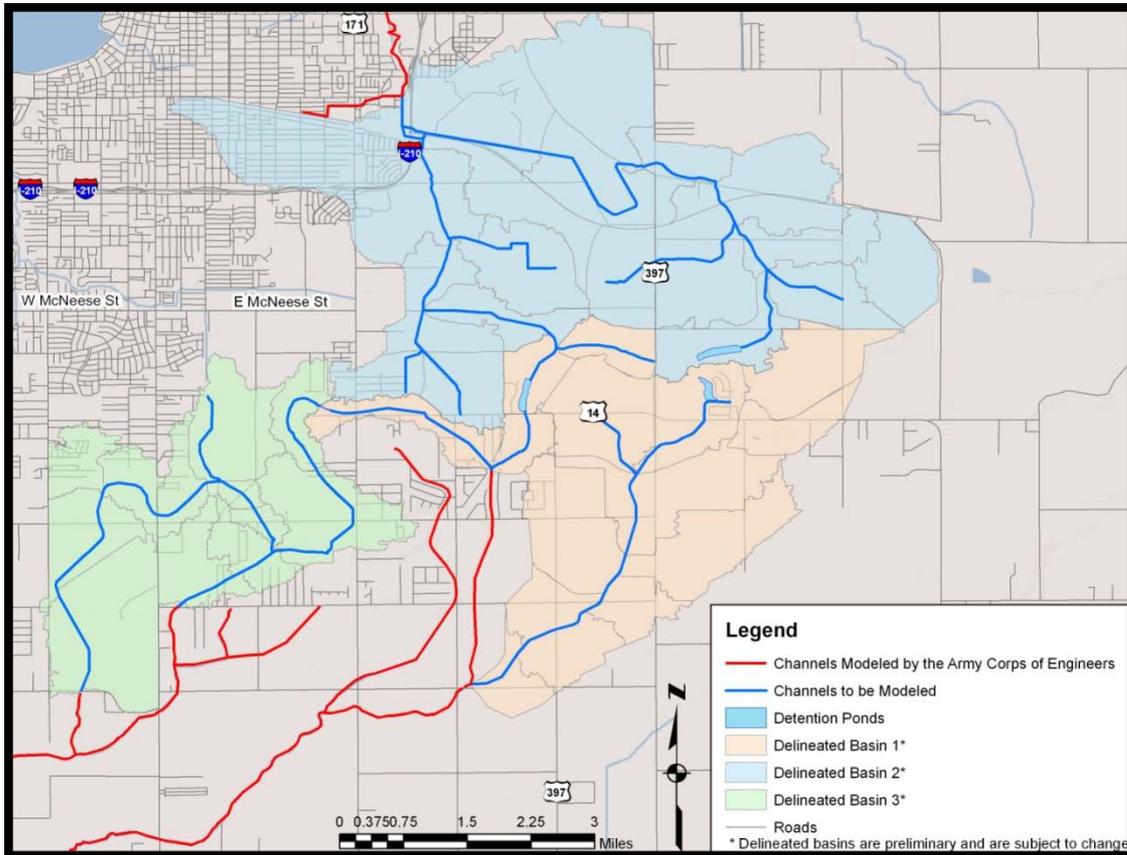
Once setup is complete and the Calcasieu Parish Police Jury has received the final U.S. Army Corps of Engineers models Fenstermaker will merge the two channel networks together.

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



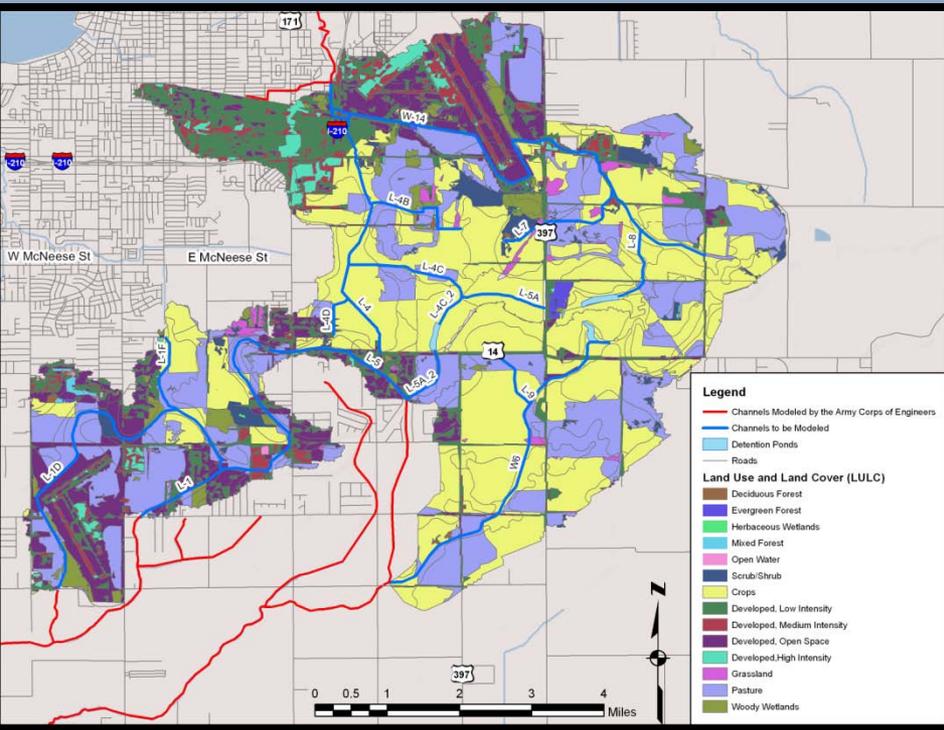
The Fenstermaker Team has identified three major basins with separate outfall points.

These basins represent the areas which are directly drained by a river system and their tributaries.

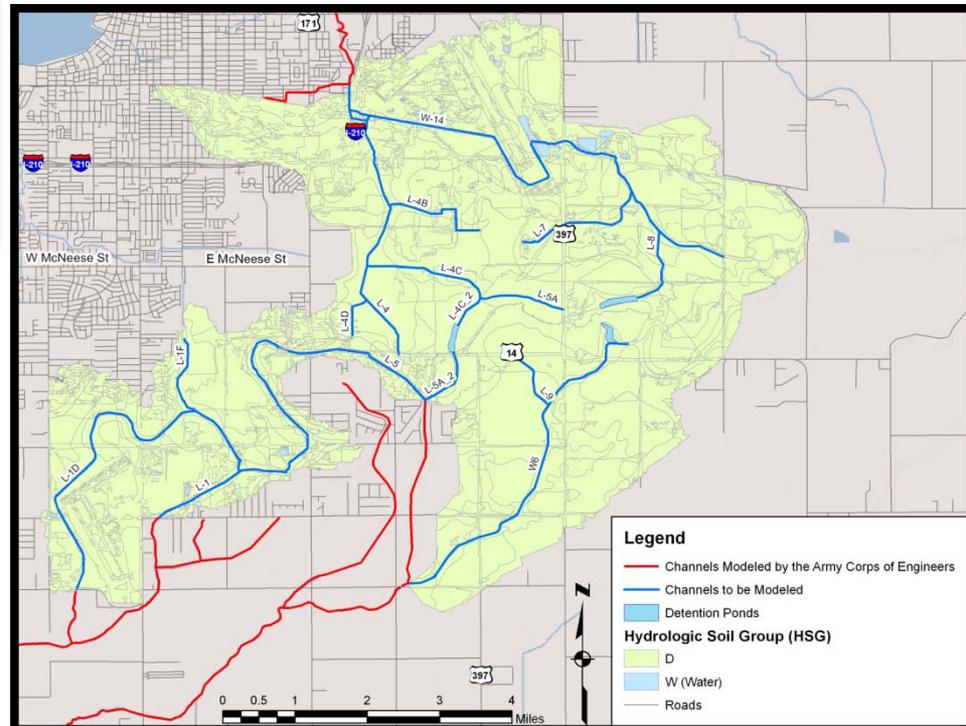
Each of these basins has been divided into multiple smaller basins (sub-basins) which have been analyzed in the Army Corps of Engineers Hydrologic Modeling Program HEC-HMS to determine the total runoff from each sub-basin.

GIS Database

The Fenstermaker Team is working jointly with the Calcasieu Parish Police Jury to develop an extensive GIS database for the East McNeese Street Basin 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)



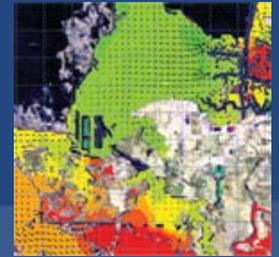
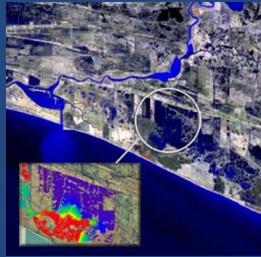
Project Status

- The Fenstermaker Team is currently working on the model setup of the HEC-RAS and HEC-HMS models which will be merged with the models being developed by the Army Corps of Engineers. The final Stormwater Master Plan report detailing recommended Capital Improvement Projects, maintenance plans, and recommendations for reducing the impact of future development is scheduled to be completed by the end of September 2009.





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