



Mississippi Area Remapping Strategies (MARS): Water Valley Fire Hydrant Mapping Project



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Goals

Mentor students from a local high school in order to provide training and expertise so that they can complete a community-based geospatial information science and technology (GIS&T) project.

PROJECT OVERVIEW

The Mississippi Area Remapping Strategies (MARS) project was a high school adoption program with five Mississippi high schools who partnered with a local university/community college to design and complete a project based on geospatial information science and technology (GIS&T). The MARS project began in January 2007 and was completed by May 2007. The participating university/community college partners provided training and guidance to the high school students so that the GIS&T projects could be completed successfully. The projects were encouraged to be community-based to show the usefulness of GIS&T to local community leaders and to show the students the benefits of giving back to their communities.

A kickoff meeting was held in Jackson, MS on January 26th for the five participating high school students, teachers and administrator to meet their university mentors and decide on an appropriate community-based project. The University of Mississippi was partnered with Water Valley High School students from the school's Environmental and Spatial Technology (EAST) lab. The Water Valley High School students selected a public works project to map out fire hydrants in the City of Water Valley.

After the Water Valley students had selected their project, The University of Mississippi mentors held several meetings and training sessions with the students. The training sessions varied from the theory and use of GPS units to a 2-day training course in ESRI's ArcGIS 9.2. The training courses were necessary for the students to get a basic understanding of GIS&T so that they could set a strategy for collecting data on the fire hydrants. Other participants in the meetings and trainings were the City of Water Valley Mayor, Fire Chief and water department officials. The water department officials participated in the meetings to convey what information needed to be gathered and where on the fire hydrants that information could be found.



Figure 1. Fire hydrant data collection using handheld GPS units.

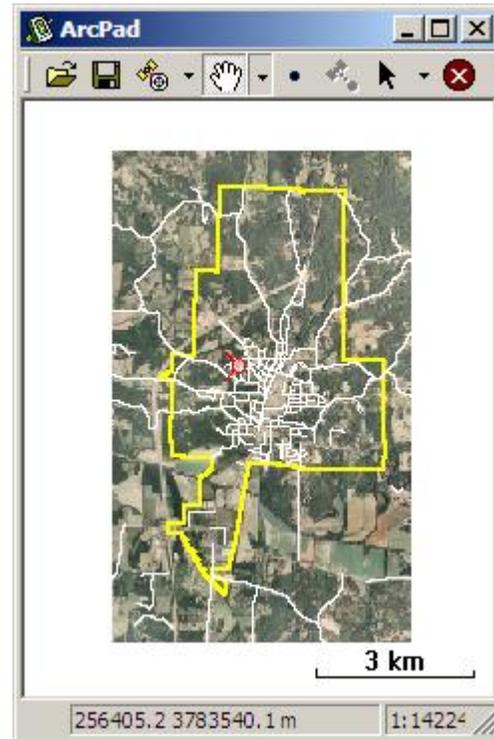


Figure 2. Screenshot from ArcPad mobile GIS software from handheld GPS unit

Once the planning phase was completed, the students began collecting data using handheld GPS units loaded with ESRI's ArcPad mobile GIS software. The city was divided into sections with a different group of students responsible for collecting data on fire hydrants in each section. The students collected the GPS coordinates and the information on the fire hydrants during EAST lab classes and after school on some days.

CONCLUSIONS

The Water Valley High School students collected data on all 235 fire hydrants in the city. The information for each hydrant included color, flow rate, X & Y coordinates, physical address (i.e. Street name, number), type, date and manufacturer. This information was imported into ArcGIS 9.2 where analysis was done on the distance in between fire hydrants along streets. Buffers were created around each fire hydrant using ArcGIS in order to identify any areas where there was not a continuous overlap of hydrants according to city regulations. All of this information, including a detailed map with high-resolution satellite imagery as a background and the fire hydrants overlaying the imagery, was given to the city and the water department.

A final meeting between all of the participating high schools and universities was held in order to give the students a chance to present their projects to the other students. An overall winner was chosen for most successful project along guidelines involving GIS applications, community benefits and professionalism. The students from Water Valley High School were the overall winners and received a new Trimble GeoXM Handheld unit as a prize.

IMPACTS

The project succeeded in training approximately eight students at Water Valley High School, two teachers, and numerous city officials in GIS&T. The emerging technologies that were introduced provided the project participants with the insight of the endless possibilities of projects that could benefit from GIS&T. Unfortunately, most of the students from Water Valley High School that were trained graduated following the completion of the project. However, the mentors from The University of Mississippi have continued to provide support

and training to students at Water Valley including students in the 9th and 10th grades, to create continuity between students who are familiar with the technology. Currently, there are 13 students now involved with the EAST lab that have been introduced to ESRI ArcGIS software and the use and theory of GPS. The continued partnership between Water Valley High School, the City of Water Valley and the University of Mississippi will continue to foster learning of GIS&T among all that are involved giving back to the communities where it most beneficial.

Collaborators

Enterprise for Innovative Geospatial Solutions

Water Valley High School

The City of Water Valley

**State of Mississippi Institute of Higher Learning
Geospatial Council**

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