

# **Fort Bend Independent School District partners with the City of Rosenberg**

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## **Abstract**

When representatives of the Thurgood Marshall High School GIS Academy and the City of Rosenberg met at GIS Day 2003 activities in Houston, a partnership was born. The students of the Academy are required to participate in an internship. The City of Rosenberg was in need of some assistance. The solution was to have the GIS Academy students act as non-paid interns through a virtual internship.

## **Paper body**

Thurgood Marshall High School, in Fort Bend I.S.D., is located in Missouri City, Texas (southwest of Houston). The GIS Academy, a Magnet Academy, opened in 2002 with approximately 120 students. The average number of students in the Academy continues to be approximately 100. The first year of the GIS Academy (9<sup>th</sup> grade) is considered the exploration stage; the students learn about the GIS software (ESRI ArcGIS 9.0) and the personal geodatabase, which they will use in the classroom later. The students also learn about the education and career possibilities of the future. The second through fourth years (10<sup>th</sup> grade through 12<sup>th</sup> grade) consist of hands on learning, with the GIS courses counting towards a two-year degree at Houston Community College or a four-year college degree at Texas A&M University. A total of 18 hours of college credit is earned throughout the student's time in the Academy. During the fourth year (12<sup>th</sup> grade), each student must be involved in a GIS internship.

The City of Rosenberg (approximately 15 miles southwest of Missouri City) has a population of 27,285 people and has an area of 18.93 square miles. With urban sprawl occurring, Rosenberg is directly in the path of development. Currently, we have 16 proposed residential subdivisions going through the platting process with three of these subdivisions already laying the infrastructure. With all of this development, it is imperative to get as much historical data as possible into the GIS. Rosenberg, with a one-woman shop, needs as much assistance as possible in order to build on the historical data as well as keep current with the incoming data.

Representatives from the two entities met at the Thurgood Marshall High School booth during the GIS Day 2003 activities (at the University of Houston – Downtown, sponsored by multiple Houston area companies and the University of Houston - Downtown). After inspecting the course curriculum of the Thurgood Marshall High School GIS Academy, which was displayed in the booth, a conversation was quickly started and a relationship was born. The GIS Academy Director mentioned the possibility of the students performing GIS duties for the City of Rosenberg.

The students worked, non-paid, through a virtual internship, which was defined as the students using the internet (email) to receive and send work to the City of Rosenberg's GIS Department. The City of Rosenberg's GIS representative visited the high school multiple times throughout the

duration of the work. An introductory visit was made at the beginning of the project to explain the concept and the purpose of the work. Following the initial visit, there were a few occasions where a student requested and needed on-site assistance (this was usually if a student was dealing with a difficult editing situation). A few random visits were made to the school to perform quality control and, if necessary, to remind the students how to perform accurate edits of the data. There were two separate 'virtual' projects that the Thurgood Marshall High School GIS Academy worked on.

The first project was "heads up digitizing" of a subdivision plat. One student was assigned to this project. The City of Rosenberg received a subdivision plat in an AutoCAD (.dwg or .dxf) format, which was converted to a .tif in order for the student to work with the file in ArcMap. This student took the .tif file and digitized on screen so the parcels on the plats were available for the City of Rosenberg's use. All digitizing was targeted to a layer called "Rosenberg Development", which has been created as a polygon feature class. Once completed, the student notified the City of Rosenberg's GIS Department through email and a new .tif file was sent. Several times the City of Rosenberg's GIS Department requested that all files be sent back for quality control, which was also done through email.

The second project, the centerline project, had several students working on it. Since this is a student driven Internship a Team Leader was selected to control the work, time and quality control of the project. The team leader controlled which area was digitized and by which student. The Team Leader held team meetings to discuss decisions, problems and helped in the evaluation of the team. The Team Leader was responsible for quality control and reporting any problems to the Instructor and the City of Rosenberg's GIS Department. The centerline team started work on this project in the middle of October 2004 and completed the project at the end of February 2005. The students created centerlines by using the parcel basemap as a starting point. They digitized the street centerline, following the parcel boundary, to the midpoint of the right of way. Then, the students used the extend/trim task to either extend the centerline to the street it intersects or trim the overshoot to the intersection. The split tool was mainly used in order to split a centerline where a side street intersected it (i.e. creating a break in the street centerline; the majority of the time a centerline has an address block change at an intersection).

The Thurgood Marshall High School GIS Academy students spent approximately 500 hours working on the two projects for the City of Rosenberg. This is equivalent to \$3,250 based on a \$6.50 per hour salary. Not only did the City of Rosenberg benefit greatly from this partnership but the GIS Academy students did as well. For example, Kalyn Christophe said, "The Rosenberg project opened up my mind to the many possibilities of a GIS." Another student, Terrence Rhody said, "The Rosenberg project gave us the concept of working as a team on a large project. This is what the real world experiences." The information and skills gained through this virtual internship gave the students a pretty good look at what a career in GIS would be like. Without the GIS Academy, though, none of this would have been possible. The students are curious and highly motivated to succeed therefore the Academy is lucrative. "If you want to challenge yourself while gaining valuable professional experience, the GIS Academy is a great place to start," said senior Terrence Rhody. Getting more students interested in the GIS Academy can be presented as succinctly as senior Kalyn Christophe asked, "Why be a regular student when you can be a GIS student?"

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