Department of Architectural Technology
Perkins Project Proposal:

Using GIS tools to Document and Analyze Existing Structures

Geographic Information System hardware and software are the tools that are changing the way information about the natural and built environments is recorded, archived. managed, and made useful for research and analysis. These tools can be particularly useful for documenting and analyzing existing structures. Whether documenting existing conditions for construction projects, or archiving information for the use of historic preservation, GIS based data is emerging as a type of library of the future. As a growing field that crosses many disciplines, training in GIS data collection, documentation, and analysis offers our students both an enhancement of their architectural skills as well as a new career path alternative. GIS spatial data can be embedded with intelligence that make it a required tool of architects, landscape architects, urban designers and planners.

This proposal seeks to integrate GIS technology into a learning community that joins our Arch 1100 Architectural Drawing I and Arch 1140 Materials in Architecture courses for both the fall 2011 and spring 2012 semesters. This learning community is a model for our new proposed Building Technology I and II courses being reviewed by the College, and the project will build a structure to support further departmental use of GIS. The primary learning outcomes for these courses are to teach students the techniques for documenting buildings, understanding the materials of structures and their properties, and how these materials are assembled.

GIS hardware and software will be utilized to enhance both the drawing and the materials content of the course. The drawing portion of the course will focus on a series of seminal New York City buildings spanning from the 18th to the 20th century. Case study investigations of structures could include for example the Dyckman Farmhouse, the Tenement Museum, and the United Nations. Each case study site would be documented both in the field using handheld GIS devices that collect the data and enter it into a geodatabase that can analyzed and used back in the studio. Additional existing documentation such as Historic American Building Survey drawings would also be added to the GIS database. This information would be used to generate three dimensional models of the sites that would be a fundamental basis for further drawing and analysis of the site. The materials of each structure will be investigated both through documentation and potential collaboration with the CMCE faculty and students in the laboratory.

The protocol for the collection of GIS data will be based on a collaboration with the National Trust for Historic Preservation. This coordination would make the information useful for current and future research of the structures documented.

The funding from Perkins would be utilized to provide the following for the students:

1. Esri Mobile GIS data collection devises with built in GPS and digital camera(GeoCollectors)
    i. $8700/unit x 4units= $34,800

2. Esri GPS Analyst extension for ArcGIS Desktop
    i. $1,995/license x 4 licenses= $7,980

(These devices and software build will make full use of the CUNY site license for ArcView GIS 10.0 already acquired.)

3. Research Technician
    i. $4,000

4. Map Pluto (NYC Shape Data Files) that feed into GIS
    i. Brooklyn ($300) + Manhattan($300) = $600