The Security Systems Upgrade Project was a collaborative effort between the University of Alabama’s RCEU project, UAH’s Political Science Department, and the Huntsville Madison County Airport Authority’s Engineering Department. The applied research project had multiple objectives, but foremost was to document all entry/exit points on airport grounds, and in doing so, create a spatial product that could enhance security operations and contribute to the Security Systems Upgrade Project.

Examples of Training Projects & Deliverables

Future Directions

The security upgrade project generated a successful deliverable to the engineering department, and demonstrated to other airport departments the utility of a cartographic analyst/research intern. HMCAA’s IT department has extended an offer for Jack to continue working on a part time basis mapping fiber line at the airport. Jack will continue to hone his cartographic skills through application, and further his understanding of spatial databases, research and project management.

Acknowledgements

The research project fostered the development of a variety of research skills through application-based learning; some examples included:

- Software learning through application; specifically ESRI ArcGIS software suite, AutoCAD files and Excel
- Learning how to read and accuracy check archival engineering schematics
- Learning airfield orientation and safety training; the principles were reinforced in the field resulting in an understanding of professional conduct for operating around sensitive airfield areas, airfield equipment and aircraft
- Seeing how qualitative research can be a valid tool in a researchers toolbox, and how a mixed method approach can enhance the accuracy of data in a research project; as an example, where discrepancies were present between the engineering drawings and local structures, local intelligence could often describe historical changes to floorplans and enhance accuracy of the drawing
- Developing an understanding of pre-work database, and how end deliverables can dictate the workflow and format of research projects
- Field work practice and methods in data collection
- Workflow diagramming; being able to plan the steps that form a research project from start to completion, visualize a research project, and understand what sequential steps should be taken to complete a project
- Data collection and how to decide what data needs to be collected to answer the research question(s) being posed
- Exposure to an assortment of airport jobs, including; “ride alongs” with personnel that conduct airfield and runway inspections, airport police and fire, as well as shadowing other airport professionals, including: IT, operations, air-cargo handling at the International Intermodal Center, landscaping and business development – all which provided a unique opportunity to visualize through exposure, how the moving parts of a large international airport fit together
- Time management and triage; being able to consistently review steps in a project and maintain trajectory towards a successful completion and timely deliverable
- Creative thinking and autonomous problem solving. As an example, incorporating non-traditional data – such as taking a photograph of fire escape plans on the wall – to enhance the accuracy of mapping deliverables for this project
- GIS database framing and GIS database management: How should folders and sub-folders be organized? What logical naming sequence should be used? How have I framed my work so as to be useful for others later in the project? How does one back up the data? How does one manage the time intervals for the data back up? Use the iterative saving to preserve former file versions for later use.
- Data conversion workflows: How to get data from a variety of sources – CAD, GIS, photographs, PDFs, JPEGs, TIFFs, tables, text – to work on one analytical platform
- Using GIS tools – such as, geo-referencing and spatial adjustment – to enhance existing data and attach spatiality to non-spatial data
- Using GPS when possible, or stride measurements when GPS signals were weak, to add dimensionality to hand drawn schematics

References


Skills Development & Student Learning Outcomes

The journal of developmental education... what does that mean for a research project? How does one back up the data? How does one manage the time intervals for the data back up? Use the iterative saving to preserve former file versions for later use.

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Acknowledgements

Individually, the airport and the university's Undergraduate Program (RCEU) have the following mission statements:

- The airport's mission is to provide a safe, efficient, and environmentally responsible environment for air travel and related activities.
- The university's mission is to provide a high-quality education to undergraduate and graduate students, and to conduct research and creative experiences.

Skills Development & Student Learning Outcomes

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