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Hill Country Geospatial Solutions

"Worldwide solutions for Texas sized problems."

To: Capitol Area Council Boy Scouts

7540 Ed Bluestein Blvd.

Austin, TX 78723

CC: Dr. Yongmei Lu

From: Hill Country Geospatial Solutions

Subject: Progress Report on Capitol Area Boy Scouts Analysis

Date: March 26, 2008

Dear Capitol Area Council Boy Scouts:

Hill Country Geospatial Solutions (HCGS) accepted the request for a proposal from Capitol Area Council Boy Scouts. In this request, Capitol Area Council Boy Scouts expressed a need for information on possible marketing areas to increase their membership of children ages 5-14. HCGS addressed this need in a proposal, offering to analyze the locations of current scouts and current meeting locations and compare these locations to demographic information for the Capitol Area Councils' twelve districts. Final deliverables will provide Capitol Area Council Boy Scouts with information that shows where current scouts are located, the characteristics of the areas where current scouts are located, and distinctiveness of areas where scouts are not located. This will provide the Capitol Area Council Boy Scouts with an idea of where and what demographics to market to in order to increase their membership.

		Time Table						
2-Feb-08		10-Mar-08		31-Mar-08		28-Apl-08		
Data Collection								
Complete								
		Pre-Processing Data and Manipulation						
			Complete					
				Data Integration and Manipulation				
					In Progress			
					Website Development			
					Developmental			

Work Completed:

Data collection was completed on time and the preprocessing and manipulating of data is ahead of schedule. The digital map layer representing the districts of the Capitol Area Council Boy Scouts has been built. The different demographic data sets (ethnicity, income, and single or double parent households) required for the project have been collected, projected, and organized for location analysis. County roads, county boundaries, school districts, census tract boundaries, and school locations were collected and projected to serve as location identifiers for Capitol Area Council Boy Scouts. Current members and current meeting location data were provided by Capitol Area Council Boy Scouts in excel spreadsheet form. HCGS projected this information in a new GIS layer. This GIS layer gives a spatial location to this simple street address data.

Current Work:

At this point in the project, each member is beginning to specialize in a particular task. Beau Barela is working on the integration of data and final analysis tasks. This involves combining data layers and performing location analysis functions to produce new information relevant to Capitol Area Council's marketing needs. In our early analysis, we found a high correlation between the location of existing scouts and areas of higher income, Caucasian residence, and two parent homes. Census tracts with high volumes of lower income households, majority Latino population, and single parent households tend to have fewer Scouts and may serve as good demographic variables to combine in our analysis of new marketing areas.

Justin Holder is focused on building the metadata and models for data layers as Beau completes them. Metadata will show the origin of the data used to build a data layer as well as the changes that were made to the data. The models will show the data used, the GIS analysis technique used, and end

result of the analysis. These models will serve as good reference material for Capitol Area Council Boy Scouts when seeking additional GIS work.

Charles Good will then take these layers and put them into a database. The database will organize the entire dataset that will be used for analysis by HCGS. The database will be used by Capitol Area Council Boy Scouts to load files into ArcReader and view the digital maps created by HCGS.

Eric Brotherton's task at this stage in the project is writing instruction manuals for Arc Reader and the data CD. The data CD will consist of organized copies of all the data produced and used by HCGS for the project. The manual will provide instructions on how to extract the data for use by Capitol Area Council Boy Scouts. The Arc Reader manual will show Capitol Area Council Boy Scouts how to use this software in relation to the data provided by HCGS.

Mark Parker is assisting Beau Barela with data integration and analysis and overseeing the flow of data from one team member to the next. Data analysis is the most crucial portion of our project. By sending the data through an assembly line organization, it allows all members of out team to become involved, and find the results most applicable to our client's needs.

Planned Work:

Our project is on schedule and everything is beginning to come together, with work still to be done. Results found from the data analysis will be tested before final delivery. HCGS will look at the mapped demographics and propose marketing areas while comparing this information to the Boy Scout location data provided to us by the Capitol Area Council Boy Scouts for validity of our results. The final deliverables (data CD, project report, map book, and poster) will take some time to develop. The web

site will be the last task undertaken in this project. This will be a compilation of all our final deliverables, so all other work must be complete before we can build our website.

Challenges Encountered:

Data supplied by Capitol Area Council Boy Scouts for the location of meeting spots for scouting units had a number of P.O. boxes listed as mailing addresses. In order to project this data, it must be geocoded or given a geographical representation in accordance with location data. A physical address is needed for this task. To solve this problem, Charles changed the addresses from P.O. boxes for the Boy Scout meeting location or sponsoring organization's address, so we could then geocode it and provide a geographic representation of the unit's meeting location.

We are using census information with plenty of sources, but only a few have all the demographic variables we are looking for. The United States Census Bureau data for census tracts became the data of choice because it was the only source where we can extract an exact age group, ethnicity, income, and number of parents. Other data sources may have been more localized to the Austin area, but it was not accurate enough to conduct the type of analysis relevant to our client's problem.

The map provided to HCGS representing the districts of the Capitol Area Council Boy Scouts could not be transferred into GIS software, thus had to be drawn manually. County boundaries and school district boundaries were used to get an accurate match drawn, but there is some small amount of inconsistency. No solution has been found for this discrepancy.

A number of different projection formulas have been applied to our data in an attempt to show growth in the areas, but so far none seem to accurately project growth for the counties in the Capitol

Area Council. We have progressed from linear growth projections to exponential growth projections, but we have not found a formula that will be applicable to the information we need to provide.

Conclusion:

HCGS does not foresee any need to change the budget or timeline of this project upon client's approval of this progress report. We have moved from merely providing target marketing areas for the Capitol Area Council to also providing data and tools that will allow the client to do their own analysis for potential marketing areas. The creation of a database, the addition of a copy of Arc Reader, and the how-to manual will be added to our deliverables. Although it adds to the overall work load, HCGS does not feel additional time or payment will be needed for this bonus product.

Sincerely,

Mark A. Parker

Project Manager

Hill Country Geospatial Solutions