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SUMMARY

W.E.B. DuBois's *The Philadelphia Negro*, originally published in 1899, is recognized as a classic work of social science for its methodological innovations and urban history for its invaluable information about African American life at the turn of the 20th century. In touching on race-based housing and economic discrimination, religion, education, and crime, this study offers a tremendous framework for teaching students about many of the critical issues in American history. The proposed collaborative project aims to recreate DuBois's survey of a 60-block area in downtown Philadelphia using geographic information systems (GIS), archival data, and Internet technology. By integrating DuBois's data with information from historical censuses, fire insurance maps, photographs, and newspaper articles, this project will develop a unique, publicly-accessible interactive mapping system for teaching high school and college students.

The main humanities theme for this project will be the history of racial discrimination in housing, education, and employment. Primary attention will be given to the era DuBois studied, the late 1890s when many black Philadelphians of all classes were confined to the narrow Seventh Ward. A secondary focus will be urban change during the 20th Century. Most African Americans have since moved from that area – now part of Philadelphia's expensive Center City neighborhoods including Rittenhouse Square – as it experienced urban renewal, gentrification, and nearly had a cross-town expressway built along its southern edge during the 1960s and 1970s. The ways in which government programs and the built environment have been used to contain and displace people of color is a major part of 20th century urban history, not just Philadelphia history or African American history.

The University of Pennsylvania provides the institutional context for this project, as it did for DuBois's original study. DuBois held a short-term appointment as an "assistant in sociology" at Penn while conducting his Philadelphia study, an insult to someone with a Ph.D. from Harvard but a post indicative of the marginal role African American scholars were afforded within the academy at the time. The University of Pennsylvania Press reissued the work in 1996 with an introduction from Penn sociologist Elijah Anderson, and Penn historians Michael Katz and Thomas Sugrue edited a book on the legacy of *The Philadelphia Negro* shortly after (1998). The history, present, and future of *The Philadelphia Negro* are deeply connected to the University of Pennsylvania.

The Cartographic Modeling Lab (CML) at the University of Pennsylvania specializes in the development of online mapping applications that distribute current information on housing, demographics, crime, and cultural resources to nonprofit groups, city agencies, and researchers. Working with the CML, Avencia, Inc., a private geospatial analysis firm, will develop the online Philadelphia Negro GIS modeled after its existing applications. Assistant Professor and CML faculty associate Amy Hillier, who has extensive experience in historical GIS, will direct the project. Social studies faculty and students from J.R. Masterman High School in Philadelphia and Eastern Camden County Regional High School in Voorhees, New Jersey, as well as undergraduate urban studies students at the University of Pennsylvania, will help design and test the materials. Two additional experts – Anne Knowles, a leading scholar in historical GIS, and Diane Turner, a curator at the African American Museum in Philadelphia – will serve as evaluators for the project. All materials will be made available through a website hosted and maintained by the CML.

INTELLECTUAL RATIONALE & HUMANITIES THEMES

W.E.B. DuBois's *The Philadelphia Negro* is recognized as a classic work of urban history and sociology both for its innovative research methods and exhaustive findings about African American life at the turn of the 20th century. The Philadelphia branch of the College Settlement Association (CSA) commissioned the study in 1896 because it wanted to know more about the "negro problem" in Philadelphia that CSA believed was inhibiting their political reform efforts (Katz & Sugrue, 1998, p. 14). Philadelphia had the largest African American population in the North at the time – 45,000 – and provided a clear example of the challenges black migrants from the South as well as native black Philadelphians faced. With little assistance from CSA or the University of Pennsylvania, which hired DuBois as a temporary "assistant in sociology" for the project, DuBois surveyed all the black households in the 60-block area stretching across downtown Philadelphia that made up the Seventh Ward.

At the time, DuBois's work received relatively little attention. DuBois, himself, acknowledged in his autobiography that "no one reads that fat volume" (p. 194). Today it is widely recognized by sociologists and historians as a classic, because DuBois employed systematic scientific methods and provided an empirical basis for his conclusions at a time when the emerging field of sociology was focused primarily on theory. DuBois's actual findings are less accessible, in part because they fill up 400 pages laden with detailed tables, charts, maps, and long footnotes. DuBois' moralistic tone also distances his extensive narratives from the empirical results. An online geographic information system (GIS) that assembles primary data to recreate DuBois's original survey will provide a more accessible format for high school and college history students to explore the Old Seventh Ward and even compare their own conclusions with those of DuBois.

The main humanities theme for this project will be the history of racial discrimination in American cities. The focus will be on the era DuBois studied, the turn of the 20th Century when black Philadelphians of all classes faced severely restricted housing and employment options – as they did in other northern cities. DuBois turned the research question given him by CSA about the “negro problem” on its head, giving attention to the problems blacks faced, rather than caused, in trying to assimilate. DuBois was adamant that blacks in Philadelphia and elsewhere were not a monolithic group. His findings emphasized their differences across sex, age, occupation, health status, “conjugal condition,” religion, and education level. Hidden within the quantitative data, and often buried in footnotes, are some compelling stories such as that of a successful black caterer whose funeral procession was turned back at the cemetery where he had purchased a plot.

In addition to covering the period that DuBois studied, this project will incorporate developments throughout the 20th Century that impacted African Americans, including mortgage redlining following the Great Depression, urban renewal, public housing, and expressways. The disparate impact of these private and government-sponsored efforts on African Americans in New York, Chicago, Detroit, St. Louis and other cities have been documented extensively by historians but not in a format that allows high school and college students to work with primary data to see patterns and draw conclusions of their own. Philadelphia’s Old Seventh Ward saw dramatic changes in the second half of the 20th Century. To the east, white “urban pioneers” and federal historic preservation tax credits fueled a redevelopment of the Society Hill neighborhood. To the south, black and white residents fought together against a planned cross-town expressway and South Street emerged as mecca for art galleries, restaurants, and trendy shops. Public housing high-rises sprouted in areas dismissed

as slums. These and other developments served to move most blacks out of Center City and segregate those who remained.

DuBois's study was part of the broader Social Survey Movement of the Progressive Era that connected large-scale mapping efforts in London, Chicago, and Pittsburgh (Bulmer, *et. al*, 1991). Charles Booth's efforts to map poverty in London starting in 1886 precipitated this movement. Florence Kelley and the women of Hull-House in Chicago published their own collection of maps and papers in 1895, just before DuBois started his study in Philadelphia. The Pittsburgh Survey of 1907-1908, spear-headed by social worker Paul Kellogg and paid for by the Russell Sage Foundation, was the last and largest in this series of community surveys. The contributions of all three of these other studies are celebrated in websites that include many of the original maps and text, although none of them features interactive mapping.¹ This project will connect DuBois's work to this larger movement through comparisons and links to these other websites. Material about the reform efforts in Philadelphia led by the College Settlement Association and two progressive housing organizations will be integrated directly into the Philadelphia Negro GIS.

Finally, the materials developed through this project will introduce students to DuBois, himself. DuBois wrote *The Philadelphia Negro* at the age of 30, not long after finishing graduate school at Harvard. DuBois left Philadelphia (having not been offered a permanent position at the University of Pennsylvania) for Atlanta University in 1900 where he served on the faculty and wrote *The Souls of Black Folks*. He helped found National Association for the Advancement of Colored People (NAACP) in 1919 and edited the NAACP's magazine, *Crisis*, for twenty-five years. He became an increasingly outspoken proponent of communism and Pan-Africanism,

¹ Charles Booth Online Archives <<http://booth.lse.ac.uk/>>, University of Illinois at Chicago Urban Experience site: <http://tigger.uic.edu/htbin/cgiwrap/bin/urbanexp/main.cgi?file=new/chapter_outline.ptt&chap=4> and the Carnegie Library of Pittsburgh's site <<http://www.clpgh.org/exhibit/stell30.html>> The text of *The Philadelphia Negro* is available online, but the site provides no context for the study or images of DuBois's main map.

eventually moving to Ghana and renouncing his U.S. citizenship before dying at age 95. He was one of the most prolific writers and important thinkers of the 20th century, and he was as central to the civil rights movement – broadly defined – as any other American.

GIS technology will allow our team to transform DuBois’s study into an online interactive mapping application that integrates a variety of primary and secondary source materials. GIS allows different information – such as population and housing characteristics – to be represented as separate map layers. It is essentially a container for storing and organizing data and telling stories. Unlike a collection of static images, an online GIS allows visitors to search information through an interactive map interface and see patterns change over time and space in response to their queries. GIS can be used to integrate spatial information at a variety of scales. It is particularly well-suited to small area studies because of the richness of data that can be displayed – including historical photographs, historical paper maps, and household-level demographics. Local studies like the one proposed here can represent information in a less abstract way than aggregate national, state, or county level data. This approach promises to give new life to *The Philadelphia Negro*, making it possible to introduce this classic, sophisticated work of urban history to students in high school American history and African American history classes and extend and enrich its use in college history, urban studies, and sociology courses.

CONTENT & DESIGN

Our team from the Cartographic Modeling Lab (CML) and Avencia will create a web-based interactive mapping application that integrates information from DuBois’s study and other primary and secondary sources, allowing students to virtually explore the 60-block study area at different periods of time. Using geographic information system (GIS) technology, scanned historical paper maps will be layered with address and block-level U.S. Census data

and linked to photographs and other primary documents. Through an Internet browser, students will be able to interact with the GIS, turning map layers on and off, querying individual properties, and linking to photographs and other historical records.

The GIS will be modeled after several web-based mapping applications already created by the CML and Avencia (*see Appendix C for Avencia's technical specification of the online GIS application*). The first, parcelBase, allows users to view maps of the more than 500,000 individual properties in Philadelphia, turn on and off map layers showing parks, schools, and other institutions, identify characteristics of the building such as vacancy status and outstanding housing code violations, and view photographs of selected properties (*see Appendix A for screen captures of parcelBase and information about logging on*). Several hundred people from city agencies and nonprofit organizations in Philadelphia use parcelBase to find information about nuisance properties and areas for possible redevelopment, avoiding the time-consuming process of researching the property through multiple city agencies on their own.

Students from J.R. Masterman High School in Philadelphia and Eastern Camden County Regional High School in New Jersey will be invited to focus groups at the beginning of the project in order to determine what design elements will be most appealing to a high school audience. The CML web designer will work with Avencia to develop a website for the online GIS. Students from Masterman and Eastern Regional High Schools and undergraduate urban studies courses taught by Amy Hillier at the University of Pennsylvania will beta test the initial version of the online GIS to assess how user-friendly and engaging the application is.

Map Layers

The following data sources will be integrated into the online GIS as map layers. Students will be able to zoom in and out, turn the layers on and off so that different combinations are viewed

together, and click on individual properties to bring up household profiles, images, and narratives (*images of these layers are included in Appendix B*).

- **Scanned map from *The Philadelphia Negro*.** DuBois created a map that includes all of the approximately 3,000 properties in his 60-block study area. He assigned each of these a grade based on what he learned during his door-to-door survey: “vicious and criminal classes,” “the poor,” “the working people – fair to comfortable,” “the middle classes and those above,” and “residences of whites, stores, public buildings, etc.” This grading system was a centerpiece of DuBois’s findings, reflecting the influence of Charles Booth, whose maps of poverty in London in the 1890s used a very similar classification system. The grades also epitomize the moral tone DuBois used throughout the book. Copies of the original book included a fold-out color map, but subsequent editions converted this to standard black and white pages. The Archives at the University of Pennsylvania has already provided a high-resolution scan of the original color map.
- **Scanned fire insurance maps.** DuBois’s map appears to be based on a fire insurance map from the time. Through its Philadelphia Architects and Buildings (PAB) project, the Athenaeum has already scanned the 1895 Bromley fire insurance map for the entire city of Philadelphia and has agreed to provide a high resolution copy of the area DuBois covered in his study. The Bromley map includes the address of each property.
- **Digitized parcel map from 1900.** Based on the 1895 Bromley fire insurance map, the parcels in the DuBois’s study area will be digitized, a process that involves on-screen tracing to convert the outline of each parcel to a more useful vector format. Unlike the raster maps produced by scanning paper maps, the vector GIS layer produced through digitizing can be linked to information about specific properties and households.

- **Household-level U.S. Census data.** Unfortunately, the data DuBois collected on cards about each of the households he surveyed were not saved. The household-level data in the 1900 U.S. Census provide the best way to recreate the lost survey results, providing similar (but not as extensive) information about family composition, race, age, place of birth, parents' place of birth, language, and occupation for all households located at each address. DuBois surveyed only black households, but data on all households will be collected from the Census so that more can be learned about the relationship of blacks and whites of different socioeconomic class, ethnic background, and immigration status. These Census data are available at the University of Pennsylvania's Van Pelt Library as well as the Mid-Atlantic office of the National Archives in downtown Philadelphia.
- **Scanned historical photographs.** Photographs of people, houses, institutions, and public works projects from 1900-2000 will be linked to the parcel maps. Photographs will be gathered from collections in the Records Department, Philadelphia Architects and Building Project, Free Library of Philadelphia, and Housing Association of Delaware Valley and Octavia Hill Association collections at Temple University's Urban Archives.
- **Scanned contemporary photographs.** For properties with historical photographs, a photograph of the site as it looks now will also be linked so that students can see how it has changed or remained the same over time.
- **Brief historical narratives.** Brief narratives will be linked to particular locations on the maps. These will address important historical themes, such as the development of parks and water and sewage systems, as well as institutional histories of landmarks within and just outside the Seventh Ward, such as Pennsylvania Hospital, Mother Bethel AME, Church of the Crucifixion (all still in use), Philadelphia Institute for Colored Youth (now

upscale condominiums), and the Settlement House (now the Settlement Music School). These narratives will be modeled after the “CSISS Classics” available on the Center for Spatially Integrated Social Science website (www.csiss.org/classics) and include references and web links for further exploration.

- **Newspaper clippings.** DuBois included the text of numerous newspaper articles, particularly ones describing crimes committed by blacks, in *The Philadelphia Negro*. Scanned copies of the originals, along with scanned copies of other newspaper articles that address issues raised by DuBois and are relevant to racial discrimination and urban renewal during the 20th Century, will be linked to relevant locations within the Seventh Ward. Philadelphia had two daily newspapers during DuBois’s day: *The Philadelphia Press* is indexed and *The Evening Bulletin* is the basis for the George D. McDowell Philadelphia Evening Bulletin Newsclipping Collection at Temple University’s Urban Archives. *The Philadelphia Tribune*, the leading black weekly newspaper of the day, is also available on microfilm at the Van Pelt Library.
- **Historical home inspections.** The Octavia Hill Association and the Philadelphia Housing Association conducted extensive housing inspections in the eastern section of the Seventh Ward, near the Settlement House, during the early 1900s. Their efforts were part of the larger Progressive Movement and Social Survey Movement. These reports will be scanned and linked to individual properties located in the Seventh Ward.
- **Profiles of Southern migrants.** William D. Fuller conducted the Negro Migrant Study in Philadelphia 1923-1924. Case Studies from the Traveler’s Aid Society and worksheets listing individual families, their living conditions, and area from which they migrated

are part of a special collection at the Temple University Urban Archives. Like the housing inspections, these will be scanned and linked to addresses in the Seventh Ward.

- **Digitized U.S. Census blocks, 1940-2000.** Household-level U.S. Census data are not released for 72 years after they are collected in order to maintain privacy, so census blocks are the smallest geographic level for which data are available for the years 1940-2000. Census blocks, which generally fall along streets in urban areas, will be digitized using a current census block map layer and paper maps included in original Census reports. Tabular census block data from the reports, including aggregate information about race, sex, and homeownership, will be typed into a database and linked to the digitized census blocks. Block-level census maps and tables are available from Penn's Van Pelt Library. These maps will document the gradual movement of African Americans out of Center City.

INSTITUTIONAL CONTEXT

The University of Pennsylvania provides the institutional context for this project, as it did for DuBois's original work. Penn offered DuBois a position as "assistant in sociology" in 1898 when white philanthropist Susan Wharton of the College Settlement Association, who had strong connections to the Wharton School at Penn, decided to commission a study of Philadelphia's black community. The fact that Penn would not offer someone with a Ph.D. from Harvard a professorship because he was black speaks to the deep-seated nature of the racial discrimination at which DuBois took aim in his study. The book was originally published by the University of Pennsylvania Press and reissued by the Press in 1996 and again in 1999 (the book's centennial) with an introduction from Penn sociologist Elijah Anderson. In 1998, Penn historians Michael Katz and Thomas Sugrue edited *W.E.B. DuBois, Race, and the City: The*

Philadelphia Negro and its Legacy, which included a chapter by Penn sociologist Tukufu Zuberi. The history, present, and future of *The Philadelphia Negro* are deeply connected to the University of Pennsylvania.

The University of Pennsylvania is in a strong position to support this project in part because it is home to historians and sociologists who are responsible for much of the most recent scholarship about *The Philadelphia Negro*. It also has a library with staff trained to support local historical research and GIS projects and undergraduate liberal arts program that values interdisciplinary learning, particularly through its Urban Studies Program. DuBois's study area is just a mile from Penn's campus so it will be both convenient and familiar to members of the research team.

Penn is also home to the Cartographic Modeling Lab, a unique research center within the University of Pennsylvania's School of Social Policy & Practice that specializes in application and database development, teaching and training, and research using spatial data and spatial analysis techniques. Its major project, the Philadelphia Neighborhood Information System (NIS), integrates administrative housing, crime, demographic, and cultural data from numerous city agencies and the U.S. Census and makes the data available through a series of online mapping applications. The CML has trained hundreds of staff members from city agencies, community groups, and other research centers in using its online resources. CML staff members teach nearly all of the GIS courses at Penn and host regular GIS user group meetings on campus. The CML is also involved in a wide range of funded research projects that explore the relationship among individual health and education outcomes and the environment. The CML has five full-time staff members and equipment needed to complete the proposed work (*see Appendix D for a description of CML hardware and software available for this project*).

Philadelphia boasts numerous special collections, including those at the City of Philadelphia Archives, Temple University's Urban Archives, University of Pennsylvania Archives, the Atwater Kent Museum, Free Library of Philadelphia, and African American Museum in Philadelphia, where primary material can be collected. These institutions have formed the Philadelphia Area Consortium of Special Collections Libraries (PACSCCL) in order to coordinate activities. Together they received a grant from the Mellon Foundation to create the Philadelphia GeoHistory project and start planning the development of a large-scale historical GIS for Philadelphia based on their collections (*see letters of support from PACSCCL members Joan Decker and Bruce Laverty*).

PROJECT TEAM

Amy Hillier, Project Director

Amy Hillier, Ph.D. is Assistant Professor of City & Regional Planning and Faculty Advisor for the Masters in Urban Spatial Analytics at the University of Pennsylvania. She teaches GIS courses in City & Regional Planning, Urban Studies, and Social Work. She received dissertation and post-doctoral fellowship grants from the Department of Housing and Urban Development for her historical GIS work on mortgage redlining in Philadelphia (<http://cml.upenn.edu/redlining>). This research involved extensive collection of address-level mortgage data, historical census data, and digitizing of historical maps. In the post-doctoral phase of this research, she supervised several undergraduate research assistants. She has given over 20 presentations on her findings and teaching historical GIS at the University of Pennsylvania, other universities, conferences, workshops, and public agencies over the past five years. Her work on historical GIS has been published in *Past Time, Past Place: GIS for History* as well as the *Journal of Urban History*, *Journal of Planning History*, *Social Science History*, *Journal of*

Housing, and Pennsylvania History. She is currently working with Anne Knowles to edit a new collection of essays on historical GIS that will include extensive graphics and teaching materials (see letter of support from Anne Knowles).

Dr. Hillier is the former Research Director at the Cartographic Modeling Lab and continues to work with the CML as a Faculty Associate. While at the CML, she helped organize activities for GIS Day, a national event aimed at teaching elementary school children and others how to use GIS. For the past five years, the CML has invited junior and senior high youth from an after school program where Dr. Hillier volunteers for an afternoon of hands-on learning. For the past three years, the CML's GIS Day has also involved high school students from Hopeworks 'N Camden who are experienced in the use of GIS.

As the Project Director, Dr. Hillier will oversee all data collection and creation of map layers. She will supervise student research assistants and coordinate the creation of the online GIS with CML and Avencia staff. She will coordinate the focus groups and application beta testing with students and faculty from J.R. Masterman and Eastern Regional High Schools as well as urban studies classes at Penn.

Marlen Kokaz, GIS Director

Marlen Kokaz is the GIS Director at the Cartographic Modeling Lab. She will serve as a technical consultant to the Project Manager on issues of digitizing map layers, integrating scanned maps into the GIS, and metadata standards for the project.

Sara Green, Web Designer

Sara Green, the graphic designer for the CML, will be responsible for developing an overall look for the Philadelphia Negro GIS project, including the mapping interface and the narratives and

teaching exercises. Together with Avencia, she will create the website that will integrate all of these materials. Together with the project director, she will facilitate a focus group with high school students before starting to design the site as well as beta testing by students after the site has been created. Based on feedback from staff and user focus groups, Ms. Green redesigned the website for the CML's Neighborhood Information System (<http://cml.upenn.edu/nis>).

Avencia, Inc.

Avencia is a geospatial analysis firm serving governments, universities, non-profit organizations and businesses (www.avencia.com). It provides a range of Geographic Information Systems (GIS) services, systems design, and software development services.

Avencia has designed and developed customized modeling and spatial analysis applications for business intelligence, neighborhood redevelopment, vacant land, demographics, conservation, crime analysis and spatial modeling frameworks. For this project, Avencia will incorporate the maps layers, photographs, and narratives into an online mapping application based on the parcelBase application developed for the CML (*see Appendix A for screen captures of this online GIS and Appendix C for detailed specifications of the Philadelphia Negro GIS application*).

Student research assistants

Undergraduate and graduate students from urban studies, history, sociology, and social work will be hired part-time during the summer and school year to collect data from the U.S. Census, business directories, and photograph collections and to digitize the parcels and census blocks.

Amy Jane Cohen, J.R. Masterman High School

Amy Jane Cohen teaches social studies courses at Masterman High School in Philadelphia including an African and African American History class. Her students will be reading parts of *The Philadelphia Negro* during the 2005-2006 academic year and carrying out group research projects comparing Philadelphia during DuBois's time to today. Ms. Cohen and her students will help design and test the online materials developed through this project.

Maryann Walker, Eastern Camden County Regional High School

Maryanne Walker teaches honors sociology within the social studies curriculum at Eastern Camden County Regional High School in Voorhees, New Jersey. She currently introduces her students to DuBois and other important figures in African American History. Ms. Walker and her students will help design and test the online materials developed through this project.

EVALUATION

Students from Masterman and Eastern Regional High Schools and undergraduates in urban studies classes at the University of Pennsylvania will be asked to beta test the online GIS application to determine how engaging and challenging the materials are and to assess whether it is user-friendly. Students will also be involved in focus groups to help determine the design and look of the site.

In addition to testing these materials with the intended audience, two professionals will be asked to evaluate the project when an initial version is completed (*see letters of agreement in Appendix E*). They will be asked to evaluate the quality and clarity of the interactive mapping and written narratives. Their comments will then be integrated into the final version of the project.

Anne Kelly Knowles, evaluator

Anne Kelly Knowles (Ph.D. in geography) is a leading scholar in the emerging field of historical GIS and Assistant Professor of Geography at Middlebury College. She has edited special issues of *Social Science History* (2001) and *Historical Geography* (forthcoming) as well as *Past Time, Past Place: GIS for History* (2002). She organized the NEH-funded conference, "History and Geography: Assessing the Role of Geographical Information in Historical Scholarship" (March 2004) at the Newberry Library and regularly organizes sessions on historical GIS at the Social Science History Association annual conference.

Diane Turner, evaluator

Diane Turner (Ph.D. in history) is the Curator of Collections and Exhibits at the African American Museum in Philadelphia (AAMP). AAMP holds in its collections fine art, archaeological and ethnographic artifacts, textiles and costumes, and archives containing photographs, family papers, records of organizations and institutions, programs and playbills, and rare books. It organizes a range of programs and tours for school groups up to 12th grade.

DISSEMINATION

The initial dissemination focus will be on high school classes in Philadelphia and undergraduate courses at the University of Pennsylvania. The School District of Philadelphia currently mandates that all incoming high school students take an African American history course. Working with the African and American Studies program in the School District, the project team will organize a mailing, web link on the School District website, and a series of trainings to introduce the materials to Philadelphia high school social studies teachers. These

trainings will be modeled after the weekly trainings offered by the CML to teach city agency and nonprofit staff and university students, staff and faculty how to use its many online mapping applications. The CML trainings last an hour and include hands-on time in a computer lab so that participants can see for themselves how the application works after a brief introduction. These trainings could be held on-site at the University of Pennsylvania or at local high schools if they have the appropriate computer facilities.

History, urban studies, and sociology faculty from the University of Pennsylvania and other local institutions will also be invited to attend these local training sessions. National dissemination will require several strategies. Links to the Philadelphia Negro GIS will be created on the CML website and online clearinghouses for history teaching materials, such as those created by the Organization of American Historians, National Council for the Social Studies (NCSS), and National Council on Geographic Education (NCGE). A mass emailing will also be organized. Presentations about the project will be made at the Social Science History Association (SSHA) conference, which includes the largest number of sessions about historical GIS, and the annual meetings of NCSS and NCGE.

LONG-TERM PLANS

In a next phase of this project, the Philadelphia Negro GIS digital materials will become the basis for a computer-guided walking tour. Using wireless Internet access and global positioning system technology, personal data assistants (PDAs) will automatically pull in map layers and the historical maps and narratives as someone walks through DuBois's study area. Eventually the Philadelphia Negro GIS will be integrated into a larger online historical GIS for Philadelphia that could include information on immigration, industrialization, black migration,

redlining, public housing, urban renewal, and public transportation systems. This effort will likely be combined with the Philadelphia Area Consortium of Special Collections Libraries (PACSCL) GeoHistory Project, currently funded by the Mellon Foundation, to explore ways the resources from the various special collections in Philadelphia can be used to create an historical GIS. Funding for these additional projects will be pursued with local foundations, local and state special collections, the National Archives and Records Administration, and the Department of Housing and Urban Development, among other sources.

ISSUES RAISED BY 2004 REVIEWERS

This proposal represents a substantially modified version of a proposal submitted to NEH last year. The following were the major issues raised by reviewers. Efforts have been made to address these throughout the proposal, but they are addressed here directly.

Is this really appropriate for high school students?

Currently, high school students are unlikely to read *The Philadelphia Negro* cover to cover because of its length and emphasis on being systematic rather than engaging. It is not a difficult book to understand, however because it presents empirical results in a straight-forward report format. By highlighting specific stories and findings within this large book and by giving students access to the primary data through an interactive mapping interface, we are confident that this classic can be made age appropriate. The online materials would be a complement to reading all or parts of the book. Racial discrimination in the United States is an essential topic for study in high school history and social studies classes. DuBois was one of the intellectual giants of the 20th Century and a figure to whom all high school students should be introduced.

Is this relevant to students outside of Philadelphia? Will they find it engaging?

The Philadelphia Negro is the story of the black experience as much as it is about Philadelphia. Most of DuBois's findings about black migration, employment and housing discrimination, crime, churches, and education hold for other cities – particularly but not limited to northern cities. The collection of essays about *The Philadelphia Negro* edited by Katz and Sugrue includes one by Tera W. Hunter about working-class women in Philadelphia and Atlanta during the 1890s (pp. 127-151) that identifies many common elements between women in those cities. The advantage of focusing on a single city is that we can present detail about individual people, households and institutions as opposed to more abstract aggregate figures. By exploring primary data, students can draw their own conclusions rather than being left to accept or reject a general argument that blacks faced discrimination.

Eastern Camden County Regional High School, a racially mixed school in suburban New Jersey, was asked to participate in this project to determine how students outside Philadelphia and outside a city learn from these materials. This project aims to show that the history of the black experience is not just the story of African Americans; it is the story of the United States, of opportunity contrasted with disparity, freedom contrasted with discrimination, and democracy contrasted with oppression. “Black” history is far too important to U.S. history to confine it to one month a year or to expect only students of color to study it.

Is this more social science than humanities?

DuBois's study is claimed as a classic by many disciplines – sociology, ethnography, anthropology, history, economics, and social welfare. It was written at a time when the divisions between various social sciences were not so clear, and the methods DuBois's employed are understandably pointed to with pride as being path-breaking in each of these

fields. But because of his door-to-door survey, DuBois's study is now among the richest sources of historical information about living conditions at the turn of the 20th Century. The project team will employ quantitative methods including GIS to create the online materials, but the materials themselves will focus on historical themes. DuBois used social science methods in order to get at basic questions about the nature of humanity. As he wrote in the final chapter of *The Philadelphia Negro* under the heading "The Meaning of All This," the issues relating to the "Negro Problem" were "are after all the same difficulties over which the world has grown gray: the question as to how far human intelligence can be trusted and trained; as to whether we must always have the poor with us; as to whether it is possible for the mass of men to attain righteousness on earth; and then to this is added that question of questions: after all who are Men?" (p. 385)

REFERENCES

Anderson, Elijah (1996). "Introduction," *The Philadelphia Negro*. Philadelphia: University of Pennsylvania Press.

DuBois, W.E.B. (1899). *The Philadelphia Negro*. Philadelphia: University of Pennsylvania Press.

Huggins, Nathan (1977). *Black Odyssey: The Afro-American Ordeal in Slavery*. New York: Pantheon Books

Katz, Michael and Sugrue, Thomas (1998). *W.E.B. DuBois, race, and the city: the Philadelphia Negro and its legacy*. Philadelphia: University of Pennsylvania Press.

Zuberi, Tukufu (2004). W.E.B. DuBois's Sociology: The *Philadelphia Negro* and Social Science. *The Annals of the American Academy*, 595: 146-156.

Martin Bulmer, Kevin Bales, and Kathryn Kish Sklar, eds., *The Social Survey in Historical Perspective* (1991).

PROJECT BUDGET

SALARIES	NEH YI	NEH YII	NEH Total	CS YI	CS YII	CS Total	Total
Amy Hillier, Proj. Dir. @ 2 summer mos	\$7,111	\$7,325	\$14,436	\$7,111	\$7,111		\$21,547
D-L Wormley, Sen Proj. Man. @ 5%	\$3,658	\$3,767	\$7,425				\$7,425
Marlen Kokaz, GIS Dir. @ 5% YI, 10% YII	\$3,711	\$7,646	\$11,357				\$11,357
Rakshit Patel, Jr. DBA @ 5% YI, 10% YII	\$2,100	\$4,369	\$6,469				\$6,469
Student research assists (5 @ \$12/hr)	\$10,000	\$6,000	\$16,000	\$3,000	\$10,000		\$19,000
Sara Green, web designer	\$3,000	\$4,000	\$7,000				\$7,000
TOTAL	\$29,580	\$33,107	\$62,687	\$10,111	\$17,111	\$27,222	\$89,909

BENEFITS							
Full-time benefits @ 30.9%	\$5,123	\$7,140	\$12,263	\$2,197	\$2,197	\$0	\$14,461
Benefits @ 9.7%	\$1,261	\$970	\$2,231			\$0	\$2,231
TOTAL	\$6,384	\$8,110	\$14,494	\$2,197	\$2,197	\$4,395	\$18,889

TRAVEL							
Local Travel	\$50	\$50	\$100				\$100
SSHA conference x 2 years	\$1,000	\$1,000	\$2,000				\$2,000
AAG conference x 2 years	\$1,000	\$1,000	\$2,000				\$2,000
social studies conference x 2 years	\$1,000	\$1,000	\$2,000				\$2,000
TOTAL	\$3,050	\$3,050	\$6,100	\$0	\$0	\$0	\$6,100

Supplies and Materials							
Development and internet servers					\$3,500		\$0
copyright and licensing fees		\$700	\$700				\$700
Scanner	\$800		\$800				\$800
Books	\$500	\$300	\$800	\$1,200			\$2,000
Training materials		\$500	\$500				\$500
TOTAL	\$1,300	\$1,500	\$2,800	\$1,200	\$3,500	\$4,700	\$7,500

Services							
Avencia, Inc.	\$2,500	\$30,000	\$32,500				\$32,500
honorarium for reviewers x 2 @ \$450		\$900	\$900				\$900
JR Masterman High School	\$1,500	\$1,500	\$3,000				\$3,000
Eastern CC Regional High School	\$1,500	\$1,500	\$3,000				\$3,000
scanned maps				\$3,790		\$3,790	\$3,790
External copy charges	\$200	\$200	\$400				\$400
TOTAL	\$5,700	\$34,100	\$39,800	\$3,790	\$0	\$3,790	\$43,590

TOTAL DIRECT COSTS	\$46,014	\$79,867	\$125,881	\$17,298	\$22,808	\$40,107	\$165,988
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INDIRECT COSTS @ 57.0% YI; 57.5% YII	\$26,228	\$45,924	\$72,152	\$9,860	\$13,115	\$22,975	\$95,126
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TOTAL COST	\$72,242	\$125,791	\$198,033	\$27,158	\$35,923	\$63,081	\$261,114
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BUDGET NARRATIVE

(Only line-items in the budget that are not justified in the proposal narrative are described in this narrative section).

Full-time staff

The Project Director will be working year-round on this project (the summer salary refers only to salary, not to effort). Salaries in year II anticipate a 3 percent increase over year I.

Part-time staff

The School of Design has given Amy Hillier a \$3,000 research budget that will be used for research assistants (see letter of support from Dean Gary Hack).

The Philadelphia Department of Records agrees to spend at least \$10,000 to hire work-study students to scan historical photographs that can be used for this project (see letter of support from Commissioner Joan Decker).

Benefits

30.9% is the full-time benefit rate and 9.7% the part-time benefit rate approved by the Federal Government for the University of Pennsylvania.

Travel

Local travel will include bus and subway tokens for trips to local archives. The annual Social Science History Association (SSHA) conference is the largest interdisciplinary meeting for historical GIS work. The American Association of Geographers (AAG) conference brings together the largest group of scholars using GIS. The National Council for the Social Studies conference will provide an audience of high school teachers rather than scholars. The project director or participating high school teachers will attend the conferences.

General Expenses

The in-kind contributions of the Cartographic Modeling Lab are closer to \$90,000 than the \$13,600 listed here. Because development and internet servers would otherwise need to be purchased for this project, they are listed under cost-sharing. Copyright and licensing fees are anticipated for some of the photographs and other historical materials. The Athenaeum will provide a complete set of Bromley fire insurance maps from 1895

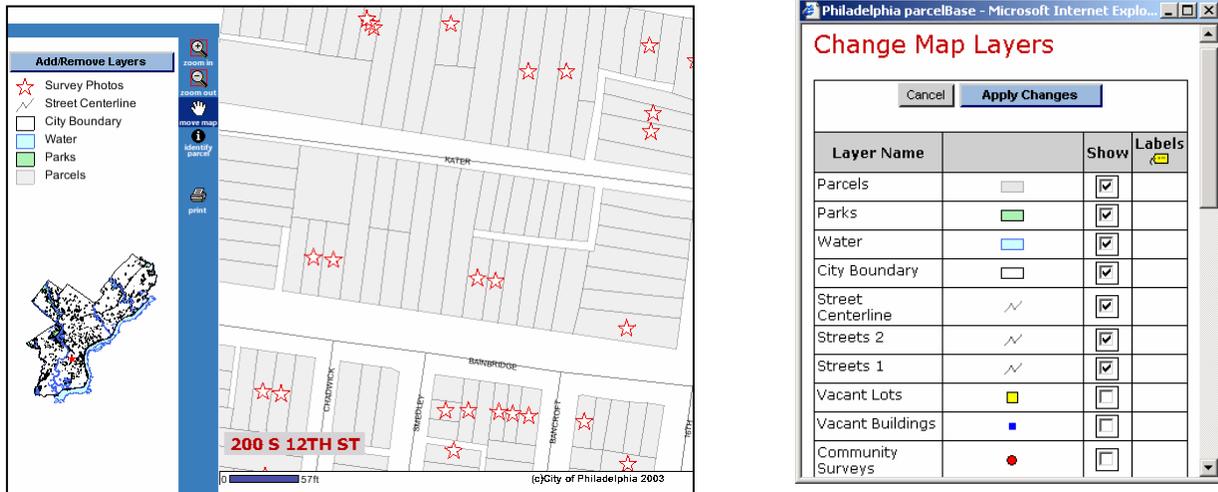
(50 sheets at \$75 each) as well as an account for the Philadelphia Architects and Buildings project (\$40) that includes thousands of historical photographs (*see letter of support from Bruce Laverty*). The scanner (Epson Expression 1680) will be used to digitize maps, photographs, and newspaper articles. Training materials will include advertisements and printed materials to use to teach high school and college faculty how to use the Philadelphia Negro GIS in their teaching. The Project Director also has a \$1,200 grant from the Penn Institute for Urban Research from the pilot phase of this project that will be used to purchase copies of *The Philadelphia Negro* for the participating high schools.

Subcontracts

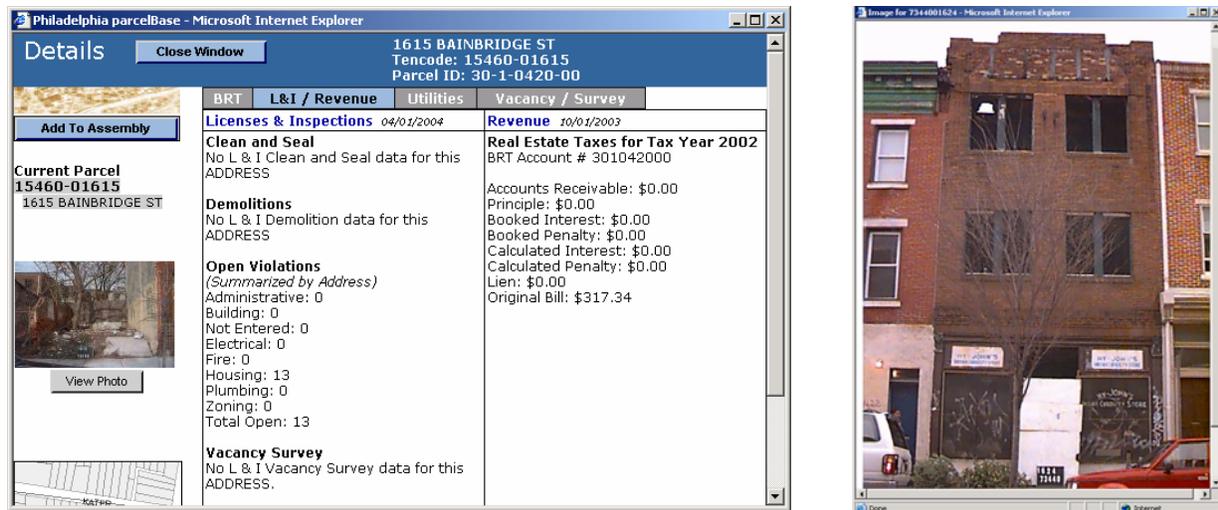
Avencia, Inc. was the only company considered for the subcontract to program the online mapping application because of their long-term partnership with the Cartographic Modeling Lab, their ability to deliver products on time, and their willingness to complete this project for less than the actual cost because they will be reusing parts of existing applications they have developed. Masterman and Eastern Regional High Schools will each be given \$1,500 each year to purchase books, software, and other teaching supplies.

Appendix A Model for Online GIS Application

The GIS for the Philadelphia Negro Online will be modeled on the parcelBase application that Avencia, Inc. created for the CML. Users access the application online.* They can select a specific address or area, zoom in and out and move the map in any direction.



Users can see the boundaries of individual parcels and, through the Add/Remove layers button, indicate which map layers they want to display. In the map above, the user has chosen to see which properties have survey photographs linked to them (properties with red stars).



By clicking on an individual property, users can bring up a window containing information about the property. Above, tabs (BRT, L&I/Revenue, Utilities, Vacancy/Survey) correspond to different data sets, each containing information about the individual property. By clicking on the "view photo" button, a digital photograph of the surveyed property pops up.

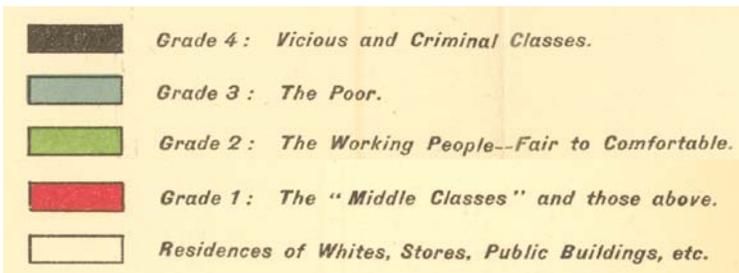
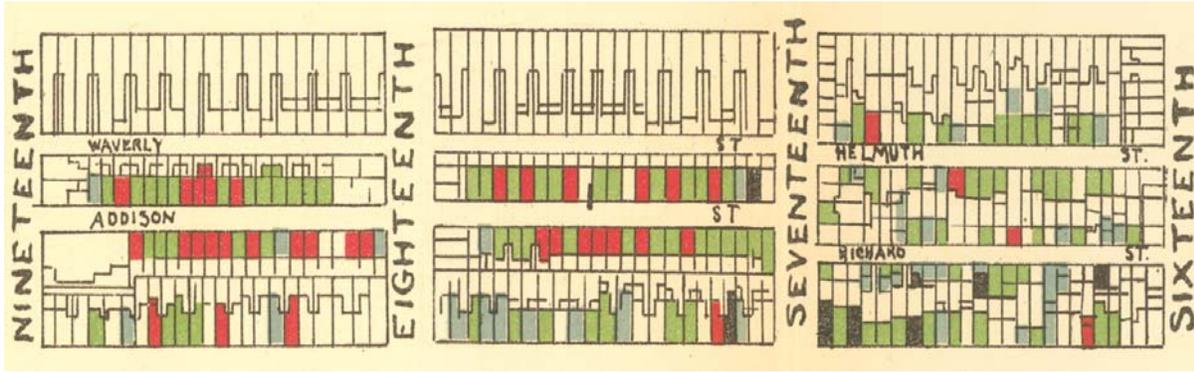
*NOTE: This online application is password-protected because it contains data licensed to the CML by the City of Philadelphia. NEH Reviewers are invited to view the site (<http://cml.upenn.edu/parcelbase>) using the login name "nehtester" and password "password."

Appendix B

Images of Map Layers

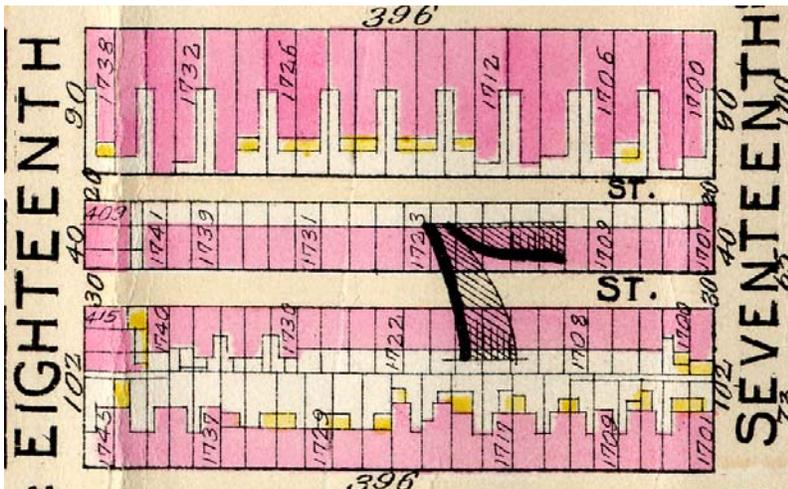
Many of the map layers and electronic documents that will be incorporated into the online application can be viewed at the project website <http://www.cml.upenn.edu/dubois>

Scanned map from Original *The Philadelphia Negro*



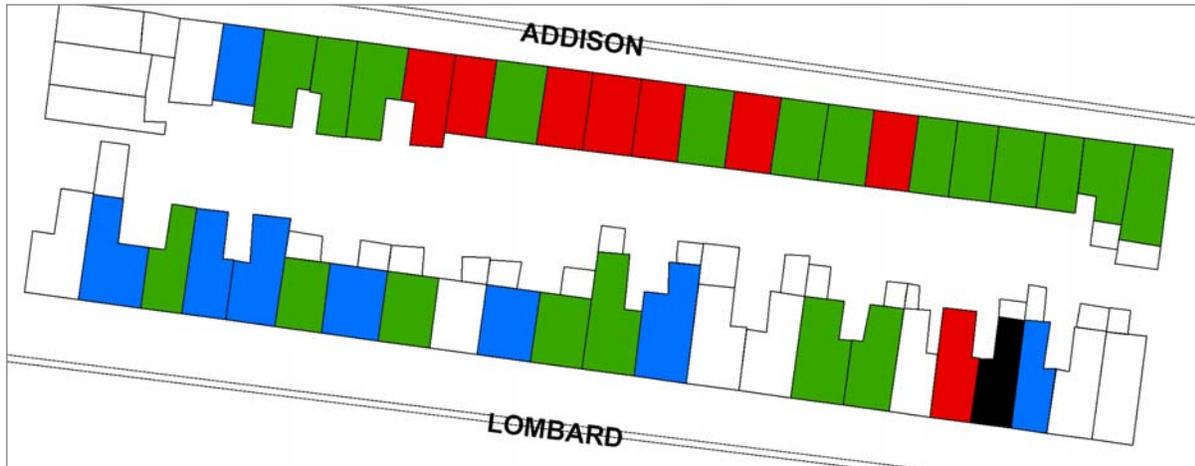
The fold-out map from an original copy of *The Philadelphia Negro* has already been scanned. It will be georectified so that it can be layered with other digital maps of the Old Seventh Ward.

1895 Bromley Insurance map



The fire insurance map will be used to match DuBois's graded parcels to street addresses and to digitize the parcel boundaries. Pink indicates masonry; yellow indicates wooden structures.

Digitized parcel map



A digitized parcel map will make it possible to link household-level data to the parcels. In the image above, the parcels on the block bound by 17th, 18th, Addison, and Lombard Streets has been digitized and linked to DuBois's grades.

Household-level 1900 U.S. Census Data

TWELFTH CENSUS OF THE UNITED STATES.

SCHEDULE No. 1.—POPULATION.

State *Pennsylvania* County *Philadelphia* Supervisor's District No. *131* Enumeration District No. *131*

Township or other division of county *Center City* Name of institution, *X*

Name of incorporated city, town, or village, within the above-named division *Center City* Ward of city, *7th*

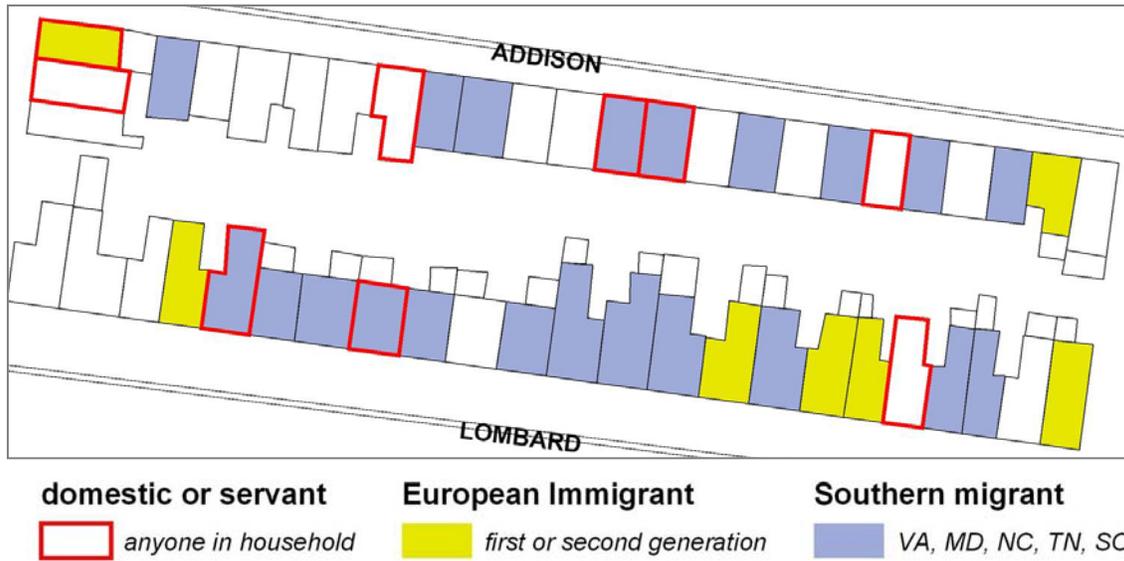
Enumerated by me on the *11th* day of *June*, 1900. *William R. C. C. C.* Enumerator.

LOCATION	NAME	RELATION	PERSONAL DESCRIPTION	NATIVITY			CITIZENSHIP	OCCUPATION, TRADE, OR PROFESSION	EDUCATION			SPEAKS ENGLISH
				Place of birth of the person	Place of birth of father of the person	Place of birth of mother of the person			Months	Years	Months	
51	<i>Nathan Grimmage</i>	<i>Head</i>	<i>White</i>	<i>PA</i>	<i>PA</i>	<i>PA</i>	<i>18</i>	<i>Cook</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
52	<i>Margaret Grimmage</i>	<i>Wife</i>	<i>White</i>	<i>MD</i>	<i>MD</i>	<i>MD</i>	<i>18</i>	<i>Dressmaker</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
53	<i>Kay Grimmage</i>	<i>Daughter</i>	<i>White</i>	<i>PA</i>	<i>PA</i>	<i>MD</i>	<i>18</i>	<i>Dressmaker</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
54	<i>Duke Grimmage</i>	<i>Son</i>	<i>White</i>	<i>PA</i>	<i>PA</i>	<i>MD</i>	<i>13</i>	<i>At School</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
55	<i>Madeline Grimmage</i>	<i>Daughter</i>	<i>White</i>	<i>PA</i>	<i>PA</i>	<i>MD</i>	<i>12</i>	<i>At School</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
56	<i>Katherin Phinnizia</i>	<i>Lodger</i>	<i>White</i>	<i>SC</i>	<i>SC</i>	<i>SC</i>	<i>48</i>	<i>Dressmaker</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
57	<i>P. Turner</i>	<i>Lodger</i>	<i>White</i>	<i>MD</i>	<i>MD</i>	<i>MD</i>	<i>28</i>	<i>Electrician</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
58	<i>William Newman</i>	<i>Lodger</i>	<i>White</i>	<i>VA</i>	<i>VA</i>	<i>VA</i>	<i>23</i>	<i>Cook</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	
59	<i>Bessie Turner</i>	<i>Sister</i>	<i>White</i>	<i>MD</i>	<i>MD</i>	<i>MD</i>	<i>21</i>	<i>Servant</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	

Last name	First Name	Relation	Race	AGE	BIRTH	Father	Mother	Occupation	Read	Write	English
Grimmage	Nathan	Head	B	57	PA	DE	DE	Cook	Y	Y	Y
Grimmage	Margaret	Wife	B	45	MD	MD	MD	Dressmaker	Y	Y	Y
Grimmage	Kay	Daughter	B	20	PA	PA	MD	Dressmaker	Y	Y	Y
Grimmage	Duke	Son	B	13	PA	PA	MD	At School	Y	Y	Y
Grimmage	Madeline	Daughter	B	12	PA	PA	MD	At School	Y	Y	Y
Phinnizia	Katherin	Lodger	B	48	SC	SC	SC	Dressmaker	Y	Y	Y
Turner	P.	Lodger	B	28	MD	MD	MD	Electrician	Y	Y	Y
Newman	William	Lodger	B	23	VA	VA	VA	Cook	Y	Y	Y
Turner	Bessie	Sister	B	21	MD	MD	MD	Servant	Y	Y	Y

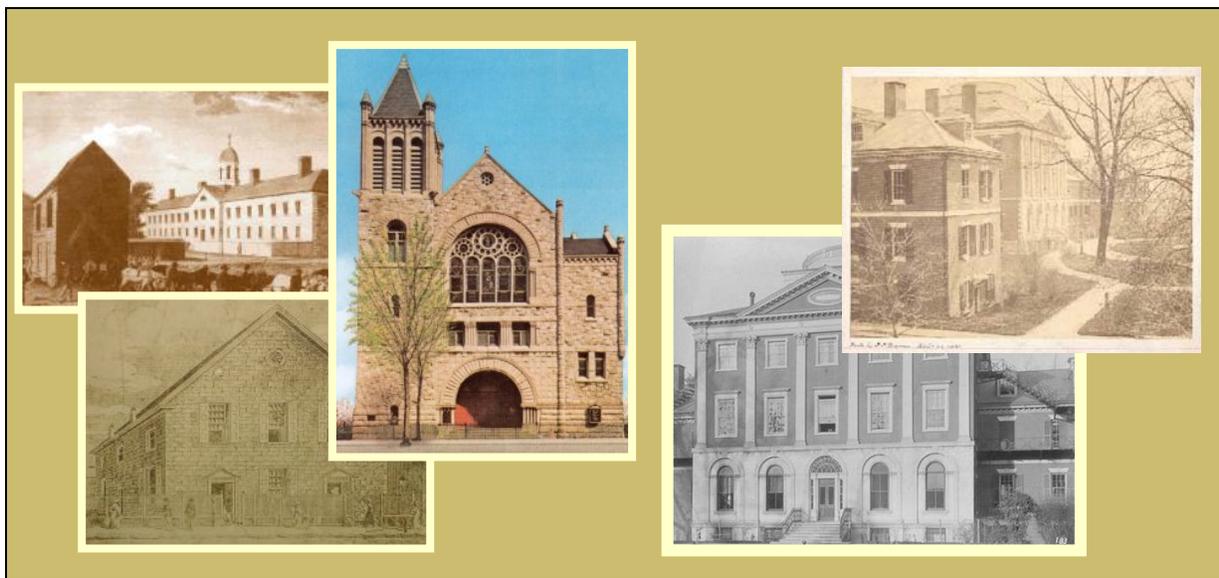
The 1900 Census manuscripts (above) provide information about each member of each household living in the Old Seventh Ward. These data will be typed into a spreadsheet (below) and linked to the digitized map of the parcels.

Digitized parcels with U.S. Census data



The 1900 Census data will be linked to the digitized parcels, allowing visitors to the site to make maps like this by turning on and off layers, selecting variables, and performing queries.

Historical photographs



Historical photographs will be linked to parcels. At right, photos show Mother Bethel AME Church at three different periods. Photos at right show Pennsylvania Hospital, the oldest hospital in the country. Both sites are in the eastern edge of the Old Seventh Ward. Photographs will be taken of sites for which historical photographs are included to show how the sites look today.

Appendix C

Technical Specifications for Software Application

The major deliverable for this project will be a web-based software application that will integrate information from DuBois's study and other primary sources, enabling high school and college history students, among other users, to visually explore the 60-block study area at different points in time. The application will include the following features:

- Visitors will be able to search for parcels based on parameters such as characteristics of the built environment, census characteristics, and data gathered through surveys of the community.
- The site will display lists of properties that match the selected parameters.
- Visitors will be able to click on individual properties to view detailed information that will include photographs and thumbnail maps.
- The site will use web-based GIS technology to enable overlay of multiple thematic layers such as parcel outlines, building parks, schools and scanned copies of historical maps.
- Maps will be interactive and will include the ability to zoom in/out, pan, identify details of properties, and ability to change layer visibility.
- An interactive Help system that will explain how to use features of the application.

Developing the proposed software application would normally not be possible for the estimated price. However, the team has a great deal of experience and many existing software components that will both accelerate the process and allow the application to be completed for a much lower cost.

The proposed application will borrow software components from three existing software applications. The first, parcelBase, is part of the Philadelphia Neighborhood

Information System (NIS). While originally designed to support neighborhood redevelopment efforts, the parcelBase allows users to query and display maps on all of the more than half million parcels in the City of Philadelphia. It integrates more than a dozen different data sources from multiple agencies as well more than forty GIS data layers and images. It includes capabilities for saving user-defined queries, creating reports, writing and saving notes concerning individual parcels, assembling parcels of interest into groups, and several user administration and activity reporting tools. This software application will be the template from which the proposed Philadelphia Negro GIS application will be developed.

In addition to the parcelBase, Avencia will incorporate software components from two other applications it has designed for the City of Philadelphia, a Historic Photo Browser application and the Unified Land Record System (ULRS). The Historic Photo Browser is actually a series of applications developed to support geographic location of scanned historic photographs as well as subsequent search and display of photos on the Internet. This application was developed for the City of Philadelphia Archives in order to make both historic and contemporary photographs available to the public. The ULRS application is an extensive software infrastructure developed for the City of Philadelphia to cross-link and integrate disparate agency databases based on address location. The software components developed for this initiative are currently being incorporated into the Philadelphia NIS. Avencia will provide perpetual royalty-free licenses for use of these software components in order to implement the proposed software.

This new application will be hosted at the Cartographic Modeling Lab (CML). The CML holds all software licenses and hardware necessary for the proposed application. These components, including a relational database, spatial database extension, internet map server,

chart server, web server, and application server, as well as hardware, represent an existing infrastructure worth more than \$90,000.

The proposed application will be hosted on computer hardware that is available on the public Internet. This hardware will consist of three servers, a database server, a web/application server and a firewall. In order to maintain its availability and security, the firewall is a dedicated server that protects the other two servers by refusing access to all requests that do not match a set of rules. The database server provides database and spatial database services to the web/application server. The web/application server hosts the web server, chart server, map server and other software components. This multi-tiered architecture is designed to provide a secure and scalable system that can accommodate multiple applications and many simultaneous users.

The software will be constructed using a set of commercial off-the-shelf (COTS) software toolkits that have been selected for their widespread use and compatibility with the CML's existing architecture.

- *Operating System* – The application will be hosted on Windows 2000 and Windows 2003 Servers.
- *Web Browsers* – The application will be tested and deployed using InternetExplorer 5.0+ and the open source Mozilla browser.
- *Relational Database (RDBMS)* – The non-spatial data will be stored in Microsoft SQL Server 2000 or SQL Server 2005. The vector spatial data will be stored in either the ESRI shapefiles format, ArcSDE and scanned image files.
- *Internet Map Server* – The CML is standardized on ESRI products for all of its GIS software requirements. ESRI's flagship internet product is ArcIMS. ArcIMS is a multi-

platform GIS application server that can serve map images, stream feature data, perform spatial queries, and other common GIS operations.

- *Software Development Environment* – The various modules will be developed based on the .Net Framework and written using C# and ASP.Net and the Visual Studio.Net IDE.
- *Other Software Components* – The CML currently uses several other software components for running its web-based neighborhood information system applications including: GraphicsServer for charting; ASPEmail for messaging; and abcPDF for report generation.

Appendix D

CML Inventory of Hardware and Software

Computer Name [year]	Model	Processor	Memory	Monitor
Apollo (Webserver © 2001)	Dell PowerEdge 2450	1Ghz	1 GB	Shares Gateway EV900
Athena (File/Data Server © Dec 2002)	Dell PowerEdge2650	1.8Ghz Xeon	1 GB	Shares Gateway EV900
Olympia (Data Server © Dec 2000; expanded 2002)	Dell PowerEdge6400	700 Mhz	1GB	Shares Gateway EV900
Hercules (Database and Backup Server ©2004)	Dell PowerEdge 2650	3.2 Ghz- Xeon	4 GB	Shares Gateway EV900
Diameter (Database and Backup Hard drive © 2004)	Dell PowerVault 220S (SCSI)	N/A	N/A	Shares Gateway EV900 1640GB (7*146+7*146)
Prometheus (Off-site Application Development server © 2001)	Dell PowerEdge 2450	866Mhz- Pentium III dual	1GB	N/A
Zeus (Confidential Data server © 2004)	Dell PowerEdge 1600SC	1 Ghz- Xeon	1 GB	Includes: 200+GB of storage; SQL Server license with 5 connections.
Baring © 2004	Dell Dimension XPS_Gen_3	Pentium 4 3.2 GHz	1 GB	17" LCD
Nectarine © 2004	Dell Dimension XPS_Gen_3	Pentium 4 3.2 GHz	1 GB	17" LCD
Filbert © 2004	Dell Dimension XPS_Gen_3	Pentium 4 3.2 GHz	1 GB	17" LCD
Sansom © 2004	Dell Dimension XPS_Gen_3	Pentium 4 3.2 GHz	1 GB	17" LCD
Pearl © 2004	Dell Dimension XPS_Gen_3	Pentium 4 3.2 GHz	1 GB	17" LCD
Hillier_SSW © 2004	Dell Dimension XPS_Gen_3	Pentium 4 3.2 GHz	1 GB	17" LCD
CML_06 (© 2002)	Dell Dimension 4300	Pentium 4 1.8 Ghz	512 MB	17" LCD
Green (© 2002)	Gateway 450S	Pentium 4 2.4 GHz	512 MB	17" LCD
Dennis (© 2005)	Dell Opti Plex GX280	Pentium 4 2.8 GHz	512 MB	17" LCD
Wallace (© 2002)	Gateway 450S	Pentium 4 2.4 GHz	512 MB	17" LCD
Chestnut (© 2003)	Dell	Pentium 4 2.8 GHz	1 GB	17" LCD
CML_Laptop2 (© 2001)	Gateway Solo 5300	Pentium III 700MHz	128 MB	14" LCD
CML_Laptop3 (© 2001)	Gateway Solo 5300	Pentium III 700MHz	128 MB	14" LCD
CML_Laptop4 (© 2002)	Gateway 450X	Pentium 4 1.6GHz	512 MB	15" LCD
CML_Laptop5 (© 2001)	Gateway Solo 5300	Pentium III 700MHz	128 MB	14" LCD
CML_Laptop6 (© 2002)	Gateway 600L	Pentium 4 1.7Ghz	512 MB	15" LCD
Virtual University City project Laptop (© 2005)	Dell Inspiron XPS	Pentium 4 3.4 GHz	1 GB	15" LCD

Appendix E
Letters of Agreement

Dennis Culhane, Director, Cartographic Modeling Lab, *website host*

Robert Cheetham, Avencia, Inc., *programmer*

Amy Jane Cohen, *high school teacher*

Maryanne Walker, *high school teacher*

Anne Knowles, Middlebury College, *project evaluator*

Diane Turner, African American Museum in Philadelphia, *project evaluator*

Appendix F

Letters of Support

Gary Hack, Dean, School of Design, University of Pennsylvania

Michael Katz, Professor, History Department, University of Pennsylvania

Thomas Sugrue, Professor, History Department, University of Pennsylvania

Elaine Simon, Co-director, Urban Studies Program, University of Pennsylvania

Laurie Allen, Social Science Librarian, Van Pelt Library

Joan Decker, Commissioner, Department of Records, City of Philadelphia

Bruce Laverty, Curator of Architecture, The Athenaeum of Philadelphia

Joan Saverino, Assistant Director of Education, Pennsylvania Historical Society

Appendix G.

Detailed Work Plan

Grant period: June 1, 2006-May 31, 2008

Tasks	Summer 2006	Fall 2006	Spring 2007	Summer 2007	Fall 2007	Spring 2008
Establish metadata standards	GIS director/Avencia					
Establish data requirements	GIS director/Avencia					
Develop master address file	research assistants					
Collect 1900 census data	research assistants	research assistants	research assistants			
Collect 1940-2000 census block data			research assistants			
Collect and scan historical photos	research assistants	research assistants	research assistants			
Hold design focus group meetings		web designer/students				
Digitize parcel boundaries	research assistants					
Collect & scan housing inspections		research assistants	research assistants	research assistants		
Collect & scan migrant case studies		research assistants	research assistants			
Develop narratives	project director	project director	project director	project director	project director	
Take new digital photographs				research assistants		
Integrate data for online GIS				RAs/DBA	RAs/DBA	
Develop online GIS application					Avencia	Avencia
Develop website			web designer	web designer	web designer	web designer
Beta test application						RAs/students
Evaluate final project						evaluators
Finalize GIS application						Avencia
Migrate application to CML						GIS director/Avencia

Note: The Project Director will be involved in all of these tasks, either through direct participation or supervision.

Appendix G.

Brief Resumes of Key Project Staff

Amy Hillier, Project Director

Marlen Kokaz, GIS Director

Robert Cheetham, Avencia, Programmer

Sara Green, Web designer

Brief curriculum vitae

AMY HILLIER

WORK ADDRESS

Department of City & Regional Planning
210 South 34th Street, Meyerson Hall
Philadelphia PA 19104
(215) 648-2341
ahillier@design.upenn.edu

EDUCATION

- 1995-2001 University of Pennsylvania, Philadelphia, PA
M.S.W. (May 1997)
Ph.D. in Social Welfare (May 2001)
Graduate Certificate in Urban Studies (May 2001)
Dissertation: "Redlining and the Home Owners' Loan Corporation"
- 1988-1992 Middlebury College, Middlebury, VT
BA in History, *summa cum laude*, *Phi Beta Kappa* (May 1992)
- 1990 The American University, Washington, DC
Semester Program for National Government

ACADEMIC POSITIONS

- 2005-present Assistant Professor, Department of City & Regional Planning, University
of Pennsylvania
- 2004-2005 Research Director
Cartographic Modeling Laboratory, University of Pennsylvania
- 2002-2004 Research Associate
Cartographic Modeling Laboratory, University of Pennsylvania
- 2001- 2002 HUD Urban Scholars Postdoctoral Fellow
Population Studies Center, University of Pennsylvania

PEER-REVIEWED PUBLICATIONS

Amy Hillier & David Koppisch (forthcoming) "Community Activists and University
Researchers Collaborating for Affordable Housing: Dual Perspectives on the
Experience," *Journal of Poverty*.

- Amy Hillier, Marilou Wernecke, & Heather McKelvey (2005), "Removing barriers to the use of community information systems," *Journal of Community Practice*, 13(1): 121-139.
- Amy Hillier (Summer 2005), "Residential Security Maps and Neighborhood Appraisals: The Home Owners' Loan Corporation & the Case of Philadelphia," *Social Science History* 29(2): 207-233.
- Amy Hillier (Winter 2005), "Searching for Red Lines: Spatial Analysis of Lending Patterns in Philadelphia, 1940 to 1960," *Pennsylvania History* 72(1): 25-47.
- Amy Hillier (2003), "Spatial Analysis of Redlining: A Methodological Exploration," *Journal of Housing Research* 14(1): 137-167.
- Amy Hillier (2003), "Redlining and the Home Owners' Loan Corporation," *Journal of Urban History* 29(4): 394-420.
- Amy Hillier (2003), "Who Received Loans? Home Owners' Loan Corporation Lending and Discrimination in Philadelphia in the 1930s," *Journal of Planning History* 2(1): 3-24.
- Amy Hillier, Dennis Culhane, Tony Smith, & C. Dana Tomlin (2003), "Predicting Housing Abandonment with the Philadelphia Neighborhood Information System," *Journal of Urban Affairs* 25(1): 91-105.
- Yin Ling Irene Wong & Amy Hillier (2001), "Evaluating a Community-Based Homelessness Prevention Program: A Geographic Information System Approach," *Administration in Social Work* 25(4): 21-45.

MARLEN NATALI KOKAZ

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Wayne, PA 19087
Phone: (484) 919-4285
E-mail: mkokaz@ssw.upenn.edu

EDUCATION

- University of Kansas** **Overland Park, KS**
Master's of Science in Engineering Management, 2002
Focus: Information Systems and Database Implementation
- Cornell University** **Ithaca, NY**
Master of Regional Planning, 1997
Department of City and Regional Planning
Focus: Transportation Planning
- Mimar Sinan University** **Istanbul, Turkey**
Bachelor's Degree in City and Regional Planning, 1994, Top 1%
Department of Architecture

PROFESSIONAL EXPERIENCE

- Urban Engineers, Inc.** **Philadelphia, PA**
GIS Analyst/Planner
June 2001-August 2003
- Mid-America Regional Council (MARC)** **Kansas City, MO**
Transportation Planner
July 1997-February 2001

PROFESSIONAL SKILLS

Certifications

Visual Basic Fundamentals Certificate of Training,
Visual Basic Applications
SQL Online Training Certificate
GIS & Relational Database Management Systems and Database Design
Integrating GIS and Intelligent Transportation Systems Certificate by American Public
Works Association Introduction to MicroStation J
Fundamentals and Intermediate Microsoft Excel 97
Beginners and Advance Microsoft Access 97
Introduction to HTML Authoring
Time Management
Improving Your Business Writing
Franklin Covey Certificate of Training in Presentation Advantage
Intermediate and Advance MapInfo Professional Certificate
National Highway Institute Certificate of Training in Introduction to Urban Travel
Demand Forecasting Federal Highway Administration Certificate of Training in Using
the National ITS Architecture
Kansas Local Agencies Corridor Management Tools and Techniques
Introduction to MicroStation J
Introduction to ArcView 3.1, Introduction to ArcInfo using ArcTools

What is new in ArcView 3.x, Migrating from ArcView 3.x to ArcView 8
Exploring Geography Network
Fundamentals of GeoMedia Professional

Computer Software

Word Processing: Microsoft Word/Work, Word Perfect ; *Spread Sheet:* Excel, Lotus;
Database: Foxpro, MS Access, Report Writer; *Programming:* VB, VBA, HTML
Authoring, SQL programming; *Statistical:* Minitab; *Flow Chart:* Visio; *Transportation:*
HCM/Cinema; *Linear Programming:* Lindo, Storm 4.0; *Geographical Information*
System: ArcGIS, ArcInfo/ArcView, TransCad, MapInfo, GeoMedia Professional;
Design: AutoCad, MicroStation J, Form-Z; *Presentation:* Power Point, Pagemaker;
Photo Editing: PhotoShop, Adobe Illustrator; *Travel Demand Modeling:* EMME2.

Quantitative Analysis

Basic/System Simulation Models, Input/Output Tables and Analysis, Regional Income
and Employment Accounts Analysis, Population Projection, Centography Geographic
Information System, Regional Multiplier Analysis, Gravity & Gradient Model,
Cost/Benefit Analysis, Linear Programming, Dynamic Programming, Project
Management, Regional Econometric Models, Work Center Analysis.

Language Skills

Fluent Turkish, French, English; Conversant Italian and Greek.

PUBLICATIONS-PRESENTATIONS

Presentations

International Symposium on Geographic Information Systems
Istanbul, Turkey, 2002

URISA PPGIS 2002
New Brunswick, NJ, 2002

URISA 2000
Orlando, FL, 2000

Cross Road 2000
Ames, Iowa, 1998

Publications

Understanding The Power of GIS in Highway Alternative Analysis Public
Participation Process
New Brunswick, NJ, 2002

Accessibility Issues Related to Fulton Landing Redevelopment
Ithaca, NY, 1997

Analysis of the Transportation System in Bursa
Bursa, Turkey, 1994

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Philadelphia, PA 19130
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340 N 12th St, Suite 402B
Philadelphia, PA 19107
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EDUCATION

1994 – 1997 University of Pennsylvania -- MLA Masters of Landscape Architecture
1995 Summer Field Ecology, University of Vermont, Western Connecticut
1989 – 1990 Stanford Japan Center, Kyoto Center for Japanese Studies, Kyoto, Japan
1986 - 1991 University of Michigan, Ann Arbor -- BA with distinction: Japanese Studies

EMPLOYMENT

2000 - Present Avencia Incorporated
Founder and President
1995 - Present University of Pennsylvania
Senior Software Developer, Cartographic Modeling Lab, 1998 - Present
Lecturer, Dept. of Landscape Architecture, Univ. of Pennsylvania, 1997 - 1999
Research Associate, Cartographic Modeling Lab, 1996 - 1997
Project Manager, West Philadelphia Landscape Project, 1996 - 1997
Research Assistant, West Philadelphia Landscape Project, 1995 - 1997
1997 - 2001 City of Philadelphia
Senior GIS Developer, GIS Services Group, 1999-2001
GIS Analyst, Philadelphia Police Department, 1997-1999
1997 - 2000 Private Practice
Consultant in Geographic Information Systems and GIS Software Development

REPRESENTATIVE SOFTWARE DEVELOPMENT PROJECTS

2004 *CrimeBase*: Designed and developed web-based software for analyzing aggregated crime incident information. <http://cml.upenn.edu/crimebase/>

2001 - 2003 *SmartConservation™ Model*: Developing a set of web-based conservation value assessment tools for the Natural Lands Trust. The tools implement the Smart Conservation Model, a hierarchical collection of spatial metrics for assessment of ecological and conservation land value for any arbitrary site in the Piedmont eco-region. The project is funded by the Pennsylvania Department of Environmental Protection and the William Penn Foundation.

2002 *MuralBase*: Designed and developed web-based software for query and display maps and other data on the large number of murals in Philadelphia. <http://cml.upenn.edu/murals/>

1999 - Present *Neighborhood Information System (NIS)*: Designed and developed web-based software tools for query and map display of real estate and neighborhood health indicators at both a parcel-based and aggregated level. <http://cml.upenn.edu/nis/>

1999 - Present *Services Utilization Monitoring System (SUMS)*: Designed and developed web-based software tools for query, charting, statistical analysis and mapping of aggregated social, education, welfare and public health indicators.

2001 - Present *CityMaps*: Designed and developed a simple mapping and city services lookup application to display zoning, aerial photography, services areas and nearest facilities for the City of Philadelphia. <http://citymaps.phila.gov/>

1996 - Present *JGarden, the Japanese Garden Database*: Designed, developed and continues to manage a collaborative, non-profit, web-based database on Japanese gardens. <http://www.jgarden.org/>

1999 - 2001 *Firearms Tracking and Analysis System (FAS)*: Designed and developed an information management system for tracking illegally seized firearms, electronically transmitting firearms trace requests to the Bureau of Alcohol, Tobacco and Firearms (ATF) and allowing subsequent analysis of the results. The system is architected using Active Server Pages, Windows 2000 Server, SQL Server 2000, COM+,

RECENT PRESENTATIONS

- 2004 International Conference on Community Indicators, Reno, 12 March
Community Statistical Systems in the Philadelphia Region
Academy of Criminal Justice Sciences, Las Vegas, 10 March
Crimebase: Integrating Crime Information with Community Statistics
Academy of Criminal Justice Sciences, Las Vegas, 10 March
Analysis Cubes: Building a Spatial OLAP Engine for Analyzing Crime
Land Use/Land Cover Conference, Towson, Maryland, 9 January
Land Cover Assessment Algorithms in the SmartConservation™ Model
- 2003 ESRI User's Conference, San Diego, California, 8 July
SmartConservation™: Automating a Conservation Value Assessment Model
ESRI User's Conference, San Diego, California, 9 July
Assembling Web Services into a Batch Geocoding Application
ReVA/MAIA Conference, King of Prussia, Pennsylvania, 14 May
SmartConservation™: Automating a Conservation Value Assessment Model for Southeast Pennsylvania
- 2002 EDRA Conference, Philadelphia, Pennsylvania, 23 May
Neighborhood Information System (NIS) Software Architecture
ESRI Mid-Atlantic User Group Baltimore, Maryland, 6 November
Automating a Conservation Value Assessment Model
- 2001 PA GIS Conference, Hershey, Pennsylvania, 23 May
Web-based Crime Analysis Systems
- 2000 Crime Mapping Research Conference San Diego, California, 11 December
Pattern Discovery Services
WebGIS2000 State College, Pennsylvania, 10 November
modelTree: a system for authoring raster models
ESRI User's Conference, San Diego, California, 29 June
Airtime: Visualization of Change in Philadelphia

RECENT PUBLICATIONS

- 1995 - Present JGarden: the Japanese Garden Database, <http://www.jgarden.org/>
- 2000 "Airtime: Visualization of Change in Philadelphia", ESRI UC2000 Proceedings.
- 1998 "Police at Play", ESRI UC1998 Proceedings.
- 1998 "Confluence: Evolving the Waterworks", ESRI UC1998 Proceedings.
- 1997 West Philadelphia Spatial Database: An Atlas and Technical Manual.
- 1996 West Philadelphia Landscape Project – Volume 6: The West Philadelphia Landscape Project Digital Database.