Invitation to Mapping: How GIS can Facilitate New Discovering in Urban and Planning History

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Abstract
Urban and planning historians frequently focus on inherently spatial topics such as migration, segregation, gentrification, and suburbanization and rely on historical maps as primary sources, but they rarely use geographic information systems (GIS) as a research method for analyzing spatial patterns. This article considers the reasons that GIS is not used more, including long-standing ambivalence about quantitative methods and limited training opportunities. It then outlines ways in which GIS can uniquely inform historical research—by emphasizing underlying spatial processes, making spatial patterns visible, and transforming mapping into a process—in ways that can refine and challenge existing urban historical narratives. Finally, recommendations for overcoming existing barriers to historical GIS are presented.

Keywords
geographic information systems (GIS), spatial analysis, historical GIS, quantitative history

Introduction
Much of twentieth-century urban and planning history is characterized by processes that have created spatial differentiation and geographic disparity. Many of the most widely read texts, from William Cronin’s Nature’s Metropolis to Kenneth Jackson’s Crabgrass Frontiers to Thomas Sugrue’s Origins of the Urban Crisis, focus on the movement and distribution of people and goods across urban landscapes. Spatial patterns within cities have changed over the last 100 years, but the central role of geography in understanding the formation, function, and dysfunction of cities has not. These spatial patterns occur at various scales, from the neighborhood to municipality to metropolitan regions to the entire United States. Scholars have used historical maps to help them understand cities while urban planners, realtors, and government officials have used maps to help them shape cities. Migration and immigration, deindustrialization, suburbanization, segregation, redlining, urban renewal, gentrification, and sprawl—topics that dominate urban and planning history literature—all have a spatial dimension that traditional historical narratives often fail to fully investigate. More

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explicit attention to the spatial nature of these processes could help historians to better understand how cities have taken shape.

Geographic information systems (GIS) provide an obvious tool to help urban and planning historians analyze these spatial patterns. GIS are hardware and software designed to integrate, map, and analyze spatial data and have been available since the 1990s. GIS can combine spatial data from different scales, parts of the world, and time periods as long as the data contain information about their location on the globe. The spatial information may take the form of very specific locations, such as street addresses or longitude and latitude coordinates, political districts such as wards, municipalities, and counties, or administrative units such as census tracts or zip codes. Map layers representing different variables or different time periods can then be viewed together to identify spatial patterns.

Despite the central role of maps, geographic concepts, and spatial theories to understanding and shaping cities, most contemporary urban and planning historians do not use GIS in their research. The following article considers why. The value of GIS for urban and planning history scholarship is then demonstrated through a series of examples drawn from the author’s research about W. E. B. Du Bois’ book *The Philadelphia Negro* and historical mortgage redlining and from two recent book-length manuscripts that make considerable use of GIS. The article then identifies areas of research where GIS could provide new insight and provides a road map for its integration in urban and planning history.

**Role of Maps in Urban and Planning History**

The limited role that GIS currently plays in urban and planning history is best understood in the context of the long-standing ambivalence about quantitative analysis among most historians. Social science historians have been recognized as a distinct group for decades, and it is still the rare historian who is trained in, and inclined to use, quantitative data analysis techniques. The Minnesota Population Center hosted a panel discussion at the 2006 Social Science History Association (SSHA) meeting entitled “At the Shrine of the Bitch-Goddess: The Future of Quantitative History,” a reference to the comments of Carl Bridenbaugh during his 1960 presidential address at the American Historical Association condemning quantitative history as the “bitch goddess.” The SSHA session revisited some of the early critiques of quantitative history—that social science methods were not appropriate for the humanities, were reductionist and positivist, and that the promise of quantitative history had not been realized in well-funded studies such as *Time on the Cross: The Economics of American Negro Slavery* of Stanley Engerman and Robert Fogel and Theodore Hershberg’s Philadelphia Social History Project. Arguably, these two large-scale projects did make major contributions to the field of quantitative history, and quantitative historians have made significant contributions to the fields of economic, social, and political history. However, quantitative methods are still not embraced by most historians.

GIS are generally considered a subset of quantitative analysis, and critiques of historical GIS have been similar to those directed at quantitative analysis. In his essay, “History and GIS: Implications for the Discipline,” David Bodenhamer argued that the reluctance of historians to embrace GIS is driven by philosophical concerns and norms. Historians see interdependency and rely on narratives for nuance in describing complex relationships. “The computer, of course, is a technology that does not tolerate ambiguity,” he explained. “Its insistence on precision does not fit the worldview of historians. . . . Given this stance, it is no accident that GIS, the tool initially of engineers and earth scientists, has made few inroads in history.” Desktop GIS currently lack tools for documenting uncertainty, a major limitation for representing and analyzing historical material. Furthermore, the process of referencing data sources in GIS through detailed metadata bears little resemblance to the familiar footnote and endnote format. These limitations make it challenging for historians to qualify their arguments, show interconnections, and carefully reference their sources in a way accessible to their readers.
One clear result of the ambivalence of historians about quantitative methods and GIS is that few graduate-level history students receive the necessary training to use them. Students at schools that do not teach quantitative methods in history are left to take courses in other departments where applications to historical research are rarely if ever discussed or must seek training outside their university through programs like the summer workshops offered through the Inter-University Consortium of Political and Social Science Research (ICPSR). Even universities that offer quantitative history course do not require it for graduate students, meaning that only a fraction of them develop quantitative skills. Courses in historical GIS are even less common than those in quantitative methods. Idaho State University (ISU) is alone in offering a master’s degree that emphasizes geographically integrated history and courses dedicated to teaching historians GIS methods, but ISU does not offer a PhD. If most urban and planning historians are unwilling to use, or untrained in, quantitative methods, they are also unlikely to use GIS. The closing of departments of geography in universities across the United States has also limited the amount of training graduate students receive in geographic thinking and methods, making it unlikely that geography courses would be a route to GIS training.

A systematic review of the recent literature supports this conclusion that GIS are rarely used by urban and planning historians. A review of all articles appearing in the *Journal of Urban History* and the *Journal of Planning History* from January 2002 to December 2009 revealed that while maps are frequently incorporated, maps created with GIS are rare. Of the 129 articles published in the *Journal of Planning History* since 2002, forty-six (36 percent) included maps. Similarly, of the 219 articles published in the *Journal of Urban History* during that same time period, seventy (32 percent) included maps. Many of the maps published in both journals were reproductions of historical maps not maps created by or for the authors as part of their research. More than two-thirds (thirty-five) of the articles with maps in the *Journal of Planning History* and half (thirty-six) of the articles in the *Journal of Urban History* with maps included historical fire insurance maps, zoning maps, and redevelopment plans. Clearly, contemporary historians value maps but that does not translate into making their own maps using GIS.

Only thirteen of the articles from the *Journal of Planning History* (28 percent of articles with maps) and thirty-four of the articles from the *Journal of Urban History* (51 percent of articles with maps) included new maps created by or for the author. Less than one-half of these articles featured maps created using GIS, with the rest including hand-drawn maps or maps created through online mapping services or graphics software. As figures 1 and 2 show, there has been little increase in

![Figure 1. Review of articles in *Journal of Planning History*, 2002–2009.](image-url)
the number of new maps created between 2002 and 2009, even as GIS have become more accessible and widely used in other academic fields. One-third of these new maps were reference maps that simply showed the location of geographic features such as cities, counties, or natural features. The rest were thematic maps using different colors or patterns to display aggregate information such as racial and ethnic composition from the U.S. Census or infant mortality from local health records by census tract.

**Invitation to Mapping**

Book-length historical manuscripts that rely on GIS have been rare, too. More common have been collections of historical GIS case studies that are not focused on urban topics, guides to using GIS in historical research, and public history Web sites that focus more on interactive mapping and education than new scholarship. Two important exceptions include Colin Gordon’s *Mapping Decline: St. Louis and the Fate of the American City* (2008), published with seventy color maps and Jordan Stanger-Ross’s *Staying Italian: Urban Change and Ethnic Life in Postwar Toronto and Philadelphia* (2009), which includes fourteen black-and-white maps. Examples from these two recently published books and the author’s research on historical redlining and W. E. B. Du Bois’ *The Philadelphia Negro* are presented to demonstrate the unique contributions GIS can make to historical scholarship. Ultimately, GIS will be of interest to urban and planning historians only if it allows them to see history differently.

**Encourage Formation of Spatial Questions and Conceptualizations**

One way GIS can help urban and planning historians see history differently is by making explicit the spatial processes they study. Traditional historical narratives allow scholars to describe change over time and space, but the chronological order that generally gives structure to those narratives and dependence on words rather than images necessarily prejudices temporal patterns over spatial. The decision to adopt GIS as a research method provides an opportunity for historians to explain how and why geography matters. By linking the choice of research methods to a spatial conceptualization,
researchers can use maps to test a spatial question or generate new questions about spatial patterns not merely illustrate findings after the fact. Nothing about GIS software requires such careful consideration of why spatial methods are essential, but the investment of time required to prepare spatial data should trigger the question for the researcher, or advisors, colleagues, and reviewers, to justify the use of GIS.

The author’s research on historical mortgage redlining in Philadelphia provides an example. Redlining has an obvious spatial dimension, but by conceptualizing redlining as a spatial process—that of making lending decisions based on the location of a property—GIS and mapping became essential. If cities like Philadelphia had not been characterized by racial segregation, and if older neighborhoods had not been located within an inner core, it would not have been feasible for lenders to map broad areas based on risk to real estate investment. Only because spatial differentiation developed among racial and income groups and land uses in the early part of the twentieth century could lenders avoid making loans to particular groups with the aid of maps. Using GIS, it was possible to understand this spatialization of lending practices by calculating the proximity of residential neighborhoods to commercial areas and to industry, analyze the spatial relationship among racial composition, housing quality, and mortgage availability, and consider the impact of the location of “red lines”—such as those drawn on maps by the Home Owners’ Loan Corporation (HOLC) and Federal Housing Administration maps—on lending patterns.

Highlight Multiple Characteristics of Locations

GIS users can create maps that only show the location of geographic features, such as rivers or parcels or political boundaries, fairly easily. While these can be helpful aids for orienting readers to key locations in an historical narrative, they do little to take advantage of the analytical potential of GIS. The added value of GIS comes in mapping multiple characteristics, or “attributes,” of those locations, transforming reference maps into thematic maps that show how certain conditions or features vary over space. GIS is designed to generate and layer thematic maps and makes is relatively simple to switch from one attribute to another. This distinguishes GIS, which is essentially a database that can be viewed graphically, from illustrations generated through graphics software, which must be constructed one at a time. The more attributes in a GIS database, the more different map that can be created and layered, whether they represent different attributes or the same attribute from different time periods.

Thematic maps predate GIS by several hundred years, but GIS makes it much more efficient to map and analyze multiple attributes. The parcel-level map of social class that W. E. B. Du Bois included in his classic 1899 book, The Philadelphia Negro, is an example of a thematic map. Rather than just showing the location of households in the Seventh Ward, Du Bois color coded the parcels to indicate which households were middle class, working class, poor, and “vicious and criminal.” Du Bois collected many other attributes about the households he surveyed, but in the absence of computers and GIS, he had no way of constructing a database that would allow him to easily show households based on the number of days residents were unemployed or missed work because they were sick, as well. As a result, Du Bois left us only one map of his survey results.

Recreating Du Bois’ map with GIS makes it much easier to see attributes other than social class. The survey data Du Bois collected in his 1896 foot survey of the Seventh Ward no longer exist, but manuscript data from the 1900 U.S. Census provides similar data about individual households. The author and a team of student researchers created the Seventh Ward GIS as part of the research, teaching, and public history project, Mapping the Du Bois Philadelphia Negro, incorporating information about the 27,000 individuals and 6,000 households who lived in the area Du Bois surveyed. In addition to social class, the GIS includes information about race and national origin, household size, occupation of the head of household, presence of children, servants, and boarders, and owner/renter
status as well as information about births and deaths from health registries. None of the resulting maps fundamentally challenges the portrait Du Bois created of the Seventh Ward, but they do provide greater nuance and detail than Du Bois was able to in *The Philadelphia Negro*. Du Bois concluded that blacks in Philadelphia had limited options about where they could live, often crowding into small houses along back streets and alleys but still in close proximity to wealthy whites for whom many of them worked as domestic servants. His map of social class was restricted to blacks and did not differentiate those born in Philadelphia or other northern cities and those who migrated from the south. The GIS version of such a map, shown in figure 3, allows one to see the variability within the black community based on where they were born as well as the national origin of their white neighbors. The resulting pattern highlights the level of complexity between race, class, national origin, and housing only understandable through a map.

The Seventh Ward GIS is available online through an interactive mapping application, allowing visitors to create a series of maps one at a time based on these multiple attributes, making it possible to see the relationship among race and the presence of boarders and servants, for example. Social Explorer, a Web-based mapping application that incorporates aggregate historical census data for the entire United States, works in a similar way.

**Help Identify Spatial Patterns**

Perhaps, the most essential element in analytical mapping is identifying spatial patterns. Are locations close together, like the mortgages made by Berean Savings and Loan in Philadelphia during the 1940s and 1950s? Are they noticeably absent from some areas, like new public housing developments that accepted blacks in predominantly white areas in Philadelphia during the 1940s and 1950s? Or is there some regularity to the pattern, indicating that the location of one type of

![Figure 3. Parcel map of race and nationality, Philadelphia’s Old Seventh Ward, 1900.](image-url)
industry, for example, discouraged another from locating nearby? Once mapped, researchers can analyze the spatial patterns in their data visually or with the help of various “hot spot” measures that apply statistical tools to determine whether patterns vary significantly from a random spatial pattern.14

Answering a spatial question might also involve measuring how far apart locations are. GIS include tools for measuring distances in different ways—most simply, as straight lines (Euclidean distance) but also based on a city grid (Manhattan distance) or a street or public transportation network, incorporating travel times and costs. Historian Jordan Stanger-Ross measured the straight-line distance between where members of a synagogue lived and the location of their synagogue before and after the synagogue moved. Similarly, he calculated the distance between the location of businesses that advertised in commemorative publications of a Catholic church in Toronto and the church and between the residence of brides and grooms married over time to see how a “geography of intimacy” adapted with a changing economy as connections to the church began extending beyond the boundaries of the parish and Toronto’s Little Italy.15

Beyond recognizing whether locations are characterized by clustering or sparseness, GIS facilitates identifying correlations through the process of layering maps. Do locations tend to cluster in certain types of areas? This was the case for mortgages made by Berean Savings and Loan in Philadelphia that clustered in African American neighborhoods, something that became obvious after address-level mortgage data were mapped on top of census tract-level historical census data.16 Education historian Michael Clapper used this same technique to show how the architecture of public schools built in Philadelphia differed by the racial composition of the neighborhoods in which they were located.17 Similarly, mapping where interracial couples lived in 1900 in Philadelphia’s Seventh Ward shows an association with areas that were mixed race or predominantly black. Du Bois identified interracial marriages through his door-to-door survey results, detailing the number of each combination of bride and groom races. However, he did not provide information about where these couples lived within the Seventh Ward (figure 4).

Would it be possible to identify these spatial relationships without the aid of GIS? Perhaps, but in relying on pencil and paper maps or one’s own mental map of a city to identify locations, researchers have fewer opportunities for analyzing the relationships among multiple factors.

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**Figure 4.** Parcel map of racial composition with location of interracial couples in Philadelphia’s Seventh Ward, 1900.
GIS can also be used to analyze correlations between two or more layers of aggregate data. Symbology options within GIS software allow one to map one layer on top of another, with some effort, but creating what Edward Tufte describes as a “series of small multiples”—maps of the same scale side by side with different variables—is often the most effective way to reveal such patterns.\(^\text{18}\) In the author’s redlining research, GIS was used to identify positive correlations among the percentage of black and immigrant residents, overcrowding, old housing, lower housing values, and worse grades assigned by the Home Owners’ Loan Corporation to the districts drawn on their residential security maps. Visual analysis offered a starting place for understanding the relationship among these different factors, but then using spatial regression models helped to determine that racial composition was a statistically significant factor in HOLC grade controlling for all others.\(^\text{19}\)

**Make Mapping a Process of Discovery and Meaning Making**

In using GIS, mapping becomes a process for analyzing spatial patterns, not just a means of creating a single map for illustration purposes. When most effective, GIS is used as part of an iterative process by researchers for discovering new patterns and relationships, not just confirming what they already know. Once a spatial database is constructed, GIS tools make it relatively easy to layer thematic maps in different combinations, aggregate data to different geographic scales, and even explore temporal change with animation tools or by constructing variables representing change over time. It may be necessary to make several dozen maps to understand a spatial pattern even though only one or two maps are ultimately to be published. GIS makes it feasible to engage in this exploratory process of mapping, not just map making.

While GIS can facilitate the process of identifying patterns of clustering, sparseness, regularity, proximity, and correlation, the researcher must ultimately interpret those patterns. This process of “extracting the meaning” from maps, as geographer Diana Sinton has called it, is what transforms spatial patterns on a map into urban and planning history narratives.\(^\text{20}\) Mapping is a process that depends on the map maker and the map interpreter. Maps do not answer questions, tell a story, or generate new historical scholarship; scholars do. GIS may help historians develop their narratives, but as with the best social science research, the best historical scholarship will depend on multiple types of data and methods of analysis. For example, the clustering of mortgages made Berean Savings and Loan in West Philadelphia and other African American neighborhoods has meaning only when such insights are incorporated into the larger story of mortgage lending and homeownership following the Depression and Second World War and when nonspatial sources are consulted to reveal that Berean was a black-owned institution.

In the example of Clapper’s research, he interprets the maps showing that public school architecture varied by neighborhood racial composition as evidence of a racially separate and unequal education system. Schools built in predominantly black neighborhoods featured small “protected entrances” amid the massive brick and stone facades, small windows, and “minimal” grounds. These schools were often overcrowded shortly after opening while schools in white neighborhoods—where parents increasingly enrolled children in parochial school—were frequently underenrolled. By comparing the enrollments of schools in different neighborhoods of the city, Clapper showed how these buildings helped define communities and how the geography of schools limited attempts at reform.\(^\text{21}\)

Stanger-Ross showed that the distances between Jewish residents and their synagogue increased as Mikveh Israel in Philadelphia moved farther from its members, who were moving to the northern portion and inner suburbs of Philadelphia, rather than with them. He interpreted this as a challenge to Gerald Gamm’s thesis that the “geographic flexibility” of synagogues led Jews to abandon cities and their urban congregations. In discovering that distances between businesses and the Catholic church where they advertised and between brides and grooms increased over time, Stanger-Ross
provided support for his spatial thesis about the adaptability of Italian ethnicity and that a “geography of intimacy” adapted with a changing economy as connections to the church began extending beyond the boundaries of the parish and Toronto’s Little Italy.22

**Recommendations for Moving Forward**

**Practical Considerations**

Moving forward with GIS in the field of urban and planning history involves a number of practical considerations including the development of data and teaching infrastructure. In regard to existing data infrastructure, the National Science Foundation has invested several million dollars in the National Historical GIS (NHGIS), developed at the Minnesota Population Center, to make historical census data available for free on the Internet. The commercial Neighborhood Change Database (NCDB) goes one step further in reaggregating census data by a common set of areal units, overcoming the challenge of trying to analyze change over time when administrative boundaries are not constant. Various collections of scanned historical maps—the Library of Congress Map Collection, University of Chicago’s “Social Scientists Map Chicago,” David Rumsey Collection, Philadelphia GeoHistory Project, Digital Sanborn maps—provide easy access to a limited number of maps.23

The field of urban and planning history needs additional data infrastructure developed specifically around topics of special interest. If Google can scan every book in the Harvard University library and the Mormon Church can digitize all of the historical manuscript census records, it is possible to make high-resolution digital copies of all of the HOLC residential security maps, maps created by the Federal Housing Administration, and local urban renewal maps and city plans available. Manuscript census data from the nineteenth century collected for the Philadelphia Social History project are available online in tabular form through ICPSR; with some limited investment of time and money, these files could be made GIS-ready for teaching and research. Without an investment in shared data infrastructure, integrating GIS methods into urban and planning history projects may be prohibitively time consuming and expensive for most scholars.

Training for GIS is also needed. The ICPSR summer workshops and National Institute for Technology in Liberal Education (NITLE) workshops in urban studies GIS provide models for training doctoral students and other scholars interested in developing GIS skills. Other models of sharing GIS teaching, software, and hardware resources are needed—perhaps, coordinated through professional associations such as the Urban History Association and Society for American City and Regional Planning History—since it is unlikely that most institutions will develop their own historical GIS capacity. Researchers also need cooperation from book and journal publishers to publish maps in color, which is extremely helpful if not absolutely essential to representing spatial patterns. The overwhelming majority of urban and planning history publications are restricted to black-and-white printing, including the ProQuest UMI Dissertation Publishing service that archives dissertations. Given the small profit margins in academic publishing, cost-effective solutions are necessary. For *Mapping Decline*, Gordon negotiated with the University of Pennsylvania Press to raise the money himself for the additional cost of including color maps. In 2008, the *Journal of Urban History* began including color graphics in its online version. *Social Science History* has an online “gallery of illustrations” where authors can upload color versions of the illustrations from their articles or other relevant visual material. Online publishing certainly affords many more options for sharing color maps, but academic presses must also respond with creative solutions.

**Changing How Historians Think About GIS**

Moving forward also requires changing how historians think about GIS and helping them to see how creating and analyzing maps is not so different from what they know. For starters, mapping with GIS
need not be synonymous with quantitative analysis. In the 2009 book of Meghan Cope and Sarah Elwood, *Qualitative GIS*, Marianna Pavlovskaya argues that, in many ways, GIS is qualitative. Specifically, she points to the nonquantitative origins of GIS within geography, land use planning, census administration, military, and computer science and the emphasis on visual analysis. She also argues that even though data must be in a digital format to work with GIS, qualitative data—such as historical maps, photographs, and resident perceptions—can be digitized and incorporated. Finally, historians need not be trained in inferential statistics to be successful with GIS. While basic database concepts such as linking records and coding variables are important, experience with basic spreadsheets such as Microsoft Excel generally provides a sufficient background to get started.

GIS might also feel more familiar to historians if maps are thought of as propositions rather than objective evidence or representations. It might seem obvious that historical maps, like Du Bois’ map of social class in Philadelphia’s Seventh Ward or the residential security maps created by HOLC, reflect the values of the people and institutions that created them and the time period in which they were created. Historical research requires critical analysis of all primary sources, including maps, to understand who created the source and for what purpose. GIS maps can similarly be interpreted as arguments, reflecting the perspective of the person who created them. By choosing all of the elements that go into making a map—the geographic unit, data classification system, colors, symbols, title, and layout—and describing the pattern and the meaning of the pattern, the map maker can manipulate the message. For urban and planning historians who are familiar with crafting arguments and trained to approach sources critically, viewing maps as propositions may make GIS more accessible, at least conceptually.

Finally, the social science terms generally used to describe maps may be unfamiliar or uncomfortable to some urban and planning historians, but the general concepts behind those terms are probably not. Spatial analysis is the practice of discovering patterns across space (and, potentially, time) and can be done visually, without statistics. Testing and generating hypotheses is about organizing research around a question and using findings to identify new questions. Using maps analytically requires urban and planning historians to collect data, study it visually, build an argument, and tell a story—a familiar process. To successfully use maps to support the development of new scholarship, historians need to make GIS their own and work with it on their own terms. Historical GIS is not the exclusive domain of social science historians; historians and geographers inclined toward social science methods were merely the first to adopt GIS. The field of historical GIS will likely benefit from greater engagement of historians and the challenges and contributions of humanities scholars.

**The Future of Urban and Planning History with GIS**

If more urban and planning historians begin integrating GIS into their research, we may not have a wholesale rewriting of history; in many cases, detailed spatial analyses will likely reinforce the dominant narratives about how cities have developed. However, these new spatial versions will likely add nuance and context. Colin Gordon’s *Mapping Decline* did this, providing more detailed spatial evidence of government, white homeowner, and real estate complicity in the steady decline of St. Louis than previous accounts. However, maps might also challenge some of what we have come to take for granted, like Stanger-Ross’s work on the relationship between Jews and Italians and their congregations in Toronto and Philadelphia and the author’s research on redlining and the HOLC have done.

Some of the most obvious places to apply GIS and spatial analysis methods are the explicitly spatial topics that already receive considerable attention. What would a spatial analysis of the development of transportation lines—streetcars and subway systems, scenic boulevards, expressways, and bus lines—teach us about their intended and actual impact on vulnerable urban communities...
and suburban development? Digitized Sanborn maps, telephone directory listings, housing sales data, and other government records could be used to construct map layers of businesses, industry, and residences as they existed before the transportation systems that displaced them to develop spatial and temporal narratives about their impact. Existing research on expressways constructed in Miami, Philadelphia, and New York give attention to the geography of displacement, but with a more explicitly spatial conceptualization, deliberate gathering of spatial data, and careful reading of the spatial patterns, we might have different, and certainly richer, narratives.

Would a series of comparative spatial–temporal analyses of white flight provide the kind of evidence Robert Beauregard has argued is missing in the dominant narrative about government complicity in urban decline? Could maps be used to develop a more nuanced “geography of decline” that incorporates temporal and spatial patterns across cities and regions? The historical census data incorporated in the NHGIS provide much easier access to demographic and housing data that, combined with information about suburban development, employment, crime, schooling, and government services, could help separate out the causal relationships on a regional scale that resulted in suburbanization. The detailed property-level database Gordon meticulously constructed for Mapping Decline, incorporating information about mortgages, sales, deeds, and restrictive covenants, provides an alternative model, most appropriate for studying individual neighborhoods or towns because of the time involved.

Urban and planning historians, particularly those studying the twentieth-century cities, have better access to data by virtue of studying fairly recent events and more explicitly spatial topics than their peers in other fields of history. The potential for GIS to inform—and even transform—urban and planning history and serve as a model for the larger discipline of history is considerable. Meeting this challenge will require scholars to frame their research questions as spatial, and identify, map, analyze and interpret spatial data, and embrace mapping as a process that may introduce new terminology and technology but is not so foreign as it may be portrayed. Such open-mindedness might result in important new scholarship as well as new common ground between the humanities and the social sciences that stand to benefit both.

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Notes

3. Only articles featuring new research—not book reviews, special issue introductions, author responses, or obituaries—were reviewed and counted. All maps created for or by the author, as indicated in the map caption or by the author through e-mail correspondence, were considered “new,” regardless of the method of creation (GIS software, graphics software, or hand-drawn).
4. Many of the authors whose articles were included in the review of the *Journal of Planning History* and the *Journal of Urban History* indicated through e-mail correspondence that they relied on graduate students, colleagues, friends, and relatives with superior drawing, graphics, or GIS skills to create their maps.


11. The Seventh Ward GIS is available at http://venus.cml.upenn.edu/UPennSD_Philadelphia/. To create thematic maps, select the “Thematic maps” tab and then choose from the map layers listed in the drop-down menu.

12. Social Explorer is available at www.socialexplorer.com. The Web site includes a free version of the mapping with limited functionality and data as well as a subscription-based enhanced version.


20. Geographer Diana Sinton (University of Redlands) used this phrase during a presentation at the Scholarly Communications Institute at the University of Virginia in June 2009.


**Bio**

Amy Hillier, MSW, PhD, is an assistant professor of City and Regional Planning at the University of Pennsylvania School of Design. She teaches geographic information systems (GIS) courses in planning, urban studies, social work, public health, and history for graduate and undergraduate students. Her research focuses on historical and contemporary geographic disparities in housing, including mortgage redlining, and public health, including childhood obesity, access to healthful foods, and outdoor advertising.