Historic Sanborn Maps in the Digital Age: City of New Orleans

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"The fire insurance map is probably the single most important record of urban growth and development in the United States during the past 100 years."

—United States Library of Congress, Sanborn Fire Insurance Map Collection Web Site

Founded in 1866, the Sanborn Map Company is the oldest mapping company in the United States. For more than 100 years, the company created and maintained maps that were used primarily for fire insurance underwriting. As such, a Sanborn map provides specific information on an individual structure such as its height, number of floors, address, use, and construction material. Over the course of more than 130 years, Sanborn has created more than 1.5 million maps documenting the growth and development of more than 12,000 U.S. cities and towns.

The company's historical maps are widely used by various municipal departments including tax assessment, zoning, planning, fire, and more. The information contained in the maps is extremely valuable and has a variety of uses. For example, building material can be studied to assess potential termite risk; building styles can be reviewed to ensure that the architectural character of existing structures is maintained. Professionals involved in environmental risk assessment also use historical Sanborn maps to help assess the environmental risk of a property based on its prior uses.

Sanborn has mapped some cities, such as Chicago, New York, and New Orleans, repeatedly over the years. For these cities, the maps represent a record of urban growth throughout the 19th and 20th centuries. Between 1876 and 1994, for example, Sanborn mapped New Orleans more than 100 times.

In 1999, the Vieux Carré Commission of the city of New Orleans purchased historic Sanborn maps of the French Quarter (Vieux Carré) for the year 1885. The commission's primary purpose was to expand its collection of historic information on the French Quarter. Prior to this project, the commission had access to a few different sets of 19th and 20th century Sanborn maps of New Orleans. The commission felt that the information contained in the earliest Sanborn maps would enhance its ability to perform its mission of historic preservation.

Figure 1

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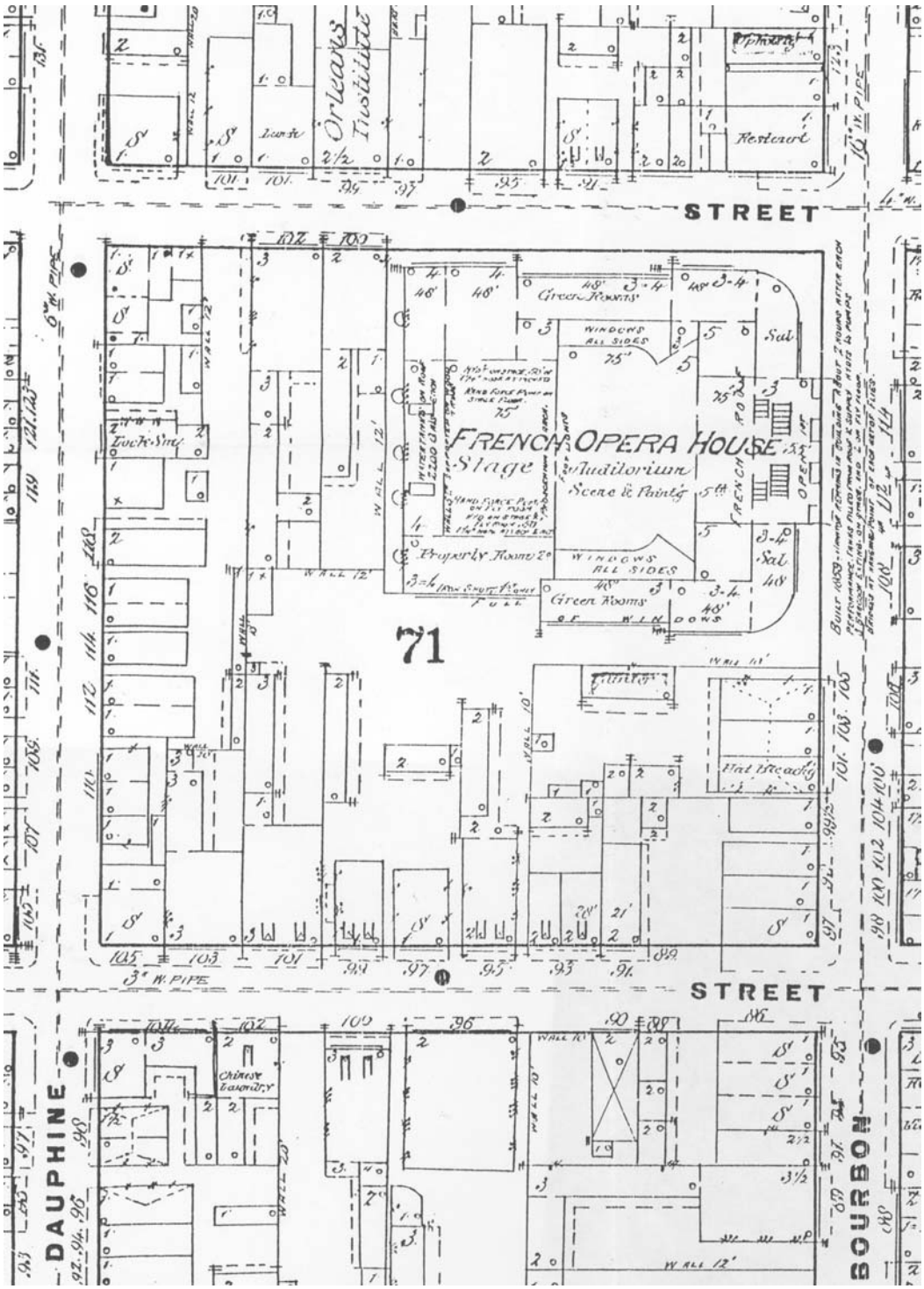
Sanborn Map Published in 1885, French quarter, New Orleans, Louisiana.



This project is the first phase of what could become a multilayer, multiyear geographic information system (GIS) of the French Quarter. Once completed, the digital versions of the maps could allow the commission to study changes in the area and identify patterns in urban development. In essence, this is a temporal GIS.

The Vieux Carré Commission wanted the maps in digital format so they could be integrated into the city's existing GIS. The conversion involved digitizing historic Sanborn map building footprints from 1885 into ArcView shapefile format. Sanborn used a "heads-up" digitizing technique for the conversion that involved scanning the original maps and then georeferencing them to a basemap supplied by the GIS department within City Planning. The basemap used was a planimetric data layer that shows the edge of the pavement for the sidewalks in that section of the city. Once the scanned maps were georeferenced to the basemap, the building footprints were digitized on the computer screen and the associated attributes for each building were entered into the GIS database as coded values and stored as unique records for each polygon.

Figure 2
Digital Building Footprints Shapefile, From Sanborn Maps Published in 1885, French Quarter, New Orleans, Louisiana

The following is a list of attributes captured from the original map and attached to the corresponding building footprint polygons:

Number of stories above ground: Indicates the number of floors interpreted from the map.
Building height: Height of building in feet.
Building use: Indicates status category such as residential; residential transient; commercial; warehouse; manufacturing; public or institutional; utility; transportation, or other information such as vacant building and so forth. The residential use categories are single family unit, multifamily unit, private garage.
Construction material: Provides information about construction material used such as masonry, nonmasonry, or fireproof.
Address: Includes building number, name, and street name.
Floor text information: Information pertaining to sub- and superstructures interpreted from the map. It includes basement, subbasement, and attic.

Figure 3
Digital Sanborn Building Footprints, French Opera House Circa 1885, French Quarter, New Orleans, Louisiana.

One of the greatest challenges faced by the project managers was the complexity of georeferencing. In 1885, when these maps were published, technological advancements such as computerized cartography and GIS did not exist. The maps were designed to be stand-alone products used by fire insurance underwriters. As such, Sanborn maps are not georeferenced to any modern day coordinate system. To overcome this, it was necessary for the project managers to apply innovative solutions. Ultimately, georeferencing was done on a block-by-block basis, which allowed the project managers to achieve the required spatial accuracy.

The Sanborn historic information database, created as a result of this project, demonstrates the potential uses of historic Sanborn map data in historic preservation. Sanborn maps are the most comprehensive source of this type of information in existence on American cities. The historical relevance of Sanborn map data is unparalleled.