LOUISIANA DIVISION OF HISTORIC PRESERVATION

GRANT 13-HP-01

FINAL REPORT FOR THE PERIOD

JULY 1, 2013 - JUNE 30, 2014

NEW ORLEANS ARCHITECTURE STUDY:

Uploading of Insurance Company Maps and FEMA Field Survey Data to the DHP Server

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NOTE: This grant covers the period beginning July 1, 2013 and ending June 30, 2014. The grant was fully executed in October of 2013, though work began in June of 2013.

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The Cartographic Information Center of the LSU Libraries and the Department of Geography and Anthropology

The Geography and Map Reading Room of the Library of Congress

And:

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Introduction

In 2013, we proposed to establish a Historic Structures database for the properties of the Vieux Carré. The purpose of the database was to supplement the current Vieux Carré Survey, which is on line and managed through the Historic New Orleans Collection. This proposal included fieldwork and the establishment of new data such as accurate GPS locations for each property and a new typology for the buildings of the Vieux Carré. We proposed to upload this data into the CRT server, so that it would be available to the public.

In consultation with the officers of the Division of Historic Preservation, this project was modified. In September, it was proposed that the historic maps, which we have already georeferenced, merged and digitized, be uploaded to the CRT server. Specifically, we proposed to provide Sanborn Company insurance maps for New Orleans, Series II (1885-87), Series III (1895-96), and Series IV (1908-09) for the DHP Louisiana State Cultural Resources Map. Series I (1876) is owned exclusively by the Tulane University Southeastern Architectural Archive, and we do not have permission to distribute it. We also proposed to provide FEMA Red Tag survey data in such a way that it might be accessible to the public via the Louisiana State Cultural Resources Map on line. The work of modifying the maps and integrating them with the CRT system was to be done by Gabriele Richardson.

During the months of July through October, we experienced delays in obtaining permission for Gabriele to obtain access to the relevant partition of the CRT server. The protocols of the LSU system, using ArcGIS 10.2 and CRT, using ArcGIS 10.2 via the Flex viewer were different. We had two conferences with tech personnel and officers of CRT, which explored these

difficulties. Eventually, we were able to obtain the necessary software arrangements to enable Gabriele to upload the maps. Gabriele explains the process as follows:

> After several DHP-Server data access problems and a final conference on December 18th, the grant work could start. With the provided DHP-VPN connection, we have now access to Sanborn map layers, created within former grant years and the FEMA post Katrina point dataset. These layers have to be integrated and manipulated within .mxd files provided by DHP. Gabriele must write metadata files for each Sanborn map and for the each of the historic districts for the Red Tag photos. The layer and data transfer from the created ArcMap .mxd file to the web-mapping application with ArcGIS Viewer for Flex Application Builder will be done by DHP. For example, DHP might decide to provide pie charts of the various housetypes identified by FEMA for each historic district for public viewing, based on the attribute data, which have been uploaded.
>
> One processing problem has rendered the work slower than anticipated. There is an incompatibility between the CRT VPN connection and the LSU system. It renders access from LSU computers to the DHP server problematic during daytime hours. The VPN connection is slow and collapses periodically. Thus, Gabriele must do her work on weekends or at night in order to have full and uninterrupted access to the DHP server. For some reason, the connection is stable during these hours. Even then, the connection is still slow.

The following chapters explain how to upload and maintain data for the crt-server and process the data using ArcMap 10.2. It contains step-by-step instructions for all the grant tasks involved. Afterwards, an explanation of how to upload on an ArcGIS server and the data manipulation through ArcGIS Viewer for Flex is given. Both are shown through an LSU connection (to be sure everything works out) and how the final image should look on ArcGIS Viewer for Flex. All files are tested in ArcMap 10.2 with the provided hpweb.mxd file from DHP, and after publishing on the LSU ArcGIS Server, all files are tested on LSU ArcGIS Viewer for Flex.

Each chapter describes a specific task, which is part of the entire sequence, as follows:

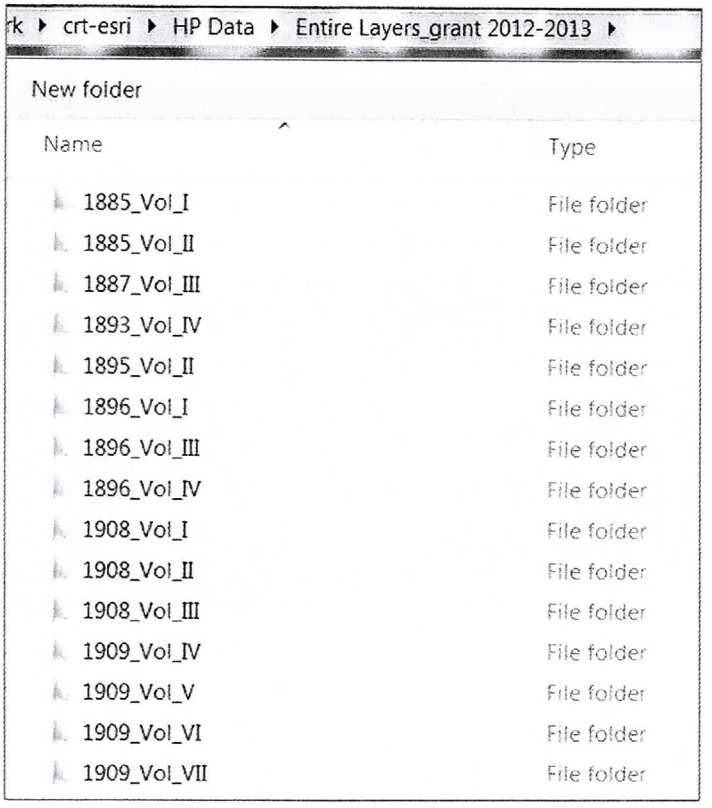
All chapters use sample files from the grant.

Chapter	Task
1	Uploading FEMA Shapefiles and Sanborn Maps on CRT-Server
2	Rewriting the FEMA Picture Path
3	Creating FEMA Attribute Field Definitions
4	Writing the Sanborn Maps Definitions
5	Writing proposal for ArcGIS Viewer for Flex

Chapter 1: Upload FEMA Shapefiles and Sanborn Maps on CRT-Server

The Division of Historic Preservation set up a server connection (\\crt-esri\HP Data) through which we were able to upload and download the appropriate grant files (Sanborn Maps for the series 1885 through 1909, and the post Katrina FEMA survey). Additionally, a Sanborn Maps "Key, Introduction, and Limitation" pdf was uploaded for these maps. This key informs users about the information and symbols embedded in the Sanborn Maps.

Table 1: Sanborn Maps for New Orleans uploaded to the CRT Server



After the process of photographing the Sanborn Maps, each entire layer for each volume amounts to be between 5 and 136 Gigabytes. Table 1 shows all the used Sanborn Map series as follows:

Series 2: 1885 to 1893

- 1885_Vol I
- 1885_Vol II
- 1887_Vol III
- 1887_Vol IV

Series 3:1895 to 1896

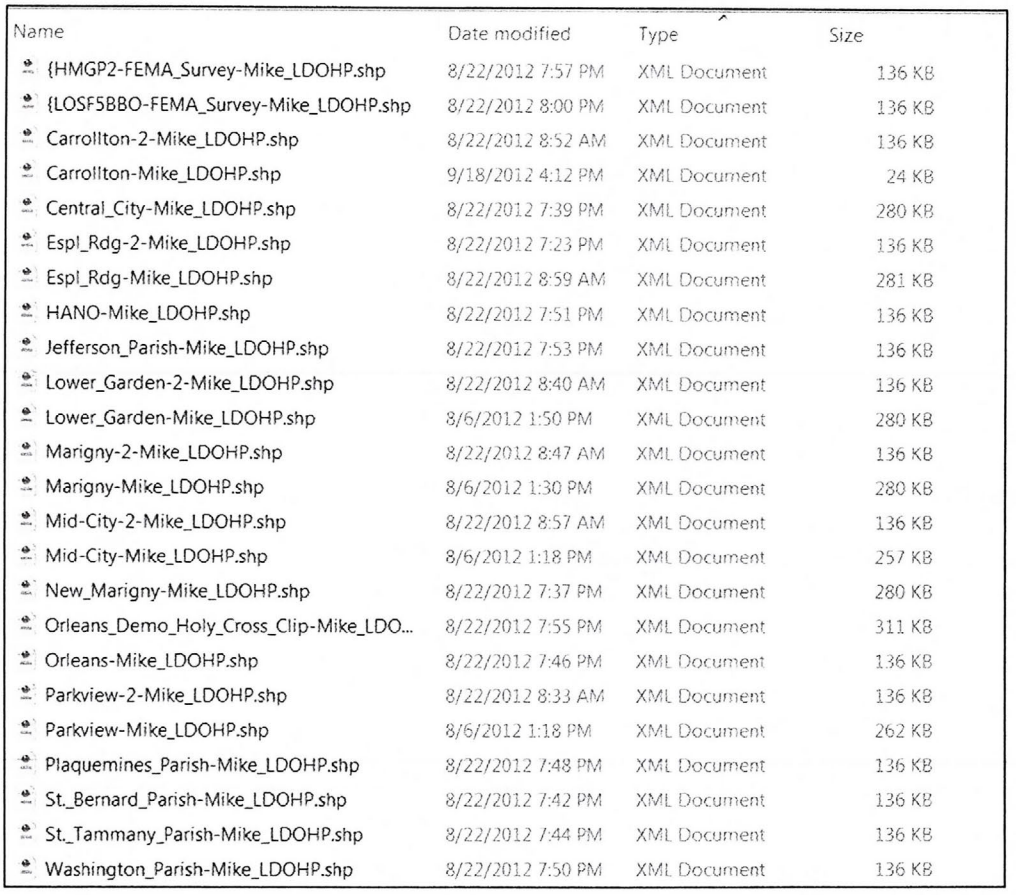
- 1896_Vol I
- 1895_Vol II
- 1896_Vol III
- 1896_Vol IV

Series 4: 1908 to 1909

- 1908_Vol I
- 1908_Vol II
- 1908_Vol III
- 1909_Vol IV
- 1909_Vol V
- 1909_Vol VI
- 1909_Vol VII

The following table shows all FEMA survey datasets used in this grant.

Table 2: FEMA post Katrina Survey as broken down into Historic District and Parish shapefiles



Name	Date modified	Type	Size
{HMGP2-FEMA_Survey-Mike_LDOHP.shp	8/22/2012 7:57 PM	XML Document	136 KB
{LOSF5BBO-FEMA_Survey-Mike_LDOHP.shp	8/22/2012 8:00 PM	XML Document	136 KB
Carrollton-2-Mike_LDOHP.shp	8/22/2012 8:52 AM	XML Document	136 KB
Carrollton-Mike_LDOHP.shp	9/18/2012 4:12 PM	XML Document	24 KB
Central_City-Mike_LDOHP.shp	8/22/2012 7:39 PM	XML Document	280 KB
Espl_Rdg-2-Mike_LDOHP.shp	8/22/2012 7:23 PM	XML Document	136 KB
Espl_Rdg-Mike_LDOHP.shp	8/22/2012 8:59 AM	XML Document	281 KB
HANO-Mike_LDOHP.shp	8/22/2012 7:51 PM	XML Document	136 KB
Jefferson_Parish-Mike_LDOHP.shp	8/22/2012 7:53 PM	XML Document	136 KB
Lower_Garden-2-Mike_LDOHP.shp	8/22/2012 8:40 AM	XML Document	136 KB
Lower_Garden-Mike_LDOHP.shp	8/6/2012 1:50 PM	XML Document	280 KB
Marigny-2-Mike_LDOHP.shp	8/22/2012 8:47 AM	XML Document	136 KB
Marigny-Mike_LDOHP.shp	8/6/2012 1:30 PM	XML Document	280 KB
Mid-City-2-Mike_LDOHP.shp	8/22/2012 8:57 AM	XML Document	136 KB
Mid-City-Mike_LDOHP.shp	8/6/2012 1:18 PM	XML Document	257 KB
New_Marigny-Mike_LDOHP.shp	8/22/2012 7:37 PM	XML Document	280 KB
Orleans_Demo_Holy_Cross_Clip-Mike_LDO...	8/22/2012 7:55 PM	XML Document	311 KB
Orleans-Mike_LDOHP.shp	8/22/2012 7:46 PM	XML Document	136 KB
Parkview-2-Mike_LDOHP.shp	8/22/2012 8:33 AM	XML Document	136 KB
Parkview-Mike_LDOHP.shp	8/6/2012 1:18 PM	XML Document	262 KB
Plaquemines_Parish-Mike_LDOHP.shp	8/22/2012 7:48 PM	XML Document	136 KB
St._Bernard_Parish-Mike_LDOHP.shp	8/22/2012 7:42 PM	XML Document	136 KB
St._Tammany_Parish-Mike_LDOHP.shp	8/22/2012 7:44 PM	XML Document	136 KB
Washington_Parish-Mike_LDOHP.shp	8/22/2012 7:50 PM	XML Document	136 KB

Table 3: FEMA shapefile descriptions

Name Shapefile	Historic District and Parish Names
{HMGP2-FEMA_Survey-Mike_LDOHP	Orleans Parish Part 2
{LOSF5BBO-FEMA_Survey-Mike_LDOHP	St. Bernard Parish Part 2
Carrollton-Mike_LDOHP	Carrollton Historic District
Central_City-Mike_LDOHP	Central City Historic District
Espl_Rdg-Mike_LDOHP	Esplanade Ridge Historic District
HANO-Mike_LDOHP	Orleans Parish Part 3
Jefferson_Parish-Mike_LDOHP	Jefferson Parish
Lower_Garden-Mike_LDOHP	Lower Garden Historic District
Marigny-Mike_LDOHP	Marigny Historic District
Mid-City-Mike_LDOHP	Mid-City Historic District
New_Marigny-Mike_LDOHP	New Marigny Historic District
Orleans_Demo_Holy_Cross_Clip-Mike_LDOHP	Holy Cross Historic District
Orleans-Mike_LDOHP	Orleans Parish
Parkview-Mike_LDOHP	Parkview Historic District
Plaquemines_Parish-Mike_LDOHP	Plaquemines Parish
St._Bernard_Parish-Mike_LDOHP	St. Bernard Parish
St._Tammany_Parish-Mike_LDOHP	St. Tammany Parish
Washington_Parish-Mike_LDOHP	Washington Parish

The collected FEMA building and lot points shown in the FEMA shapefiles include multiple attribute fields. Each field has been set up with an alias name because the fieldnames are shortened and partially incomprehensible. How the alias names and the field descriptions were created is explained in chapter 3.

All FEMA pictures for each shapefile or parish made through the post Katrina survey have been uploaded to the CRT-server. The following table shows all the uploaded FEMA picture files (*Table 4*).

Table 4: FEMA picture folders

Name	Date modified	Type
{2A998	11/21/2013 11:20 ...	File folder
{08D29	11/21/2013 9:20 A...	File folder
{58FD1	11/22/2013 12:28 ...	File folder
{920F7	11/22/2013 12:47 ...	File folder
{C7350	11/22/2013 12:51 ...	File folder
{CARO7	11/22/2013 4:26 PM	File folder
{CC-5B	11/22/2013 5:32 PM	File folder
{E8865	11/22/2013 5:40 PM	File folder
{ESPL1	11/22/2013 6:22 PM	File folder
{F96F2	11/22/2013 6:30 PM	File folder
{HMGP2	2/4/2014 12:22 AM	File folder
{LGD1A	1/4/2014 11:07 AM	File folder
{LOSF5	2/4/2014 6:00 AM	File folder
{MARE9	10/11/2013 4:39 PM	File folder
{MIDCI	11/21/2013 12:37 ...	File folder
{NEWM1	10/11/2013 6:05 PM	File folder
{Orl-D	11/22/2013 6:32 PM	File folder
{PARK8	11/22/2013 9:15 A...	File folder

Each picture folder is connected to a particular FEMA shapefile, as illustrated in the following table (*Table 5*).

Table 5: FEMA picture path description

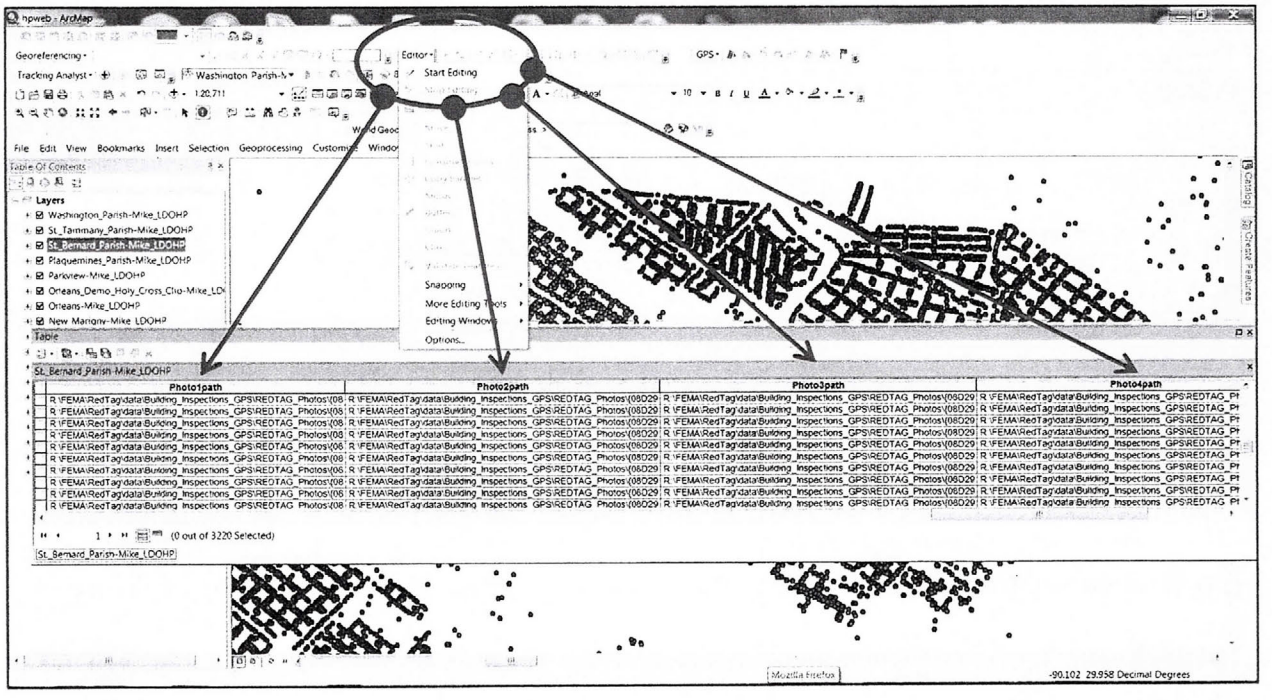
FEMA Picture Folder	Connected FEMA Shapefiles
{2A998	St. Tammany Parish
{08D29	St. Bernard Parish
{58FD1	Orleans Parish
{920F7	Plaquemines Parish
{C7350	Washington Parish
{CARO7	Carrollton Historic District
{CC-5B	Central City Historic District
{E8865	Orleans Parish part 3
{ESPL1	Esplanade Ridge Historic District
{F96F2	Jefferson Parish
{HMGP2	Orleans Parish part 2
{LGD1A	Lower Garden Historic District
{LOSF5	St. Bernard Parish part 2
{MARE9	Marigny Historic District
{MIDCI	Mid-City Historic District
{NEWM1	New Marigny Historic District
{Orl-D	Holy Cross Historic District
{PARK8	Parkview Historic District

Each picture path has to be set up in the FEMA shapefile in the attribute list in an appropriate picture path and connected to the server \\crt-esri\HP Data. This will be explained in detail in chapter 2. If only picture numbers occur within the attribute list and no picture path, no previous picture path was provided by FEMA. If CRT wishes to provide a fully complete survey, someone will need to research the photographs and assign them proper picture paths (see chapter 6).

Chapter 2: Rewriting the FEMA Picture Paths

After all the FEMA shapefiles and FEMA pictures were uploaded, we had to rewrite the picture paths so that by clicking on an activation point, the correct pictures that are stored on the CRT-Server would pop up.

Figure 1: Edit Mode ArcGIS, Rewriting picture paths for one activation dot.



With the editing tool in ArcMap 10.2 we changed all the picture paths from the previous paths to the CRT-Server paths (*Fig. 1*). The current picture path, for example, for St. Bernard Parish was *R:\FEMA\RedTag\data\Building_Inspections_GPS\REDTAG_Photos\{08D29\EB0518\100_3464.JPG*, but the final path is *\\crt-esri\HP Data\hpImages\{08D29\EB0518\100_3464.JPG*. The picture paths had to be shortened; otherwise, errors would occur in the picture view. Usually there are four pictures and four picture paths; however, sometimes there are only two or three

pictures for a specific property or building available. In New Orleans Parish often only a single picture may be provided, or none at all.

The following table shows how many activation points were assigned by FEMA. For each point, we were able to write picture paths for between one and four photographs (*Table 6*).

Table 6: Number of building or lot activation points for each Historic District or Parish

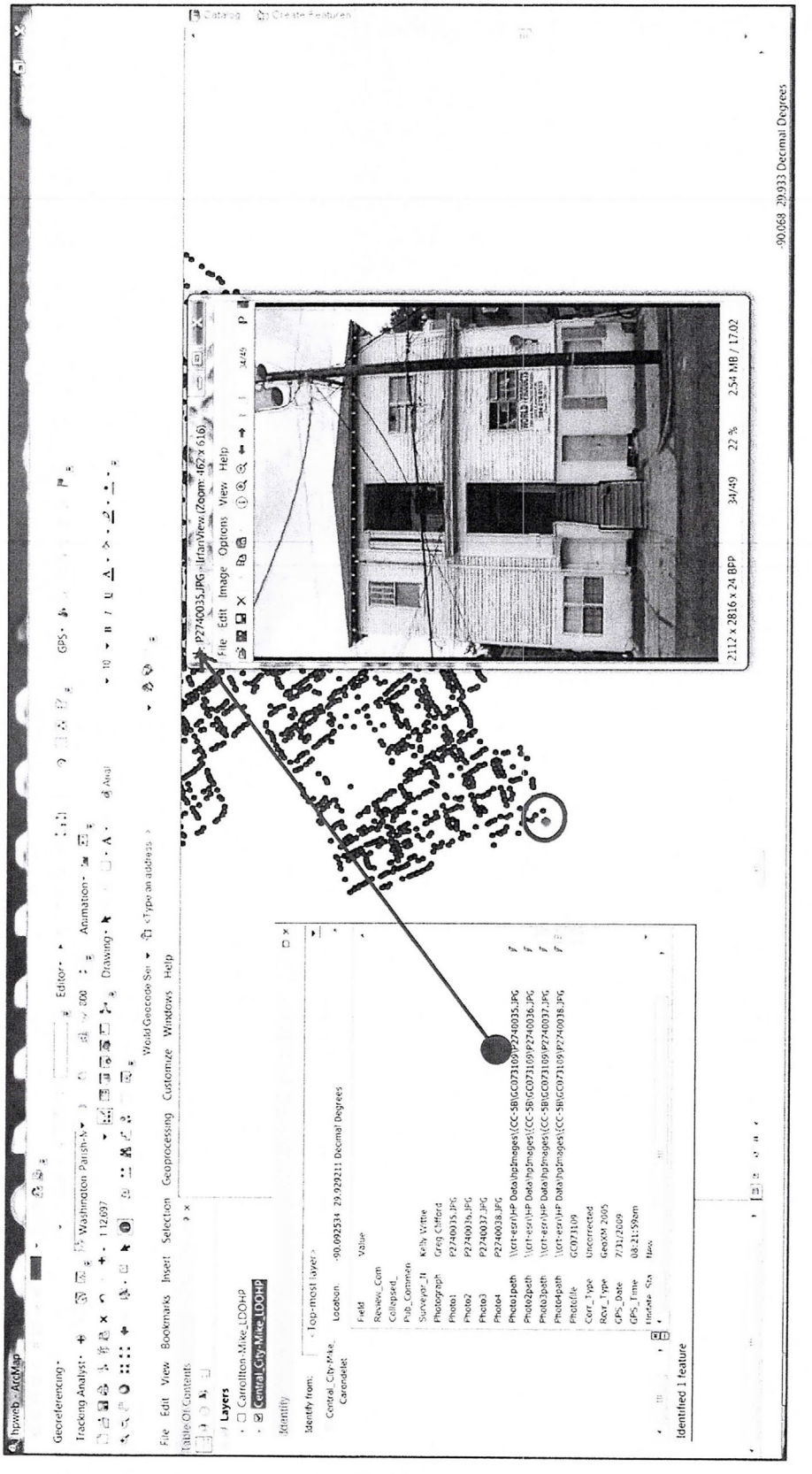
FEMA Survey - Historic District or Parish	Building or lot points
Carrollton Historic District	6,396
Central City Historic District	2,643
Esplanade Ridge Historic District	4,735
Orleans Parish part 3	311
Jefferson Parish	223
Lower Garden District	1,304
Marigny Historic District	1,610
Mid-City Historic District	4,400
New Marigny Historic District	3,262
Orleans Parish	6,513
Holy Cross Historic District	146
Parkview Historic District	1,349
Plaquemines Parish	600
St. Bernard Parish	3,220
St. Tammany Parish	1,598
Washington Parish	114
St. Bernard Parish part 2	128
Orleans Parish part 2	202
TOTAL	**38,754**

The following screenshots (*Fig. 2, Fig. 3*) show the picture path changes in the FEMA Central City Historic District shapefile, as well as the attribute list with the picture path found by clicking on a point and the picture itself. In the same way, it is displayed in ArcMap 10.2 for all other FEMA shapefiles (*Table 3*).

Figure 2: Central City Historic District picture paths



Figure 3: Central City Historic District, 3413 A-D Carondelet Street, point attribute list with picture path and picture



After the picture-paths are created in the attribute list for each FEMA shapefile, all the shortened attribute names have to be renamed into understandable alias names for each FEMA shapefile. This will be explained in the following chapter.

Chapter 3: FEMA Attribute Field Definitions

The following table shows the FEMA provided attribute field names and the corresponding alias names (*Table 7*). The FEMA manual "*Attribute field definitions: Building Points*" (April 4, 2006), provides definitions for the corresponding alias names (in bold). These alias names are described within each FEMA shapefile as an additional .pdf file in the attribute list. All other FEMA attribute field names retain their names. Occasionally a user can determine the content of these particular attribute fields from context.

Table 7: Current FEMA attribute field names and alias names

Nr.	Current FEMA Attribute Field Name	Corresponding Alias Name
1	FID	**FID**
2	Shape	**Shape**
3	GPS_ID	**GPS_ID**
4	Cultural_R	Cultural_R
5	Location_I	Location_I
6	Survey_ID	Survey_ID
7	Boundary_T	Boundary_T
8	Map_Method	Map_Method
9	Source	Source
10	Source_Dat	Source_Dat
11	Source_D_1	Source_D_1
12	Source_Coo	Source_Coo
13	Source_Acc	Source_Acc
14	Last_Updat	Last_Updat
15	Restrict_S	Restrict_S
16	Street_Num	**Street_Number**
17	Street_Nam	**Street_Name**
18	City_Tag	**City_Tag**
19	City_Datab	**City_Database**
20	Historic_N	**Historic_Neighborhood**
21	Constructi	**Construction_Date**
22	Date_Estim	**Date_Estimated**
23	Less_than_	**Less_than_45_yrs_old**
24	Listed_Sta	**Listed_Status**
25	Contribute	**Contribute_to_Historic_District**

26	Significan	**Significance**
27	Historic_C	**Historic_Context**
28	Materials_	**Materials_Integrity**
29	Design_Int	**Design_Integrity**
30	Wrkmanship	**Workmanship_Integrity**
31	Setting_In	**Setting_Integrity**
32	Location_1	**Location_Integrity**
33	Foundatio2	**Foundation_Condition**
34	Wall_Condi	**Wall_Condition**
35	Roof_Condi	**Roof_Condition**
36	Damage_Typ	**Damage_Type**
37	Current_Us	**Current_Use**
38	Style	**Style**
39	Building_T	**Building_Type**
40	Footprint	**Footprint**
41	Height	**Height**
42	Foundation	**Foundation**
43	Const_Mate	**Construction_Material**
44	Cladding	**Cladding**
45	Roof_Mate	**Roof_Material**
46	Roof_Type	**Roof_Type**
47	Chimneys	**Chimneys**
48	Chimney_Ma	**Chimney_Material**
49	Porches	**Porches**
50	Point_Reco	**Point_Recorded**
51	Outbuildin	Outbuildin
52	Comment	**Comment**
53	Eligibilit	**Eligibility_Recommendation**
54	SHPO_Concu	**SHPO_Concur**
55	FEMA_Deter	**FEMA_Determination**
56	SHPO_Revie	**SHPO_Reviewer**
57	FEMA_Revie	**FEMA_Reviewer**
58	Concur_Dat	Concur_Dat
59	Review__Com	Review__Com
60	Collapsed	Collapsed
61	Pub_Commen	Pub_Commen
62	Surveyor_N	**Surveyor_Name**
63	Photograph	**Photographer_Name**
64	Corr_Type	Corr_Type
65	Rcvr_Type	Rcvr_Type
66	GPS_Date	GPS_Date
67	GPS_Time	GPS_Time

68	Update_Sta	Update_Sta
69	Feat_Nam	Feat_Nam
70	Datafile	Datafile
71	Unfilt_Pos	Unfilt_Pos
72	Data_Dicti	Data_Dicti
73	Latitude	Latitude
74	Longitude	Longitude
75	NHD	NHD
76	Prob_Zone	Prob_Zone
77	D_Zone	D_Zone
78	D_List	D_List
79	SHPO_Consu	SHPO_Consu
80	Arch_Tier	Arch_Tier
81	Zipcode	Zipcode
82	Address	Address
83	ST_Num	ST_Num
84	ST_Dir	ST_Dir
85	ST_Name	ST_Name
86	ST_Suffix	ST_Suffix
87	AddressLin	AddressLin
88	PHOTO1PA_1	PHOTO1PA_1
89	PHOTO2PA_1	PHOTO2PA_1
90	PHOTO3PA_1	PHOTO3PA_1
91	PHOTO4PA_1	PHOTO4PA_1
92	Photo1Test	Photo1Test
93	PHOTO2Test	PHOTO2Test
94	PHOTO3Test	PHOTO3Test
95	PHOTO4Test	PHOTO4Test
	Several FEMA shapefiles have substitude attributes	
96	Photo1	**Photo1**
97	Photo2	**Photo2**
98	Photo3	**Photo3**
99	Photo4	**Photo4**
	New Attribute Field	
100		**FEMA_Attribute_Field_Definition**

The table illustrates that there are 100 different attributes for each FEMA post Katrina building point shapefile (*Table 7*).

The following "Definitions of FEMA Attribute Fields" provides definitions that are available from DHP. These definitions were added to each FEMA shapefile in the new attribute field "Attrib_Def."

Definitions of FEMA Attribute Fields

The following description is based on Federal Emergency Management Agency (FEMA's) manual of attribute field definitions for building points for the Red Tag Survey (April 4, 2006).

The information included here derives from a series of field surveys of buildings in the Historic Districts of New Orleans. The surveys were commissioned by FEMA and conducted under contract by several cultural resource management firms, mostly in 2006 and 2007. The fieldworkers recorded approximately 100 types of information. These are the attribute fields. Fifty of these fields were considered critical by the Louisiana Division of Historic Preservation. This attribute field information is supplied within these definitions.

Some of these surveys were designated "Red Tag" surveys. Red tags were fixed to damaged structures following Hurricane Katrina by the city government. The purpose of this survey was to determine the level of damage, so that a decision regarding demolition or preservation could be made on a more informed basis. Red Tags fixed to the façade to the building were a designation that this building was slated for demolition.

Caution should be used in evaluating the designation on this form and accepting the fieldworker provided descriptions on these.

GPS_ID: The GPS_ID field was composed of a FEMA team designation, represented by a consecutive number: eb03170, eb03171, etc.

Property Name: This field contains the name of the structure; if the name of the structure was not known, the field is left blank.

Street Number: This field contains the street number of the structure.

Street Name: This field contains the street name of the structure as evident on the structure or debris or in the city information that was provided to each FEMA survey team.

City Tag: This field indicates the color or presence/absence of a city red tag on the structure.

City Database: This field indicates whether the structure had been surveyed.

Historic Neighborhood: This field indicates the historic name or nature of any neighborhood, regardless of whether it is a designated historic district.

Construction Date: This field indicates the date of construction or date range of construction for the structure.

Date Estimated: This field indicates if the construction dates provided by the field surveyor was an estimate (YES) or was not an estimated (NO) date.

Less than 45 yrs. old: This field allowed surveyors to clarify their date ranges (Construction Date) and indicate if a building is less than 45 years old. If a building is less than 45 years old, YES will occur in the attribute field, and otherwise NO. If the surveyor was unsure of the date, UNSURE will be displayed in the attribute table.

Listed Status: This field indicates if a structure was listed in a national or local historic district prior to Katrina; if a building was inside the historic district and also listed individually on the National Register, the term MULTIPLE occurs, and otherwise only the National Register historic district or local historic district is given.

Contributing to a Historic District: This field indicates if a structure was evaluated as contributing to a National or local historic district prior to Katrina. All structures inside the boundaries of National Register historic districts were considered contributing at this stage, until further information was obtained from the SHPO, or it was otherwise obvious that the building was infill to a district.

Significance: This field indicates what the significance of the structure was thought to be; usually refers to architectural integrity or similar features that contribute to its significance or, conversely, to its lack of significance.

Historic Context: This field indicates what the historic context of the structure or neighborhood was prior to Katrina, or the lack of a historic context.

Material Integrity: This field refers to the National Register integrity criteria for materials and indicates if the structure retained integrity of materials under its post Katrina conditions.

Design Integrity: This field refers to the National Register integrity criteria for design and indicates if the structure retained integrity of design under its post Katrina conditions.

Workmanship Integrity: This field refers to the National Register integrity criteria for workmanship and indicates if the structure retained integrity of workmanship under its post Katrina conditions.

Setting Integrity: This field refers to the National Register integrity criteria for setting and indicates if the structure retained integrity of setting under its post Katrina conditions.

Location Integrity: This field refers to the National Register integrity criteria for location and indicates if the structure retained integrity of location or of it had been moved under its post Katrina conditions.

Foundation Condition: This field refers to the post Katrina conditions of the structure foundation; if the foundation was not visible due to debris, UNKNOWN is displayed in the field.

Wall Condition: This field refers to the post Katrina conditions of the structure walls; if the walls had collapsed or the roof was not visible or the roof was missing, COLLAPSED is displayed in the field.

Roof Conditions: This field refers to the post Katrina conditions of the roof structure; if the roof had collapsed or the roof was not visible or the roof was missing, this indication is displayed in the field.

Damage Type: This field refers to the damage seen on the structure in its post Katrina condition; if multiple causes of damage, such as fire, water and wind damage were visible, the field display is MULTIPLE.

Current Use: This field refers to the use of the structure prior to Katrina.

Style: This field refers to the architectural style of the structure prior to Katrina; if the structure did not retain enough integrity or if it had collapsed, the style indication is UNKNOWN.

Building Type: This field refers to the type of building the structure represented prior to Katrina; if the structure did not retain enough integrity or if it had collapsed, the building type indication is UNKNOWN.

Footprint: This field refers to the original building footprint of the structure prior to Katrina; if there was evidence of what the original plan of the building was, this is indicated; if the structure did not retain enough integrity, was obscured by debris, or the structure had collapsed, the footprint indication is UNKNOWN.

Height: This field refers to the original height of the structure in stories prior to Katrina; if the structure had collapsed or partially collapsed, the height indication is UNKNOWN.

Foundation: This field refers to the type of foundation evident on the structure prior to Katrina; if the structure had collapsed or the structure was obscured by debris, the foundation indication is UNKNOWN.

Construction Material: This field refers to the primary materials used for the construction of the structure prior to Katrina; if a primary material could not be identified but multiple building materials were present, the materials indication is MULTIPLE. If the structure had collapsed or the structure was obscured by debris, the materials indication is UNKNOWN.

Cladding: This field refers to the primary cladding materials used to cover the building prior to Katrina; if the structure had collapsed or the structure was obscured by debris, the cladding materials indication is UNKNOWN.

Roof Type: This field refers to the roof type evident on the structure prior to Katrina; if the roof had collapsed or was missing, the roof type indication is UNKNOWN.

Roof Materials: This field refers to the type of materials used to cover the roof prior to Katrina; if the roof had collapsed or was missing, the roof materials indication is UNKNOWN.

Chimneys: This field refers to the type of chimneys evident on the structure prior to Katrina; if the structure had collapsed, the chimney placement indication is UNKNOWN, or NONE existed if no chimneys were evident on an extant structure.

Porches: This field refers to the type of porch evident on the primary elevation of the structure prior to Katrina; if the structure had collapsed or the structure was obscured by debris, the type of porch indication is UNKNOWN.

Point Recorded: This field refers to the point on the structure that the surveyor recorded with the GPS during the survey. The primary entrance door was the preferred point to collect, but if multiple entryways existed on the primary elevation of the structure, the collected point was at the center of the building or a corner indicated with cardinal direction of the corner point.

Eligibility Recommendation: This field refers to the surveyor's recommendation to FEMA regarding whether the structure was eligible for the National Register based on its post Katrina condition and integrity. FEMA staff possibly changed this field in order to obtain concurrence with the SHPO.

SHPO Concur: This field indicates whether the SHPO concurs with the FEMA determination of eligibility for the structure.

Comment: This field indicates any additional information regarding any of the fields in the data dictionary.

Surveyor Name: This field indicates the name of the survey team members who made the architectural observations and eligibility recommendations of the structure or lot.

Photographer Name: This field indicates the name of the survey team members who made photographs of the structure or lot.

Photo1: This field indicates the full filename of the photograph that was taken of the structure or lot.

Photo2: This field indicates the full filename of the photograph that was taken of the structure or lot.

Photo3: This field indicates the full filename of the photograph that was taken of the structure or lot.

Photo4: This field indicates the full filename of the photograph that was taken of the structure or lot.

To finish the FEMA shapefiles for uploading to the ArcGIS Server and ArcGIS Viewer for Flex, each shapefile must be renamed according to its historic district or parish name (*Table 8*).

Table 8: Renamed FEMA shapefiles

Current FEMA Shapefile Name	Modified FEMA Shapefile Name
Carrollton-Mike_LDOHP	Carrollton Historic District
Central_City_Mike_LDOHP	Central City Historic District
Espl_Rdg-Mike_LDOHP	Esplanade Ridge Historic District
HANO-Mike_LDOHP	Orleans Parish Part 3
Jefferson_Parish-Mike_LDOHP	Jefferson Parish
Lower_Garden-Mike_LDOHP	Lower Garden Historic District
Marigny-Mike_LDOHP	Marigny Historic District
Mid-City-Mike_LDOHP	Mid-City Historic District
New_Marigny-Mike_LDOHP	New Marigny Historic District
Orleans-Mike_LDOHP	Orleans Parish
Orleans_Demo_Holy_Cross_Clip-Mike_LDOHP	Holy Cross Historic District
Parkview-Mike_LDOHP	Parkview Historic District
Plaquemines_Parish-Mike_LDOHP	Plaquemines Parish
St._Bernard_Parish-Mike_LDOHP	St. Bernard Parish
St._Tammany_Parish-Mike_LDOHP	St. Tammany Parish
Washington_Parish-Mike_LDOHP	Washington Parish
{LOSF5BBO-FEMA_Survey-Mike_LDOHP	St. Bernard Parish Part 2
{HMGP2-FEMA_Survey-Mike_LDOHP	Orleans Parish Part 2

The following screenshots illustrate how the added attribute definition displays within the attribute table for the FEMA shapefiles; each FEMA shapefile displays the modified FEMA shapefile name.

If the FEMA images or documents are stored later in a different location or server, all paths have to be rewritten. If the images or documents should appear in the web browser, the paths must be

rewritten as well. The paths for the FEMA images and the documents have been created through the folders provided by DHP (\\crt-esri), and are available over the VPN connection.

Chapter 4: Sanborn Maps

The different Sanborn Maps layers were grouped into three series using ArcMap 10.2. All mosaicked Sanborn Maps are displayed by natural color (RGB), which creates a three-band mosaic dataset, including the red, green, and blue wavelength ranges.

To see what areas the Sanborn Maps cover in New Orleans, an aerial photograph referred to ESRI as a "World Imagery" base map is used for reference. The Series 2 is used to demonstrate the display. It works in the same way for the Series 3 and Series 4 (*Fig. 4 to Fig. 7*).

Figure 4: Mosaicked Sanborn Maps, Series 2, Vol. I; 1885

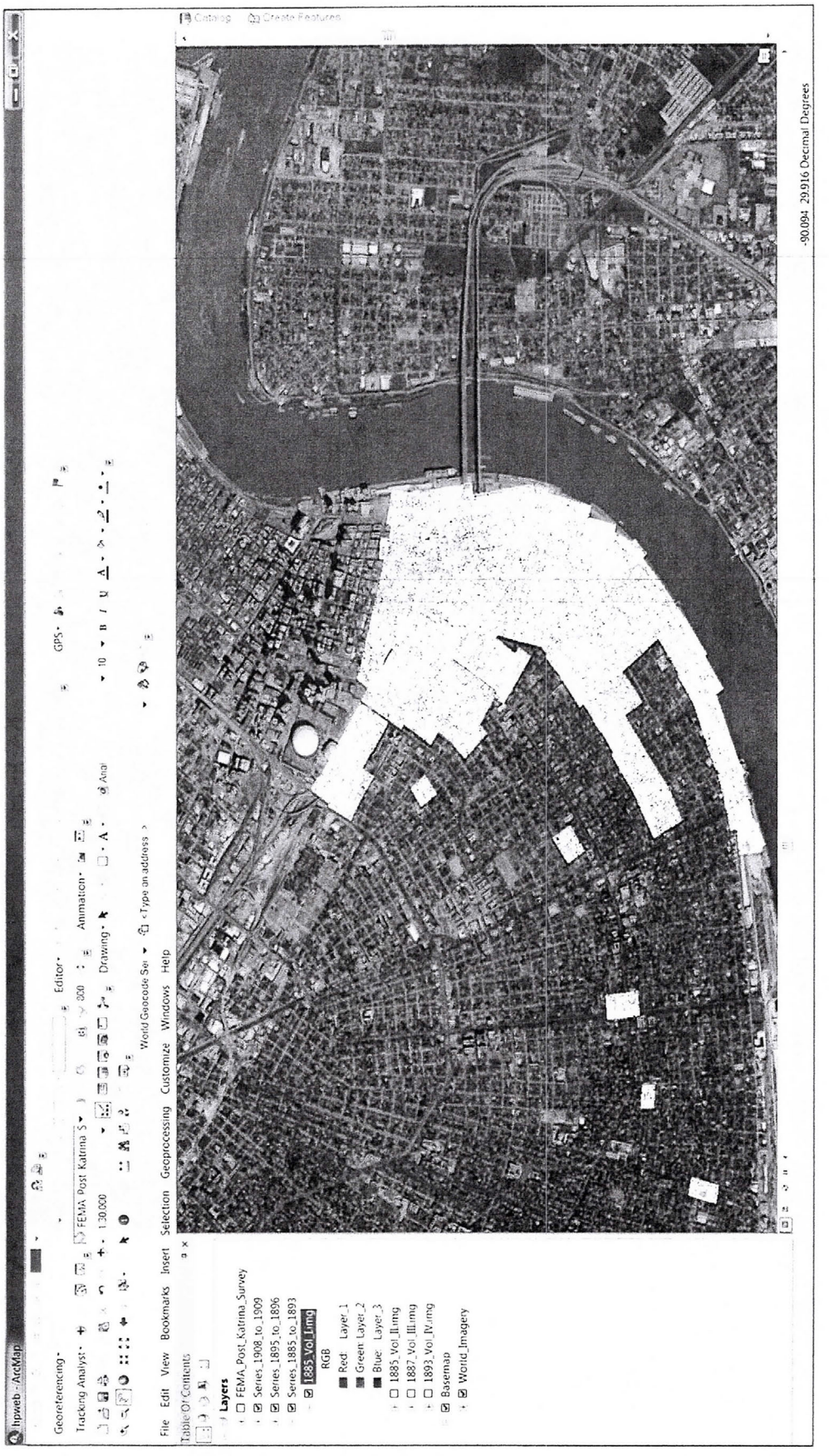


Figure 5: Mosaicked Sanborn Maps, Series 2, Vol. II; 1885

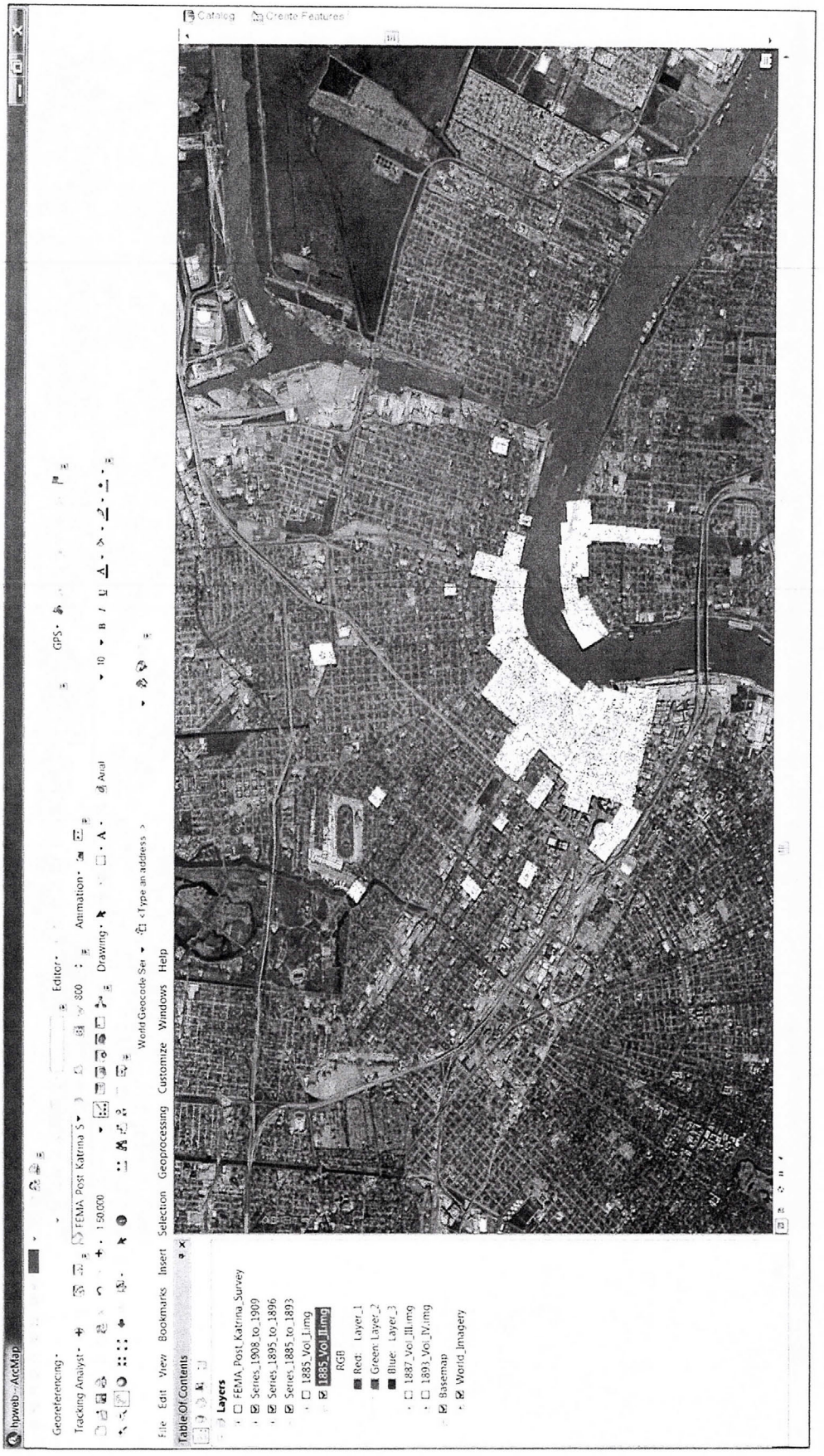


Figure 6: Mosaicked Sanborn Maps, Series 2, Vol. III; 1887

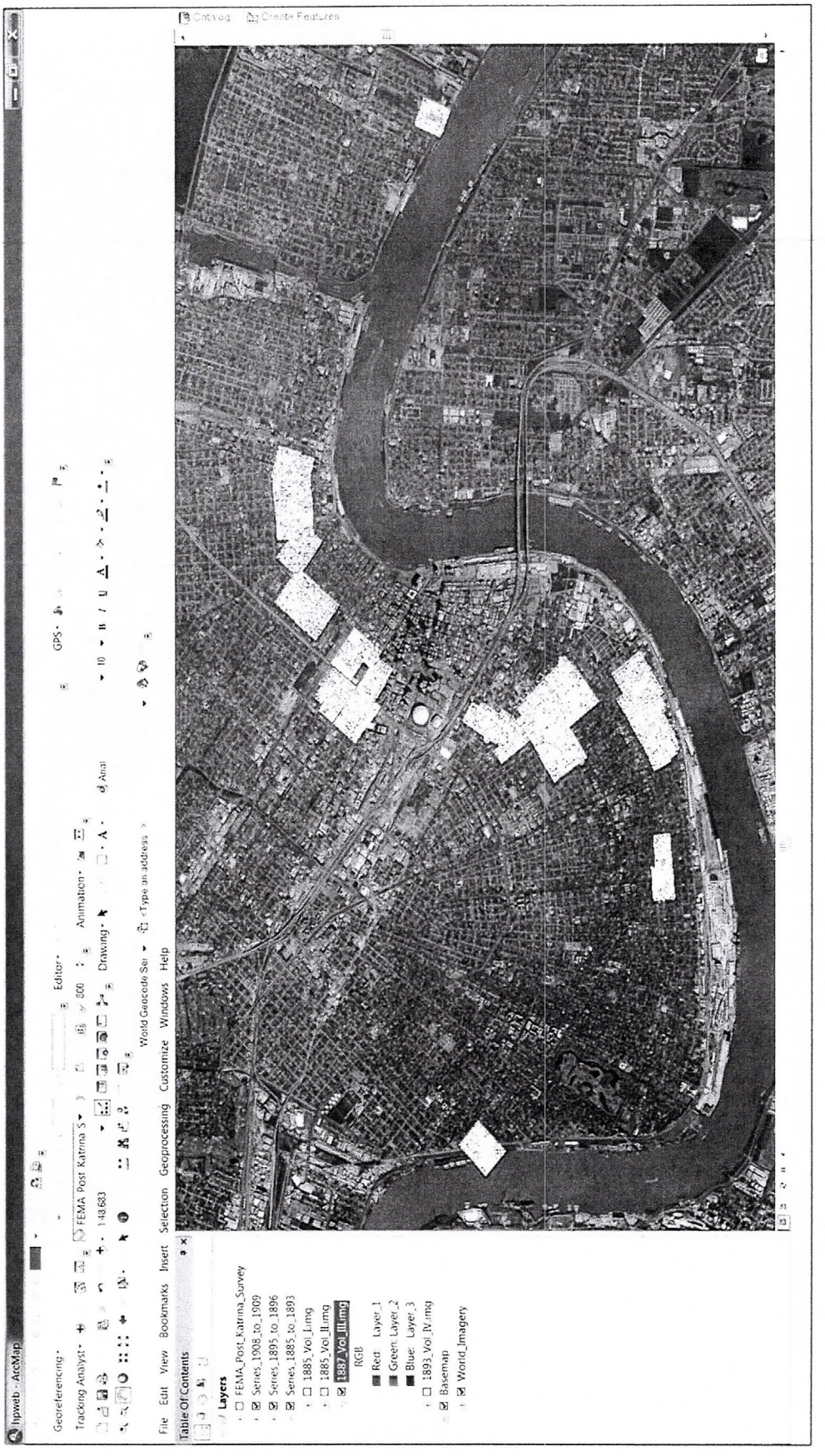
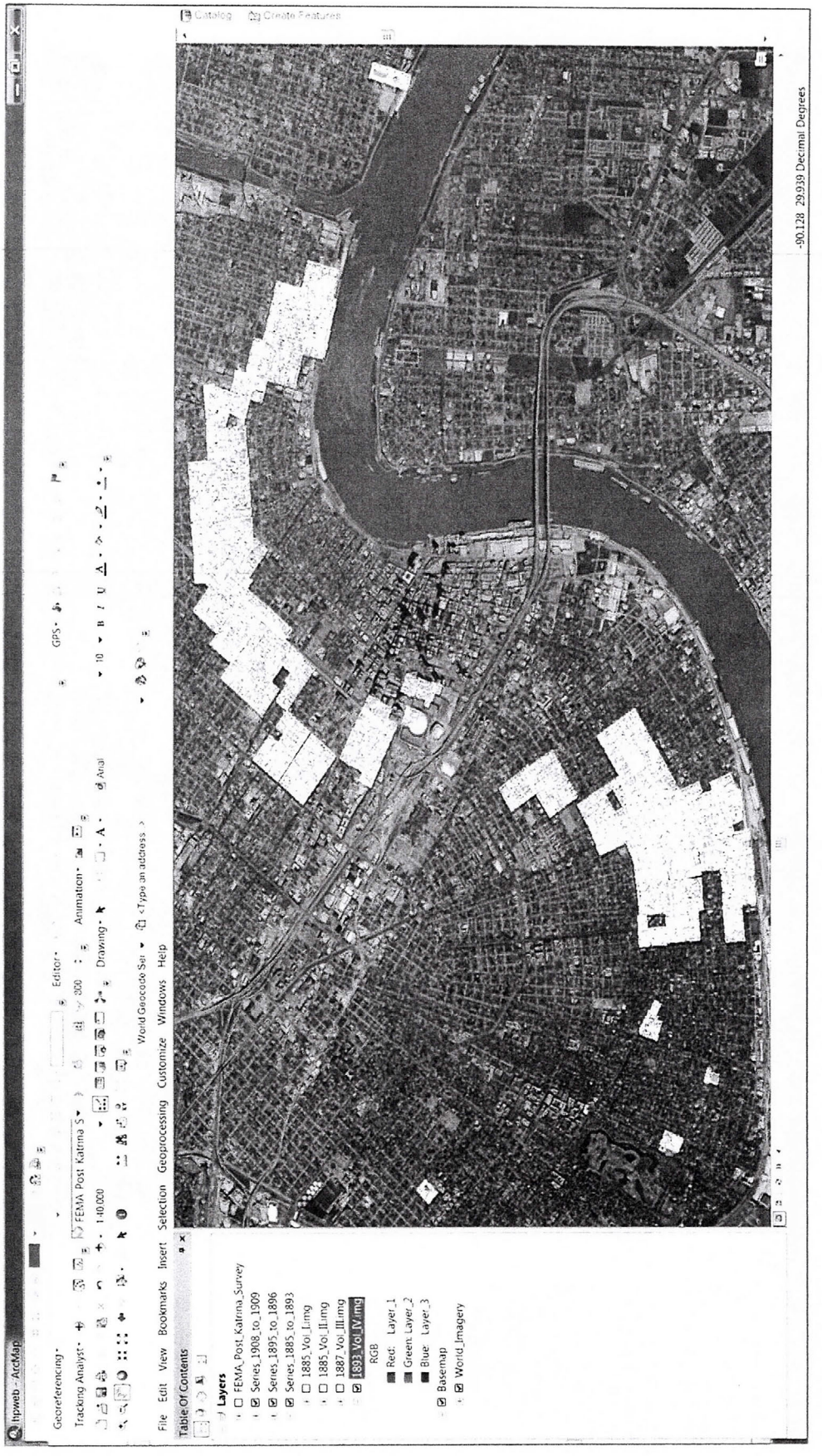


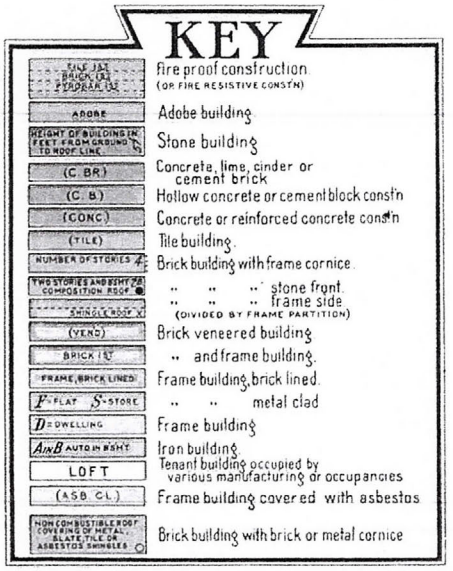
Figure 7: Mosaicked Sanborn Maps, Series 2, Vol. IV; 1893

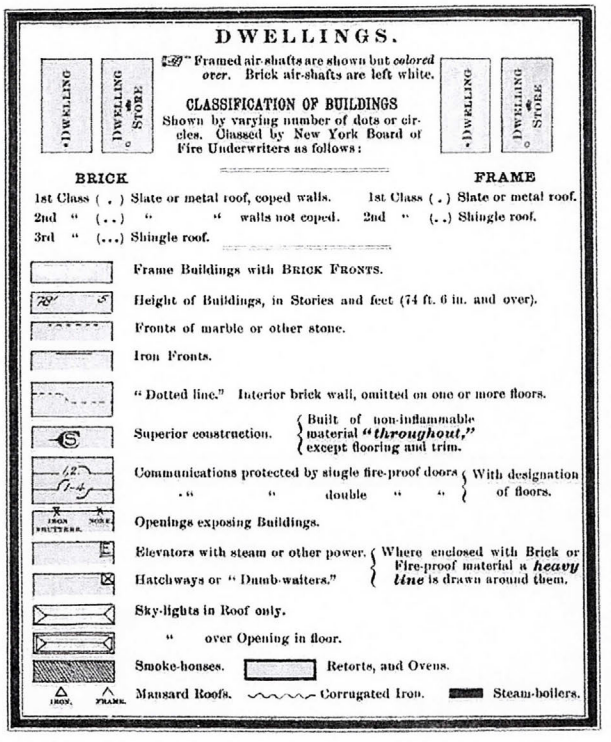


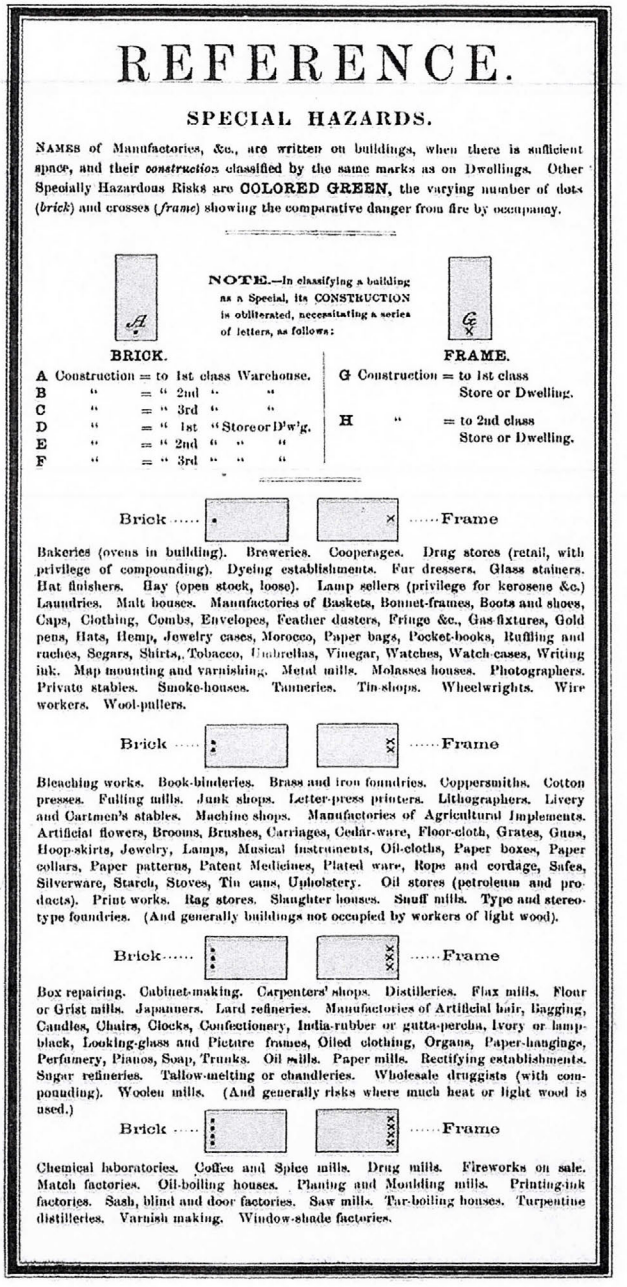
The following "Sanborn Maps-Key-Introduction-Limitations" printout is a copy from the pdf, which is stored in the ArcGIS Viewer for Flex, described in chapter 5. The web user is able to obtain information pertinent to the Sanborn Maps, including the key, a short introduction to Sanborn Maps, and the limitations inherent in Web-based displays.

SANBORN MAPS – *KEY – INTRODUCTION – LIMITATIONS*

Sanborn Maps - *KEY*







Sanborn Maps – *Introduction*

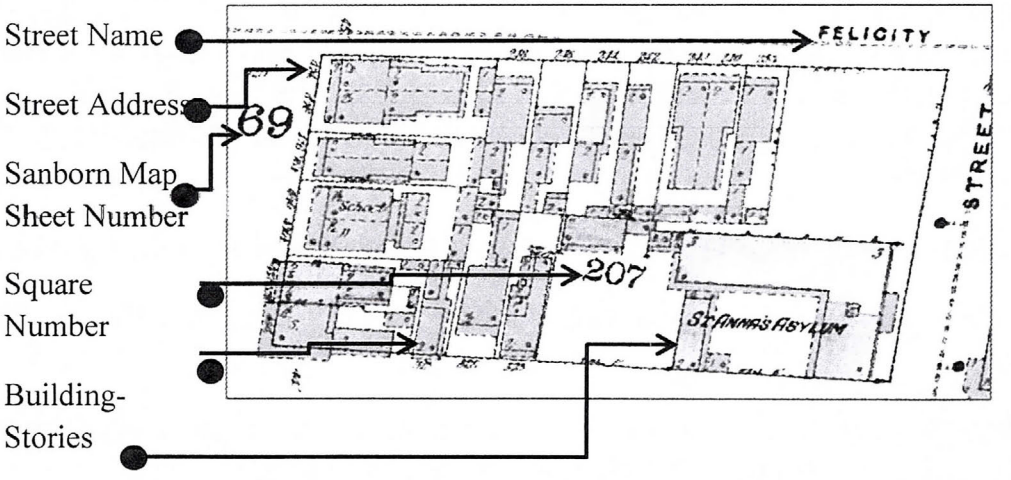
The **Sanborn Map** Company was founded in 1866 by D. A. Sanborn, mainly to create maps and to map buildings. The Sanborn Fire Insurance Maps, originally created for the insurance companies, are accurate and detailed with some limitations, and they are mainly hand drawn for the time period 1876 to 1937. The map features of each Sanborn Fire Insurance Map sheet are street names, building addresses, number of stories, building height, and footprints, building construction materials, number of stories per building, and the building use. Floor plans are not shown in detail.

Sanborn Maps – *Available Data*

The **Sanborn Map** sheets for the City of New Orleans for the years between 1885 and 1909 were photographed for this project. An earlier Series 1 for the year 1876 exists. It is owned by the Southeastern Architectural Archive, Tulane University, and is not available for distribution at this time. Sanborn Map series from the Library of Congress, Washington D.C., are in the public domain and were available. The series of the present survey include Series 2: 1885-1893, Series 3: 1895-1896, and Series 4: 1908-1909. The maps of each series were photographed in high resolution, were georeferenced, and mosaicked into single layers.

The Sanborn Map layers are color coded for building materials. Yellow indicates frame or wood, pink indicates masonry construction. Refer to the above key for additionally information. These Sanborn Maps also contain information including the historic street name, street numbers, and the number of the square in which the building is resides.

Numbers in large font refer to the sheet numbers of the original paper maps. If present, the numeral zero in large font indicates an outer edge of the maps in this series.



Sanborn Maps – *Limitations – Problems of Distortion*

Occasionally, portions of the Sanborn maps are distorted or blurred. This is an artifact of the ArcGIS program processing and not the photography. It appears that ArcGIS fails to recognize certain color tones or lighting conditions. Although the originals are sharp and clear, the program does not reproduce specific portions of the image. Street names, square numbers, and street numbers are sometimes affected. The affected areas consist of certain squares or portions of squares. If distorted, most of the information may be recovered by comparing it with adjacent portions of the map. Square numbers, for example, usually run in sequence so the numbers of squares positioned before and after the affected squares should reveal illegible square numbers. Property street numbers may be lost in some cases.

What follows is a list of those areas of the Sanborn maps, which are improperly reproduced. This list gives the distorted or blurred square numbers for each Sanborn Maps series. These sheets were created twice, but unfortunately, nothing changed in the distorted view. Distortions may result from a different kind of sheet paper, or dampness damage at an earlier time, or something yet undetermined, but we could not solve the problem even though all sheets were photographed and processed in the same way. "Blurred," means that the street numbers or the property contours and stories are fuzzy or illegible. The District or neighborhood location names are supplied by the National Register of Historic Places. The 110 affected squares on different Sanborn Map series are listed inside the parentheses.

Series 1885 Volume II: Several squares in the Bywater Historic District (21, 22, 23, 140, 141, 142, 170, 251, 282, and 363), Faubourg Marigny Historic District (168, 253, 280, and 365), Vieux Carrė (21, 22, 47, 48, 56, 57, 58, 59, 74, 75, 76, and 77), Upper Central Business District (6, 16, 18, 58, 59, 60, 61, 62, 63, 232, 233, 234, 257, 259,), and Lower Central Business District (264, 301, and 302), are blurred.

Series 1893 Volume IV: Several squares are blurred in the Uptown New Orleans Historic District (112, 113, 114, 147, 148, 149, 171, 172, 289, 290, 367, 374, 375, 419, and 420), the Garden District (163, 165, 184, 185, 186, 195, 197, and 222), Mid-City Historic District (578), Esplanade Ridge Historic District (265, 266, 267, 284, 285, 286, 294, 295, 626, 627, 628, 629, 630, 631, 758, 759, and 760), and New Marigny Historic District (398, 485, 610, 611, 612, 613, 614, 615, and 616).

Series 1896 Volume I: One square in the Esplanade Ridge Historic District (354) is blurred.

Series 1908 Volume I: Several squares are blurred in the Esplanade Ridge Historic District (503, 626, and 631).

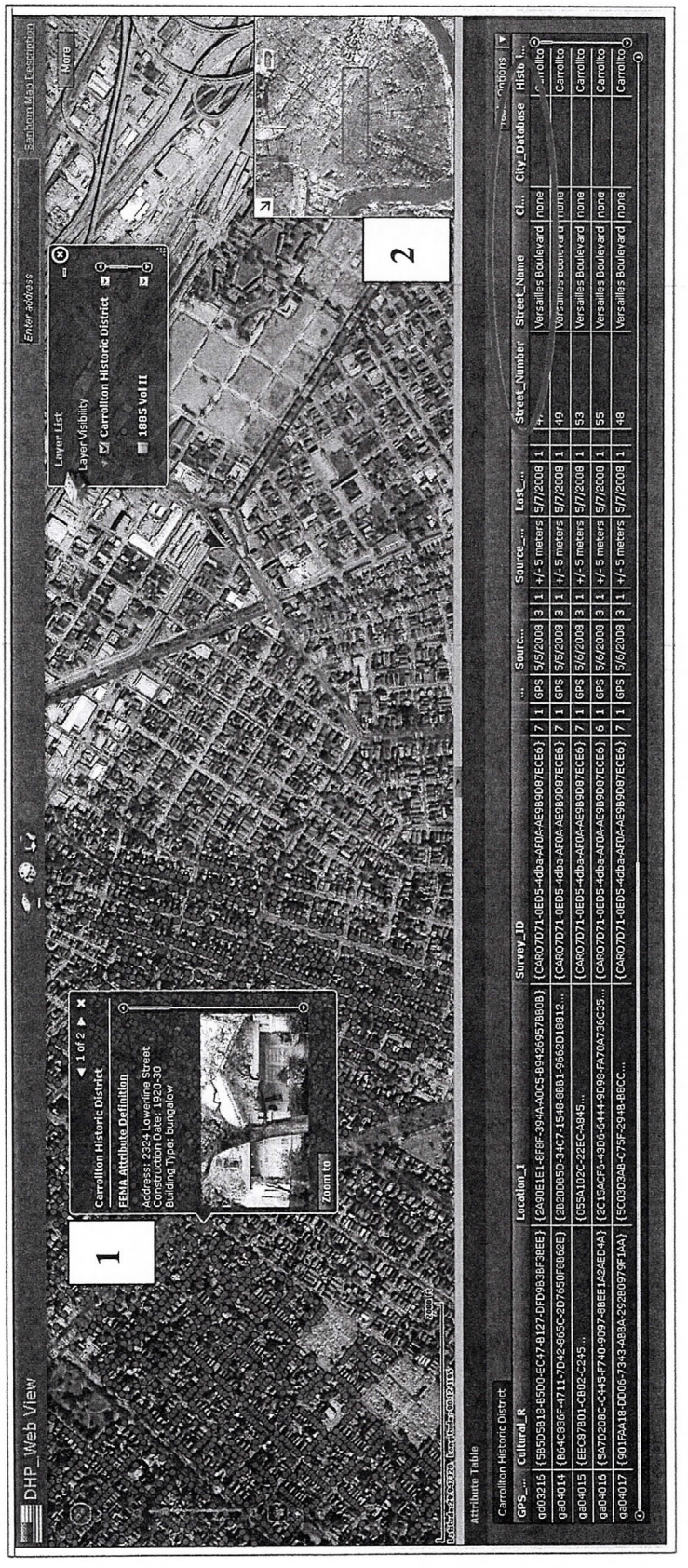
Series 1908 Volume II: Several squares are blurred in the Esplanade Ridge Historic District (174, 175, 176, 199, 200, 201, 377, 378, 379, 380, 381, 382, and 383).

Chapter 5: Proposal for ArcGIS Viewer for Flex

This chapter describes one way in which the FEMA shapefiles and the Sanborn Maps may be set up in ArcGIS Viewer for Flex.

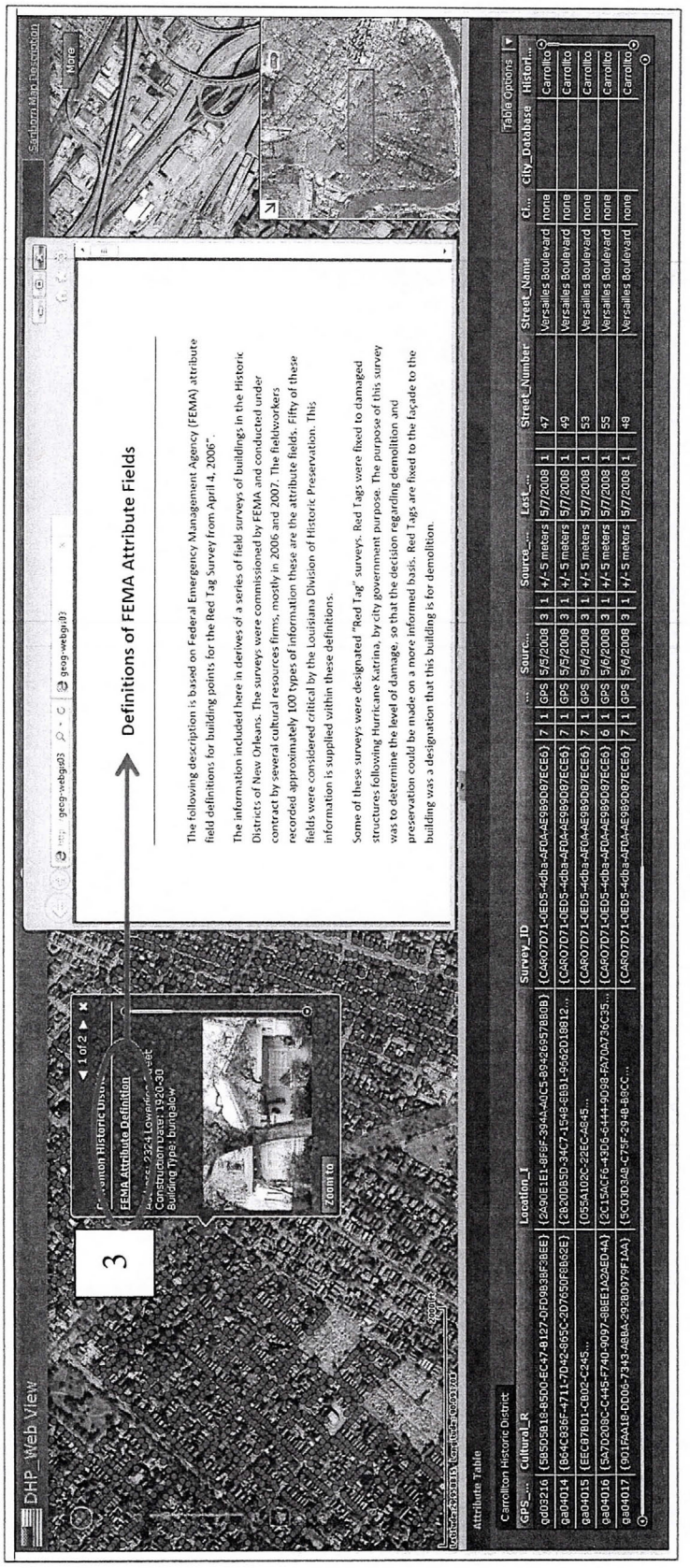
After publishing all shapefiles on the ArcGIS Server, import them in ArcGIS Viewer for Flex. These steps would be undertaken by the Division of Historic Preservation. The example shows one FEMA shapefile (Carrollton Historic District) (*Fig. 8, Fig. 9*) and one Sanborn Map (Series1: 1885 Vol. II) (*Fig. 10, Fig. 11*).

Figure 8: Carrollton Historic District shapefile displayed in ArcGIS Viewer for Flex



The pop-up window for the FEMA point features, marked by number 1, illustrates the Historic District name at top of the window, followed by a hyperlink to the FEMA attribute definition, and selected attributes from the attribute table, including the address, the construction date, and the building type. The pop-up pictures are available for most surveyed structures or lots. The attribute table on the bottom of the screen displays the available alias names for each attribute field, marked by number two. Note the changed attribute fields for the Street Number, Street_Name, and the City_Database (*Fig. 8*).

Figure 9: Carrollton Historic District pop-up window with FEMA attribute definition hyperlink in ArcGIS Viewer for Flex



By clicking on the "FEMA Attribute Definition" hyperlink, marked by number three, the definitions of the FEMA attribute fields appear (*Fig. 9*).

Figure 10: Sanborn Map Series 1, Vol. II, 1885 displayed in ArcGIS Viewer for Flex

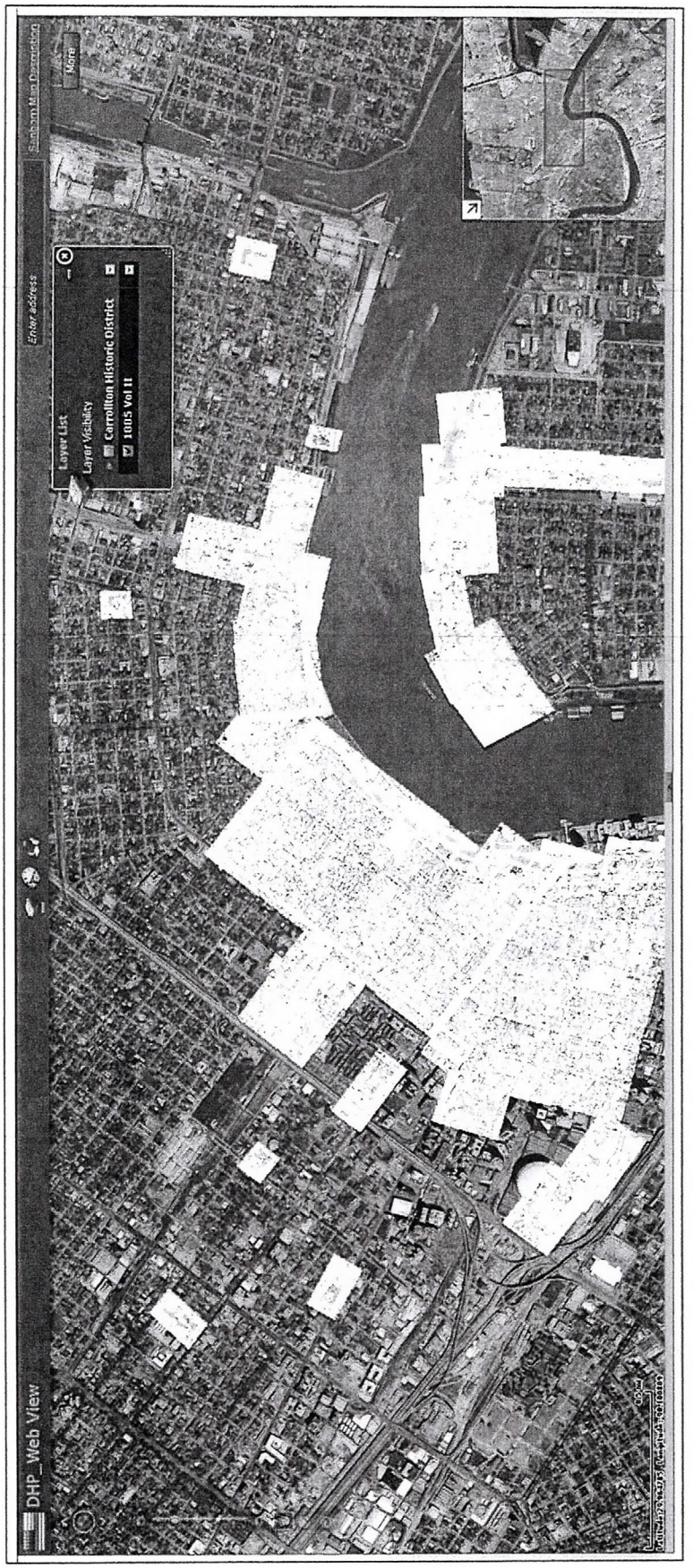
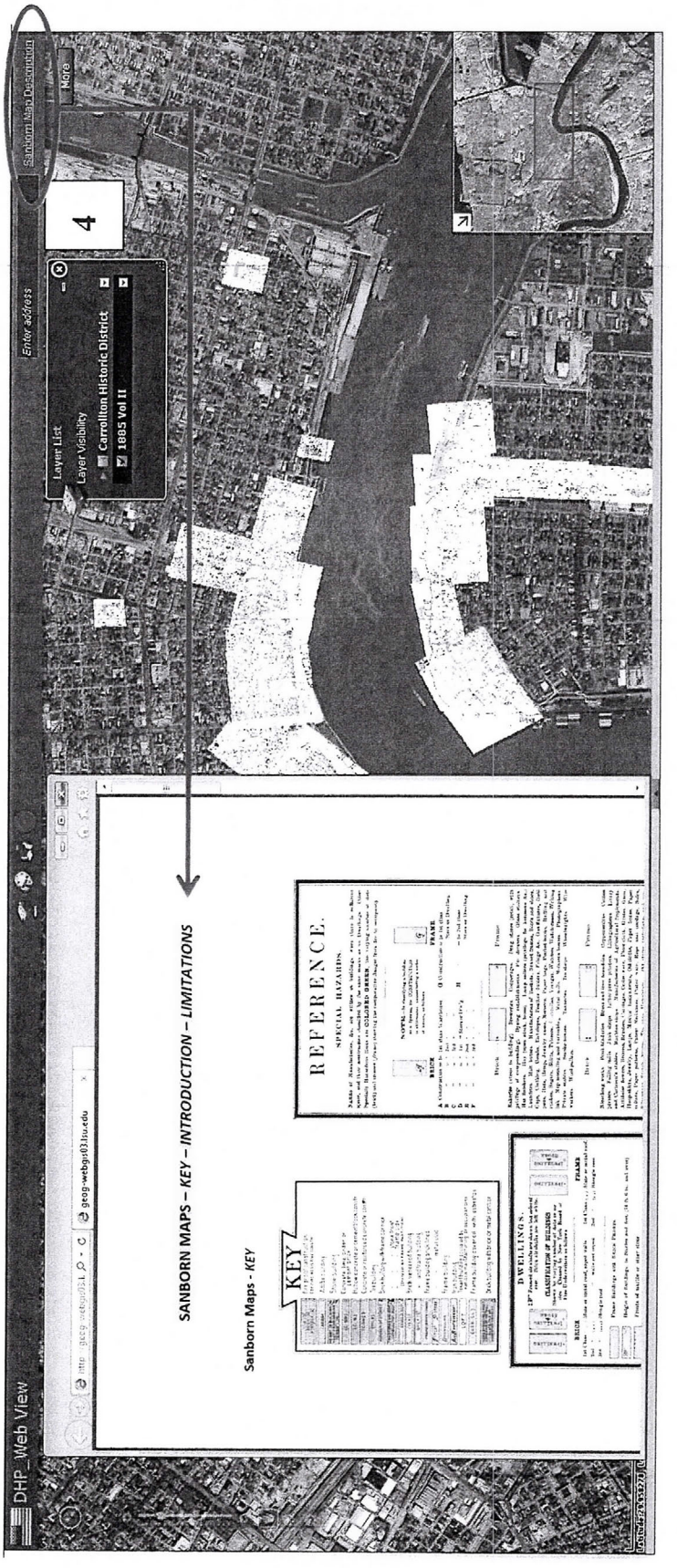


Figure 11: Sanborn Map Series 1, Vol. II, 1885 with hyperlink to the Sanborn Map description



In figure 10 (Sanborn Map Series 1, Vol. II, 1885) and figure 11 (at number four), the hyperlink to the Sanborn Map description and the Sanborn Map description pop-up are illustrated.

Chapter 6: Short Section on Recommendations for the Future

Certain improvements and corrections lie beyond the scope of the present contract:

1. Correction of the color distortions will require consultation with an expert on ArcGIS programming, probably from ESRI.
2. To complete the FEMA portions of the surveys, picture paths for un-pathed FEMA photos should be written.
3. Complete the picture and document paths for FEMA shapefiles with the appropriate "CRT http:….." This will improve the server communication. This hyperlink was not provided through DHP.
4. Rewriting the picture and document paths is necessary if the DHP wishes to store these data in other locations. The paths will also have to be rewritten if researchers wish to pop up the FEMA pictures, FEMA attribute descriptions, or the Sanborn Map description in the Web browser.

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