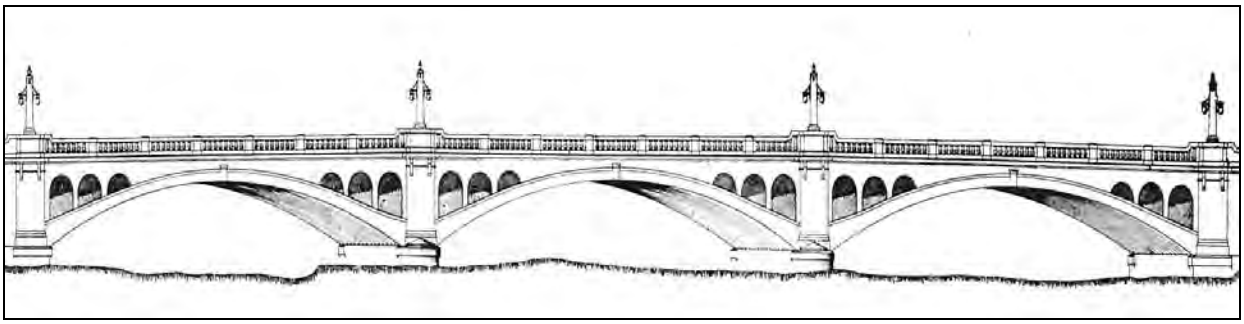
City of Los Angeles Monumental Bridges 1900-1950

Historic Context and Evaluation Guidelines

This Excerpt contains the main report. See separate files for Appendices A, B and C



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Cover Image:
Drawing of the Main Street Bridge over the Los Angeles River (53C1010), built in 1910, from Homer Hamlin, “Bridge Construction in the City of Los Angeles,” Report of the Municipal Art Commission of the City of Los Angeles, 1909.

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SUMMARY OF FINDINGS

JRP Historical Consulting (JRP) prepared this historic context and evaluation guidelines report for the State of California Department of Transportation (Caltrans) as part of the department's program to update the state's historic bridge inventory. This study examines monumental bridges designed and built by the City of Los Angeles Bureau of Engineering between 1900 and 1950 and provides guidance on their historic significance. The purpose of the study is to identify whether there is a possible historic district, thematic group, or multiple property grouping of significant bridges important for their association with the city's Bureau of Engineering bridge program during the early to mid-twentieth century, or whether there are individual bridges significant within the historic context established for this study. The report provides a historic context outlining the importance of the city's bridge program, the defining characteristics of those bridges, and thresholds of significance and integrity that indicate which structures may be significant within this context.

The historic context and evaluation guidelines presented in this document are intended for Caltrans to use as part of its efforts to identify historic properties, i.e. buildings, structures, objects, sites, and districts listed in, determined eligible for, or appear eligible for listing in the National Register of Historic Places, under its obligations with Section 106 of the National Historic Preservation Act, as delegated from the Federal Highway Administration, and to comply with the California Environmental Quality Act (CEQA) as it pertains to historical resources.

This document is divided into sections that provide information regarding the study's parameters and intent as well as historical background and thresholds of historic significance and historic integrity. The project description section provides information on the intent and purpose of this study. This is followed by a description of field and research methods used during this study. Next is the historical overview that provides the historic themes and contexts by which appropriate evaluations can be made of monumental Los Angeles bridges. This is followed by a description of the bridges examined as part of this study. The findings and conclusions section establishes the possibility for an important thematic group of Los Angeles city designed bridges and recommends bridges that may be eligible for the National Register based on their association with the historic context set out in this report. The final component of this report provides the

preparer's qualifications and a list of works cited. Appendix A outlines which portions of this report could be used to complete a National Register Multiple Property Documentation Form. Appendix B contains photographs of all the bridges within the defined survey population as well as maps (Figures 1a and 1b) showing the location of bridges that appear to be significant as City of Los Angeles monumental bridges.

Caltrans can use the information provided in this report as a basis for evaluating individual or groups of previously ineligible bridges for their National Register. This can be done on a case-by-case basis or the evaluations can occur through intensive inventory and evaluation for submittal to the California Office of Historic Preservation for determinations of eligibility as part of the statewide historic bridge inventory.

JRP concludes that there are a small collection of bridges in the City of Los Angeles that were previously not found to be historically significant, that would likely be eligible for listing in the National Register based on their association with the context presented in this study. Other previously ineligible bridges that have some historic significance lack the historic integrity to convey their significance and thus would continue to be ineligible. There are also other bridges that the city designed and built before 1950 that will remain ineligible because they lack significance under National Register criteria, even within the context established for this report. Bridges in Los Angeles significant for their association with the Bureau of Engineering's bridge program in the early to mid-twentieth century do not constitute a historic district, as defined by National Park Service guidelines for applying the National Register criteria. A historic district has a physical concentration of buildings, structures, objects, or sites with importance derived, in part, from that concentration of resources as a unified entity. The Los Angeles bridges are dispersed throughout the city and thus cannot be categorized as a historic district. These bridges may be more appropriately treated as a multiple property submission, or simply by examining individual bridges within this historic context and in relation to the historic significance and historic integrity thresholds established in this report.

Caltrans established a survey population of forty-five bridges for this study. These included bridges that have been previously listed in or determined eligible for listing in the National Register as well as bridges that were previously found to not be eligible for the National

Register. The conclusions of this study do not change the eligibility status of the bridges that are eligible for or listed in the National Register. Of the forty-five bridges examined as part of this study, twenty-nine appear to be significant as City of Los Angeles monumental bridges. Eighteen of the twenty-nine are currently eligible for or listed in the National Register. Another eight of the twenty-nine have been recently evaluated under other components of the statewide historic inventory, or other independent studies, and appear eligible for listing in the National Register. Thus, there are three bridges that appear eligible based on their historical association with the context established in this report. The City of Los Angeles monumental bridges appear to be significant under Criterion A and/or Criterion C, at the local level. They can be significant under Criterion A for their association with urban planning policies in Los Angeles during the first half of the twentieth century, and under Criterion C, as significant examples of a master designer, the City of Los Angeles Bureau of Engineering, and would likely also be significant for their type, period, and method of construction based on their architectural significance. See Section 5 for tables outlining these conclusions.

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1. PROJECT DESCRIPTION

JRP prepared this historic context and evaluation guidelines report for the State of California Department of Transportation (Caltrans) as part of the department's program to update the state's historic roadway bridge inventory. This study examines monumental bridges designed and built by the City of Los Angeles Bureau of Engineering between 1900 and 1950 and provides guidance on their historic significance. The purpose of the study is to identify whether there is a possible thematic group, historic district, or multiple property grouping of significant bridges important for their association with the city's Bureau of Engineering bridge program during the early to mid-twentieth century, or whether there are individual bridges significant within the historic context established for this study.

This report is part of the larger 2002-2004 Caltrans Statewide Historic Bridge Survey Update project that includes re-evaluations of most of the extant bridges surveyed and evaluated in the original 1986 Historic Bridge Inventory as well as evaluations of other bridges built before 1960. Caltrans conducted its first comprehensive historic bridge inventory between 1984 and 1986. Caltrans prepared reports and documentation, on behalf of the Federal Highway Administration, in order to consult with and obtain concurrence from the California State Historic Preservation Officer (California Office of Historic Preservation or OHP) regarding the eligibility of the state's roadway bridges for listing in the National Register of Historic Places. In 2002, the Caltrans Environmental Program at Caltrans Headquarters in Sacramento began to conduct a thorough update of the 1980s survey. This update is important for producing more consistent and defensible results because it permits holistic, context-based evaluations to occur with state-wide comparisons of similar properties and a thorough examination of new and innovative bridge types and technologies from the 1930s, 1940s, and 1950s. Caltrans Headquarters and Caltrans District 7 identified the issues related to the City of Los Angeles monumental bridges and assessed that these issues warranted examination as they were within the purview of the large contextual studies conducted for the state-wide survey.

2. RESEARCH AND FIELD METHODS

Andrew Hope, Architectural Historian in the Environmental Division at Caltrans Headquarters in Sacramento, established a survey population of forty-five bridges for this study. The survey population was established by a thorough review of all Los Angeles bridges built from 1900 through 1952, using Caltrans' file photos and as-built drawings. They include bridges that have been previously listed in or determined eligible for listing in the National Register as well as bridges that were previously found to not be eligible for the National Register. The conclusions of this study do not change the eligibility status of the bridges that are eligible for or listed in the National Register. In preparing this list, Mr. Hope identified larger bridges in Los Angeles from the first half of the twentieth century that were designed by the city and built with some architectural design elements. The purpose of this list was to create a survey population of bridges by which JRP could conduct appropriate historical research and thorough comparisons to provide thresholds of possible significance. JRP staff photographed each bridge within the survey population. Photographs of the bridges in the survey population are included in Appendices B and C.

JRP prepared this report between February and April 2004. JRP staff conducted research at the California State Library, Sacramento; Caltrans Transportation Library, Sacramento; City of Los Angeles Public Library; Los Angeles City Department of Public Works, Bureau of Engineering, Structural Engineering Group office; the City of Los Angeles Cultural Affairs Department office; and in the Automobile Club of Southern California Digital Archive at the University of Southern California. JRP staff also corresponded with Los Angeles City officials regarding this project, including Alex Vidaurrazaga, John Koo, and Jim Doty from the Bureau of Engineering and Jay Oren and Virginia Kazor from the Cultural Affairs Department.

3. HISTORICAL OVERVIEW

The following section provides a historic overview for bridges designed by the City of Los Angeles during the first half of the twentieth century. This overview provides a historic context for these structures' associations with historic events and trends related to Los Angeles city planning and transportation development during this period as well as for the structures' engineering / architectural features and the City of Los Angeles' Bureau of Engineering bridge program. The period of significance for the City of Los Angeles' monumental bridges is the first half of the twentieth century. The city's modern roadway development in the early part of the twentieth century led to important advancements in the city's bridge construction program, and shifts in transportation planning, bridge construction funding, architectural styles, and the legal environment for aesthetic controls contributed to distinct changes in the city's bridge program during the late 1940s that altered the character of new bridge construction thereafter.

3.1. Los Angeles City Planning

3.1.1. City Beautiful Movement

The national and international City Beautiful Movement played an important role in shaping urban planning efforts in Los Angeles during the early part of the twentieth century. The City Beautiful Movement inspired urban beautification in architecture, landscaping, and city planning in the United States from the 1890s through the 1920s and continued to influence urban and regional planning into the mid-twentieth century. The movement had its roots in nineteenth century landscape architecture and was a response by architects, engineers, designers, and other planners to the urban degradation caused by the Industrial Revolution.[1] The term "City Beautiful" refers to the planned creation of glorified, grandiose, or highly formalized built environments, reminiscent of, or idealized from, civic areas of the past. Influenced by the Beaux Arts architecture of Europe, American politicians, activists, planners, architects, and others planned and designed civic centers, grand boulevards, and parks in a quest for urban beauty. Many of these city-shapers were inspired by "The White City" built at the 1893 World's

[1] Julie K. Rose, "City Beautiful: the 1901 Plan for Washington D.C.," term paper from the American Studies Department of the University of Virginia. Accessed online on April 1, 2004 at: http://xroads.virginia.edu/~CAP/CITYBEAUTIFUL/dchome.html.

Columbian Exposition, in Chicago, Illinois. The "White City's" monumental classical styled main court combined a well-planned balance of building, water, and open spaces with state-of-the-art sanitation and transportation systems that were a stark contrast to the gray and sooty urban sprawl present in many American cities at that time. The Beaux Arts architectural details chosen for the buildings at the exposition were in line with a resurgence of neoclassical architecture that had begun to take place in the United States, particularly on the East Coast.

One of the main goals of the City Beautiful Movement was to transform the city into a beautiful, rationalized entity. Advocates of the movement felt that the city was susceptible to reform because it was similar to a living organism and that thoughtful citizens could control and direct its growth. City Beautiful advocates also recognized the aesthetic and functional shortcomings of cities. They sought beautiful buildings and scenes to help preserve what attractiveness remained in nineteenth century urban settings that they believed had become ugly and unkempt by the turn of the twentieth century. The beauty sought by City Beautiful advocates was never specifically defined, except by such supplementary nouns as proportion, harmony, symmetry, and scale. The movement insisted upon synthesizing beauty and utility. Advocates worked to combine the beautiful with the functional, which they felt was invaluable to the development of urban environments. By the turn of the twentieth century the movement's assertion that beauty and utility were inseparable meant something palpable and design related, for example that no structure or scene could be truly beautiful without being functional as well. In its comprehensive view of the city, the City Beautiful Movement partook of a revived civic spirit.

The City Beautiful Movement's advocacy for aesthetics that linked natural beauty with Classicism came in response to the urbanization, mechanization, and commercialism that had become the norm in most cities at the beginning of the twentieth century. During this time civic designers embraced natural beauty in their improvement schemes. This interest in naturalistic themes drew City Beautiful designers to neoclassical architecture. To them, it represented the ultimate step in the late nineteenth century search for an effective and impressive building style. Neoclassical architecture offered basic concepts of proportion and arrangement, and was

adaptable in use and in symbolism because of its range in time from Classic Greek to the Beaux Arts.[2]

Neoclassical architecture also, of course, held direct associations with the monumental civic structures of ancient Greece and Rome and their idealized democracies. This is seen in the movement's focus on developing city civic centers. The civic center was intended to be a beautiful ensemble, an architectural triumph that was far more triumphant than a single building. Designs called for a grouping of public buildings around a park, square, or intersection of radial streets that allowed for a visual contrast between the buildings and their surrounding setting. The City Beautiful civic center concept was inspired by both ancient and modern civic centers of Europe in which the structures were viewed as monuments to the civilization itself. Some of the best known examples of City Beautiful plans were established by Daniel Burnham for San Francisco in 1906, just before the earthquake, and Chicago in 1909. Good examples of where City Beautiful plans were built include the civic center in Denver and the train station and park system in Kansas City.[3]

By the late 1920s, the City Beautiful Movement began to give way to a different approach to city planning brought on jointly by a growing opposition to the movement combined with the growing professionlization of planning and other functions of city governments. Opponents began to criticize the movement as an elitist faction excessively concerned with monumentality, empty aesthetics, and general impracticality. The move toward professionalization of planning and other functions of city government began in the nineteenth century when municipal engineers began to assume several planning functions, especially those involving surfacing, drainage, and oversight of improvement construction. The Progressive Era search for discipline, accountability, and professional service in city government moved from city charter proposals, to the city commission form, and to reformers' advocacy of the council-manager system.[4] The expanding profession of municipal engineers and other planning professionals contributed comprehensive planning schemes, laying the foundation for modern municipal administration both before and after the initiation of formal city planning. This new breed of urban planners

[2] William H. Wilson, *The City Beautiful Movement* (Baltimore: The Johns Hopkins University Press, 1989), 75-92.

[3] Paul Gleye, *The Architecture of Los Angeles* (Los Angeles: Rosebud Books, 1981), 95. See Wilson, *The City Beautiful Movement* for full discussion of these examples and reference to other studies on City Beautiful projects across the country.

[4] Wilson, *The City Beautiful Movement*, 285-290.

stressed cleanliness, beauty, and scientific solutions to urban physical and social problems. [5] Though these new professionals publicly condemned the City Beautiful Movement as an elitist led cause of grandiose city plans that were often simply expensive and completely impractical, many of the professionals carried forward and accepted an important concept that was born out of the City Beautiful Movement, the concept of taking aesthetics into consideration when designing public buildings and structures for the purposes of enhancing the visual appearance of the city and as means of exhibition, civic pride, and permanence.

3.1.2. City of Los Angeles Municipal Art Commission

The Los Angeles Municipal Art Commission was central to bringing City Beautiful concepts to fruition in Los Angeles and was for decades the voice of beautification of the city. The Municipal Art Commission was founded in 1903 as a five-member commission of mayoral appointees with the general goal "to work for the gradual elimination of ugliness from the conspicuous parts of our city."[6] Each appointment was honorary and the commission was empowered to make suggestions for the improvement of civic conditions. During its early years, the commission devoted its energies to a campaign of enlightenment through the organization of small improvement clubs, but it set out to have much wider influence once they secured greater funding from the city.[7]

The Municipal Art Commission considered bridges to be within their purview from the very beginning, seeking a "more artistic effect" for proposed bridges at the time.[8] The commission sent a letter to the Los Angeles City Council in 1904, for example, suggesting design approaches for bridges and protesting the reuse of the metal truss from the Main Street Bridge, that was to be replaced, for use in a structure over the Arroyo Seco which the commission hoped would become a city park.[9]

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[5] Mary Corbin Sies and Christopher Silver, eds, *Planning the Twentieth-Century American City* (Baltimore: Johns Hopkins University Press, 1996), 16.

[6] "Art Commission to Beautify City," *Los Angeles Times*, October 31, 1903.

[7] "Municipal Art Board's Plan of Campaign," *Los Angeles Times*, December 10, 1903.

[8] Municipal Art Commission Meeting Minutes, January 5, 1904.

[9] Letter from the Municipal Art Commission to the Los Angeles City Council, February 2, 1904; Municipal Art Commission Meeting Minutes, May 13, 1910.

In 1907, the commission enlisted Charles Mulford Robinson, a well-known Chicago based landscape architect, to create a city funded plan for Los Angeles. Robinson was the author of twenty-five municipal improvement plans throughout the United States and the premiere advocate of City Beautiful planning. The resulting plan was published by the commission in 1909 and titled "Los Angeles: The City Beautiful." In his plan, Robinson laid the groundwork for many of the public improvements that would take place in the city during the decades that followed, including the new city hall, Union Station, and the monumental bridges over the Los Angeles River.

Robinson advocated in the plan that functional structures, such as bridges, can be designed in such way that they would be aesthetically pleasing and a source of civic pride, and he advocated the use of concrete arch designs to meet this goal. In discussing the truss bridges that spanned the Los Angeles River at that time, he stated: "The bridges are about as ugly as they can be. As these are replaced, handsome structures should be substituted. The concrete arch now makes practicable a bridge that is beautiful at no more cost then the ugly iron type of the railroad bridge."[10]

The Robinson report included several addendums, including an article by Homer Hamlin, the City Engineer with the Los Angeles Bureau of Engineering, entitled "Bridge Construction in the City of Los Angeles." In his article, Hamlin explains both the bureau's previous policy of bridge construction as well as their current policy in which they followed City Beautiful ideals to consider both functionality as well as aesthetic appeal:

> The earlier policy was to consider first cost alone and to construct the cheapest and narrowest bridge that would serve the purpose. Then a few steel structures were erected across the river of the truss or the girder type, which are inherently unsightly. It is now the policy of the Board of Public Works to recommend cheap wooden bridges only in the outlying districts and occasionally for more important crossings where a temporary bridge can serve purposes until funds are available for a more permanent structure…The aesthetic side is taken care of by adopting the arch form and by special treatments of the concrete surfaces.[11]

[10] "Los Angeles: The City beautiful, Plans and Suggestions by Charles Mulford Robinson," Los Angeles Municipal Art Commission, 1909; "Magnificent Plan For City Beautiful," Los Angeles Times, March 16, 1906; Stephen D. Mikesell, "The Los Angeles River Bridges: A Study in the Bridge as a Civic Monument," *Southern California Historical Quarterly*, Summer 1986, 374.

[11] Homer Hamlin, "Bridge Construction in the City of Los Angeles," Report of the Municipal Art Commission of the City of Los Angeles, 1909.

Hamlin further described three bridges over the Los Angeles River that the bureau were designing at that time using this policy, the North Broadway Bridge (also called the Buena Vista Bridge, 53C0545, built in 1911), the Main Street Bridge (53C1010, built in 1910), and the Seventh Street Bridge (53C1321, built in 1927).[12] The connection between the bureau and the commission was immediate and directly followed the completion of Robinson's plan, as the mayor appointed Homer Hamlin to be a member of the Municipal Art Commission in 1911.[13]

The commission became an advisory board to the city through charter amendments in 1911. The city charter stated that the commission would have authority to approve the designs of public buildings and infrastructure. The enabling ordinance made the commission powerful and influential in the cultural life of the city. The commission's role was described in the charter as follows:

> The design of no public building, bridge, approach, fence, retaining wall, lamp, lamp post, or other similar structure proposed to be erected by or under the authority of the city or upon any land or in any place belonging to or under the control of the city shall be adopted by any board or officer having charge, superintendence or control of the design or construction thereof, unless such design shall have been first submitted to and approved by the Board of Municipal Art Commissioners by a majority vote thereof. No arch, bridge, structure or approach belonging to any private individual or corporation shall be permitted to extend over, into, or upon any street, avenue, highway, park or other public place belonging to or under the control of the City of Los Angeles unless the design and location thereof shall have first been approved by the said board as hereinbefore provided.[14]

After the Municipal Art Commission received approval power in 1911, all city organizations involved in the planning and construction of any city owned structure had to develop a relationship with the commission, including the City of Los Angeles Bureau of Engineering. By the time the city approved the charter amendment, the bureau had already incorporated the idea of designing not only functional but also aesthetically pleasing structures, as is apparent in Homer Hamlin's article written in 1909 and the construction of the Main Street Bridge over the Los Angeles River. This attention to detail and desire to create grand structures in the tradition

[12] Hamlin, "Bridge Construction in the City of Los Angeles," 1909.

[13] Municipal Art Commission Meeting Minutes, September 5, 1911.

[14] Los Angeles City Charter Provision, Department of Municipal Art, Section 165, included in: Municipal Art Commission, *Annual Reports, 1921-1929* (Los Angeles, 1930).

of the City Beautiful Movement continued and flourished after the commission was given approval power and a strong working relationship developed between the two organizations. That mutual respect between the two organizations developed is apparent, for example, in the approval the commission gave the Glendale Hyperion Bridge in 1927: "The Commission decided that these plans were very well prepared and shared excellent continuity of design."[15]

An example that illustrates the Municipal Art Commission's role in creating lasting civic structures for the City of Los Angeles involves the architectural details of the North Broadway Bridge (also called the Buena Vista Bridge). When the design was brought to the commission for review in 1911, there was already a disagreement among local organizations on what type of decoration should be used on the bridge. The Bureau of Engineering proposed either lions or pillars, while the Native Sons and Daughters of the Golden West preferred bears. The commission expressed its requirements that the decoration "must be something bold and massive, suggestive of western strength, vigor, and courage."[16] In the end, the commission recommended that an "architectural group of columns be substituted for the proposed granite bears or the lions suggested by the city engineer as the same can be constructed of artificial stone and within the amount of the funds available."[17] The commission further stated, "In our judgment, this treatment will better adapt itself to the architectural character of the bridge, and the effect of such treatment will be more monumental."[18] Three months later, the Bureau of Engineering presented a revised design to the commission that incorporated the commission's suggestion of using columns.[19]

It is clear that concern for the aesthetic enhancement and appeal of bridges became bureau policy in the 1910s and carried on into the 1940s. Official statements to this end included proposals and declarations of their intent. The bureau proposed an annual appropriation in its 1918 / 1919 annual report for the purpose of "renewing with permanent and artistic construction some of our old bridges which are now expensive to maintain and are below recognized standards of

[15] Municipal Art Commission Meeting Minutes, January 19, 1927.
[16] Municipal Art Commission Meeting Minutes, March 16, 1911.
[17] Municipal Art Commission Meeting Minutes, March 16, 1911.
[18] "Lions or Bears, Which?" *Los Angeles Times*, January 28, 1911; "Cement Columns For New Bridge," *Los Angeles Times*, March 21, 1911.
[19] Municipal Art Commission Meeting Minutes, June 8, 1911.

safety."[20] Furthermore, the bureau accepted the Municipal Art Commission's promotion of City Beautiful ideals, stating in its 1923 annual report, for example, that their intent was to design bridges that would "excite comment from visitors who enter and leave the city," and "to raise the status of Los Angeles as an enterprising, properly developed city."[21]

The relationship was reciprocal as the commission took an ongoing interest in bridges during the 1910s through the 1940s. Bureau engineers periodically brought the commissioners on tours of new and old bridges in the city and commission minutes reflect a regular approval pattern during this period.[22] The Municipal Art Commission had a variety of official responses to bureau's bridge designs. The commission approved some designs after only a short review period, while of other designs they required minor changes to architectural details. These included changes to balustrades or changes regarding the size and design of pilasters or pylons. Still other designs were approved with commendation and others were rejected outright. The commission was aware of their role of improving the city for the greater population, as they knew that they were to approve "good designs that could be apparent to the casual observer."[23] The Municipal Art Commission exercised continued influence over the design and architecture of public buildings and structures through the 1920s. This is illustrated by both the number of plans and the value of the projects that were approved by the commission. In 1921, the commission approved 37 plans totaling an estimated valuation of $696,000. The numbers increased each year and reached a height of 1,092 plans being reviewed in 1927 with an estimated valuation of $14,382,705. Though the numbers did go down, the commission still was an influencing body at the end of the decade, having approved 300 applications for an estimated valuation of $11,000,000.[24] During the 1920s, the commission approved plans for many of the large viaducts that crossed the Los

[20] City of Los Angeles Bureau of Engineering, *Annual Report 1918 / 1919*, 17.

[21] Mikesell, "The Los Angeles River Bridges: A Study in the Bridge as a Civic Monument," 376; The consideration by the Bureau that train passengers have a favorable view of the city through its design of bridges extended beyond the Los Angeles River. The city designed the Avenue 20 Bridge over the Arroyo Seco in 1912 to "show distinctly" and "present a pleasing effect to observers passing on the Southern Pacific Trains," Municipal Art Commission Meeting Minutes, January 8, 1912; Later, the Commission considered whether bridge designs along the river would be suitable if a boulevard were to replace the railroad tracks along the banks in the future, Municipal Art Commission Meeting Minutes, July 15, 1925.

[22] Municipal Art Commission Meeting Minutes, 1910-1945.

[23] Municipal Art Commission Meeting Minutes, September 5, 1917.

[24] "Fiscal Year Record is Big," *Los Angeles Times*, July 2, 1922; "Art Commission Active," *Los Angeles Times*, September 14, 1924; "Building Record Forecast," *Los Angeles Times*, January 4, 1926; "Art Commission Reports," *Los Angeles Times*, January 10, 1927; "Municipal Art Gains In Value," *Los Angeles Times*, January 7, 1929; Municipal Art Commission, *Annual Reports, 1921-1929* (Los Angeles, 1930).

Angeles River and railroad tracks that lay on each bank of the river, including the Olympic Boulevard Bridge (53C0163) built in 1925, the Cesar Chavez Avenue Bridge (53C0130) built in 1926, the Spring Street Bridge (53C0859) built in 1928, and the First Street Bridge (53C1166) built in 1929.

The Los Angeles Municipal Art Commission remained influential in city planning into the 1930s and early 1940s. In 1930, Harvard and Yale Universities recognized the commission nationally, as a leader in the movement for civic building-management organizations that existed by that time in at least four western states. Los Angeles was the home of the first civic approval organization, which was taken to mean "that the city will be looked to for considerable guidance in commercial building designs, the location of such structures and their management."[25] Though the overall quantity of plans reviewed and approved by the commission as well as the total valuation of those plans decreased in the 1930s, because of decreased public funding during the Depression, the commission continued to be the voice of architecture and the design of all public buildings and structures in Los Angeles. The city still planned and built many bridges with funding from the federal government under the watchful eye of the commission with the same careful attention to design and aesthetics, including the Figueroa Street Viaduct (53C0042R that currently carries Highway 110 over the Los Angeles River) which was designed jointly by the bureau and the Division of Highways with "the architecture being in keeping with the monumental structures that have been built by the city over the Los Angeles River."[26] Some examples of smaller structures that were designed and approved during this time are Temple Street / Silver Lake Boulevard Grade Separation (53C1336), built in 1934, and the Sunset Boulevard / Silver Lake Boulevard Grade Separation (53C0136), also built in 1934.[27]

The Municipal Art Commission approval policy applied to all bridges, yet throughout the first half of the twentieth century some structures were clearly more important than others. The important bridges were in prominent locations in the city at the time. The city gave more architectural attention to these structures. The bridges at the Los Angeles River, for example, were important as symbols of the city's progress and beauty to be seen by visitors arriving by

[25] "Los Angeles Recognized In Nation As Leader of Architectural Supervision," *Los Angeles Times*, July 13, 1930.
[26] "Twenty Grade Separation Projects Being Built in Southern California," *California Highways and Public Works,* May 1936, 2.
[27] "Art Commission Activity Cited," *Los Angeles Times*, January 3, 1933; "Art Commission Reports on Exhibits and Plans," *Los Angeles Times*, January 27, 1936.

trains that entered the city on tracks running on the banks of the river. Other bridges with striking architectural designs were located on the growing system of boulevards in the city, such as the bridge taking Sunset Boulevard over Silver Lake Boulevard (53C0136), built in 1934, and the First Street Viaduct over Glendale Boulevard (53C0045), built in 1942. The city also gave architectural attention to other important water crossings adjacent to parks, such as the Riverside Drive Bridge over the Los Angeles River next to Griffith Park (53C1298) built in 1938. Less prominent examples include bridges such as the Foothill Boulevard Bridge Over Big Tujunga Wash (53C2033), built in 1921; or modest grade separations such as where Sunset Boulevard crosses over Glendale Boulevard (53C0134), built in 1934, or the Temple Street / Figueroa Street separator (53C0153), completed in 1940.

As architectural styles began to change in the late 1920s and early 1930s away from Beaux Arts Classicism towards the Moderne styling of Art Deco, the design preferences of the commission mirrored this shift. For example, the commission praised the designs of the two grade separations built in 1930s over Gaffey Street (53 0397Y and 53C0399), "The Art Commission was especially pleased with the design of the Gaffey St. Elberon Ave. grade separation, which was of modern type. The Summerland Ave. design was also modern and met with approval."[28] These comments indicate that the commission's taste in aesthetics changed with the styles of the time. The "modern" designs they are referring to are the Art Deco architectural details that adorn these two structures.

In 1939, the Municipal Art Commission sought an increase in their role as an approval body. In this year, the commission drafted a proposal to obtain similar esthetic control over private buildings erected within view of governmental structures and certain public places that they had over city owned buildings and structures since the 1911 charter amendment.[29] Though this proposal was not enacted, the commission continued to approve the design of civic buildings and structures.

Though the Los Angeles Municipal Art Commission continued to hold approval power over structures and buildings built by the city or on city land, and in fact still retains this power today,

[28] Municipal Art Commission Meeting Minutes, December 10, 1930.
[29] "Art Board Asks Wider Powers," *Los Angeles Times*, August 21, 1939.

the commission's role began to shift in the mid-1940s. As more civic transportation projects were taken under the wing of both federal and state programs, the commission appeared to exercise less influence over the roadway system of Los Angeles and concentrated more on art and cultural activities. The Los Angeles Times has numerous articles throughout the 1940s of art exhibits planned and promoted by the Municipal Art Commission, but very few mentions of building or structure plans being reviewed or approved by the commission. The few plans mentioned are all civic buildings, including a hospital and fire station, and there is no mention of plans of bridges or viaducts being reviewed. It is likely that as the responsibility of highway construction shifted from local public works departments to the state's Division of Highways, the Municipal Art Commission's influence over designs diminished and they took on a new focus of planning and promoting art and cultural programs for the city.[30]

There are several likely reasons why the commission's role changed in the design approval process for city-designed bridges during the 1940s. In addition to the shift of design and construction away from city engineers to state engineers working on state and federally funded highway and freeway projects, over which the commission had no authority, there were also shifts in the legal framework in which the commission was working at the time. There were also shifts in architectural aesthetics, as discussed in the section 3.2.1 of this report. Within the legal framework, it appears that the city attorney's office did not support the commission's charter provisions regarding aesthetic controls. In 1940, for example, the city attorney advised the commission that while aesthetic controls were important, California courts had yet to establish that those types of controls constituted appropriate governmental police power like zoning.[31] During this period, the city government struggled with zoning and a nearly twenty-year-old ordinance that was out dated and had been pitted by variances.[32] The commission may have decided, or been advised by the city attorney, to limit its role in the questions of design and aesthetics in response to possible law suits or because the city council may have considered

[30] A sampling of Los Angeles Times articles reviewed with dates of articles include: "Businessmen's Art To Be Seen Today," February 20, 1941; "Soldier's Art To Be Displayed," August 10, 1942; "Sanity in Art Show Ready," January 31, 1943; "City Sponsored Art Exhibit Opens Tonight," November 1, 1945; "Fire Station To blend With Modern Ideas," April 14, 1947; "Los Angeles Art Week To Open Today," October 19, 1947; "Art Exhibition Reception Set," October 6, 1948; "Municipal Art Exhibit Lures Many Visitors," October 18, 1948; "Art Exhibit Planned," April 10, 1949; "Designs For New City Hospital Complete," August 14, 1949.

[31] Municipal Art Commission Meeting Minutes, April 24, 1940.

[32] Robert M. Fogelson, *The Fragmented Metropolis: Los Angeles 1850-1930* (Cambridge, MA: Harvard University Press, 1967), 254-257.

abolishing the commission's charter provision in favor placing similar power with the city planning commission. In the late 1940s and into the early 1950s, the commission's minutes are devoid of references to architecture and aesthetics and the commission approved fewer public works projects and structures than in previous decades. While the commission's secretary may have changed the way in which the minutes were officially recorded, the absence of bridge approvals signals a change in the relationship between the commission and the Bureau of Engineering, particularly after post-war funding became available to the city for design and construction of public works projects. The bureau policy also appears to have shifted. The bureau made few, if any, references regarding aesthetic appeal and civic monumentality from its official documents or in the newspapers during this period.[33]

3.1.3. Development of Transportation in the City of Los Angeles

In the 1880s, Los Angeles saw its first boom in population that brought the town from a small community of approximately 11,000 residents to a city of over 50,000 people. The population continued to increase and doubled to over 100,000 in the decade that followed, and the Los Angeles Metropolitan area reached over two million by 1930.[34] This sudden increase in population prompted the need for a transportation system that could move people from their homes to places of employment, to commercial districts, and recreational areas. In addition, this expansion came at a time when the automobile began to take hold as a central means of transportation and Los Angeles' geographical setting provided an enormous opportunity to spread outward from the city's historic core.

The city's electric railcar system was the initial solution to the transportation problem. Before 1885 Los Angeles' small population created only a modest demand for rapid transportation and the few railways started during that time earned little profit. In the 1880s and 1890s, several entrepreneurs started individual rail lines, often motivated by development projects in which they were involved that required a way to get people to the area that was to be developed. Though some earlier consolidation efforts did occur, it was the creation of the Pacific Electric Railway

[33] Municipal Art Commission Meeting Minutes, various dates, 1945-1950.
[34] Fogelson, *The Fragmented Metropolis: Los Angeles 1850-1930*, 67 and 78.

Company by Henry E. Huntington in 1901 that changed the role of the electric railcar in the Los Angeles metropolitan area.[35]

Huntington established the Pacific Electric to aid in sale and development of vast tracts of real estate. The company purchased and expanded the existing transportation network that linked Los Angeles with Pasadena and Santa Monica. The electric rail lines in the Los Angeles area were crucial as a means of stimulating the subdivision of the countryside and the expansion of the metropolis in the first decade of the twentieth century. By 1911, the Pacific Electric owned 415 cars and at its peak, the cars ran in trains traveling at 40-50 miles an hour on more than 1,000 miles of track. Although the cars of the Pacific Electric did carry freight, the main cargo was people. Passengers could travel from the San Fernando Valley to the foothills of the San Gabriel Mountains, along the coast from Santa Monica to Newport's Balboa Island, and inland as far as San Bernardino and Redlands. People used the Pacific Electric lines for work, recreation, and sightseeing.[36]

As early as 1910, Los Angeles began to face a surface transportation crisis with massive traffic congestion of downtown streets caused by the combination of electric railway lines, railroad lines, motor vehicle traffic, and horse drawn traffic that all shared the roads. It was soon evident that the long range problem was the conflict between the trains/railcars and the automobile.[37] Two of the city's large-scale bridges across the Los Angeles River were designed to allow automobile traffic to cross over both the river as well as the railroad and electric railcar lines that ran along both banks of the river. These two bridges were designed using Beaux Arts architectural details following the advice of City Beautiful advocate Charles Mulford Robinson, that was communicated in the plan for Los Angeles that had been commissioned by the Municipal Art Commission in 1907. These two early structures are the North Broadway Bridge (also called the Buena Vista Bridge, 53C0545, built in 1909), the Main Street Bridge (53C1010, built in 1910).

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[35] Fogelson, *The Fragmented Metropolis: Los Angeles 1850-1930*, 85-89.

[36] Leonard Pitt and Dale Pitt, *Los Angeles A to Z: An Encyclopedia of the City and County* (Los Angeles: University of California Press: 1997), 373-375.

[37] Mikesell, "The Los Angeles River Bridges: A Study in the Bridge as a Civic Monument," 368-369; Pitt, *Los Angeles A to Z: An Encyclopedia of the City and County*, 373-375.

The decline of the Pacific Electric railway has been much lamented as Los Angeles grew in the late twentieth century. While the auto industry directly contributed to the demise of the trolley lines across the country, the Pacific Electric suffered economically through the depression and its ridership naturally declined with greater use of personal automobiles. City planning documents clearly show that the city expected trolley service to continue; yet they needed to address the ever-increasing traffic problems that went along with the city's expansive growth. The Pacific Electric finally closed in 1961 after decades of declining service.[38]

To get the contentious problem of traffic under control, civic and business organizations set up the Los Angeles Traffic Commission in 1923. The Traffic Commission funded the compilation of a comprehensive street plan for the city by three nationally known city planners, Harland Bartholomew, Charles H. Cheney, and Frederick Olmsted, Jr. A 1924 Los Angeles Times article boasted that "The proposed plan includes a number of new park boulevards that will eventually link all of the city's parks and make beautiful drives devoted exclusively to passenger traffic."[39] This traffic plan was put to voters and approved in 1924. Bond issues totaling $5,000,000 were passed between 1923 and 1926 that enabled the city to finance the construction of the first phase of the plan, much of which was concerned with connecting streets to existing bridges and the development of new bridges. These bond acts provided funding for additional large structures spanning both the Los Angeles River and adjoining railroad tracks. [40] The major traffic plan was viewed at the time as an important element in beautifying the City of Los Angeles in conjunction with other great civic projects being undertaken by the city at that time.[41] In addition to the large Los Angeles River projects, the Los Angeles Bureau of Engineering also used bond funds for the construction of grade separations at intersections that were deemed dangerous, including the Forth Street / Lorena Street grade separation (53C0331) built in 1928.[42]

In 1932, the bureau completed the projects funded by the city bond from 1923 to 1926 with the completion of the Sixth Street Viaduct over the Los Angeles River (53 0595/53C1880).

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[38] Pitt and Pitt, *Los Angeles A to Z: An Encyclopedia of the City and County*, 373-375.

[39] "Would Beautify City," *Los Angeles Times*, October 26, 1924.

[40] Historic American Engineering Record. *Los Angeles River Bridges: HAER CA-271,* Division of the National Park Service, United States Department of the Interior, 2000, 13-14.

[41] "City Beauty Importance Emphasized," *Los Angeles Times*, November 7, 1925.

[42] City of Los Angeles Bureau of Engineering, *Annual Report 1924 / 1925*, 51.

Although the bureau celebrated the completion of the last of the large Los Angeles River viaduct structures, they also took stock of the bridge program's future, clearly stating that the completion of the program thus far was only the beginning of what was needed:

> In spite of the very large volume of bridge construction work done since 1923, there are still many bridges and grade separations required to complete the highway system of the city. There are now ten bridges and grade separations, which have planned or are being planned for early construction. These are all new structures required to complete major highway improvements or to better existing conditions at busy intersections. It is therefore anticipated that the work of the division in renewing structures or constructing new bridges will continue as rapidly as work can be financed.[43]

The bridge program continued during the depression years because the city received both Federal and State aid through public works work relief programs. During the 1934 / 1935 fiscal year, the Bureau saw a marked increase in design and construction activities primarily due to the resumption of work relief programs under the auspices of State Emergency Relief Administration and later the Los Angeles County Relief Administration. The Bureau's design activities were further stimulated through the preparation of preliminary plans and estimates in connection with the city's proposed public works program to be financed by allocations from the Federal Public Works fund appropriated by Congress in April 1935. For example, the Sunset Boulevard and Glendale Boulevard grade separation (53C0134) was constructed in 1934 with National Recovery Act funds. [44] From the early 1930s up until the outbreak of World War II, the majority of projects designed and constructed by the City of Los Angeles Bureau of Engineering were jointly financed by unemployment relief projects and gasoline tax revenue furnished by the State of California.[45]

3.2. Engineering and Design of Los Angeles Bridges

There are many excellent examples of bridge technology and innovation in the City of Los Angeles. Many of the city's important structures were innovative and bold engineering achievements of their time. There are also others that, while not technologically significant,

[43] City of Los Angeles Bureau of Engineering, *Annual Report 1931 / 1932*, 53.
[44] City of Los Angeles Bureau of Engineering, *Annual Report 1934 / 1935*, 13.
[45] City of Los Angeles Bureau of Engineering, *Annual Report 1934 / 1935 through 1939 / 1940.*

exhibit design qualities of the contemporary architectural styles of the first half of the twentieth century. As discussed, the relationship between the Municipal Art Commission and the Bureau of Engineering greatly influenced the aesthetic appearance of many of the city's bridges built in the early to mid-twentieth century. This relationship diminished in importance in the late 1940s and design aesthetics changed creating a distinct period of bridge design in Los Angeles that ends in the years immediately following World War II.

3.2.1. Evolution of bridge engineering and aesthetics

During the first half of the twentieth century, the City of Los Angeles engineers designed a great variety of bridges and were well versed in the successive technologies and designs that emerged during that period. The Bureau of Engineers used reinforced concrete arches for many of the prominent bridges across the city, but also employed tee beams, steel girders, and later concrete box girders. In general, the bureau did not use metal or timber trusses, as they were not favored for aesthetic reasons by the Municipal Art Commission. Concrete tee beam bridges were a common alternative to reinforced concrete arch bridges built in the city, especially as labor and material costs associated with arch designs became more expensive to build and maintain during the 1930s and 1940s. During the 1920s, 1930s, and 1940s, there was growing demand for longer and wider bridges, permitting straighter, more efficient, and safer roadways. Concrete box girders were among the designs developed to address those issues. The first concrete box girders used in bridges in California were built in the mid-1930s. Box girders designs reduced the volume of expensive, labor-intensive frameworks, and provided an efficient and cost-effective design for spans up to 100 feet during this period. As concrete box girder technology developed during this period, Los Angeles city engineers integrated the new girder type with established bridge types.[46]

The Bureau of Engineering used popular and contemporary architectural features in its bridge designs as part of the effort to create structures that served as civic monuments, representing the importance of the city's transportation network, and to improve the aesthetics of the city's infrastructure. As discussed, the bureau's practice of creating bridges as civic monuments dates

[46] L.C. Hollister, "Careful Design Cuts: Construction Costs on Los Angeles Freeway Structures," *Civil Engineering*, May 1950, 43.

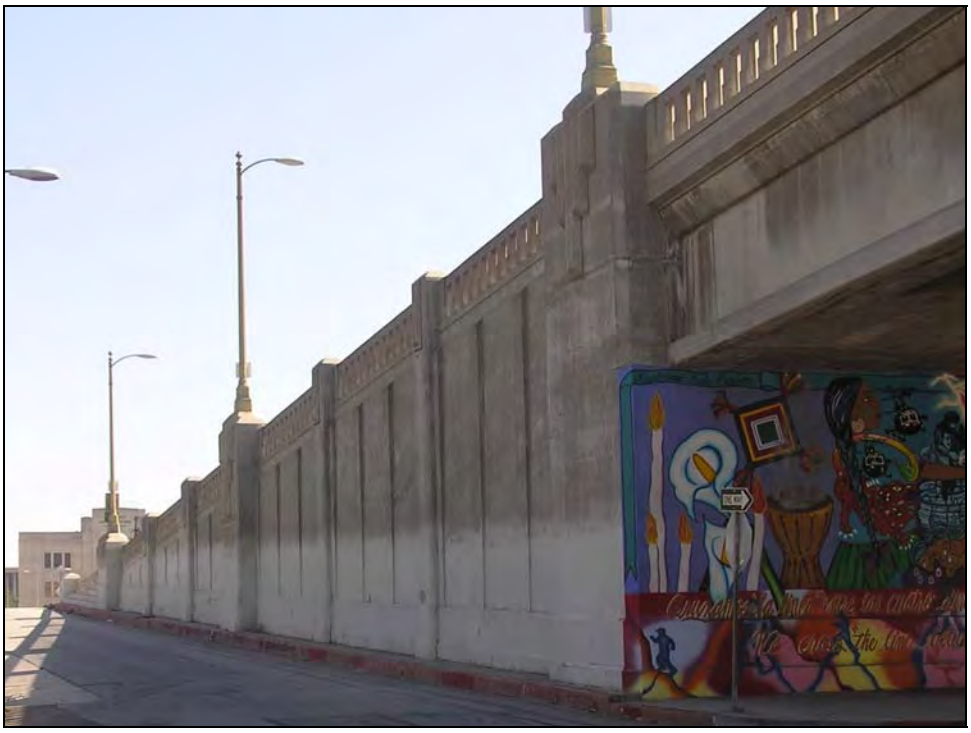
to the early twentieth century, when the city's Municipal Art Commission began approving bridge designs that incorporated the ideals of the City Beautiful Movement, which considered bridges to be like other public monuments such as post offices and city halls. The commission's dedication to the aesthetic quality of buildings and structures of the City of Los Angeles is evident by the many architects that served as commissioners over the years, such as Carlton M. Wilson in the early 1930s, Pierpoint Davis in the late 1930s / early 1940s, and William Beckett in the early 1950s.

The city designed most of these City Beautiful bridges using the neoclassical forms of Beaux Arts architecture or revival style architecture, the most important of which are the many of the Los Angeles River bridges built from the 1900s to the 1930s. Examples of such details are shown in Photographs 1 and 2. Later bridges from the early 1930s, such as the pair of bridges on North Gaffey Street adjacent to San Pedro (53 0397Y and 53C0399), incorporated the stylized geometric designs of the Art Deco movement, shown in Photograph 3, to indicate the optimism of modernity and progress while adhering to established classically based forms. Moderne architectural design in structures, such as the First Street Viaduct over Glendale Boulevard (53C0045), shown in Photograph 4, came on the cusp of a shift in design aesthetics that occurred during the 1930s and 1940s that paved the way from classicism and stylized classicism to the austere Modern designs of post-World War II bridge design.

Photograph 1: “Buena Vista Bridge,” North Broadway over Los Angeles River (53C0545): Beaux Art Classical Details

Photograph 2: Fourth Street over Los Angeles River (53C0044): Gothic Revival Details

Photograph 3: Gaffey Street at Highway 110 Bridge (53 0397Y):
Art Deco Details



Photograph 4: Glendale Blvd.-Beverly Blvd. Separator (53C0045):
Moderne Details

The shift from the dominance of neoclassical architecture to a more modern style occurred in the 1920s, as a new style emerged that was particularly prominent in Los Angeles. American architecture and design incorporated European influences that avoided direct historical references, instead employing rectilinear geometric forms and stylized sculpted elements using modern materials and methods of construction. This trend is now referred to as Art Deco, named for the influential Parisian exposition of 1925 that drew together the modern decorative arts and industrial designs of the time. This new style built upon the trends of abstracted and simplified classicism and traditional architecture already in progress. Art Deco developed as an ornate style incorporating, at times, exotic influences from Asia or Central / South America. The modernistic styles of the 1920s and 1930s also incorporated the allure of technology as a positive impact on modern society. This developed into the streamline aesthetic. The streamline effect created clean and largely unornamented surfaces with curved corners emphasizing horizontality in a style now called Streamline Moderne. It was used for industrial designs, such as vehicles and consumer products, as well as buildings and structures and was employed to symbolize efficient movement. The Art Deco and Streamline Moderne styles of architecture were a design aesthetic that had popular appeal and did not impose the sense of ideology that European-influenced International Style Modernism promoted. In some ways Art Deco and Moderne were conservative forms of Modernism, striking a balance between the tastes of traditionalist and the influence of innovative architects and industrial designers at work in Los Angeles at the time.[47]

Yet neither Art Deco nor Streamline Moderne typically revealed underlying structure or were used to represent the structural and material honesty endorsed by International Style Modernism. During the 1930s, this more austere cubist form of Modernism became influential and was integrated with Streamline Moderne, as art and architecture transitioned to the ascension of Modernism following World War II. This transitional style incorporating Streamline Moderne and International Style Modernism is referred to by the more general term, Moderne. The shift of design aesthetic for prominent new buildings and structures led to more abstract, stripped-down, and unadorned designs than their traditional neoclassical or revival style predecessors. This trend derived from a change of tastes away from Greco-Roman Classicism for public or commercial buildings and structures, instead breaking the elements of classical architecture

[47] David Gebhard, "About Style, Not Ideology," *Architecture*, December 1983, 35-44.

down to their fundamental elements of order, symmetry, and proportion to achieve the tenets of functionalism, efficiency, harmony, and balance, as well as material and functional honesty. These ideals had little to do with civic monumentality in the way neoclassical and Art Deco architecture did. Traditional and revival architectural trends continued, particularly for domestic designs, while modernistic trends highlighted notions of twentieth century technical progress and were a reaction to the perceived excesses of ornament adopted during the late nineteenth and early twentieth centuries. Moderne type designs were particularly attractive as the country emerged from the Great Depression and there was little extra money to be devoted to highly ornamental buildings and structures.[48]

3.2.2. City of Los Angeles Bureau of Engineering

The City of Los Angeles Bureau of Engineering during the first half of the twentieth century is now seen as the most historically significant municipal bridge design department in California of that time. Its long-running program of designing monumental bridges using prominent architectural styles has been recognized by architectural historians largely for the designs of the bridges crossing the Los Angeles River built between the 1900s and 1930s. These bridges represent some of the best work accomplished by California engineers in adapting reinforced concrete bridge design within the urban environment. The structures embody skillful transportation planning, combining grade separations with arterial streets linking the downtown areas with residential suburbs, and successfully integrating City Beautiful ideals to create bridges as civic monuments.[49]

The connection between City Beautiful concerns and support for monumental bridges was established through the Municipal Art Commission and its relationship with the city's Bureau of Engineering. As described above, City Engineer Homer Hamlin set a precedent for incorporating aesthetic qualities into structures designed by the Los Angeles Bureau of

[48] Wilbur J. Watson, "Architectural Principles of Bridge Design," *Civil Engineering*, March 1938, 181 and 184; Aymar Embury II, "Esthetic Design of Steel Structures," *Civil Engineering*, April 1938, 262; and David Gebhard and Harriette Von Breton, *Los Angeles in the Thirties: 1931-1941*, Second Edition, (Los Angeles: Hennessey & Ingalls, Inc., 1989), 141-145.

[49] California Department of Transportation, *Historic Highway Bridges of California* (California: California Department of Transportation, 1990), 75; and Mikesell, "The Los Angeles River Bridges: A Study in the Bridge as a Civic Monument," 365-386. The National Park Service's Historic American Engineering Record program conducted a thorough documentation program of the Los Angeles River bridges in 2000, recognizing the importance of the city's early twentieth century bridge program.

Engineering. His article, "Bridge Construction in the City of Los Angeles," which was published in 1909 with Charles Mulford Robinson's City Beautiful plan for Los Angeles, shows the early influence of City Beautiful ideals on the Bureau's approach to bridge design.

Although design aesthetics and urban planning policies changed during the 1930s and 1940s, the influence of architectural approval continued to provide bridge designs that included decorative elements to enhance their visual impact. In a 1933 article written for T*he Architect and Engineer*, Los Angeles City Bridge Architect, Louis L. Hout, discussed the design of the Sixth Street Viaduct (53 0595 and 53C1880) for which he was the architect. In the article, he addresses the Bureau's approach in designing large structures of this nature to conform to design ideals changing from the classical details of Beaux Arts styles to the more Moderne styles:

> In some respects the viaduct is conformable to the automobile which it carries across the chasm. The public has come to take for granted the mechanical efficiency but demands a harmonious and graceful design. Beauty of line and proportions are the best selling points either possesses.[50]

The Bureau of Engineering from the first half of the twentieth century should be viewed as a collective group of individuals who together produced a body of work, some of which is important and representative of the significant design intentions of the period. Over time, particular individuals have been identified as having played key roles in fulfilling the department's bridge program. In particular, Merrill Butler has been singled out because of his longevity of service to the city and because he played at least a supervisory role for the design of many of the city's structures during his tenure. Another important figure was Ralph W. Steward, who also had a long career with the Bureau of Engineering. Both men played a central role in developing and approving city bridge designs during the first half of the twentieth century, and they were important in cultivating and maintaining the bureau's relationship with the Municipal Art Commission.

Merrill Butler's background includes a short stint with the Los Angeles Railway Company, education at the city's Polytechnic High School, and a college degree from the University of Wisconsin through correspondence courses in mathematics and civil engineering. He began a

[50] Lois L. Huot, "Modern Lines Are Reflected In New Los Angeles Viaduct," *Architect and Engineer*, October 1933, 25-29.

career with the City of Los Angeles in 1912, which was interrupted by military duty in World War I and was followed by four years with the Arizona State Highway Department as a bridge engineer. Returning to Los Angeles in 1923, Butler rejoined the Los Angeles City Bureau of Engineering and received responsibility for the Macy Street and Ninth Street Viaducts, for example.[51] Butler continued with the city until 1963, shortly before his death. It is unlikely that he had responsibility for the design details of all the structures built during his tenure, rather, he likely served in a more administrative role for much of his career and was a prominent member of a team of engineers at the bureau that executed the city's bridge building program that resulted in monumental civic structures.

Ralph W. Stewart was affiliated with the Los Angeles Bureau of Engineering beginning in 1909. Stewart was born in 1878 in Barton, Wisconsin and received his engineering degree at the University of Wisconsin in Madison in 1899. After working for the U.S. Geological Survey for several years, he came to California and from 1903 until 1909 he was the assistant engineer and roadmaster for the Southern Pacific Railroad. In 1909 Stewart entered the Los Angeles Bureau of Engineering where he served until 1911 as an assistant engineer, from 1911 to 1917 as engineer of bridges and structures, from 1917 to 1930 as Chief Deputy City Engineer, and from 1930 as Division Engineer in charge of structural design. Stewart died in Los Angeles at the age of 82 in 1960. He too was one of the prominent members of the engineering team at the bureau during the period in which the city built its monumental bridges.[52]

[51] Israel, Paul Bryan, "Spanning the Golden State: A History of the Highway Bridge in California," (Masters Thesis, University of California, Santa Barbara, 1980), 175-176.

[52] As Built Plans for 53C0045, submitted July 5, 1940; and Biography for Ralph William Stewart, Local history Collection, Los Angles Public Library, 1937.

4. DESCRIPTION OF SURVEY POPULATION

JRP examined the survey population of forty-five bridges provided to them by Caltrans in order to conduct appropriate historical research and conduct comparisons of these bridges to provide thresholds of possible significance. This list was compiled by identifying large bridges built within the city of Los Angeles during the first half of the twentieth century that were designed by the city and constructed with some architectural design elements. The forty-five bridges studied are geographically dispersed throughout the City of Los Angeles and were constructed for a variety of reasons including the crossing of waterways and for the separation of motor vehicle from railroad traffic. Twenty of the bridges studied for this report cross the Los Angeles River. Considerations regarding the way in which these bridges can be considered "monumental" are related to size and stature as well as the manner in which the city executed the design of a bridge in a particular setting, successfully integrating functional requirements with careful consideration to aesthetics and architectural detail.

All but five of the forty-five bridges studied utilize reinforced concrete as their primary building material. The remaining five bridges are built of steel. The most common type of bridge in the population is the reinforced concrete arch. Table 1 shows the distribution of the survey population by type.

Table 1: Distribution of Survey Population by Type

Type	**Quantity**	**Percentage**
Reinforced Concrete Arch	24	53%
Reinforced Concrete T-Beam	11	24%
Reinforced Concrete Slab	3	7%
Steel Beam	3	7%
Steel Arch	2	5%
Reinforced Concrete Box-Girder	1	2%
Steel Truss	1	2%
Totals	**45**	**100%**

All forty-five bridges within the survey population were constructed between 1900 and 1950. Over seventy-five percent of these bridges were built in the period ranging from 1920 through 1939. Table 2 illustrates the distribution of the survey population by their year of construction.

Table 2: Distribution of Survey Population by Year Built

Year Built	Quantity	Percentage
1900-1909	2	5%
1910-1919	2	5%
1920-1929	20	44%
1930-1939	15	33%
1940-1950	6	13%
Totals	**45**	**100%**

The size of concrete arches is measured in various ways and is important in understanding the boldness of engineering achievement or innovativeness of construction method that a structure may represent. The bridges within the survey population vary in terms of the overall length of the structures as well as the length of their mainspans. For this study, the most important component of size that was examined was the stature of each structure, its size relative to the physical setting in which the bridge resides, owing to the additional attention given to the aesthetic qualities of these structures during the design process through the use of decorative architectural features.

The forty-five bridges studied display aesthetic details from a variety of architectural styles contemporary to the time in which the bridges were designed and constructed. Beaux Arts details are exhibited on many of the earlier bridges through the use of classical architectural forms, such as ornate columns exhibited on many of the Los Angeles River bridges built from the 1900s to the 1930s. Other bridges exhibit elements of period revival architecture, such as the Glendale-Hyperion bridges which have elements of Mission Revival. Later bridges from the early 1930s, such as the pair of bridges on North Gaffey Street adjacent to San Pedro (53 0397Y and 53C0399), incorporated the stylized geometric designs of the Art Deco movement. Moderne architectural design in structures such as the First Street Viaduct over Glendale Boulevard (53C0045) came on the cusp of a shift in design aesthetics that occurred during the 1930s and 1940s that paved the way from classicism and stylized classicism to the austere Modern designs of post-World War II bridge design.

Over eighty-five percent of the bridges in the survey population retain historic integrity. Most of the historic features of the bridges in the survey population have been maintained, usually with some small alterations or replaced components. Thus many of these bridges look much like they

did when they were constructed, and can convey their significance. Various alterations to the group of bridges that do not retain historic integrity include the replacement of all decorative architectural details, bridge widening utilizing a different structural system, and the most extreme case, the Riverside Bridge over the Los Angeles River (53C0160), in which the original concrete arch span was removed and replaced with a metal truss structure.

5. FINDINGS AND CONCLUSIONS

Of the forty-five bridges examined in this study, twenty-nine appear to be significant as City of Los Angeles monumental bridges. Eighteen of the twenty-nine are currently eligible for the National Register. Another eight of the twenty-nine have been recently evaluated under other components of the state-wide historic inventory, or other independent studies, and appear eligible for listing in the National Register. Thus, there are three bridges that appear eligible based on their historical association with the context established in this report. The City of Los Angeles monumental bridges appear significant, at a local level, under Criteria A and/or C. They appear to be significant under Criterion A for their association with urban planning policies in Los Angeles during the first half of the twentieth century, and under Criterion C, as significant examples of a master designer, the City of Los Angeles Bureau of Engineering, and would likely also be significant for their type, period, and method of construction based on their architectural significance.

The following sections provide information regarding the defining characteristics of the City of Los Angeles' early to mid-twentieth century monumental bridges, and thresholds of historic significance and historic integrity that indicate which structures may be significant within this context. There are also tables that list the current and proposed National Register eligibility of the forty-five bridges studied for this report.

As stated, bridges in Los Angeles that are significant for their association with the Bureau of Engineering's bridge program in the early to mid-twentieth century do not constitute a historic district, as defined by National Park Service guidelines for applying the National Register criteria. A historic district has a physical concentration of buildings, structures, objects, or sites with importance derived, in part, from that concentration of resources as a unified entity. The Los Angeles bridges are dispersed throughout the city and thus cannot be categorized as a historic district. These bridges may be more appropriately treated as a multiple property submission, or simply by examining individual bridges within this historic context and in relation to the historic significance and historic integrity thresholds established in this report.

5.1. Characteristics of City of Los Angeles Monumental Bridges & Thresholds of Historic Significance and Historic Integrity

The characteristics and potential significance of the City of Los Angeles monumental bridges is based on several considerations. These are related to their relative importance as physical manifestations of trends and events in city planning and transportation development during the first half of the twentieth century. They also relate to bridge size, stature, and the manner in which the city executed the design of a bridge during this period, in a particular setting successfully integrating functional requirements with careful consideration to aesthetics and architectural detail.

Under Criterion A, a bridge may be eligible, at a local level, for its association with urban planning policies in the City of Los Angeles. Such a bridge would need to be important within the context of city's transportation system and have been identified by the bureau at the time as a crucial link in the roadway network. The bridge would have to have been subjected to the City of Los Angeles Municipal Art Commission's review process, which was grounded in City Beautiful ideals up into the 1940s, and be an example of the collaborative working relationship between the commission and the City of Los Angeles Bureau of Engineering. It appears that all of the bridges that would be significant within this context have already been identified as eligible for the National Register, such as the major bridges across the Los Angeles River.

Under Criterion C, a bridge may be eligible as a significant example of its type, period, or method of construction, or as an important work a work of master designer, the City of Los Angeles Bureau of Engineering. Many of the city's bridges are not technologically significant, but may be significant for the architectural treatment they received, integrating classical or contemporary features executed in a refined manner. They can be considered important works of the Bureau of Engineering exhibiting the City Beautiful ideals or the influence of those ideals carried forth into the 1930s and 1940s. Some bridges can be considered important seminal works of the bureau while others represent the transition of their design efforts as architectural tastes and aesthetics changed in the 1930s and 1940s. The architectural styles include the earlier Beaux Arts and revival styles and the later Art Deco and Moderne styles. Bridges exhibiting Modern or International Style Modernism fall out of consideration because they do not represent the same aspects of civic monumentality of the earlier structures. Rather these later designs

promote the ideals of transportation and cost savings efficiency that were the hallmark of the post-World War II built environment. Thus, it is unlikely that bridges designed and built after World War II would be significant within the historic context established for this report, although there are some bridges that exhibit qualities of late Moderne style design.

Bridges at secondary streets within the city's roadway network exhibiting modest architectural features are likely not eligible as a monumental design by the Bureau of Engineering. Some may have interesting architectural features at the railings or abutments, for example, yet those elements are not incorporated into a larger refined design, or they exhibit a level of routine design that the city generated for some structures.

The twenty-nine bridges that appear eligible as City of Los Angeles monumental bridges share similarities, but also exhibit diversity. Seventeen of the twenty-nine structures cross the Los Angeles River and twelve are grade separations. The city built three of the twenty-nine before 1920, fourteen in the 1920s, ten in the 1930s, and two during the early 1940s. Eighteen of the twenty-nine bridges are concrete arches, seven are concrete tee-beams, and the remaining four include two steel beams, a steel arch, and a concrete slab.

Bridges not found eligible within the context described in this report, may be determined significant for other reasons. For example, the Westridge Road Bridge over Arroyo canyon (53C1686), is not a significant example within the context of Los Angeles monumental bridges, but was determined eligible under Criterion C during the concrete arch survey, part of the Statewide Historic Bridge Inventory Update of 2003-2004.

Bridges eligible for listing in the National Register must have historic significance as well as historic integrity. The integrity of bridges related to the historic context established in this report is largely encompassed in the remaining amount of original architectural features and detail on the structure and the lack of intrusions in their immediate setting. Bridges that lack historic integrity have been modified with original railings, light fixtures, and other decorative details removed, or they have adjacent structures that block the view of the original bridge.

5.2. Conclusions

The following tables summarize JRP's conclusions regarding the eligibility of the forty-five survey population bridges studied for this report.

Table 3: Bridges that appear eligible as City of Los Angeles Monumental Bridges

Bridge	Year Built	Road / Street	Feature Intersected
53 0042R	1936	State Route 110	Los Angeles River
53 0301	1940	Mulholland Overcrossing	U.S. 101
53 0392	1906	Cesar E Chavez Avenue Overcrossing	State Route 10
53 0397Y	1935	Gaffey Street Overcrossing	State Route 110
53 0595	1932	Sixth Street	U.S. 101
53 1069	1928	Glendale Hyperion Viaduct	State Route 5, Los Angeles River
53C0044	1931	Fourth Street	Los Angeles River
53C0045	1942	Beverley Boulevard / First Street	Glendale Boulevard
53C0096	1927	Fletcher Drive	Los Angeles River
53C0130	1926	Cesar E. Chavez Avenue	Los Angeles River
53C0136	1934	Sunset Boulevard	Silver Lake Boulevard
53C0161	1925	Franklin Avenue	Myra Avenue
53C0163	1925	Olympic Boulevard	Los Angeles River
53C0331	1928	Fourth Street	Lorena Street and Bernal Avenue
53C0399	1934	Elberon Avenue	North Gaffey Street
53C0545	1909	North Broadway	Los Angeles River
53C0859	1928	North Spring Street	Los Angeles River
53C1010	1910	North Main Street	Los Angeles River
53C1166	1929	First Street	Los Angeles River
53C1179	1927	Waverly Drive	Hyperion Avenue
53C1298	1938	Riverside Drive	Los Angeles River
53C1321	1907	Seventh Street	Los Angeles River
53C1375	1931	Washington Boulevard	Los Angeles River
53C1380	1933	West Boulevard Separator	Venice Boulevard
53C1880	1932	Sixth Street	Los Angeles River
53C1881	1929	Glendale Hyperion Viaduct	Los Angeles River
53C1882	1929	Glendale Hyperion Viaduct	Riverside Drive
53C1883	1929	Glendale Hyperion Viaduct	Los Angeles River
53C1884	1929	Glendale Hyperion Viaduct	Los Angeles River

TOTAL: 29 bridges

Table 4: City of Los Angeles Monumental Bridges that are already determined eligible or appear eligible[53]

Bridge	Year Built	Road / Street	Feature Intersected
53 0042R	1936	State Route 110	Los Angeles River
53 0301	1940	Mulholland Overcrossing	U.S. 101
53 0392	1906	Cesar E Chavez Avenue Overcrossing	State Route 10
53 0595	1932	Sixth Street	U.S. 101
53 1069	1928	Glendale Hyperion Viaduct	State Route 5, Los Angeles River
53C0044	1931	Fourth Street	Los Angeles River
53C0045	1942	Beverley Boulevard / First Street	Glendale Boulevard
53C0096	1927	Fletcher Drive	Los Angeles River
53C0130	1926	Cesar E. Chavez Avenue	Los Angeles River
53C0136	1934	Sunset Boulevard	Silver Lake Boulevard
53C0161	1925	Franklin Avenue	Myra Avenue
53C0163	1925	Olympic Boulevard	Los Angeles River
53C0331	1928	Fourth Street	Lorena Street and Bernal Avenue
53C0399	1934	Elberon Avenue	North Gaffey Street
53C0545	1909	North Broadway	Los Angeles River
53C0859	1928	North Spring Street	Los Angeles River
53C1010	1910	North Main Street	Los Angeles River
53C1166	1929	First Street	Los Angeles River
53C1179	1927	Waverly Drive	Hyperion Avenue
53C1321	1927	Seventh Street	Los Angeles River
53C1375	1931	Washington Boulevard	Los Angeles River
53C1880	1932	Sixth Street	Los Angeles River
53C1881	1929	Glendale Hyperion Viaduct	Los Angeles River
53C1882	1929	Glendale Hyperion Viaduct	Riverside Avenue
53C1883	1929	Glendale Hyperion Viaduct	Los Angeles River
53C1884	1929	Glendale Hyperion Viaduct	Los Angeles River

TOTAL: 26 bridges

[53] Of these twenty-six bridges, seventeen were recently found eligible as part of the Caltrans Historic Bridge Inventory Update and one, 53C0045, was evaluated individually by JRP Historical Consulting for the City of Los Angeles in March 2004.

Table 5: Previously ineligible bridges that appear eligible as City of Los Angeles Monumental Bridges

Bridge	Year Built	Feature Intersected	Road / Street
53 0397Y	1935	State Route 110	Gaffey Street Overcrossing
53C1298	1938	Los Angeles River	Riverside Drive
53C1380	1933	Venice Boulevard	West Boulevard Separator

TOTAL: 3 bridges

The bridges listed in Table 5 appear eligible for National Register listing under Criterion C. They appear to be significant for their type, period, and method of construction. They are not technologically significant; rather they are significant as important examples of bridges from the 1930s exhibiting contemporary architectural features related to Art Deco and Moderne style architecture. They are important examples of the bureau's work in the 1930s during a period of design and aesthetic transition. They are monumental in both their stature relative to their physical setting as well as in the bureau's careful attention to architectural detail found on them. They represent the importance the city placed on its transportation system and the continuing efforts to enhance the visual appearance of the city through its bridge program.

Table 6: Bridges that do not appear eligible as City of Los Angeles Monumental Bridges[54]

Bridge	Year Built	Road / Street	Feature Intersected
53 0098	1948	U.S. 101	Lankershim Boulevard
53 0130	1934	State Street Overcrossing	State Route 10
53 0382	1939	College Street Overcrossing	State route 110
53 0405	1944	U.S. 101	Los Angeles River
53C0075	1929	Sunset Boulevard	Sunset Blvd Overcrossing
53C0134	1934	Sunset Boulevard	Glendale Boulevard
53C0153	1940	Temple Street	Figueroa Street
53C0160	1928	Riverside Drive	Los Angeles River
53C0183	1911	Sierra Highway	Sierra Highway-Tunnel Station
53C0310	1940	Lankershim Boulevard	Los Angeles River
53C0867	1928	Soto Street	Los Angeles River
53C0868	1930	26th Street	Los Angeles River
53C1239	1925	Los Feliz Boulevard	Los Angeles River
53C1336	1934	Temple Street	Silver Lake Boulevard
53C1686	1928	Westridge Road	Arroyo Canyon
53C2033	1921	Foothill Boulevard	Big Tujunga Wash

TOTAL: 16 bridges

Table 7: Ineligible bridges listed in Table 6 that lack historic integrity

Bridge	Year Built	Feature Intersected	Road / Street
53 0130	1934	State Street Overcrossing	State Route 10
53 0405	1944	Los Angeles River	U.S. 101
53C0160	1928	Los Angeles River	Riverside Drive
53C0867	1928	Los Angeles River	Soto Street
53C0868	1930	Los Angeles River	26th Street

TOTAL: 5 bridges

[54] Of these sixteen bridges, two were recently re-evaluated as part of the Caltrans Historic Bridge Inventory Update and appear to be significant within contexts different than Los Angeles Monumental Bridges. These two bridges are: 53 0382 and 53C1686.

6. PREPARER'S QUALIFICATIONS

This project was conducted under the general direction of Rand Herbert (M.A.T in History, University of California, Davis), a principal at JRP with more than twenty-five years of experience conducting these types of studies. JRP senior staff architectural historian Christopher McMorris, and staff historian Stacie Ham prepared the contextual statement and conclusions for this report. Mr. McMorris holds a M.S. in Historic Preservation from Columbia University in New York. He has been with JRP since 1998 conducting historic survey and evaluation studies and other historic preservation projects. Ms. Ham holds a M.A. in History – Public History from California State University, Sacramento. Brandon J. DeLallo assisted with the graphics for this report. Based on their levels of education and experience, Mr. Herbert and Mr. McMorris qualify as historians / architectural historians under the United States Secretary of the Interior's Professional Qualification Standards (as defined in 36 CFR Part 61).

7. BIBLIOGRAPHY

Published Sources

Breeze, Carla. *American Art Deco: Architecture and Regionalism.* New York: W.W. Norton and Company, 2003.

California Department of Public Works, Division of Highways. *Biennial Report to the Governor of California By the Director of Public Works.* Sacramento: California State Printing Office, 1938.

California Department of Transportation. *Historic Highway Bridges of California.* Sacramento: California Department of Transportation, 1990.

City of Los Angeles, Bureau of Engineering. *City Engineers, 1855-1981.* Los Angeles: City of Los Angeles, Bureau of Engineering, 1981.

City of Los Angeles, Engineering Department. *Annual Report of the Engineering Department of the City Engineer*. Los Angeles: City of Los Angeles, Engineering Department, 1914-1927.

City of Los Angeles, Board of Public Works. *Annual Report of the Board of Public Works.* Los Angeles: City of Los Angeles, Board of Public Works, 1927-1939.

Crump, Spencer. *Ride the Big Red Cars: How Trolleys Helped Build Southern California.* Los Angeles: Crest Publications, 1962.

Fogelson, Robert M. *The Fragmented Metropolis: Los Angeles 1850-1930.* Cambridge, MA: Harvard University Press, 1967.

Gebhard, David and Harriette Von Breton. *Los Angeles in the Thirties: 1931-1941.* Los Angeles: Hennessey & Ingalls, Inc, 1989.

Gleye, Paul. *The Architecture of Los Angeles.* Los Angeles: Rosebud Books, 1981.

Israel, Paul Bryan. "Spanning the Golden State: a History of Highway Bridges in California." Masters Thesis, University of California, Santa Barbara, 1980.

"Los Angeles: The City Beautiful, Plans and Suggestions by Charles Mulford Robinson," Los Angeles Municipal Art Commission, 1909.

McAletser, Virginia and Lee McAlester. *A Field Guide To American Houses.* New York: Alfred Knopf, 1984.

Municipal Art Commission of Los Angeles. *Annual Reports, 1921-1929.* Los Angeles: Municipal Art Commission of Los Angeles, 1930.

Pitt, Leonard and Dale Pitt. *Los Angeles A to Z: An Encyclopedia of the City and County.* Los Angeles: University of California Press, 1997.

Sies, Mary Corbin and Christopher Silver, eds. *Planning the Twentieth-Century American City.* Baltimore: Johns Hopkins University Press, 1996.

Sitton, Tom and William Deverell, eds. *Metropolis in the Making: Los Angeles in the 1920s.* Los Angeles: University of California Press, 2001.

United States Department of the Interior, National Park Service. "Guidelines For Applying the National Register Criteria For Evaluation." National Register Bulletin 15. Washington DC: U.S. Government Printing, 1991, revised 1995.

Wilson, William H. *The City Beautiful Movement.* Baltimore: The Johns Hopkins University Press, 1989.

Newspapers and Journals

Butler, Merrill. "The City of Los Angeles Building 'Million-Dollar' Bridges." *Pacific Municipalities* (June 1929): 256-257.

Embury II, Aymar. "Esthetic Design of Steel Structures." *Civil Engineering* (April 1938): 262.

Gebhard, David. "About Style, Not Ideology." *Architecture* (December 1983): 35-44.

Hollister, L.C. "Careful Design Cuts: Construction Costs on Los Angeles Freeway Structures." *Civil Engineering* (May 1950): 43.

Huot, Louis L. "Modern Lines Are Reflected in New Los Angeles Viaduct." *Architect and Engineer* (October 1933): 25-29.

Los Angeles Times, various dates.

MacAdams, Lewis. "Keeping Merrill Butler's Dream Alive: Restoring Los Angeles' bridges." *Los Angeles Conservancy News* (March/April 1999): 1,4.

Mikesell, Stephen D. "The Los Angeles River Bridges: A Study in the Bridge as a Civic Monument." *Southern California Historical Quarterly* (Summer 1986): 365-386.

Mitchell, Stewart. "Twenty Grade Separation Projects Being Built in Southern California." *California Highways and Public Works* (May 1936): 2-3+.

Ricci, James. "A Restoration of City Bridges and a Renewal of Civic Faith." *Los Angeles Times Magazine* (October 8, 2000): 10-11.

Taylor, Frank. "The World's Worst Traffic Tangle." *Saturday Evening Post* (March 13, 1954): 42-43.

Watson, Wilbur. "Architectural Principles of Bridge Design." *Civil Engineering* (March 1938): 181-184.

On-line Sources

Caltrans Local Agency Bridge List and Log of Bridges on State Highways. See online publication of list: http://www.dot.ca.gov/hq/structur/strmaint. (Accessed February 2004.)

Rose, Julie K. "City Beautiful: the 1901 Plan for Washington D.C.," term paper from the American Studies Department of the University of Virginia. http://xroads.virginia.edu/~CAP/CITYBEAUTIFUL/dchome.html. (Accessed April 1, 2004.)

Unpublished Sources

Automobile Club of Southern California. *Traffic Survey: Los Angeles Metropolitan Area, 1937.*

California Office of Historic Preservation, "Instructions for Nominating Historical Resources to The California Register of Historic Resources," March 1995.

Charbonnet, Christian P. "Early Exposition Park: As a Model of City Beautiful Planning, 1848-1980." December 6, 1995.

City of Los Angeles Municipal Art Commission. Letter to Los Angeles City Council, February 2, 1904. City of Los Angeles Department of Cultural Affairs, Los Angeles.

City of Los Angeles Municipal Art Commission Meeting Minutes, 1903-1950. City of Los Angeles Department of Cultural Affairs, Los Angeles.

City of Los Angeles, Public Works Department. Photographic Record of Construction Work, Volumes 73, 75, 76. Los Angeles City Archives, Los Angeles, California.

Hamlin, Homer. "Bridge Construction in the City of Los Angeles." Report of the Municipal Art Commission of the City of Los Angeles, 1909.

Historic American Engineering Record. *Los Angeles River Bridges: HAER CA-271.* Division of the National Park Service, United States Department of the Interior, 2000.

Los Angeles, Bureau of Engineering. "A Proposed Six-Year Program of Post-War Construction for the City of Los Angeles," January 1944.

Maps

City of Los Angeles. Compiled by H.J. Stevenson, U.S. Department of the Surveyor, 1884.

Map of Los Angeles. Clason Map Company of California, 1920.

Security Map and Street Railway Guide of the City of Los Angeles. Security Savings Bank, 1908.

Attachments