Capturing the Layers of the Arroyo Seco Landscape

DOCUMENTING A CULTURAL LANDSCAPE USING DIGITAL STORYMAPS

By

Marisa Spinella

A Thesis Presented to the

FACULTY OF THE USC SCHOOL OF ARCHITECTURE

UNIVERSITY OF SOUTHERN CALIFORNIA

In Partial Fulfillment of the

Requirements for the Degree

MASTER OF HERITAGE CONSERVATION

MAY 2021

"The attempt to derive meaning from landscapes possesses overwhelming virtue. It keeps us constantly alert to the world around us, demanding that we pay attention not just to some of the things around us but to all of them—the whole visible world in all of its rich, glorious, messy, confusing, ugly, and beautiful complexity." - Pierce Lewis

Acknowledgements

Going into graduate school, my intention was not to earn a heritage conservation degree. But I'm so thankful this is how it turned out. Along the way, I met so many people that deserve recognition and have helped me get here. I cannot name them all here but appreciate their help just the same.

First off, I want to thank Katie Horak for her enthusiasm at the mention of merging Landscape Architecture and Heritage Conservation fields as a career aspiration. She helped me realize that these are compatible fields that together deserve my attention. I would not be here had she not suggested this as an option and spent time answering my questions.

Next, thank you to my committee members, Alex Robinson, Brian Tichenor, and Trudi Sandmeier for their guidance and support along this thesis journey. I appreciate their comments and feedback. Trudi, it was a pleasure having weekly chats in the midst of a pandemic.

Table of Contents

List of Figures

Abstract

Documentation of historic resources is an important step to help ensure significant characteristics are recorded, so they could be used for research, interpretation, and conservation. Documenting a cultural landscape can prove daunting with the layers of historic, ecological, and cultural significance. Creating an inventory, drawing as-built plans, and recording materialities provide basic documentation, but ultimately the resulting documentation can become a much more immersive experience with the right tools. In this thesis, I use the ArcGIS StoryMaps as a method of documenting landscapes, using the Arroyo Seco, a tributary of the Los Angeles River, as a case study. The case study, a conglomeration of landscapes in itself, will test the effectiveness of a self-published, digital landscape documentation tool and evaluate its ability to capture the Arroyo's complex historic, cultural, ecological and political interplays. The feasibility of platforms like ArcGIS StoryMaps to encompass the experience of a complex landscape can have new implications for helping communities document their own cultural resources first-hand.

Introduction

Defining a Cultural Landscape

The term *cultural landscape* on first glance may not seem like anything special, but the technical term is much more evocative than a layperson might understand.[1] The term as we technically understand it today originated with geographer Carl Ortwin Sauer in the 1920s.[2] Before his time, the term landscape was in reference to the paintings and fine art, but Sauer reclaimed the word to refer to a geographic place. The term was not widely used and through the 1950s, *cultural landscapes* was rarely used in print, even when appropriate. Due in part to English historian W.G. Hoskin, who researched rural landscapes, and M.R.G. Conzen's study of urban streetscapes, the term began to resurface in the 1950s.

The term has evolved over time, and no longer means quite the same as Sauer intended a century ago. J.B. Jackson helped, in part, to move the conservation dialogue forward. Quite the polymath after many years of travel and landscape observation, he incorporated many other disciplines into his landscape studies published in his magazine and taught to his students. *Preservation*, the magazine of the National Trust for Historic Preservation, honored Jackson post-mortem writing that "Jackson was the first to identify persuasively the elements that make a particular landscape American, and to explain convincingly how commerce, imagination, need, and nature collaborated over time in creating the look of the land".[3] The study identifiable characteristics that made a landscape a cultural landscape, were among his Jackson's legacies, and relates most closely with how the term is used today. The past two decades in particular have seen a larger recognition of cultural landscapes as an important aspect of heritage conservation. Particularly notable is that the "application of the concept of cultural landscape has demonstrated the value of engaging people who live and work in these places and whose commitment is

---

[1] Amos Rapoport, "On Cultural Landscapes," *Traditional Dwellings and Settlements Review* 3, no. 2 (1992): 33–47.

[2] Julia Riesenweber, "Landscape Preservation and Cultural Geography," in *Cultural Landscapes*, ed. Richard Longstreth, NED-New edition, Balancing Nature and Heritage in Preservation Practice (University of Minnesota Press, 2008), 23–34.

[3] Paul Groth and Chris Wilson, "The Polyphony of Cultural Landscape Study: An Introduction," in *Everyday America*, 1st ed., Cultural Landscape Studies after J. B. Jackson (University of California Press, 2003), 1–22.

critical to their preservation."[4] Cultural landscapes are significant because of the value put on them by the community, and it takes that same community to recognize their importance.

Cultural landscapes are geographic areas that humans have helped shape or influence.[5] At this point in history, these practically consume the earth, as humans have made enough pollution and noise to touch most every remote corner.[6] Because there are hardly any pristine places left and the term can be vague, the term cultural landscapes also encompass another layer of importance, as "associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values."[7] They fall into four categories, as recognized by the National Park Service: designed landscape, vernacular landscape, historic site, and ethnographic landscape. Each type of landscape reflects a different aspect of a particular culture. Every landscape will fall into at least one of these four categories of cultural landscapes, as a landscape created by humans will automatically be left with an impression of the culture of the people responsible for its development, but this does not automatically mean that it is historically significant.

1) A *designed landscape* was a planned attempt at laying out a landscape, guided by design principals or a recognized tradition. (Figure 0.1)

---

[4] Susan Buggey and Nora Mitchell, "Cultural Landscapes: Venues for Community-Based Conservation," in *Cultural Landscapes*, ed. Richard Longstreth, NED-New edition, Balancing Nature and Heritage in Preservation Practice (University of Minnesota Press, 2008), 164–79.
[5] "About Cultural Landscapes | The Cultural Landscape Foundation," accessed September 7, 2020, https://tclf.org/places/about-cultural-landscapes.
[6] Rachel Nuwer, "There's No Such Thing as Truly 'Pristine' Nature Anymore," accessed November 15, 2020, https://www.bbc.com/future/article/20160208-theres-no-such-thing-as-truly-pristine-nature-anymore.
[7] "Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes," accessed September 7, 2020, https://www.nps.gov/tps/how-to-preserve/briefs/36-cultural-landscapes.htm.

Figure 0.1 Descanso Gardens was designed by architect James E. Delona for E. Manchester Boddy. Photo by author.

2) A *vernacular landscape* is shaped by attitudes of the people (or person) who occupied that land. Physical, biological, or cultural presentations help shape the character of vernacular landscapes. (Figure 0.2)

Figure 0.2 Though seemingly designed with rows of Canary Island date palms, the landscape, streetscape. and views have evolved over time to reflect the everyday life of area residents. Photo by author.

3) A *historic site* is a landscape associated with significant events, activities, or people. Sometimes unassuming places, these landscapes are important because of

associations of that space, and not necessarily because of any physical vestiges of that association. (Figure 0.3)

Figure 0.3 The Lummis House is associated with Charles Lummis, an outstanding figure in the history of Northeast Los Angeles. Photo by author.

4) *Ethnographic landscapes* hold natural and cultural resources of the people there. (Figure 0.4)

Figure 0.4 The Eagle Rock is a large-scale rock formation in Northeast Los Angeles that qualifies as an ethnographic landscape. Photo from University of Southern California Libraries, California Historical Society; Photo CHS-41464.

These groups are not mutually exclusive and any given cultural landscape can fit into one or all of these cultural landscape types.

The Importance of Cultural Landscapes

In large measure, preservation is storytelling. To prove the power of a place and its history, we tell its story. A well-told story holds so much power. Rapidly advancing technology has allowed preservationists to tell these stories through different media. Stories can be oral histories, visual timelines, images, narratives, or videos. Stories prove significance. Stories save places from demolition. Stories garner support for a cause. In the conservation field, what we know as historic context statements boil down to stories.[8] Oftentimes, these are formal and professional evaluations of a place on behalf of the people who need their story told. Stories help define a culture. Stories tell our shared history. Today, we can disseminate these stories through the power of the internet and no longer necessarily need the help of professionals to tell them.

Cultural landscapes have stories to tell, but their very fragile and ephemeral states means their longevity and the longevity of their stories is sometimes uncertain. Unlike buildings which usually are continuously maintained to the same, steadfast result, we expect landscapes to evolve, grow, and react to external stimuli, like the changing seasons. Adding in factors like designed elements, a rich cultural significance, unique plant species, and wildlife, cultural landscapes can become incredibly complex and dynamic places with different meanings to different audiences at different points in time. As layers of the landscape accumulate, so does the significance, but the layers of history can appear muddled in an untold or poorly organized story. Lest stories become muddled, mis-told, or, even worse, forgotten, documentation of cultural landscapes is critically important. Urban planners and designers and landscape architects alone cannot plan for a cultural landscape, as it is often defined by its evolution.

The Cultural Landscape Foundation, the leading nonprofit protecting cultural landscapes, says that cultural landscapes are important because of what they can reveal: origins, development, and association with the nature. This is in addition to the many other opportunities

---

[8] A historic context statement is a report that organizes information about a site through cultural themes, location and timeline. They "describe the significant broad patterns of development in an area that may be represented by historic properties." It helps decision makers with questions regarding "identification, evaluation, registration and treatment of historic properties." "Secretary's Standards--Preservation Planning," accessed January 14, 2021, https://www.nps.gov/history/local-law/arch_stnds_1.htm.

for beauty, economic and ecological gains, social and recreational benefits, and as teaching tools, ultimately helping us understand ourselves better. To protect cultural landscapes means protecting a landscape legacy. Our shared heritage is embedded in cultural landscapes and we all share the onus of protecting them.

Telling landscapes' stories become critically important. Especially in a culture obsessed with visual aesthetics, it's easy to have the optics of a landscape erroneously become most important factor in determining its value. Imagine telling the story of our nation's battle sites based on the appearance. With an incorrect or incomplete story, it's impossible to judge a landscapes significance or value. Landscapes are not only what the designer intended them as. It's about what happened there, the buildings, the relation of the spaces, the animals, and the communities. These complexities are important to share so that we don't reduce landscapes to their simplest common factor we can all agree on, its present physical state.

The anthropological cultural aspects of cultural landscapes are important, but increasingly we recognize the connection between protecting the natural world and cultural landmarks. Cultural landscapes bring together the worlds of historic preservation and environmentalism for a single cause.[9] So not only are there reasons that we should preserve our heritage, but all the reasons that we should preserve green space in general also apply. Carbon sequestration, ecosystem services, mental health benefits, exercise opportunities, are just a few of the ample benefits that green space can provide and are equally worthy of protection. Greenspace should be preserved before we barely have any left. Parks and cultural landscapes work together well to perform similar functions and achieve the same goal of a connected, socially aware community.

Preserving cultural landscapes is not just a local issue either. Cultural landscapes are important to cultures all over the world, and some landscapes are considered heritage of humanity at large. UNESCO defines cultural landscapes as the landscape resulting from efforts

---

[9] Susan Buggey and Nora Mitchell, "Cultural Landscapes: Venues for Community-Based Conservation," in *Cultural Landscapes*, ed. Richard Longstreth, NED-New edition, Balancing Nature and Heritage in Preservation Practice (University of Minnesota Press, 2008), 164–79.

of both nature and man.[10] UNESCO began designating cultural landscapes beginning in 1992. To be designated, they must fall under one of the following categories:

1) Clearly defined landscape designed and created intentionally by man
2) Organically evolved landscape
   a. The relict (or fossil) landscape still has features visible.
   b. A continuing landscape perpetuates into the present moment and its story is still in progress, though features are able to prove its long-term evolution.
3) Associative cultural landscape

Although there are differences from the way that the National Park Service organizes categories of cultural landscapes, the idea remains that cultural landscapes are important to all of humanity. As important as it is to preserve these sites, it's also important to tell their stories. The stories contribute to their documentation and make their presence and significance tangible and defendable.

---

[10] United Nations Educational, Scientific and Cultural Organization, "Operational Guidelines for the Implementation of the World Heritage Convention," January 2008, 175.

Chapter 1: Methods of Documenting Cultural Landscapes

The United States, despite a comparatively short existence, has had a rich history and places that hold cultural meaning, including cultural landscapes. The National Park Service (NPS) has led the country in cultural landscape documentation, by setting standards and publishing guidelines. Landscapes are unique because their living components remain in a state of flux, unlike architectural resources that remain more consistently stable, especially with proper maintenance. Anthropogenic causes aside, natural forces, lifespan of materials, climate changes, and a long list of other stimuli have the power to shift landscape elements and threaten the integrity or shift the status quo of any landscape, designed or natural. It is important to balance the progressive, expected changes against more harmful changes that may mean deterioration. Through these shifts, a documented landscape remains a constant, a reference point, of what the landscape was at one specific point in time.

Over the years, the NPS expanded the choice of acceptable methods of documentation for historic and cultural landscapes. Today landscape conservationists have more choices than ever to document a landscape. Cultural Landscape Reports, Historic Landscape Reports, Cultural Landscape Recommendations, and Landscape Management Plans vary widely though fundamental elements are shared and are constant between each. At its most basic, ways of documenting landscapes include an existing/as-built site plan, a narrative, and photography or other imagery. Other elements like inventory, sections, detail drawings, or condition assessments can also be used to document a site. Whatever the method, documentation is an important part of any conservation process.

Internationally, the United Nations Educational, Scientific, and Cultural Organization (UNESCO), a branch of the United Nations that works for peaceful world cooperation specifically through education, science, and culture, also addresses cultural landscape documentation. Well known for their designation of Cultural Heritage Sites, sites that they find to have cultural relevancy to humanity at large, UNESCO also includes designations of World Heritage Cultural Landscapes. Documentation helps to records these sites and keep them for generations for our collective shared human culture.[11] The International Council on Monuments

---

[11] "Cultural Landscapes: The Challenges of Conservation 2002," *World Heritage Papers 7*, 2003, 193.

and Sites (ICOMOS) reviews any cultural landscape nomination. In a report providing guidance on preparing nominations, UNESCO addresses documentation in a couple ways. They say that a nominee should provide a "Present State of Conservation" giving a reference point for the physical state of a property, and address landscapes specifically to say that natural properties should include ecosystem information. [12] This then directs readers to another document which details that documentation should include printable images and an audio-visual inventory that provide a general picture of the property. They also require a narrative concerning previous designations, copies of management plans/systems, updated inventory of property, and address of records and archives storage.[13] Needless to say, documentation in whichever form, as long as it provides context to a place's significance and overall value, is important to record.

Components of Documentation[14]

The National Park Service's *Preservation Brief 36: Protecting Cultural Landscapes* delineates the important steps of the documentation process for cultural landscapes, including the planning treatment and management. Documentation typically begins with two basic elements- research and creating an existing conditions record, though ultimately the steps mentioned in the preservation brief are non-sequential. Research of the site is important in determining previous treatment history or alterations. The groundwork for significance is laid through the research. Another of the beginning steps is the documentation of existing conditions and recording inventory on site. Simply, this is as-built documentation. One of the most basic levels of documentation, this includes what features currently sit on the land, whether they're historic features, regardless of integrity or significance.

A landscape documentation would include an in-depth-exploration of 1) a landscape's significance and 2) a landscape's integrity. Site analysis examines the deeper layers of the

---

[12] ICOMOS, "Preparing World Heritage Nominations (Second Edition, 2011)" (United Nations Education, Scientific, and Cultural Organization, 2011).

[13] United Nations Educational, Scientific and Cultural Organization, "Operational Guidelines for the Implementation of the World Heritage Convention," January 2008, 175.

[14] Unless otherwise noted, information in this section is derived from:
"Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes." Accessed September 7, 2020. https://www.nps.gov/tps/how-to-preserve/briefs/36-cultural-landscapes.htm.

history and starts linking historical research with the physical landscape, and then also looking at the integrity of the landscape. As mentioned earlier, the history research determines a landscape's significance and the significance of each of the components within the landscape. From the significance, integrity identifies a place's authenticity to a specified period of significance. Typically, especially with architectural or engineered structures, a place's integrity is judged by its setting, location, design, material, workmanship, association, and feeling. While of course these are important aspects to consider with landscapes as well, sprawling landscapes don't have the same strong emphasis on materiality that buildings do. Therefore, in the case of landscapes, a more effective way to evaluate integrity is to assess character. Unique landscape characteristics place a landscape chronologically, measure human intervention over time, and help caretakers assess its overall integrity. These characteristics include natural systems and features, spatial organization, land use, circulation, cultural traditions, topography, vegetation, cluster arrangement, buildings and structure, views and vistas, constructed water features, archeological sites, and small-scale features. (Figure 1.1) By enumerating a landscape's components and filtering them through these characteristics, documentation of a landscape becomes clearer. Unique features define any landscape, and, while the scale of some landscapes prove large and unwieldy at times, these characteristics are found in every landscape, no matter how big or small.

Figure 1.1 Defining landscape significance and integrity. Image from National Park Service, screenshot by author.

From this point on in the process of evaluating and documenting a landscape, the options are more forward looking into developing philosophies and management plans. Between preservation, management, and maintenance, plus the strategy and philosophy behind it, the documentation of the physical landscape provides supportive materials for landscape stewards, the last of which would include preparing a system to record treatment, as well as recommendations for future research avenues.

The following documentation strategies incorporate several combinations of the previously mentioned aspects of documentation. Some, like a Cultural Landscape Inventory, are a simple recording of what appears physically on-site. Others, like a Cultural Landscape Report, take a more holistic approach and recognize all the factors of a landscape, including analyses and plans for long-term management and objectives. Depending on the intended objectives, each report satisfies different needs for a landscape and its caretakers.

Cultural Landscapes Inventory[15]

A cultural landscape inventory, as the name might suggests, is a straightforward method of landscape documentation, creating an inventory of features onsite. This is a baseline for any future or potential restoration by providing the basic information about the landscape: location, historical development, characteristics, and management. While this seems like a worthy task to undertake when documenting a landscape, it is hardly comprehensive. It focuses solely on the physical components and numbers of landscape characteristics. The same method carried out on a large scale is unwieldy and prone to error. With the technology and resources available today, a simple inventory of a landscape falls short of fully documenting a landscape. The intention in using this method is not to document comprehensively, but instead to provide a starting point for developing more in-depth landscape documentation, like a Cultural Landscapes Report.

---

[15] Unless otherwise noted, information in this section is derived from:
Barbara E. Slaiby and Nora J. Mitchell, *A Handbook for Managers of Cultural Landscapes with Natural Resource Values*, Woodstock, Vermont: Conservation Study Institute, 2003, https://irma.nps.gov/DataStore/Reference/Profile/2174386.

Cultural Landscape Report[16]

Cultural landscape reports have evolved over the many years of the National Park Service. Early reports focused on buildings and structures, with less attention to landscapes. And when documenting landscapes, an emphasis was put on historic research and primary source documentation, rather than providing any analysis. As time has gone on and the appreciation of cultural landscapes in their own right have grown, Cultural Landscape Reports have evolved and continue to evolve. The amount of information included in a Cultural Landscape Report (CLR) has expanded to include inventory, analysis and evaluation, as well as the classic documentation of existing conditions, and research about the site's history, defending its significance as a cultural landscape. Today CLRs serve as the primary treatment and management document for cultural landscapes, though content of a report is really determined by scope and objectives. An appreciation for field surveys, with an opportunity for a first person reading of the landscape has added depth to the documentation of a cultural landscape. Things like site boundaries, plant placement, circulation patterns are important for a comprehensive CLR. Visual and situational relationships involving views and vistas can also play a role in a thorough report.

Because landscapes often umbrella many other cultural resources, CLR might also include information on other cultural resources within the landscape. For a comprehensive CLR, a CLI and any relevant Historic Resource Studies would occur first. Usually, these two documents support each other, and then, in their completion, support the CLR. Things like Historic Structure reports though, should not be considered prior to a CLR. Information about a CLR might provide context regarding the relevant information about significance or alterations. A common period of significance for whole landscape is important to determine before the significance of a single structure or building.

A cultural landscape report has three main parts. It begins with the history and current site conditions, plus an analysis and evaluation. A second part would include treatment recommendations of the cultural landscape, followed by the record of treatment in part three.

---

[16] Unless otherwise noted, information in this section is derived from:
Robert R. Page, Cathy Gilbert, and Susan Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*, U.S. Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Park Historic Structures and Cultural Landscapes Program, 1998.

Landscape managers can refer to the CLR to help make decisions far into the future. For decisions on everything from physicality of the site, restoration and repairs, ecosystem management, and site uses, the CLR can provide a guiding light ensuring that the landscape will retain its significance.

Historic Character Study

A historic character study evaluates the "characteristics and features that define and illustrate the significance of the landscape."[17] Mapping of these features provides a tangible illustration of cultural values, and, if mapped at the same scale as natural resources, allows for multidisciplinary discussions and the identification of opportunities for protection of a mix of values. This tool is particularly valuable for large sites of several hundred acres containing large areas of natural systems. For all that it does include, a historic character study is a narrow window into the greater context that cultural landscapes operate within.

GIS Database[18]

Geographic information system (GIS) is a tool to collect and analyze spatial data. The computer program connects information to a certain identified positions on the earth. This is particularly helpful because of the layering feature that GIS provides. Between cultural resources and natural resources, among many other elements of a landscape, this method makes sure that each is clearly identified in layers. With various layers overlaid, patterns, correlations, or even potential conflicts become more obvious than they might be otherwise. If not apparent to the naked eye, GIS allows various analysis tools to find relationships and patterns between the data points provided. GIS also makes inventory easier as each landscape feature connects to a specific place on a map. When all of the relevant information appears in the program, the data points can sort by any one of the descriptors. The internet aids in documenting and sharing this information, an archival method within itself.

---

[17] Robert R. Page, Cathy Gilbert, and Susan Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (U.S. Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Park Historic Structures and Cultural Landscapes Program, 1998).

[18] "What Is GIS? | Geographic Information System Mapping Technology," accessed September 10, 2020. https://www.esri.com/en-us/what-is-gis/overview.

Of course GIS, with all of its strengths, also has many drawbacks. With such a strong emphasis on spatial analysis, many other factors are pushed by the wayside and are not displayed as prominently. An emphasis is placed on a physical point in space, and is taken away from other, less definitive factors, like feeling or materiality unless the GIS data specifically is directed to mention such aspects. The black and white of the program does not leave extra room for interpretation or reading of a landscape, even though landscapes may heavily rely on an experiential, immaterial methods of looking at a space.

Used in conjunction with other documentation methods, GIS can provide lots of insight. A historical analysis of Stourhead Landscape Garden in Warminster, England used GIS data in combination with archival data, centuries old maps drawings to document a landscape over time. The data they received from the GIS analysis provided data on visualizing ephemeral landscape characteristics, reconstructing the landscape at points in time, and evaluating topographic and land formations. Succinctly put, "GIS provides a tool to engage in the development of landscape by offering means for fresh thinking about the preservation and development of (heritage) sites and landscapes through its modelling, analytical and visualization capabilities."[19]

HALS[20]

HALS, the Historic American Landscapes Survey, was established in 2000 by the National Park Service. It was conceived as an extension of the existing HABS (Historic American Building Survey) and HAER (Historic American Engineering Record) programs. This collection of documentation methods provides a systematic, standardized method to document historic places of all kinds through a written and visual history, through a recorded history, and graphics like measured drawings and photographs. According to NPS, this collection is among the most notable architectural archives in the world, most notable for its size and organization.

---

[19] Steffen Nijhuis, "Mapping the Evolution of Designed Landscapes with GIS: Stourhead Landscape Garden as an Example," in *Mapping Landscapes in Transformation: Multidisciplinary Methods for Historical Analysis*, edited by Thomas Coomans, Bieke Cattoor, and Krista De Jonge, 95-130, Leuven (Belgium): Leuven University Press, 2019. Accessed January 16, 2021. doi:10.2307/j.ctvjsf4w6.7.

[20] Unless otherwise noted, information in this section is derived from:
Judith H. Robinson, and Noel D. Vernon, *Historic American Landscapes Survey Guidelines for Historical Reports*, U.S. Dept of the Interior, NPS, 2005. https://www.nps.gov/hdp/standards/HALS/HALSHistoryGuidelines.pdf.

The purpose of HALS is to create a permanent and publicly accessible record of cultural landscapes in the United States. The Prints and Photographs Division of the Library of Congress will hold these records for public access. HALS accepts drawings/plans, historic views, historic views, photographs, interviews, and a bibliography. They also accept potential information sources and supplemental materials, like historic images and materials. This is all accompanied by a historic context narrative that describes the historic significance and important information about its physical history.

The HALS format is not particularly conducive to thoroughly documenting landscapes, particularly any expansive landscapes. Angles, seasonality, and the living components of landscapes are difficult to capture within the limited boundaries of what HALS is formatted for. Things like videos, particularly over time, or perhaps interviews about an experience through a landscape, in some instances, may better documentation methods. Particularly because landscapes are animated, and with that brings an aspect of temporality or ephemerality, these things are difficult if not impossible to record only within the confines of a narrative or photograph, the most generous visual aspect that HALS can provide. Buildings (documented through HABS) and engineered structures (documented with HAER) are better candidates to document with this survey method. Buildings and engineered structures are often more static and are more comprehensively documented even with fewer vantage points.

The NPS makes a point when explaining HALS to mention that other sources could provide valuable information beyond what HALS provides. The list of primary and secondary data sets include more obvious information like archaeological records, original drawings, such as site plans, map, and photographs. It also includes primary sources regarding the property like wills, deeds, tax assessments, and other legal records. The classic report sources like articles, journals, oral histories, and other classic data that governments would document. Keeping all of these in mind, it is easy to recognize that HALS, just like previous methods mentioned, does not stand alone in telling the story of a landscape. Documenting a landscape thoroughly requires a multimedia compilation of relevant information based on objectives.

As technology improves, the opportunity to improve documentation and storage methods also improves. Between the storage capabilities, reliability, and worldwide accessibility of the internet, digital documentation methods are proliferating.

Other Documentation Methods

The above methods are not the only methods available to document landscapes. In addition to the digital media like videos, time lapses, and virtual tours that cannot be included in printed reports, a project might call for even more specific documentation. Lidar (Light Detection and Ranging) uses remote sensing technology and lasers to scan landscapes and record three-dimensional data, first used in other scientific fields to gather topographic data and for environmental monitoring. Archaeological sites can benefit from Lidar's ability to scan for subterranean remains and can aid in reconstruction. One of the most notable applications in cultural landscapes was at Stonehenge in Wiltshire, England. Not only was it helpful in helping address management decisions, but it assisted in modeled reconstructions of Stonehenge.[21]

---

[21] Anthony Corns and Robert Shaw, "Lidar and World Heritage Sites in Ireland: Why Was Such a Rich Data Source Gathered, How Is It Being Utilised, and What Lessons Have Been Learned?" In *Interpreting Archaeological Topography: 3D Data, Visualisation and Observation*, edited by Rachel S. Opitz and David C. Cowley, 146-60, Oxford; Oakville: Oxbow Books, 2013. Accessed December 17, 2020. http://www.jstor.org/stable/j.ctvh1dqdz.17.

Chapter 2: Digital Storymaps

How They Are Used

A story map, if taken at face value, is a visual, logical representation that synthesizes information around a single topic or narrative. Traditionally, story maps were a tool to teach language arts, meant to visualize the plot and/or locations of a story.[22] This means that a storymap can identify setting, characters, and plot parts, like the problems and resolutions. A storymap can also mean a much more literal map delineating the sequence of places where a story's plot develops. ArcGIS StoryMaps, work similarly but uses technological advances to aid in the storytelling process. While there still remains a language arts aspect to this, an online, GIS-associated tool like StoryMaps, can teach many other skills as well. Not only does it teach geographical and space-oriented thinking, like maps do, but it also teaches users to engage with various media and softwares to present information. There are other media that help presenters with non-linear storylines, but none that have quite the emphasis on spatial relationships that ArcGIS StoryMaps does.[23] In this way, it teaches how to understand scale, how to set up data sets, and how to work with ArcGIS Online, which in itself can launch into a myriad of new possibilities and opportunities.[24]

The story maps of language arts don't ring true in quite the same way anymore. Today's storymaps serve to disseminate information. Though clearly the process of making a digital ArcGIS Story Map can serve as a teaching tool, the application is meant for sharing information. The internet amplifies the impact of a StoryMap. This means that StoryMaps are not only educational for the storyteller, but for the reader. The content and purpose of story can range widely. Just as readers find their way to the story, they find their own way through the story. It works through an integration of maps, media, and narrative. There are options for non-linear and

---

[22] Isabel L. Beck, and Margaret G. McKeown, "Developing Questions That Promote Comprehension: The Story Map," *Language Arts* 58, no. 8 (1981): 913–18.

[23] Sites like Prezi, Beautiful.ai, and Focusky offer presentation templates that allow for more creative, non-linear thinking. Users can customize presentation paths to guide their audience through their points in whatever way they see best, but can readjust the order to show different relationships with the same data.

[24] Walshe, Nicola. "Using ArcGIS Online Story Maps." *Teaching Geography* 41, no. 3 (2016): 115–17.

linear methods. The story maps of today are not just limited to grade school classrooms, as they're publicly accessible once published online.

Storytelling/mapping applications allow for exploration of the topic at hand. Depending on the depth of the story and amount and diversity of the links, it can transport viewers off to far ends of the internet in pursuit of knowledge. It is publicly accessible, and intuitive in that it works like a typical website, though perhaps a bit more interactive than a typical website. Some scrolling, clicking, and adequate internet connection is really all it takes.

What are Esri Story Maps?[25]

Esri (originally an acronym for Environmental Systems Research Institute, Inc.) was founded in 1969 in Redlands, CA as a consulting firm dedicated to spatial analysis using geographic information systems (GIS).[26] GIS, computers, and technology in general, have evolved significantly since 1969. In the 1980s, Esri released ArcInfo, a GIS software sold to the public, followed by ArcView. Esri has since merged the two products to produce ArcGIS.[27] Today, ArcGIS software that can has a variety of applications including mapping, data collection and management.[28] Esri continues to release GIS-related software, including Esri StoryMap (classic story map), which later evolved into ArcGIS StoryMap software.

The Esri Story Maps software, originally introduced in 2011, gives several pre-formatted templates to tell a story. The website has a short questionnaire that help a creator pick the template that would best fit their storymap needs. Readily available templates allow the storyteller to simply fill in the blanks of their story. These templates includes cascade, journal, series, shortlist, swipe and spyglass and tour. Each option provides an opportunity to approach the story from a different angle, using spatial analysis, narratives, and multimedia.

---

[25] "Esri Story Maps - Harness the Power of Maps to Tell Your Story," accessed September 1, 2020, https://storymaps.arcgis.com/en/.

[26] Redlands Area Historical Society published a classic Story Map documenting the history of the city, in which Esri plays a large part in. The classic Story Map, in part, follows their physical development and moves through the city. Redlands Area Historical Society, "Redlands Historical Timeline," accessed November 30, 2020, https://www.arcgis.com/apps/MapJournal/index.html?appid=0df22a7eebdb485882e89536308e6e36.

[27] Ian Gregory and Paul Ell, *Historical GIS: Technologies, Methodologies, and Scholarship* (Cambridge University Press, 2007).

[28] "About ArcGIS | Mapping & Analytics Platform," accessed December 10, 2020, https://www.esri.com/en-us/arcgis/about-arcgis/overview.

- *Cascade* takes the full screen width to present the story's media, and reading through the story requires scrolling through the story's narrative.
- *Journal* allows the viewer to rea through sections, each with its own map, and all accompanied by a scrolling side panel.
- *Map series* provides a way to present a series of maps, each supported by topical information. Maps are arranged via bullets, tabs, or an expandable list.
- *Shortlist* is a similar experience though instead of tabs or bullets, the options are presented through a clickable, interactive list on a side panel.
- *Swipe and spyglass* allows for a classic comparison of maps, where a slider could present a "before and after" view.
- The *map tour*, as the name might suggest, guides the viewer through several locations on a single map.
- A basic option is also available in which a map stands alone to tell its story.

ArcGIS StoryMaps

In July 2019, Esri launched a new story map application designed to improve the user experience and increase versatility. In basic form and function, the application remains the same. Esri claims that all the original storytelling methods are available in the new ArcGIS StoryMaps application, saying that they have qualities of the original, including "*Journal*-like elements" or that storytellers can make a "*Cascade*-like story", both of which are original Esri Story Map templates.[29] Rather than having users choose a specific template, the use of a single, integrated template seems to be a major marketing point for Esri. They also now allow for unpublished changes, where edits can save privately before published, and express maps, quickly-drawn, simple maps made with an intuitive tool. They began referring to the older Esri Story Maps as "classic story maps", a term that I will also use to refer to the old version of their storymaps.

There are also other differences only apparent once immersed in the application. StoryMaps, despite its name, puts less of an emphasis on maps compared to its predecessor. There are many published stories without a spatial analysis aspect. In terms of documentation, StoryMaps allow for flexibility and choice. There are no predetermined templates, but rather a

---

[29] Owen Evans, "Moving to ArcGIS StoryMaps," ArcGIS StoryMaps, January 2021, https://storymaps.arcgis.com/stories/472a6ddd582b40b58a5a6af2c30a4573.

much more open path to design a story, and any special feature is incorporated into one singular, all-encompassing format. Just as methods of documenting cultural landscapes can vary, this application allows for a similar freedom. Storytellers can include landscape inventories, focus more on images and photos, a striking historic narrative, complex maps, or a combination of any of these in order to prove the significance of their cultural landscape.

Precedent in Documenting Cultural Landscapes with the StoryMap Tool

There are several examples of using a mapping application to document cultural landscapes. With the relatively recent advent of digital story maps, they are not yet accepted as a formal documentation method. However, because of the many of customizable options, using StoryMaps as a documentation method is possible. We know the elements that comprise a CLR, as a paper document reads more linearly, but an interactive application might need guidance not necessarily for structure but for points to touch upon or how to make the most of the options provided.

The National Park Service (NPS) published a classic story map for National Park Service workers to explain the four classic Story Map templates for use on NPS websites. [30] Within their story map introducing the concept, NPS has many other examples of Esri story maps embedded, displaying the application's versatility and range. One showcases their volunteer efforts in 2018, another more audio-based story map guides listeners through a soundscape, while many others are classic historic stories of the landscapes and culture. Each of them effectively uses the application to tell a story. Documentation in its simplest form records the physical presence of a landscape and tells the origin/explanatory story of the land. In this case, it is inherent in the very nature of the storymap application to document when the subject matter pertains to a cultural landscape or any historic subject.

---

[30]"Elevate Park Stories with Story Maps," accessed October 9, 2020, https://www.nps.gov/gis/storymaps/cascade/v1/index.html?appid=f7335e43d15247efaf371b2554c45468. Jessica Weinberg McClosky et al., "Make Park Science Exciting with Story Maps!," accessed January 15, 2021, https://www.nps.gov/gis/storymaps/cascade/v1/index.html?appid=66a09ab13ea24343a9965ed869f68c0a. The story map is undated, and initially refers to the older generation templates as options. Near the end, it addresses the 2019 release of ArcGIS StoryMaps, that at the time of publishing the website, were not compatible with the NPS website.

A noteworthy NPS storymap documents the Arlington Memorial Bridge in Washington D.C.[31] According to NPS Cultural Resource GIS Specialist Diedre McCarthy, this story map was successfully used as part of the documentation needed to fulfill Section 106 requirements.[32] Despite any official storymap standards or prescriptive structures, the NPS compiled relevant information and links, like prior HAER documentation. (see Figure 2.1) All of this information could be compiled into a Cultural Landscape Report but it would be unwieldy and lengthy, particularly if the reader is searching for a specific topic. Compiling the information in a central location in a Story Map allows for easy access and exploration of the Arlington Memorial Bridge, as well as a variety of related stories, all from the one storymap.

Figure 2.1 NPS Story Map documenting Arlington Memorial Bridge in Washington, D.C.
https://www.nps.gov/gis/storymaps/mapjournal/v2/index.html?appid=8a63cee7ea6c44cc95003250a160c8e7. Storymap by National Park Service. Screenshot by author.

One cultural landscape related example of an ArcGIS StoryMap published in December of 2019 shows a story of Waipapa ki Arapuni Cultural Landscape in New Zealand's North Island.[33] (Figure 2.2) Mapping serves as the main storytelling device, overlapping layers of history and culture as the cascade-like story scrolls through. This story had a strong spatial component, so it made sense to make a series of maps. An example like this is also important to

---

[31] "Arlington Memorial Bridge | HABS/HAER/HALS," accessed September 10, 2020, https://www.nps.gov/hdp/exhibits/amb/amb_index.htm.
[32] Deidre McCarthy, Interview by Marisa Spinella, Video conference, October 29, 2020.
[33] Raukawa Charitable Trust, "Cultural Landscape Mapping," November 2020, https://storymaps.arcgis.com/stories/691db3cd72f540ab972fe239e9ceece5.

show the versatility of the platform, highlighting not just governmental organizations, but it also meets the needs for private and non-profit organizations. Story maps can aid in efforts to advocate and educate in this case.
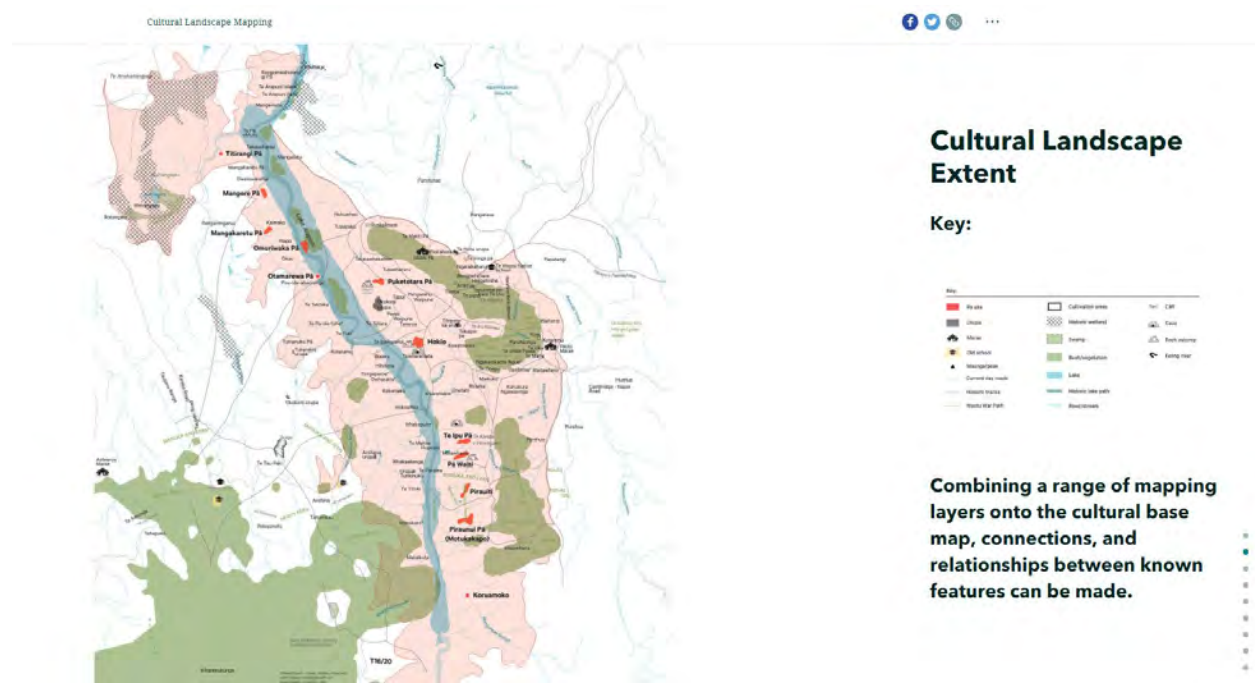

Figure 2.2 ArcGIS StoryMap of Waipapa ki Arapuni Cultural Landscape in New Zealand's North Island had maps overlaid on satellite imagery of the landscape. The side provides some commentary and diagrams. https://storymaps.arcgis.com/stories/691db3cd72f540ab972fe239e9ceece5 Storymap by Raukawa Charitable Trust. Screenshot by author.

Another story map comes from a student documenting specific topics relating to San Francisco and Gilroy (a town right outside of San Jose) in Northern California.[34] (Figure 2.3) The objective for the author, Lauren Paredes-Garcia, seems to be to fulfil the requirements for an assignment that she references. This more casual narrative relies on text and images to tell this story. In fact, the author did not use a single map in telling her story. It read much like a blog would, and so it did not provide a unique view of the landscape. In this case, maps could have helped her point, but were by no means necessary to telling her story. This type of storymap proves the versatility of the platform, as well as the low threshold required of the storymap maker. Whereas other Esri software make take many hours to understand and master, storymaps can be created by just about anyone looking to publish online.

---

[34] Lauren Paredes-Garcia, "Story Mapping: A Cultural Landscape," August 2020, https://storymaps.arcgis.com/stories/38ccdab2689a4f65986e239c336d271f.
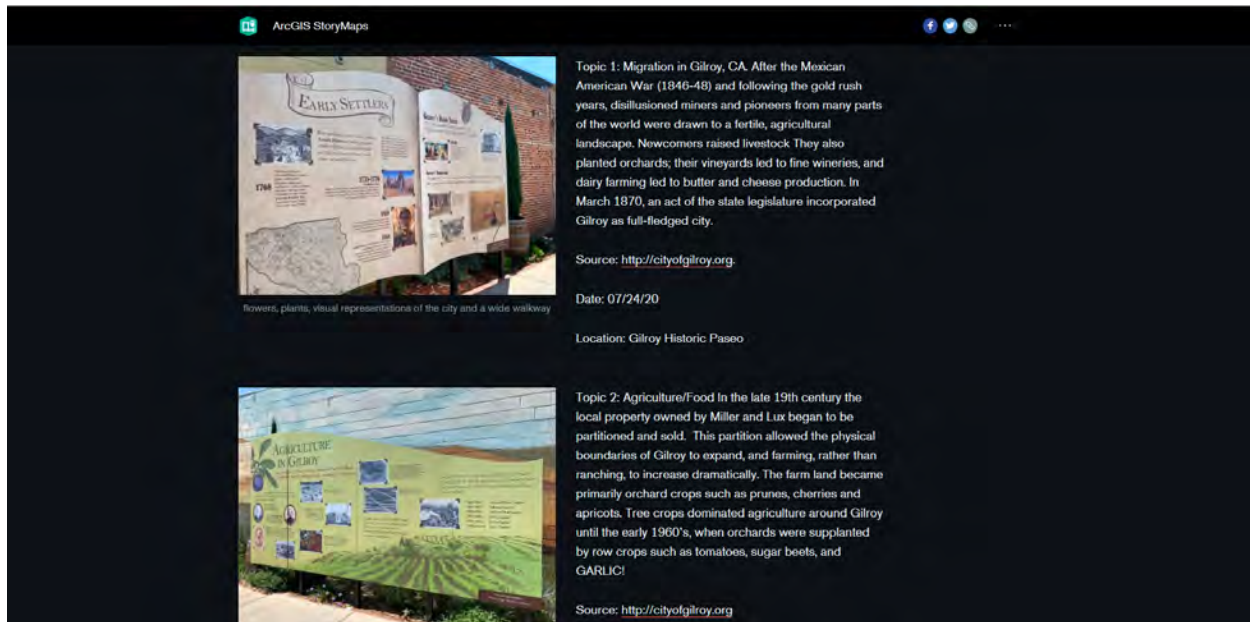
Figure 2.3 ArcGIS StoryMap describing a trip to Gilroy, CA. This storyteller did not use maps or spatial analysis features, but just used the platform to publish photographs and text online.
https://storymaps.arcgis.com/stories/38ccdab2689a4f65986e239c336d271f Storymap by Lauren Paredes-Garcia. Screenshot by author.

From these three examples, as well as many other examples found through ArcGIS, we can deduce the application is accessible and serves both the professional and the amateur landscape documentarian. Even with little experience and without using any GIS mapping methods, the application serves its purpose and allows people a platform to publish a variety of stories and visuals. Particularly with the ArcGIS StoryMaps app (in comparison to the ESRI Story Maps), the app relies on the documentarian or storyteller to know how to frame their story effectively and succinctly. In this way, it really is no different than any standard blog or website. A trip to SquareSpace or Wix can serve an identical purpose. Although it can be used for simple narratives, the spatial analysis component really makes this platform what it is. While a Google Map with pushpins might be another alternative, to have these features integrated into a single place. For those already familiar with ArcGIS, ArcMaps, and other Esri software, rarely do these maps stand alone. They work as a unit of a larger project. ArcGIS StoryMaps allow the whole project to unite in one place so that maps, narratives, and other media can unite under a single platform.

As technology and its accessibility continues to improve, opportunities and options for documentation methods also improve. An example of this are the storymaps produced through Esri. The first version launched was Esri's Story Maps templates, an online application for storytelling using interactive maps and multimedia. Since the introduction of Story Maps in 2011, Esri has developed and released the new generation of storymaps, coined ArcGIS StoryMaps. The intention is to have the July 2019 addition eventually replace the Esri Story Maps as the new map option. By July 2024, classic Esri templates will no longer be available to create new content and storytellers will have no choice but to use the ArcGIS StoryMaps. Just like with every technological update, the new generation of templates presents their own opportunities and challenges. [35]

---

[35] Owen Evans, "Moving to ArcGIS StoryMaps," ArcGIS StoryMaps, January 2021, https://storymaps.arcgis.com/stories/472a6ddd582b40b58a5a6af2c30a4573.

Chapter 3: Testing Storymaps as a Documentation Tool

Selecting A Landscape to Document

To see if digital storymaps provide a platform suitable for documenting cultural landscapes, I put them to the test. First came the process of selecting a cultural landscape to document. I decided upon the Arroyo Seco (Arroyo), a tributary of the Los Angeles River in Los Angeles County, California. It is a twenty-five-mile seasonal river that flows from the San Gabriel Mountains, through several cities and unincorporated Los Angeles County, eventually meeting with the Los Angeles River just north of Elysian Park. Though linear, it does hold a shared history along its length, and that culture seeps into the adjacent neighborhoods. The Arroyo runs through municipalities overseen by multiple city and federal organizations. A non-profit organization, the Arroyo Seco Foundation, founded by Charles Lummis, serves as a central organization for the length of the waterway, as they work for a "harmonious, integrated approach" as they advocate for the Arroyo.[36] The Arroyo Seco watershed spans forty-seven square miles, meaning that any surface runoff from this area finds its way to the Arroyo Seco.[37] This watershed boundary served as a perfect boundary for landscape documentation.[38]

As a resident of Northeast Los Angeles, the Arroyo quickly came to mind as a relevant cultural landscape appropriate for this project. This stream is part of my personal neighborhood cultural heritage, but also speaks to many communities of people and their cultures. I have spent my life hearing about Lummis Days and visiting the museums of the Arroyo.[39] Functionally, the

---

[36] Arroyo Seco Foundation, "About | Arroyo Seco Foundation," n.d., https://www.arroyoseco.org/about.htm.

[37] Army Corps of Engineers, "Arroyo Seco Watershed Ecosystem Restoration Study Los Angeles County, California," *Feasibility Scoping Meeting Documentation (Final)*, August 2011, 218.

[38] Even though I designated a forty-seven square miles as a landscape boundary, most of the landmarks associated with the culture of the Arroyo are located within a mile or two of the Arroyo. The ecology and natural features are also most intact in the areas directly adjacent to the river. Evidence of Arroyo culture and ecology can be found throughout the watershed, though in lesser concentrations.

[39] Lummis Days is an annual weekend meant to celebrate the shared culture of Northeast Los Angeles. The events began in 2006 and two years later, the Lummis Days Community Foundation, the organization that runs the Lummis Days, was founded. Events include workshops, music and entertainment, poetry readings, art exhibitions, film screenings, talks, and events specifically for families, like puppet shows. These are located throughout Northeast Los Angeles, like the Lummis House, Sycamore Grove Park in Highland Park, and Southwest Museum, as well as at participating art galleries and educational institutions like Occidental College.
Museums of the Arroyo (MOTA) Day is an annual event to highlight the history, art, and architecture of the Arroyo and Los Angeles area. Six museums along the route of the Arroyo Seco, including the Gamble House, Heritage Square, the Los Angeles Police Museum, Lummis House, Pasadena Museum of History, and the Southwest Museum, welcome the public free of charge on MOTA Day.
Lummis Days Festival. "Lummis Days Festival." Accessed December 6, 2020. http://www.lummisday.org.; "The Museums of the Arroyo," n.d., http://www.museumsofthearroyo.com/.

Arroyo helps keep neighborhoods on its banks dry during stormy months. Numerous bridges forge a connection across the Arroyo, linking Los Angeles city to Pasadena and South Pasadena. Neighborhoods within its watershed feel its presence daily. With this sort of local importance, I felt that it was worth investigating more. The next step was looking into the layers of meaning and significance within the Arroyo's vast landscape.

Research and Investigation[40]

Before even considering anthropological and cultural importance, let us consider how the Arroyo plays an inherently ecological role in the west San Gabriel Valley. The life-giving force of the Arroyo stands first and foremost in its list of characteristics. It is a waterway at its core and serves the wildlife, plant communities, and ecosystems it meanders through. The Arroyo waters the wooded canyons in the San Gabriel Mountains, majestic Pasadena oak trees, and the sycamores of Highland Park's Sycamore Park. Water enabled the habitat to take root, as well as served the early farming communities around the river. At the headwaters in the mountains is the best place to see the ecological power of the Arroyo as an ecological hotspot. The remaining sections of native habitat along the river give a glimpse into how the length of the river might have looked at one time. Several parks along its length retain natural features and provide ecosystem services. The native oaks, sycamores, and cottonwood grace the higher banks of the Arroyo and strengthen ecological ties that make it a prime wildlife corridor. Hikers frequent this undeveloped land as many trails cross these foothills. Recreational trails are present through La Cañada and Pasadena, and the installation of bike paths in Highland Park make it a destination for bicyclists.

Long before any settlers, the Native American Indian tribes of the Tongva were fond of the land between the Los Angeles and San Gabriel Rivers. They referred to it as Hahamongna, meaning "the land of flowing waters, fruitful valley." When the Spanish arrived at this same area and found the land, they called it the Arroyo Seco, translated to the "dry river." The Arroyo Seco

---

[40] History of the Arroyo Seco can be found in these locations:
Rick Thomas, *The Arroyo Seco,* United States: Arcadia Pub., 2008.
Tim Brick, "A Brief History of Water Development in the Arroyo Seco," n.d., 9.
For an investigation into the bohemian and Arts and Crafts segment of the Arroyo's history, see:
Sharyn Wiley Yeoman, "Messages from the Promised Land: Bohemian Los Angeles, 1880–1920" (Ph.D., United States -- Colorado, University of Colorado at Boulder, 2003),
http://search.proquest.com/docview/305334399/abstract/7A98162CBB6E40A8PQ/1.
Information in this section and the storymap itself was derived from sources in the bibliography.

serves as the spiritual center of the Arts and Crafts Movement in Los Angeles. Los Angeles in the beginning of the twentieth century served as a collector of similarly minded people who believed in the values of the Arts and Crafts Movement, including respect for local materials and construction methods, practical design, and sensitive site layout. Within the Los Angeles area, the Arroyo served as a hotspot for Arts and Crafts and bohemian living. Charles Lummis, a journalist and author with a great appreciation for the American Southwest, settled near the Arroyo Seco and built his own home of Arroyo river rocks at El Alisal, where he hosted many parties. Painter William Lees Judson established a fine arts college in the Garvanza area of Highland Park. When this college merged into the University of Southern California and became its first dean, the old home of the college became his stained-glass and fine arts studio and business. Judson also founded the Arroyo Guild of Craftsmen, a group of artists in the Arroyo Seco area. The history of the Arroyo as a significant place started with these artist communities that saw the inherent value of the Arroyo, and took inspiration from it.

In the times of Judson and Lummis, the Arroyo Seco presented as a classic soft-bottomed creek with water freely flowing over smoothed river rocks. Today, after many floods, the Arroyo Seco has paved, concrete banks to direct the large amounts of water away from properties. With ample bridges, several dams, and the Arroyo Seco Parkway alongside it, the Arroyo also serves as an extraordinary engineering feat. While its concrete banks serve as its most defining feature, the river today has landmarks in adjoining neighborhoods tied closely with its identity and function. Notable architects like brothers Charles and Henry Greene, Frank Lloyd Wright, and Myron Hunt have found inspiration on the banks of the river and their legacy lives on there through their works.[41] The Arroyo is a give and take between creators and the landscape.

These narratives are sometimes at conflict with each other. Yes, wildlife relish in the parks along the river's edge, but the infrastructure is clearly at odds with nature, with concrete banks and cars rushing by on the freeway. The freeway itself is a crucial link between Pasadena

---

[41] Charles and Henry Greene have several houses in the Pasadena area, most notable of which is the Gamble House (1908). Nearly around the block from the Gamble House is Frank Lloyd Wright's 1923 Millard House, also known as La Miniatura. Myron Hunt designed all around the Pasadena area, but most connected to the Arroyo are the Rose Bowl (1922) and La Casita del Arroyo (1933), a community meeting hall.
David Gebhard and Robert Winter, *An Architectural Guidebook to Los Angeles*, 6th ed. (Santa Monica, CA: Angel City Press, 2018).

and downtown Los Angeles, but at what cost? Sharp turns and quick on- and off- ramps are a recipe for disastrous crashes.

The layers of significance of the Arroyo made a relevant and important place to document. Because of its importance to various communities, the Arroyo already has extensive scholarship, studies, and research focused on it. Compiling and organizing the information from the various jurisdictions and organizations through traditional tools seemed limiting. I hoped digital storymaps through would provide a more useful way to organize the information.

Selecting an Approach and Method

Traditional documentation methods fell short of providing satisfactory way of documenting a landscape of this magnitude. Even with a platform as accommodating as Esri's StoryMaps tool, telling the story of a landscape the size of the Arroyo with all of its details and complexities comes close to impossible. Such a simple structure of narrative and inventory would not capture the breadth of the story of the Arroyo. A digital storymap allows the flexibility to customize documentation to fit the broader nature of my Arroyo investigation. This led me to one of the first decisions about the storymap—I would need to take a broad approach, only documenting the larger scale characteristics. Documenting the Arroyo Seco would require curatorial decisions and lots of editing, as I can't include every building and structure, or every piece of vegetation. I did not want an avalanche of details to hinder the broader narratives I did want to tell.

HALS Guidelines for Historic Reports, the nation's guiding report on cultural landscape documentation, provides a set of resources that a HALS submission would include, like photography, plans, narrative, etc.[42] Among their counsel in how to document a landscape, HALS enumerates characteristics of landscapes that help establish historic context, significance, and integrity. Broken down into two categories: 1) Natural Features include Topography, Vegetation, and Water; 2) Designed Features include Land Patterns, Circulation, Views and

---

[42] Judith Helm Robinson, Noel D. Vernon, and Catherine C. Lavoie, "Historic American Landscapes Survey Guidelines for Historic Reports" (National Park Service, 2005), https://www.nps.gov/hdp/standards/HALS/HALSHistoryGuidelines.pdf.

Vistas, Water, Buildings and Structures, Small Scale Elements, Archaeological Sites, and Other.[43]

I chose these categories to provide a loose structure for my storymap, as these discrete characteristics would transfer well into a clear, navigable format. A storymap would also have the capabilities to include any other characteristics or notable features that help establish the unique sense of place of the Arroyo.

[43] Materials on the National Park Service website categorized the characteristics a bit differently, as thirteen distinct categories, listed as Archaeological Sites, Buildings and Structures, Circulation, Cluster Arrangement, Constructed Water Features, Cultural Traditions, Land Use, Natural Systems, Small Scale Features, Spatial Organization, Topography, Vegetation, and Views and Vistas. There are some minor differences between the two. To account for the discrepancy, Cultural Resource GIS Facility Chief Deidre McCarthy says "The NPS cultural landscapes program produces cultural landscapes reports, and HALS produces its landscape reports for documentation. They do have different standards as a result. The NPS cultural landscapes program reports are designed for an NPS audience and describe not only the historic landscape but discuss alternatives for preserving/rebuilding/providing alternatives for maintaining the landscapes." Interview by Marisa Spinella. Video conference, October 29, 2020.

OVERVIEW OF LANDSCAPE CHARACTERISTICS

Landscape characteristics include tangible and intangible aspects of a landscape from the historic period(s); these aspects individually and collectively give a landscape its historic character and aid in the understanding of its cultural importance. Landscape characteristics range from large-scale patterns and relationships to site details and materials. The characteristics are categories under which individual associated features can be grouped. For example, the landscape characteristic, vegetation, may include such features as a specimen tree, hedgerow, woodlot, and perennial bed. Not all characteristics are always present in any one landscape. The following landscape characteristics may be documented in a CLR.
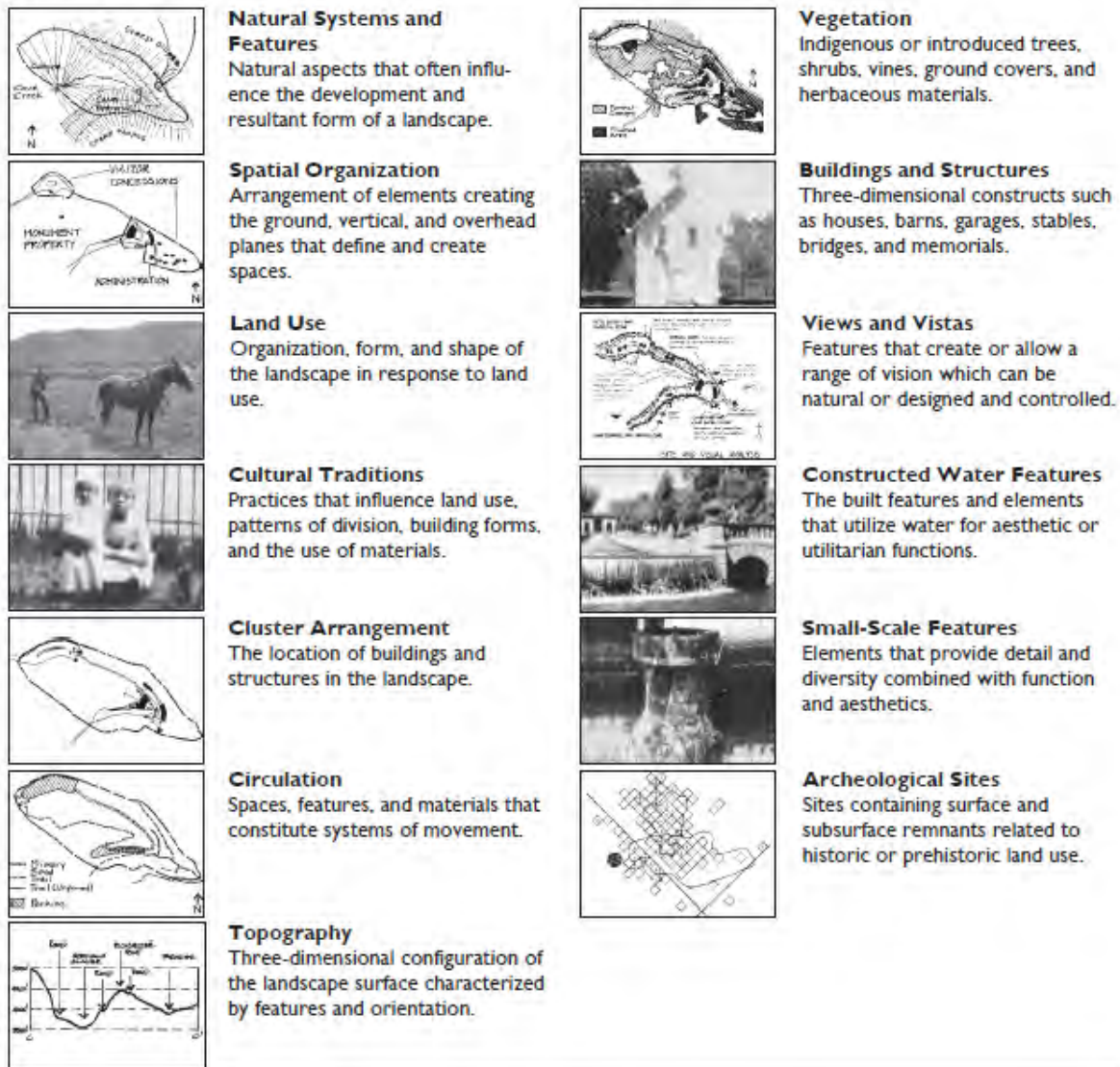
Natural Systems and Features
Natural aspects that often influence the development and resultant form of a landscape.

Spatial Organization
Arrangement of elements creating the ground, vertical, and overhead planes that define and create spaces.

Land Use
Organization, form, and shape of the landscape in response to land use.

Cultural Traditions
Practices that influence land use, patterns of division, building forms, and the use of materials.

Cluster Arrangement
The location of buildings and structures in the landscape.

Circulation
Spaces, features, and materials that constitute systems of movement.

Topography
Three-dimensional configuration of the landscape surface characterized by features and orientation.

Vegetation
Indigenous or introduced trees, shrubs, vines, ground covers, and herbaceous materials.

Buildings and Structures
Three-dimensional constructs such as houses, barns, garages, stables, bridges, and memorials.

Views and Vistas
Features that create or allow a range of vision which can be natural or designed and controlled.

Constructed Water Features
The built features and elements that utilize water for aesthetic or utilitarian functions.

Small-Scale Features
Elements that provide detail and diversity combined with function and aesthetics.

Archeological Sites
Sites containing surface and subsurface remnants related to historic or prehistoric land use.

Figure 3.1 Characteristics of cultural landscapes defined in A Guide to Cultural Landscape Reports. Image by National Park Service.

Once I started understanding storymaps, it was also important to me to have my storymap be accessible and an easy place to explore. This meant easily and quickly jumping from section

to section. So, despite having settled on these discrete characteristics to help guide my formatting, thirteen separate categories still proved an unwieldy number to elegantly navigate. It was clear that deletion of sections was not an option, as it would not give a full indication of the landscape, which is a crucial part of the documentation process. Instead, I chose to consolidate and merge categories together. For instance, Natural Features is broad enough to include Vegetation, and Spatial Organization could serve as an umbrella term for the Land Use, Cluster Arrangement, and Circulation sections. This also meant that I could nest storymaps within my main storymap to accommodate all the relevant information. My goal was to keep the main storymap direct and navigable without too many tangents. Tangents have a place when exploring a topic, which is ultimately part of the goal of my storymaps as a conglomeration of information. However, I wanted the main storymap to remain a launching point rather than a source itself.

With these distinct documenting categories in mind, I started a storymap that would fit my needs in documenting the Arroyo Seco. The Esri website included both Classic Story Maps and the new ArcGIS StoryMaps options. I started with the ArcGIS StoryMaps, but after creating a new story, on first impression, it was blank and lacked structure. I resorted back to Classic Story Maps, where they provided several structured templates, and a quiz for users unsure of what format would best suit their needs. (Figure 3.1) With the help of this quiz, I decided on a map series format, arranged in tabs. (Figure 3.2) These tabs gave me to the opportunity to lay out the characteristics in a clear and discrete way. I assigned a characteristic to each tab I created and kept relevant information confined to that tab. It would allow for an easy exploration of topics, jumping from one tab to another, rather than relying on a guided narrative requiring attention start to finish. (Figure 3.3)
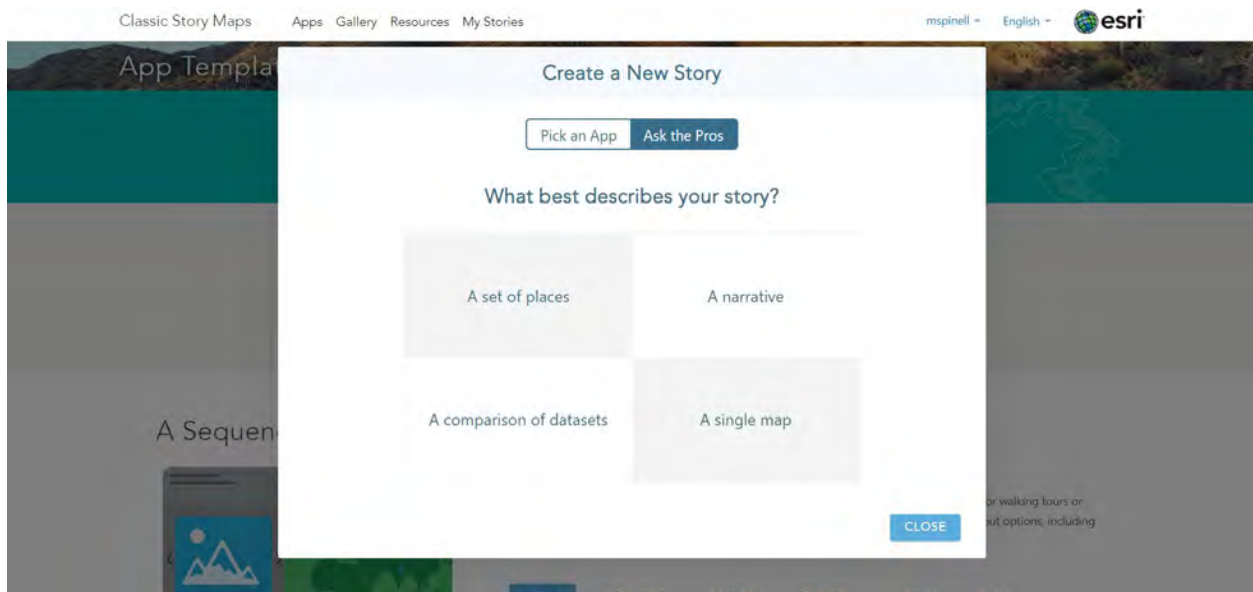
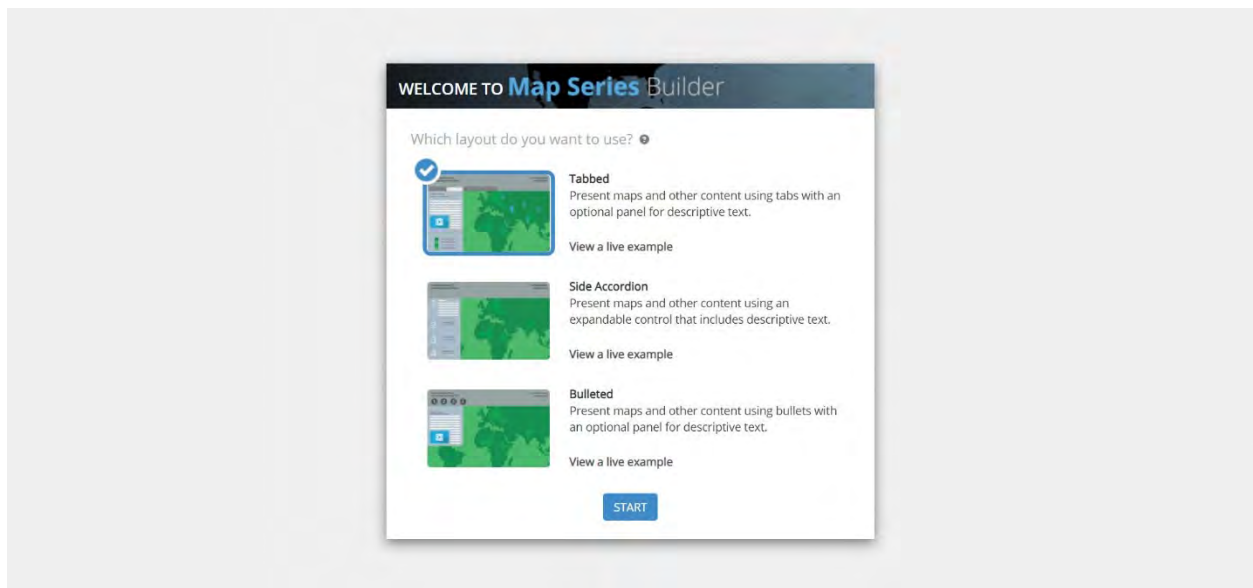*Figure 3.2 Quiz to help storytellers choose the best story format. Screenshot by author.*

Figure 3.3 Options of Map Series offered. Screenshot by author.
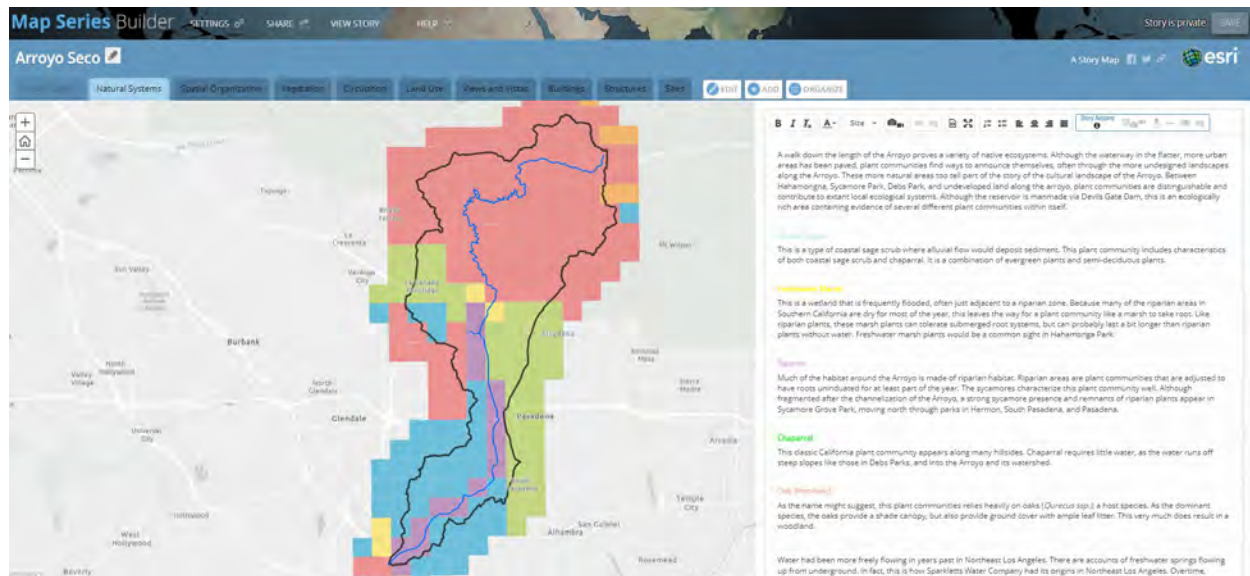
Figure 3.4 How the Map Series appeared using a tabbed format to organize landscape characteristics. Screenshot by author.

One week while I worked on my storymap, Esri must have made an update, and the interface of storymap options upon login were scrambled compared to what I had seen previously. The website listed my one, mostly empty ArcGIS StoryMap that I had made experimentally when exploring storymap options. Access to my previous maps had become more difficult, but I did find a roundabout way to access my Classic StoryMap eventually.

Old vs New Templates

This detour in the process prompted me to explore the difference between the two options. It was clear Esri was promoting the ArcGIS StoryMaps over any of the others available. Esri was fading out Classic Story Maps in favor of ArcGIS StoryMaps. They gave a timeline on how and when this transition would happen. Most helpful from a story-maker's perspective, they also gave ample information on how to transition from one application to the other.[44] Helpfully, they keep this page updated, though even this helpful post seems to act more as an advertisement more than a practical go-to guide for tips and tricks on transitioning. While it took a bit of exploring to become acclimated to the style, learning the app itself came easily and without strife.

---

[44] Owen Evans, "Moving to ArcGIS StoryMaps," ArcGIS StoryMaps, January 2021, https://storymaps.arcgis.com/stories/472a6ddd582b40b58a5a6af2c30a4573.

Included in the help tab of every StoryMap is a rundown of many possible reasons a user might need help. The very helpful Release Notes section gives a full rundown of what Esri added, changed, and fixed on StoryMaps.[45] Seeing the evolution in their release notes gives me confidence that StoryMaps will continue to improve and grow. Esri seems aware that their nascent program might contain errors, and it looks like they are actively putting in the effort to make those necessary improvements and helpful additions.

They claim that there are more options with the new templates. They want to "empower every storyteller" and "digital storytelling on your own terms". Just like the pros and cons of a blank slate, this can liberate some storytellers, but also intimidate others when the site provides no specific structures to populate.

A pro to this transition rests in the compatibility of the platforms. Esri does suggest that storytellers transfer their stories to the new templates. Additionally they say "That there's not a strict one-to-one relationship between the elements of classic stories and the "blocks" in ArcGIS StoryMaps."[46] The platform change transformed my a tabbed Map Series into an endless scroll. To mitigate the lack of tabs, I opted for the simplest storymap version that includes navigation headings on a horizontal toolbar, rather than the "side car" method that retained the priority focus on maps. Even with small workarounds like this, there really are a lack of directly equitable elements in each of the templates that can make the transition more difficult for someone looking for something specific or a particular feature the previous version had already exposed them to.

One of the first notable differences was the newer version trying to upsell a higher-level subscription. With some quick exploration of the platform, I used the free version available to those with an ArcGIS Online subscription. The free, public account is recommended for those using StoryMaps for nongovernmental and noncommercial purposes. With this in mind, I decided against subscribing to higher level accounts, and after some initial use of the platform determined that this had the level of customization and adaptability that I needed. Advanced account levels allow storytellers to embed web pages directly to the storymap, rather than simply linking. While this feature could prove abundantly useful for someone trying to sell products or a

---

[45] "Release Notes—ArcGIS StoryMaps | Documentation," December 2020, https://doc.arcgis.com/en/arcgis-storymaps/reference/release-notes.htm.

[46] Allen Carroll, "Recreating a Classic Story with ArcGIS StoryMaps," *ArcGIS Blog* (blog), November 11, 2019, https://www.esri.com/arcgis-blog/products/story-maps/mapping/recreating-classic-story-maps-in-arcgis-storymaps/.

service, or promote a brand, I am not, so they are not useful to me. Linking to outside pages away from the main storymap proved effective as is. Keeping with the available story themes also required no large sacrifice, but would have been an additional feature, along with the ability to track viewership with Google Analytics. While helpful or perhaps even fun to look into, this again was not a necessity. For basic users who don't have extensive coding experience, this simple level suited my needs quite well despite any initial hesitations I had at first mention.

Chapter 4: Analysis and Evaluation of ArcGIS StoryMaps

Platform Evaluation

By using the platform to research and document the Arroyo Seco landscape, I was able to sample the variety of options for formatting and customization that the platform had to offer in the free version. This included visualization options like maps and express maps, photo collections, and nested storymaps. I used the platform not just in isolation as a documentation tool, but I used it to explore other cultural landscapes. This also means that I developed opinions on the way that the new platform might be massaged into an even better version or what's working great as-is. Many of the core qualities of storymaps ended up as both pros and cons, so user discretion is advised.

Ease of Use: Storyteller

Despite their differences, both options offer intuitive, user-friendly customizing options. I originally preferred the templates of Esri Story Maps because of the structured approach. As a storyteller, I could focus on the story and information rather than on the graphic elements. I quickly discovered that ArcGIS StoryMaps aren't quite as graphically customizable as they had led me to believe. However, it did allow for customizations in that it served as a catch-all for the media the story required, rather than restricting the choice to a single template from start to finish. The open-ended nature of platform proved to be both a pro and a con throughout various points of the storymapping process. The tool provides a structured template, and I populate the fields with my story and supporting media. Despite my desire for more structure, the goal was easy enough to understand.

Without any specific templates in place, a storymap can be easily populated with just words and pictures, much like any blog or simple website, leaving out the mapping aspect. People without cartographic or GIS interest can create a story, or document a cultural landscape, just with a narrative and images. This allows better access for the greater public who can ease into the idea of creating storymaps slowly without having to simultaneously create a complex, dynamic ArcGIS map. Ease of use from the story creator is pretty high, and the threshold for new users low.

With rapidly evolving technology, there are no specific guidelines or outlines on what a storymap should look like as a method of documentation, past what is typically included in a CLI or CLR. There aren't yet any procedures about what order it should go in, specific information it should include or link to, or the resolution of photography and imagery posted. Telling the story of a cultural landscape can get progressively more difficult when there is a standard to follow. Documenting cultural landscapes through digital storymaps right now in the absence of a set of standards to follow is a freeing and creative endeavor. Though those two words might not be the perfect recipe for an acceptable HALS submittable for instance, digital storymaps might be the place where cultural landscape documentation has permission to take a creative turn, and the decision is up to the user whether or not they will stay.

Ease of Use: User Experience

As a landscape conservationist and documentarian, I primarily see the stories through the lens of storyteller, but from the consumer's end of the story, a storymap retains its standing as an effective tool. Anyone with access to the internet can access a storymap, and the whole process is innately intuitive. For as complicated as GIS and maps can get behind the scenes, reading and interpretation of the maps is generally straightforward. The application allows for interactive maps. Users can expand the maps, zoom-in for specifics, or zoom-out for context.

Allowing people to explore and choose their own destination puts the user in control of what topics they would want to peruse. Exploring a cultural landscape can lead readers in so many various relevant directions. In my topic, for example, biologists might look more at my vegetation section and the links featured there, while a tourist unfamiliar with the area might want to explore options for local trails or locate historic buildings and structures. As customizable as the maps are from the storyteller point of view, the stories can also be suitable for a personal exploration through links to external information and other interactive features.

While entertaining, a storymap can also serve as an easily digestible educational platform. Storymaps can link or embed everything from YouTube videos cruising down the parkway, to iNaturalist sightings of wildlife, to the official Judson Studio website, to access educational information about local history, and ecology, or methods of stain-glass window production. In the age of remote learning, storymaps can provide a virtual tour of a real landscape so education and field trip-like experiences can continue despite any traveling hurdles.

Storymaps can help make learning fun with the right framing of a subject. Best of all, they are highly customizable for any learning opportunity.

Though overall ArcGIS StoryMaps are an intuitive platform, there are areas for improvement. Finding stories outside the ArcGIS StoryMaps platform proved difficult. Using Google, I searched the internet for one of the platforms I mentioned earlier in my thesis, "Story Mapping: a Cultural Landscape" by Lauren Paredes-Garcia which explored San Francisco and Gilroy. Using key terms like the author's name, storymaps, ArcGIS, and the storymap locations, Google did not link me to the proper link. I made my search terms more and more specific, until I included just the author and the storymap's title, but still to no avail. One of the benefits of the platform is its intuitive nature, but its inaccessibility to those searching the internet subtracts from that approachable quality and ease of use. From the user-end, remembering a story but not having the ability to search it, or even search it using relevant search terms is frustrating.

Using the Features of the Platform

1) Slideshow

The slideshow option (see Appendix A) was available in beta phase when I was making my StoryMap. For my use, the slideshow worked well, and I only detected one small hiccup that would point to it being in beta phase. The software can't read if the image should be in landscape or portrait orientation. If I upload a portrait-oriented image and more vertically oriented, the program stretches it to fit the width of the space allotted for the image. This skews the photo beyond anything recognizable. Then I, as the storyteller, manually adjust the settings to "fit" rather than "fill." In my experience, I rarely, if ever, have wanted a photo to fill because of the image distortion. The default should be to keep the image proportions, and anything else should be included in manual settings. It also suggested that my caption in the panel was too long, which would require scrolling. (Figure 4.1) The story as a whole was lengthy already and would definitely need scrolling, even when navigating within the story. While I suppose it could be considered a helpful note in some circumstance, it didn't seem necessary. Given the freedom the ArcGIS StoryMaps provide, this moment of policing seemed out of place.
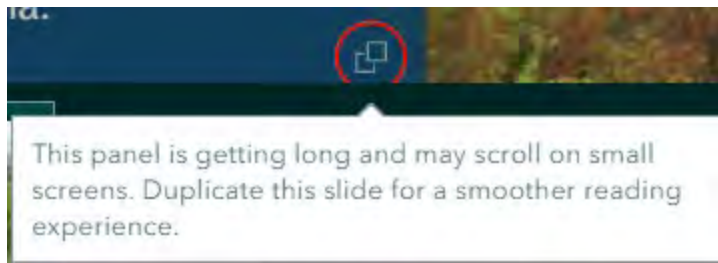
Figure 4.1 Potentially helpful error message. Screenshot by author.

2) Sidecar (See Appendix C)

When starting my storymap with ArcGIS StoryMaps, my inclination was to use the sidecar option. This made maps the focal point, and the sidecar acted like a caption to the main event. When I figured out there wasn't a way to navigate easily within the storymap with Sidecar, and wanting to avoid never-ending scrolling, I pivoted because my story would be too long. From this, I learned there are two circumstances where the Sidecar does do well. A shorter story fits the format, so scrolling would be necessary but not tiresome. I used the Sidecar to write my secondary story about the Arroyo Seco Parkway. I found it was helpful in setting up the story, telling its history, and then wrapping up with what we see today and modern topics associated with the highway. The template helped move the narrative along, and components within the story are rearranged easily.

3) Map tour (See Appendix B)

I found map tours straightforward and intuitive. Both making and navigating the tour had a clear interface. The map tour is one of the templates that seem to be replicated from the previous ESRI Story Map templates. It would be challenging to accomplish this very specific task without having a map tour tool provided, so it made sense that it would be included. I used the map tour to map the locations of Buildings and Structures within the Arroyo Seco landscape. It performed well, quite the way I would hope a map tour would. The pins on the map responded when I clicked a specific building, and vice versa, so that an image of the building/structure and information appeared after clicking on a location pin.

4) Swipe (See Appendix A)

While I liked the idea of sliding a bar to see the difference between two images, this really works best for maps. I tried using this for an archival aerial photograph of the Arroyo and

compare it to a modern-day Google Satellite image. Painstakingly, I cropped the Google image so the two matched. I redid this several times before admitting defeat, but this could have been user error. I definitely would find it easier to position two maps with the same base map rather than two images. The story map provides no option for adjusting the images after placement which added to the frustration of the situation. Otherwise, at face value, it sounds like a fun tool to make an easy comparison.

5) Express Maps (See Appendix C)

Admittedly, I did not expect too much from Express Maps before trying it out. By the sound of it, an Express Map sounded imprecise and messy. Once using the feature though, I immediately shifted sides. ESRI markets it as a way for anyone with any level of mapping experience to make a map.[47] Upon quickly whipping up my own Express Map, the process was everything they marketed to be, as the toolbar was simple, straightforward, and intuitive. (Figure 4.2) I wanted a quick map of the Arroyo Seco Parkway without having to draw my own in Arc Maps. I also didn't want to have to find a highway map and isolate the small portion of the 110 Freeway that I found relevant. Again, neither of these options are dreadfully prohibitive to the process, but a bit cumbersome at most. The Express Map solved my trivial predicament.

Figure 4.2 Express map option bar. Screenshot by author.

The application provides a select few commands to manipulate the map. I quickly traced over the Arroyo Seco Parkway from Glenarm Street in Pasadena where it starts down to College Street in Chinatown in Los Angeles with the freehand tool. I easily edited my tracings, and the ends of segments snapped together. I placed a push pin at each of the termini by searching by location. It took less than 5 minutes total to produce a clear, direct map depicting the route of the Arroyo Seco Parkway. I imagine it working equally as well in a variety of other situations concerning documentation and cultural landscapes. I consider Express Maps a great addition to the StoryMaps template.

---

[47] Will Hackney, "Use Express Maps to Help Tell Your Story," ArcGIS StoryMaps, accessed December 2, 2020, https://storymaps.arcgis.com/stories/3dac3a051c2e40929a327619315d44d1.

Formatting and Details

Oftentimes the small details make or break an experience, particularly with technological issues. There are several small instances of this while working with ArcGIS StoryMaps, in addition to the ones I've already mentioned. First off, after highlighting text and inserting a link, the link is no longer active. After hovering, a textbox does pop up with the website address, but the web address displayed is not active. There is no way to just to click the link to the website while still in editing mode. Even highlighting the text again in an attempt to copy and paste the link into a browser doesn't work. This makes checking references and fixing broken links cumbersome.

Another problem is the lack of accommodation of an undo option. As I tried out different options and effects in a platform unfamiliar to me, I repeatedly found myself reaching for the control + Z option (or any on screen equivalent), but to no avail. With the widespread accommodation of undo on most programs, this turned out to be a bigger sticking point than I would have anticipated when encountering a program where it didn't work. Plus, ArcGIS StoryMaps automatically saves, so I can't exit or refresh the page as a workaround if I tried something particularly destructive I wanted to undo. Another detail affecting my interaction with the platform was the way that the screen didn't adjust to show what/where I was writing. Particularly for the sidecar display option, the text was large enough that if I had a small paragraph on the screen, kept it visible for reference as I continued to write, and wrote past the bottom of the screen, the view didn't adapt to show the caret. None of these are dramatic flaws to the system, but the small oversights do affect user interface with the storymaps program.

If everything worked properly, it would be easy to ignore the small details from the user end, but the snags are very apparent and affect ease of use. With the amount and frequency of updates, it seems they should eliminate these hiccups soon, but it the meantime it's something I notice. I take most of these as evidence that it simply hasn't been around for long, compared to many other programs I'm accustomed to using. In fact, the main parts of making a story map work really well, which only sets apart these idiosyncrasies even more to make them worth mentioning.

Storymaps as a Documentation Tool

It is clear that I caught ESRI in the middle of developing their StoryMaps platform. While not yet completely smooth and errorless, I do believe the platform is equipped to document landscapes. It provides an open-format method for communicating history, narrative, location, images, plus other media, and connecting them all together for a cohesive account. While storymaps are not yet in widespread use for this specific purpose, they have the potential to link to almost any technological media to document the significance of a landscape. Whether through images or experiential videos or artful prose, a storymap can make a landscape accessible via the internet. And at its simplest, that is what documentation is for. In the case of storymaps, these inventories, reports, and GIS data aren't just for professional determination of significance, but also for education. Storymaps, because publicly accessible through the internet, straddle the line between interpretation and documentation. Anyone can explore the information and story behind a landscape just as they would explore a landscape itself.

Flexibility and adaptability are the best part of using digital storymaps to document landscapes. Landscapes provide a unique challenge in documentation because of their evolution, growth, seasonality, etc. Landscape documentarians usually can only freeze a landscape at one point in time when using traditional documenting methods. Storymaps, unlike a submitted report, accommodate changes and additions over time. This is particularly important in times where landscapes face change not just through predicted changes like seasonality or basic growth, but climate change, severe weather events, floods, and fires. A storymap can include not just a maintenance plan, but a polished report of treatments. It can tell a story up to the present moment. For a living landscape, an adaptable documentation method like a storymap seems especially useful.

Does it work?

The ArcGIS StoryMap does serve as a suitable place to document cultural landscapes. With the very nature of landscapes as dynamic, living sites, it is only right that conservationists use a method able to reflect and document those qualities. Unlike a static report, storymaps have the capabilities to shift and evolve with the landscape and more closely and accurately document change over time.

Conservationists do need a clear goal in mind going into the storymaking process. Because storymaps are such dynamic application with a variety of uses, setting an objective can be an invaluable part of the story making process. Classic documentation is possible. A storymap can serve as a digital version of a HALS report or a Cultural Landscape Inventory. Stewards of cultural landscapes can also use story maps as an information platform to disseminate information, a marketing tool to promote their site, or perhaps a interpretative tool to accompany visitors to the park.

In the case of any documentation pursuit, not just digital storymaps, defining a boundary of a landscape is important. The boundary determines what will and will not be included in the documentation process, but also the depth that the documentarian storyteller can achieve. Because a storymap is digital, it is possible to document a large site and go in depth, as the application does not limit you, but readability decreases with length in the new format of ArcGIS StoryMaps. It is a living document and endlessly editable, so it remains a possibility, though again prior to starting, story map creators should decide the purpose of the story map and move toward that goal before attempting to compile all subject matter tangentially related to their cultural landscape. In the case of the Arroyo Seco, it certainly would be possible to continue to add information as the breadth and depth of Arroyo related topics are seemingly endless. My approach, with the expansive landscape that it is, veered more toward a broad understanding of the landscape generally. Depending on the timeframe, in general the depth of information is proportional to the size of the cultural landscape. A smaller landscape can allow a deep dive into the detailed past of the site.

Storytelling versus Documentation

Storytelling and documentation go hand in hand and the power of each is enhanced by the other. While one aspect of documentation is storytelling in the form of a historical context statement, which puts the resource into a historic framework. The name of the platform suggests it be used for storytelling, but its power doesn't stop, or even start, there. Surely, like any published website or media platform, a stylized design with professional, well-lit photographs might garner more attention. However, that's not always the goal of documentation.

Documentation might also include primary resources, like newspaper articles, building permits, and any wide variety of data sets. While they are an important aspect of documenting a

cultural landscape, while trying to tell an engaging story, the extra information is unnecessary and perhaps a bit dry depending on the audience. When using StoryMaps as an advocacy tool to appeal to the general public, a flashy display might fit well, and primary sources will remain as links to the main webpage. However, when performing more technical documentation or to address certain documentation standards, these primary resources are important and deserve more conspicuous placement.

When approaching StoryMaps, as mentioned before, it's important to keep goals in mind. Will the StoryMap tell a story or will it document? While it can do both simultaneously and include everything, knowing the audience would determine what goes on display. Documenting and storytelling go well together, and StoryMaps can serve both needs with a discerning curator as author.

Other Issues to Consider

Indications for Similar Platforms

While this thesis was about ArcGIS StoryMaps specifically, there are several other options to present information in a non-linear format. Keeping in mind how technology can proliferate, we can expect that the popularity of user-friendly, media rich online platforms will continue to grow. We've already had platforms like Prezi to present information in a way to promote connections between ideas. Within universities too there are platforms that encourage the same interconnected thinking. A platform called Scalar engages readers in a parallel manner by incorporating multi-media into a longform web-authoring online publishing tool, this time targeted at publishing scholarly material.[48]

Self-Publishing Gives Everyone a Platform

Story maps, as they are self-publishing, give a voice to the voiceless. Any marginalized, disenfranchised, or underrepresented community can have the chance to document a building, structure, or cultural landscape important to them and their community. Even in the context of the present-day Arroyo Seco, we continue to have to tell tough stories. The Devil's Gate Reservoir Restoration Project by the Los Angeles County Public Works would remove sediment

---

[48] "Alliance for Networking Visual Culture," accessed November 4, 2020, https://scalar.me/anvc/.

from behind the Devils' Gate Dam to help increase water capacity of the dam.[49] Two non-profit groups, the Pasadena Audubon Society and the Arroyo Seco Foundation, joined together to help protect the area from the invasive dig. A settlement was reached in July 2020.[50] In order to publicize their point of view, the Pasadena Audubon Society and Arroyo Seco Foundation did have a website, but having a single clear place to tell the story of the Hahamongna Park and Reservoir's natural history would be helpful, especially in the event that something like this happens again. [51] Others can still defend the need to remove sediment in a storymap of their own documenting Arroyo Seco flooding. Community groups could document the site through the lens of their community.

A story map gives a voice to everyone, to an extent. Ideally, a reader might want to contribute to an existing storymap rather than make their own. At the moment, the platform doesn't allow for dialogue between the author and reader, though it sounds like an option Esri might want to consider in later versions. The creator or creators of the storymap remain the sole editors over time. However, in documenting cultural landscapes, some characteristics are open to discussion, like cultural traditions, whereas others, like natural systems and features or vegetation might be better left to geologists and botanists. An option to embed a crowd-sourcing platform could provide some solutions, but at the present moment, the closest possibility is to link to other websites which do have these options, like iNaturalist for sharing wildlife sightings and ecological data.

Story maps are also great for intangible heritage. [52] Heritage that is not defined by a physical object can easily take form and live on through a story map. Story maps are nonprescriptive and are flexible in the form they take. Though images may mean more visual engagement, a story map can still document folklore with pictures. It can document languages through videos and audio clips, with ample opportunity for captions, explanations, and translations. Story maps accommodate written descriptions and narrative to document intangible

---

[49] "Devil's Gate Reservoir Restoration Project," Public Works Los Angeles County, December 10, 2020, https://pw.lacounty.gov/swe/devilsgate/.

[50] Andre Coleman, "County Approves Local 'Big Dig' Settlement – Pasadena Now," Pasadena Now, July 7, 2020, https://www.pasadenanow.com/main/board-of-supervisors-approves-local-big-dig-settlement/.

[51] "Save Hahamongna," accessed December 7, 2020, https://savehahamongna.org/.

[52] "UNESCO - Text of the Convention for the Safeguarding of the Intangible Cultural Heritage," accessed December 20, 2020, https://ich.unesco.org/en/convention.

heritage that may not have another media type to capture it. Alternatively, any information associated with a previously undocumented ritual (or other intangible heritage) can then collect in one shared space. An online application gives people with intangible heritage a platform to share on equal footing with buildings and landscapes. Anyone with internet access can then access that knowledge of intangible heritage.

Cons of Self-Publishing

While storymaps are accessible anywhere you access the internet, readers will not find storymap by accident. Searching and finding stories through ArcGIS StoryMaps is deliberate, as ArcGIS StoryMaps aren't always able to be searched from the internet at large. Google and other search tools dominate the internet and, in many ways, decide the conversations the world has around certain subjects. This narrows the audiences and the reach of these stories for self-publishers that want to disseminate their stories far and wide.

Just like anything self -published on the internet, whether it be social media or open-source informational websites, sources must be verified, and viewers are wise to approach with a small dose of skepticism. A site that works with scholars exclusively helps eliminate some of that skepticism. With ArcGIS StoryMaps, and other sites that publish presentations, the material may not get fact checked. With documenting cultural landscapes, it's important to verify that creators are credible on their particular subject, have done the appropriate research, and are qualified to speak on behalf of a particular group. However, a large benefit of ArcGIS StoryMaps over other publishing opportunities is the versatility of the embedded maps. Other platforms don't feature interactive maps. If they do, like Scalar, it's a Google Map with pushpins. The analysis, engagement, and visual presentation isn't quite as dynamic as it is for any application associated with ArcGIS and Esri.

The more these kinds of opportunities become easily and publicly accessible, the need for standardization grows. Digitalization can recreate impressive experiences, but that same technology is subject to edits and tampering. Guidelines adapt with the times, ensuring they address each new method. For instance, HABS 1935 Guidelines about photography vary greatly compared to the most recently published 2020 guidelines.[53] 1935 HABS talks about cloth

---

[53] HABS was selected instead of HALS in this instance because HALS was only established in 2000. The eighty-five year difference in technology with HABS makes the difference in technology much more apparent.

backgrounds to capture detail and discusses only the most fundamental aspects of photography. The 2020 Guidelines on HABS, HAER, and HALS photography touches upon aerial photography and includes an appendix on digital print cards.[54] Several factors make ArcGIS StoryMaps, or any story map type application, different than typical documentation that may require guidance. A story map is self-published, digitally stored, living document. With any new developments, some oversight is required, and it's remains true in this case as well.

The 1935 HABS Guidelines also state that "Clearness of detail and truthfulness of record are most important."[55] This remains true all these years later, and having guidelines and standards helps ensure that this remains the case. This is among the most important values to strive for during documentation. Storymaps can include extensive detail, especially with features like slideshow, and have no length restrictions. For some kinds of documentation methods that could span several pages, this might be very useful.

Looking Forward

The progress of technology snowballs. In an attempt to document cultural landscapes or any other site, building, structure, et cetera, documentarians, researchers, and historians rely on having a consistent, steadfast method of documentation and retrieval. Moreso than anyone historians are aware of the ephemeral nature of time and trends. With technology and the internet, companies frequently update apps and websites to improve and stay relevant. In a blog post announcing the update, they say "As excited as we are about this release, in many ways it's just the beginning. We have plans for lots of new functionalities, and we'll be making frequent updates."[56] Our capitalist society expects companies to move forward and strive for more. It shows continued responsibility of the apps they produce. The ongoing support they offers for their applications is admirable, but frustrating for anyone looking for consistency or a streamlined approach.

---

[54] "Heritage Documentation Programs: HABS/HAER/HALS Photography Guidelines" (National Park Service, June 2015), https://www.nps.gov/hdp/standards/PhotoGuidelines.pdf.
[55] "Specifications for the Measurement and Recording of Historic American Buildings and Structural Remains" (United States Department of the Interior, November 1935), https://www.nps.gov/hdp/standards/1935guidelines.pdf.
[56] Allen Carroll and Prasad Sathya, "The New ArcGIS StoryMaps Has Arrived, Marking a New Era in Digital Storytelling," *ArcGIS Blog* (blog), July 3, 2019, https://www.esri.com/arcgis-blog/products/arcgis-storymaps/mapping/arcgis-storymaps-has-arrived/.

The classic story map app will not be updated or offered support past 2024. ESRI insists that these classic story maps will still be available, but surely the lack of updates makes a difference in how these stories are told and shared. Available does not always equate with easily accessible, and the links along with the stories they tell will quickly go the way of Neopets and Myspace.[57] Though their links might still operate doesn't mean that they are posted or shared the way the latest update might be. Plus, each of the apps is searchable separately. Searching through countless applications will become needlessly cumbersome, especially when both are under the same mother company.

Overall, the benefits of StoryMaps far outweigh any cons for purposes of advocacy and education. It is digitized and saved online for longevity. For accessibility, it's easily navigable and quite intuitive for public use. It works well as learning and entertainment tools, as it is exploratory, navigable, and non-linear. Looking towards the future, it incorporates media impossible to capture on paper, like videos, interactive maps, links, and virtual tours. It's impossible to predict what the future of documentation might look like, but certainly this seems like a step in the right direction. It's versatile enough to fit a variety of documentation needs, but also fits the needs for other needs relating to treatment options. If media can accurately recreate an experience in a landscape, this means it is also an accurate documentation tool. Self-publishing, media-rich platforms are ideal for documenting landscapes, but users and information do need verification.

However, the risks remain too large to depend on storymaps as the sole place to save documents. Publishing a storymap means compiling of other sources, and trusting the many links will stay active over time. This source of documentation relies heavily on the long-term resilience of primary source links and the organization posting them. When I publish my story on the Arroyo Seco, I trust that those websites, website URLs and the content on those webpages will remain. In fact, the whole concept of documentation relies on it, at the unknowing discretion of those maintaining those linked websites. Downloading each individual primary document and uploading it back onto a storymap would take enormous time, effort and digital storage, increasing the hurdles and reducing the accessibility for creators; however, it would better ensure

---

[57] Neopets was a website allowing users to take care of virtual pets, popular in the early 2000s. Around the same time, MySpace was one of the first widely used social media platforms. Both are still accessible with valid logins but are not nearly as popular in 2020 as they once were more than a decade ago.

the longevity and reliability of the storymap and its ability to document for any length of time even close to the 500 years that the Library of Congress does. Plus, having each of those primary documents uploaded means an unentertaining scroll, reducing readability for casual visitors. If documentation of a cultural landscape, and therefore the possibility of reconstruction of a cultural landscape in the event of a natural disaster or other threat, hinges on links staying active, chances of links being active are small, and the chances of losing the landscape tremendous. While storymaps are useful for all of the reasons I've stated, I do believe that there are truer, safer methods to document landscapes in the long term, and keep storymaps more for educational and advocational purposes of documentation.

Conclusion

Documenting landscapes is an integral part of preserving landscapes. Natural flux is an expected part of landscapes, so separating the difference between gradual, organic change and drastic upheavals can help manage landscapes over time. Even the healthiest, most protected landscapes will change, as the idea is usually not to simply freeze a place in time. Documentation methods like HALS, Cultural Landscape Reports, Cultural Landscape Inventories, and GIS are great existing tools, but technology has encouraged methods beyond words on paper.

Like most research projects, this thesis is only a launching point. Many other topics and research questions arose while writing my thesis. Shifts in technology and culture are impossible to predict, but each of those new technologies should be evaluated for their own effectiveness as a documentation or storytelling method. Just as the storymaps of today can incorporate videos and virtual tours, future storymaps or documentation methods should be able to integrate the media of that time. It is important to actively develop landscape documentation methods rather than passively reacting to new software launches. Future projects could explore the characteristics of an effective landscape documentation method and deliberately design a platform to serve that specific purpose. Judging a platform after its launch in some ways feels like trying to adapt our existing documentation methods into the features that Esri provided. With so much conservation work being reactionary in the first place, documentation is a prime area to make advances.

Using the software and its interface can sometimes end up being the easy part, as editing and curating a cohesive, engaging story is the true hurdle. Of course it is not Esri's responsibility to help with the process of storytelling and editing, but ArcGIS StoryMap storytellers are only as powerful as the tools and features that Esri provides. More than knowing about the specific features, it boils down to whether this is a useful tool for a specific project. While this thesis parses the user accessibility for the documentation of the Arroyo Seco, the unlimited other options for storymaps should each be considered, as storymaps might help tell some stories clearly but muddle others. A low threshold for entry may mean content is not vetted before publishing.

Not just technologies themselves, like specific hardwares and softwares, but the state of the internet in the future will influence documentation. The research and information collected about the Arroyo Seco on my own project depends on the long term stability of the internet. HALS, HABS and HAERS all require durability for 500 years. While impossible to think of in modern times when our world revolves around the life on the internet, no one can guarantee the staying power of the internet, and, by extension, anything saved there. This means that any of the storymaps or other documentation online are not completely secure. At the speed that technology moves, and the directions it takes, the function of the internet or staying-power of the internet is yet to be determined. And even if everything continues to work as we know it today, there are other companies that serve as gatekeepers to the cultural landscape documentation. What will happen to the published information if something happens to Esri? How will someone find a specific cultural landscape storymap without a reliable search engine? An impossible to find storymap is useless.

Cultural landscapes face threats to their existence every day. Documentation will not solve those problems, but it is one of the most active ways that preservationists can actively contribute to the perpetuation of cultural landscapes. There is no substituting a visit to a cultural landscape, as even the best virtual reality experience cannot completely reproduce a cultural landscape. Immersive experiences help foster stewards of the future to continue the advocacy of a place. Community members should continue to identify their local cultural landscapes worthy of documentation. Having the community direct the conversations about their cultural heritage is a powerful movement that sadly is not widely practiced yet.

Even with the best method of cultural landscape documentation, we can continue with the advocacy and education that accessible storymaps help with. The accessibility is one of the storymaps main strengths and should be capitalized upon by conservationists and preservationists. The work is not over once a landscape is documented, but it serves as a powerful tool in helping achieve the ultimate goal of sustaining landscape for future generations.

Bibliography

"About | Judson Studios." Accessed September 12, 2020. https://judsonstudios.com/historystaff/.

"About ArcGIS | Mapping & Analytics Platform." Accessed January 15, 2021. https://www.esri.com/en-us/arcgis/about-arcgis/overview.

"About Cultural Landscapes | The Cultural Landscape Foundation." Accessed January 15, 2021. https://tclf.org/places/about-cultural-landscapes.

"Alliance for Networking Visual Culture." Accessed November 4, 2020. https://scalar.me/anvc/.

"Archeology and Historic Preservation; Secretary of the Interior's Standards and Guidelines." *Federal Register* 48, no. 190 (1983): 26.

"Arlington Memorial Bridge | HABS/HAER/HALS." Accessed September 10, 2020. https://www.nps.gov/hdp/exhibits/amb/amb_index.htm.

Army Corps of Engineers. "Arroyo Seco Watershed Ecosystem Restoration Study Los Angeles County, California." *Feasibility Scoping Meeting Documentation (Final)*, August 2011, 218.

Arroyo Seco Foundation. "Arroyo Seco Foundation," n.d. https://www.arroyoseco.org/ .

"Arroyo Seco Master Plans - Department of Public Works." Accessed August 26, 2020. https://www.cityofpasadena.net/public-works/urban-forestry/arroyo-seco/arroyo-seco-master-plans/.

"Arroyo Seco Parkway Project Gains Impetus: Plans Advanced to Link Los Angeles With Pasadena by New Direct Route." *Los Angeles Times (1923-1995); Los Angeles, Calif.* November 15, 1936.

"Author and Publish Your First Story—ArcGIS StoryMaps | Documentation." Accessed October 11, 2020. https://doc.arcgis.com/en/arcgis-storymaps/get-started/author-and-publish-your-first-story.htm.

Beck, Isabel L., and Margaret G. McKeown. "Developing Questions That Promote Comprehension: The Story Map." *Language Arts* 58, no. 8 (1981): 913–18.

Birnbaum, Charles A. *Preservation Brief 36: Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes*. Washington, D.C.: Preservation Assistance Division, National Park Service, U. S. Department of the Interior, 1994. http://www.nps.gov/hps/tps/briefs/brief36.htm.

Bowling, Harry. "Wild Woods in Heart of a City: Arroyo Seco, Our Most Unique Park, Is in Danger of Extinction Arroyo Seco in Danger." *Los Angeles Times (1886-1922); Los Angeles, Calif.* November 26, 1922, sec. Arts and Leisure.

Brabec, Elizabeth, and Kristina Molnarova. "Pluzina: The Issues of Documenting a Vernacular Landscape," n.d., 4.

Brick, Tim. "A Brief History of Water Development in the Arroyo Seco," n.d., 9.

———. "The Arroyo Seco Watershed Restoration Feasibility Study," n.d., 36.

"Bridgehunter.Com | Arroyo Seco." Accessed September 13, 2020. https://bridgehunter.com/category/waterway/arroyo-seco/.

Buggey, Susan, and Nora Mitchell. "Cultural Landscapes: Venues for Community-Based Conservation." In *Cultural Landscapes*, edited by Richard Longstreth, NED-New edition., 164–79. Balancing Nature and Heritage in Preservation Practice. University of Minnesota Press, 2008. http://www.jstor.org/stable/10.5749/j.cttttnzq.13.

Carroll, Allen. "Recreating a Classic Story with ArcGIS StoryMaps." *ArcGIS Blog* (blog), November 11, 2019. https://www.esri.com/arcgis-blog/products/story-maps/mapping/recreating-classic-story-maps-in-arcgis-storymaps/.

Centre, UNESCO World Heritage. "Cultural Landscapes." UNESCO World Heritage Centre. Accessed September 19, 2020. https://whc.unesco.org/en/culturallandscape/.

———."'World Heritage Papers Series No. 26: Cultural Landscapes' Now Available Online." UNESCO World Heritage Centre. Accessed December 13, 2020. https://whc.unesco.org/en/news/588/.

"CLI Professional Procedures Guide." NPS: Common Learning Portal. Accessed September 11, 2020. https://mylearning.nps.gov/library-resources/cli-professional-procedures-guide/.

Coleman, Andre. "County Approves Local 'Big Dig' Settlement – Pasadena Now." Pasadena Now, July 7, 2020. https://www.pasadenanow.com/main/board-of-supervisors-approves-local-big-dig-settlement/.

Conyers, Patrick, and Cedar Phillips. *Pasadena: A Business History*. Arcadia Publishing, 2007.

Corns, Anthony, and Robert Shaw. "Lidar and World Heritage Sites in Ireland: Why Was Such a Rich Data Source Gathered, How Is It Being Utilised, and What Lessons Have Been Learned?" In *Interpreting Archaeological Topography*, edited by Rachel S. Opitz and David C. Cowley, 146–60. 3D Data, Visualisation and Observation. Oxbow Books, 2013. http://www.jstor.org/stable/j.ctvh1dqdz.17.

"Cultural Landscapes: The Challenges of Conservation 2002." *World Heritage Papers 7*, 2003, 193.

DeBats, Donald A., and Ian N. Gregory. "Introduction to Historical GIS and the Study of Urban History." *Social Science History* 35, no. 4 (2011): 455–63.

Dudley, Paul H. *Geology of the Area Adjacent to the Arroyo Seco Parkway, Los Angeles County, California.*, 1954.

"Early History of Pasadena." Accessed November 16, 2020.
https://www.bungalowheaven.org/bhna/overview/early-history-of-a-pasadena-community/.

"Elevate Park Stories with Story Maps." Accessed October 9, 2020.
https://www.nps.gov/gis/storymaps/cascade/v1/index.html?appid=f7335e43d15247efaf371b2554c45468.

Engemann, Kristine, Carsten Bøcker Pedersen, Lars Arge, Constantinos Tsirogiannis, Preben Bo Mortensen, and Jens-Christian Svenning. "Residential Green Space in Childhood Is Associated with Lower Risk of Psychiatric Disorders from Adolescence into Adulthood." *Proceedings of the National Academy of Sciences* 116, no. 11 (March 12, 2019): 5188–93. https://doi.org/10.1073/pnas.1807504116.

"Esri Story Map App Templates - What Story Do You Want to Tell?" Accessed October 10, 2020. https://storymaps-classic.arcgis.com/en/app-list/.

"Esri Story Maps - Harness the Power of Maps to Tell Your Story." Accessed January 15, 2021. https://storymaps.arcgis.com/en/.

Evans, Craig. "Fixer Upper Streams." *Landscape Architecture* 81, no. 10 (1991): 92-95. Accessed January 16, 2021. http://www.jstor.org/stable/44680966.

Evans, Owen. "Moving to ArcGIS StoryMaps." ArcGIS StoryMaps, January 2021.
https://storymaps.arcgis.com/stories/472a6ddd582b40b58a5a6af2c30a4573.

Finck, Jeannette Nicole, and William James Kavadas. "Arroyo Seco Parkway Reuse of a Historic Freeway," n.d., 116.

Flies, Emily J, Chris Skelly, Sagri Singh Negi, Poornima Prabhakaran, Qiyong Liu, Keke Liu, Fiona C Goldizen, Chris Lease, and Philip Weinstein. "Biodiverse Green Spaces: A Prescription for Global Urban Health." *Frontiers in Ecology and the Environment* 15, no. 9 (2017): 510–16.

Forma Planning and Design, "Arroyo Seco Master Plans: Arroyo Seco Design Guidelines," *City of Pasadena*, February 2003, 137.

Foundation, Arroyo Seco, and North East Trees. "Arroyo Seco Watershed Restoration Feasibility Study," n.d., 131.

Gebhard, David and Robert Winter. *An Architectural Guidebook to Los Angeles*. 6th ed. Santa Monica, CA: Angel City Press, 2018.

"Get Started with Story Maps | Learn ArcGIS." Accessed October 9, 2020.
https://learn.arcgis.com/en/projects/get-started-with-story-maps/.

"GIS Has Changed! Exploring the Potential of ArcGIS Online - ProQuest Central - ProQuest." Accessed December 9, 2020. https://search-proquest-com.libproxy1.usc.edu/central/docview/2122394425/4DAC0CC64BB5438CPQ/5?accountid=14749.

Goers, Heather Marie. "A Life in Landscape: Howard Oshiyama and the Gardens of Buff & Hensman's King Residence." M.H.P., University of Southern California, 2012. http://search.proquest.com/docview/1288381928/abstract/2A5CE2635E614AFAPQ/1.

Goetcheus, Cari, Eric MacDonald, Alliance for Historic Landscape Preservation, and Meeting, eds. *Exploring the Boundaries of Historic Landscape Preservation: Proceedings of the Twenty-Ninth Annual Meeting of the Alliance for Historic Landscape Preservation 2007, Athens, Georgia*. Clemson, S.C.: Clemson University Digital Press, 2008.

Goodwin, H. Marshall. "The Arroyo Seco: From Dry Gulch to Freeway." *Southern California Quarterly* 47, no. 1 (1965): 73–102. https://doi.org/10.2307/41169901.

Gordon, Dudley. "Charles Fletcher Lummis, Cultural Pioneer of the Southwest." *Arizona and the West* 1, no. 4 (1959): 305–16.

Gregory, Ian and Paul Ell. *Historical GIS: Technologies, Methodologies, and Scholarship*. Cambridge University Press, 2007.

Grimes, Teresa. Pasadena Arroyo Parks and Recreation District. National Register of Historic Places Registration Form, July 13, 2007.

Groth, Paul, and Chris Wilson. "The Polyphony of Cultural Landscape Study: An Introduction." In *Everyday America*, 1st ed., 1–22. Cultural Landscape Studies after J. B. Jackson. University of California Press, 2003. http://www.jstor.org/stable/10.1525/j.ctt1ppdt3.4.

Gruen, J Philip, and Portia Lee. "Arroyo Seco Parkway HAER No. CA-265," n.d., 85.

_____. Library of Congress, Washington, D.C. 20540 USA. "HAER CAL,19-LOSAN,83 - Arroyo Seco Parkway, Los Angeles to Pasadena, Los Angeles, Los Angeles County, CA." Accessed August 26, 2020. https://www.loc.gov/resource/hhh.ca2755.sheet/?sp=6.

"Hahamongna Habitat." Accessed September 12, 2020. http://www.savehahamongna.org/habitat.htm.

"HALS 101: The Historic American Landscapes Survey." Washington, DC: National Park Service, n.d.

Harmon, James M., Mark P. Leone, Stephen D. Prince, and Marcia Snyder. "Lidar for Archaeological Landscape Analysis: A Case Study of Two Eighteenth-Century Maryland Plantation Sites." *American Antiquity* 71, no. 4 (2006): 649–70. https://doi.org/10.2307/40035883.

Haw, Jim. "The UNESCO World Heritage Site Selection Process." Scientific American Blog Network. Accessed October 18, 2020. https://blogs.scientificamerican.com/expeditions/the-unesco-world-heritage-site-selection-process/.

Hemmerlein, Sandi. "Was Pasadena Once Home to the '8th Wonder of the World'?" KCET, January 8, 2018. https://www.kcet.org/shows/socal-wanderer/top-ten-places-to-trace-the-remains-of-pasadenas-busch-gardens.

Henderson, Jaime. "The Bohemian Brownes of the Arroyo Seco." KCET, April 10, 2014. https://www.kcet.org/history-society/the-bohemian-brownes-of-the-arroyo-seco.

Hennings, Dorothy. "Visual 'Outlines.'" *Language Arts* 53, no. 2 (1976): 136–51.

"Heritage Documentation Programs: HABS/HAER/HALS Photography Guidelines." National Park Service, June 2015. https://www.nps.gov/hdp/standards/PhotoGuidelines.pdf.

Hesse, Ralf. "The Changing Picture of Archaeological Landscapes: Lidar Prospection over Very Large Areas as Part of a Cultural Heritage Strategy." In *Interpreting Archaeological Topography*, edited by Rachel S. Opitz and David C. Cowley, 171–83. 3D Data, Visualisation and Observation. Oxbow Books, 2013. http://www.jstor.org/stable/j.ctvh1dqdz.19.

Hise, Greg, and William Deverell. *Eden by Design: The 1930 Olmsted-Bartholomew Plan for the Los Angeles Region*. University of California Press, 2000.

"History of Cultural Landscape Preservation - Cultural Landscapes (U.S. National Park Service)." Accessed September 19, 2020. https://www.nps.gov/subjects/culturallandscapes/cltimeline.htm.

Historic Resources Group and Pasadena Heritage. *Cultural Resources of the Recent Past Historic Context Report: City of Pasadena*. Hollywood, CA: Historic Resources Group, 2007.

Hunt, Myron. "Arroyo Park – Report of Civic Committee." *Southern California Magazine* 1, no. 6 (January 1918): 10-13.

ICOMOS. "Preparing World Heritage Nominations (Second Edition, 2011)." United Nations Education, Scientific, and Cultural Organization, 2011.

"Integrating Digital Datasets into Public Engagement through ArcGIS StoryMaps - ProQuest Central - ProQuest." Accessed December 9, 2020. https://search-proquest-com.libproxy1.usc.edu/central/docview/2459152590/4DAC0CC64BB5438CPQ/1?accountid=14749.

Jigour, Verna, Dan Cooper, and Matt Stoecker. "Habitat Restoration in the Arroyo Seco Watershed," 2001, 47.

Jones, Grant R. "The Nature of Modernity: Principles for Keeping Historic Landscapes Alive." In *Preserving Modern Architecture II: Making Postwar Landscapes Visible*, edited by Charles A. Birnbaum with Jane Brown Gillette and Nancy Slade, 84-87. Washington, D.C.: Spacemaker Press, 2004.

KCET. "Hahamog'na: Native Tongva People," October 4, 2010. https://www.kcet.org/shows/departures/hahamogna-native-tongva-people.

Kipen, David. "Pasadena." In *Los Angeles in the 1930s*, 1st ed., 254–64. *The WPA Guide to the City of Angels*. University of California Press, 2011. http://www.jstor.org/stable/10.1525/j.ctt1pnt9t.39.

Lin, Jan. "From Arroyo Culture to NELA Arts." *Taking Back the Boulevard: Art, Activism, and Gentrification in Los Angeles*, 92–123. Art, Activism, and Gentrification in Los Angeles. NYU Press, 2019. https://doi.org/10.2307/j.ctvwrm42r.7.

Loukaitou-Sideris, Anastasia, and Robert Gottlieb. "A Road as a Route and Place: The Evolution and Transformation of the Arroyo Seco Parkway." *California History* 83, no. 1 (2005): 28–40. https://doi.org/10.2307/25161785.

Lummis Days Festival. "Lummis Days Festival." Accessed December 6, 2020. http://www.lummisday.org.

Lynch, Kevin. *What Time Is This Place?* MIT Press, 1972.

Maekelberg, Sanne. "Mapping Through Space and Time: The Itinerary of Charles of Croÿ." In *Mapping Landscapes in Transformation*, edited by Thomas Coomans, Bieke Cattoor, and Krista De Jonge, 259–76. Multidisciplinary Methods for Historical Analysis. Leuven University Press, 2019. https://doi.org/10.2307/j.ctvjsf4w6.14.

Mann, Bert. "Arroyo Seco Bill Clears Senate Panel on 5-1 Vote: Arroyo Bill." *Los Angeles Times (1923-1995); Los Angeles, Calif.* August 17, 1978, sec. San Gabriel Valley.

———. "Steps Taken to Preserve Arroyo Seco as Parkland: Decision Near on Arroyo Seco." *Los Angeles Times (1923-1995); Los Angeles, Calif.* August 10, 1978, sec. San Gabriel Valley.

Maps, Esri Story. "Instructional Story Maps." Esri. Accessed October 11, 2020. https://collections.storymaps.esri.com/how-to-stories/.

McCarthy, Deidre. "Innovative Methods for Documenting Cultural Resources: Integrating GIS and GPS Technologies." CRM: The Journal of Heritage Stewardship, 2004. https://www.nps.gov/crmjournal/summer2004/research1.html.

———. Interview by Marisa Spinella. Video conference, October 29, 2020.

McIntyre, Linda. "Changing the Channel." *Landscape Architecture* 97, no. 8 (2007): 40–49. http://www.jstor.org/stable/44677075.

Melnick, Robert Z, Olivia Burry-Trice, and Veronica Malinay. "A Decision Framework for Managing Cultural Landscapes Impacted by Climate Change: A Preliminary Report," n.d., 12.

Mitchell, Nora J. "Considering the Authenticity of Cultural Landscapes." *APT Bulletin: The Journal of Preservation Technology* 39, no. 2/3 (2008): 25–31.

Moore, Michelle. "Conservation Documentation and the Implications of Digitisation." *Journal of Conservation and Museum Studies* 7, no. 0 (November 1, 2001): 6–10. https://doi.org/10.5334/jcms.7012.

Morse, Nicole, Victoria Harvey, Courtney Richards, and Sherri Gust. "Paleontological and Cultural Resources of Pasadena for the General Plan Update, City of Pasadena, California," n.d., 76.

"Myriad Unnamed Streams / Index." Accessed September 12, 2020. http://myriadsmallthings.org/myriadunnamedstreams%20index.html.

"NCPTT | Documenting National and World Heritage Sites: The Need to Integrate Digital Documentation and 3D Scanning with Traditional Hand Measuring Techniques." Accessed October 18, 2020. https://www.ncptt.nps.gov/blog/documenting-national-and-world-heritage-sites/.

Nijhuis, Steffen. "Mapping the Evolution of Designed Landscapes with GIS: Stourhead Landscape Garden as an Example." In *Mapping Landscapes in Transformation: Multidisciplinary Methods for Historical Analysis*, edited by Coomans Thomas, Cattoor Bieke, and De Jonge Krista, 95-130. Leuven (Belgium): Leuven University Press, 2019. Accessed January 16, 2021. doi:10.2307/j.ctvjsf4w6.7.

"NPS Office of Policy: NPS-28, Cultural Resource Management (Contents)," n.d., 298.

"NPS Story Map Journal." Accessed September 10, 2020. https://www.nps.gov/gis/storymaps/mapjournal/v2/index.html?appid=8a63cee7ea6c44cc95003250a160c8e7.

Nuwer, Rachel. "There's No Such Thing as Truly 'Pristine' Nature Anymore." Accessed January 15, 2021. https://www.bbc.com/future/article/20160208-theres-no-such-thing-as-truly-pristine-nature-anymore.

O'Connor, Pamela and Urban Conservation Section, City of Pasadena Planning Division. Architectural/Historical Development of the City of Pasadena, Historic Context/Property Type Report. Pasadena: City of Pasadena, 1993.

Olmsted, Frederick Law, Harland Bartholomew, and Charles Henry Cheney. "A Major Traffic Street Plan for Los Angeles," May 1924. http://libraryarchives.metro.net/DPGTL/trafficplans/1924_traffic_street_plan.pdf.

Opitz, Rachel S., and David Cowley, eds. *Interpreting Archaeological Topography: Airborne Laser Scanning, 3D Data and Ground Observation*. Occasional Publication of the Aerial Archaeology Research Group, No. 5. Oxford, UK ; Oakville, CT: Oxbow Books, 2013.

Page, Robert R., Cathy Gilbert, and Susan Dolan. *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*. U.S. Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Park Historic Structures and Cultural Landscapes Program, 1998.

Paredes-Garcia, Lauren. "Story Mapping: A Cultural Landscape," August 2020. https://storymaps.arcgis.com/stories/38ccdab2689a4f65986e239c336d271f.

Pearson, Candace. "Alum Embraces Timeless Craft of Stained Glass at USC • Trojan Family Magazine." USC News. Accessed December 6, 2020. https://news.usc.edu/trojan-family/alum-embraces-craft-stained-glass-usc-beyond/.

"Planning - Cultural Landscapes (U.S. National Park Service)." Accessed September 7, 2020. https://www.nps.gov/subjects/culturallandscapes/planning.htm.

Prasad, Allen Carroll and Sathya. "The New ArcGIS StoryMaps Has Arrived, Marking a New Era in Digital Storytelling." *ArcGIS Blog* (blog), July 3, 2019. https://www.esri.com/arcgis-blog/products/arcgis-storymaps/mapping/arcgis-storymaps-has-arrived/.

Public Works Los Angeles County. "Devil's Gate Reservoir Restoration Project," December 10, 2020. https://pw.lacounty.gov/swe/devilsgate/.

Rapoport, Amos. "On Cultural Landscapes." *Traditional Dwellings and Settlements Review* 3, no. 2 (1992): 33–47.

Raukawa Charitable Trust. "Cultural Landscape Mapping," November 2020. https://storymaps.arcgis.com/stories/691db3cd72f540ab972fe239e9ceece5.

"Recreation in the Arroyo Seco." Accessed August 30, 2020. https://www.arroyoseco.org/recreation.htm.

Redlands Area Historical Society. "Redlands Historical Timeline." Accessed January 15, 2021. https://www.arcgis.com/apps/MapJournal/index.html?appid=0df22a7eebdb485882e89536308e6e36.

"Release Notes—ArcGIS StoryMaps | Documentation," December 2020. https://doc.arcgis.com/en/arcgis-storymaps/reference/release-notes.htm.

Riesenweber, Julie. "Landscape Preservation and Cultural Geography." In *Cultural Landscapes: Balancing Nature and Heritage in Preservation Practice*, edited by Richard Longstreth, NED-New edition., 23–34. University of Minnesota Press, 2008. http://www.jstor.org/stable/10.5749/j.cttttnzq.5.

Ritchie, Ward. *A Southland Bohemia: The Arroyo Seco Colony as the Century Begins*. Vance Gerry, 1996.

Robinson, Judith Helm, et al. "Historic American Landscapes Survey Guidelines for Historic Reports." National Park Service, 2005. https://www.nps.gov/hdp/standards/HALS/HALSHistoryGuidelines.pdf.

"Save Hahamongna." Accessed December 7, 2020. https://savehahamongna.org/.

Scauzillo, Steve. "Arroyo Group Unveils New Ideas, Including a Museum and New Restaurants for Arroyo Seco in Pasadena." *Pasadena Star - News,* Jul 26, 2017. https://www-proquest-com.libproxy1.usc.edu/newspapers/arroyo-group-unveils-new-ideas-including-museum/docview/1923607243/se-2?accountid=14749.

"Secretary's Standards--Preservation Planning." Accessed January 15, 2021. https://www.nps.gov/history/local-law/arch_stnds_1.htm.

Service, National Park. "NPS Shortlist Storymap." Accessed September 10, 2020. https://www.nps.gov/gis/storymaps/shortlist/v2/?appid=a56cf3a456124ad1ad19f1d0ec6cda43.

Slaiby, Barbara and Nora Mitchell, "A Handbook for Managers of Cultural Landscapes with Natural Resource Values: A Web-Based Publication of the Conservation Study Institute," 2003, https://irma.nps.gov/DataStore/Reference/Profile/2174386.

Smith, David M. "Los Angeles County Flood Control District, Alhambra, California 91802-1460," n.d., 66.

"Specifications for the Measurement and Recording of Historic American Buildings and Structural Remains." United States Department of the Interior, November 1935. https://www.nps.gov/hdp/standards/1935guidelines.pdf.

Szukalski, Bern. "Things You Didn't Know You Could Do with Story Maps." *ArcGIS Blog* (blog), October 16, 2018. https://www.esri.com/arcgis-blog/products/story-maps/constituent-engagement/things-you-can-do-with-story-maps/.

"The Museums of the Arroyo," n.d. http://www.museumsofthearroyo.com/.

Horowitz, Helen Lefkowitz. "The Writer's Path: J. B. Jackson and Cultural Geography as a Literary Genre." *SiteLINES: A Journal of Place* 11, no. 1 (2015): 3-7. Accessed December 19, 2020. http://www.jstor.org/stable/24889498.

Thomas, Rick. *The Arroyo Seco*. Images of America. Charleston, SC: Arcadia Publishing, 2008.

"Thousands View Dedication of Arroyo Seco Parkway, First Freeway of West." *Los Angeles Times (1923-1995); Los Angeles, Calif.* December 31, 1940.

"Understand Cultural Landscapes - Cultural Landscapes (U.S. National Park Service)." Accessed December 8, 2020. https://www.nps.gov/subjects/culturallandscapes/understand-cl.htm.

"UNESCO - Text of the Convention for the Safeguarding of the Intangible Cultural Heritage." Accessed January 16, 2021. https://ich.unesco.org/en/convention.

United Nations Educational, Scientific and Cultural Organization. "Operational Guidelines for the Implementation of the World Heritage Convention," January 2008, 175.

Unver, Ertu, and Andrew Taylor. "Virtual Stonehenge Reconstruction." In *Progress in Cultural Heritage Preservation*, edited by Marinos Ioannides, Dieter Fritsch, Johanna Leissner, Rob Davies, Fabio Remondino, and Rossella Caffo, 449–60. Lecture Notes in Computer Science. Berlin, Heidelberg: Springer, 2012. https://doi.org/10.1007/978-3-642-34234-9_46.

Walshe, Nicola. "Using ArcGIS Online Story Maps." *Teaching Geography* 41, no. 3 (2016): 115–17.

Walter, Richard, and Richard Hamilton. "A Cultural Landscape Approach to Community-Based Conservation in Solomon Islands." *Ecology and Society* 19, no. 4 (December 4, 2014). https://doi.org/10.5751/ES-06646-190441.

Water Agencies in the Arroyo Seco Watershed. "Arroyo Seco Water Agencies." Accessed August 30, 2020. https://www.arroyoseco.org/wateragencies.shtml.

Weinberg McClosky, Jessica, et al. "Make Park Science Exciting with Story Maps!" Accessed January 15, 2021. https://www.nps.gov/gis/storymaps/cascade/v1/index.html?appid=66a09ab13ea24343a9965ed869f68c0a.

"What Is GIS? | Geographic Information System Mapping Technology." Accessed September 10, 2020. https://www.esri.com/en-us/what-is-gis/overview.

"Wilderness Press : Biking : Down by the Los Angeles River." Accessed August 30, 2020. https://www.wildernesspress.com/product.php?productid=16599&cat=0&page=1.

Will Hackney. "Use Express Maps to Help Tell Your Story." ArcGIS StoryMaps. Accessed December 2, 2020. https://storymaps.arcgis.com/stories/3dac3a051c2e40929a327619315d44d1.

"Will Overlook Arroyo Seco: Pasadena Mansion to Have Fine Setting; New Home of Crown City Woman Will Be Patterned After Early Chateau of France--Five-Acre Site Will Be Elaborately Laid Out by Owner. Beautiful Estate Now Rising on Brink of Arroyo Seco In Pasadena." *Los Angeles Times (1886-1922); Los Angeles, Calif.* July 16, 1916, sec. Real Estate and Development Section.

Wilson, Chris, and Paul Groth, eds. *Everyday America: Cultural Landscape Studies after J. B. Jackson*. First edition. Berkeley: University of California Press, 2003.

"World Heritage Cultural Landscapes: A Handbook for Conservation and Management - UNESCO Digital Library." Accessed October 4, 2020. https://unesdoc.unesco.org/ark:/48223/pf0000187044.

Yeoman, Sharyn Wiley. "Messages from the Promised Land: Bohemian Los Angeles, 1880–1920." Ph.D., University of Colorado at Boulder, 2003. http://search.proquest.com/docview/305334399/abstract/7A98162CBB6E40A8PQ/1.

Appendix A

The most updated StoryMap can be found at
https://storymaps.arcgis.com/stories/7bfb9989f7844a67a55d79f51ee35648.
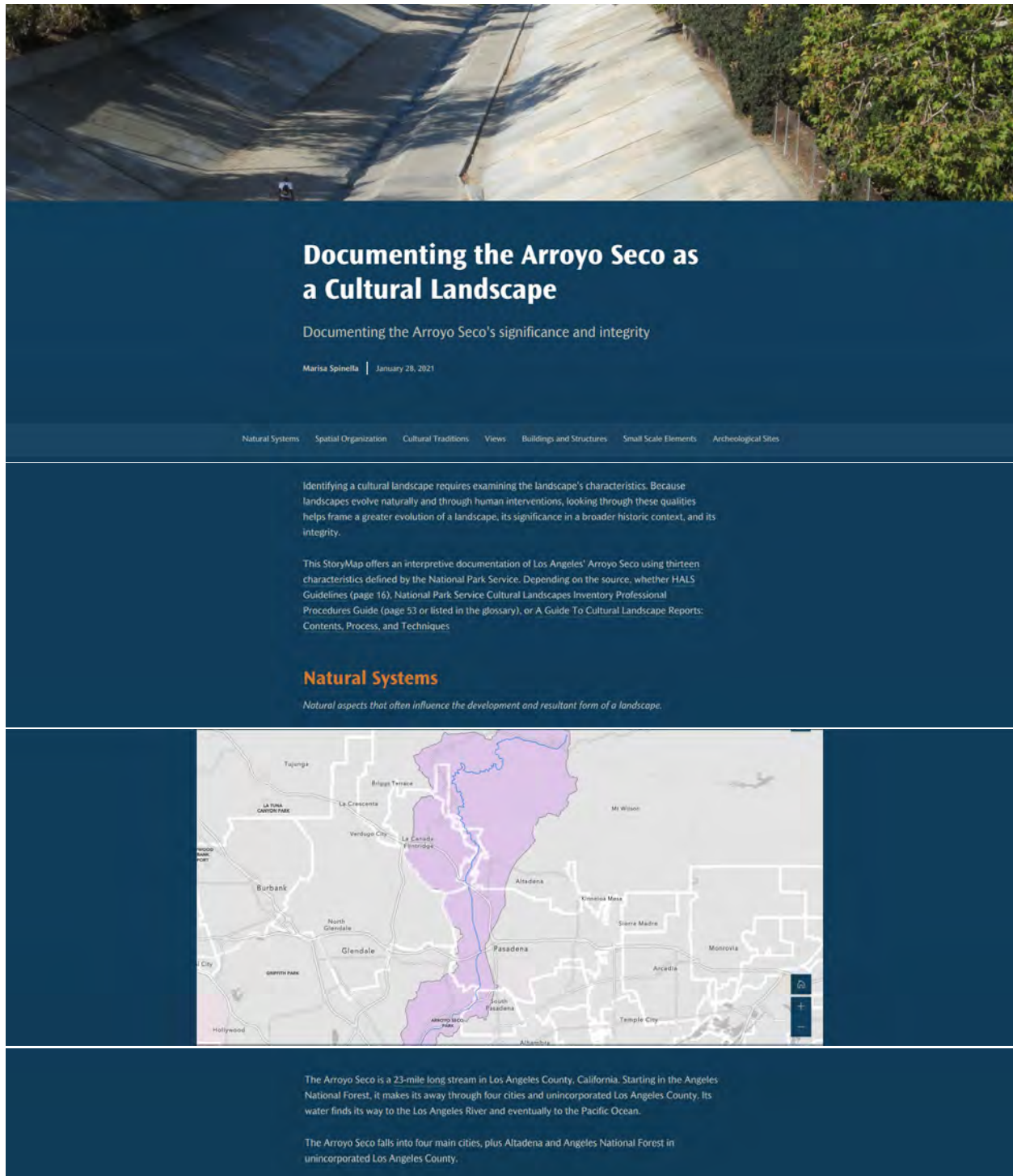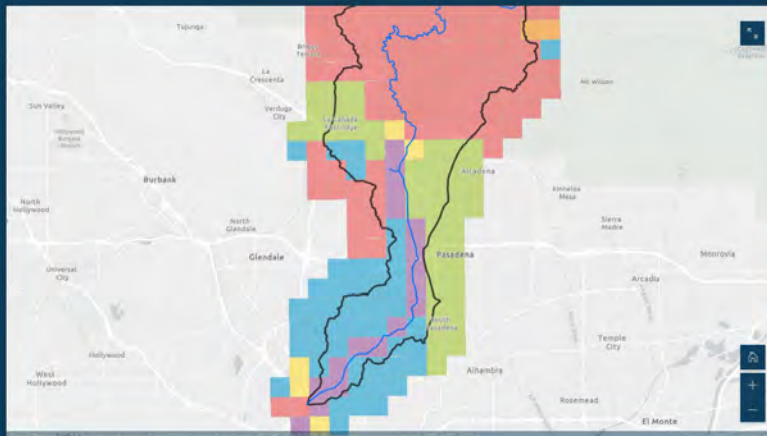
Natural Systems

Figure 1: Mean Discharge of the Arroyo Seco. Photo from USGS
https://wdr.water.usgs.gov/wy2012/pdfs/11098000.2012.pdf

Explorer Gaspar de Portola named the stream in 1770 during his expeditions. He chose *Arroyo Seco* , Spanish for "dry stream" because of the low flow of water. Although the stream predictably dries in the summer months, the late winter and early spring bring a surge of water.

The flow of the river corresponds with seasonal rainfall. Southern California is characterized by hot, dry summers, and cooler rainy winter months, during which streams and rivers swell and sometimes flood. In fact, the Arroyo has a long history of flooding, contributing to the decision to pave its banks.

Vegetation

Indigenous or introduced trees, shrubs, vines, ground covers, and herbaceous materials.

The vegetation sustains a larger ecology. There are plans in place to restore to parts of the Arroyo and strengthen local biological networks.

Oak Woodland

Oak Woodlands are common throughout California. They are found sporadically along the length of the Arroyo Seco. These oak woodlands are dominated by Coast Live Oak (Quercus agrifolia), but other oak species can be found.
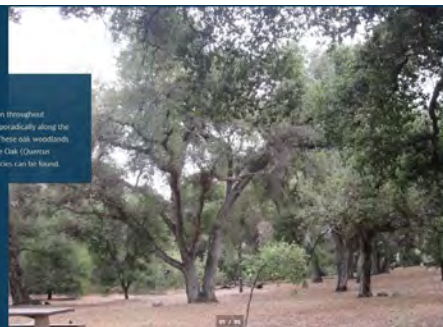
Alluvial Scrub

At the base of the mountains near JPL, the white, sandy soil is a marked characteristic of alluvial sage. The vegetation is less dense than other plant communities.

Freshwater Marsh

This plant community has access to water as it sits in regularly flooded area. The ample water means the area develops a dense undergrowth. Common plants include herbaceous plants, predominantly cattails, sedges, and rushes, though there is some overlap with riparian plant communities.

Riparian

Much of the habitat around the Arroyo is made of riparian habitat. Riparian areas are plant communities that are adjusted to have roots uninundated for at least part of the year. The sycamores characterize this plant community well. Although fragmented after the channelization of the Arroyo, a strong sycamore presence and remnants of riparian plants appear in Sycamore Grove Park, moving north through parks in Hermon, South Pasadena, and Pasadena.

Chaparral

Chaparral consists of dense growth of evergreen vegetation adapted to hot summers without water. Chaparral can be found in the hillsides around the Arroyo, near its headwaters, and in places like Debs Park.

- Oak Woodland- As the name might suggest, this plant communities relies heavily on oaks (*Qurecus ssp.*), a host species. As the dominant species, the oaks provide a shade canopy, but also provide ground cover with ample leaf litter. The oaks also have a long cultural history in the area. The Engelmann Oak, endemic to the area, is particularly notable as its population dwindles.
- Alluvial Scrub- This is a type of coastal sage scrub where alluvial flow would deposit sediment. The speed of the water slows as the slope starts to stabilize, resulting in dropped sediment and the apparent change of soil type. This plant community includes characteristics of both coastal sage scrub and chaparral. It is a combination of evergreen plants and semi-deciduous plants.
- Freshwater Marsh- This is a wetland that is frequently flooded, often just adjacent to a riparian zone. Because many of the riparian areas in Southern California are dry for most of the year, this leaves the way for a plant community like a marsh to take root. Like riparian plants, these marsh plants can tolerate submerged root systems all year round. Freshwater marsh plants would be a common sight in Hahamonga Park.

- Riparian- Much of the habitat around the Arroyo is made of riparian habitat. Riparian areas are plant communities that are adjusted to have roots uninduated for at least part of the year. The sycamores characterize this plant community well. Although fragmented after the channelization of the Arroyo, a strong sycamore presence and remnants of riparian plants appear in Sycamore Grove Park, moving north through parks in Hermon, South Pasadena, and Pasadena.

- Chaparral- This classic California plant community appears along many hillsides throughout the state. It is a characteristic of a temperate biome. Chaparral requires little water, as the water runs off steep slopes like those in Debs Parks, and into the Arroyo and its watershed. It was probably a lot more common in the area, but developments have since claimed many hillsides in the urban area.

Water Features

The built features and elements that utilize water for aesthetic or utilitarian functions.

Though commonly regarded as a paved channel, the Arroyo does convey its water in various ways. Of course the Arroyo started as a natural feature of the land, but as development grew more dense and closer to the banks of the water, the water features incorporated more designed features. The unpredictability of the flow threatened homes and lives near the banks, so the river was channelized in the 1930s.

Pre-channelization

Before its 1938 paving, the Arroyo conveyed as a natural river, flowing along the bottom of a small canyon.

Channelization

Today the Arroyo's most prominent conveyance is in a paved flood control channel. It follows the path of the natural feature, but keeps water mostly confined to the channel.

Smaller streams

There are various supportive infrastructures that parallel the Arroyo. Upstream in Hahamongna Park, some of the smaller streams that feed into the Arroyo are also channelized, guiding water away from roads.

V-ditches

V-ditches, like this one, help guide water runoff from adjacent properties and into the Arroyo in a controlled method. They are commonly found at the bases of hills.

However there are parts earlier in the stream, north of the Devils Gate Dam, where the banks are left unpaved, the water can pass through combinations of runoff and pipes.

Natural Water Features

To the present day, some parts of the Arroyo Seco remain natural. This allows for water infiltration, aquifer recharge, and countless ecological benefits.

Topography

Three-dimensional configuration of the landscape surface characterized by features and orientation.

The general patterns of topography begin with the headwaters in several canyons in the Angeles National Forest. From there, the land continues to slowly slope down as waters flow south. Any natural topography of the banks of the river have been eliminated with its paving.
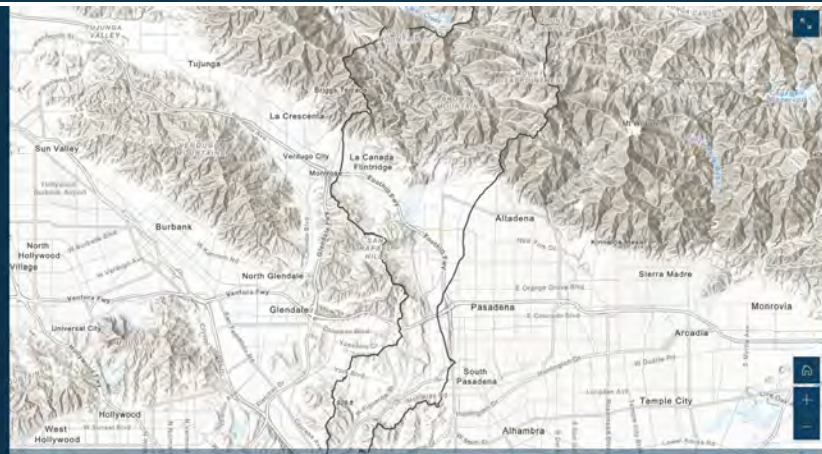
Spatial Organization

Arrangement of elements creating the ground, vertical, and overhead planes that define and create spaces.

Land Use

Organization, form, and shape of the landscape in response to land use.

The land use of the Arroyo varies widely over its many square miles and many cities and communities. Overall, the areas are heavy in residential and commercial zoning areas, oftentimes with a buffer down the length of the Arroyo

The northern half of the Arroyo Seco Watershed is in the National Angeles Forest. It is mountainous and undeveloped. Moving south, residential neighborhoods plank the Arroyo, with immediately adjacent land dedicated to parkland and recreational activities.

Many of the areas just south of the forest are single family residential areas, like in La Canada and Altadena. The area tends to become more dense and with more of a commercial component as the Arroyo moves south, closer to downtown Los Angeles.
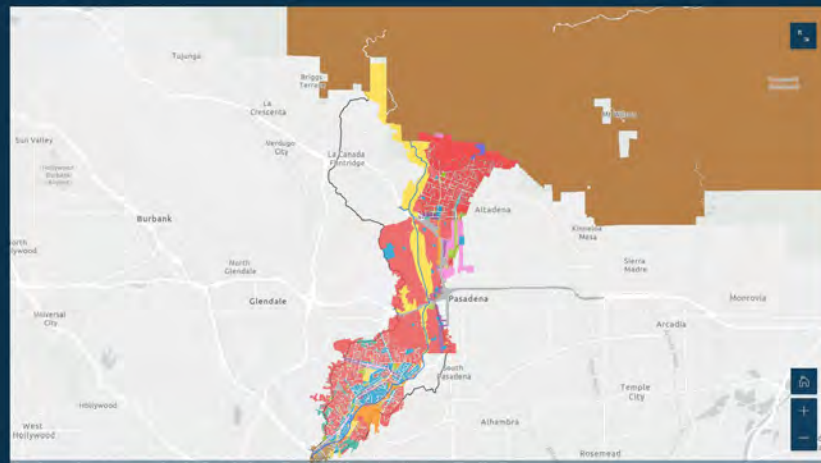
Cluster Arrangement

The location of buildings and structures in the landscape.

Cluster arrangement is based on the communities in the Arroyo Seco watershed, and ties closely with the land use. This is a urban landscape that has grown around the Arroyo. Development has become dense enough where the focus is no longer on the Arroyo, but on the communities themselves. Buildings and structures rule the landscape of the Arroyo in 2021.

Circulation

Spaces, features, and materials that constitute systems of movement.

Circulation in the area mainly consists of vehicular thoroughfares. Interstate 210 (the Foothill Freeway), State Route 134 (the Ventura Freeway), State Route 110 and Interstate 110 (the Harbor Freeway and Arroyo Seco Parkway) are the main freeways that run through the area and connect to the broader network of Southern California Freeways. The Arroyo Seco Parkway in particular has a large cultural and historic presence in Pasadena, South Pasadena, and Northeast Los Angeles, where it is considered America's first freeway.

Because the watershed covers such a vast urban area, people can choose between a variety of paths. On a more local level, circulation is unique to each of the communities of the Arroyo Seco watershed, as each will have their own local main streets, bike paths, walking routes, and possible hiking trails. The areas also have access to a variety of bus routes (Metro, Foothill Transit, Glendale Beeline) as well as the Metro L (Gold) Line, which runs almost parallel to the Arroyo from Pasadena to the Confluence. The path of Gold Line follows the course of the Atchison, Topeka & Santa Fe Railway and passes many historic places.
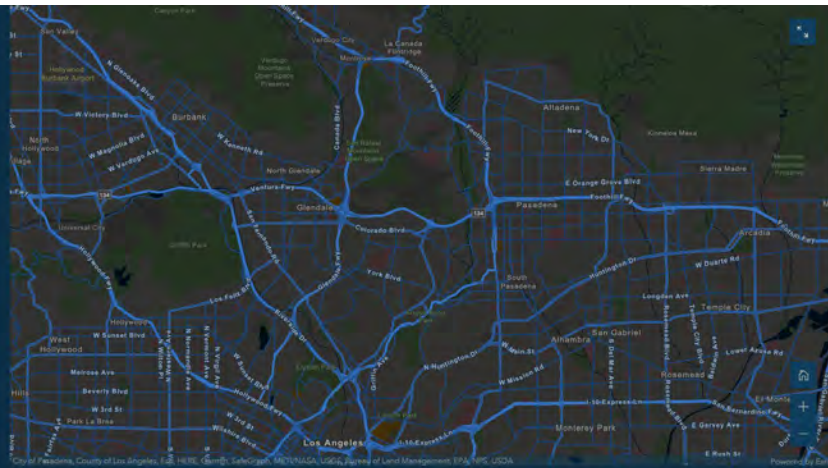
Freeway and main street circulation paths along and across the Arroyo Seco watershed and neighboring cities.

Bridge across the Arroyo Seco at Garvanza showing the first cable-car to cross it, ca. 1895. Photo by USC Special Collections

What we see today has not always been the case as circulation and transportation along the Arroyo has evolved dramatically over time. Before the turn of the 20th century, cable-cars straddled the banks of the stream, and bicycles were the most efficient method of transportation. The California Cycleway, an elevated bike path, became a popular idea, until the automobile came along. Some groups have tried and experimented with different ideas for biking along the river. A 1983 experiment put a bike path in the bottom of the channel, which still remains today. The site then became home to the country's first freeway with the Arroyo Seco Parkway in 1940. Today the site has a light rail and diverse options for travelling along it.
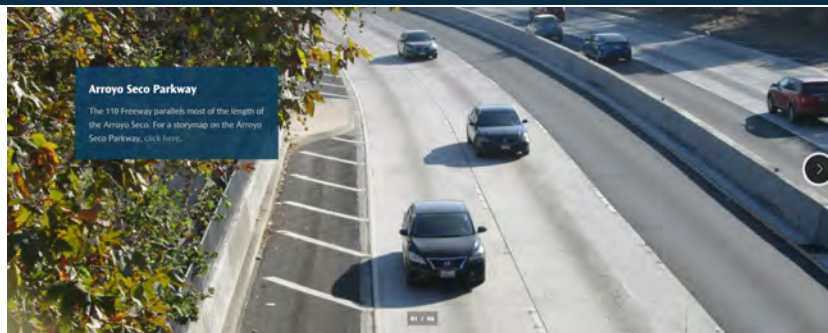
Arroyo Seco Parkway

The 110 Freeway parallels most of the length of the Arroyo Seco. For a storymap on the Arroyo Seco Parkway, click here.
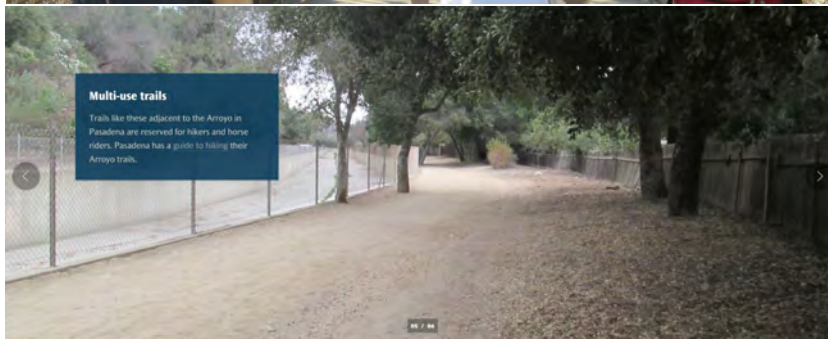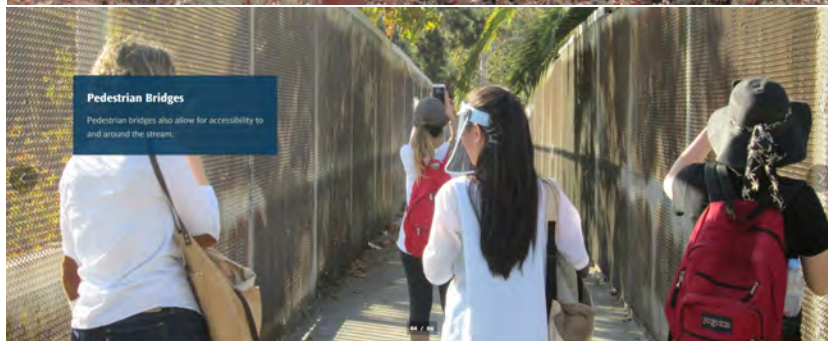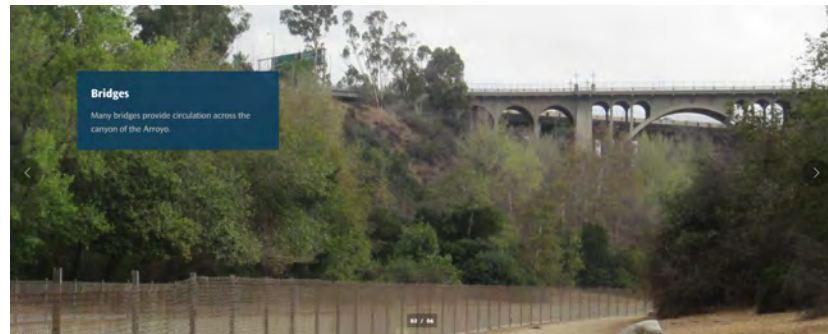
71

Cultural Traditions

Practices that influence land use, patterns of division, building forms, and the use of materials.

Figure 8: Floats moving down Colorado Street during the Rose Parade in Pasadena, ca. 1926. Photo from USC Libraries Special Collection

Figure 9: Rose Queen Coronation, 1958. Photo by USC Library Special Collections.

Nationally known, Pasadena's Tournament of Roses is one of the oldest and most respected traditions in the Arroyo Seco area. The New Years' Day celebration begins with a parade of floats decorated with flowers and other plant material.

Local high school student compete for roles on the royal court. The Tournament of Roses committee selects the queen and her court, who ride on a float in the Rose Parade and engage in other community and outreach activities.

The day continues with the Rose Bowl, a college football game at the stadium by the same name. Referred to as "The Granddaddy of Them All", the bowl game started in 1902 before the stadium and spurred other bowl games around the country. It has since become part of the annual New Years traditions. The 2021 Rose Bowl Game will be the 107th Rose Bowl Game held.

Other cultural traditions have stemmed from the Arts and Crafts Movement during which the area was developed. Some of these traditions have persisted, as with Judson Studios, who are making stained glass art in the traditions of past generations. The building remains in use as their studio today.

Judson Studios claims to be the oldest family-run studio for stained glass in the country. William Lees Judson established his studio downtown in 1897, though moved to its current location in 1920. From 1901 to 1920, through a fire and rebuild, the site had served as Los Angeles College of Fine Arts of USC, designed by Judson, the school's first dean.

Views

Features that create or allow a range of vision which can be natural or designed and controlled.

Because the Arroyo itself spans many miles, the views change dramatically between locations. Views looking up out of the Arroyo are limited to local hills and mountain ranges. They are highly variable depending on location and direction, and whether the view looks toward the Arroyo watershed or out of the canyon. Because of the generous topography, there are views and vistas within the Arroyo Seco watershed and canyon.

View looking out of the Arroyo Seco near Ave 43. Photo by author.

Buildings and Structures

Three-dimensional constructs such as houses, barns, garages, stables, bridges, and memorials.

Much like with cluster arrangement, the watershed spans so many square miles dense with infrastructure and developments. Within these, there are many designated districts. Even in the absence of districts, the buildings reflect the unique qualities of the neighborhood. There are also many unique individual buildings and structures. A storymap on this can be found here.

Small Scale Elements

Elements that provide detail and diversity combined with function and aesthetics.

Edges and Boundaries

Because of the volatile nature of the Arroyo Seco, the Arroyo has historically been gated. Even though it is a public resource, it also threatened public well-being during storms and strong weather events. Edges and boundaries block the Arroyo through its length. It has become much more accessible, but these fences remain, oftentimes with good reason.

Fences
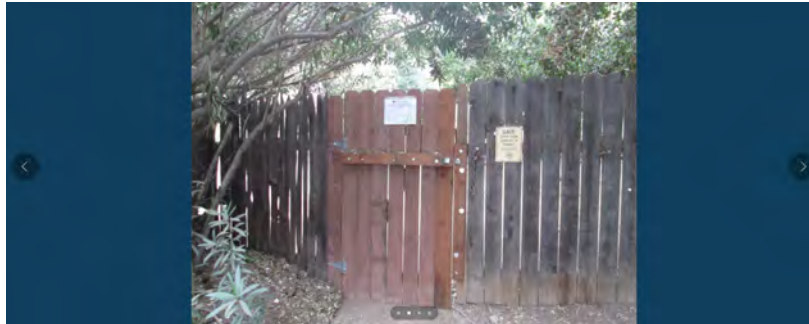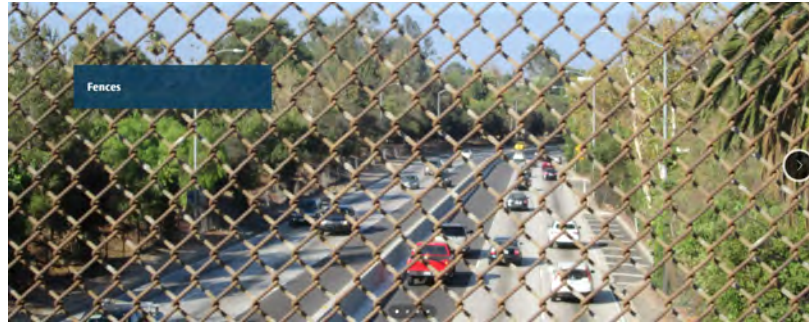
Arroyo River Rocks

Arroyo river rocks were readily available resource while building the area. Especially in the Arts and Crafts movment, staying true to materials was very important. While residents of the area may not build their own walls, they still turn to these stones as a strong building material even in newer constructions. Everyone from Charles Lummis, to Clyde Browne, to the designs of Greene and Greene incorporate these rocks, and stand as a testament to the Arts and Crafts Movement more than a century later.
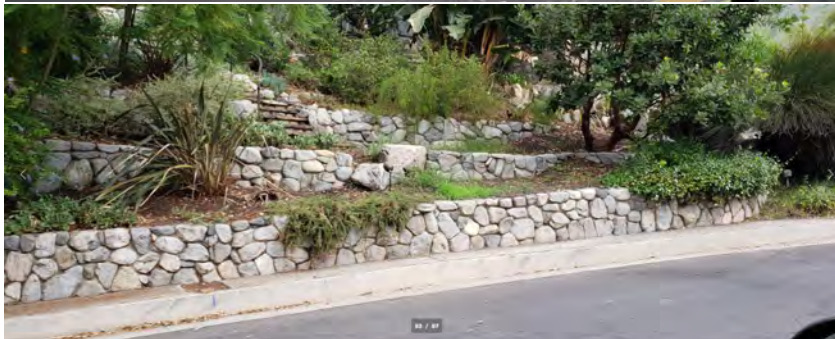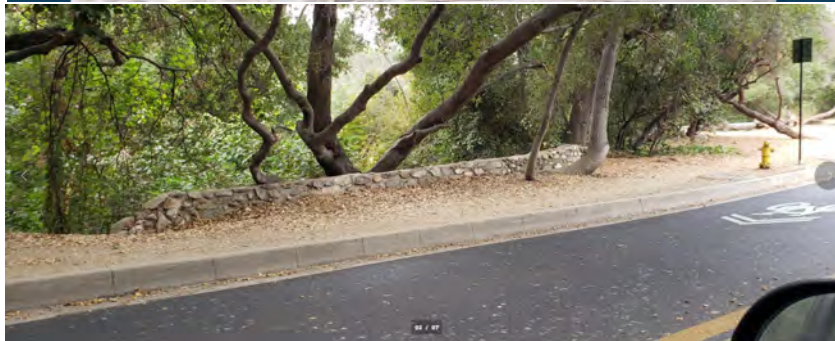
Archeological Sites

Sites containing surface and subsurface remnants related to historic or prehistoric land use.

The Arroyo, as a watersource, is a sensitive area for Pasadena has also published a cultural resources report, including archaeological resources. Lower Busch Gardens Cultural Landscape Historic District- Ruins remain that were once part of the Busch Gardens. It remains a popular destination for many looking for these remains, and many articles outline the specific sites.

We also need to remember, that even though this is among the most popular and well-known of the archaeological sites, there are many others that we know less about or have less exposure to the public. Upstream closer to the mountains are also archaeological sites for the Native peoples that called the Arroyo home. Equally as important, they deserve as much respectful investigation as the others.

Busch Gardens

These designed gardens were quiet the attraction at one one time. Many of the designs made use of the ample and easily accessible Arroyo river rocks.

What remains

The majority of the gardens were demolished, but some sections do remain and can help piece together the story of what once was there.

Stairways

This 2020 photo documents some more of what is left of the famous Busch Gardens. These stairs are popular among runners and joggers.

Looking Back

Given what we have, we can reflect back on not just this archaeological site, but many of the others that are not as well publicized, but equally as important to various community groups.

"
So thankful am I that the Arroyo is being preserved for us wanderers, all those in search of drinking in the natural landscape's seasonal assurances that the earth is a blessed eternally rejuvenating space. - Carol Soucek King

Appendix B

The most updated StoryMap can be found at
https://storymaps.arcgis.com/stories/dd550792504a4ee291863f9765f70f86.
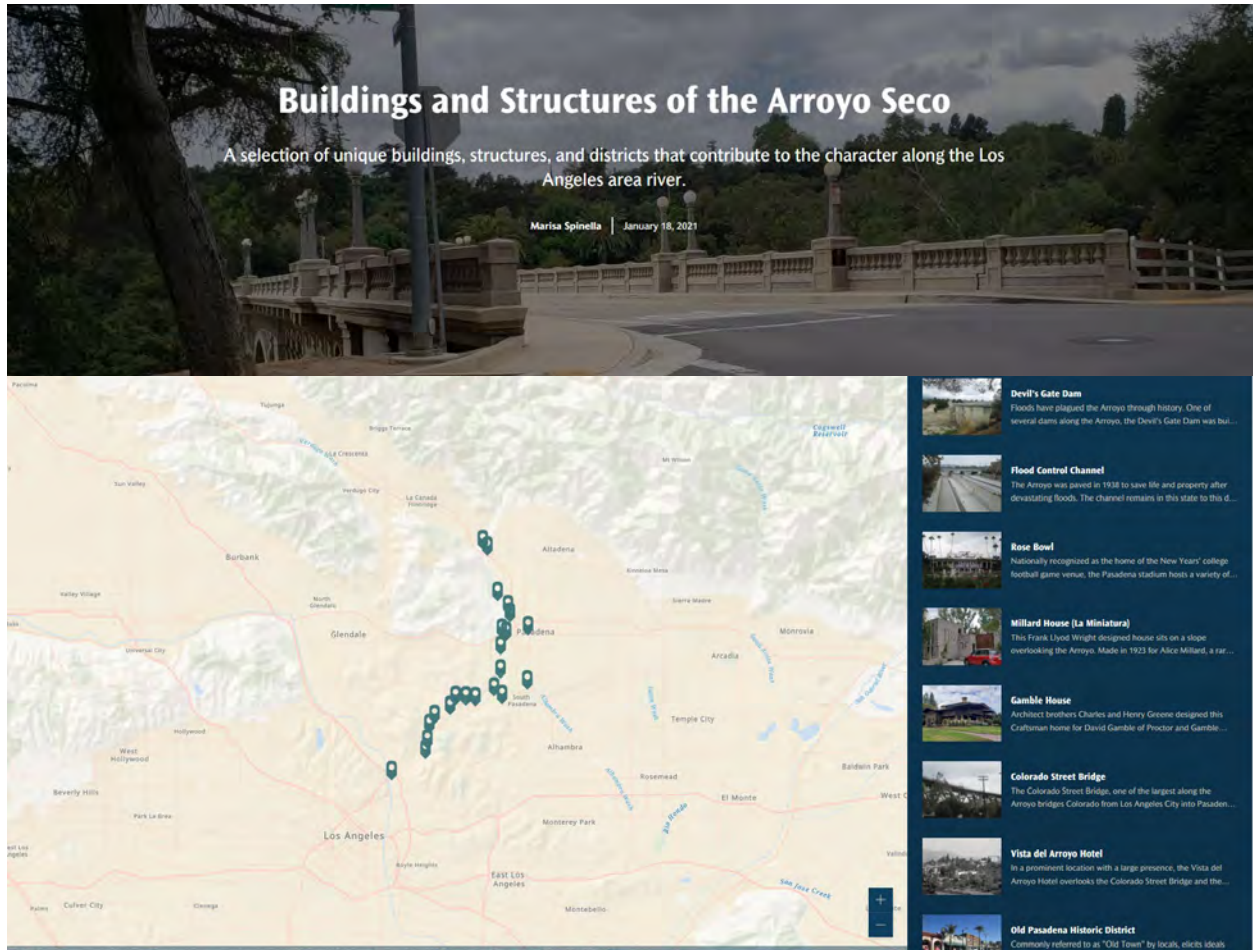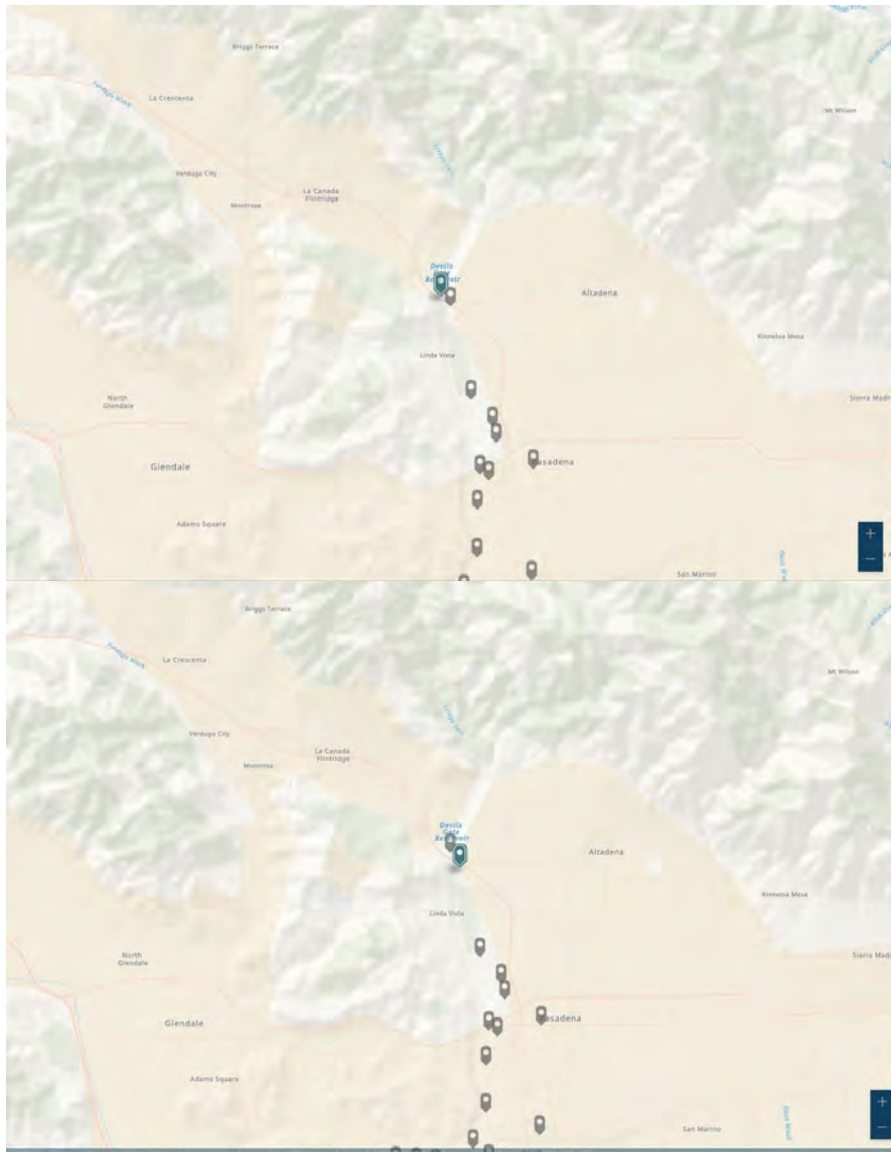
Devil's Gate Dam

Floods have plagued the Arroyo through history. One of several dams along the Arroyo, the Devil's Gate Dam was built in 1920 first of the County Flood Control District's flood dams. After years of sediment accumulation, Los Angeles County Public Works has wanted to continue work on the area, much to the dismay of local environmental groups. The Devil's Gate Dam denotes the transition from the unpaved Arroyo in the mountains to a more paved stream once it flows into dense, urban areas. The Jet Propulsion Laboratory is just a few hundred feet away from the dam.

away from the dam.

Flood Control Channel

The Arroyo was paved in 1938 to save life and property after devastating floods. The channel remains in this state to this day from just south of Devil's Gate Dam, all the way south to where the Arroyo feeds into the Los Angeles River. Both are feats of engineering. Some environmentalists have advocated for removing concrete in parts of the river. Many people have posted their adventures exploring the Devil's Gate (including some legends) and the surrounding areas documenting their experiences.

Rose Bowl

Nationally recognized as the home of the New Years' college football game venue, the Pasadena stadium hosts a variety of events throughout the year, like a variety of concerts and the monthly Rose Bowl Flea Market. Designed by Myron Hunt and built in 1922, it stands today as a National Register Historic Place and a National Historic Landmark.
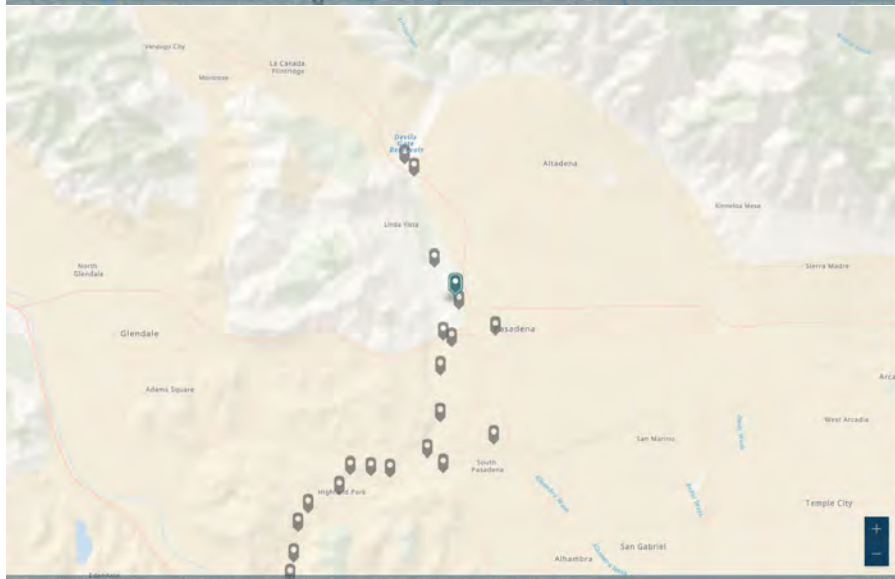
Millard House (La Miniatura)

This Frank Llyod Wright designed house sits on a slope overlooking the Arroyo. Made in 1923 for Alice Millard, a rare book dealer, it is one of four textile block homes by Wright. It is on the National Register of Historic Places, significant not just for architecture, but landscape architecture as well.

Gamble House

Architect brothers Charles and Henry Greene designed this Craftsman home for David Gamble of Proctor and Gamble fame. It is listed on the National Register of Historic Places, as a California Historical Landmark ,and as a National Historic Landmark.
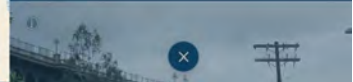
Colorado Street Bridge

The Colorado Street Bridge, one of the largest along the Arroyo bridges Colorado from Los Angeles City into Pasadena. It overlooks the 134 freeway and the Rose Bowl just to its north. It is listed on the National Register of Historic Places. If you visit today, a chainlink fence has been installed to discourage people from jumping. Tragically, it's moniker of "Suicide Bridge" is true.

Vista del Arroyo Hotel

In a prominent location with a large presence, the Vista del Arroyo Hotel overlooks the Colorado Street Bridge and the Arroyo Seco canyon. The Federal Government occupied, restored and reopened the building in 1985 as the Richard H. Chambers US Court of Appeals. It operates as a federal building through the present. The same website has a thorough notes on the history and evolution, architecture, and significance of the building. It has been recorded by HABS and on the National Register of Historic Places. On the original Vista del Arroyo Hotel grounds are the summer bungalows, including the Maxwell House.
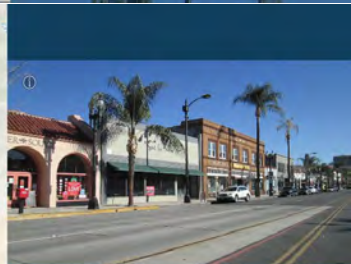
Old Pasadena Historic District

Commonly referred to as "Old Town" by locals, elicits ideals from a different era, with street cars and walkability. Today, freeways cut through this Pasadena neighborhood, but the historic district remained through the tireless advocacy of locals. It was designated as a National Register Historic Landmark in 1983, and was later added onto in 2008.
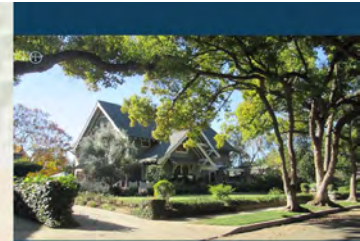
Lower Arroyo Seco Historic District

On the National Register of Historic Places, the Lower Arroyo Seco Historic District encompasses 78 homes on several notable Pasadena streets, including on Arroyo Boulevard, California Boulevard, La Loma Road, and Grand Avenue. Most of the homes and their architectural styles were inspired by the Arts and Crafts movement.
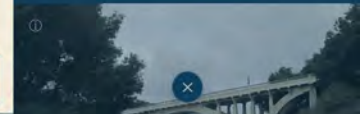
Avenue. Most of the homes and their architectural styles were inspired by the Arts and Crafts movement.

San Rafael Bridge (and other bridges)

The San Rafael Bridge, built in 1922, is just one of several smaller bridges across the Arroyo. These include the ones at Grand Ave, San Pascual (or the Arroyo Seco Bridge-1938), York (1912), Ave 64/Marmion Way (1940), Ave 60 (1909), Avenue 43, Via Marisol (1940), and Ave 26 (1939). Many of them were built by the Works Progess Administration. There are numerous other bridges that cross the Arroyo Canyon, for pedestrian paths, freeways, or for the Gold Line.
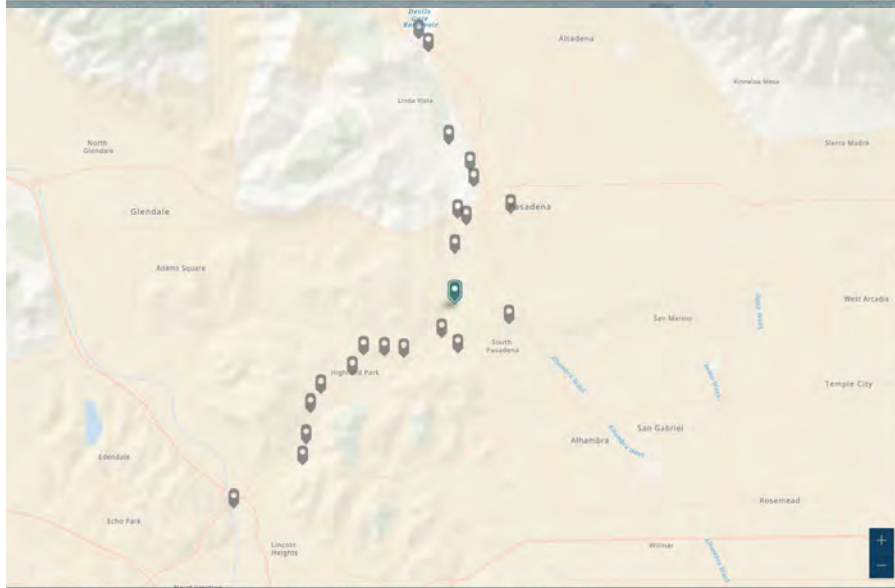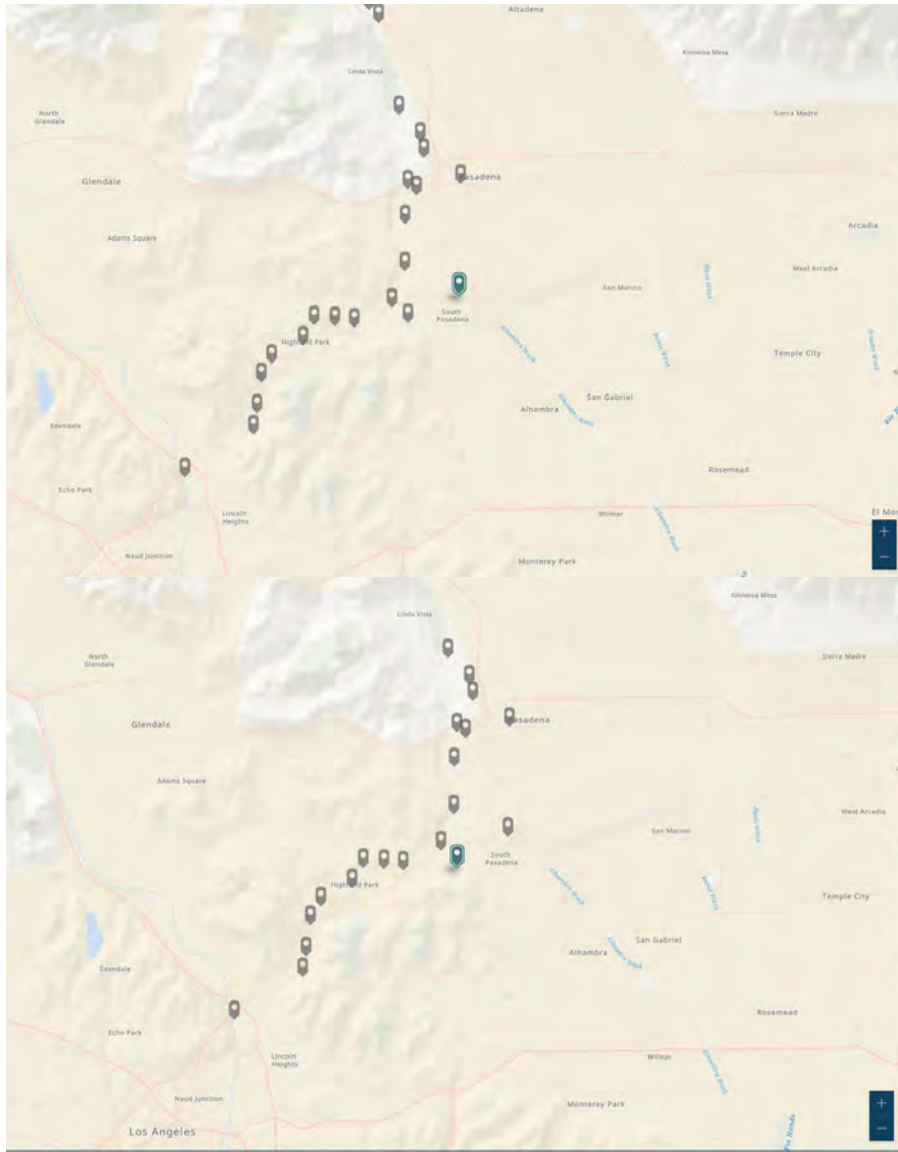
Oaklawn Portals, Bridge, and Waiting Station

Greene and Greene, the same architect brothers as the Gamble House, first designed the stone portals and iron gate in 1905 as a grand entrance to Oaklawn Ave, a street filled with Craftsman homes from the same decade. They then built the bridge and waiting station a year later in 1906. The bridge crossed over the Santa Fe Railroad tracks and connect to Fair Oaks Ave, a main thoroughfare in the area. The bridge serves as a foot bridge today and the waiting station is still in use. They have been documented by HABS and are listed on the National Register.
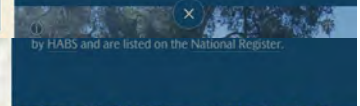
South Pasadena El Centro Historic District

South Pasadena has claim to several historic neighborhoods. Similar to other historic districts on this list, many of the homes built were inspired by Arts and Crafts ideals. This historic district in particular lays between El Centro, Mission, Fairview and Meridian. It is listed on the National Register of Historic Places.
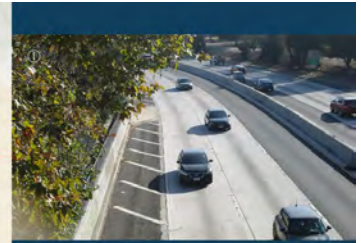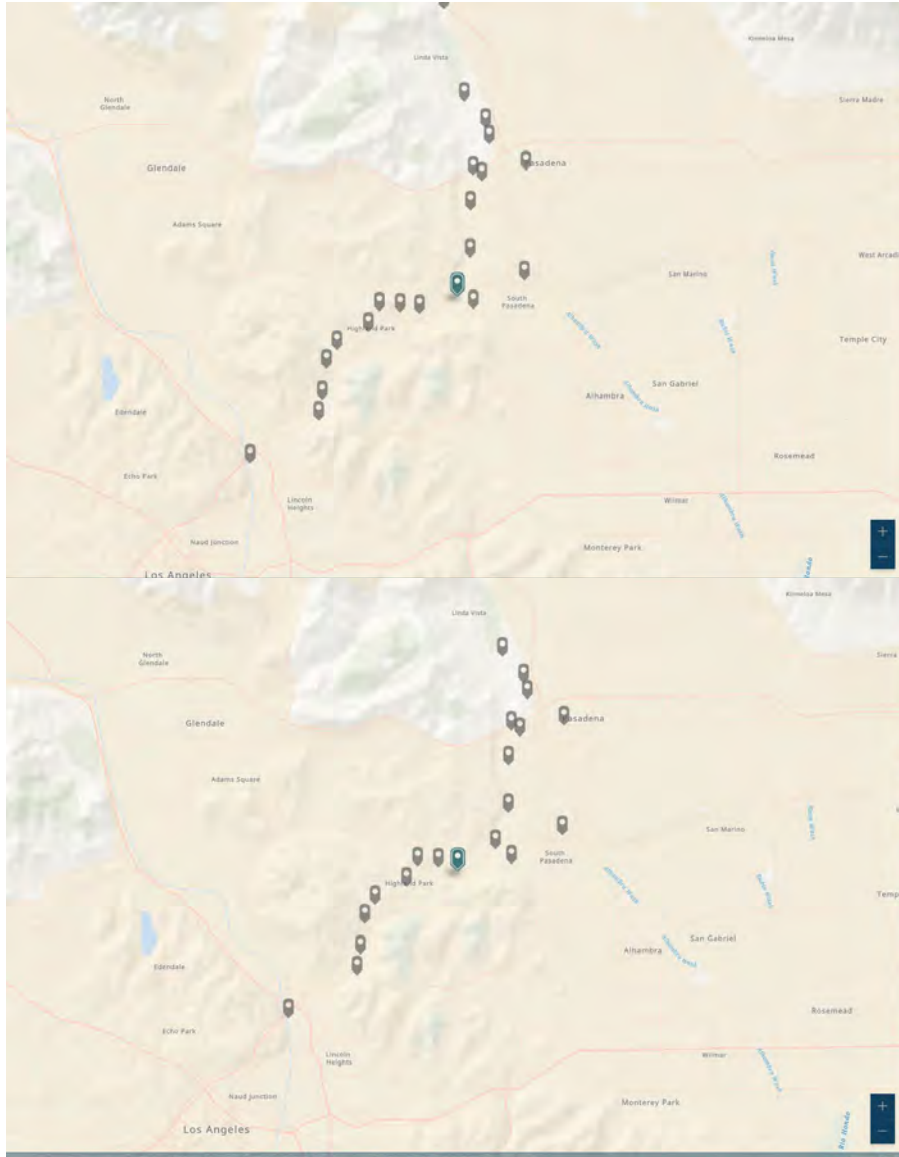
Arroyo Seco Parkway

The Arroyo Seco Parkway has a long and well documented history as the first American freeway, running from Glenarm Street in Pasadena to the heart of the city near Dodger Stadium. Many groups have documented and reported on the history of the Parkway, including KCET, the NPS, LA Metro, and the Pasadena Museum of History. The Arroyo Seco Foundation has a list of current updates. From it's tunnels to its bridges, it is documented by HAER through posters and photographs.
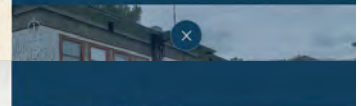
Judson Studios

Judson Studios claims to be the oldest family-run studio for stained glass in the country. William Lees Judson established his studio downtown in 1897, though moved to its current location in 1920. From 1901 to 1920, through a fire and rebuild, the site had served as Los Angeles College of Fine Arts of USC, designed by Judson, the school's first dean. It is a Los Angeles Historic-Cultural Landmark and on the National Register of Historic Places. Examples of the generations of Judson's stained glass are mainly scattered throughout the city and county, though they have done work out of state.

Abbey San Encino

Back in the early 1900s as people began moving to the more popular areas around the Arroyo, the area was dense with bohemian artists. Printer and writer Clyde Browne designed the home in picas (a unit used in typographic measuring) and built the home from Arroyo rocks. Eventually he began scavenging other places for rocks and accepted much needed help to help complete construction. Today Abbey San Encino stands as a relic of bohemian Highland Park. It is a Los Angeles Historic-Cultural Monument.

Highland Park-Garvanza HPOZ

The City of Los Angeles classifies their historic districts as HPOZs (Historic Preservation Overlay Zones). The Highland Park/Garvanza district is the largest within the city encompassing about 4000 structures and more than Los Angeles City Historic-Cultural Monuments. Highland Park was first designated in 1994 after community advocates spoke up. In 2010, Garvanza, an adjacent neighborhood with a similar history and architecture, was added onto the HPOZ. A map of the full HPOZ can be found here.

Highland Park-Garvanza HPOZ-Commercial District

The Highland Park historic district was the first in the HPOZ to include a commercial district. Figueroa was built around a streetcar that ran down the middle of the street in the first half of the 20th century, so at the time the neighborhood catered more to the traveler on foot. While we drive more frequently now, we can visit this commercial area for a glimpse of the past. Notable buildings are centered around Avenue 56 and N. Figueroa St. include the old Masonic Lodge, a building that previously held Security Trust & Savings Bank, and the Highland Theatre, complete with its rooftop sign.
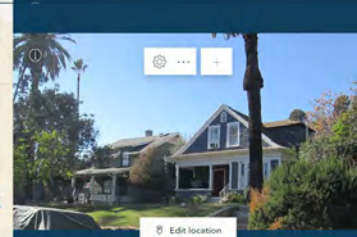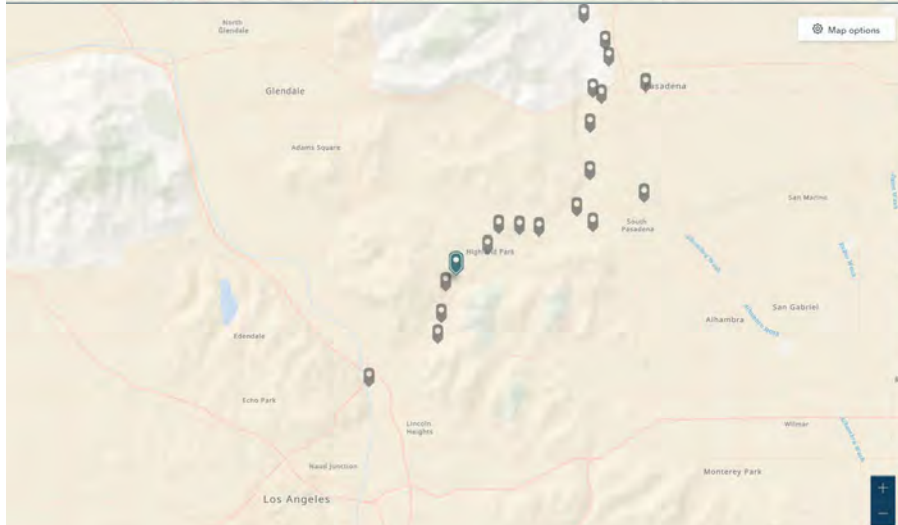
Professor Row

Sycamore Terrace runs parallel to Figueroa Street in Highland Park off of Avenue 50. Before moving to nearby Eagle Rock, Occidental College was previously located in Highland Park, as were the homes of their professors. Craftsman homes line one side of Figueroa, overlooking two apartment buildings where two other Craftsman homes had been demolished. Highland Park Heritage Trust started advocating for saving Highland Park homes back in 1986, just three years after Los Angeles designated their first historic overlay zone in Angelino Heights.
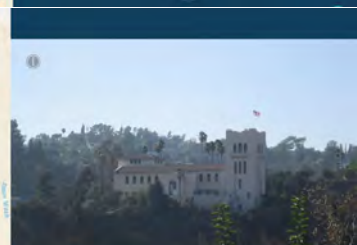
Southwest Museum

Charles Lummis founded the Southwest Museum as a place to house his ample collection of materials he collected mostly from indigenous people he met on his travels in Southwest United States. It is listed on the National Register of Historic Places.
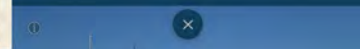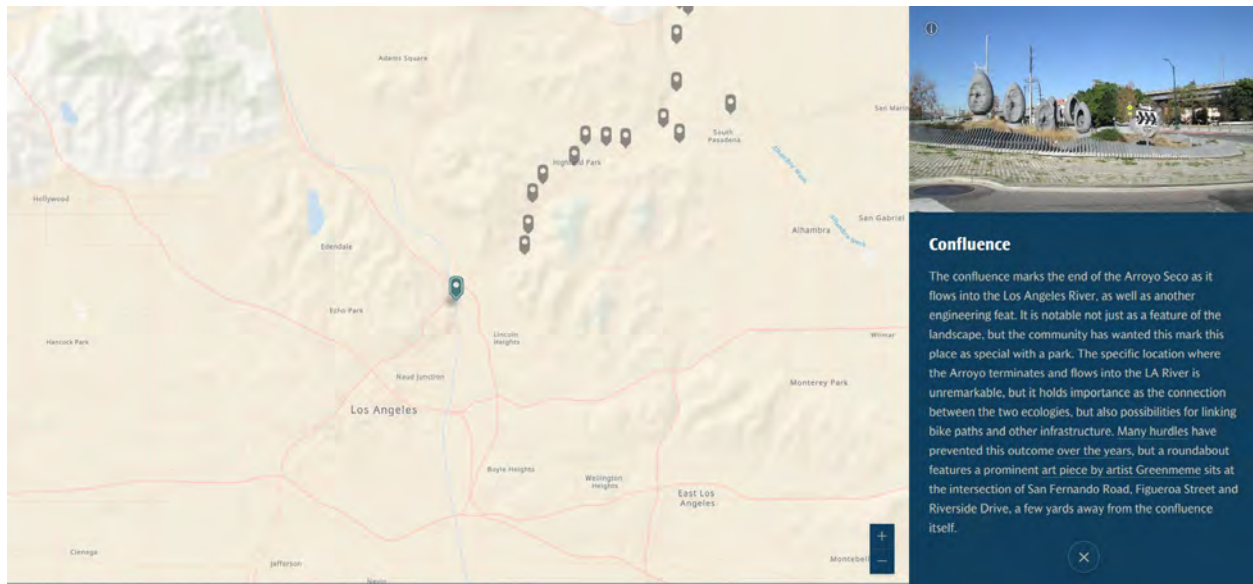

88
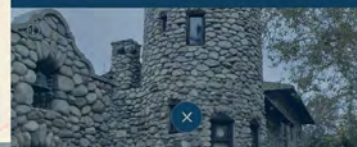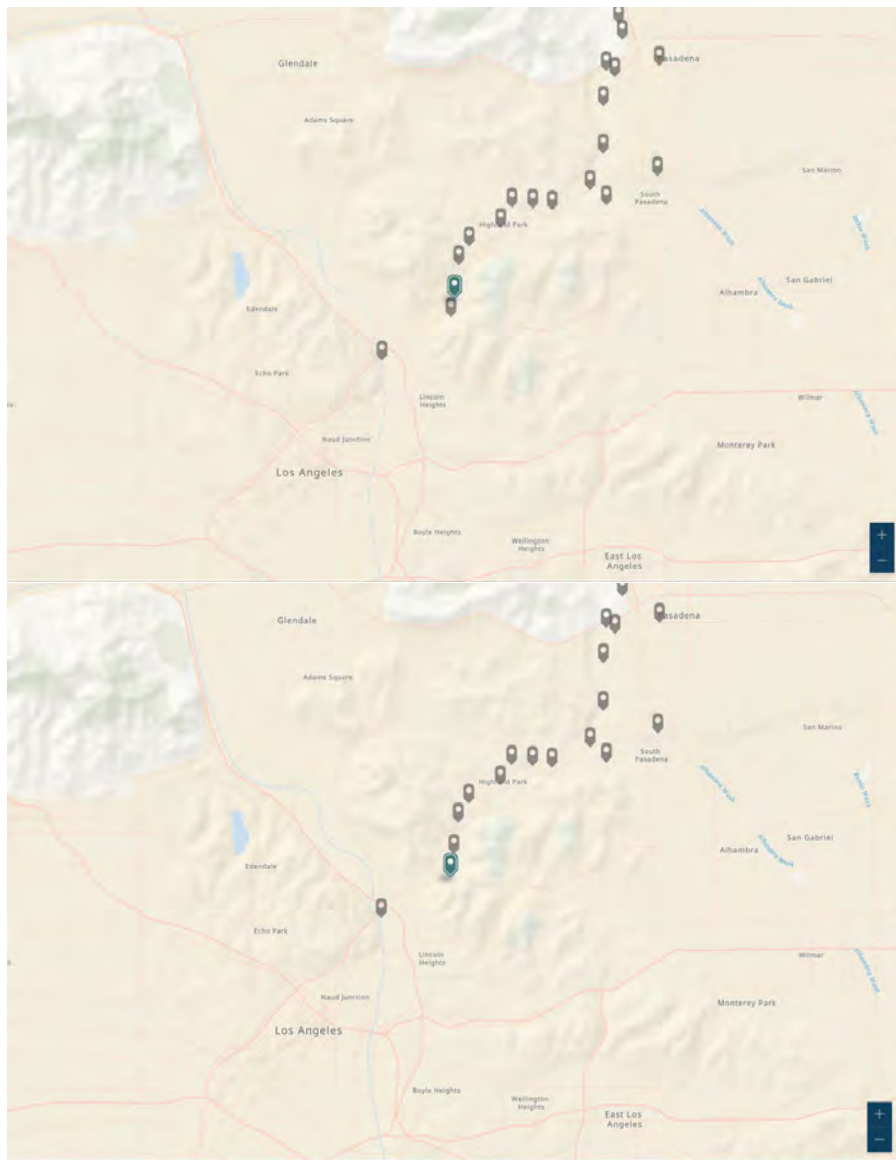
Lummis House and Gardens

Charles Lummis, a journalist and Southwest American enthusiast, built this home himself from Arroyo stones. He frequently hosted parties here, often with many of his other friends of the bohemian Arroyo lifestyle. More information on his legendary parties and other of Lummis' history can be found here. The home is listed on the National Register of Historic Places and as a California Historical Landmark.

Heritage Square Museum

Within the overlay zone, Heritage Square holds many of the Los Angeles Historic-Cultural Landmarks, including the Hale House, Valley Knudsen Garden and Residence, Mount Pleasant House, Lincoln Avenue Church Building, and the Octagon House. These include several Victorian style homes built in the late 1800s and moved to Heritage Square to save them. A brief history of each of the buildings at the museum can be found here.

Confluence

The confluence marks the end of the Arroyo Seco as it flows into the Los Angeles River, as well as another engineering feat. It is notable not just as a feature of the landscape, but the community has wanted this mark this place as special with a park. The specific location where the Arroyo terminates and flows into the LA River is unremarkable, but it holds importance as the connection between the two ecologies, but also possibilities for linking bike paths and other infrastructure. Many hurdles have prevented this outcome over the years, but a roundabout features a prominent art piece by artist Greenmeme sits at the intersection of San Fernando Road, Figueroa Street and Riverside Drive, a few yards away from the confluence itself.

Appendix C

The most updated StoryMap can be found at
https://storymaps.arcgis.com/stories/821c3ff44c6e4406a6614fa17f56089a.

The Past and Present

Clearly the freeway appears differently than when it opened in 1940. And there is more differences than just the cars themselves. Traffic is significantly heavier today and moves at higher speeds.

Traffic through the tunnels runs both north and south, whereas today the tunnels just hold the northbound side of the 110 traffic.

Many of the spots in this video should be familiar to those who travel the freeway today. Safety improvements of all scales, from updated guardrails to stop signs at onramps, have modernized the parkway a bit.

Before the Parkway

Before the Arroyo Seco Parkway was simply the Arroyo itself. A series of bridges crossed over the small ravine, but transportation parallel to the stream was hard to find.

The topography of the area with steep slopes and rocky ravines. The river cut through the hills to create this canyon.

Four bridges crossed the Arroyo before the WPA proliferated bridges in the 1930s and 40s, when the construction of the Parkway also began:

- the 1895 Santa Fe Arroyo Seco Railroad Bridge

- the 1912 York Boulevard Bridge,

- the 1925 Avenue 26 Bridge

- the 1926 Avenue 60 Bridge

Construction

A lot of the story of the Arroyo Seco Parkway follows the story of cars in Los Angeles. While cars were not nearly as widely used as they are now, the Automobile Club of Southern California successfully lobbied the CA state legislature to continue running rural highways into urban areas. Construction of the parkway started in the in the 1930s. It cost $6 million for the 8.2 mile stretch. It was designed by engineers C.H. Purcell and S.V. Corteloyou, and many local and federal agencies helped build the freeway. The Works Progress Administration and teh Public Works Administration were two of the federal agencies.

Many sources note that the Arroyo Seco Parkway was instrumental in bridging the era of parkways and the era of freeways. It was the first American freeway, and set the stage for many others.

Opening

The freeway opened December 30, 1940 to much fanfare. Soon after its opening, people started questioning how helpful it really was.

Two months after opening ceremonies, residents started raising concerns about traffic, when the intention of the highway was to cut down on congestion in local neighborhoods.

Though this was true and helped divert some cars, Figueroa Street business owners were concerned the new thoroughfare would decrease traffic past their storefronts.

Continued Evolution

It wasn't long before a network of freeways grew around the Arroyo Seco Parkway. The extension used the Figueroa Street tunnels to connect through to downtown. The street was updated to freeway standards of that time, and the parkway was lengthened. It continued to grow when in 1953 southern extension connected the Parkway to the famous Four-Level Interchange in downtown L.A.

This connection linked it to the Hollywood (101) and Golden State (5) Freeways, in addition to the Harbor Freeway, going by the same name- the 110 freeway.

On November 16, 1954, its name changed to the Pasadena Freeway, though eventually reverted back to the Arroyo Seco Parkway.

Safety Concerns

Through the present day, the thoroughfare has been plagued by traffic accidents. Sharp turns, poorly designed offramps and onramps, and high speeds cause many problems. Traffic collisions along this route are frequent and tragically take many lives.

There have been various attempts to increase safety measures, with varying degrees of success. Collaborative plans between governmental and neighborhood groups have been drafted. A student project even produced a creative adaptive reuse for the freeway.

Significance and Designations

It is a National Civil Engineering Landmark, a National Scenic Byway, and the first of just two California Historic Parkways.

The Arroy Seco is listed on the National Register of Historic Places.

The Historic American Engineering Record (HAER) is a collection of American sites and has the Arroyo Seco on file with a report, posters and photos.

It is still undergoing transformation in its use and place in the city. Today the Arroyo Seco Parkway is considered a Scenic Byway.

> "
> "It takes courage to do a thing the first time, no matter how simple and obvious it may appear after it is done. And this, fellow citizens, is the first Freeway in the West."