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Creating a Self-Guided Historic Tour for Princeton, Massachusetts

Daniel Yun

Worcester Polytechnic Institute

Franc Luga

Worcester Polytechnic Institute

Leah Estel Reppucci

Worcester Polytechnic Institute

Rekik Nitsuhsew Tafesse

Worcester Polytechnic Institute

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Creating a Self-Guided Historic Tour for Princeton, Massachusetts

An Interactive Qualifying Project Report
Submitted to the Faculty of
WORCESTER POLYTECHNIC INSTITUTE
In partial fulfillment of the requirements for the degree of Bachelor of Science.

Submitted By:

Leah Holt

Franc Luga

Rekik Tafesse

Daniel Yun

Worcester Community Project Center
Worcester, Massachusetts

Date: December 13, 2016

Report Submitted to:

Project Sponsor

Princeton Historical Society

Princeton Arts Society

WPI Faculty Advisors

Professor Corey Denenberg Dehner

Professor Purvi Shah

Worcester Polytechnic Institute

This report represents work of WPI undergraduate students submitted to the faculty as evidence of a degree requirement. WPI routinely publishes these reports on its website without editorial or peer review. For more information about the projects program at WPI, see

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Abstract

The Princeton Arts Society and the Princeton Historical Society desired a tour that would expose residents and visitors of Princeton, Massachusetts to the town's history and art. This project focused on identifying the historically and artistically significant sites in Princeton, and then researching ideal components of a physical brochure and an online guide of a self-guided tour. Additionally, we developed a prototype of both the physical brochure and the virtual tour for immediate implementation by our sponsors.

Acknowledgements

We would like to thank our advisors, Professor Corey Dehner and Professor Purvi Shah, for their guidance and advice. We would also like to thank our sponsors the Princeton Historical Society and the Princeton Arts Society and their representatives, Ms. Claire Golding and Ms. Clair Degutis, for this opportunity and their support through the course of this project.

Executive Summary

Introduction, Background, and Motivation

Throughout the world, history is highly regarded, carefully preserved, and studied. In order to increase accessibility and interest in history, many organizations are supplementing or revamping their existing tools for distributing historical information, which include, but are not limited to, maps, self guided and guided tours, and signs. These efforts often involve the use of new technology such as GPS, cell phones, and MP3 players or older technologies such as printed brochures and informational signage placed at tour sites.

Through the accumulation of knowledge from past attempts, successes and failures, we are able to innovate and reach greater heights. History constantly builds on itself as time passes. Someday, the present will be the past and our descendants will utilize the information we accrued to create their own advancements and improvements on modern-day ideas.

The Princeton Historical Society (PHS) was founded in 1938 with the purpose of promoting historical research and preservation in Princeton, Massachusetts. The Historical Society also takes on the task of “...promot[ing] conversations on creating a better future” (Princeton Historical Society). More than 50 years later, in 1990, the Princeton Arts Society (PAS) was founded with a purpose to “...both encourage and support local artists...” as well as to hold programs for its members and the community (Princeton Arts Society). Both organizations currently have programs in place to promote community interest and involvement. Still, organization members believed that the creation of a more interactive program could boost community engagement with the town’s history and art.

Consequently, Ms. Claire Golding and Ms. Clair Degutis, members of the PAS and PHS proposed the development of a self-guided tour of the town highlighting Princeton’s history and art. Ms. Golding and Ms. Degutis’s vision was that the tour would be used by visitors and residents and

would achieve both organizations' aim of increasing participation and understanding of the town's history and arts.

Goals and Methods

The goal of our project was to supply the PHS and PAS with an easily updateable self-guided tour available as both a digital and a printed brochure. We were tasked with using technology that best suited the needs of Princeton and the volunteers who would be maintaining and updating the tour materials in the future. In addition, we also developed a set of recommendations suggesting how best to move forward.

In order to accomplish our goal, our group identified a set of objectives and tackled them in two phases: (1) research and (2) development and evaluation. To begin the research phase, we first identified the goals our sponsors, PHS and PAS, had for the tour. We did this by conducting an interview with the two organizations' representatives Ms. Golding and Ms. Degutis. Following that, we met with the members of PHS and PAS on October 24, 2016 to conduct a focus group. The meeting was instrumental in achieving the first phase of our objectives. This focus group gave us a starting point for sites and locations to include in the tour. We then narrowed the list of sites down by driving around Princeton and visiting the sites and by analyzing content at the Princeton Public Library archives.

Next we moved on to identifying features of other historical town tours. This helped us figure out which important criteria to include in the Princeton tour. We accomplished this objective through participant observation in historical tours of nearby towns. Participating in these tours provided us with a starting point and models we could base the Princeton tour on. We participated in these tours with a rubric to assess their quality in terms of length, ease of locating sites, ease of

reading the map, and relevance and interest in the information provided. Our assessment of these tours helped us develop a set of standards that we would then implement in the Princeton tour.

We then determined the most appropriate technology to implement for the Princeton tour. When choosing a technology, we had to keep in mind the financial and staffing constraints of our sponsors, as well as their educational objectives and the limitations of the town of Princeton. We designed and created a number of virtual prototype tours in order to discover the pros and cons of each virtual platform and present them to our sponsors. We gathered input from our sponsors on their needs for the physical and online version of the tours and determined that an interactive PDF and a print trifold brochure were the best platforms to use. Due to Princeton's poor network coverage, the tour needed to be accessible offline. The PDF could be downloaded once to a tablet or phone and used throughout the tour without needing to connect to the internet. It is also very simple to update, requiring only the use of Adobe InDesign.

Having determined the most appropriate technology, we moved on to the second phase of the project. The purpose of the second phase was to develop the tour, its supplements and provide recommendations for further development. This phase involved developing content (descriptions and images) for the sites that would be included in the PDFs and trifold, designing the PDFs and trifold brochure and writing the instructions for updating the PDFs in Adobe InDesign.

Findings and Deliverables

During the course of our project we made numerous findings related to the design, development, and maintenance of a tour. Our findings helped us develop criteria for an effective self-guided tour and gain insight on some of the challenges of the development and maintenance of historic town tours.

Through our participatory research of the historic town tours, we identified a number of criteria that form an effective and successful self-guided tour. A successful and effective tour includes the tourist completing the tour having learned something, having enjoyed the tour, and gaining interest in the subject matter. We found that a successful tour must include: **(1) reference points, (2) accessible technology, (3) a mixture of mediums for conveying information, and (4) length of the tour.**

The interviews we conducted with organizations and individuals that created the tours gave us insight on the process of developing tours. **We found that (1) working on developing a tour is best done in a smaller group; (2) the accuracy of information is incredibly important and (3) historic town tours struggle with gaining feedback from people that participate in their tours.**

Another thing we found through the course of our research is that the majority of Princeton's archives have not been digitized. There is a lot of information that exists in the archives that is not available online, which made developing content for the tour more challenging than we initially thought. This meant that we could only add information to the tour while we had access to the archives in Princeton.

After completing all our objectives, we had a number of deliverables for our sponsors. These deliverables included the PDFs of the tour along with their respective Adobe InDesign files so the PDFs can be updated in the future, the editable version of the trifold brochure, a set of instructions on how to update both versions of the tour, and a promotional video for the tours.

Recommendations

All of these findings and deliverables resulted in a number of recommendations for creating new tours. These include: a checklist of criteria for a self-guided tour, development of tours in small groups, and digitizing the historical archives to make history more accessible.

We also generated a number of recommendations for further research. These include:

1. Researching and developing a way to better receive feedback from the tour as well as a way to count the number of tourists who use the tour. Our research and interviews illuminated the desire of tour makers to receive feedback in order to improve the tours as well as to get a headcount to understand the amount of users of the tour.
2. Developing a way for the Princeton library to digitize their archives and make them accessible to people worldwide and those living in Princeton who may be interested. Digitizing the archives would help preserve the artifacts due to the lessened amount of handling due to the copies that would now be available online. The digitization could also allow people to learn more about Princeton from a reliable source.

Incorporated in 1771, Princeton has a very interesting and history rich past for a small town in the middle of Massachusetts. Princeton has something for everyone; whether it is history, hiking, or relaxation. Discover Princeton today, and come back again and again. History is being made every moment.

Authorship

Leah Holt	Wrote and Edited: Abstract, Executive Summary, Introduction, Background, Methodology, Results and Analysis, Deliverables, Conclusion and Recommendations
Franc Luga	Wrote and Edited: Introduction, Background, Methodology. Edited: Abstract, Executive Summary, Results and Analysis, Deliverables, Conclusion and Recommendations
Rekik Tafesse	Wrote and Edited: Introduction, Background, Methodology, Results and Analysis Edited: Abstract, Executive Summary, Deliverables, Conclusion and Recommendations
Daniel Yun	Wrote and Edited: Introduction, Background, Methodology. Edited: Abstract, Executive Summary, Results and Analysis, Deliverables, Conclusion and Recommendations

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1. Introduction

Massachusetts is one of the most historically rich states in the United States. According to the United States National Register of Historic Places (NRHP), Massachusetts is second only to New York in number of historic sites in the nation (National Park Service, 2015). Massachusetts is home to over 4,000 historical sites, which is no surprise considering that the state is one of the original thirteen colonies (National Park Service, 2015). Many of these historic places were sites of important U.S. history. Some examples include the Freedom Trail and the Plimoth Plantation. Due to the importance of the historic sites and the knowledge these locations can impart on society today about the history of the nation, state, and town in which they are located, the Princeton Historical Society (PHS) and Princeton Arts Society (PAS) were interested in promoting the historic buildings and locations in their town of Princeton, Massachusetts. The two organizations were interested in creating a self-paced, self-guided tour of key historical sites, buildings, and locations in Princeton utilizing an interactive website with maps and information about those sites. This website would create a way to make the town's history more accessible to residents and visitors alike.

The Princeton Historical Society was founded in 1938 with the purpose of promoting historical research and preservation in Princeton. The historical society also takes on the task of "...promot[ing] conversations on creating a better future" (Princeton Historical Society). Better history education leads to more well-rounded, knowledgeable people and a sense of town pride within residents.

More than 50 years later, the Princeton Arts Society was founded in 1990 and its purpose is to "...both encourage and support local artists..." as well as to hold programs for its members and the community (Princeton Arts Society). Both organizations currently have programs in place to

promote community interest and involvement but the creation of a more interactive and self-guided tour could boost community engagement with the arts and the town's history.

Princeton is situated in Worcester county, Massachusetts with a population of 3,477 (Town of Princeton, 2016). It borders towns like Rutland, Holden, and Leominster. Princeton was established in 1759 and incorporated in 1771 and because of its early development it is home to a plethora of structures that are historically significant. In fact, the town of Princeton has six sites that are listed on the National Register of Historic Places (*Listed properties on the National Register*). Unfortunately, there is a general lack of good documentation of the historical structures in Princeton. According to the *Princeton Town Plan*, “without a completed resource inventory and accurate GIS maps, it is very difficult to document the number of historic structures in Princeton or their locations” (Sentkowski et al. 2007). The lack of good documentation of the sites makes it difficult to appreciate the town's age-old buildings. Proper documentation of the historical buildings and sites in Princeton would not only make the town's history more accessible but also enable Princeton residents to showcase the rich history they have to offer.

Princeton has stored a part of its history in its open spaces and landscapes, where sites such as the Redemption Rock and Mount Wachusett reside. These landscapes have retained their natural, scenic, and historical qualities throughout the years. However, “these sites have not been surveyed as part of a town-wide cultural resource inventory and aside from a partial listing in the 1990 Open Space and Recreation Plan, they have not been fully documented” (Sentkowski et al. 2007).

With this project, we created the first phase of the tour which laid the groundwork for subsequent groups or our sponsors to continue the work. We identified historically and artistically significant sites in the town, designed an electronic tour that contains an interactive map of the selected sites in which people can view more information about them, designed a printable brochure

that can be placed in some of Princeton's busiest areas for residents and visitors to pick up, and finally created instructions on how to update all the tour supplements we created.

2. Background

The Princeton Arts Society (PAS) and the Princeton Historical Society (PHS) hope to inspire town pride as well as spark conversations about the past, present, and future. Therefore, the PAS and the PHS would like to work together to develop a self-guided tour of historical and artistic areas of the town (Princeton Arts Society, Princeton Historical Society). In this chapter, we explore the importance of history and its preservation, different types of tours, ways to experience history, and the town of Princeton, Massachusetts.

2.1 Importance of History

We are where we are and who we are because of events that took place in the past. In *The Importance of American History*, Janice Lamb asks “How can [a] student fully understand the nuclear weapons competition today if he is not familiar with the Cold War, McCarthyism and the Truman Doctrine?” (Lamb, 1986). One cannot understand how the present was created without first understanding the past. This means history is important since through it, we are made aware of our past mistakes and triumphs. These successes and failures are most clearly seen in military history. Present day military leaders are expected and encouraged to look to the past before planning any military operation. Previous military events can give current military leaders insight into some unforeseen challenges or different approaches to implementing military operations (Air Force Historical Foundation, 2007). A thorough understanding of history can save time, lives, and resources through the ability to make informed decisions (Air Force Historical Foundation, 2007). An example of this can be found in *A Guide to the Study and Use of Military History*, where Jessup and Coakley (1988) describe how before the start of the American Civil War, a junior Engineer officer pointed out how the current Atlantic coastal defenses would be ineffective against an attack. The junior Engineer officer supported his claim through an account on all the attacks by sea that had

occurred since 1400 C.E., which proved how vulnerable the United States was to amphibious attacks (Jessup, Coakley, 1979). By understanding the causes and effects of events in history, we become better equipped with ways to deal with future conflict.

History inspires us to achieve greater heights. The Wright brothers never would have created the first airplane if not for the people who came before them and attempted to build a flying machine; Leonardo da Vinci, Sir George Cayley, Otto Lilienthal, and Octave Chanute all were instrumental in developing flight technology and set the stage for the Wright brothers due to their successes and failures with achieving flight (Air Force Historical Foundation, 2007).



Figure 1: The Wright Brothers in 1903 (Gardner, n.d)

Accomplishments of the past have facilitated innovation due to the accumulation of knowledge from previous attempts, successes and failures. David Deming comments in *The Importance of History*: “Unless the course of history has stopped, it is likely that everything we now believe to be true will either be supplanted or refined by our descendants”(Deming, 2016). History constantly builds on itself as time passes. Someday, the present will be the past and our descendants will utilize the information we accrued to create their own advancements and improvements on modern-day ideas.

2.2 Preservation of History

The task of preserving and disseminating history can be daunting given the sheer number of historically significant sites and artifacts scattered throughout the world. However, there are numerous methods of storing and accessing history, including libraries that house archives and historic books, the Internet, and museums, just to name a few. (Wang, 2009.)

Perhaps the oldest forms of historic preservation are books and other written artifacts. Even before the invention of the printing press in the 1440s, notations were painstakingly written by hand on clay tokens, carved into walls or written on papyrus (Harry Ransom Center, n.d.). Many of these accounts have since been lost or fragmented due to time and wear but those that remain provide valuable insight into the lives and practices of ancient peoples. It is because of these tablets and fragments that we know what kinds of laws, business transactions, and literature were deemed important enough to be recorded for later use (Harry Ransom Center, n.d.). All written documents created before and after the invention of the printing press contain valuable information that allows us to revisit historic moments and to better understand life and business of earlier periods of human history (Encyclopedia Britannica, 2016). One of the most important advantages that books have is that they are often primary sources of information, meaning that they were written by people who were involved with the particular piece of history, which provides insight on how people felt or how society reacted to certain events.

However, books are also limited in that up until recent times it was not possible to include photographs, so all images were restricted to drawings or interpretations, which can lead to inaccurate depictions (Science Illustration, n.d.). Handwritten books also have numerous errors due to the illiteracy of and the restrictions on the copyists. These scribes were often not allowed to speak while working and could not correct mistakes in the text they were copying, resulting in a magnitude of errors that slowly grew with each new copy of the text (Harry Ransom Center, n.d.). Nonetheless,

books and other writings are important because they are one of the oldest ways of spreading ideas and documenting important events and locations (Encyclopedia Britannica, 2016). Books are ideal for preserving anecdotes of events but are not the best method of preserving physical objects since they can only contain images or written descriptions of the objects and these objects decay and deteriorate over time.

The pros and cons of books as a way to preserve history are summarized as follows:

Table 1: Pros and Cons of Books and other Written History

<u>Books and Writing</u>	
Pros	Cons
Primary Sources	Errors in the text
Can be transferred online	Inaccuracies
Catalog system - always know location	Can only access at certain times
Free at libraries	Not current information

The advent of the World Wide Web has made it easier than ever to archive and share history. Online archives do not suffer from the same limitations as other preservation methods, such as museums and books, do. For example, an online database provides an unlimited amount of space to store information that can be accessed from anywhere in the world at any time whereas museums have a limited amount of space and can be difficult to reach based on their static location (Wang, 2009). Another benefit of an online archive is that it has the capability of presenting videos and sounds that would otherwise be impossible to convey with a book or in a crowded museum exhibit. Furthermore, all of the material can easily be translated to multiple different languages without the need to make an entirely new museum exhibition or take up too much space on a display (Encyclopedia Britannica, 2016). The internet also eliminates the issue of certain cultural artifacts

only being available in a single region by allowing access to anyone at any given time through virtual exhibits and information.

Table 2: Pros and Cons of the Internet as a way of Preserving History

<u>Internet</u>	
Pros	Cons
World-wide access	Authorization is sometimes needed
Unlimited storage	Anyone can publish the information
Access anytime	Reliability is not guaranteed
One location for numerous info	Understanding may be lessened

Most notable among these methods of historic preservation and propagation are museums. The purpose of the museum is to collect, document, and conserve objects of historical, cultural, artistic or scientific importance for the public to view and research (Arinze, 1999; Gibbons, 2013). Museums are very common, with over 35,000 in the United States alone, and the culture and history housed and preserved within museums can be appreciated by anyone who visits (IMLS, 2015). The preserved artifacts can prove invaluable in educating the public. In fact, museums spent more than \$2 billion a year on education activities in 2009 (Museum Financial Information Survey, 2009). Data from 2006 shows that American museums receive approximately 850 million visits a year and this number continues to grow annually (American Alliance of Museums). The ability of museums to hold events and activities is a distinct advantage they have in providing the public with the ability to experience culture and history. These activities can attract and stimulate community interest in local history that can then expand to broader history (Encyclopedia Britannica, 2016). Museums are the perfect medium for preserving physical artifacts because their finer details can be examined up close

and these details cannot be showcased in a book. Table 3 explores some of the benefits and drawbacks of museums in more detail.

Table 3: Pros and Cons of Museums as a way of Preserving History

Museums	
Pros	Cons
Numerous locations	Physically have to visit
Educational	Entrance fees
Events and Activities	Boring if material is ill-presented
Reliable	Interaction is usually limited to viewing
Knowledgeable Employees	

Books are the oldest form of historic preservation. Despite the drawbacks of written texts, which include errors from the copyists and reliance on drawings and interpretations, books are primary sources and provide valuable insight on the past.

The internet allows information to spread throughout the world quickly and with ease of access. There is an unlimited amount of space online that can store writing, videos, audio, and photography. The major drawbacks of the internet include varied reliability, authorization must sometimes be bought to access materials, and conflicting information.

Museums are located throughout the world and are reliable and educational. Limitations for museums include entrance fees, visitors have to go to the museum, and the visitors can only look and read about the history in the museum.

Once history is preserved, how can it be shared with the public? One solution is through historical tours.

2.3 Crafting Experiences through Tours

A tour is an organized trip in which sequences of places are visited to view or inspect them. People participate in tours hoping to gain new knowledge or a deeper understanding of the history of the site. The next section will delve deeper into the different types of tour, the incorporation of interactive media in tours, and the positive and negative impacts tours can have on communities. A successful tour exhibits the following characteristics, the tourists: (i) finish the tour having learned something, (ii) were engaged throughout the tour, and (iii) would recommend that a friend participates in the tour (Thomson, 1996). Active learning helps people interact with each other and discuss points of interests, which helps visitors engage and be active participants (Best, 2012). There are numerous ways to involve tourists, which include different types of tours, and technology usage.

2.3.1 Types of Tours

Tours can be classified in a multitude of different ways: guided or self-guided, walking or driving and these categories themselves can be arranged into subcategories that range from interactive to completely static.

Guided tours are typically led by a trained and knowledgeable guide, hired by an individual, or more commonly hired by an organization, company, or business that employs the guide to lead groups of visitors. A group tour can be useful because the amount of people can lead to discussions and questions of topics that would not have been otherwise discussed. However, group tours may also suffer from a lack of sensitivity to individual and cultural differences due to the wide variety of people who may be in the group (Cox-Petersen et. al, 2003). The majority of the tour will consist of the guide speaking and showing locations and artifacts that stick to a specific outline or script which is often provided by the organization hosting the tour (Cox-Petersen et. al, 2003; Howlett, 2014).

Due to the lack of input of the content of the tour by the tour-goers, the experiences and information of the chosen tour can be impersonal and unrewarding to the visitors.

In self-guided tours, the tourists guide themselves with or without supplementary tour material such as audio recordings, maps, information pamphlets, etc. Self-guided tours may give the tourists a more personalized experience since the tourists can tailor the tour based on their interests at the site and the amount of time they have available. According to Cynthia J. Little, a member of the Historical Society in Pennsylvania:

“For a self-guided tour to hold a visitor’s interest, there must be a variety of places to see... in other words, tangible evidence must still be visible... When there is nothing to see, you must make that fact clear, or, if you think the tour will primarily be read and not walked, you must write and illustrate more descriptively.”

A tourist cannot personalize the tour without numerous locations and artifacts to see. Tours must be updated and revised in order to remain competitive and current as well as to ensure that the tour is accessible to everyone interested (Little, 1989). The use of connections and relationships instead of just stating facts can improve the accessibility of tours. Ron Thomson’s *A Different Path for Historic Walking Tours*, shows an example of this, where readers are asked to compare two facts from tours of the same building.

The first entry:

“The cream brick... façade was remodeled about 1892”

The second entry::

“Red brick was rarely used for building... because it had to be imported and was therefore much more expensive than the [local brick], which when fired, produced a cream colored brick.” (Thomson, 1996)

The first entry merely tells about the building and the chances of the tourists retaining the information are slim. In comparison, the second quote connects to costs of building, and therefore tourists can understand, no matter their age or education, why the building has cream bricks instead

of red. Most people can understand the reasoning behind choosing an inexpensive brick to build a house, but not everyone understands the architectural choices behind the decision (Thomson, 1996).

Self-guided tours around a site allows the tourist more freedom, there is also the chance of misinformation due to misunderstanding the presented information. This could be caused by unclear signage or complex wording, not every tourist will have the same educational background or understanding of the sites as the writers of the tour material. An example of this can again be seen in *A Different Path for Historic Walking Tours*. If the visitor doesn't understand what a "façade" is, or cannot locate the cream brick on the building, then misunderstandings can arise. If "façade" is replaced with "wall" or "outside wall", then the chance of miscommunication is lessened, adding in a descriptor would also help by directing viewers to specific locations. Consequently, self-guided tours must be accessible to a wide range of individuals (Thomson, 1996).

Another way tours can be classified is by the type of supplementary tour material used to get the tourist involved. Common supplementary material include audio recordings, kinesthetic experiences which involve the senses, such as letting the tourist try their hand at historical activities such as pumping water or scrubbing laundry, or even virtual tours which allow tourists to explore the material without physically being at the location (Rand, Kiihne, Watkins, 2009). Virtual tours of sites can be taken from anywhere in the world thanks to the internet and improved sound and video recording devices. Audio tours often supplement a walking or driving tour, combining concepts and information with the physical tour to create an experience that promotes critical thinking and learning (Carbonell, 2011).

Table 4: Benefits and drawbacks of different types of tours

Component	Benefits	Drawbacks
Guided Tour	Informative	Impersonal
Self-guided Tour	Tailored	Could result in misinformation
Virtual Tour	Easily accessible	Not as immersive as a live tour
Audio Tour	Serves as a great supplement	Not as interactive

The ultimate goal of the tour is for the tourist is to learn something. Museums and other historical societies are finding it increasingly difficult to keep audiences, especially younger ones, engaged. According to Katie Best, PhD a tour researcher at King’s College London, writes “younger audiences have emerged from an education system which is more interactive and less didactic than the typical guided tour” (2012). For this and many more reasons, tours have begun to incorporate interactive components.

2.3.2 Interactive Media in Tours

According to Elaine England and Andy Finney, authors of *Managing Interactive Media: Project Management for Web and Digital Media* and directors of Atchison Topeka and Santa Fe Ltd, an interactive media and data consulting company, interactive media is:

“...the integration of digital media including combinations of electronic text, graphics, moving images, and sound, into a structured digital computerized environment that allows people to interact with the data for appropriate purposes. The digital environment can include the Internet, telecoms and interactive digital Television.” (England & Finney, 2012)

Based on this definition, interactive media is a tool that can be used in order for a person to interact with the digital world. Through interactive media on websites and in-person through the use of applications on phones and hand-held tablets, organizations can attract potential customers to

both the website and the physical location due to innovation or curiosity. Interactive media and its numerous types have a number of advantages and disadvantages depending on the implementation and the specific user of the media.

Different demographics have different preferences for incorporation of media into tour designs. Younger audiences are more inclined to participate in a tour if there are interactive components such as audio, video, photos, etc. (Carbonell, 2011). Older audiences might prefer a traditional guided tour with a tour guide or a self-guided tour with signs, markers, maps, and informative signage (Best, 2012).

Media can be updated quickly and cheaply to reflect new changes in the museum or information. Maps and pamphlets cannot be updated as easily due to cost restrictions and the time it takes to reprint materials. Despite the ease of updates for online media, the act of updating can be expensive depending on the kind of technology implemented. If the online media requires a computer scientist to write and test new code, then the updates can be expensive. It is therefore important to find types of media that are easily updatable, without the need of any specific, advanced knowledge or high maintenance costs (Van der Kloot, Mulready & Krach, 2006).

2.3.3 Impacts of Tours

Tourism comes with numerous impacts, some educational, others financial, and still others emotional and socio-cultural.

Tours can help people better understand themselves and the world around them. They expose tourists to foreign cultures or help reconnect them to their roots. Erik H. Cohen, an associate professor at the School of Education in Bar Ilan University in Israel, conducted research with 10,374 participants who were almost exclusively Jewish, visiting Israel as tourists. Following the tour, 89% of the visitors said that the experience had enhanced or definitely enhanced their

relationship with the country (Cohen, 2014). This is one of many examples of how tours can be beneficial to visitors. Tours involve immersion; they provide you with a unique experience that cannot be easily replaced by reading or watching a movie.

Increased tourism can stimulate the economy of a town or city. James Mak, a professor of economics at the University of Hawaii, writes in his book *Tourism and the Economy*, “When tourists spend money, they create a demand for local goods and services and generate income, employment and tax revenues in the community” (Mak, 2004). Economic stimulation is not the only way tours can benefit a community, there can also be socio-cultural gains such as: awareness, appreciation, family bonding, community pride, and a firmer sense of ethnic identity (Driver, Brown & Peterson, 1991). Associate professors at Northern Arizona University, Martha Lee and Peter McCormick, along with Antonia Besculides who has a Masters of Science in Forestry, conducted research regarding the perceptions of cultural tourism by Hispanic and non-Hispanic residents living along the Los Caminos Antiguos Scenic and Historic byway in southwest Colorado. The research found that residents of the tourist-frequented area felt a “stronger sense of self” and “greater pride for [their] community” (Besculides Lee & McCormick, 2002). This strongly supports the idea that showcasing identity to visitors so they can learn and appreciate that identity inspires appreciation and respect for the culture for both visitors and residents.

Despite the multitude of benefits tours can have on individuals, tours can have negative impacts on the communities in which they operate. One drawback tours can have is that they can catalyze cultural change. There have been instances where the host community has altered its culture to better interest and attract tourists. An example of this is the Amish in Pennsylvania. According to an article by Linda Boynton, unique Amish quilt designs were maintained well since their origination because of the community’s isolation. However, with increased tours in the area and exposure to tourists, the research found that the Amish began designing quilts that deviated from their original

designs to better attract tourists who would purchase them (Boynton, 1986). This shows how a community or culture can lose its identity in an attempt to attract more tourists and therefore more income.

Another impact of tourism is an increase in population and the results of such increase. Tourism can inspire the opening of shops, restaurants, and other businesses in the area, causing residents of the community to have concerns about increased traffic, crowding, and congestion (Andereck, Valentine, Knopf, & Vogt, 2005). The new shops, restaurants, and other businesses can take away customers and opportunities from long-time residents of the town.

In addition, increased influx of tourists can lead to competition for scarce resources (Dwyer, Forsyth, & Spur, 2004). An increase in the demand for goods and services can lead to a rise in prices, potentially impacting the ability of local residents to afford these goods and services. Impacts of tourism that may concern one community may not concern another (Andereck et al., 2005). For instance, the population of Princeton is not as culturally different and isolated from society like the Amish in Pennsylvania. With increased tourism it was found that the Amish suffered from loss of culture. However this will not be as big of a concern to Princeton residents like it would be for the Amish. The impacts tours could have on a town like Princeton will be unique to Princeton. In the previously described example, the Amish were suffering from a loss of culture, this will also not be a concern to Princeton residents. But, before we can explore the possible benefits and issues that may come with creating a tour for Princeton; we first need to look into the history of Princeton and what the tour may showcase.

2.4 History of Massachusetts

Massachusetts has long been known as an important player in American history. Not only was it one of the original thirteen colonies, it played a crucial role in the Revolutionary War and the nation's formidable early years (Boston's Public History). Massachusetts is the home of Plymouth,

the second successful permanent English colony in North America, with the first being Jamestown in Virginia (Seelye, 1998). Plymouth was the first colony in what is now considered New England, a section in the northeastern United States consisting of Maine, Massachusetts, New Hampshire, Vermont, Rhode Island, and Connecticut. These colonies and their founding dates in America can be seen in the following two maps, which show the early colonies of both Massachusetts and Virginia.

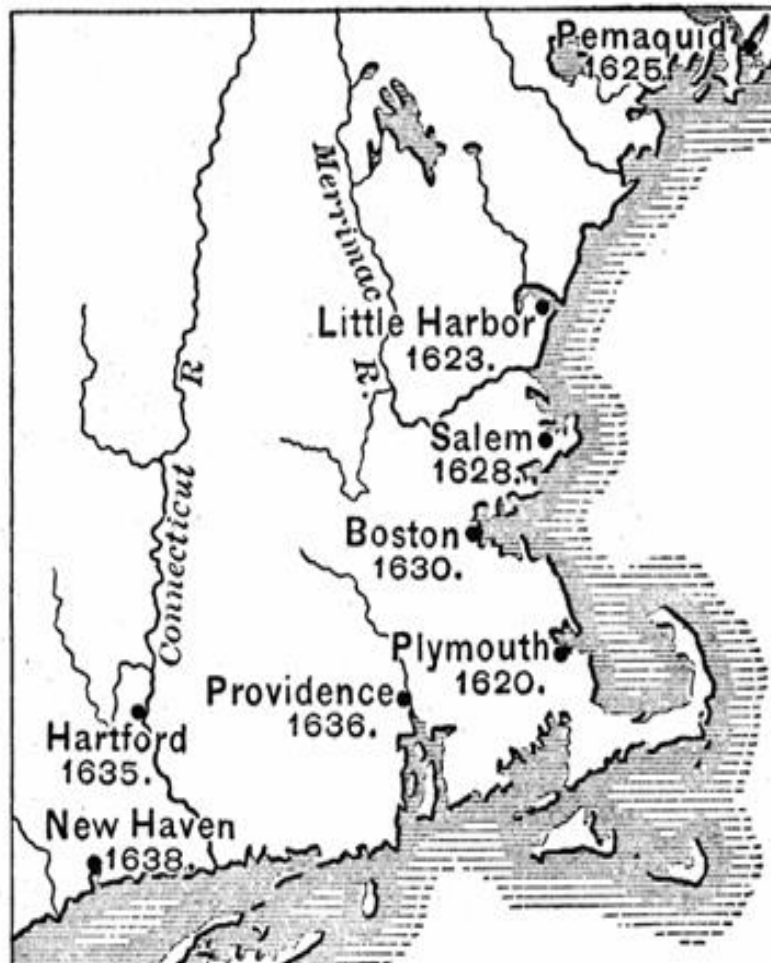


Figure 2: Early Colonies of Massachusetts (Eggleston, 1891)

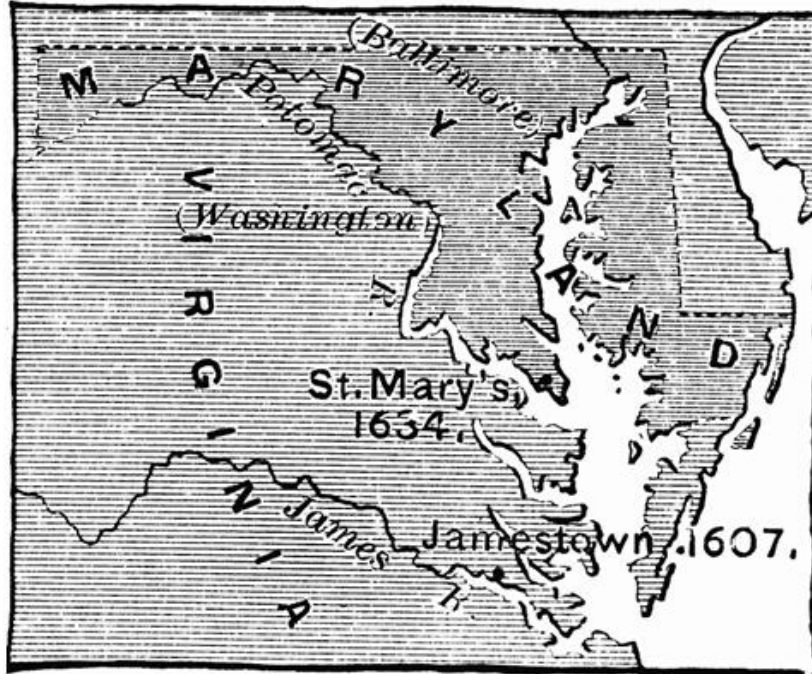


Figure 3: Early colonies of Virginia (Eggleston, 1891)

Many significant events leading up to and occurring during the Revolutionary War occurred in Massachusetts. This gives present day residents and visitors a chance to experience some of the most important years in American History (Conway, 2013). Colonists of Massachusetts had trouble with the British long before the Revolutionary War. Protests over taxes and laws led to events such as the Boston Tea Party and the Boston Massacre. Lesser known, but still important legislation that led to the war for independence include the Townshend Acts, Intolerable Acts, and the Stamp Act (Boston Massacre Historical Society). A multitude of signers of the Declaration of Independence came from Massachusetts. This large number of signers shows how integral Massachusetts was in molding the nation. Many of these people are now well known in American history, a few include John Adams, John Hancock, and Benjamin Franklin. What does all of this mean though? Why should anyone care about who did what or why or how? It all happened in the past. Despite being rooted in the past, history has tangible and lasting effects that should not be overlooked.

2.5 Princeton, Massachusetts

The history of the town of Princeton, Massachusetts begins with its establishment in 1759 and its incorporation later on, in 1771. Princeton's boundaries changed even after its incorporation by annexing parts of the town of Hubbardston as well parts of the common lands of "No town" (Rice, 1902). The town itself is located in the Worcester county area and borders with some towns such as Holden, Leominster, and Rutland.

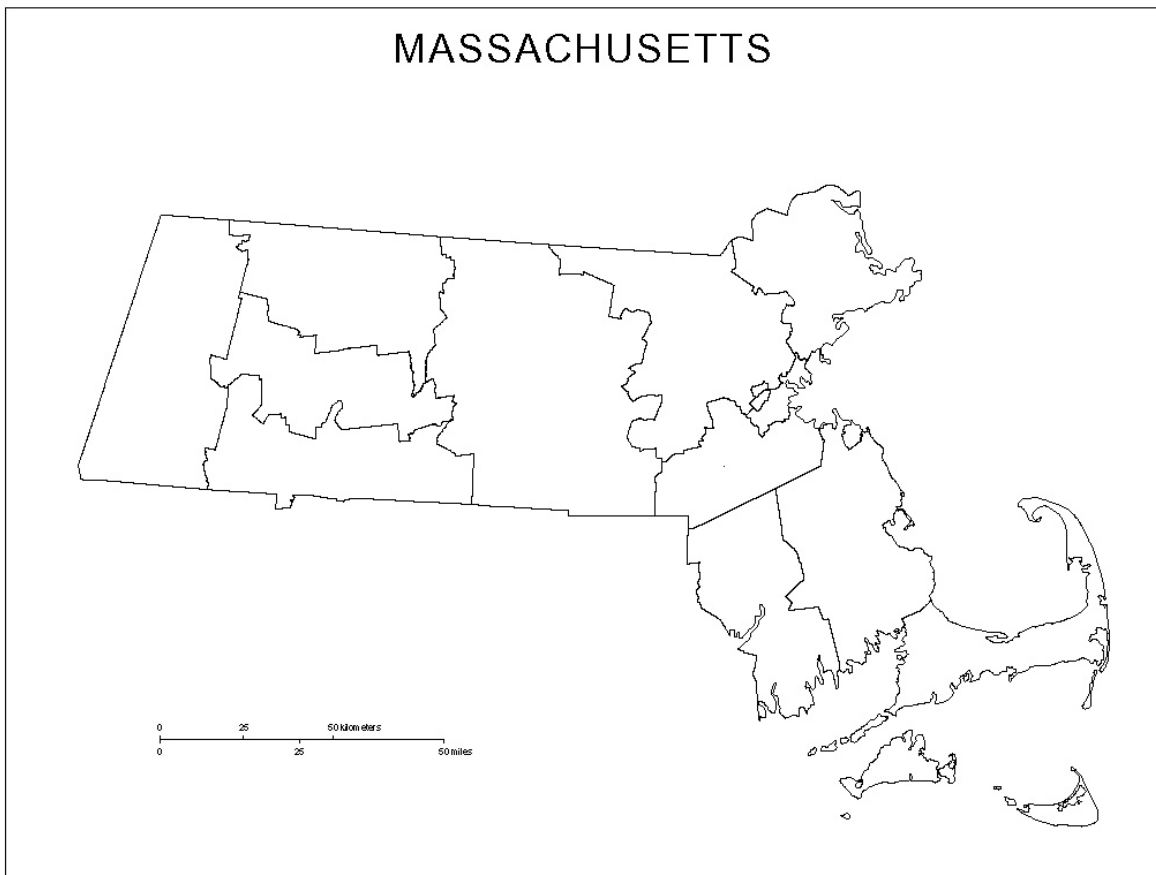


Figure 4: Outline Map of Massachusetts (Free Outline Map of Massachusetts)



Figure 5: Map of Worcester County (Ajemian & Gamble, 2013)

According to the census of its town (Town of Princeton, Massachusetts) as of January 1st 2016, Princeton has a population of 3,447 people and a total area of 35.85 square miles (Town of Princeton, Massachusetts). As a town with a relatively low population, Princeton is home to a variety of historical sites such as Redemption Rock and Mt. Wachusett (Princeton Historical Society). The town also has a collection of well-preserved historic structures dating from its initial settlement in the 18th century through its period of popularity as a resort and spa destination in the 19th and early 20th centuries (Anderson, Dubman & Fiandaca, 2009). Some of these sites include Fernside on 162 Mountain Road and Mechanics Hall in East Princeton.

The Redemption Rock located along the Midstate trail in Princeton and its importance dates back to the 17th century. Mary White Rowlandson and her three children were released from Native American captivity when King Philip, who was the leader of the Native American tribes in the area

of New England, agreed to the release of Mary and her children. The granite ledge was the site where Mary and the children were released (The Trustees, 2016).

On a clear day, one has the chance to observe the Boston Skyline, Mount Monadnock in New Hampshire, and the Berkshires towards the West from Mt. Wachusett (Commonwealth of Massachusetts, 2016). Mt. Wachusett has long since been considered a place for hiking, sightseeing, skiing and relaxation.

Fernside is a large yellow Federal style home on Mountain Road. The property served a variety of purposes through the years. It was used as a summer boarding house for Harvard professors and students then, about 20 years later, it became a vacation house for working girls from Boston. The property is best known for the 100 years it served as a vacation house for women, it then became a Bed and Breakfast Inn (Sentkowski et al. 2007). Fernside remains standing and well maintained as can be seen in Figure 6. The building is included in the National Register of Historic Places for its long history and fascinating architecture (Anderson, Dubman & Fiandaca, 2009).



Figure 6: Fernside on 162 Mountain Rd (McLean Fernside Residence)

These locations in Princeton are examples of what draws visitors and residents alike to the town. The sites provide valuable insight into the interests of visitors and residents and therefore, we can look at locations such as these in order to guide our methodology and the development of the tour for Princeton.

3. Methodology

3.1 Objectives

The goal of our project was to create and evaluate a self-guided tour for the Princeton Historical Society (PHS) and the Princeton Arts Society (PAS). The goal of the tour was to familiarize residents and visitors with the town's history and landmarks by providing an interactive experience that is accessible to all ages. We developed the following seven objectives in order to accomplish our overall project goal. We grouped the objectives into two phases: (1) research and (2) development and evaluation. Our objectives were grouped into their respective phases because they shared many of the same methods.

Phase 1: Research

Objective 1: Identify the desired goals of PHS and PAS for the tour

Objective 2: Identify features of good historic town tours

Objective 3: Identify the historically significant sites and art of Princeton, MA

Objective 4: Determine the most appropriate technology to operationalize the Princeton tour

Phase 2: Development & Recommendations

Objective 5: Develop tour and tour supplements

Objective 6: Make recommendations for further development of a self-guided tour

3.2 Phase 1: Research

The purpose of our first phase, research, was to identify the Princeton Historical Society and the Princeton Arts Society member's main goals for the self-guided tour, to gather information

about the sites we would be including in the tour, and look into the tour features that other historic towns have implemented.

3.2.1 Focus Group with Members of PHS and PAS

We met with PHS and PAS members on October 24 to conduct a focus group. The meeting was instrumental in achieving the first phase of our objectives.

Focus groups capitalize on group interaction to collect data (Kitzinger, 1995). Members of the PHS and the PAS are Princeton residents who, by membership of these organizations, have an expressed interest in the promotion of art and history within the town. By conducting a focus group with the organization members, we encouraged them to brainstorm and allowed them to build on each other's ideas. The downside to focus is groups is that it can be hard to control the direction the conversation takes due to the large number of participants. This means that the leader of the group must be able to take control and keep the group on topic.

The focus group with members of PAS and PHS lasted two hours. It included around seven people, all over the age of fifty years old. There was only one male. All members had lived in Princeton either their entire life or for over twenty years. Everyone was passionate about the town and what we were doing. The focus group was facilitated by Leah Holt and Rekik Tafesse, with Franc Luga and Daniel Yun taking notes on the ideas and conversations that occurred during this time.

As the representatives of the PAS and the PHS entered the room, they were given the consent form as well as a copy of the questions. Refer to Appendix A and Appendix B for the consent form and focus group questions. They were asked to carefully read the consent form, ask any us questions, and then if they agreed, to complete the first two questions on the page and wait for further instructions.

There were four questions on the paper that we gave the group. The rationale behind asking the members to only complete the first two questions was because all the questions are similar but simply worded differently. Therefore, we asked that the last two questions be left blank so that if the conversation didn't flow well or people were struggling to answer the first two questions, we could quickly and easily ask them the same question in a different way.

After everyone completed these tasks, we first reiterated the contents of the consent form and checked that everyone had signed the forms. We then went around the group and introduced ourselves and then began a discussion about the answers to the first question. After the conversation reached a natural conclusion, we moved onto the next question. We repeated this procedure until all the questions had been addressed with the group. At the end of the focus group, we had a list of sites the participants had collectively come up with to serve as a starting point for the tour development.

3.2.2 Informal Interviews with Princeton Visitors and Residents

To help determine which historic sites should be included in the self-guided tour, we conducted informal interviews with Princeton visitors and residents. Appendix C contains the interview questions we asked. We conducted these interviews near the Mountainside Market [in Princeton] with customers that were visiting the business. We chose this location due to the large amount of visitors it receives on a daily basis in comparison to many other organizations in town.

We hoped to learn stories and myths about Princeton that may not be mentioned in books but could add depth to the information in the final tour.

3.2.3 Participatory Research

We conducted participatory research in order to accomplish the first phase of our project (specifically objective 2). We did this through participant observation by taking part in historical

tours of nearby towns. Participating in these tours provided us with a starting point and models we could base the Princeton tour on in addition to the time spent exploring websites of different organizations throughout the United States to see what has been done online to interest people and to promote the tour(s). We participated in these tours with a rubric to assess their quality in terms of length, ease of locating sites, ease of reading the map, and relevance and interest in the information provided. We took notes on the tours successes and failures; this rubric can be found in Appendix D.

We participated in four tours. Two tours were based in Worcester, Massachusetts, and were created by Preservation Worcester. The first was: *Around the Common: A Downtown Walking Tour* and the second: *By the Canal: Canal District Walking Tour*. The third tour was in Douglas, Massachusetts and was titled *Douglas Tour, Douglas, MA*, and the last tour was in Maynard, Massachusetts, titled *Main Street and the Mill*.

Before participating in any tours, we created a scoring rubric. The rubric was a collection of aspects that all the tours should have in common with space to add in comments. This was done in order to create an organized way to compare and contrast each tour later on and to record our thoughts and feelings for later reference.

For each tour, we printed out the online version of their map and supplementary information, as well as our scoring rubric for the tours. Following the completion of each tour, each member of the group filled out the rubric and subsequently discussed our reactions to each of the tours. This helped us identify the features of a tour we may want to include in the Princeton Tour.

The two Preservation Worcester tours utilized QR codes to serve as supplements to the tour experience. The *Around the Common: A Downtown Walking Tour* used standard QR codes whereas the *By the Canal: Canal District Walking Tour* used Microsoft Tag codes. Both of these codes require the download of an application on mobile devices to actually be viewed.

We then triangulated data collected in phase 1 (interviews with organizations that have developed tours) and our experiences from participating in historic tours to begin formulating a tour for Princeton.

3.2.4 Interviews with Other Tour Developers

This part of our research phase gave us insight into the different types of tours that are currently in use. We gathered information that served us in the design and implementation of the chosen technology for the tour of Princeton.

In order to gain information about different technologies used in the creation and maintenance of tour websites, we contacted the email addresses provided on each tour's respective website, as well as a few other towns nearby with their own tours. Interviews with representatives from these tours provided insight into how the website works, the maintenance, and its costs. These interviews were semi-structured. We requested permission from the interviewee to use a speakerphone if interviewing with a phone. We took into consideration and respected all requests from the interviewee for privacy and confidentiality. Refer to Appendix E for the interview questions. We transcribed our notes following the interview and these notes were securely stored until the conclusion of the project. We then destroyed all notes to ensure confidentiality. We kept other notes from the interviews to support our analysis. This portion of our research phase helped us gain insight on the process of developing tours and what factors to take into consideration.

3.2.5 Technology for the Tours

We began by researching using a search engine to find different types of free online tour builders. Due to budget constraints, our sponsors could not afford to pay a monthly fee for an online tour website or service. Due to the difficulty we had in contacting the owners of the free tour applications, we decided to research through participation once again. This time, we focused on ease

of creation and updating for the online tour, the presentation of the online tour, and mobile capabilities.

We needed to ensure that we found a platform that made it possible to create interactive maps, that could be easily updated and that could be linked directly to the PHS and PAS websites. The most important features we needed to include are markers that show the location of all the historical and artistic sites chosen, descriptions with images of each of the sites, and directions on how to get to and find the selected site if GPS is not available.

At this time we also developed the foldable brochure that could be printed out and placed in areas around Princeton for residents and tourists to pick up and to encourage them to visit the locations or the website. The purpose of creating a physical tour supplement in addition to the digital tour was to expand the potential demographic for the tour. A print version of the map can be used by people who cannot access the online map or who simply prefer to follow a foldout. This brochure was created using Microsoft Word due to its widespread use and familiarity. A number of different layouts were created for the brochure and samples were created using photos from Princeton and sample descriptions of the sites.

For the digital tour, we choose four different free online tour makers to experiment with: Google Tour Builder, Google Map Maker, PocketSites, and PDF through Adobe InDesign. For each tour, we made a sample tour of Princeton using some of the sites we'd been given during the focus group. We created a comparison table of the websites and applications to show to our sponsors and advisors that they could look at while seeing the sample tours.

Table 5: Comparison of Digital Tours

Features\Platform	Google Map Maker	Google Tour Builder	PocketSights	Portable Document Format (PDF)
Desktop compatible	X	X		X
Mobile compatible	X		X	X
Internet required	X	X	X	
Easy to update	X			X
Longevity			X	X
Interactive	X	X	X	X

3.3 Phase 2: Development & Evaluation

The purpose of the second phase was to create and test the tour prototype. This involved writing the site descriptions for the chosen tour locations, which we identified using the interview and survey data collected in phase 1. We also designed and created a prototype website which was based on the results of our interviews with other town tour representatives and our background research. Finally, we held interviews in order to decide what would be the best layout and descriptions for both the chosen tour locations and website of the Princeton tour.

3.3.1 Description Development

Once the list of historic and artistic sites was finalized and we had determined the most appropriate technology, we began developing the descriptions for the tour. These descriptions

consisted of small written descriptions of the sites for the tour website, and printable map foldouts. These descriptions were meant to communicate the historical significance the selected sites hold and give a brief background on how they had evolved. We created a list of pros and cons of each tour platform we found and created a few sample tours to show to our sponsors. This allowed us to show our sponsors the large variety of layouts currently available, as well as to let them choose which layout and web platform would work the best for them in the future.

We utilized historical resources available in the Princeton Public Library archives and conducted a qualitative content analysis. Analyzing the content in a qualitative way by observing and finding sites that appear to have a historical impact on the town of Princeton and the archives were instrumental in developing the descriptions. When we were done writing for the tour, we met with our sponsors, Ms. Golding and Ms. Degutis, for review and discussion. We made adjustments to the tour based on their feedback and moved on to completing the PDF and brochure for the tour.

3.3.2 PDF and Brochure Development

To develop the PDF, we used Adobe InDesign, which was available in the multimedia labs at Gordon Library at Worcester Polytechnic Institute. We began to create the tour starting at the title page and then moved onto Points of Interests (POI) due to the wide range of sites spread throughout Princeton. A page was created for each the POI in order to ensure that the links on the title page and maps worked properly and then we proceeded to fill in the information for each site and add pictures. Following the completion of the POI, we moved onto creating the pages for the Common, and then East Princeton, following the same methods as with the POI. After completing the entire PDF, we then showed our sponsors who suggested improvements, which included a standardized font, adding modern and old pictures of the sites, and synchronizing the mobile and desktop versions.

3.4 Conclusion

Based on the results and responses from the prototype layout testing, and the feedback from the surveys, we created a final version of the website as well as the supplementary materials for the tour. In summary, the data collected by our project included data from residents of Princeton, which helped discover information that may not be in books or archives. The data collected helped to determine the best technology to use to host the tour. We compared cost, maintenance, ease of use, and features of each possible technology for the website in order to determine what would be feasible for Princeton’s tour and met all the desired requirements set by the members of PHS and PAS. Below, in Table 7, is a review of the instruments we will be using to accomplish each objective.

Table 6: Review of instruments

	Interview	Participatory Research	Surveys	Focus Group	Content Analysis	Prototypes
Objective 1	X			X		
Objective 2		X				
Objective 3		X	X	X	X	
Objective 4						X
Objective 5						
Objective 6						

4. Results and Analysis

During the course of our project we found numerous aspects related to the design, development, and maintenance of a tour. Our findings helped us develop criteria for an effective self-guided tour and gain insight on some of the challenges of the development and maintenance of historic town tours. In the sections below we delve further into our findings.

4.1 Criteria of an Effective Self-Guided Tour

Through our participatory research of the historic town tours of Douglas, Maynard, and Preservation Worcester (*Around the Common* and *By the Canal*), a number of criteria that form an effective and successful self-guided tour were identified. A successful and effective tour is indicated by the tourist completing the tour as having learned something, having enjoyed the tour, and willing to recommend the tour. The criteria for a such a tour falls into four categories: **(1) reference points, (2) accessible technology, (3) a mixture of mediums for conveying information, and (4) length of the tour.**

Finding 1: Reference points, including addresses and landmarks are vital for a successful tour

When we conducted participatory research in the Preservation Worcester, Douglas, and Maynard tours, we immediately discovered that reference points such as surrounding buildings or nearby signs are vital for a successful tour. Without a way to locate the next site of the tour, we grew frustrated and were more prone to skip that location or to give up entirely, especially when the tour was in an unfamiliar town. The Douglas, Maynard, and the Preservation Worcester *By the Canal* tours, all included addresses for each site. This meant that when we were not sure about whether we

were at the correct site, we could simply check the nearby building numbers and correct our path or if we were too far off the path, we could input the address and use GPS to get back on track. This made the tours easier to navigate.

Though the sites in the *By the Canal* tour included each individual site's address, the sites lacked references relative to other sites. In contrast, Preservation Worcester's *Around the Common* tour included references but did not include specific addresses (most of the sites were monuments and landmarks within a park). Furthermore, the tour contained written directions, and in the case of the audio tour, verbal directions, explaining how to travel from site to site, which made the experience less frustrating. For instance, in the *Around the Common* tour, an excerpt from one of the descriptions reads:

“To reach the next site, continue walking in the direction of the glass tower on Main Street. You will see Worcester City Hall on your left.”

-Preservation Worcester, *Around the Common* Tour

The *By the Canal* tour proved to be more difficult to navigate due to how spread apart the sites were and that the tour did not provide clear directions to arrive at the next destination. We had to resort to using a GPS a few times to correctly locate the next site of the tour, which detracted from the experience and made us want to skip a few locations since we had wandered away from our destination as we tried to locate it.

Half of the sites in the *Around the Common* tour also included signs which indicated that you had reached the next stop of the tour. These signs were useful when easily visible but confusing when they were no longer present or difficult to locate. This added some frustration and confusion

to the *Around the Common* tour. However, since the locations included in the tour were well described and the directions were clear, locating each site was easy.

The layout of the Douglas tour went one step further and designed the tour with all the sites along one street. There was no crossing the street multiple times, or wandering off the tour. All the sites were arranged in such a way that the first half of the tour was on one side of the street and the second half was on the opposite side. In this tour, we did not find ourselves searching or trying to figure out where each site was located. We only had to look at the house numbers to ensure that we were at the correct location. This made the experience at Douglas enjoyable.

The use of relevant pictures in tour supplements such as printable maps makes tours more engaging and easy to navigate. The Douglas tour included pictures of relevant people from the building and town's history. This added to the tour content and gave us more information while keeping us engaged. The pictures made the descriptions of the sites more interesting to read as you could see what site the description was referencing. Below is the description for the E.N. Jenckes Store Museum, a site in the Douglas tour.

**7 E.N. Jenckes Store Museum
(#283 Main Street)**

This classic general store was built by Ebenezer Balcomb c.1833. In 1884, Edward N. Jenckes bought it, making several additions. Over the next decades, he sold groceries on the west side, dry goods on the east, furniture upstairs, and grain from the attached barn. Deliveries were by horse and wagon. After Jenckes died, his daughters, E. Mialma and Helen, ran the store until 1972, and then deeded it to the Douglas Historical Society that operates it as a museum. It was placed on the National Register of Historic Places in 1988.



Figure 7: Description of a site in the Douglas tour with photo accompaniment

The picture of the two women (Jenckes' sisters referenced in the description), made the content more interesting to read. In the Preservation Worcester tours, pictures of the sites helped locate them and ensure they were the correct ones.

Finding 2: A successful tour utilizes technology that is easy to access and intuitive.

Another thing we found is that a successful tour utilizes technology that is easy to access and intuitive. The tour of the *By the Canal* by Preservation Worcester utilized Microsoft Tag codes, which are similar to QR codes. Like QR codes, Microsoft Tag requires that you download an application in order to use them. The Microsoft Tag codes do not use the same app as a QR code reader, and

while the signs provided a link to download the application, the link was not working and therefore the virtual component was not usable.

The *Around the Commons* tour used QR codes instead of the Microsoft Tag codes. Not every location of the tour had a QR code, thereby making it impossible to use the audio or mobile versions of the tour. The locations that had a QR code, linked to a static map that contained links to all sites. When a site was clicked, a new page would open on the phone that displayed information and provided an audio clip about the chosen site. Although the QR codes worked and brought us to the correct website, the link was not a mobile-friendly site and was instead designed to desktop proportions. This meant that the buttons and words appeared very small and were difficult to read because the desktop website is configured for a much larger screen. In comparison, a mobile-friendly website ensures that the formatting will be for a smaller screen, allowing the user to use the website without trouble. While taking the tour, we could not figure out how the website worked on the phone, since we hadn't realized it wasn't a mobile-friendly site, and resorted to using our printed copy of the tour. It was only after we completed the tour that we realized how to use the website linked by the QR codes, at which point, it no longer mattered.

The use of QR or Microsoft Tag codes alienates part of the population. For example, one of our group members did not have a phone with internet capabilities. Therefore, the option of using the codes posted at each site is not available since her phone could not connect to the internet. While an online connection is certainly a limiting factor, there are also a number of people who simply prefer to have something physical to look at and refer to while taking tours. This can be partially attributed to age, since as people get older, it can become more difficult to adapt to

changing technology so using an online component is not second-nature. There is also the fact that many people are simply more comfortable sticking with what they know; everyone has been given a paper containing instructions or information several times in day-to-day life, therefore making the jump to using a paper brochure for a tour is not so different.

Finding 3: Mixture of mediums for conveying information

Not everyone can or will utilize an online or virtual version of a tour. Princeton has very limited internet access, with the library being one of the few locations in town that has Wi-Fi and a relatively stable internet connection. This means that most of Princeton's residents, if they want to access the virtual/online tour we created, must: i.) Own one of the few houses with internet, ii.) Go to a location that has internet, or iii.) Have access to a version of the tour that does not require the internet.

This also means that the online version of the tour could not redirect to numerous pages in order to access more information; everything needed to be on the same page in order to reduce the amount of time spent waiting for the webpage to load.

This mix of mediums also allows for a wider audience to be reached. Not everyone enjoys reading from a piece of paper or staring at a computer screen. Having numerous versions of the tour for someone to choose from widens the range of people the tour will reach and makes it more accessible to all ages. One demographic that could not be reached if there wasn't a mixture of mediums would be potential tour-goers that do not own a device capable of accessing the virtual version of the tour. By having the physical version of the tour, it provides an opportunity for them to still participate.

Ensuring that the physical copy of the tour brochure is printable at home is an important factor in accessibility. For example, the printout for the Maynard tour required a 8.5 x 14” paper for the best results. Our group did not realize this initially when we printed out the tour and therefore we printed the tour on standard 8.5 x 11” paper. This resulted in a map that was very difficult to read and understand. Since 8.5 x 14” paper is not the standard paper size, it leads to events such as printing on the incorrect paper size, which can limit who can access the tour. These limits include: small font that is hard to read, unclear maps, and missing information due to words being cut off. The small font makes the brochure hard to read, increasing the likelihood that tourists won’t read the descriptions. Unclear maps can add to frustration and make locating each site difficult while missing words can make a description incomprehensible. These factors together decrease the accessibility of the tour since unless the tourist is already familiar with the area of the tour or has prior knowledge of each of the sites, then the tourist can be left without a way to complete or understand the tour.

Audio tours are another commonly used medium for tours. The audio must be easy to access and use. The narrator also plays a large part. In the Preservation Worcester tours, the narrator was monotone and uninteresting to listen to; simply reading the information aloud. A more involved and interesting narrator adds a lot to the audio tour and would keep the tourists entertained and engaged.

Finding 4: When creating a walking tour, the sites should be within a reasonable distance to keep tourists engaged.

In our experiences with the *By the Canal* and the Maynard tours, we found that the tour and its content must be kept to a certain length to maintain audience engagement. The *By the Canal* tour, came with audio supplements accessible through the aforementioned Microsoft Tag codes.

According to our interview with Susan Ceccacci from Preservation Worcester, the reader was told to read the descriptions - however long or short they were - in less than two minutes in an attempt to keep tour-goers engaged. This made the tour feel rushed for certain sites. To explore the other medium, we also conducted the tour with the printable version. In the printable version, the descriptions of the sites were very long and we found ourselves losing interest while reading them. It is important that the descriptions of the sites is a length that does not overwhelm the tour-goers.

The Maynard tour consisted of 38 sites. Though the descriptions for the sites were short and to the point, we found the number of sites was too large. Below is an image of the map of the Maynard tour, in the orientation it was provided in the brochure and to the right of the image are some of the accompanying descriptions.

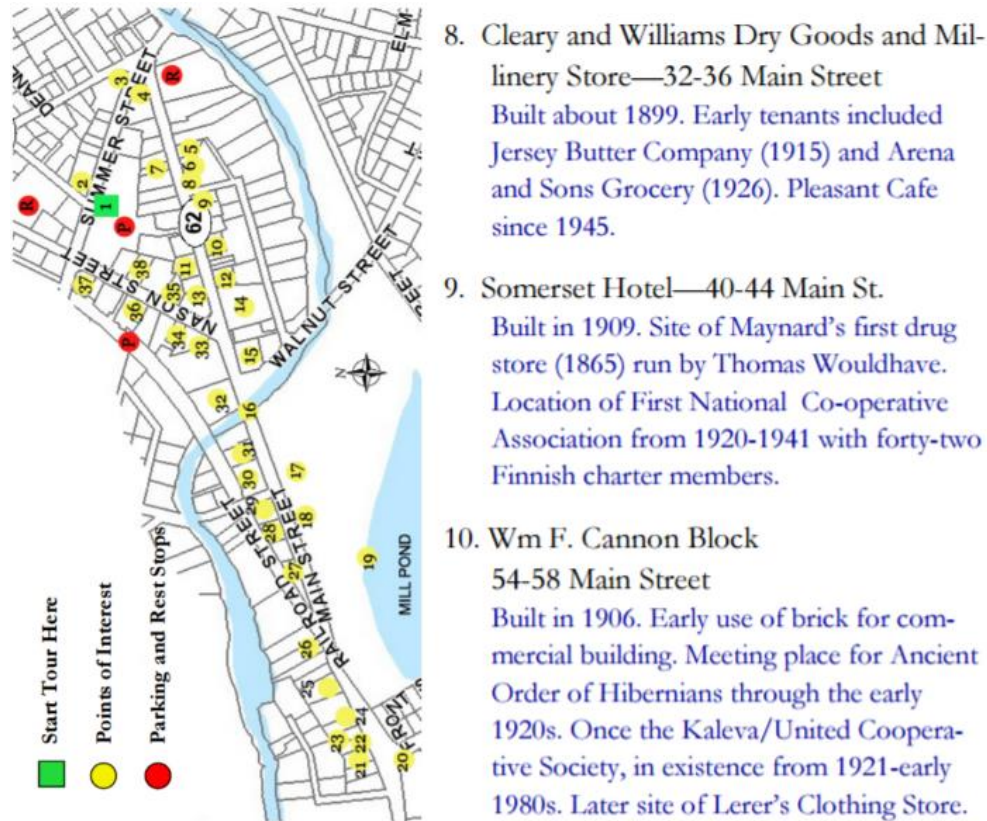


Figure 8: Map (left) and site descriptions (right) provided in the Maynard tour

In comparison, Douglas and the two Preservation Worcester tours had 11 sites each. We ended up only going to about 24 out of 38 sites of the Maynard tour because the sheer number was overwhelming and the descriptions did not entice us to continue.

We also discovered that when creating a tour intended for walking, it is important to make sure that the sites are within a reasonable walkable distance. A portion of the sites in the Maynard tour were inconveniently spread apart. The tour's layout could be a result of its short development time. The creator of the tour, Peggy J. Brown, said that the tour was a self-driven project and thus was completed by herself.

As part of our research during the first few weeks of this project, we drove around Princeton to visit some of its historical sites that could potentially be included in the tour. After our drive through the town, we found that a handful of its sites are too distant to be included in one tour. At the same time, however, they were too historically significant to be left out. We found that it would be best to develop two separate tours that include walkable sites, one in the Common, and the second in East Princeton. In addition, we also decided to provide a list of 'points of interest' that tourists can visit at their leisure.

The following table shows a summary of our findings from participating in the tours elaborated in the sections above.

Table 7: Comparison of Tours

	<u>Maynard</u>	<u>Sudbury</u>	<u>Douglas</u>	<u>Worcester: Around the Common</u>	<u>Worcester: By the Canal</u>
Length	2 hours	3+ hours	40 minutes	30 minutes	1 hour 30 minutes
Reference	Directions Addresses	Addresses	Directions Addresses Thumbnails	Directions Thumbnails	Directions
Content per Site	1 Sentence	1 page	1 paragraph	2 pages	2 pages
Map	Cluttered	Clear	Clear	Clear	Clear
Media		Photos Audio Video	Photos	Photos Audio	Photos Audio
Distance between sites	1 Minutes	1 Minutes	30 Seconds	1 Minutes	5+ Minutes
Technology	N/A	N/A	N/A	QR codes	Microsoft Tag codes

Evaluating our experiences in these tours helped us establish standards for the tour we developed for the town of Princeton. From our research, in addition to establishing criteria for the tour we developed, we also gained insight on the process of developing tours and their maintenance.

4.2 Tour Development and Maintenance

The interviews we conducted with organizations and individuals that created the tours gave us insight on the process of developing tours. **We found that (1) working on developing a tour is**

best done in a smaller group; (2) the accuracy of information is incredibly important and (3) historic town tours struggle with gaining feedback from people that participate in their tours.

Finding 5: Tours are best developed in smaller groups

From our interview with Ms. Ceccacci of Preservation Worcester, we learned that the design of the two tours, *By the Canal* and the *Around the Common* were done in two different ways. The *Around the Common* tour was done by one person while the *By the Canal* tour was developed by a large group of people. According to Ms. Ceccacci, one of the biggest challenges they had in the process of developing the *By the Canal* tour came from the number of people working on it. The process of deciding which sites would be included and developing content took much longer than intended because of the number of people that worked on it.

In our interview with the developer of the Maynard tour, we learned that the tour was a self-driven project by our interviewee Peggy J. Brown, not in conjunction with the Maynard Historical Society or the Historical Commission. She told us that she simply found some historic sites of Maynard and developed the tour with the very brief descriptions over a short period. When we participated in the Maynard tour, we found that the content was lacking and longed for more information. This may not have been the case had there been more people to assist with the tour's development. For instance, in our interview with one of the developers of the Douglas tour, Mr. Chuck Arning, he let us know that they had hired a historian writer to help with developing the content for the tour. There were multiple people working on the development of not only the

Douglas tour but also the Sudbury tour. When there is more than one person working on developing the tour, the people involved are able to bounce ideas off of one another and collaborate for a better output. From the two interviews, we found that tours are best developed in smaller groups, with enough people to collaborate with but not too many that finding a middle ground becomes difficult.

Finding 6: Information inaccuracies discredit the tour

Our interview participants from Sudbury and Preservation Worcester, emphasized the importance of making sure that the information we provide is accurate. At the end of our interview with Ms. Ceccacci from Preservation Worcester, we asked her if there was anything important we did not cover that she would like to share with us. She mentioned that one inaccuracy in the tour will discredit all the other information. During the interview, both developers described the lengths their organizations went to to make sure the information was accurate. Sudbury and Douglas had a town historian who checked the content before it was published in order to ensure correctness of the content.

Finding 7: Tour feedback is difficult to receive

With our interviews with the developers of the Douglas, Preservation Worcester and Sudbury tours, we found that the organizations struggle with getting feedback from people that have been on their tours. The organizations also struggle to know how many people have taken their tour recently or at all. Though people are requested to give feedback, the representatives unanimously

said that they have gotten surprisingly little to no feedback. Ms. Ceccacci from Preservation Worcester in particular said that she wishes there was a way to know the number of people that have gone on the tour.

Having data on the number of people who have taken the tour and their feedback is useful when it comes to expanding and updating the tour. All three organizations provide contact information (email and phone number) on their website (Preservation Worcester and Sudbury Historical Society) or on the printable file they supply for the tour (Douglas). The method they are using requires an additional step from someone who may want to leave feedback, which could be one of the reasons why the organizations struggle with collecting feedback.

Finding 8: Princeton's archives are not digitized, which limits preservation and dissemination of historical knowledge about Princeton.

Another thing we found through the course of our research is that the majority of Princeton's archives have not been digitized. There is a lot of information that exists in the archives that is not available online, which made developing content for the tour more challenging than we initially thought since we could only add information to the tour while we were in Princeton. The Princeton Public Library archives were instrumental in developing content for the tour because we eliminated sites based on how much information we could find on them in the archives.

The limitations imposed on us by the lack of digitization demonstrates the issues that a curious or interested visitor may have in learning more about Princeton. If someone wanted to learn

more about Princeton but could not visit in person, there is little to no information available online other than the Princeton Town, the Princeton Historical Society, and Princeton Arts Society web pages as well as Wikipedia, which is known to have inaccuracies. There is another website, Digital Commonwealth, which contains some images with short descriptions but it is by no means an extensive look at this historic town.

The digitization of the resources in the Princeton Library archives would also ensure the preservation of the information. A number of the collections from the archives are very old and one must be careful when handling the materials. Digitization would prevent the degradation of these documents since instead of handling the delicate papers, one could instead look online. This would also allow the archives to have a further reach, longer life, extending to people throughout the world instead of being limited to those who visit Princeton and gain access to the information.

5. Deliverables

We had four deliverables for our sponsors, the Princeton Historical Society and the Princeton Arts Society. These included: the interactive PDF (both mobile and desktop versions), the tri-fold brochure, the “How-To” guide, and a video showcasing Princeton’s rich history and the tours we developed.

The PDF was created using Adobe InDesign. It was made to allow for a digital version of the tour for people who may not be able to travel to Princeton or for those who prefer to use their mobile devices for the tour. The decision to use a PDF instead of a different application or website was made due to the several benefits it provides. First, it can be used without the need of an internet connection. This is key as internet connectivity is scarce throughout Princeton. Second, it provides a certain degree of interactivity by allowing users to click on different parts of the document to conduct the tour. Lastly, it can be expanded upon without the need of much technical knowledge such as coding or programming. Screenshots of the PDF can be seen in Appendix F.

The trifold tour brochure was designed to be informative and compact. It consists of maps of the tours, descriptions for each of the sites, and images of some of the sites but it does not provide as much information as the digital tour due to lack of space on the paper. The purpose of the brochure was to provide a way for people without internet access, phones/tablets, or simply a preference for a hardcopy of the tour, to still experience Princeton’s history and art. The brochure can be found in Appendix G.

The “How to” guide was for our sponsors and volunteers who would be updating and maintaining all aspects of the tour following the completion of the project. The guide described how to update several aspects of the PDF. Appendix H contains the guide.

Finally, we created and submitted a video which could be used to advertise the tours of Princeton. This video can be used by our sponsors as a way to entice residents and potential visitors of Princeton to participate in the tour and learn more about Princeton's history and landmarks.

6. Conclusion and Recommendations

These findings and deliverables resulted in a number of recommendations for creating new tours. These include:

1. A checklist of criteria for a successful self-guided tour.
2. Development of tours in small groups
3. Digitize historical archives to make history more accessible.

In the process of developing a historic self-guided tour for Princeton Massachusetts, we generated a list of suggested criteria that make up a successful self-guided tour. This criteria includes, but is not limited to (1) reference points, (2) accessible technology, (3) a mixed media tour, and (4) length of the tour.

Reference points reduce frustration for the tourist by providing easy navigation. With the inclusion of reference points, the tourist has a way to get from point to point within the tour and to be certain that the tourist is at the correct location. This can be done through the addition of addresses for each location and through detailed instructions or thumbnail photos.

Accessible technology is vital in ensuring that the tour runs smoothly and that everyone can obtain the information. This means that any technology must be kept up-to-date and maintained by the organization and any cases of a broken link or unclear website should be addressed.

A mix of mediums guarantees that the tour will reach the widest possible audience. Everyone has a preference on how they best like to learn, therefore tailoring the tour to a few

different mediums, such as verbal, audio, visual, and kinesthetic, that people can choose from is important.

The length of the tour has a large impact on what the tourist learns and whether they take the tour. A tourist may not take a tour that is very long due to lack of time, boredom, weather, etc. A too short tour can still have a negative effect on the tourist, causing them to think the tour is not worth taking.

The development and maintenance of the tour ensures that the tour is optimized to be the best possible. This is done through the use of small development groups so that the group can bounce ideas and information off one another but there aren't too many conflicting voices. The accuracy and feedback of the tour are also important in order to confirm that the tour is worth the tourists' time as well as to improve the tour for future users.

Finally, Princeton's archives are not digitized. This means that anyone who wants in depth information on the history of the town must visit the library and gain access to the archives. This limits the spread of information on Princeton's history and increases the rate of degradation of the old artifacts due to repeated handling. Digitized archives will not only make the town's history more accessible to people, they will also play in role in preserving that history.

We also generated a number of recommendations for further research. They are:

1. Researching and developing a way to better receive feedback from the tour as well as a way to count the number of tourists who use the tour. Our research and interviews illuminated the struggles historical town tours have with gathering feedback and getting a headcount of people

that have taken their tours. Feedback from tour-goers would be useful to tour developers because using that data, they can improve their tours.

2. Developing a way for the Princeton library to digitize their archives and make them accessible. Digitizing the archives would help preserve the artifacts because that means lessened amount of handling.

Incorporated in 1771, Princeton has a very interesting and history rich past for a small town in the middle of Massachusetts. Princeton has something for everyone; whether it is history, hiking, or relaxation. Discover Princeton today, and come back again and again. History is being made there every moment.

Bibliography

- Ajemian, A., & Gamble, K. (2013). Main. Retrieved 2013, from Worcester Love:
http://www.worcesterlove.com/images/worc_county_big.png
- American Revolution. (2016). In *Encyclopædia Britannica*. Retrieved from
<http://academic.eb.com/levels/collegiate/article/74344>
- Andereck, K. L., Valentine, K. M., Knopf, R. C., & Vogt, C. A. (2005). Residents' perceptions of community tourism impacts. *Annals of Tourism Research*, 32(4), 1056-1076. doi:10.1016/J.annals.2005.03.001
- Anderson, J. B., Dubman, S., & Fiandaca, A. (2009). *Princeton, Massachusetts: A history of its villages*. Charleston, SC: History Press.
- Arinze, E. N. (1999). The role of the museum in society. *Lecture delivered at the National Museum, Georgetown, Guyana*, 17.
- Beaman, G. H. "A Brief History of Princeton". Retrieved from
http://town.princeton.ma.us/Pages/PrincetonMA_WebDocs/brief
- Besculides, A., Lee, M. E., & McCormick, P. J. (2002). Residents' perceptions of the cultural benefits of tourism. *Annals of Tourism Research*, 29(2), 303-319. doi:10.1016/S0160-7383(01)00066-4
- Best, K. (2012). Making Museum Tours Better: Understanding What a Guided Tour Really is and What a Tour Guide Really Does. *Museum Management and Curatorship*, 27(1).
- Bettina M. Carbonell. (2011). Virtual Field Trips: Creating Customized Audio Tours for Teaching with Visual Culture. *Transformations: The Journal of Inclusive Scholarship and Pedagogy*, 22(1), 139-142. Retrieved from <http://www.jstor.org/stable/10.5325/trajincschped.22.1.0139>
- Boynton, L. L. (1986). The effect of tourism on Amish quilting design. *Annals of Tourism Research*, 13(3), 451-465. doi:10.1016/0160-7383(86)90030-7
- Cohen, E. H. (2014). Self-Assessing the Benefits of Educational Tours. *Journal of Travel Research*, 0047287514550098.
- Conway, S. (2013). *A Short History of the American Revolutionary War*. I.B. Tauris.
- Community Tool Box. Chapter 3, Section 13. Conducting Surveys. (n.d.). Retrieved September 25, 2016, from <http://ctb.ku.edu/en/table-of-contents/assessment>

- Cox- Petersen, A. M., Marsh, D. D., Kisiel, J., & Melber, L. M. (2003). Investigation of guided school tours, student learning, and science reform recommendations at a museum of natural history. *Journal of Research in Science Teaching*, 40(2), 200-218. doi:10.1002/tea.10072
- Declaration of Independence. (2016). In *Encyclopædia Britannica*. Retrieved from <http://academic.eb.com/levels/collegiate/article/42263>
- Deming, D. (2016), The Importance of History. Groundwater. doi:10.1111/gwat.12458
- Driver, B. L., Brown, P. J., & Peterson, G. L. (1991). Benefits of leisure. In *Preliminary drafts of the chapters in this volume were presented at a workshop of the authors in Snowbird, Utah, May 1989*. Venture Publishing.
- Dwyer, L., Forsyth, P., & Spurr, R. (2004). Evaluating tourism's economic effects: New and old approaches. *Tourism Management*, 25(3), 307-317. doi:10.1016/S0261-5177(03)00131-6
- Eggleston, E. (1891). *The household history of the United States and its people, for young Americans*. New York: D. Appleton and company.
- Gardner, B. (n.d.). The Wright Brothers: A Centennial Tribute. Retrieved September 24, 2016, from <https://faculty.etsu.edu/gardnerr/wright-brothers/firstflight.htm>
- Gibbons, W. (2013). Museums. In *Building the Operatic Museum: Eighteenth-Century Opera in Fin-de-Siècle Paris* (pp. 8-20). Boydell and Brewer. Retrieved from <http://www.jstor.org/stable/10.7722/j.ctt31nk2s.6>
- Harry Ransom Center The University of Texas at Austin. (n.d.). Retrieved September 24, 2016, from <http://www.hrc.utexas.edu/educator/modules/gutenberg/books/>
- Historical overview of Princeton. (2016). Princeton Historical Society. Retrieved from <http://www.princetonmahistory.org/research/historical-overview-of-princeton>
- History of Publishing. (2016). In *Encyclopædia Britannica*. Retrieved from <https://www.britannica.com/topic/publishing>
- Howlett, D. (2014). Tour Guiding, 1959–2012. In *Kirtland Temple: The Biography of a Shared Mormon Sacred Space* (pp. 145-173). University of Illinois Press. Retrieved from <http://www.jstor.org/stable/10.5406/j.ctt6wr703.13>
- Interdisciplinary Science Reviews*, 34(2-3), 139-153. doi:10.1179/174327909X441072

- Jessup, J. E., JR., & Coakley, R. W. (n.d.). Guide to the Study and Use of Military History. Retrieved from <http://usacac.army.mil/CAC2/cgsc/carl/download/csipubs/GuidetotheStudyandUseofMilitaryHistory.pdf>
- Karumba, Queensland, Australia (n.d.). Retrieved October 18, 2016 from <http://karumba.qld.au/>
- Kitzinger, J. (1995). Qualitative research. Introducing focus groups. *BMJ: British medical journal*, 311(7000), 299.
- Lamb, J. (1987). The Importance of American History. *OAH Magazine of History*, 2(2).
- Listed properties on the National Register*. (2015). Retrieved from <https://www.nps.gov/nr/research/>.
- Little, C. (1989). Neighborhood Adventures: Researching Self-Guided Walking Tours. *OAH Magazine of History*, 4(3), 21-25. Retrieved from <http://www.jstor.org/stable/25162676>
- Mak, J. (2004). *Tourism and the economy: Understanding the economics of tourism*. Honolulu: University of Hawai'i Press.
- McLean Fernside Residence [Digital image]. (n.d.). Retrieved from https://files.graphiq.com/158/media/images/t2/McLean_Center_at_Fernside_2063003.jpg Museum Facts. Retrieved from <http://www.aam-us.org/about-museums/museum-facts>
- Museum Financial Information Survey*. (2009) from American Alliance of Museums Museum Universe Data File FY 2015 Q1. (2015). Retrieved 09/17/2016, from Institute of Museum and Library Services <https://data.imls.gov/Museum-Universe-Data-File/Museum-Universe-Data-File-FY-2015-Q1/bqh6-bapa>
- Myers, M. D., & Newman, M. (2007). The qualitative interview in IS research: Examining the craft *Information and organization*, 17(1), 2-26.
- Outline Map of Massachusetts. (n.d.). Retrieved October 01, 2016, from <http://www.yellowmaps.com/map/massachusetts-free-map-343.htm>
- Princeton Arts Society. Retrieved from <http://princetonarts.org/index.htm>
- Princeton Historical Society. Retrieved from <http://www.princetonmahistory.org/>
- Rand, A., Kühne, R., & Watkins, S. (2009). Families First! Rethinking Exhibits to Engage All Ages. *History News*, 64(1), 1-8. Retrieved from <http://www.jstor.org/stable/42654197>
- Rice, F. P. (1902). *Vital Records of Princeton*. Retrieved from <https://babel.hathitrust.org/cgi/pt?id=loc.ark:/13960/t8v989558;view=1up;seq=9>

- Redemption Rock. (2012). Midstatetrail.org. Retrieved from <http://www.midstatetrail.org/rock.html>
- Redemption Rock. (2016). The Trustees. Retrieved from <http://www.thetrustees.org/places-to-visit/central-ma/redemption-rock.html>
- Science Illustration. (n.d.). Retrieved September 24, 2016, from <https://gnsi.org/science-illustration>
- Seelye, J. (1998). *Memory's Nation : The Place of Plymouth Rock*. Chapel Hill, US: University of North Carolina Press. Retrieved from <http://www.ebrary.com>
- Sentkowski, A., Dennehy III, R., Anderson, J., Fanger, L., Howard, M., Latka, M., . . . Rindone, D. (2009). *Princeton Town Plan*.
- Singleton, R., & Straits, B. C. (2005). *Approaches to social research* (4th ed.). New York: Oxford University Press.
- Stoeckl, N., Greiner, R., & Mayocchi, C. (2006). The community impacts of different types of visitors: An empirical investigation of tourism in north-west queensland. *Tourism Management*, 27(1), 97-112. doi:10.1016/j.tourman.2004.07.011
- The Importance of History. (2007). *Air Power History*, 54(4), 5+. Retrieved from http://libraries.state.ma.us/login?gwurl=http://go.galegroup.com/ps/i.do?p=AONE&sw=w&u=mlln_c_worpoly&v=2.1&it=r&id=GALE%7CA172524748&sid=sunmon&asid=92c1f34f9f03243a8abde30c506d8c60
- Thomson, R. (1996). A Different Path for Historic Walking Tours. *History News*, 51(3), 1-8. Retrieved from <http://www.jstor.org/stable/42653611>
- Town of Princeton, Massachusetts. (n.d.). Retrieved August 31, 2016, from <http://town.princeton.ma.us/>
- Van der Kloot, Megan H. Student author -- ME, Mulready, Sean E. Student author -- MA, Krach, Nathan J. Student author -- MA, & Smith, Ruth L. Faculty advisor -- HU. (2006). *Open air pedagogical tools -- an inquiry into the use of technology and historical fiction in the transmission of intangible cultural heritage*. Retrieved from: <https://web.wpi.edu/Pubs/E-project/Scanned/06E024I/06E024I.pdf>
- Virtual Museum. (2016). In *Encyclopædia Britannica*. Retrieved from <https://www.britannica.com/topic/virtual-museum>

Wachusett Mountain state reservation. (2016). Common Wealth of Massachusetts. Retrieved from <http://www.mass.gov/eea/agencies/dcr/massparks/region-central/wachusett-mountain-state-reservation.html>

Wang, Y., Stash, N., Sambeek, R., Schuurmans, Y., Aroyo, L., Schreiber, G., & Gorgels, P. (2009). Cultivating Personalized Museum Tours Online and On-Site

Appendix A

Interview/Focus Group Questions for PHS and PAS Members

We are a group of students from Worcester Polytechnic Institute in Massachusetts. We are conducting an interview about the history of Princeton to learn more about what PHS and PAS members consider the most historically and artistically significant sites of the town to help us determine what needs to be incorporated in an interactive tour we are developing. We strongly believe this kind of research will ultimately lead to a more informative tour of Princeton's historical sites.

Your participation in this interview is completely voluntary and you may withdraw at any time. Please remember that your answers will remain anonymous. No names or identifying information will appear on the questionnaires or in any of the project reports or publications.

This is a collaborative project between the Princeton Historical Society, Princeton Arts Society, and WPI, and your participation is greatly appreciated. If interested, a copy of our results can be provided at the conclusion of the study.

What do you love about Princeton that you wish other people knew?

What sort of art and historical sites would you like to showcase to visitors?

Is there any specific information or locations you want to have as part of the tour?

Is there anything about Princeton you are proud of that you want visitors to know about or to visit?

Appendix B

Interview Questions for Princeton Residents and Visitors

We are a group of students from the Worcester Community Project Center at Worcester Polytechnic Institute in Massachusetts. We are conducting an interview about the history of Princeton to learn more about residents and visitors town specific knowledge to assist in the development of a Princeton tour. We strongly believe this kind of research will ultimately lead to a more informative tour of Princeton's historical sites.

Your participation in this interview is completely voluntary and you may withdraw at any time. Please remember that your answers will remain confidential in the report if you wish them to be. Names or identifying information will appear on the questionnaires or in any of the project reports or publications only with your consent.

This is a collaborative project between the Princeton Historical Society, Princeton Arts Society, and WPI, and your participation is greatly appreciated. If interested, a copy of our results can be provided at the conclusion of the study.

I consent to share my identity in the final report if it is required.

I do not consent. I do not want my identity in any reports or publications.

I, _____, have read and understood the above boxed disclaimer. I understand that I am voluntarily participating in this interview and that my answers to questions may be published in the final project report or publications.

Signature: _____

Appendix C

Interview Questions for Princeton Residents and Visitors

We are a group of students from Worcester Polytechnic Institute in Massachusetts. We are conducting an interview about the history of Princeton to learn more about what residents and visitors know about the town to help us determine what needs to be incorporated in an interactive tour we are developing. We strongly believe this kind of research will ultimately lead to a more informative tour of Princeton's historical sites.

Your participation in this interview is completely voluntary and you may withdraw at any time. Please remember that your answers will remain anonymous. No names or identifying information will appear on the questionnaires or in any of the project reports or publications.

This is a collaborative project between the Princeton Historical Society, Princeton Arts Society, and WPI, and your participation is greatly appreciated. If interested, a copy of our results can be provided at the conclusion of the study.

1. Are you a resident of Princeton?
 Yes No

2. What in your opinion, do you think should be included in a tour of Princeton?

3. Are there any stories or myths you know about locations in Princeton you could share with us?

Appendix D

Tour Rubric

Tour Name:

Clarity of Map(s)

Reference points?

Yes

No

Comments:

Clarity of Directions

Comments:

Ease of use of App

Comments:

Ease of Use of Directions

Comments:

Ease of Locating Sites

Comments:

Relevance of Sites

Comments:

Length

Comments:

Informative

Yes

No

Comments:

Interesting

Yes

No

Comments:

Additional Comments:

Appendix E

Interview Questions for Tour Representatives

We are a group of students from Worcester Polytechnic Institute in Massachusetts. We are conducting an interview about your tours hoping to learn the way they were set up and were developed. We are working on developing an interactive tour of the town of Princeton, MA. We strongly believe this kind of research will ultimately help us when developing the tour of Princeton's historical sites.

Your participation in this interview is completely voluntary and you may withdraw at any time. Please remember that your answers will remain confidential in the report if you wish them to be. Names or identifying information will appear on the questionnaires or in any of the project reports or publications only with your consent.

This is a collaborative project between the Princeton Historical Society, Princeton Arts Society, and WPI, and your participation is greatly appreciated. If interested, a copy of our results can be provided at the conclusion of the study.

- 1. Can you tell us about the tour and its development?**
 - a. What was the initial idea/goal behind the development of this tour?
 - b. Were there initial parameters that were set for this tour? If so, what were they?
 - c. What were the costs involved?
 - d. Was this tour intended for a specific audience? If so, who and how was that determined?
- 2. Did you consider different types of platforms (audio, QR codes, interactive website etc) for the tour besides the printable map on available on the website? If so, how was the platform determined?**
- 3. What were some of the challenges faced when developing this tour?**
- 4. How did you determine which locations would be included in your tour? Was it based on their historical significance, aesthetic, convenience or something else?**
- 5. Did you test your tour before opening it up to tourists? If so, how and by whom?**

6. **Have you gathered feedback from tourists about the tour and their preferences?**
 - a. If yes,
 - i. What were some questions you asked the visitors?
 - ii. What did the people like/dislike about the tour?
7. **Are there other methods used to advertise the tour besides the town website? If so, what are they?**
8. **Is there anything important we have not discussed yet and you would like to share with us regarding the design, development and, maintenance of a historical town tour?**

Appendix F

PDF Screenshots

These screenshots are taken from our desktop version of the digital tour. The first screenshot is from the tour of the Princeton Common, the second is from the tour of East Princeton.

1 Princeton Public Library


2 Town Hall Dr.

The Princeton Public Library, also known as the Goodnow Memorial building, was designed in 1882 and was used as a public library and school. It was named to honor Edward Goodnow's wives, Harriet Goodnow and Mary Goodnow, and his son Henry Bagg Goodnow. Mr. Goodnow donated the building to the town of Princeton. In 1906, the school moved to the Princeton Center Building, and today the building is exclusively a library.



[Return to map](#) [Next](#) 

East Princeton




[1. Mechanics Hall](#) [4. Stoneledge \(Beaman House\)](#)

[2. Houses of Factory Workers](#) [5. Temple-Lamson Store](#)

[3. Temple-Stuairt Chairs](#) [6. Cotton Tavern](#)

Average walking time: 30 minutes

The East Princeton walking tour contains six sites that are essential to the area's history.



Appendix G

Tour Trifold Brochure (Front and Back)

East Princeton Tour

Average Time: 30 Minutes



1 Mechanics Hall (104 Main St)
Mechanics Hall is Princeton's oldest surviving municipal building. It was built in 1853 to replace a schoolhouse that was built in 1843. The structure also served as a dance hall and was a prominent focal point of civic life in East Princeton.



2 Factory Workers' Houses (96, 98 & 100 Main St) These three Greek revival style homes stand as a testament to how people in East Princeton lived and worked in proximity in the early 20th century.



3 Temple-Stuart Chairs (93 Main St)
Opened in 1894, the factory's expansion led to the building of a boiler house, paint shop, and warehouse, in order to better create and warm chairs. Many of these buildings are now houses.



4 The Stone Ledge House (85 Main St)
Best known for his paintings of the White Mountains, artist Gamael Waldo Beaman lived here from the 1920s until his death in 1937.



5 Temple-Lamson Store (66 Main St)
Built in 1851, this store was run by the husbands of John Stuart's daughters. It was in business until 1941.



6 Cotton Tavern (67 Main St) Built prior to 1851, this Federal style building was kept by the Keyes family, who were prominent in East Princeton.

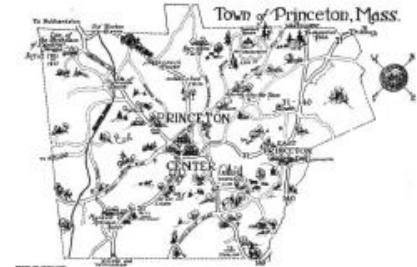
Other Points of Interest

- 1 Wachusett Mountain** was first sighted by John Winthrop in 1632. Standing at over 2,000 feet above sea level, this is the highest point in Massachusetts east of the Connecticut River.
- 2 Wachusett Meadow (113 Goodnow Rd)** Over 1,000 acres of land with 12 miles of trails, Mass Audubon offers scenery, wildlife, and trails.
- 3 Redemption Rock (Off Rt. 140)** In 1676, Mary Rowlandson was kidnapped by Native Americans. She was kept for two months before being released at Redemption Rock.
- 4 Savage Hill (Off Rt. 62)** is where Edward Savage, portrait artist and engraver, was born. The Savage cellar hole at this location marks the site of the Savage farmstead.
- 5 Meetinghouse Cemetery (on Mountain Rd, just north of the Common)** This is the resting place of Martha Keyes, mother of Lucy Keyes, who is still believed to haunt the area looking for her lost daughter. There are also three slaves buried here with gravestones, a very rare sight given it was in the late 18th century.



Discover Princeton's History

Walking and Driving Tours
Including Points of Interest



Princeton, Massachusetts

Est 1759

Welcome to Princeton!

Since long before 1632, when Massachusetts Bay Colony Governor John Winthrop first spied Wachusett Mountain from Boston, the high rocky area now known as Princeton has been attracting people from near and far. First Native Americans, then European settlers, and then artists and writers, naturalists and vacationers, philosophers and plain folk came and went, seeking food, homes, fresh air, new perspectives, or peaceful beauty.

We hope you'll explore some of Princeton's vibrant historical past through the two tours presented here. Walking or driving, you will discover places that will help you understand and appreciate how life was lived here in the past – and how things have changed over many years.

Did you know?

- The bell in the Congregational Church was made by Paul Revere in 1815.
- The town supported its own company of minute men during the Revolutionary War.
- Princeton was a summer vacation destination for hundreds of visitors in the 1800s. Ten enormous hotels housed the vacationers.
- Edward Savage, portrait painter of George Washington and his family, was born here in 1761.

Discover Princeton today – and come back again and again. History is being made here every day.

To access the mobile/desktop version of this tour, visit

www.princetonmahistory.org

Sources: Princeton Town Website, Princeton Historical Society, Princeton Arts Society, Princeton Public Library Archives, and *Princeton Massachusetts: A History of Its Villages* (Anderson, Dubman & Fiandaca, 2009)



Princeton Common Tour

Average Time: 30 Minutes



Built 1882

1 Princeton Public Library (2 Town Hall Dr) Also known as The Goodnow Memorial Building in honor of Edward Goodnow, who provided the funds to build it. Served as both a library and school until 1906. In constant use today for reading, working, and cultural events.



Built 1884

2 Bagg Hall (6 Town Hall Dr) Edward Goodnow donated funds for this building after the original town hall burned in 1883. It was named after Goodnow's wives, sisters Harriet and Mary Augusta Bagg. It now serves as a home to the town officers.



First used 1838

3 First Congregational Church (14 Mountain Rd) A bell made by Paul Revere was moved to the steeple in 1838. The church was moved to its present location in 1884 for the construction of Bagg Hall.



Built around 1775

4 D.H. Gregory & Co Store (6 Mountain Rd) The Pot-Bellied-Stove Philosophers met here around the aforementioned store, chewing tobacco and discussing the world.



Built 1906

5 Princeton Center Building (18 Boylston Ave) This building served as the town school for grades 1-12 in 1906. It now houses the Council on Aging, Historical Society, Arts Society, arts studios and event space.

Appendix H

A How-To Guide for Tour Maintenance

This page is a screenshot of the manual with instructions on how to update the pdf files by using Adobe InDesign.

Adding a New Site to the Tour

This guide was made for the CC 2015 version of Adobe InDesign. Subsequent iterations tend to keep the same tools but there is a possibility that they may be slightly rearranged.

Templates for new pages will be provided within the InDesign document.

Adding the description of a site

To add a site description go to the toolbox located on the left side of the screen and select the "text box" tool (*figure 1*).

After doing so, click and hold with the left mouse button on the workspace and drag the mouse to adjust the size of the text box.

If you wish to move the text box somewhere else, select it by clicking on it and drag it with the mouse to the desired position.

If you wish to edit the text later on, you can double-click the text and start editing.

To edit the text's properties, highlight the text you wish to edit and adjust it by making the necessary changes at the top of the page (*figure 2*). Here you can change the text's typeface, color, size, and other settings.

To adjust the size of the text box, first choose the Selection Tool, which is the black arrow on the left-hand toolbar, then click on the textbox, and drag to the new desired size.

The text box's properties can be adjusted on the toolbar at the top of the screen (*figure 3*) while the text box is selected. While *figure 2* and *figure 3* are located in the same place, they will change depending on what is selected. If text is selected, *figure 2* will appear. If the text box is selected, *figure 3* will appear.




Figure 1




Figure 2




Figure 3