



Local Hazard Mitigation Planning Site Plan

Prepared by AMC Hazard Planning

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SUMMARY

This project was created in conjunction with the City of San Marcos to lay out a site plan for the online application of the City's Hazard Mitigation Action Plan (HMAP). This project's goal was to present the city with a site plan consisting of wireframes for specific pages, descriptive text generation summarized from the provided HMAP, suggested data to gather for features such as the Historical Event Viewer, information about the City's efforts in planning and mitigation, and general information about the City of San Marcos itself. The project's goal was met by utilizing Lucid Chart to create wireframes, Visio to create a site map, and Claude AI to generate descriptive text summaries. These elements were then used to create an example home page and hazard pages utilizing a Hub site on ArcGIS Online.

The purpose of this application is both to educate the public about natural hazards they face and to provide the city with a centralized hub of information, streamlining any processes including data search or collection.

STUDY AREA

The study area for this project is the entire City of San Marcos, which you can see in **Figure 1** below. San Marcos has a total population just over 70,000, which has grown 50% since 2010. With this growth comes new challenges when it comes to planning and preparation. One of those challenges is making sure the public is educated about hazards they face. There are several hazards that San Marcos faces: drought, earthquake risk, expansive soils, extreme heat, flooding, hail, hurricane risk, lightning, thunderstorm wind, tornado risk, wildfires, and winter storms.

San Marcos sits on the edge of the Edwards Plateau and the Balcones Fault Zone which creates some unique features such as springs and rivers, as well as unique weather patterns due to the changing landscape from the Texas Hill Country to the Blackland Prairie.

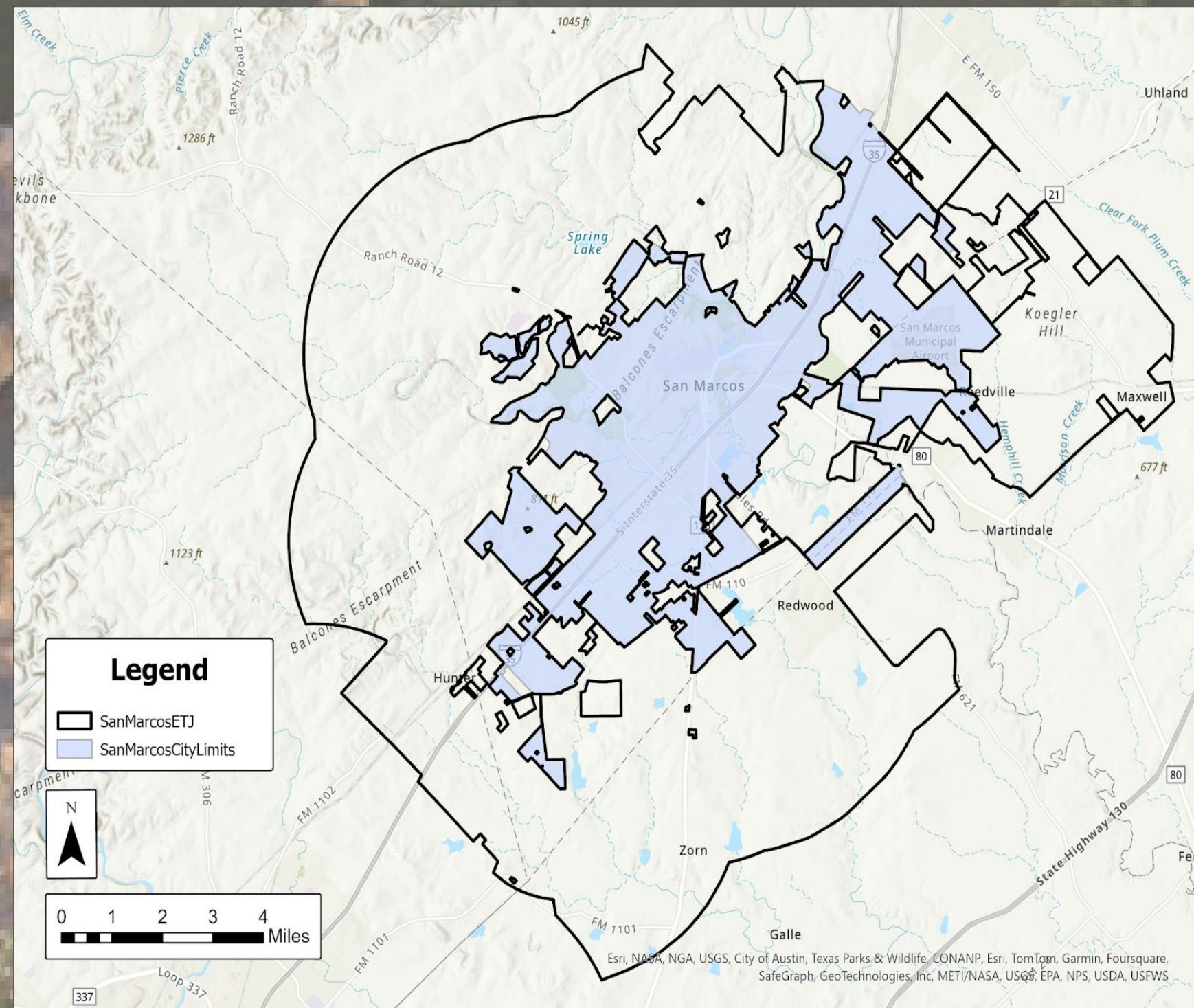


Figure 1: Study Area of City of San Marcos and ETJ

METHODOLOGY

Lucid Chart was used in the creation of the wireframes (**Figure 2**) that make up our vision of the site. The wireframes are color coded so that grey denote buttons, blue is an image, and red specifies that there will be a button with an image on it. A site map diagram (**Figure 3**) was created using Microsoft Visio to further visualize the layout of the website.

ArcGIS Online was used to create the example home page, seen in **Figure 4**. With the City of San Marcos ArcGIS Online account, we had full access to the Hub section of ArcGIS Online. In this Hub section, we were able to create an "initiative," and customize the example home page in the browser through the ArcGIS Hub. Additional pages for each hazard were also created to visualize the descriptive text placement and locations of maps and other features on the site (**Figure 5**).

Claude AI was only used in the latter stages of the project to help generate some of the descriptive text. Since this project did not involve creating our own data or information, as all of it was included in the provided HMAP, we received permission from our professor and from the city to make use of Claude AI to speed up some of the descriptive text generation. Rest assured that Claude was not the only mind behind the generation of said text; we went through all text generated by Claude to ensure that it not only contained all the information that we needed, but also to make sure that the sentences flowed nicely. This proved to be a great tool for helping us finish up the final stages of the project as we were able to feed entire sections of the HMAP into the program, preventing us from having to do each section by hand.

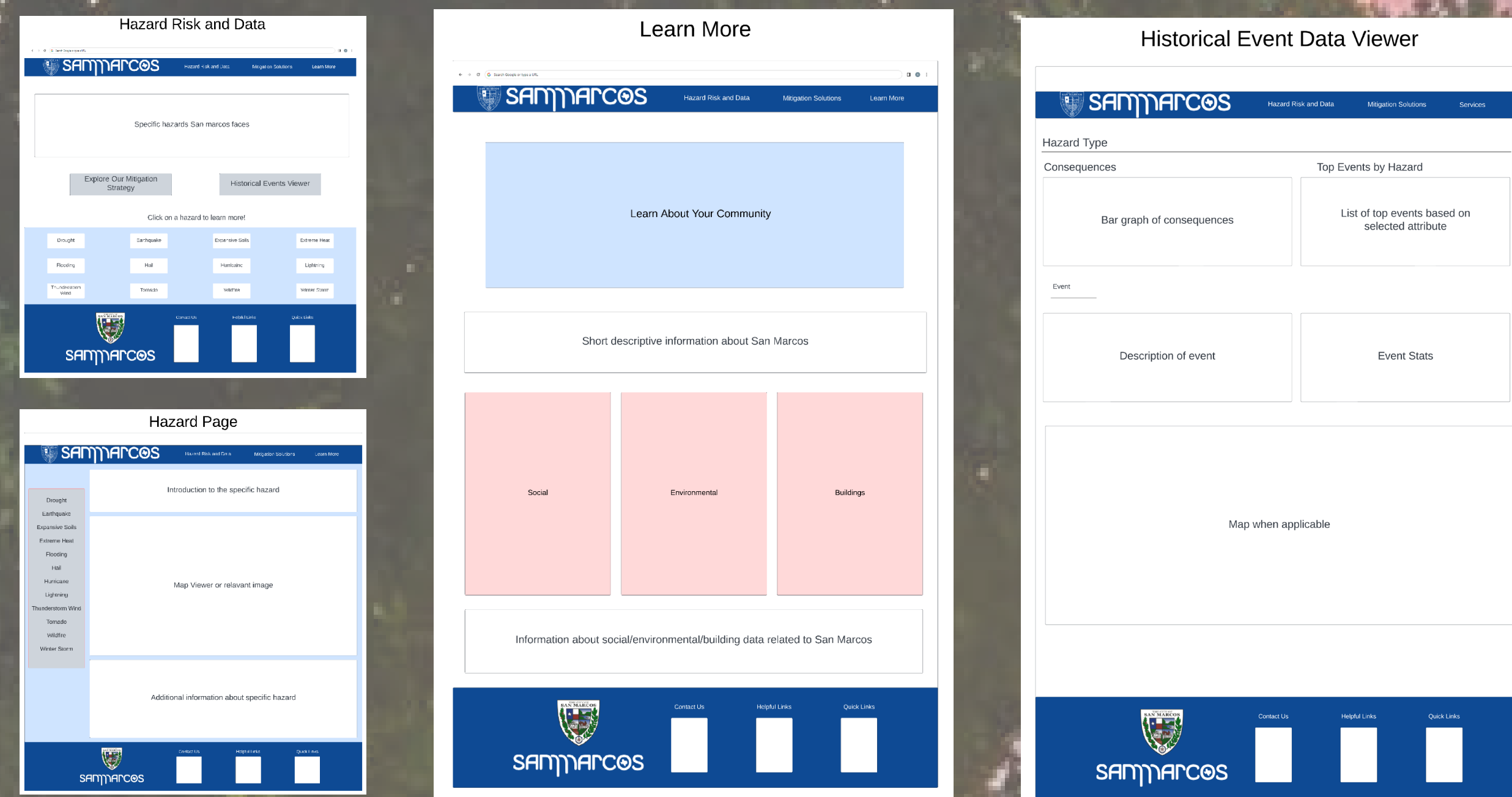


Figure 2: Example Wireframes for Specific Site Pages

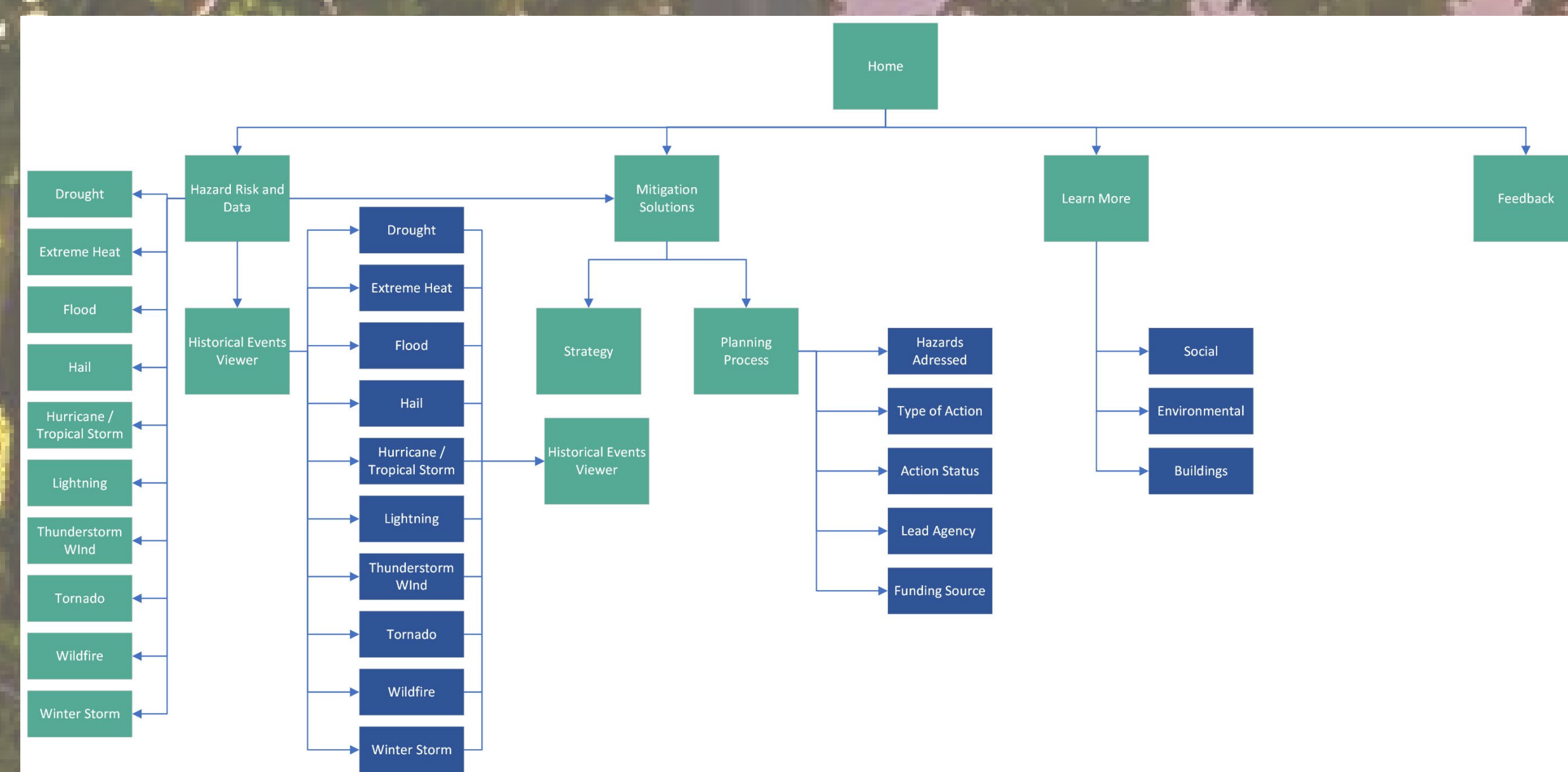


Figure 3: Site Map Diagram

RESULTS

This project had a few main deliverables and one secondary deliverable. The main deliverables are the website wireframes, seen in **Figure 2**, which outline roughly what we think the website should look like, descriptive text generation for those specific pages, summarization of the provided HMAP for use in the Hazard Event Viewer (Hazard Risk and Data page) and Historical Hazard Event Viewer along with other places around the site, and suggested data to capture for both Hazard Viewers. The secondary deliverable is the example site home page, which can be seen in **Figure 4** and the example hazard pages one of which can be seen in **Figure 5**.

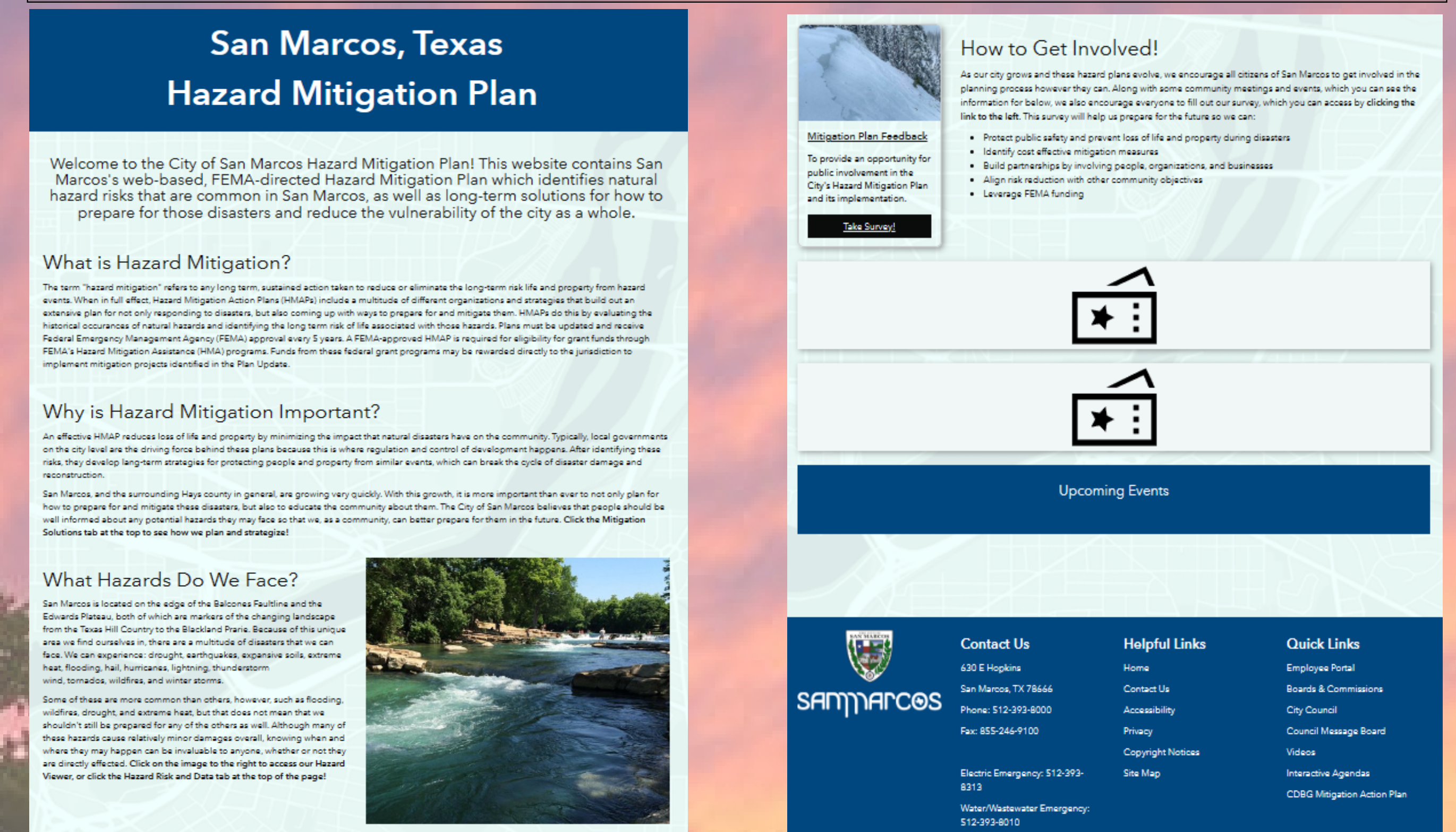


Figure 4: Example HMAP Site Home Page

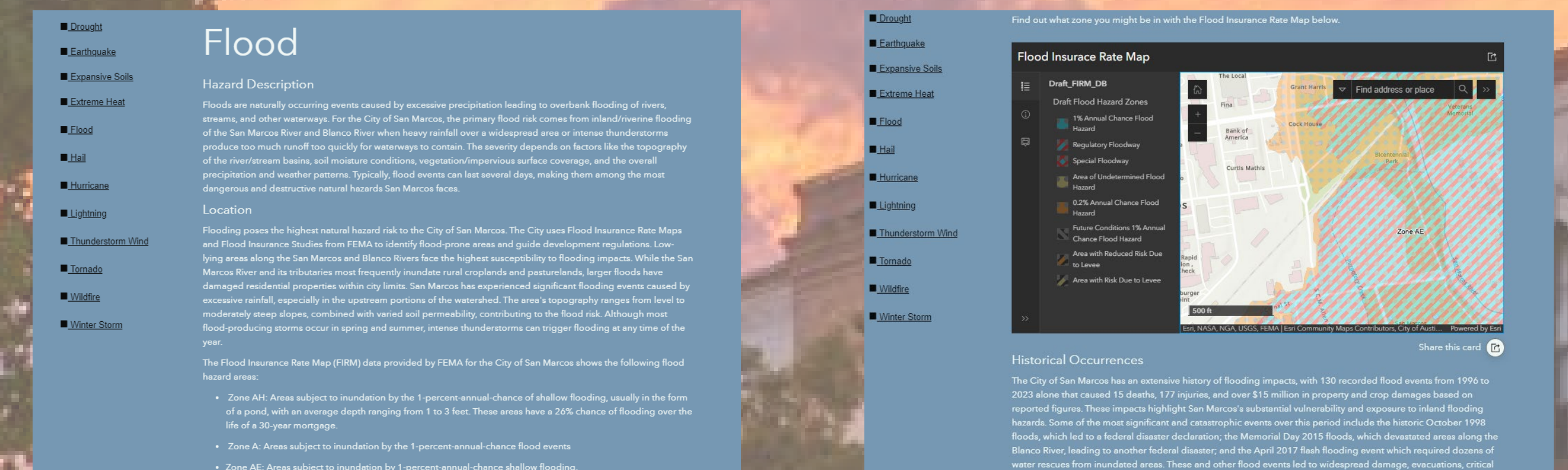


Figure 5: Flood Page

CONCLUSION

With the completion of this project, the City of San Marcos has a blueprint for their creation of the Hazard Mitigation Action Plan Online Portal. The convenience of this application cannot be understated not only for the city, but also for current and future citizens of San Marcos. Having a repository of information about the hazards that the city faces ensures that current residents are prepared for whatever hazards they may face and provides future residents with a way to learn about the city and what they may experience here. For the city, this website will organize information into one place to streamline planning and act as a back-end repository, organizing HMAP information into a more digestible, easy to work with version.

REFERENCES AND ACKNOWLEDGMENTS

The data that we utilized for this project came from the draft Hazard Mitigation Action Plan provided by the City of San Marcos. We would also like to thank the City of San Marcos for their collaboration on this project.