The Continued Digitization of the Blue Book for the Worcester Community Connections Coalition

An Interactive Qualifying Project submitted to the Faculty of
WORCESTER POLYTECHNIC INSTITUTE
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Report Submitted to:

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Abstract

The Worcester Community Connections Coalition's (WCCC) Digital Blue Book (DBB) is a directory for Worcester families to connect to service providers they need. This project explored the use of Google Forms, Microsoft Forms, and Survey Monkey as content management tools for the DBB. Using Survey Monkey we prototyped a data collection tool that allows service providers to update or add a new entry to the DBB. We also developed a color coded workflow diagram to model the process of updating the DBB. To streamline the update process, we made a cohesive CSV file that displays the listing information and corresponding contact person for each organization in the DBB. This project assisted in the upkeep of the DBB to ensure the contents are accurate and easy to maintain.

Executive Summary

Introduction

The United States is believed to be a country that provides its citizens opportunities to progress and become financially stable by working hard. While this may be the case for some people, this unfortunately only reflects one kind of reality. For many people, there is a harsher reality that shows that there is little economic upward mobility from the lower classes, and much worse, a trend in increasing likelihood of poverty. With the annual inflation rates in consideration, the average person is making the same amount of money 20 years ago while the cost of living has gone up significantly (Investopedia, 2021). The rising costs of living, and significant income disparity in the U.S. make it extremely difficult for the middle, lower and poverty class to thrive. This unfortunately is a problem that is found in many cities around the country, including Worcester, MA. Worcester is home to over 185,000 people, 21.1% of which are at or below the poverty level - over double the 10.3% poverty rate for the State of Massachusetts (Research Bureau, 2020). While this can be attributed to the earlier mentioned income disparities, it is also important to consider the individuals that lack the necessary resources to advance economically.

The Worcester Community Connections Coalition (WCCC) is an organization that assists struggling families in Worcester in finding and gaining access to resources to meet their needs. The WCCC has a published resource guide which contains a list of service provider organizations, and their contact information, called the Blue Book.

Given that the Blue Book was transitioning to an online format, our sponsors needed a way to efficiently and effectively collect information from each organization listed in the Blue Book. With that, our group had the goal of developing a workflow plan for collecting information to update the Digital Blue Book's contents in an easy manner.

Methodology

In order to properly accomplish our goal of producing an effective workflow plan, we found that the best course of action was to accomplish these three tasks:

1. Consistently meet with our sponsors to finalize a workflow plan that suits their needs,
2. interview service providers to gain insight on how the Digital Blue Book can have a larger impact as a digital platform, and
3. research technologies and approaches to aid our sponsors in implementing the workflow plan.

The first objective was approached by scheduling interviews with key informants for our project. We specifically interviewed service providers and WCCC parent leaders to provide us with the perspectives of both the Worcester community members and the kind of services that are being provided to them through the Blue Book.

We approached our second task by scheduling weekly Zoom meetings with our sponsors, which included members of the WCCC, as well as members from its parent organization the Seven Hills Foundation. Each week we were tasked with deliverables to present to the group the following week for feedback and guidance.

When it came time for researching, we decided to look into online survey services and their Application Programming Interface (API) uses for a developer. We identified three potential online survey tools that could suit the requirements of our project: SurveyMonkey, Google Forms, and Microsoft 365 Forms with Microsoft Power Automate. After a discussion between the group and our sponsor, we decided to pursue SurveyMonkey. Primarily, we narrowed our research to focus on how the SurveyMonkey API could be used to generate new surveys to be sent to the WCCC affiliate organizations, and extract the data in the responses to automatically update the Blue Book website dynamically. Furthermore, we explored how Survey Monkey's API could be used to populate an already listed organization's information into the survey, so that the organization may view their most current listing to make any changes that they deem necessary.

Results

A key deliverable that we created is a survey using the online survey making tool Survey Monkey. The purpose of this survey is to direct a user through the process of adding, deleting, modifying, or declaring "no change" for a listing for the Digital Blue Book. When designing this survey, there were three main considerations:

1. Avoiding duplicate listings,
2. ensuring that the surveys will be completed by the right persons,
3. and creating it in such a way that this single survey could be used for all of the above processes.

For the first consideration, we recommended that via the Survey Monkey API, a "checker" function be developed to ensure that the same listing does not appear more than once. Secondly, we began the process of generating a spreadsheet that displays each organization listed in the Blue Book alongside a designated contact person, to be completed by our sponsor, Anne Bureau. Given that no such comprehensive list has been created, and that many of the contacts are known through Anne's familiarity with the Worcester community, it was determined that such spreadsheet would aid in both internal organization as well as improve security when making changes to a listing. Thirdly, we coded the survey in such a way that questions are prompted based on a user's response to previous questions. For instance, if a user decides to update an existing listing, they would not be prompted with "new listing" questions. This system, while complicated in design, simplifies the survey for the user, and allows for all four potential paths to be accessible in a single survey.

In order to visually display how a user is brought through the survey for each possible path, we created a workflow diagram. This diagram outlines the four potential paths that a survey taker could be sent through. In this workflow diagram, it is easier to see the types of questions a user will be prompted with based on their path selection, and how that information entered in the survey finds its way onto the Digital Blue Book website and to Anne for documentation.

Recommendations

Another portion of our project involved providing our sponsors recommendations for the kind of features they can include in their website. These recommendations were put together following our interviews with our key informants. Some considerations to take into account for Digital Blue Book include: gender neutral logos, as well as changing the fonts to promote readability, especially for a mobile device.

The first consideration of having gender neutral logos was a concern brought to our group by Kendall Molina. During our interview, when our group showed Kendall a prototype for how the service category icons would look on the website. One of his first concerns was that each icon needed to appeal to a more general audience. The first icon he cited was one that had a picture of a football on it to resemble "After School Activities." Kendall stated that the term "After school Activities" does not only apply to boys. Therefore, the icon should be switched to have an image that was more gender neutral. As a result of this recommendation, the group decided to look for other icons which weren't gender inclusive, and figure out different images that appeal to all genders.

The second consideration of adjusting the website font to promote readability, was suggested by Karina Wallace. This was an important suggestion, since the demographic the Blue Book appealed to were service providers and Worcester community members that needed quick and easy access to critical resources. Simplifying the text would have a tremendous impact on how many people access the website, how often the website will be accessed, and most importantly, how easily the users can have access to resources listed in the Blue Book.

As the Digital Blue Book is being implemented onto the website, our group hopes these suggestions are taken into consideration. The WCCC was founded by parents to address the problems faced within the households and their communities. The Blue Book was created to assist the WCCC in giving a voice to those that need their problems addressed. Given these facts, it is clear that the most ideal form of the website will be one that considers the concerns and suggestions of its target audience, throughout its implementation. One that represents the reliability, and care of our sponsors.

Acknowledgments

We would like to express our gratitude to everyone that has helped us during this project. We could not have completed this project without the assistance from our preparatory class instructor, Dr. Davis, and our project advisor, Professor and Worcester Community Project Center Program Director, Laura Roberts. Our sincerest thank you to them for their commitment to helping us and the guidance that they so frequently offered.

We would also like to extend our appreciation to our key informants: Doreen Samuels, Karina Wallace, and Kendall Molina for sharing their wealth of information with us so that we may better understand the influence of our project on the Worcester community.

Finally, to Anne Bureau of the Worcester Community Connections Coalition, Kate Myshrall, and Nancy Benoit of the Seven Hills Foundation, and to our key informants, thank you for making this project possible.

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The Rise of Income Inequality in the United States:

To "pull oneself up by the bootstraps" is a term that originated in the 1800s and is a mocking phrase considering the impossible nature of this action (Kristof, 2020). Ironically, this term has the opposite meaning in modern times. The phrase has become a part of the American mythos often used when addressing the less fortunate in the United States (Kristof, 2020). Moreover, the U.S. has adopted a viewpoint that those that are poor merely need to work harder to dig themselves out of poverty. A 2019 poll (Figure 1) highlighted that a popular American viewpoint on the cause of poverty are poor life choices, and drugs/alcohol (Ekins, 2019). The third most popular belief is tied between a "lack of job opportunity, breakdown of families, and a poor work ethic"- an indication that Americans attribute success with hard work, and poverty with laziness (Ekins, 2019).

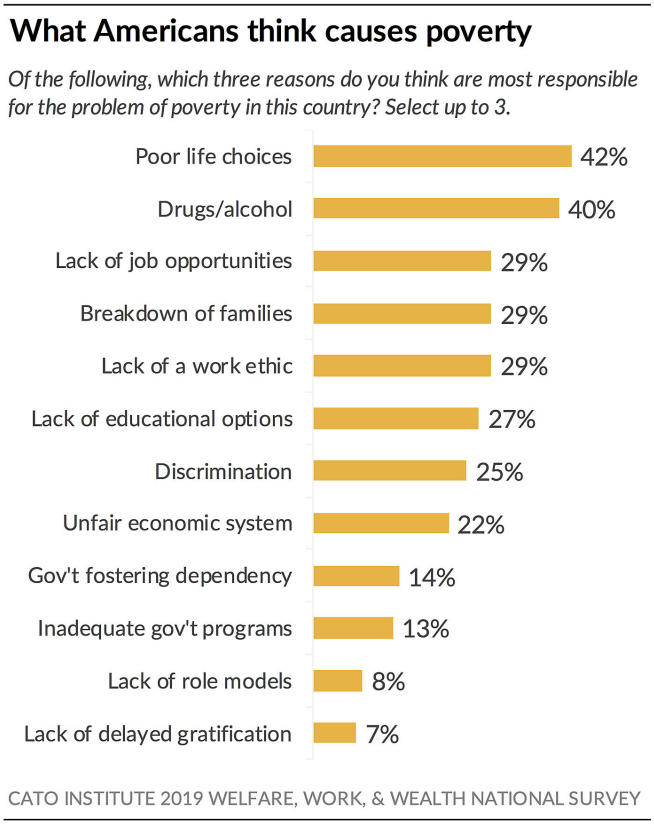

Figure 1: National poll results of what Americans think are causes of poverty (Ekins, 2019)

Though these are the frequent narratives within the U.S., the aforementioned beliefs on the cause of poverty are not valid. An analysis of Congressional Budget Office data demonstrates that income inequality has been increasing since 1979 (Mishel et al., 2015). Before the housing crisis of 2008, the average income (of the middle 60%) of American households was $17,867 below the expected average income - had there been no income inequality (Mishel et al., 2015).

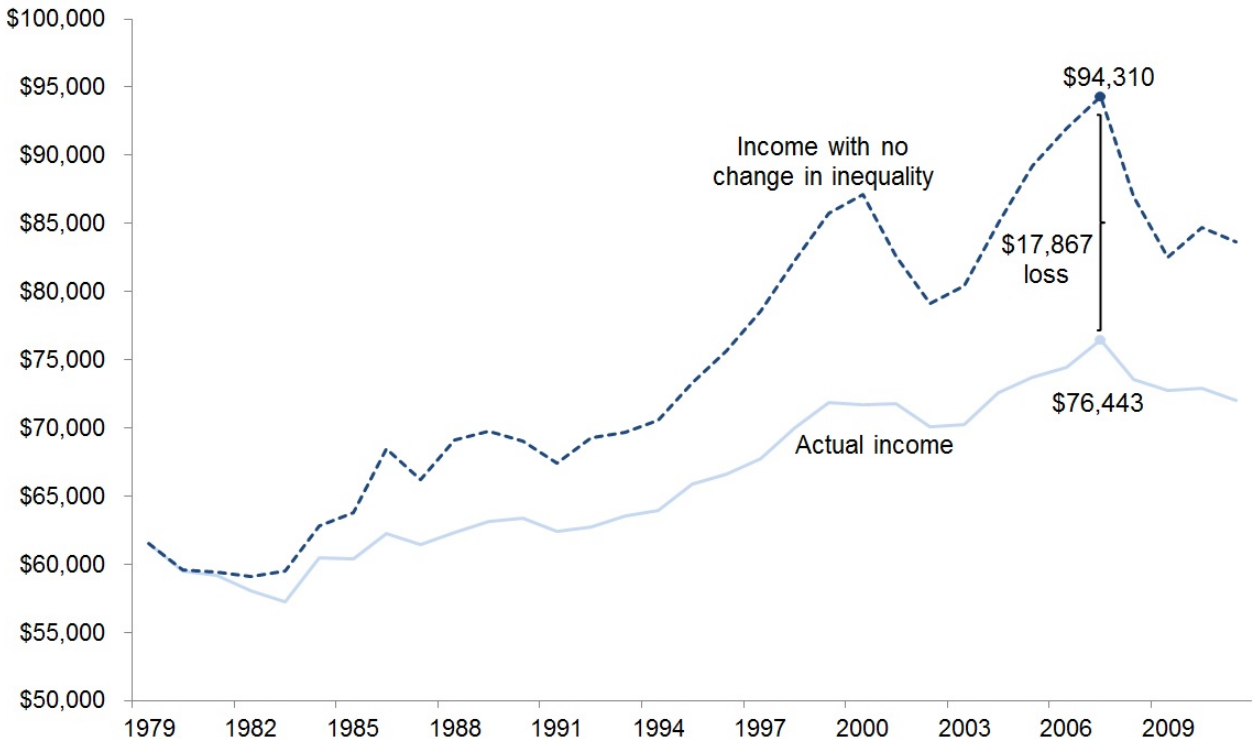

Figure 2: Actual and projected household income of the middle class assuming no growth in income inequality since 1979 (Mishel et al., 2015)

With the rise of income inequality, the lower and middle class have on average 23% less in annual wages (Mishel et al., 2015). With the annual inflation rates in consideration, the average person is making the same amount of money 20 years ago while the cost of living has gone up significantly (Investopedia, 2021). The rising costs of living, and significant income disparity in the U.S. make it extremely difficult for the middle, lower and poverty class to have any upwards mobility.

Another factor that must be considered when discussing the topic of poverty are the wage trends of the U.S.. From 1948 to 1973, productivity and hourly compensation had a linear

relationship (Mishel et al., 2015). However, since 1973, hourly compensation and productivity diverged from one another. Even though productivity increased 74.4%, hourly compensation only increased by 9.2% (Mishel et al., 2015).

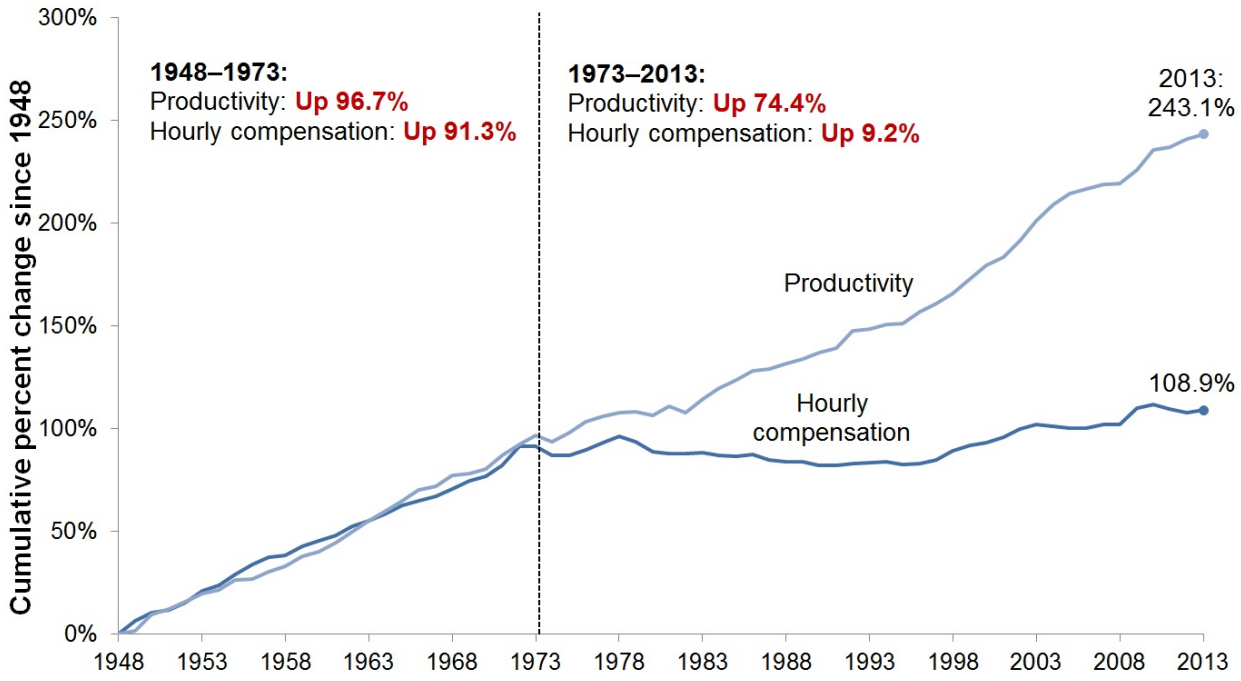

Figure 3: The relationship between productivity and average worker's compensation between 1948-2013 (Mishel et al., 2015)

The disproportionate divergence between compensation and productivity indicates that workers are producing more while receiving less in their paychecks from employers. The ever present systemic wage gap affects college workers, non-college workers, blue collar workers and white-collared workers. With living costs increasing in the U.S., a lack of proportionate work compensation will only continue to promote poverty (Investopedia, 2021).

Moreover, the wage gap in the U.S. is only applicable for the middle and lower class. The top 1% of the U.S. has experienced a wage growth of 138% whereas the bottom 90% only experienced a meager 15% growth in wages since 1979 (Figure 4, Mishel et al., 2015).

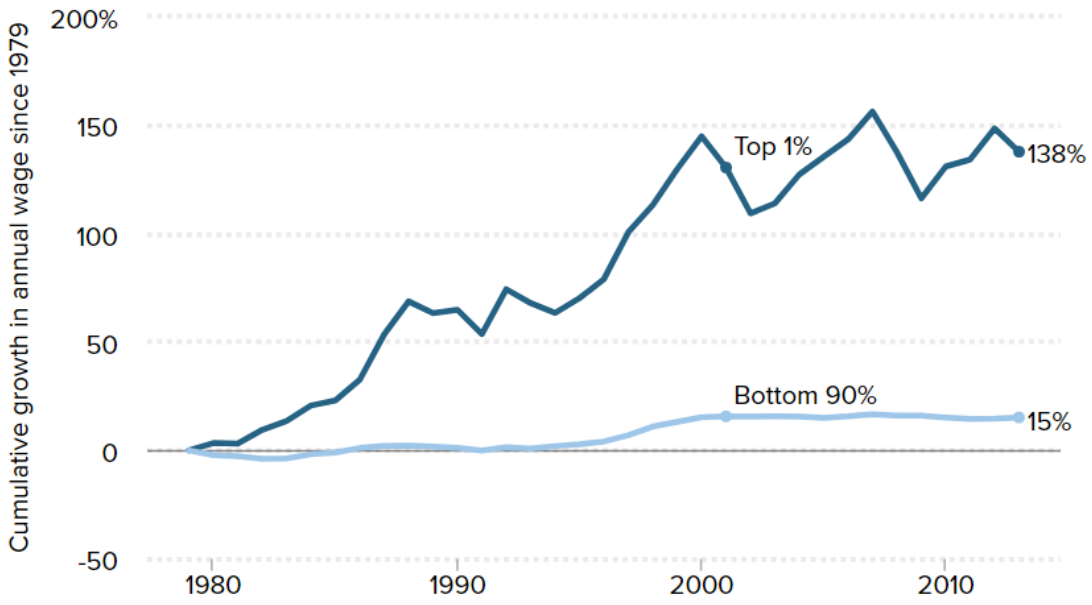

Figure 4: Annual Wage growths between the top 1% and the bottom 90% in the U.S. from 1979-2013 (Mishel et al., 2015)

From the presented data, the U.S. economic system appears to only serve the top 1% while impeding wealth growth for the remaining 90%. This is present when analyzing CEO-to-worker compensation ratios which stipulates that CEOs make 296 times what a typical worker earned in 2013 (Mishel et al., 2015). Further demonstration of this is present when comparing hourly wages from 1979-2013 (Figure 5).

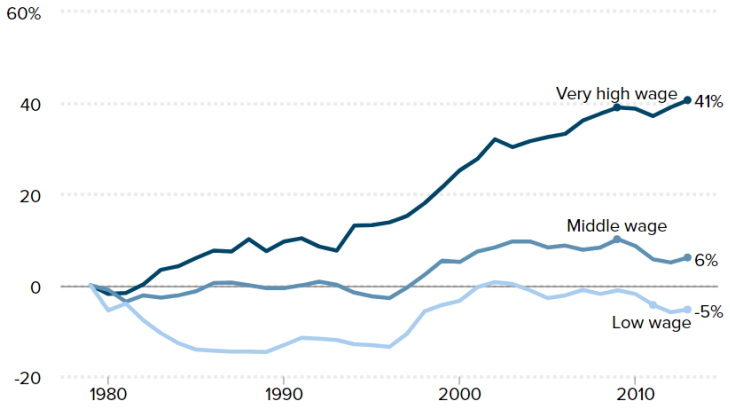

Figure 5: Average hourly wage growth between lower, middle and high wage earners from 1979-2013 (Mishel et al., 2015)

The data presented showcases a trend where the middle and lower class make approximately eight times less in hourly wages from 1979-2013 due to stagnant wage growth (Mishel et al., 2015). Once again, with the rise in cost of living, stagnant wage growth will only perpetuate and promote income equality in the U.S. - increasing the likelihood of poverty (Investopedia, 2021).

The income inequality that is present in the U.S. is chronic and undoubtedly systemic. Just like the impossible act of "pulling oneself up by their bootstraps", the current economic system is set up such that it would be nearly impossible to rise above the middle and lower class. This is *especially* true regarding those that are trying to overcome poverty. Despite that, the negative connotations of being poor are ever-present, and the narrative of "pulling oneself up by their bootstraps" further detracts from the primary factors that cause poverty in the U.S. (Ekins, 2019). The symptoms of income inequality are present throughout the U.S., and this is a current issue that affects the City of Worcester, Massachusetts.

Effects of Income Inequality in Worcester, MA:

The City of Worcester is located in central Massachusetts and is the second-most populous city (with 185,877 people for its population) in New England after Boston's population of 684,379 (U.S. Census Bureau, 2020). The 2020 Worcester Almanac indicates that the City of Worcester has a poverty level of 21.1% - approximately two times more than the Massachusetts average of 10.8% (Research Bureau, 2020).

Equally as relevant, Worcester's poverty levels compared to various age groups (Figure 6). Worcester has approximately 10,000 individuals under the age of 18 that are below poverty levels in 2018 (Research Bureau, 2020). Furthermore, 28% of those that are below poverty levels in Worcester are below the age of 18 (Research Bureau, 2020).

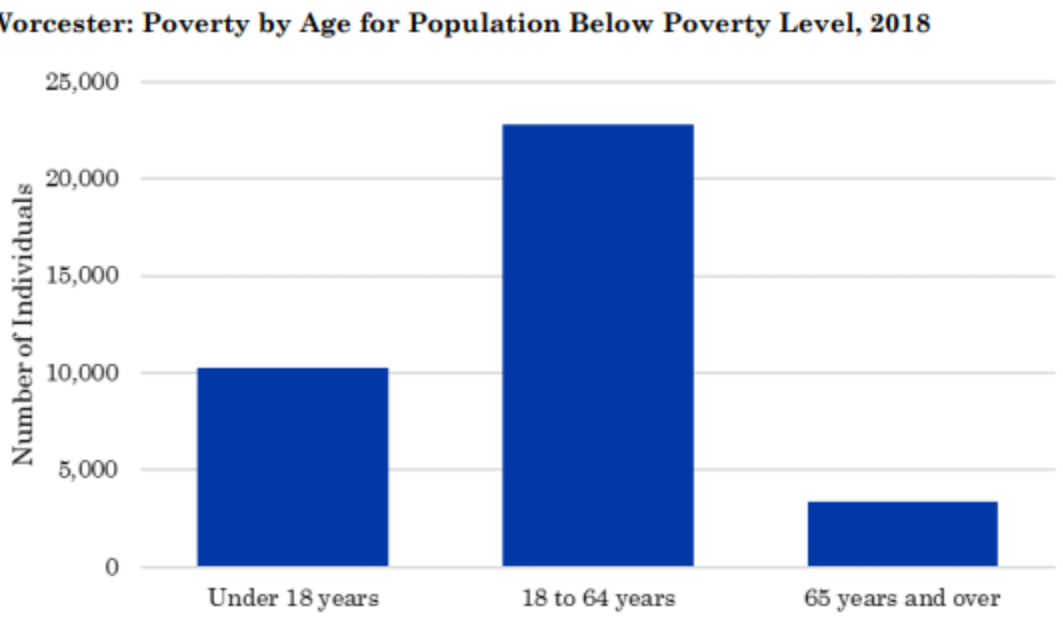

Figure 6: U.S. Bureau, 2018 5-Year American Community Survey regarding Poverty Levels by Age (U.S. Bureau, 2020)

Worcester has twice as many individuals who are under the age of 18, and below poverty compared to Massachusetts's reported average of 13% in 2006 (Massachusetts Kids Count, 2008). Poverty levels are an issue in Worcester, and this issue becomes even more urgent since it affects a large population of children. Furthermore, these statistics indicate that there is a need for resources that can aid, and improve the living standard for many in Worcester. This is a societal factor that our sponsor has dedicated their effort to improving.

Sponsor Introduction: The Worcester Community Connection Coalition:

The Community Connections Coalition (CCC) responds to the identified needs of families with the ultimate goal of preventing factors that lead to child neglect or abuse. The four core coalition functions of the CCC is to provide family support services, family preservation services, time limited reunification services, and adoption promotion and support services (Seven Hills Foundation & Affiliates, n.d.). Our sponsor, the Worcester Community Connection Coalition (WCCC) was founded by a group of parents in 1993 with federal funding through the Family Preservation and Support Act. The WCCC's goal is to provide a safe and neutral setting for residents and service providers, including discounted cash flow, communication, decision

making, shared resources and coordinated action plans for families (Seven Hills Foundation & Affiliates, n.d.)". One major initiative of the WCCC is to link families to necessary services. As a fulfillment of this initiative, the WCCC consolidates pre-existing resources and services that citizens can utilize in Worcester - this compact resource guide is called the "Blue Book".

Figure 7: Worcester Community Connections Coalition banner from Facebook.com (Worcester Community Connections Coalition, 2020)

Moreover, the WCCC created the "Blue Book" around the early 2000s, a physical encyclopedia containing resources in the Worcester community that one can utilize (A. Bureau personal communication, April 23, 2021). The Blue Book is a pocket-sized pamphlet that provides a wide directory of services that range across diverse programs such as after school programs, LGBTQ services, tax preparation, substance use services and much more. The Blue Book is a helpful resource guide for parents, and it is equally important for social workers. Social workers often refer to the Blue Book when helping their clients (K. Wallace, personal communication, May 26, 2021). From our research, the Blue Book is often used three to four times a day when working with clients (D. Samuels, personal communication, May 20, 2021). This resource guide has been utilized so often that it has been referred to as the "little bible" amongst parent groups (D. Samuels, personal communication, May 20, 2021). Overall, the Blue Book has been a crucial resource guide for parents and social workers for two decades. It has provided the Worcester community the tools to ensure a nurturing environment for children, and

assistance for adults. However, with the rise in computers and smartphones, the demand for a digital Blue Book is apparent (D. Samuels, personal communication, May 20, 2021).

Prior Efforts Toward Developing a Digital Blue Book:

To account for the increase in demand for a digital Blue Book, the WCCC wanted to develop a website that is representative of the printed version. Currently, the printed Blue Book is updated manually by the director of the WCCC, Anne Bureau. Anne Bureau deals with the printing of the Blue Book, and ensuring the Blue Book is up to date. With hundreds of organizations included in the Blue Book directory, updating the listing each year is a tremendous task for a single person. On top of this, Anne Bureau is heavily relied on in terms of who to contact for the updating process. The digitization of this process not only improves the efficiency of the WCCC, and Anne Bureau's job, but it also allows the directory to be updated in real-time. With that in consideration, the Blue Book website should be an easy to use website along with providing the WCCC an efficient method to update the Blue Book contents. Thus, in Spring of 2021, a group of students at Worcester Polytechnic Institute (WPI) collaborated with the WCCC to digitize the Blue Book as part of their interactive qualifying project (IQP). Their overall goal was to create a "digital platform for the WCCC to [allow the Blue Book] to be more widely available and easily and frequently updated" (Breitbart et al., 2021, p. 2). On top of that, this IQP team ensured that the website is "accessible", since research indicates that an accessible website benefits the browsing satisfaction and efficiency for non-disabled individuals and disabled users (Schmutz et al., 2017). To achieve this, the IQP team categorized each section of the Blue Book using symbols and modules to ensure people of all technical expertise can use the website with ease. The team also included an offline PDF version of the Blue Book to account for the population that does not have broadband access. Ultimately, the team created a prototype website for the WCCC containing the contents of the Blue Book (Figure 8).

Figure 8: Blue Book website prototype (Breitbart et al., 2021, p. 7)

Our Project Interactive Qualifying Project Goals and Objectives:

For this project, our team worked with the WCCC and Seven Hills Foundation to create the blueprint for maintaining the Blue Book website via "comma-separated value" (CSV) files. The method that we designed had to ensure that 1000+ Blue Book directory listings can be updated routinely without the manual process that was done by Anne Bureau in the past. As a result, the goal of this IQP was to design the workflow for the WCCC and Seven Hills Foundation wherein Survey Monkey is utilized to obtain updated content for the Blue Book website. Overall, the completion of our project will improve the maintenance of the Blue Book website for the WCCC, Seven Hills Foundation, and the service providers in the City of Worcester. In the next chapter, we will discuss the methods we used to achieve our project goal.

Chapter 2: The Pursuit of our Goal

Within this chapter we will review the methods we used to accomplish our project goal of developing a workflow plan for the WCCC and the Seven Hills Foundation to retrieve information to update and maintain the Digital Blue Book. In order for this goal to be fulfilled our group found it necessary to note these three objectives:

1. Consistently meet with our sponsors to finalize a workflow plan that suits their needs,
2. interview service providers to gain insight into the applications of the Blue Book and the needs of the Worcester community, and
3. research technologies and approaches to aid our sponsors in implementing the workflow plan.

Timeline	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Conduct interviews with social workers and parent leaders							
Analyze social worker and parent leader interview data							
Sponsor meeting with Nancy Benoit department Liason from Seven Hills Foundation							
Build an update request form via CSV files, and conduct peer review process with sponsor							
Finalize update request form, and prepare for final presentation							

Table 1: Project Objectives and Methods

Sponsor Meetings:

A crucial aspect of our project was the weekly meetings we held with our sponsors to understand their needs for the maintenance of the Digital Blue Book. We set up these meetings by sending emails to our sponsors, inviting them to attend Zoom meetings with our team. Among this group was our instructor and Worcester Community Project Center Program Director Laura Roberts, WCCC Program Director Anne Bureau, Seven Hills Foundation Marketing & Communications Associate Nancy Benoit, and Seven Hills Foundation VP of Advancements Kate Myshrall.

These meetings proved to be a necessary step for our project, as we consistently clarified our goal and objectives with the WCCC and Seven Hills Foundation. After thoroughly assessing the needs of our sponsor for the Digital Blue Book and the Worcester community, we narrowed down our focus to facilitating the collection, storage, and organization of the content used for the website.

We brainstormed with our sponsors the best ways to begin pursuing our goal, and determined the most appropriate available method of data collection was an online survey. With this in mind, we declared our first task: research online survey tools that are capable of converting response data into a spreadsheet, which can then be converted to a .csv format. After identifying and examining three potential survey making tools, we presented what we found on each survey, and discussed each of their features and limitations. We asked our sponsors to choose which survey method they preferred, as well as the kind of questions they wanted to have in the survey. Once we completed the final version of the survey, we finished with the content collection and storage portion of our task.

The organization of the information was kept for the sponsors to complete, as the scope of the Blue Book digitization process went beyond the seven week period our group had. While this was the case, in order for our sponsors to move forward they required the information that was in the Blue Book. More specifically, they needed the complete list of the service providers, their contact information, and the kinds of services they provided. Additionally, the group was required to categorize the services of each organization. This information was left for our group by the previous IQP team. They compiled 38 separate .csv files into one folder for each to be

accessed separately. This was helpful because each of the .csv files were labeled by service category, so there was no issue putting together a list of the different kinds of services. Our group made a Google Sheets document and pasted all the contents within the spreadsheet. This was shared with our sponsors for them to fill in any additional information.

Project Insight Through Interviews:

Our group gained insight on the significance the Blue Book has in the Worcester community by conducting interviews with key informants. Many of the people we interviewed were among the names provided to our team by Anne Bureau. Additionally, the list of key informants included members of the previous IQP team, and WCCC parent leaders, namely Doreen Samuels, Karina Wallace, and Kendall Molina. We sent emails to each key informant and scheduled a time for a semi-structured Zoom interview.

From these interviews we learned the impact the Blue Book has had on the Worcester community and service providers listed in the resource guide. Our questions prompted responses that would help us understand how the Blue Book is used, what changes may improve its usability, and a cost benefit analysis of a Digitized Blue Book.

Finding the Ideal Survey Tool:

Our research focused on online survey services and their Application Programming Interface (API) uses for a developer. The criteria for such a service was that it allowed for the ability to export response data into a CSV file, to remotely update the survey via back-end code, was user friendly, and was affordable. In addition, the survey tool needed to have the option for both open-ended and multiple choice responses.

Throughout our research, we identified three potential online survey tools that could suit the requirements of our project. The first tool we identified as a potential service was Google Forms. Since this is a widely known application and does not require an account to participate in a survey, we believed that this would avoid some potential complications with its use, so we

identified it as user friendly. Google Forms surveys allow for a variety of custom questions, so we declared that it would be a sufficient form for service providers to be able to update their listing information. Also, it permitted us to export response data as a CSV file, and through their Business account option, we would be given API access. This was a tremendous pull factor, since the ability to use their API would let us remotely create and modify surveys, extract response data, and upload the contents of the survey responses into the WCCC Digital Blue Book in real time.

The next tool we classified was Microsoft 365 Forms with Microsoft Power Automate to streamline data flow for exporting response data. While this service had the same benefits as Google Forms, we did not believe that it was user friendly. In our research, we found that in order to have this same functionality, we would need to utilize both of these services as well as request for API access, which seemed far more complicated than Google Forms. Furthermore, there was quite a learning curve with Microsoft Power Automate, which would be a hindrance to both our group and our sponsor.

The last tool, Survey Monkey, seemed like the perfect fit. We discovered that this service, with its Enterprise plan, allows for unlimited Survey Monkey API access and integration, and had all of the same functionality of Google Forms. Survey Monkey was easy to use, was visually attractive, and had especially simple API integration with step-by-step instructions.

After discussing these advantages during our weekly meeting with our Sponsor, we learned that Seven Hills had already purchased an Enterprise plan. Thus, this allowed for a smooth integration of this plan into the Digital Blue Book code, and minimized the learning curve of adapting to a foreign service. With this information, we decided to pursue Survey Monkey.

Therefore, we delved into further research into Survey Monkey and its tools so that we may understand the Survey Monkey API and its applications. Primarily, we narrowed our research to focus on how the Survey Monkey API could be used to generate new surveys to be sent to the WCCC affiliate organizations, and extract the data in the responses to automatically update the Blue Book website in real time. Furthermore, we explored how Survey Monkey's API could be used to populate an already listed organization's information into the survey, so that the organization may view their most current listing to make any changes that they deem necessary.

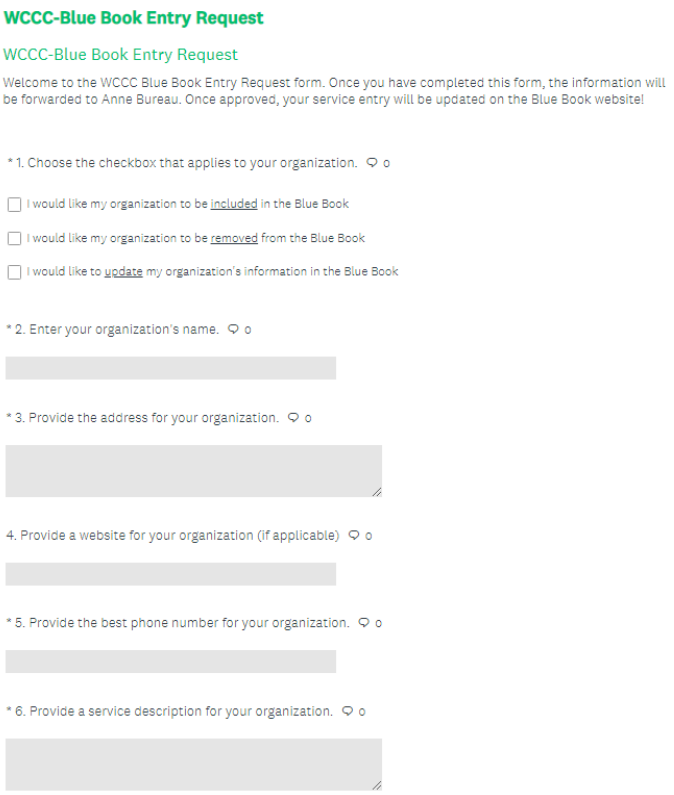

Figure 9: Initial proposed survey form for an organization via Survey Monkey

Chapter 3: Results & Findings

Introduction:

Although our approach was implemented for the purpose of creating the workflow, we found that each method described in the previous chapter played an important role in how the website would operate. This importance will be expanded upon as we discuss how the sponsor meetings influenced the creation our workflow, the details of how the workflow works, how our group determined which survey form was suitable for receiving information, the role the .csv played in the storage and use of this information, and final recommendations our group had for the Blue Book website.

Sponsor Meeting's Significance:

Weekly sponsor meetings provided us the guidance to create the workflow and there were also some other important takeaways from our meetings. They involved the change in our goal and objectives, along with the ways in which the sponsor's input helped us build on these objectives and implement them.

As mentioned in the previous section, our goal changed from actively working on the modification of the website, to creating a path for information to update the website's contents. The initial goal would have involved much coding, as well as being granted access to our sponsor's database for the website to implement the code we wrote. However, our sponsors brought to our attention that they would be handling the backend operations of the website. As a result, this led to them expressing a need for the contents of the website to be updated dynamically, which meant that the website's content would constantly be updated in real time.

These meetings were important because we were able to understand the role in which our group played in the development of the website. There were three general steps to the website development and maintenance process:

1. Collecting and sorting the information,
2. storing the contents, and
3. organizing the information.

For the first step, we researched different survey tools to determine which was ideal for the sponsor and developed a workflow plan for the survey entries. For the next step, we collected the Blue Book entry information into a .csv file. Finally, in order to organize this information, we arranged listing data by their listing category. This allowed us to group similar listings in the .csv file.

The Proposed Survey Explained:

In our research, we decided to pursue Survey Monkey as the most appropriate survey tool for an organization to be added, to be removed, and to make changes to their Digital Blue Book listing. Within Survey Monkey, we had the ability to create multiple choice and open ended responses. In our survey, the first question prompts the user with a multiple choice question that will send them down one of four potential paths: new entry, no change, delete, and update listing. Based on their selection, the survey is coded to prompt a different set of questions that corresponds to the chosen path. At the end of each path, there is a confirmation question that will either submit their responses and complete the survey, or redirect the user back to the beginning if they indicate that their entered information is not correct or completed.

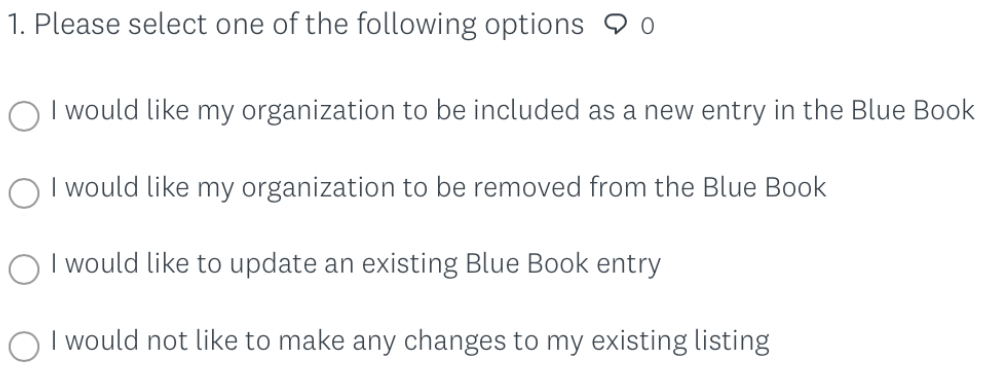

Figure 10: The first question of the survey in Survey Monkey that determines the next set of questions for the user.

For the new entry path, the user is sent through basic information questions that includes: name, address, phone number, email, and designated contact person. For the removal path, the user is simply prompted to enter their listing name, as well as two confirmation questions to ensure that they intend to remove themselves from the Digital Blue Book. The no change path is the simplest path, and it only asks the user to confirm that their current listing information is accurate and updated.

The update path is the most complex. Given that there are several different fields for each listing, the user is prompted with a question that asks if they would like to edit each field one by one. If the user selects no, then they are sent to the next question. If the user indicates that they would like to make an edit to a given field, then a textbox will be displayed for the user to make a desired change for that field.

Through this system, this single survey can be used for adding, removing, or making a change to a listing on the Digital Blue Book.

https://www.surveymonkey.com/r/5ZS8QCV

Workflow of Updating and Maintaining the Blue Book Website:

The primary survey technology that our sponsor chose was Survey Monkey, and our team developed a workflow that describes the interaction between Survey Monkey and the Blue Book website. Our workflow is needed to account and describe all possible situations that can occur when a service provider is updating their listing on the Blue Book website. Each path of

the workflow either redirects the user to a different part of the survey, or is collecting their responses, and updating the CSV files - updating the Blue Book website. With that in consideration, Figure 11 is the workflow diagram that was created:

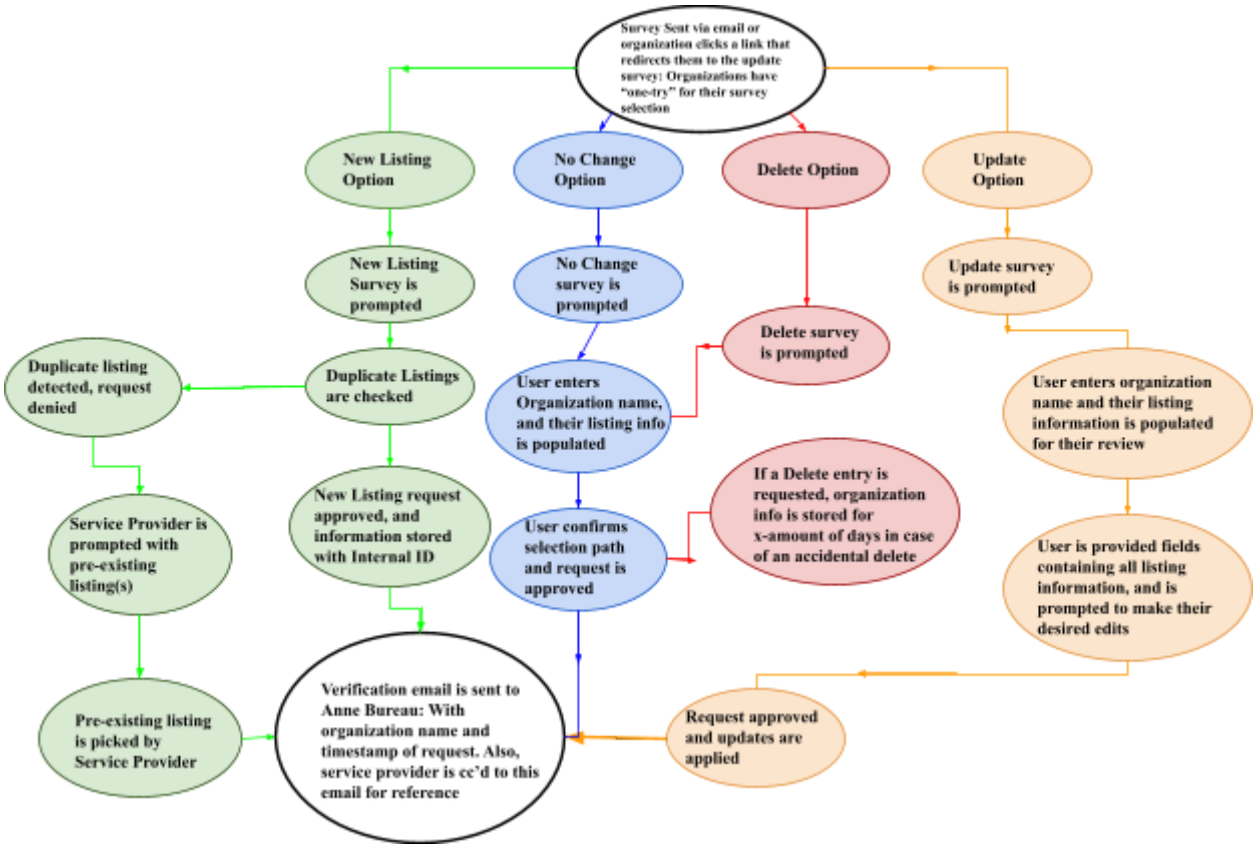

Figure 11: Workflow diagram with multiple paths that a service provider might experience when updating the Blue Book via Survey Monkey

The workflow begins with the assumption that a service provider is filling out a survey that they found on the Blue Book website (the website will have a button that will redirect service providers to the survey form) or is sent out by Anne Bureau for the annual Blue Book update. We believed it was important to limit the number of times that a service provider can submit a survey. This decision was made so that Anne Bureau will not be overloaded with listing requests. After that, the workflow describes four main paths - new listing, no change, delete, and update survey. If a service provider declares that they want to create a new listing, the logic of Survey Monkey will prompt them with a pre-populated list of questions that is necessary for a Blue Book listing (Figure 12).

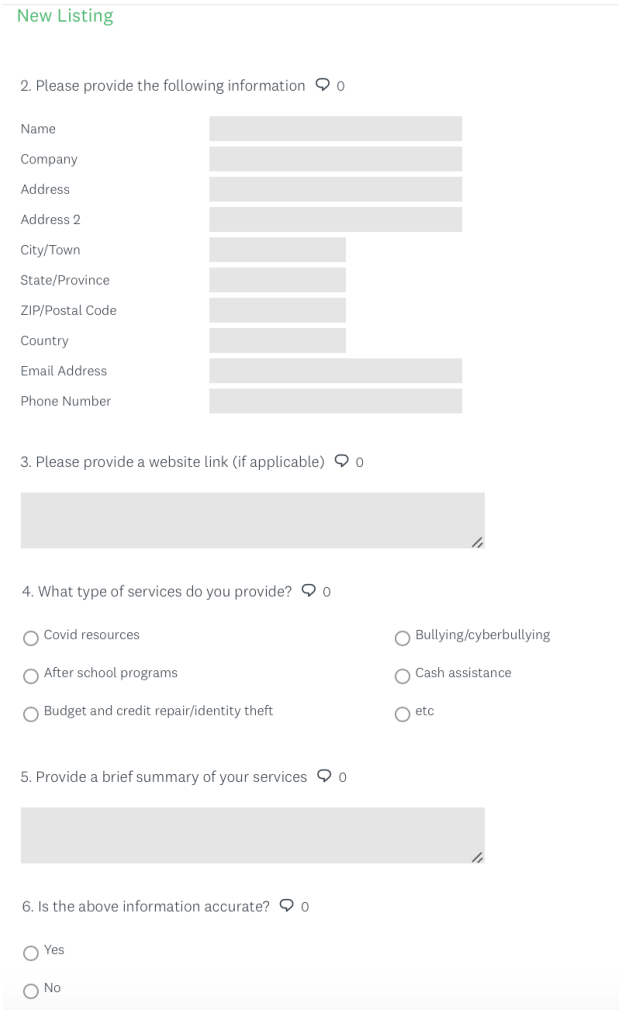

Figure 12: Survey Monkey sample questions presented to service providers that want to create a new listing in the Blue Book Website

Once the service provider has populated the necessary fields in the survey, the API feature of the survey will be utilized to determine if there is already a pre-existing listing with the same organization name, address, or phone number. This feature will help eliminate the chances of duplicate listings on the Blue Book website. If a duplicate listing is detected, the service provider will be prompted to choose from a list of pre-existing listings. On the other hand, if there are no duplicate listings, the information on the survey will be stored with an internal ID. With the proper listing declared, the workflow for new listings is completed by having an automated verification email sent to Anne Bureau containing the timestamp. If service providers

have further questions, concerns or issues with their listings, they are carbon copied (cc'd) onto the verification email, and are encouraged to resolve any issues with Anne Bureau.

If a service provider wants zero changes to their pre-existing listing on the Blue Book, the survey will prompt them with a list of questions (Figure 13):

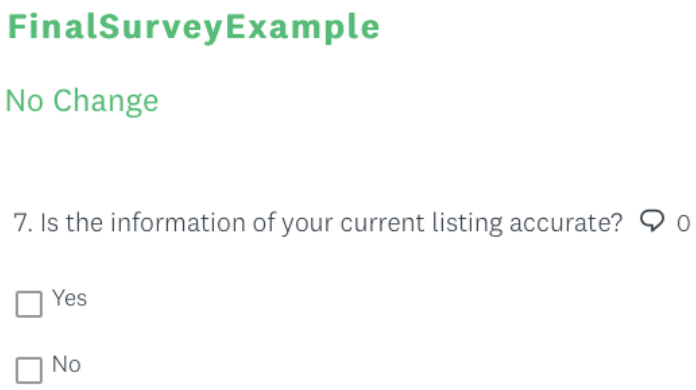

Figure 13: Survey Monkey sample questions presented to service providers that want to make zero changes to their pre-existing listing in the Blue Book website

With the completion of the prompted survey questions, the API feature of the survey will access the service provider's pre-existing internal ID, and populate the organization's information using textboxes. Once the service provider has confirmed their information, and decision to make no changes, a verification email is sent to Anne Bureau, and the organization is cc'd for their reference; and similar to the previous workflow branch, if any issues arise, the service provider is encouraged to resolve any problems with Anne Bureau via email.

The delete option of the workflow diagram is similar to the previous two options. The service provider is prompted to complete a survey that is pre-populated with questions that are only visible to organizations that want to delete their listing (Figure 14):

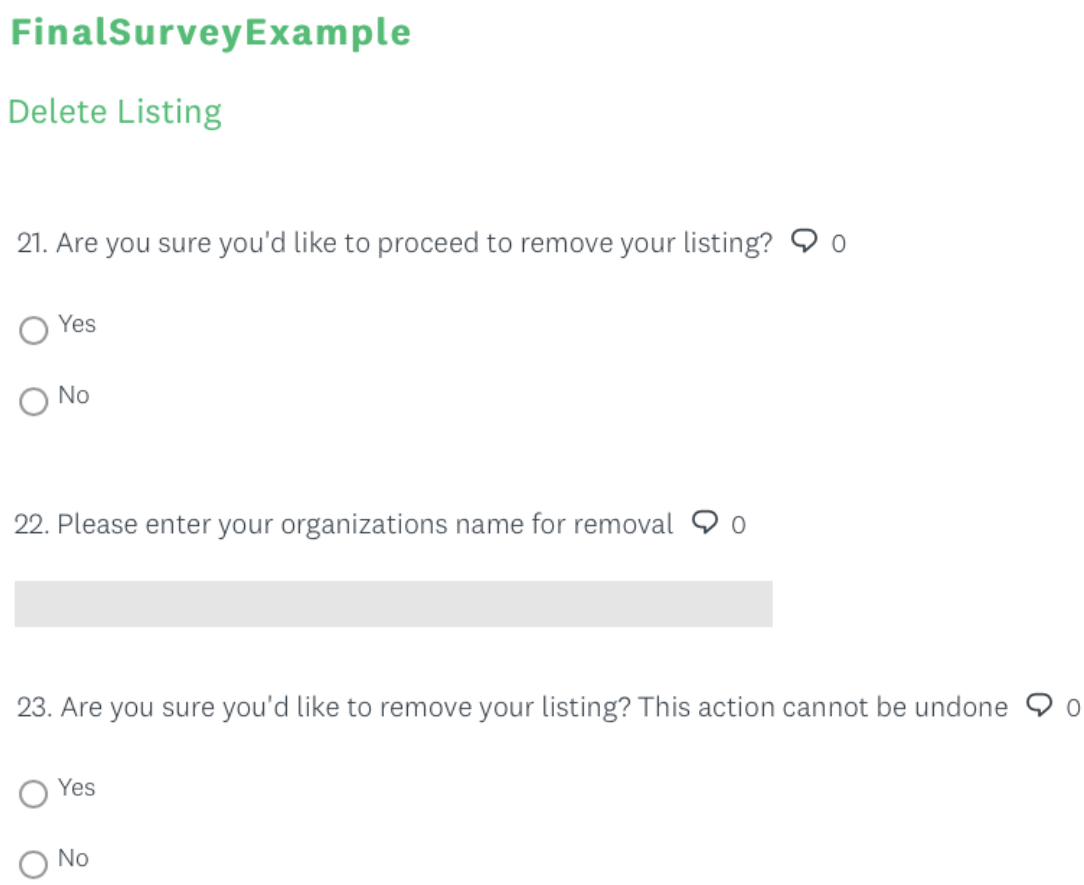

Figure 14: Survey Monkey sample questions presented to service providers that want to delete their pre-existing listing from the Blue Book website

In order to delete their listing, the service provider must provide the organization's information, and the API feature of the survey will populate the organization's information using their internal ID. Once the service provider confirms that they want to delete their listing, the organization's information will be stored for 30 days to account for accidental deletion of any listings. However, a verification email will be sent to Anne Bureau, and the listing will be removed. The organization will be cc'd to the verification email for reference, and any necessary requests or questions for Anne Bureau.

The final path of the workflow diagram accounts for service providers that want to update their pre-existing listing on the Blue Book website. Just like the previous three paths, the service provider is prompted with a set of questions that only appear to organizations that want to update

their information (Figure 15):

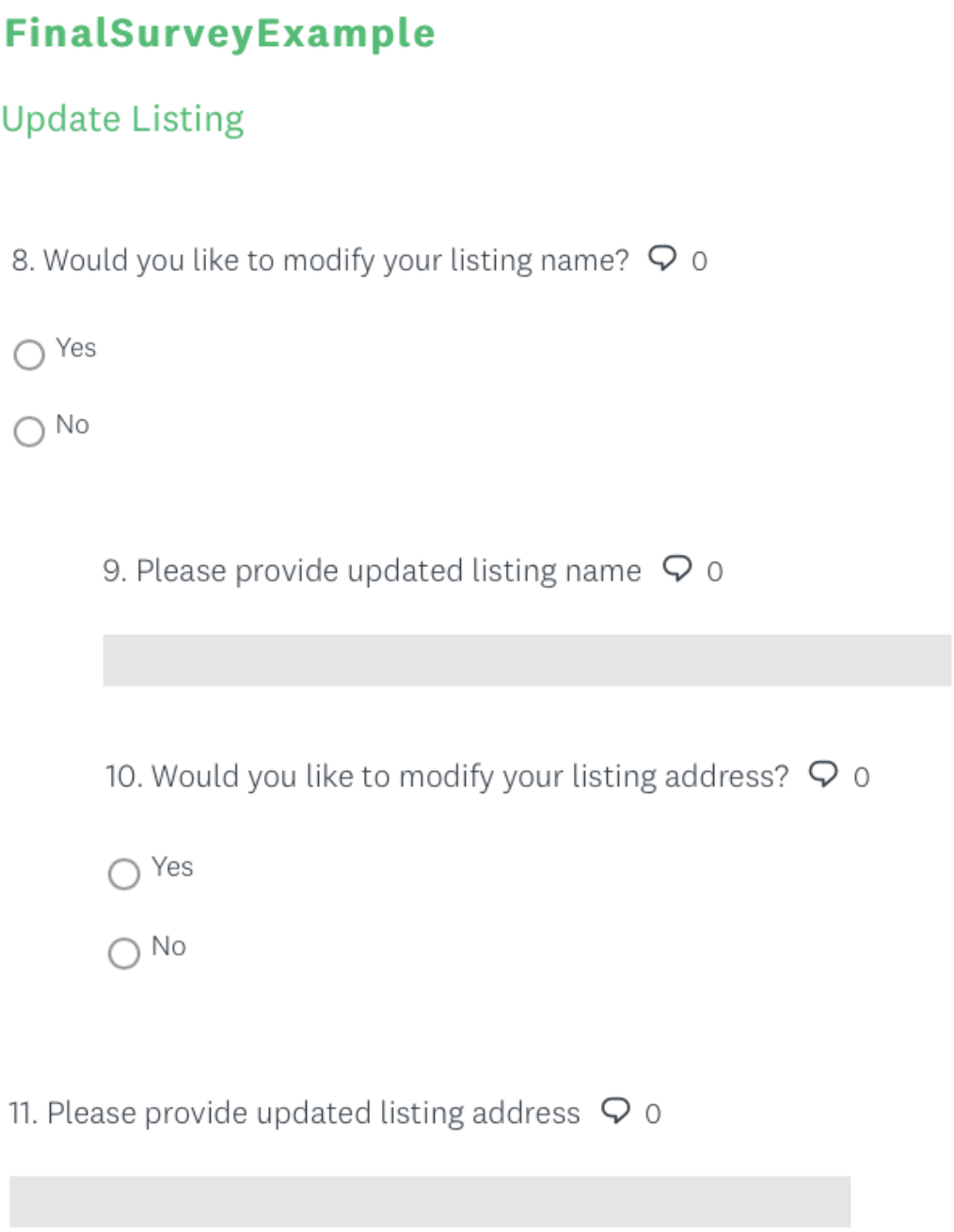

Figure 15: Survey Monkey sample questions presented to service providers that want to update their listing on the Blue Book website

The service provider will enter their name, and the pre-existing listing information will be populated for their review. Then, they are prompted with a set of questions that will ask the

organization to provide all information that they want updated. Finally, once the request is approved through the website, their edits will change on the Blue Book website, Anne Bureau will be sent a verification email with the organization cc'd for reference or any inquiries.

CSV: The Other Side of the Survey Entry Process:

While the previous sections provided a view of how the survey data was collected and sorted, this section focuses on the storage and arrangement of the information. The group found it best to house all of the information into a single .csv file format. Comma-separated Values or CSV, is a file that organizes information by columns and fields. As its name suggests, this type of file separates the information in each field using commas (Figure 16). This type of file was used due to its compliance with the software used to collect data from the survey tool Survey Monkey, and its flexibility when applied to modifying the data. Both of these features are important considerations when it comes to storing and organizing the abundance of information for future ease of access.

```
Category,Name of Resource,Address,Phone Number,Extension,Website,Person of Contact,Email, Details
Mentoring Programs,Resource1,"Address 1, Worcester,
MA",123-456-7890,www.abc.com,Person1,abc@xyz.com,*"provides a service"
Education,Resource2,"Address 2, Worcester, MA",111-213-1415,www.def.com,def@xyz.net,*"provides a
service"
```

Figure 16: Example of a .csv formatted file (Note: the information presented in this example is not of an existing organization)

There are 37 categories listed alphabetically in the Blue Book, which contains a total of over 900 listings. Each organization had key information associated with their listing, including the service they provide, a description of the services they provided, their contact information, and an address. All these fields will appear in the Digital Blue Book as the back-end code pulls this information from the CSV file.

Chapter 4: Interview Data and Recommendations

Website Recommendations:

As a result of our interviews with key informants, we have three major findings concerning accessibility, agreement on the demand for a Blue Book website, and thoughts on advertising the Blue Book website's debut.

Among all three key informants, there was unanimous agreement that the symbols, and language on the prototype website can be improved to be more accessible and inclusive. Karina Wallace believed that the current website lacks images with people. She believes that inserting pictures of real people from different ages, races and gender would be a good measure of inclusion. Future iterations of the website should have pictures that are representative of Worcester to promote a welcoming tone on the website. Next, both Karina Wallace and Doreen Samuels agreed that having less text is more beneficial for users. They believed that certain users get overwhelmed when too much text is presented to them. Our group believes that the current prototype of the Blue Book website is sufficient with this concern (Figure 17). However, when future groups continue building the website, they should avoid excessive text when building buttons and modules.

Figure 17: Snapshot of current Blue Book website prototype

Another consensus among all three key informants is that they believe there is a demand for a Blue Book app. They all think that with a rise in digital devices, it is inevitable for users to want a mobile app - thus an inclusion of a mobile app for the WCCC Blue Book is the correct path moving forward. However, recent research reveals that a mobile app is not the pen-ultimate feature. Guzman et al. conducted research in 2019 to create a campaign for a stigma free app in Worcester, Massachusetts. One of their conclusions indicated that a mobile friendly website has the ability to be more expansive for users than a mobile app (Guzman et al, 2019). On top of this, a mobile friendly website does not require the monthly or yearly fees. Also, a mobile app requires constant maintenance with each Apple or Android phone update. So, our group's recommendations for future teams is to focus on making the Blue Book website mobile friendly rather than extending efforts to build a mobile app - doing this will cut down costs for the WCCC.

Finally, all three key informants believed that advertising the Blue Book is unnecessary, and that an "email-blast" of its existence to the service providers will be sufficient to spread awareness of the website's debut. With that in consideration, future teams will not need to expend any effort or funds to create an advertising plan for the Blue Book website. It is believed by all three of our key informants that the Blue Book's reputation is large enough that the website will be "self-advertising" amongst its common users.

Overall, our team observed that there were three patterns amongst all our key informant interviews.

1.) each informant had consistent concerns over accessible, and inclusive website designs,
2.) agreement that there is a demand for a Blue Book website, and a mobile app,
3.) And the belief that advertising the Blue Book is unnecessary - and an email blast is sufficient to raise awareness of the upcoming website.

References:

Breitbart Frischling, E., Olexa, B., Paredes, B., Poll, A., Meisser, J. (2021). *Digitizing the Worcester Community Connections Coalition's Resource Guide* [Interactive Qualifying Project, Worcester Polytechnic Institute].

Ekins, E. (2019, September 27). *Poll: What Americans Think Cause Wealth and Poverty*. Cato Institute. https://www.cato.org/blog/poll-what-americans-think-cause-wealth-poverty.

Guzman, M., Kerkach, J., Mey, S., Wood, E. (2019). *Public Health Campaign for Stigma Free Worcester App* [Interactive Qualifying Project, Worcester Polytechnic Institute].

Investopedia. (2021, April 1). *How Does the Current Cost of Living Compare to 20 Years Ago?* Investopedia. https://www.investopedia.com/ask/answers/101314/what-does-current-cost-living-compare-20-years-ago.asp.

Kristof, N. (2020, February 20). *Pull Yourself Up by Bootstraps? Go Ahead, Try It*. The New York Times. https://www.nytimes.com/2020/02/19/opinion/economic-mobility.html.

Massachusetts Kids Count. (2008, September 17). *Child Poverty in Massachusetts (a Tale of Two States)*. The Annie E. Casey Foundation. https://www.aecf.org/resources/child-poverty-in-massachusetts.

Mishel, L., Gould, E., & Bivens, J. (2015, January 6). *Wage Stagnation in Nine Charts*. Economic Policy Institute. https://www.epi.org/publication/charting-wage-stagnation/.

Schmutz, S., Sonderegger, A., & Sauer, J. (2017). Effects of accessible website design on nondisabled users: Age and device as moderating factors. *Ergonomics, 61*(5), 697-709. doi:10.1080/00140139.2017.1405080

Seven Hills Foundation & Affiliates. (n.d.). *Worcester Family Resource Center*. Seven Hills Foundation. https://www.sevenhills.org/programs/worcester-family-resource-center.

The Research Bureau. (2020, October 02). Worcester Almanac: 2020. Retrieved April 08, 2021, from https://www.wrrb.org/reports/2020/08/worcester-almanac-2020/

U.S. Census Bureau. (2020). U.S. census bureau QuickFacts: WORCESTER city, Massachusetts. Retrieved April 8, 2021, from https://www.census.gov/quickfacts/worcestercitymassachusetts

Worcester Community Connections Coalition (2020, October 22). Retrieved from https://www.facebook.com/WorcesterCommunityConnectionsCoalition/photos/a.104684204601228/171027741300207

Worcester Community Connections Coalition Blue Book Online. Worcester Community Connections Coalition. (n.d.). Retrieved from: https://www.wpiwccciqptest.com/BlueBook/Substance_Use_Services.html