DESIGN OF AN ANIMAL MANAGEMENT TOOL TO SUPPORT LIFESAVING PRACTICES IN AN ANIMAL SHELTER

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DESIGN OF AN ANIMAL MANAGEMENT TOOL TO SUPPORT LIFESAVING PRACTICES IN AN ANIMAL SHELTER

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To all the dogs that never made it out.

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To Bruno for his comfort. And to Bane. This is all Bane's fault.

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Abbreviations

1. FCAS - Fulton County Animal Services
2. CSCW - Computer-Supported Cooperative Work
3. ICT - Information and Communications Technology
4. KPI - Key Performance Indicators

SUMMARY

Open-admission animal shelters face many challenges as an under-resourced and often overcrowded municipal facility. With the no-kill movement in animal welfare that aims to end euthanasia of adoptable animals in shelters, there is much opportunity for the assistance of this lifesaving movement with technology. Shelters generate an enormous amount of data to keep track of the thousands of animals that come through each of their doors and require extensive information and communication management to work through outcomes for those animals. However, very little focus has been given to the technology that shelter employees use to do their jobs. Many shelters still use legacy technologies, such as archaic databases, spreadsheets and local servers, which often limits their ability to make informed decisions, directly affecting efficiency, and at times, the number of animals they are able to save. The aim of this project is to look at how the current technology used in animal shelters affects shelter operations, and to design a new digital tool that better aligns with progressive lifesaving sheltering practices. Through auto-ethnographic, empirical, and design-based methods the different dynamics and inter-workings of daily shelter tasks were studied to identify potential areas where a tool could alleviate the shortcomings of legacy technology. A number of discovery and participatory workshops were conducted with employees to thoroughly understand the communication and information dynamics behind moving dogs through the shelter. Ultimately, an event-driven shelter animal management tool was designed for shelter employees that supports natural shelter workflow, with the aim of ensuring that as many animals have positive outcomes as possible. User-testing with shelter employees was conducted to assess how the usefulness and usability of the new design, in regard to aligning with progressive shelter operations. Finally, feedback from the user-testing sessions was incorporated for future development of the platform.

CHAPTER 1
INTRODUCTION AND BACKGROUND

Animal shelters serve as an incredibly important but often unseen service in our communities. When I started fostering a dog three years ago from a local shelter, my eyes were opened to the challenges of the animal sheltering industry, specifically the lack of resources needed to improve shelter operations. Since then, I have been observing and participating in Atlanta's animal welfare community through volunteering over one thousand hours at Fulton County Animal Services (FCAS) [1], operated by a private nonprofit called LifeLine Animal Project [2]. LifeLine has transformed Atlanta into a no-kill community, meaning that they have created a culture shift within the municipal shelters of Fulton and Dekalb counties to strive to save every healthy and treatable animal. Since they are publicly funded institutions, municipal shelters are typically underfunded, understaffed, and overcrowded, which historically has led to the unnecessary euthanasia of millions of animals annually across the United States [3]. LifeLine is part of a national 'No-Kill' Movement [4], which has swept across shelters in an effort to greatly decrease the amount of adoptable animals euthanized for reasons such as lack of space and resources, treatable medical problems, and manageable behaviors.

My role with this project is positioned uniquely as both a community member and researcher, allowing for a more intimate account of shelter operations, workflow, and dynamics. Through volunteering locally and the opportunity to travel to some of the country's most innovative shelters in Tucson [5] and Austin [6], I have discovered that the greatest challenges that municipal shelters like FCAS face in achieving their no-kill objectives can be tied to an antiquated network of technology. As the culture of animal sheltering has shifted to more progressive practices and objectives, the tools used by shelters to operate to this new standard must also adapt. However, the development of the technology to support

this change in culture has been left behind, which unfortunately limits the effectiveness and efficiency of saving as many animals as possible. The lack of a functional technological platform has forced shelters to use supplemental and often free software, creating additional issues of information dispersion. Since the no-kill movement strives to find the best treatment plan for each animal on a case by case basis, collaboration among all stakeholders is paramount to ensuring the right decision is ultimately made. In today's progressive culture of animal sheltering, it is difficult to achieve this collaboration when the technology used by industry professionals does not encourage or support collaborative processes.

1.1 Research Questions and Specific Aims

There is an incredible gap in the technology sector of the no-kill movement. The purpose of this project was to utilize ethnographic, participatory and design-based research methods to examine the current state of animal shelter management tools and how it currently limits progressive and lifesaving shelter operations. Through this process, tools were designed to assist shelter employees with animal information management and making informed decisions about animals in the care of the shelter. The ultimate goal was to design a shelter management tool that aligned with the no-kill movement and supports the efficiency of lifesaving practices.

There were two questions driving this research. First, what features does the target audience identify to be included in a shelter animal management tool to facilitate lifesaving sheltering practices? These were ultimately identified by gaining a deep understanding of the needs of shelter stakeholders through empirical and autoethnographic research as well as a series of participatory discovery workshops. In answering this question, we identified the values of shelter employees and identified some of the nuances and hindrances of their daily workflow. Furthermore, we discovered if these values are currently represented in the technology and tools they use, thus informing the possible design space and shaping the design criteria for the proposed tool.

The second question was, what is the effectiveness of specific design features in aligning the shelter animal management tool to lifesaving shelter operations? Based on the design criteria identified from the first research question, a design for a shelter animal management tool was ideated, developed, and evaluated for usefulness and usability by shelter employees. The results of these evaluations were then analyzed to develop suggestions for future changes, both conceptually and operationally.

1.2 Outcome and Significance

The end goal of this project was to craft design criteria and a proposed design of a new digital tool that supports lifesaving practices. The tool is specifically focused on operations surrounding dogs, as this is the species most in need at FCAS. The outcome of this project could have a significant impact for animals in the care of shelters. Increasing the accessibility of data that would otherwise be dispersed across multiple platforms would greatly impact communication about an animal, speed up an animal's time in the shelter, and therefore lead to more animals saved. Simultaneously, it would allow the dogs greater accessibility to advocacy and opportunities to participate in placement programs, leading to a higher chance of a dog safely leaving the shelter. Similarly, it would help catch animals that may otherwise fall through the cracks and become at risk of euthanasia due to poor communication, dispersion of information, and the reactionary model of the current software system.

Providing shelter employees with a tool that reflects the values and practices of lifesaving operations would be impactful in three main ways. One motivation is that it could increase the quality and volume of placements of dogs outside the shelter, leading to more focused and strategic efforts towards lifesaving. The second is that shelter stakeholders would be able to analyze their programs and outcome rates, as well as other key performance indicators (KPI's), allowing for real-time reflection on goals and progress. Most importantly, a better tool would help alleviate some of the emotional strain and frustra-

tions that come with working in a high-stress and emotionally difficult work environment. By involving shelter employees in the process, we were able to specifically pinpoint the most stressful and frustrating gaps in the current technology used and develop a tool that improves upon them. This tool will significantly help shelter employees perform their important lifesaving work, which in turn will help the community's animals.

CHAPTER 2

RELATED WORK

Nationwide, municipal shelters are striving to save adoptable animals from euthanasia by turning towards no-kill practices. Over the last two decades they have been trying to shift the culture to be seen as a public service that helps communities and animals, rather than the traditional concept of a "pound". It is important to point out that the phrasing of the term "no-kill" can be misleading. No-kill does not mean that a shelter vows not to kill any animals. No-kill is a cultural movement within animal sheltering where the, "common goal is to save animals' lives when there is a quality alternative to killing." [4]. The standard benchmark for no-kill is having a lifesaving rate of 90%, however, this is a general guideline, and can always be exceeded. The lifesaving rate refers to the percentage of animals that left the shelter alive, out of all the animals that came into the shelter. In order to reach these lifesaving goals, a variety of programs and innovative sheltering practices have been put into place. Locally in Atlanta, Lifeline Animal Project has been driving the no-kill movement for the two metro counties. At the time of this project, FCAS, exceeds the lifesaving benchmark of 90% during some months, and sometimes they miss it by 1-3% [7] due to seasonal fluctuations of volume and other variables. This 1-3% represents the lifesaving gap, or the amount of animals that if they had been saved, would have pushed them to their goal. The lifesaving gap is the focal point of improvements to operations, as this is the area where dogs are still dying that could be saved. Designing a tool that supports efforts to work towards closing the lifesaving gap is one of the aims of this project.

2.1 Shelter Operations

Typically, shelters have two main departments – animal care and placement. The animal care department works to care for and treat animals during their time at the shelter, while

the placement department works to move animals out of the shelter. Lifesaving is accomplished through positive placement outcomes, which are adoption, rescue, return to owner, and transport. Other outcomes include euthanasia and in-shelter death. To convert intakes to positive outcomes is accomplished through many programs, tasks and advocacy including behavioral assessments, playgroups, match-making, long-term fostering, field-trip fostering, marketing, and other in-shelter enrichment [8].

Shelter environments are not normal living environments for dogs and can cause certain behaviors to appear that would not normally occur in a dog outside of the shelter. Dogs may also come to the shelter with pre-existing behavioral problems. If these behaviors put other animals or people at risk, they can lead to a dog becoming urgent, meaning they are at risk of euthanasia. Urgent status for a dog can also be due to a combination of space, time, and environmental factors. For this reason, all of the programs are crucial to learn about dogs and give them agency to advocate for themselves. For example, playgroups [9] are conducted to allow for dogs to socialize and play outside with one another. Through playgroup, dogs are allowed to show their sociability level and personality, which could indicate what type of home or other placement options would be best for them. Another example would be short-term or field trip fostering [10], which allows the public to volunteer to take a dog out for a day or sleepover. This collects invaluable information about the behavior of the dog outside of the shelter, in a more comfortable environment like the home. Especially for dogs that have negative in-shelter behaviors, information from field-trip fostering is used to advocate their case for them to get out of the shelter and into a home.

One significant limitation of FCAS is the physical shelter itself. It is largely outdated and too small for the current capacity of animals that come into FCAS annually. At this particular shelter, the population hovers around 300-350 dogs and takes in around 8,000 animals per year [7]. The general population of dogs live in communal housing, meaning four to eight medium-large dogs must live in a kennel together. Each kennel of dogs has a

random mix of sociability levels and personalities, which can sometimes lead to scuffles, fights, and other behavioral problems that arise from living in a stressful environment. While the communal kennels do help dogs socially and mentally, they are also at risk of becoming urgent because of unpredictable events that can occur in their living situation. Therefore, the population living in communal housing and dogs that become urgent due to situational housing issues pose the biggest opportunity to improve on lifesaving.

2.2 Shelter Data

In recent years, leading animal welfare organizations have been putting an emphasis on data transparency. The ASPCA [11], Best Friends Animal Society [12], Maddie's Fund [13], and Shelter Animals Count [14] have all put forth initiatives to encourage shelters to report their intake and outcome numbers publicly. This transparency in data focuses answering questions like, "who's coming in, and why?" and "who's going home, who's not leaving, and why?" [11]. This encouragement to publish intake and outcome data is important in order to create accountability across the country for lifesaving. However, there has been little focus on reporting data on the mechanisms that turn intakes into outcomes. Hamilton [15] notes that shelters are, "a system of inputs, transformation, and outputs". The lack of data and tools to collect data surrounding these "transformations" is the focus of this project. All over the country, shelters have revolutionized their programs to try and save as many animals as possible.

Resources and research have been poured into these programs [16, 9, 10], apprenticeships are held to train and empower shelter leaders and staff [17], and many conferences are held to collectively push the field of animal sheltering towards a no-kill culture [18]. While all of this progress moves forward, little innovation is being done with the technology that shelters use. This creates a space of disempowerment, where shelters are trying to implement progressive practices and close their lifesaving gap. However, the technology they use to store and track their animals' data does not support these efforts. In all existing

shelter database systems, the task of analyzing and using the data is left to the humans. Shelter database systems have kept a solely "information seeking" model, where the user runs a search query driven by a specific inquiry. Therefore, the user must already have in mind which dog they are looking for. What the systems do not allow for is alerts or suggestions of dogs to look into, or any program management functionalities.

Alongside progressive shelter practices, there are many key performance indicators (KPI's) that would help employees track their success [8]. Different employees might be interested in different KPI's, such as include life-saving rate, number of dogs in foster, length of stay, etc [19]. Currently, KPI's are tracked minimally due to limitations of technology and reports are only pulled by experts of the system. Accessibility to these numbers would be incredibly helpful for reflection and analysis on shelter programming each month. Shelter stakeholders have a desire to see more cohesive data sets about their programs, in order to gather insights on their current processes and find opportunities for future improvements.

2.3 ICT's and Animal Shelters

To make up for the lack of features representing progressive programs in shelter software, employees often use other free or manual tools and have multiple locations for files or information [20]. It is a common phenomenon for nonprofits to adopt technologies and digital tools that were not originally made for their industry to fill in the gaps of legacy technology, which provides further challenges [21]. At the shelter, this can include Facebook, SMS, email, Trello, Google Drive, spreadsheets, and whiteboards. Many of these platforms and technologies do not connect to each other, or the method in connecting them would add even more overhead work. Furthermore, many different employees own different places where data is stored. For example, the volunteer coordinator and team could store information from field-trip fostering programs on the Trello, while the kennel staff submits behavior notes from the kennel on the shelter database system. The information

in both of these places could be pertinent to giving a complete story about the dog. These free and adapted platforms create a phenomenon called locational data fragmentation [21]. Data fragmentation is the siloing of data, as it is dispersed across different technologies, platforms, systems, and people. This often happens in nonprofits due to limited resources, "resulting [in a] fractured and incoherent set of data [which] is hard to analyze or put to any kind of use" [21].

CHAPTER 3

PHASE I METHOD

The methodology was split into two phases to address each research question. An overview of the different phases is shown in Figure 3.1. To support the first research question, a range of empirical and participatory methods were used to understand the challenges shelter employees face and to identify opportunities for a digital system that would assist them in tracking information about dogs. Much of the discovery phase and need-finding analysis was rooted in a service design approach due to the fact that a shelter is a complex entanglement of many different stakeholders and touchpoints. As an insider to the community of this particular shelter, auto-ethnographic evidence from volunteering throughout the last two years also naturally became a piece of my methodology. Artifacts such as the stakeholder map, individual personas, and a technology audit were formed through empirical practices and quantitative evaluations. Additionally, detailed assessments of current tools used for managing shelter practices were revealed through a series of participatory workshops for shelter employees and stakeholders. In a field where employees deal with emotional and high-stress tasks daily, it was important to me that a strong emphasis was placed on participatory and ethnographic methods. The main priority was to listen to the challenges they face and let that guide the focus of where the design would aim to intervene. This led to three discovery workshops – one detailing the role of an adoption counselor, one looking at ten particularly challenging types of cases for placement, and one looking at the stories of ten long-stay dogs and their outcomes. Co-design with paper prototypes, feedback sessions, and a user study of the final prototype all contributed to the design and development of the application. The feedback and analysis from the user-test was used to answer the second research question.

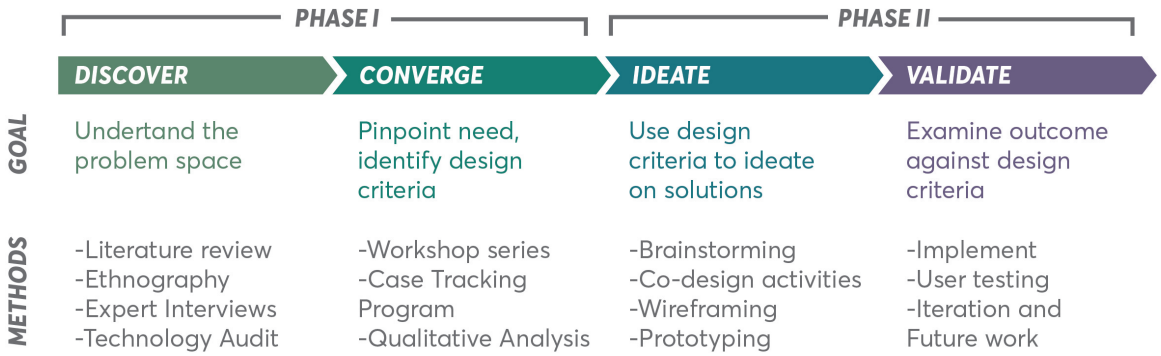

Figure 3.1: Overview of phases and method.

3.1 Stakeholder Map

The stakeholder map in Figure 3.2 shows how FCAS is situated within the complex network of institutions and partners in the Atlanta community. It also depicts the departments and other stakeholders within FCAS that all work together and have a hand in the lives of the dogs that come through the shelter. While there are many different organizational models for shelter management, the types of shelter job roles are generally consistent across shelters nationally. Visualizing the flow of the dog from pre-intake to outcome is critical to understanding the ways in which information can be collected, made sense of, and turned into decisions for the outcome of the animal. It is also important to notice how many different people are touchpoints for the dog during their journey through the shelter system, which can lead to inconsistency in opinion, source of miscommunication and lost information. These problems due to the amount of different stakeholders is explained in the following section. The scope of this project is meant to be centered around the placement department because they are responsible for moving dogs out of the shelter and therefore directly oversee the lifesaving programs. However, it can be argued that many other departments and stakeholders are equally critical to the placement teams' functions and no-kill practices.

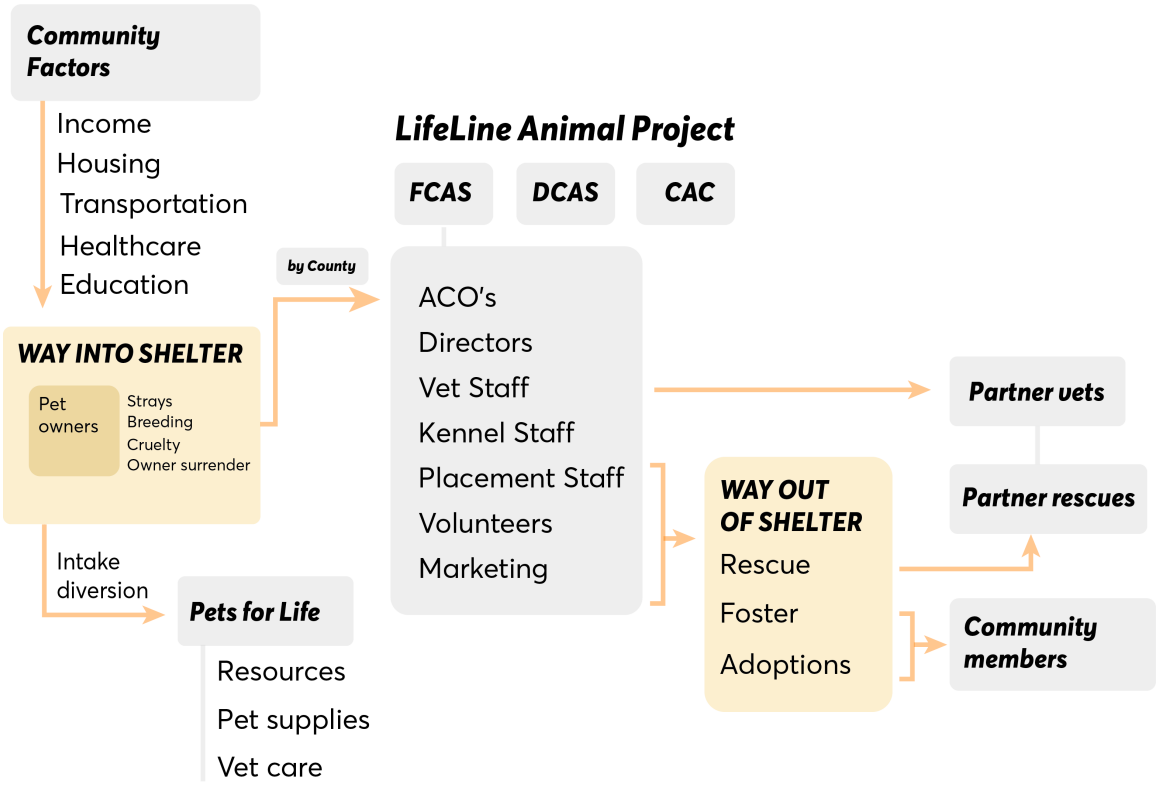

Figure 3.2: Stakeholder map.

3.2 Technology Audit

A technology audit was conducted to get an overview of all platforms and methods used at FCAS for collecting, tracking, and communicating information about dogs. Ultimately, this work resulted in the Shelter Touchpoint Workflow (Figure 3.3), which depicts all the ”events” that can add to the repository of information about a dog during their time at the shelter, the stakeholders that are responsible for that specific type of information, and the platform or technology that type of information lives on.

The abundance of different colors in Figure 3.3 clearly shows the severity of locational fragmentation of data [21]. Due to the traditionally under-resourced nature of nonprofits, stakeholders are forced to adapt different free platforms to hold information. The lack of user-centric and data-centric technology available for shelter management creates flaws in communication and missed information when it comes to getting the whole story of

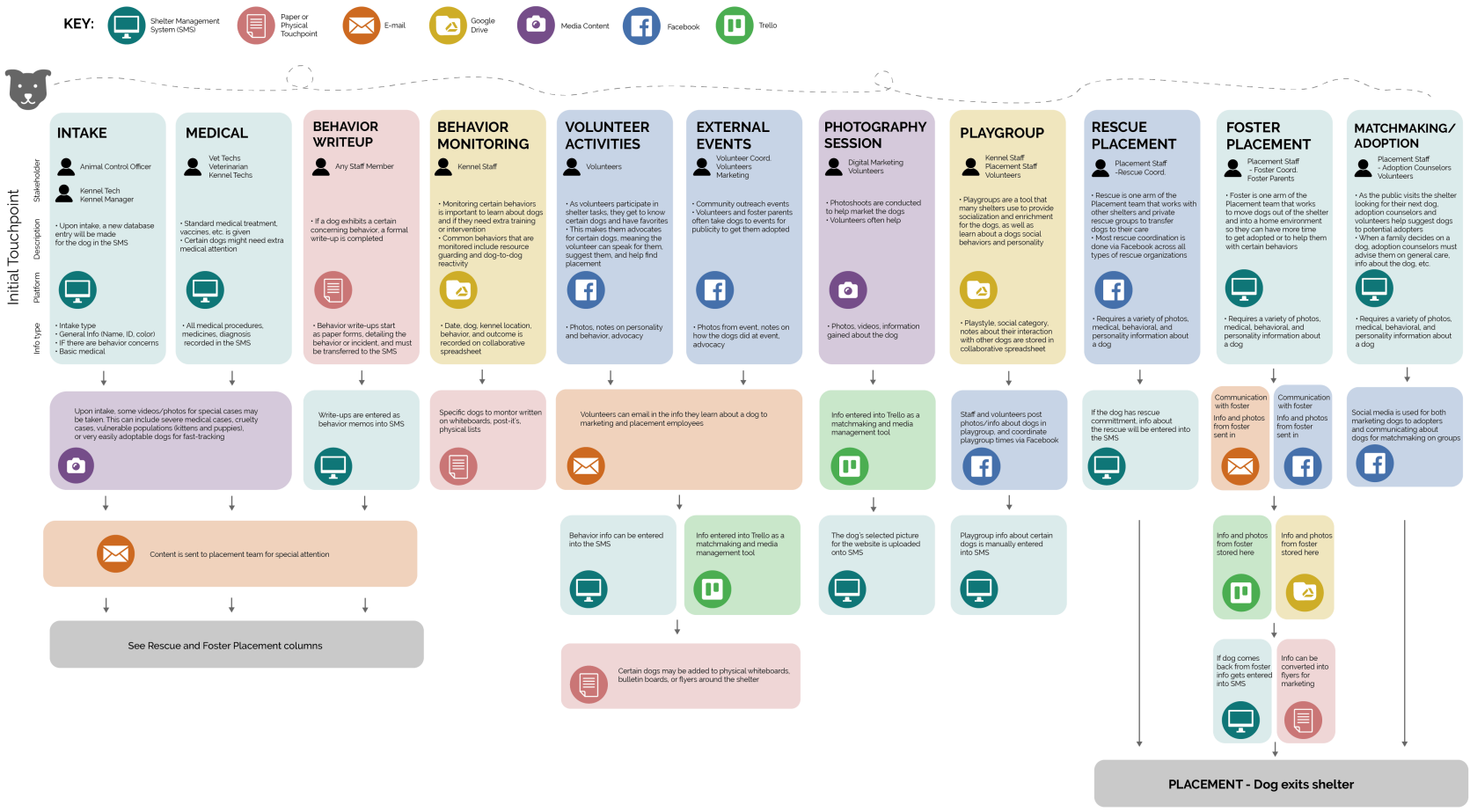

Figure 3.3: Adoptions Journey Map from workshop 1.

a dog during their time at the shelter. This directly contradicts the value that exists in animal welfare of treating each dog as an individual and telling a cohesive story about an animal to inform lifesaving decisions [22]. This highlights the opportunity for a system that can handle the variety of information generated around a dog and the different events that can possibly happen during their time at the shelter. This influenced the final design by inspiring features that allow staff to see an animal as an individual, taking their entire story into account when making decisions.

It is also noticeable that Facebook appears in Figure 3.3 almost as much as the shelter's own database system. Facebook has been deeply integrated into the shelter workflow and the entire industry of animal welfare, as it allows for the sense of urgency and network outreach required to place dogs. Personal Facebook accounts are used to perform these tasks, acting as an inescapable stream of often emotionally draining work-related news and notifications [22]. Of the employees included in an expert interview session, they reported spending an average of 8.75 work-related-hours on Facebook a day. This is reflected in many design considerations, including inspiring the built-in chat and task-assignment functions in the final design.

3.3 Personas

Five separate personas at different levels of management and involvement with the dogs were created. These five encompass the different stakeholders that are most relevant to moving and tracking dogs through the shelter. The personas include a manager role, a coordinator role, a kennel staff role, a volunteer role, and the role of the animal in care. All five are critical to the positive outcomes of dogs, however, I chose to focus most thoroughly on the coordinator and dog personas, as these relate most to the type of lifesaving programs the design is meant to support. The placement coordinator persona helped pinpoint the important tasks used to move animals out of the shelter, and the tools used to accomplish those tasks. The frustrations of this role also helped to identify design opportunities for

the final design. The "animal in care" persona did not act as guidance in how an animal would use the tool, but how the tool could speak for them. The different "frustrations" of the animal persona all lend themselves to the animal not having voice or agency. Thinking through how the tool could guide staff and volunteers to let the dog advocate for themselves through various programs that collect information about behavior is essential to creating a product that fosters a progressive sheltering culture.

3.4 Journey Mapping Workshop I

Alongside the Director of Client Services, we conducted a workshop to detail the journey map of the adoption counselors. We took a deep dive into challenges and information flow for the adoption counselor job role. With adoptions being the largest outlet of positive outcomes for dogs at the shelter, one of the biggest tasks that requires piecing information about a dog is matchmaking. Matchmaking is when staff or volunteers listen to and assist potential adopters in finding a dog that fits their needs and lifestyle. In examining how adoption counselors currently learn about dogs in order to suggest them to adopters, many opportunities for a digital tracking system were revealed. The workshop included six adoptions employees, asking them to use post-its to create a journey map consisting of all the activities and tasks involved in their role. Under each task, they were instructed to list barriers, thoughts from the perspective of potential adopters, and any solutions to improve this task.

3.4.1 Journey Mapping Workshop I Results

This artifact from the first workshop, shown in Figure 3.7, allowed insight into a day in the life of one specific type of job role, the adoption counselor. Around 60% of shelter outcomes are meant to be through adoptions, making it an important segment of the placement department to examine. In order for adoption counselors to match-make, they must know a number of dogs that fit a range of requests such as, being good with cats, good with

TOOLS

- *Chameleon - Shelter Database System*
- *E-mail*
- *Facebook/ Messenger*
- *Text Message*
- *Paper forms*
- *Notebooks*

PLACEMENT COORDINATOR

Name: *Kayla Ray*
Age: *28 yrs old*

Job Role: *Responsible for supporting all three arms of the placement team -- adoptions, foster, and rescue. Responsible for assessing and learning about dogs.*

DAILY TASKS & TOOL USE

- Looks up information about dogs on Chameleon
- Receive e-mails for dog-assessment requests
- Utilizes notebook to keep track of tasks, assessment, send-out's for the day
- Communicats with co-workers over Messenger and Text
- Receives and communicats about euthanasia list via text message
- Fills out paper behavior forms and animal release forms

GOALS

- To support other placement team roles
- Be proactive about assessing dogs before they end up on the euthanasia list
- Objectively and thoroughly assess and learn about dogs
- Cover as many behavior assessments as possible

FRUSTRATIONS

- Too many dogs to manage and be proactive about getting them the help they need early
- Difficult to communicate with co-workers and volunteers
- Fast-paced euthanasia protocol
- No tools to help track progress or assist with daily tasks

Figure 3.4: Placement Coordinator Persona

TOOLS

Body language

Sociability with peoople

Sociability with dogs

Showing previous training skills

In-Shelter Behavior

Communication through voice/bark-ing/growling/biting

DOG IN CARE

Name: *Bruno*
Age: *6 yrs old*

Role: *The dog's in care come from a wide range of backgrounds, and usually don't come in with much information as to their behavior, history, and needs. Bruno came into the shelter with a hip injury, is generally confused about why he's there, how he ended up there, and is underweight and in pain.*

DAILY TASKS & TOUCHPOINTS

• Gets taken out by kennel staff for daily potty breaks
• Volunteer takes him out and gets to know him - posts pictures about him on Facebook
• Gets into fight in communal housing - is written up using paper form
• Is communicated about because of medical needs, gets taken to get x-rays
• Ends up in the email about urgent dogs due to fighting in the runs

GOALS

• To get out of the shelter alive
• Wants food, comfort, affection, safety, quiet
• To heal hip injury and put on weight

FRUSTRATIONS

• Must be confined to a crate all day
• Cannot communicate to shelter staff about his injuries
• Cannot communicate to shelter staff about what type of dog he is outside of the shelter
• Cannot communicate to shelter staff that he got in a fight in the runs because he is in pain

Figure 3.5: Animal in Care Persona.

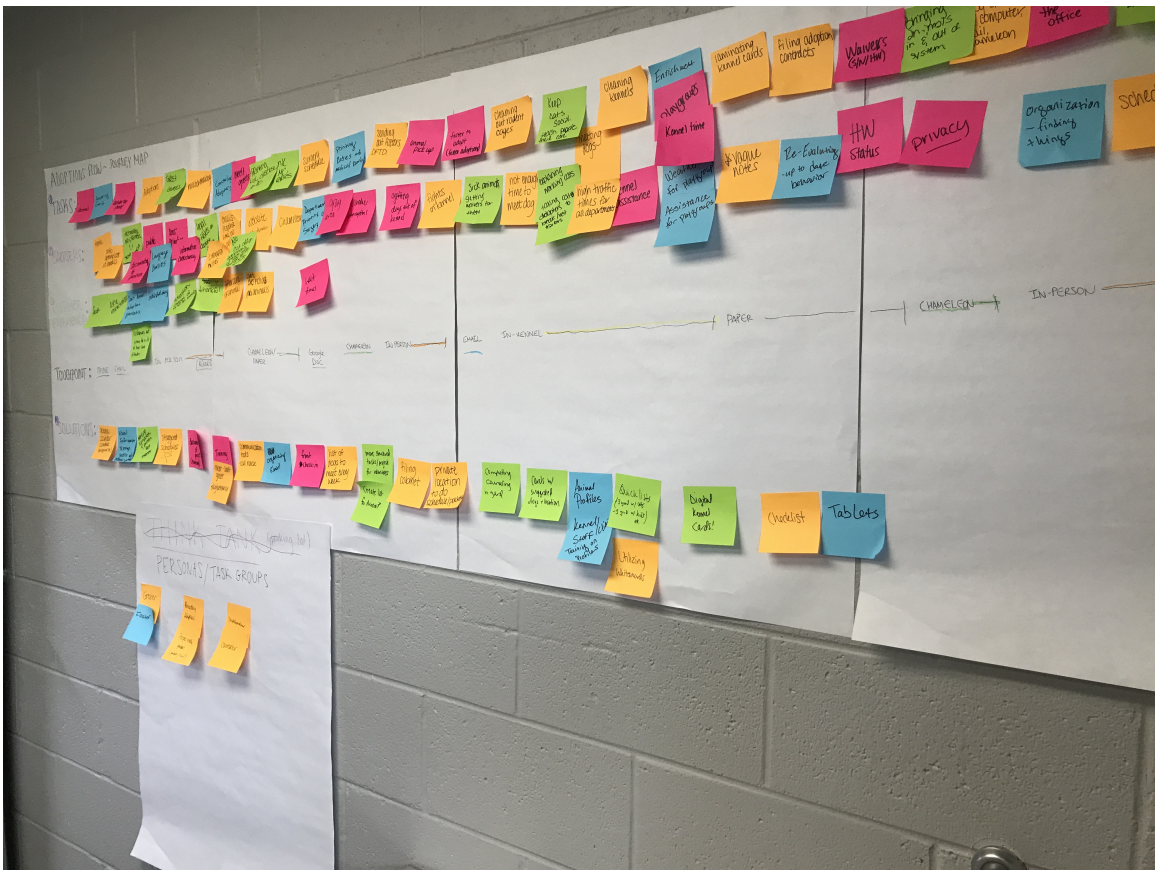

Figure 3.6: Journey Mapping Workshop I.

kids, house-trained, etc. Staff in other departments and volunteers discover this information about dogs through their various activities, but there is a disconnect between sharing that information in a streamlined process to adoption counselors. This is partially due to a physical separation, being stationed in their own office. However, the shelter database system they currently use does not allow communication between staff members. This creates the need to use other tools such as messaging apps, Trello, Facebook, paper, and whiteboards to communicate about dogs, which can lead to further data fragmentation and can add to the amount of communication needed to match adopters to animals. Time management also came up as a frequent pain point, which can partly be attributed to the use of so many different communication methods to fill the gap of their current software. Ultimately, a tool that allows tagging and alerts to focus adoption counselor's attention towards particular dogs in order to suggest them to adopters would be beneficial. This presents a strong argument for an alert-centered system in the new design.

3.5 Journey Mapping Workshop II

The second workshop opened up to participation from a variety of different job roles and departments ranging from animal care to placement. Twelve employees were involved in detailing the journeys of eight real dogs that we already knew the final outcomes of. They represented ten types of particularly challenging use cases for placement, including bite cases, emergency medical situations, pregnant dogs, cruelty cases, owner surrenders, dogs that have been at the shelter for over six months and start to deteriorate behaviorally, dogs that show especially concerning behaviors in foster, and dogs that exhibit fear-based aggression. Since we already knew the stories and outcomes of these use cases, the idea was to look back at every "event" and piece of information we had from their time at the shelter and talk through their journey to long term outcome, whether the outcome be positive or negative. We especially focused on the triggers that ultimately led or did not lead to them getting out of the shelter. We chronologically mapped each event and piece of

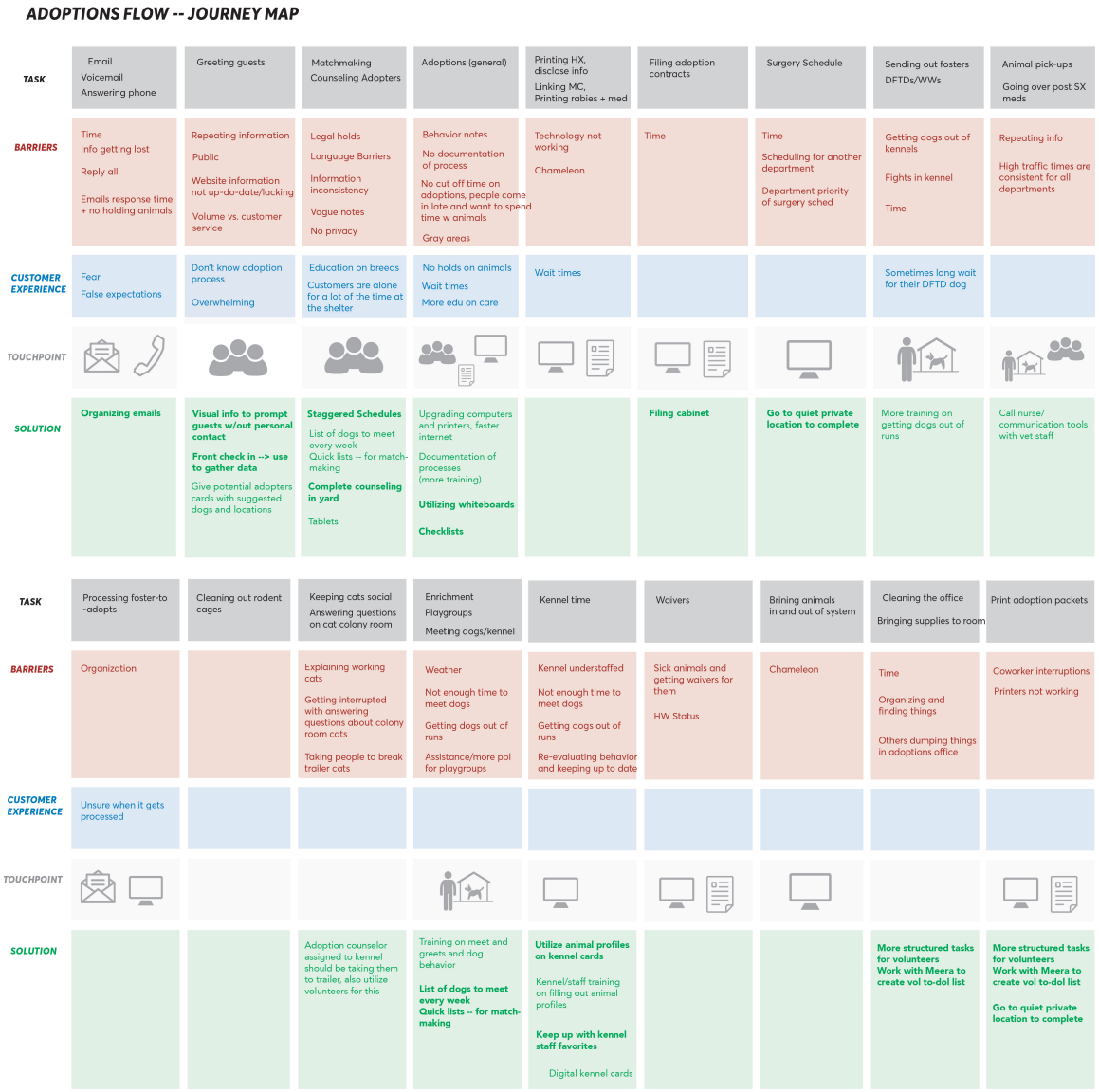

Figure 3.7: Shelter Touchpoint Workflow.

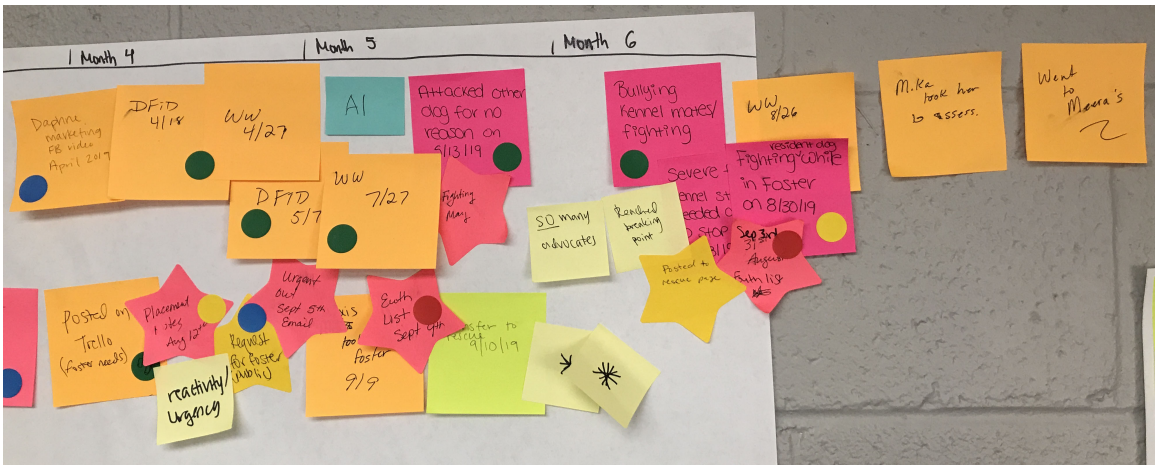

Figure 3.8: Close up of Journey Mapping Workshop post-its.

information using a color code to visualize their journey through the shelter.

3.5.1 Journey Mapping Workshop II Results

Firstly, prepping for this workshop was an informative exercise in examining how spread out information about one dog can be. To prepare, with the help of staff, all the possible data available for ten different dogs was collected through the shelter's database, social media, emails, Google Drive, and Trello in order to piece together their stories during the workshop. Through this activity, it was very clear that there is no central place to see all the information about one dog. A large portion of critical information is shared through direct communication in person, over SMS, or email, and therefore gets lost if that information needs to be used again in order to look at the cohesive story of an animal. If you only look at a dog's information on only one platform, you get a very small snapshot of their story, behavior, or personality, while a more complete set of information would be pertinent to making informed placement decisions. In some cases, this fragmentation of information could mean life or death for the animal, or could potentially put another human or animal in danger because of a missing piece of important information.

During Workshop II, one of the most important themes that came to the surface was urgency. Urgency in animal sheltering is oftentimes the mechanism that works in moving

animals out of the shelter. This can look like giving a dog a date of euthanasia to give the placement team a deadline of getting them out, or a desperate plea via Facebook to ask for a foster home. We tracked triggers for the selected dogs during the workshops and found that for many of the dogs, the less-urgent triggers such as emails warning that a dog is deteriorating, or behavior write-ups did not lead to getting a dog out. Usually, only the very severe triggers, such as their name making the euthanasia list, lead to a dog getting out of the shelter. This could be seen in the workshop artifacts in the large clusters of pink star-shaped post-it's, which resembled urgent triggers. It was discussed that this reactionary behavior is because the sheer volume of dogs makes it hard to act on the less-urgent triggers until the staff and volunteer advocates are focusing on the dogs with more severe triggers at the time. At the end of the workshop, participants were asked to mark where they felt most emotionally affected on the timelines of the dogs we had laid out on the wall. Almost all participants marked the time surrounding euthanasia lists and euthanasia decisions. It is important to note that the euthanasia list is sent over group text message because their shelter software does not have any central location where the euthanasia list can be distributed or discussed. In essence, the inability of shelter software companies to provide features aiding euthanasia decision processes is directly related to the level of stress for shelter employees. A tool that naturally supports shifting shelter operations towards a more proactive model, as well as a feature that allows the euthanasia list to be distributed and updated in a seamless way, would help alleviate some of this tension.

3.6 Journey Mapping Workshop III

The last workshop involved the same process of mapping each event and piece of information for certain dogs chronologically and using a color code. However, this workshop focused on the biggest demographic of dogs that represent the lifesaving gap, which is medium/large dogs that live in communal runs and become urgent for a number of different reasons. Ten employees from a variety of different job roles and departments participated

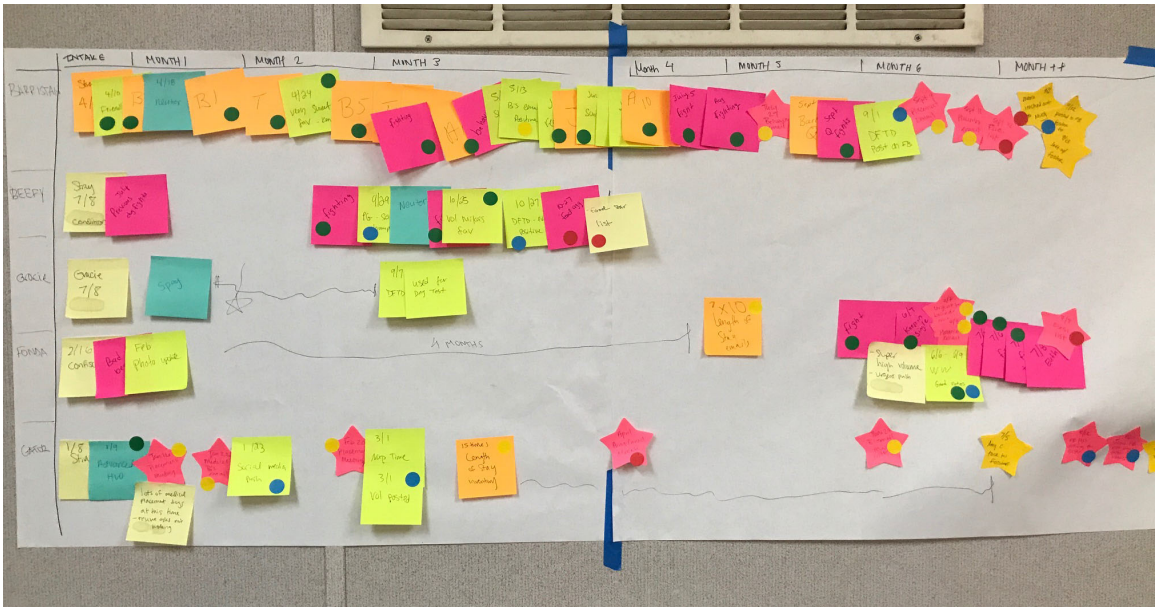

Figure 3.9: Journey Mapping Workshop III

by looking back at the stories of seven of these dogs. We looked at all the events pertaining to those dogs, what ultimately acted as the trigger, and what the reaction was that led to their outcome.

3.6.1 Journey Mapping Workshop III Results

The final workshop looked at a very specific case of dogs that has been established as the biggest opportunity to close the lifesaving gap. These are the medium to large general population dogs that do well in communal housing, and then suddenly deteriorate mentally or behaviorally. This deterioration leads to fights with other dogs in communal housing or fear and stressed-based behaviors toward people. When these deterioration behaviors exhibit themselves, dogs must be quickly moved out of the shelter to rescue, foster, or an adoptive home.

One main theme that came from looking at this type of case was accessibility to programs. The shelter has many beneficial in-shelter and out-of-shelter programs that help staff and volunteers learn about dogs. This information is often pertinent to being their ticket out of the shelter. Out-of-shelter programs especially, give helpful information about

how a dog is behaviorally outside the stressful environment of the shelter. This information is then used to market them to adopters, advocate for them to private rescue groups, or find them fosters. We discussed how due to the volume of dogs, it can be random as to which dogs get access to these programs. This workshop showed that for many of these urgent dogs, having an advocate through these programs greatly increased their chances of being saved. Dogs with little known behavioral data may not receive the same advocacy opportunities. Embedding the value of equal access to programs into the tool is important to the fundamental belief that all dogs deserve an equal opportunity out of the shelter.

3.7 Case Tracking Program

The series of participatory workshops energized staff, leading them to want to enact on the findings immediately. This was an exciting bi-product of the workshops, as it launched the Case Tracking Pilot program. We came up with a checklist-based system to gather information about dogs, in an effort to explore how volunteers acting as case workers for our animals might affect their time at the shelter. Volunteering and fostering pose the largest opportunity for growth and bandwidth to assist with advocating for shelter animals. Getting to know animals as individuals and ensuring their access to enrichment and foster programs is how lifesaving operations are scaled. We launched this as a small pilot program, with 10-15 volunteer participants and 30 dogs. Volunteer participants got to pick which dogs they would serve as the Case Worker for. Case Workers serve as the advocate for the dog, using a paper checklist and whiteboard, tracking if they are spayed or neutered, and supporting and advocating for their participation in enrichment programs. While the pilot program was separate to this project, it allowed me to gather important empirical data about how an event-based tracking system might look like and how current technology lacks support for this. This program could be looked at as a paper and whiteboard version of the system being designed here.

3.7.1 Influence on Design

Overall, the Case Tracking Program was successful. It took six weeks for all 30 dogs involved to have outcomes, keeping in mind that at the same time, the staff and volunteers involved were also advocating and working with many other dogs not in the program. The discovery of how technology would greatly help efficiency, communication and scalability of this process capitalized on the point that new tools and intuitive interfaces would go a long way for shelter operations. As staff and volunteers are creating more proactive programming, there is a large need for the shelter management software to contain features for this proactivity. Currently, the only tools available for this are free applications such as Google Sheets or Trello. Observing this program unfold informed many features in the final design such as the Activity Log, Case Worker tracking, tagging, and the Plan checklist. Figure 3.9 details 11 cases of the 30 dogs involved in the Case Tracking Program. The use cases show a wide range of journeys, including many different types of behavioral markers and triggers that inform decisions. I used these story lines in the development process to see how a stakeholder would use the proposed design to handle their cases.

Pilot Cases:	In-Shelter Urgency type*:	Assessment from shelter and program info:	Outcome/Assessment Plan:		
Ruby	DOG REACTIVITY -Nature/Freq. of Fights -Fight in PG	UN-MANAGEABLE* -No case-worker	EUTH		
Dubai	DOG REACTIVITY -Fighting at feeding? SITUATIONAL HOUSING -Social/obnoxious in PG -Did great one-on-one with another dog on DFTD	MANAGEABLE	BEHAVIORAL FOSTER	WIDE-ASK FOSTER	ADOPTED
Bee	PEOPLE NOTES -Fear, no bites -Barrier reactive -Charged staff SITUATIONAL HOUSING -Confident and friendly in PG and outside	MANAGEABLE	BEHAVIORAL FOSTER	WIDE-ASK FOSTER	
Maverick	PEOPLE NOTES -Mouthy/jumpy -Barrier reactive -Charged staff SITUATIONAL HOUSING -Did great on DFTD/outings	MANAGEABLE	WIDE-ASK FOSTER -Unpredictable in foster	UN-MANAGEABLE*	EUTH
Jasper	DOG REACTIVITY -Insecure/reactivity SITUATIONAL HOUSING -Anxious/scared	OFFICE DOG	MANAGEABLE	WIDE-ASK FOSTER	
Princess	DOG REACTIVITY -Couple fight notes PEOPLE REACTIVITY -1 bite -On-leash reactivity SITUATIONAL HOUSING -Anxiety -Deterioration	MANAGEABLE	BEHAVIORAL FOSTER	WIDE-ASK FOSTER	
Plum	PEOPLE REACTIVITY -2 bites in-shelter SITUATIONAL HOUSING -Anxiety/Fear	MANAGEABLE	BEHAVIORAL FOSTER	BEHAVIORAL FOSTER	FTA
Farrah	MEDICAL FEAR	FOSTER			
Nigel T	COURT HOLD	WW	FOSTER	ADOPTED	
Boy	LONGTIMER	FOSTER			
Doughnut	LONGTIMER	FOSTER			

CHAPTER 4
PHASE I DISCUSSION

Phase I set out to answer what features shelter employees identify to be included in a shelter animal management tool to facilitate lifesaving sheltering practices. A set of values were formulated to guide the features of the design in Phase II using the value sensitive design approach, which considers morals and virtues of stakeholders in the design process [23]. This framework tailored the ideation sessions towards creating features that would embed these values into the application. The following are the set of eight core values discovered through Phase I:

1. Program accessibility - All dogs have the right to equal access to programs, in order to ensure they are given opportunities to advocate for themselves and create relationships with stakeholders that can lead to positive outcomes.

2. Individuality - Technology should be rooted in the idea that each dog is unique and has a unique story. The features should assist users with visual aids to quickly piece multiple piece of information about the animal together and eliminate extra tools used for communication.

3. Integrity in euthanasia decisions - Technology should assist staff in assuring integrity in death decisions, and assure that the processes used protect against human error. It should also support that decisions around euthanasia can be adaptable and malleable pending time and information.

4. Care for shelter workers - An ethics of care for shelter employees should be included in considering processes and tools, acknowledging the emotional toll of the job and what the implications of certain processes may have on those involved.

5. Allowing for program management - Technology should look to other fields for innovative program management interfaces and systems that assist stakeholders in organization, task management, and efficiency.

6. Awareness and access to metrics - It should be acknowledged that data is incredibly important to shelter operations. Access to KPI's should be available so users can be aware of the current state of either the shelter or their own programs at all times.

7. Innovation in behavior programs - The shelter industry has greatly improved on the lifesaving gap involving dogs at risk medically, however dogs at risk due to behavior remains a difficult and under-focused demographic. Technology should work to close the behavior gap, adapt to support new behavior initiatives, and assist staff in tracking the progress of animals.

8. Proactivity - Technology should work to breakdown the traditional reactionary model of animal shelter operations and should incorporate features that shift users towards proactive actions.

4.1 Design Criteria

After the discovery and need-finding methods, the following design criteria below was written to guide the practical implementation of values for the proposed tool. These are meant to be considerations that would lead to the design specifications of the application:

1. General Criteria

   (a) Accessible from work and home

   (b) Must be able to search by any field

   (c) Must be able to easily access different sets of dogs (ie. from foster, etc.)

   (d) Incorporate features to help employees focus on a set of dogs

2. Critical data

    (a) Organized by a hierarchy of decision-making data for each animal

    (b) Include all historical data, events, and behavioral data for all dogs

    (c) Include be an alert system for high-risk dogs

    (d) Must be able to quickly identify the current story and needs of a dog

3. Collaboration

    (a) Provide direct communication and between staff through the app

    (b) Include task management or task assignment features

    (c) Include features that encourage proactivity

4. Data analysis

    (a) Must provide a visualization that allow staff to evaluate the efficacy of certain programs

    (b) KPI's must be accessible in a central location and update in realtime

    (c) Must promote consisten use of language

CHAPTER 5
DESIGN AND DEVELOPMENT

Ideas for features were sketched out and made into paper prototypes (Figure 5.1). A paper prototyping session was conducted with two management employees at the shelter in order to get initial insight on their thoughts on the features and the general layout of the design. The paper prototyping session was particularly helpful as a prompt to spark the creativity of the participants involved. It was an accessible way to bring them physical and malleable materials they could manipulate, move around, and base a discussion off of. After this activity, an Information Architecture diagram (Figure 5.2) was made for the initial design.

5.1 Wireframe Iterations

The Information Architecture diagram led to the creation of low-fidelity wireframes. This laid the foundation of the structure of the final design, even though the design went through many changes since. The initial low-fidelity design also contained two parts – the database and the data dashboard. The database was initially designed as solely a list view, but had a color-coded timeline visualization for each dog within the database chart, as seen in Figure 5.3. When you clicked on a dog's name, a pop-up would pull up the information for that dog with a table view of the timeline visualization. During this iteration there was a tracking feature on an individual animal's screen, however a clear way to see who the user is tracking and alerts about the tracked dogs were not included. The dashboard side had a similar structure to the final design, except the timeline visualization was moved to solely be on the animal's individual view in the final design. Further exploration into the aesthetics and details of the graphs was conducted to figure out the which visualizations were best for shelter metrics.

The next iteration developed into mid-fidelity wireframes, as shown in Figure 5.4. This

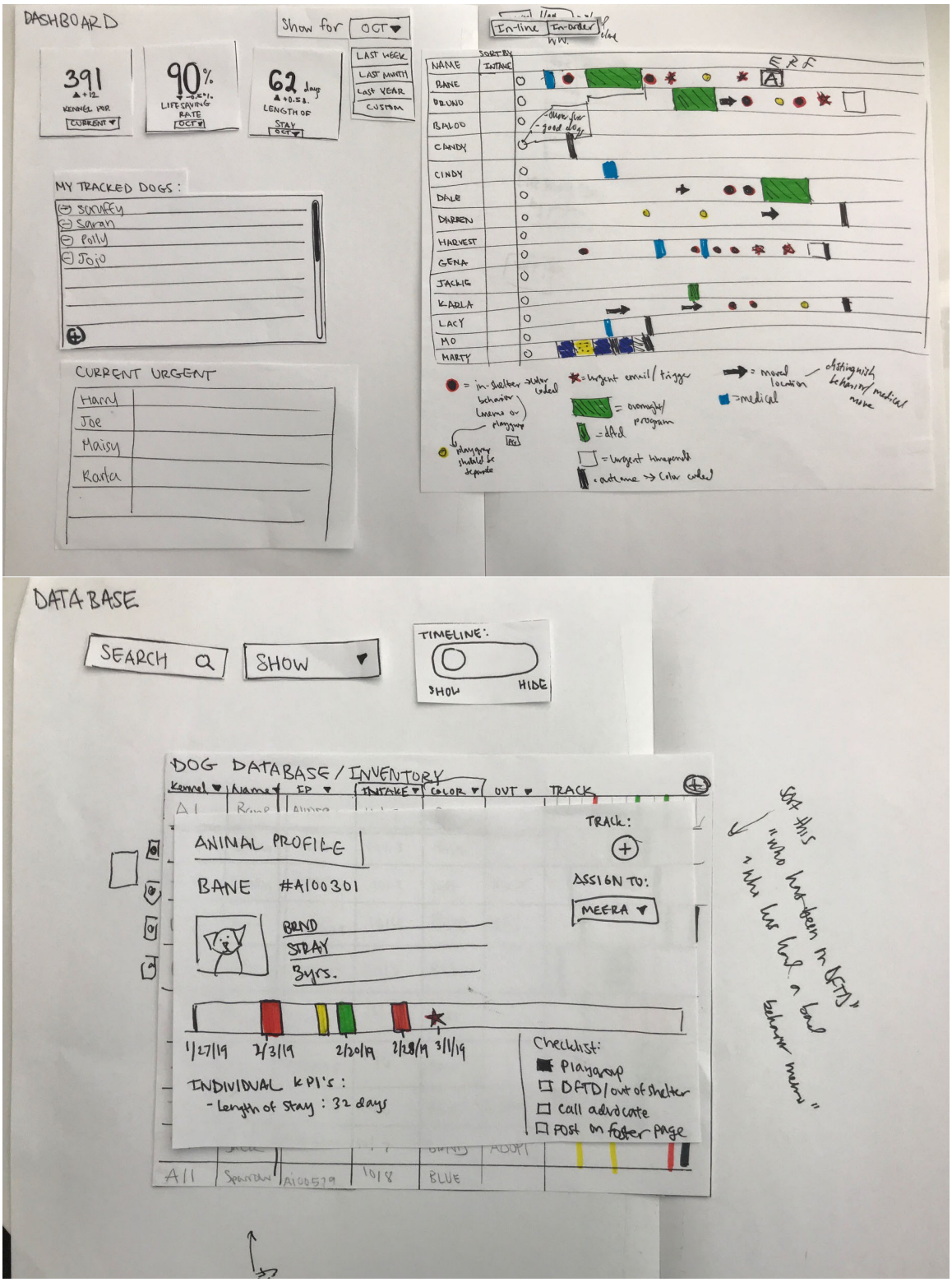

Figure 5.1: From Paper Prototyping Session

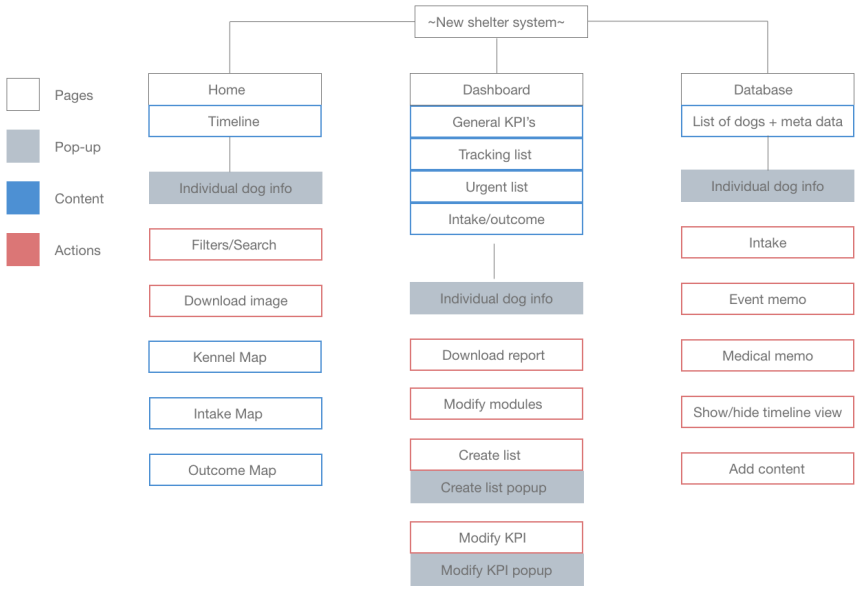

Figure 5.2: Information Architecture diagram

round involved development of the colors, fonts and aesthetics. The database view also evolved to include more options for the timeline visualization in the database chart, as well as filtering options on the left side of the screen. Multiple version of the timeline data visualization were created in order to figure out how to best visualize a complex set of time-based data, where the type of frame of reference could vary depending on the task at hand. Most importantly, this iteration is when the first version of the 'My Cases' concept was introduced, where users can choose to track certain dogs, as shown on the left of the bottom image of Figure 4.5.

This version was brought to a focus group of HCI and design students for feedback. This discussion inspired the card view, in response to a call to break down the idea of a traditional database. More alert-based features were added in order to help employees focus on specific dogs. The hierarchy of filters was iterated on, as well as the hierarchy of information on an individual animal's page. Also, the chat and notification features were added to relieve the current burden of using so many different communication platforms. The feedback from this session led to the final prototype for user testing.

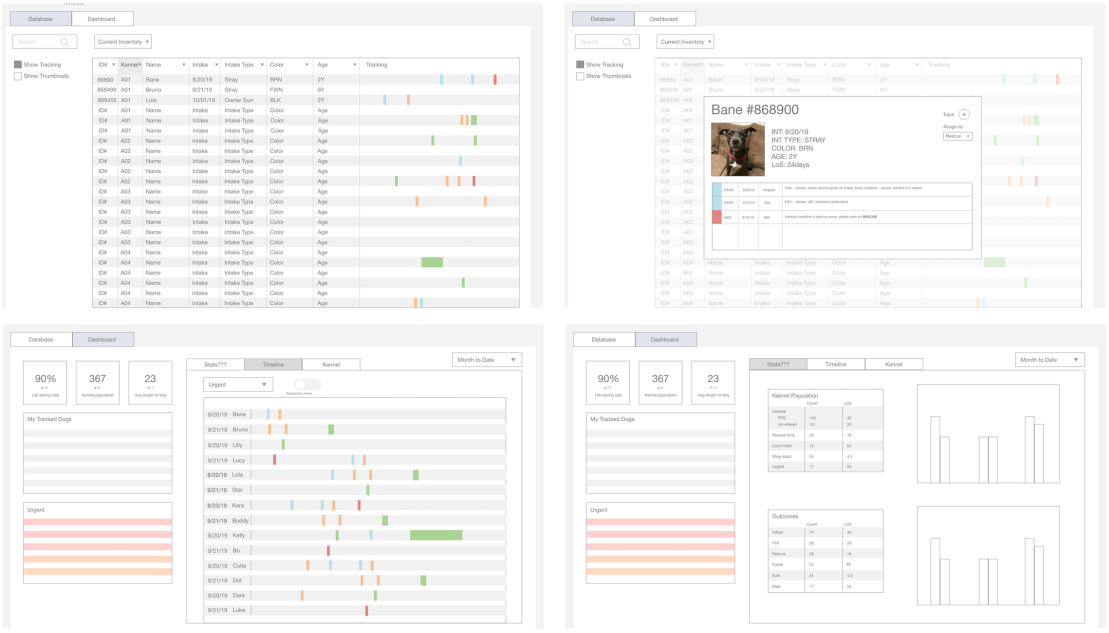

Figure 5.3: Low-fi wireframes.

5.2 Final System Design

With the sheer volume of animals and the time sensitive nature of the work shelters face, the focus of the design is to make the progressive lifesaving programs and values embedded into the features. The system has two main sections. One is the Home module (Figure 5.5), which contains the kennel database and information storage about animals in care. The features of this model incorporate modern shelter practices that were once recorded on whiteboards and separate spreadsheets into the digital workflow. The other side is the Dashboard module (Figure 5.8) which aims to make real-time shelter metrics more transparent and accessible to all staff. Accompanying these two modules are the Chat and Notification features that can be accessed through the navigation bar anywhere from the desktop app.

5.2.1 Home Screen

The desktop app opens to the Home screen, which displays a grid of cards of all the dogs the respective user is tracking. One key feature in this system is that users can track dogs that

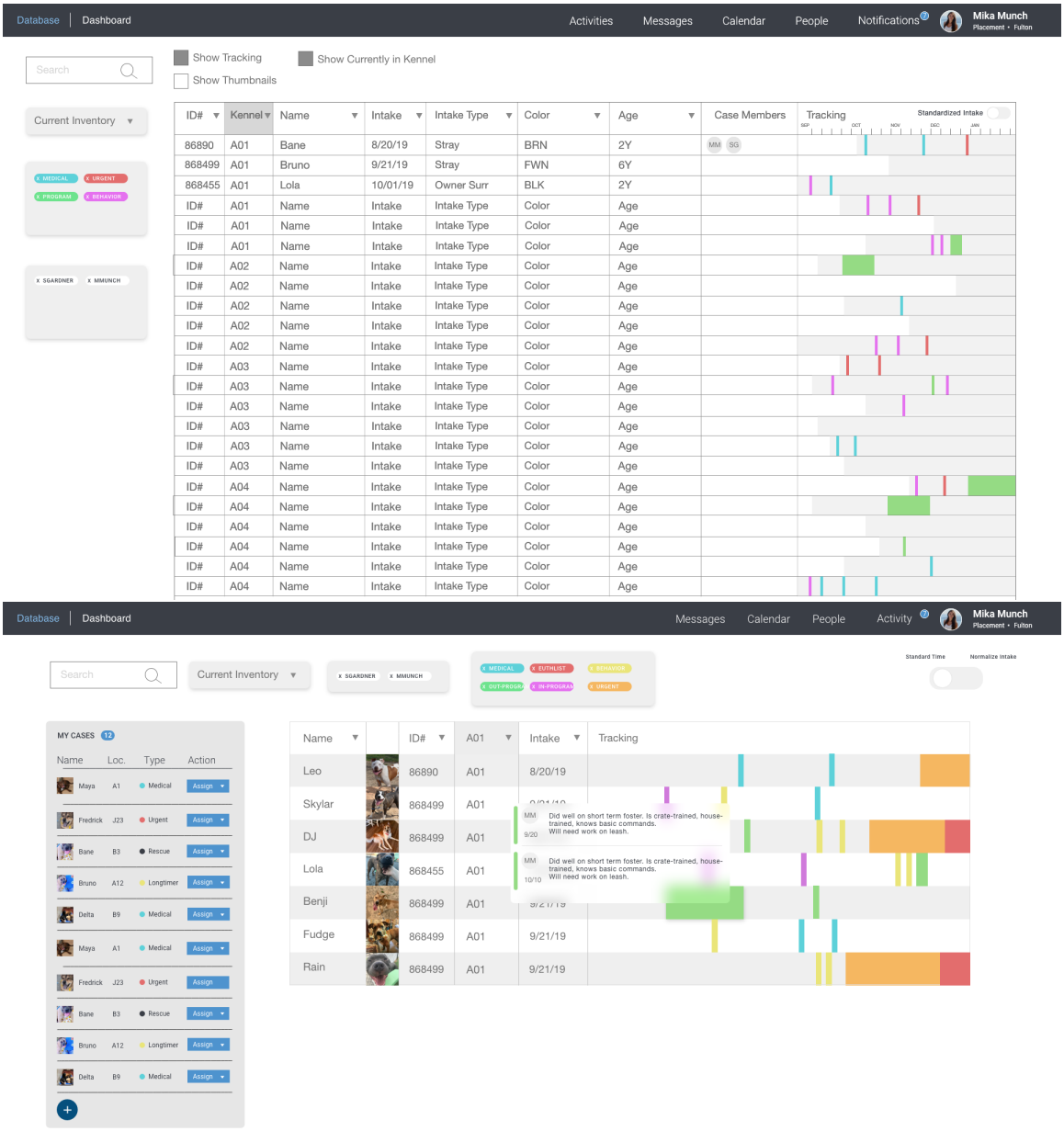

Figure 5.4: Mid-fidelity Wireframes

they would like to focus on or monitor. This is designed to combat the large volume of dogs that come into the shelter, and help split up the dogs among employees for greater efficiency and scalability. If you are tracking a dog, all updates about the dog will be sent to the notifications tab. The people that are tracking a particular dog are called "Case Workers", and users can see who the case workers are for any dog. This creates more accountability and communication, so co-workers can quickly see who has claimed or assigned cases of dogs as needed. The user can also switch the view to either "All Kennel" (Figure 5.5) to look at every dog currently in the kennel inventory, "Search Back" to look up any dog that has ever come through the shelter, or "In Foster" to look up dogs currently in foster care. Many different job roles need access to all four types of sets of dogs, making it important that switching between these data sets is a quick process. The grid of cards can also be switched to a list view, which was offered in case this is more helpful for certain tasks. The dogs are filterable in a number of ways including standard name or ID look-up, location, intake date, label, case worker, program, programs they have not participated in, and by care plans. Shelter employees must pull many different types of search queries on the kennel inventory depending on the task or program. It is crucial that the filtering features are adaptable to a range of needs, while also being straightforward to use.

5.2.2 Individual Animal Screen

From the Home section, when you click on a dog, it opens to that dog's individual page, shown in Figure 5.6. The individual page contains a general information section, a content upload area, a timeline visualization of shelter events, and a more in-depth and actionable area of behavior plans and activity logs. The content upload area is important in alleviating data fragmentation, because current shelter systems do not allow for this, thus forcing shelter employees to use Google Drive, multiple e-mail accounts, Facebook and Trello all together to manage this content. Many times only certain employees and volunteers have access to certain platforms. This way, employees from all departments have access to all

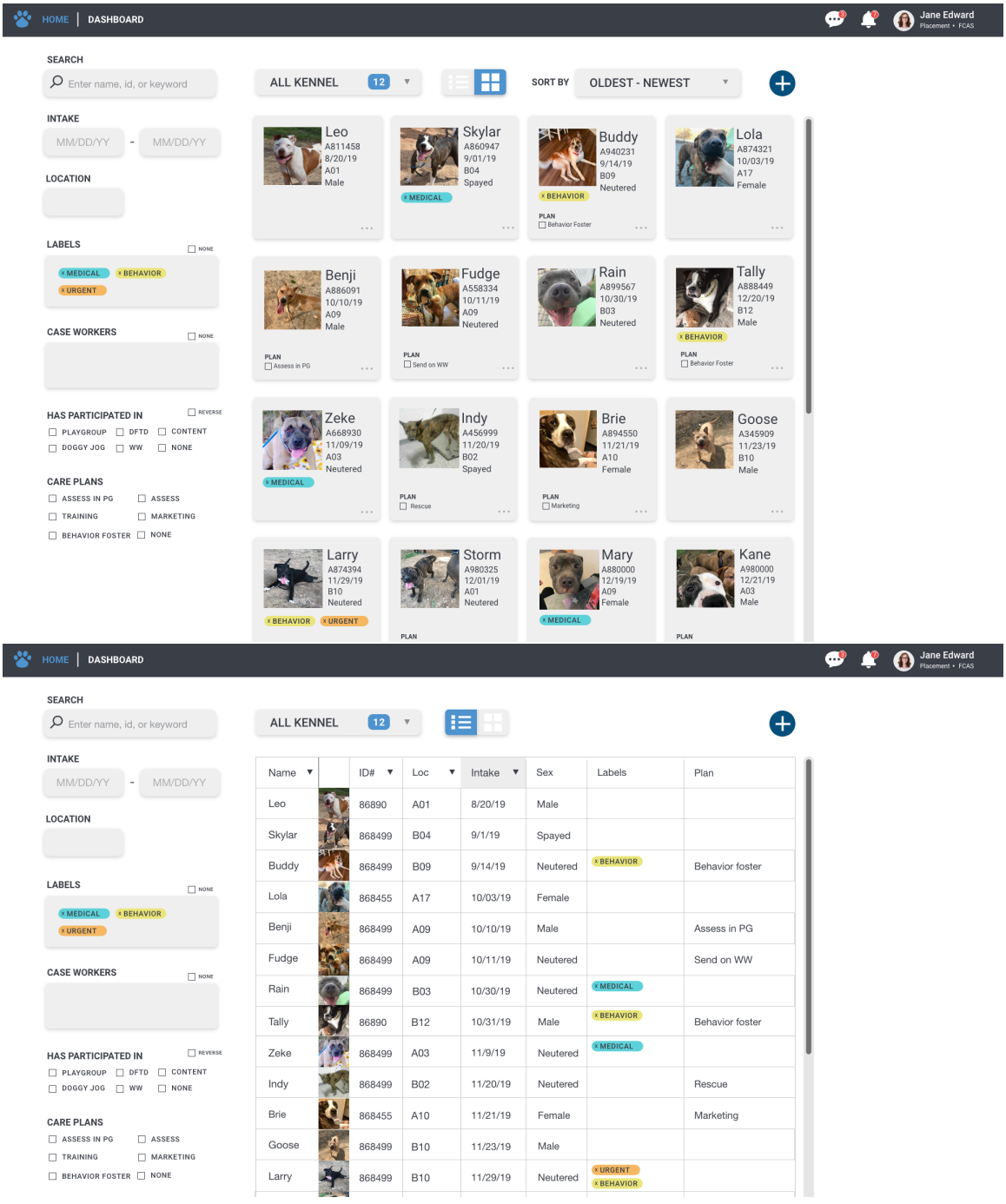

Figure 5.5: Final designs for the home screen.

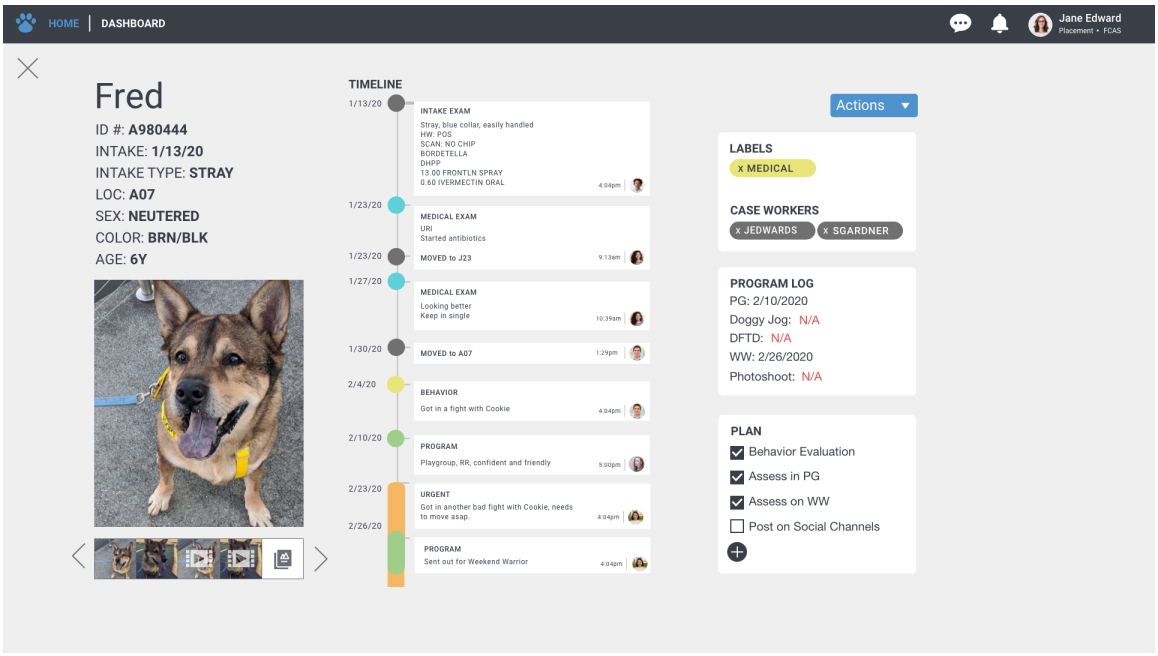

Figure 5.6: Final design for the individual animal's page.

of the provided content for a particular dog, greatly cutting the need for back and forth communication to obtain these files. The timeline view on the individual dog page speaks to the underlying theme of treating every dog as an individual. Since dogs do not have the ability to tell us their history, their behavior, and their personalities, we can only gather this information through observations. We know from the Shelter Touchpoint Workflow (Figure 3.3) that each dog interfaces with different types of staff through a number of types of activities, which leads to a variety of information collected from these activities in different places. For the average dog at the shelter, it is the responsibility of staff and volunteers to give dogs the chance to show us who they are and what their placement opportunities should be through the in-shelter and out-of-shelter programs. The timeline was designed to both document this information in an accessible way and take the entire picture of the dog into consideration. Showing this cohesive story in a visual manner through a color-coded timeline aims to give staff a quick idea of what situation that dog might be in and what they might need. For example, if the dog has many yellow behavior marks on their timeline, the employee can see with a quick glance that they are having trouble and might

need intervention.

Those interventions can look like anything from in-shelter programs such as play-groups, to more urgent interventions such as emergency behavior fostering. The right side of the individual dog page shows which programs the dog has participated in and when, with the idea being that staff can quickly see what the dog has not gotten a chance to participate in yet. This idea came from the participatory workshops where we discussed how equal access to programs directly affects a dog's chances of obtaining an advocate. The right column also contains a check-list for a plan of care for the dog. The plan can consist of anything from getting better pictures of the dog, to doing a behavior assessment, to finding them a foster. Users can add to the plan, assign co-workers to tasks on the plan, or check off steps when they are accomplished. The concept of the plan check-list aims to embed a more proactive workflow, which was explored in the Case Tracking Program.

5.2.3 Chat and Notifications

Both the chat and notification features (Figure 5.7) foster a more collaborative and efficient work environment. The Facebook Messenger app is deeply embedded into the animal rescue industry because of how accessible it is. Since employees must use their personal accounts, "professional work cannot be separated from the personal lives of shelter employees on social media, which greatly contributes to compassion fatigue" [22]. What employees need is a chat feature within their shelter management software that allows them to talk to co-workers and volunteers, create group chats, and share photos, but to also be conducive to a professional work environment where they can get a break from their work. In the final design, the chat feature can be accessed from anywhere in the app. Notifications can also be accessed anywhere in the app. They can be generated in three ways. First, if any profile of a dog that the user is tracking is updated, this will generate a notification, otherwise the user would never see the new information. Second, a user can be tagged and assigned to a task, which allows for more communication and collaboration. Lastly, general notifica-

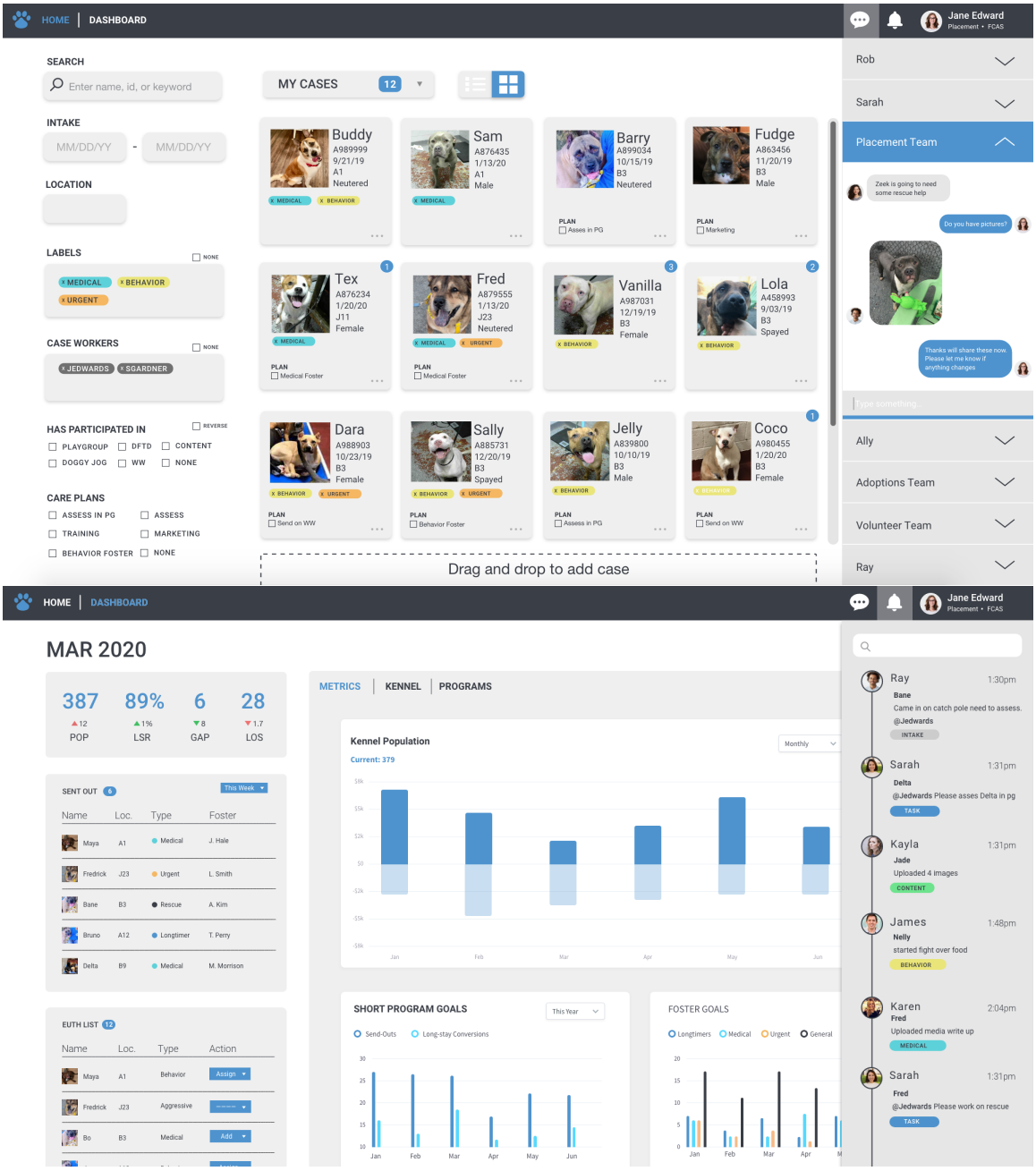

Figure 5.7: Final designs for the system, with chat and notification drop downs.

tions can be pushed out to all staff for important information such as the publishing of the euthanasia list for the week.

5.2.4 Data Dashboard

The data dashboard section (Figure 5.8) is important for the staff to track their metrics from day-to-day. There are two types of metrics – general KPI's that pertain to the entire shelter and customizable goal-setting metrics that might only pertain to one specific job role. For example, amongst the Placement department, every job role has a different KPI goal that they are tracking. This might be the number of fosters sent out for the foster coordinator, while the adoption counselor might be tracking returns. The dashboard is meant to be customizable so that a user can choose what they would like to track. Shelter managers can also see which programs lead to more long-term outcome conversions in order to see where to put the most resources or focus. In the dashboard the big picture KPI's that everyone can see includes kennel population, life-saving rate for the month, length of stay, and the lifesaving gap. The lifesaving gap refers to the number of dogs needed to save in order to make the lifesaving goal for that month. Currently, these numbers require different database manipulation and report generation, and are therefore not accessible. Shelter intakes and outcomes can fluctuate depending on season, making accessibility to the lifesaving metrics key so that all staff is aware of shelter performance at any given time.

The dashboard also has a Kennel visualization module, where a layout of the physical kennel is shown via heatmap. This feature is available on existing shelter software, but is limited to only showing the count of animals in each kennel area. The heatmap can indicate a number of datasets by location such as length of stay, lifesaving rate, and outcome conversion rates. Seeing these metrics about location might lead to insight on patterns of different areas in the kennel.

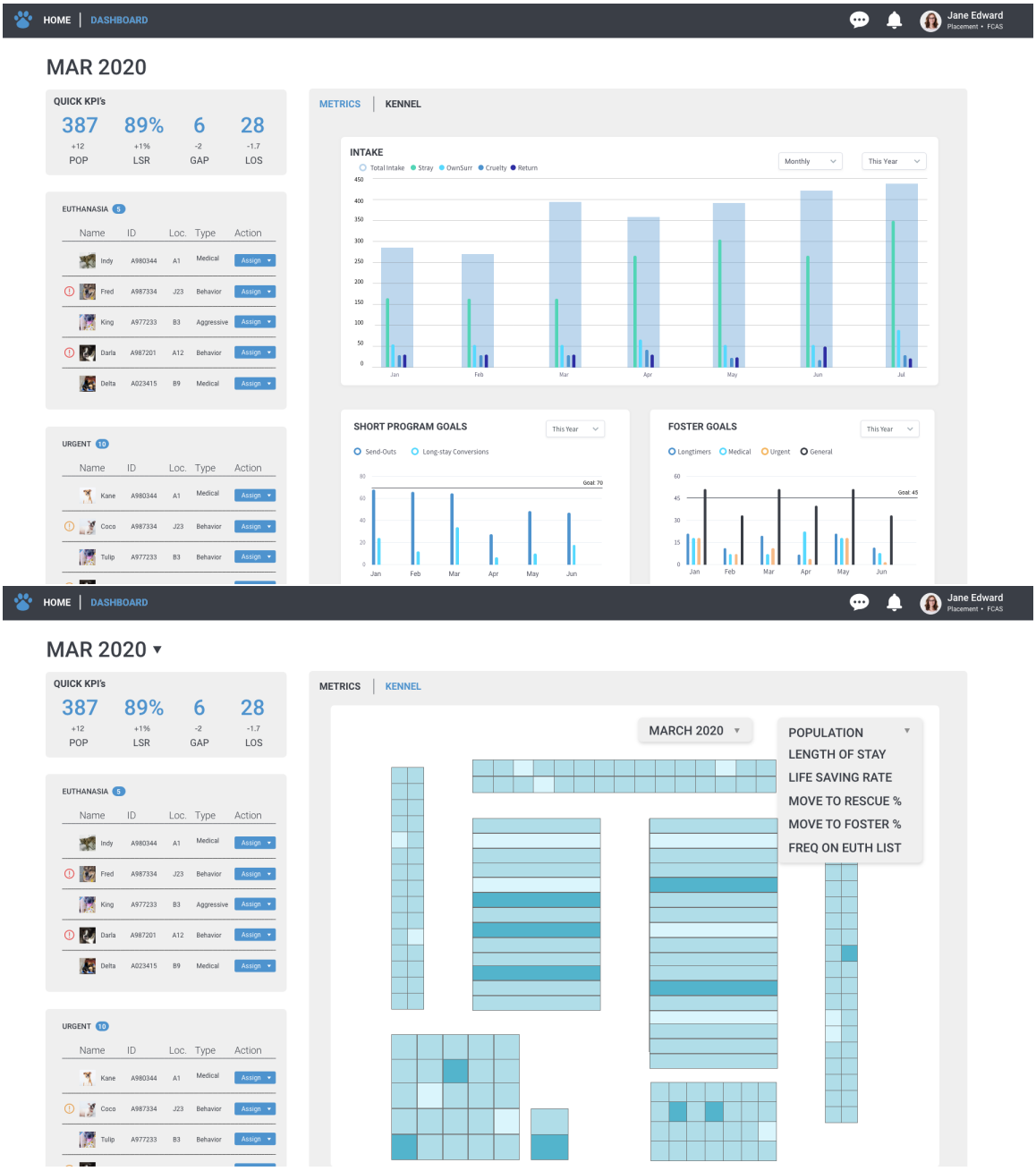

Figure 5.8: Final designs for the data dashboard.

CHAPTER 6

PHASE II METHOD AND RESULTS

In order to evaluate the final design, a user test was conducted remotely with eight shelter employees. The objective of the study was to test the usability and usefulness of the features included in the proposed design. The test was divided into three sections – one for the home screen, one for an individual dog's page, and one for the data dashboard. For each section, shelter employees were asked to open clickable wireframes and follow a series of tasks. They were then asked to evaluate the design through a series of questions. The questions involved both qualitative Likert scale measurements, multiple choice, and short answer. The task sections and questions are listed below:

1. Task 1 - Home Screen
    (a) click "login".
    (b) Glance over the Home page.
    (c) Open the chat and open the notifications tabs. Please read the notifications and close.
    (d) On the Home view, open the dropdown that says "My Cases" and read options.
    (e) In the dropdown, click "All Kennel".
    (f) In All Kennel, toggle between the list and card view options to the right of the dropdown.
    (g) On the left of the screen are the ways your can filter animals. Please read through the filters.
2. Task 2 - Individual Dog Page

(a) You want to see which dogs most need to go to foster by prioritizing the urgent ones that week. Figure out which dogs might be indicated as urgent.

(b) You decide Fred is the urgent dog you want to look at. Click on his card.

(c) Read Fred's timeline.

(d) Use the "Program Log" section to figure out which programs he hasn't been on.

(e) On Fred's "Plan" section, click the plus sign to assign your co-worker Sarah to send him to Foster.

3. Task 3 - Data Dashboard

(a) Look at general KPI's for the day.

(b) See if any of your tracked dogs are on the euthanasia list for the week.

(c) Oberve this year's monthly intake vs. outcome numbers.

(d) The graphs would be customizable depending on job roles and what you want to track. Observe how you're doing in terms of foster program goals.

(e) Go to the "Kennel" visualization view.

(f) Change the visualization of the kennel to show Length of Stay spatially.

Questions from all three sections were sorted by usefulness and usability into two tables (Figure 6.1 and 6.2), in order to look at the general consensus of these two evaluation categories for the app. In general, the feedback was very positive. Usefulness-type questions received higher ratings on average than usability, which indicates that the features all improved upon current gaps in the software used, however, the details and designs of these features could be further iterated upon. Both quantitative and qualitative feedback was valuable and influenced an iteration on the final design detailed in the discussion.

	Number of responses:				
Usefulness Likert Scale Questions:	**1**	**2**	**3**	**4**	**5**
1C.) In All Kennel, on a scale of 1 to 5 please rate how much you prefer the card view (1) or the list view (5), 3 being neutral.	3 (37.5%)	0 (0%)	2 (25%)	2 (25%)	1 (12.5%)
1D.) On a scale of 1 to 5 please rate how helpful you think the in-app Chat feature is. (1- not helpful, 5 - very helpful)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	8 (100%)
1E.) On a scale of 1 to 5 please rate how helpful you think the Notification dropdown is. (1- not helpful, 5 - very helpful)	0 (0%)	1 (12.5%)	0 (0%)	1 (12.5%)	6 (75%)
1G.) On a scale of 1 to 5 how satisfied are you with the filtering options on the left side of the screens. (1- not satisfied, 5 - very satisfied)	0 (0%)	0 (0%)	0 (0%)	4 (50%)	4 (50%)
2G.) On a scale of 1 to 5 rate how useful the "Program Log" section is on an individual dog's page. (1- not useful, 5 - very useful)	0 (0%)	0 (0%)	1 (12.5%)	0 (0%)	7 (87.5%)
2H.) On a scale of 1 to 5 rate how useful the "Plan" section is on an individual dog's page. (1- not useful, 5 - very useful)	0 (0%)	0 (0%)	0 (0%)	1 (12.5%)	7 (87.5%)
3E.) The graphs in the dashboard help me see if I'm reaching my goals.	0 (0%)	0 (0%)	1 (12.5%)	2 (25%)	5 (62.5%)
3F.) On a scale of 1 to 5 how helpful do you think the kennel view is?	0 (0%)	0 (0%)	0 (0%)	3 (37.5%)	5 (62.5%)

Figure 6.1: Table of results from Likert questions regarding usefulness.

	Number of responses:				
Usability Likert Scale Questions:	**1**	**2**	**3**	**4**	**5**
1H.) On a scale of 1 to 5 how satisfied are you with the order of hierarchy (with most important on top) of the filtering options on the left side of the screens. (1- not satisfied, 5 - very satisfied)	0 (0%)	0 (0%)	0 (0%)	3 (37.5%)	5 (62.5%)
2A.) On a scale of 1 to 5 rate how satisfied you are with how urgency is denoted on the 'My Cases' grid view. (1- not satisfied, 5 - very satisfied)	0 (0%)	0 (0%)	3 (37.5%)	1 (12.5%)	4 (50%)
2D.) On a scale of 1 to 5 rate how satisfied you are with the layout of the individual page view of a dog. (1- not satisfied, 5 - very satisfied)	0 (0%)	0 (0%)	1 (12.5%)	3 (37.5%)	4 (50%)
2E.) On a scale of 1 to 5 rate how easy it was to understand the timeline section on an individual dog's page. (1- not easy at all, 5 - very easy)	0 (0%)	0 (0%)	1 (12.5%)	0 (0%)	7 (87.5%)
2F.) On a scale of 1 to 5 rate how intuitive it was to assign a coworker to a task. (1- not intuitive at all, 5 - very intuitive)	0 (0%)	0 (0%)	1 (12.5%)	0 (0%)	7 (87.5%)
3A.) On a scale of 1 to 5 rate how clear is the design of the quick fact KPI section?	0 (0%)	0 (0%)	1 (12.5%)	4 (50%)	3 (37.5%)
3B.) On a scale of 1 to 5 rate how easy it was to tell if your any of your tracked dogs were on the euthanasia list.	0 (0%)	1 (12.5%)	0 (0%)	1 (12.5%)	6 (75%)
3D.) The Intake graph was easy to understand.	0 (0%)	0 (0%)	1 (12.5%)	1 (12.5%)	6 (75%)

Figure 6.2: Table of results from Likert questions regarding usability.

6.1 Home Screen Feedback

Participants were first asked to familiarize themselves with the Home screen of the desktop app by looking at the grid of 'My Cases' cards, using the dropdown to navigate to the "All Kennel" grid of cards, and viewing the list view instead of the card view. They were also asked to explore the chat and notification dropdowns on the right, as well as the filtering options on the left side of the screen.

They were first asked, "Which options from the dropdown would you like to appear as the default setting when you open up the app?" and, "In All Kennel, please rate how much you prefer the card view or the list view". Both of these questions received a variety of responses as seen in Figure 5.1. These responses underline the importance of customization in this app because different job roles would prefer different default settings. The ratings on the usefulness of the chat and notification features came back very positive on a 5-point scale, with a mean rating of 5 and 4.4 respectively, and can be found in Figure 6.1. The only feedback given about the notifications drop down was to clarify if a user could search back into notification history using keywords or names.

Lastly, the filtering fields on the left side of the screen were evaluated in satisfaction of available filtering options and the satisfaction of order of hierarchy of filtering options. These questions had a mean rating of 4.4 and 4.6 respectively, and only answers of 4's and 5's were given. The only filtering options that was pointed out as missing were matchmaking-type options such as "good with cats" or size and age to look up certain traits potential adopters frequently look for. Further research opportunities about the filtering options are expanded in the Discussion section.

6.2 Individual Dog Page Feedback

From the second section of the evaluation, it appears that the most room for improvement involves the design of the cards. The most important feedback was about the notation of

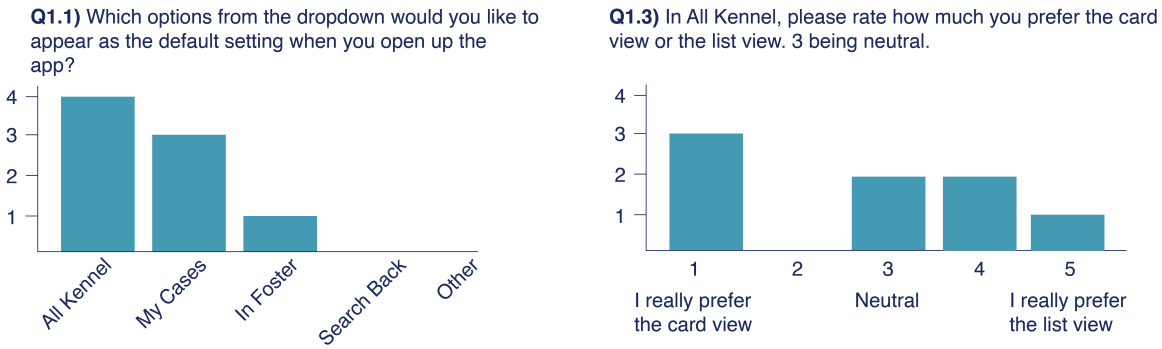

Figure 6.3: Left: Results of dropdown default preferences, Right: Results of list view vs. card view preferences

urgent and euthanasia-list dogs, since this is a critical piece of information. In the prototype given, this was marked in the My Cases view by an orange or red thin outline around the cards. Participants were asked, "On a scale of 1 to 5 rate how satisfied you are with how urgency is denoted on the 'My Cases' grid view". The results are shown in question 2A on Figure 6.2, where you can see there are a few 3's and a 4, with a mean rating of 4.29. This arguably is one of the most important details of the design, so users can see which of the dogs they are tracking are at risk of euthanasia, making this an important feature to address.

Participants were also asked to select statements that applied to their experience from a list of options. Four out eight respondents chose the statement, "It was hard to see which cards were most important" and no other statements were selected. This indicates a need to iterate on the organization, layout, and hierarchies of the card view in 'My Cases'. The individual page view for a dog, which opens when a card is clicked, received very positive reviews. The timeline feature and process to assign a co-worker a task both received a mean rating of 4.7 in ease of use, while the activity log and plan check-list features both received a mean rating of 5 for usefulness (Figure 6.1, question 2G and 2H). The only question from this portion that could need further research was, "On a scale of 1 to 5 rate how satisfied you are with the layout of the individual page view of a dog", which received a mean review of 4.4 and one person rated it a 3 (Figure 6.2). While this is still generally

a positive score, this question is broad, and further questioning could help understand what could be improved upon for the layout of the individual animal screen. Lastly, it was noted in the short-answer section that heartworm status, weight, and matchmaking traits such as "good with cats" could be added to this screen.

6.3 Data Dashboard Feedback

The last section of the evaluation asked participants to familiarize themselves with the data, charts, and visualizations shown on the Dashboard side of the app. The responses to the questions about clarity for the graphs in questions 3D (Figure 6.2) and 3E (Figure 6.1) indicate that further iteration and research could be invested into the visualization design. However, this area of the user test also pointed out the importance of customization due to the differences in job roles, meaning the answers may differ if the graphs reflected the participant's real job role. One participant responded, "I would like to see a break out of each short term program, like WW, DFTD instead of just having them listed as 'short term' ", while another respondent said, "I would be interested in seeing adoption and rescue goals as well". Both of these requests might only be particularly useful for three to four stakeholders at the shelter because each shelter stakeholder is responsible for different areas of outcomes and may have a different KPI for measuring success. The ratings for satisfaction of the KPI quick facts section is shown in question 3A in Figure 6.2. With only 37.5% of respondents rating it a 5, it is clear that this is a place for improvement. This is critical as this feature includes general metrics such as kennel population and lifesaving rate that is pertinent for everyone to use and see. One user suggested that each metric be clickable, with more information about the number and how it is calculated. The Kennel visualization within the Dashboard was given a mean rating of 4.6 out of 5 for helpfulness (Figure 6.1, question 3F). One respondent noted that they would like to see a key to the heatmap to understand what it means. Lastly, participants were also asked about the location and design of the euthanasia list, which is located on the left of the Dashboard page. Ratings were

generally positive, with six out of eight satisfied with the current location, however, one person noted that they wished the list would be near the ‘My Cases’ page and one person preferred it to have its own section.

CHAPTER 7

PHASE II DISCUSSION

The user-testing portion of this project coincided with unprecedented times for both the world and animal shelters alike. In light of the COVID-19 pandemic, user-testing was done remotely instead of in person as planned. This potentially limited the type of feedback, as I was not there in person to directly see the participant experiencing the prototype firsthand and limited my ability to field any questions. Without a doubt, certain questions, thoughts, and opinions got lost in translation over remote methods. COVID-19 presented challenges for the shelter, but also caused a historical event in the amount of dogs leaving for foster homes and adoptive families, leaving the shelter emptier than has ever been seen before. Shelter staff was working extremely long hours to manage and process the mass exodus of dogs during the shelter-in-place order. Therefore, a consideration was made to cut down the amount of user-testing questions in respect to the participants' time, creating a leaner data set of testing results than was originally planned. The user-test was trimmed down to focus on design decisions that were not inherently obvious from Phase I of the project and required further evaluation.

Overall, the user test results indicate a very positive response to the system. All questions regarding satisfaction and usefulness of features received high ratings with all averages in the range of 4.5 +/- 0.3 on a scale of 1 to 5. Responses suggest that the details of the system can be improved upon in order for a more customized, intuitive, and informative user experience. An updated design is included in Figure 7.1 to Figure 7.4, implementing feedback from the evaluation.

7.1 Customization

While not included in the updated design wireframes, it is important to note that it would be highly recommended for the new design to include extensive customization options that would be set under the profile section. However, the user profile was not the focus of this project, and was therefore not included in the wireframe designs or testing process. This customization should be included in a number of places. One place is on the default query of dogs for the Home screen, as Figure 6.1 depicted a spread of preferences. Allowing the user to customize which set of dogs their Home screen opens to is an easy fix for this discrepancy in data and is important to account for because the difference in opinion is not due to personal preference, but to the varying needs of different job roles. For example, placement staff may prefer a more focused set of dogs such as "My Cases", as each type of placement coordinator has the goal of getting certain dogs out, while a kennel staff member may prefer their default page be "All Kennel" since their daily tasks revolve around taking care of all animals in the shelter.

Another place of discrepancy, also shown in Figure 6.1 was between the list view and the card view. This opinion, however, is likely due to personal preference. Since the current shelter software is in a list view, certain users may like the familiar format, while others prefer the more visual format of the grid of cards. This can also be easily fixed with a custom default option where users can set which one the dogs are initially listed as, but the user would still be able to switch views using the toggle on the top of the Home screen.

It is clear that the different job roles at the shelter also measure success differently, and therefore require vastly different settings for querying dogs and metric reporting. For example, a volunteer coordinator and foster coordinator may both be measuring the number of long-term outcome conversions from a short-term fostering program, but only the foster coordinator wants to measure how many returns happen per month from foster. Metrics like these are powerful in showing shelter management which programs to put resources

towards, incentivizing staff to be diligent and transparent about monitoring the data for their respective programs. To be able to not only track the success of programs, but also customize the metrics to answer questions about length of stay, outcomes, and lifesaving rates as they relate to programs is something that has never been offered before. Many grants, research, and trending shelter practices are driven by such metrics, supporting the idea that customized metrics is the future of animal sheltering software.

7.2 Permissions and Accounts

The main focus of this project was on data management and features to assist shelter employees in lifesaving operations. However, different levels of accounts and account types were not expanded upon and taken into consideration in the design used for evaluation. Ultimately, there are different levels of authority that would necessitate different types of accounts with varying permissions. In the user testing feedback, one response asked if there was a way to add labels such as “Rescue only”, as this specific query pertains to their daily job operations. Shelter management employees would be able to create different labels per-need of their employees such as ”Rescue only” to communicate about different sets of dogs to their co-workers. Volunteers also require a special type of account since certain records and personal information cannot be visible to volunteers. Also, giving the authority to volunteers to assign staff to tasks could create some difficulties in work dynamics, thus volunteer accounts might not have the permission to assign tasks. However, it would be helpful for volunteers to receive tasks, as utilizing volunteers is one of the biggest ways shelters can scale on lifesaving abilities.

7.3 Iteration on Home Screen

The biggest change to the prototype is an added feature called “To-do List”, located next to the Chat and Notification dropdowns (Figure 7.1, A). In the previous design, the only way for users to see what tasks were assigned to them was through the Notification dropdown,

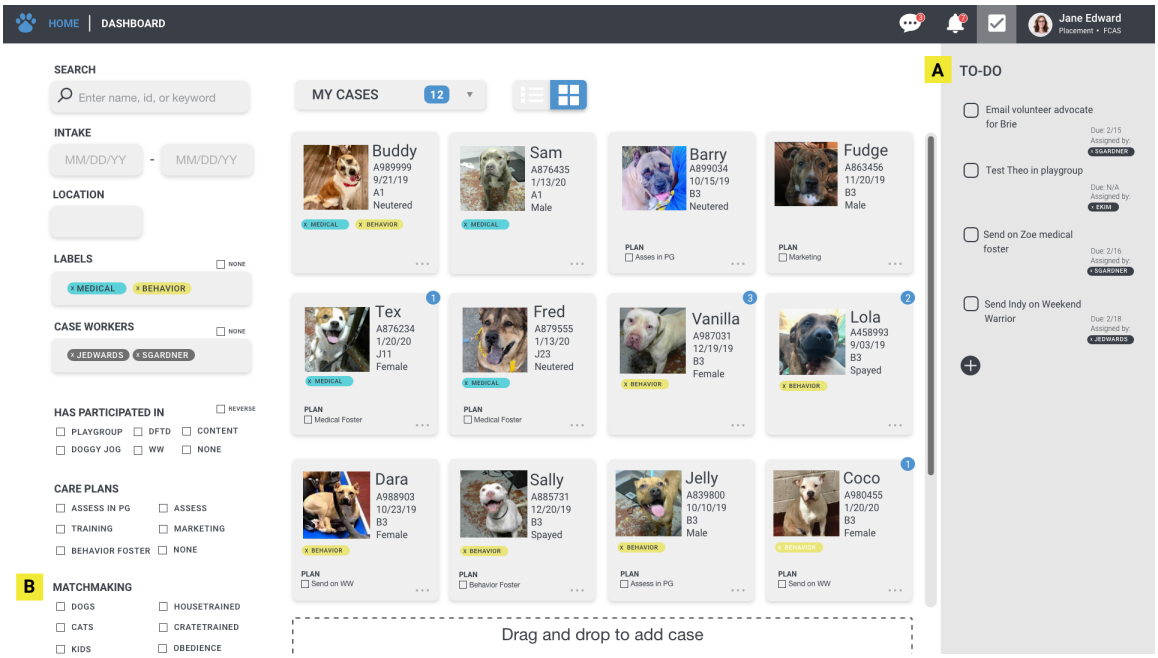

Figure 7.1: Iteration on the Home Screen design.

however they could get buried and lost in new alerts. The To-Do List feature was added so that users can see all the items they have been assigned to and to check them off as they go. Any task assigned to a user will trigger a notification and also automatically update the To-Do List with the task. This idea was inspired by the observation that all employees use paper check-lists in order to complete their daily tasks and by the fact that on shelter employee's Facebook accounts, they can easily have 50-100+ notifications a day, causing many notifications to get lost. This way, the system will alert the user via notification, but also includes a virtual checklist that is dynamic and collaborative. This feature also brings a project management culture to the shelter work environment, thus trying to move the work culture away from reactive and chaotic workflows and towards a healthier, more collaborative workflow.

Callout B in Figure 7.1 refers to the addition of filterable options by matchmaking traits in the Home screen. When potential adopters come into the shelter, the most commonly requested traits are that the dog is social with other dogs, does well with children, or can cohabitate with cats. At face-value, it would seem that this filtering feature would only be

useful to adoption counselors, however, volunteers and kennel staff also frequently help with matching potential adopters up with animals. Also, these traits may be helpful to foster, volunteer, rescue, and placement coordinators in matching dogs with foster homes, sending out dogs on field-trip fostering programs, or in advocating for a dog to rescue groups.

Lastly, the filtering and querying options must be extremely adaptable to the many types of tasks. The addition of labels or queries was not expanded upon in the wireframes further than noting where the label filter box is and where the labels are shown on a dog's card. However, it is important to note that accounts with the highest level of permissions would be able to add label types. One feature that could prove useful is a way to save certain search filter settings. For example, if the rescue coordinator wants to search for a certain type of dog for a specific private rescue group once a week, they can save that search and run it again in one click each week.

7.4 Iteration on Urgency Notation

Considering that the lowest scoring question of the evaluation involved the clarity of how urgent and euthanasia-list dogs are marked on the My Cases section, this is a main focus of the newest iteration of design. Euthanasia and urgency cause the most emotional stressors out of all daily shelter operations and tasks, so the denotation and symbols used for these variables are extremely important to the design. This brought about the idea to add to the structure of the grid view to allow for further organization. Figure 7.2 shows an option to the way urgent and euthanasia-list dogs are marked that is more visually striking and allows for separation between urgent and non-urgent dogs.

That being said, it is possible that some training and familiarization with the system could allow for the current design of the orange and red outline to be sufficient. One responsibility of the technology is to alleviate the emotional burden of daily shelter tasks, especially surrounding euthanasia decisions. Thus, an argument could be made that in-

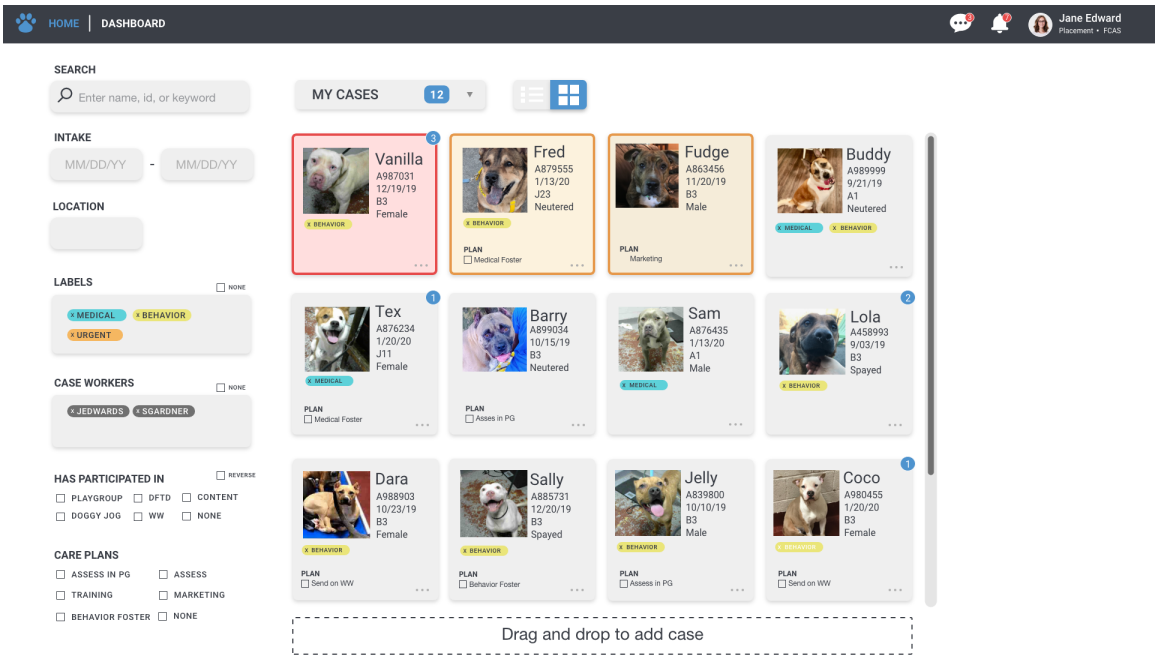

Figure 7.2: Iteration on the urgent notation on the card design.

dicating euthanasia list in a glaring and central way could have a distracting affect and become emotionally draining over time. This would require further exploration into the nuances and emotional effect of the different design options, however truly investigating emotional effects over time would most likely require piloting the software in a real trial period.

7.5 Iteration on Individual Dog Screen

Overall the individual animal page received very positive remarks and all the components were rated highly useful by the participants. However, all of the improvements include adding more information to better inform users about the dog, these changes can be seen in Figure 7.3. One piece of information missing is heartworm status, which directly influences which programs the dog is and is not allowed to participate in, and is also important to note when talking to potential adopters and fosters, as it requires a specific treatment process. The heartworm status is noted by a heart icon on the top corner of the page, but the more

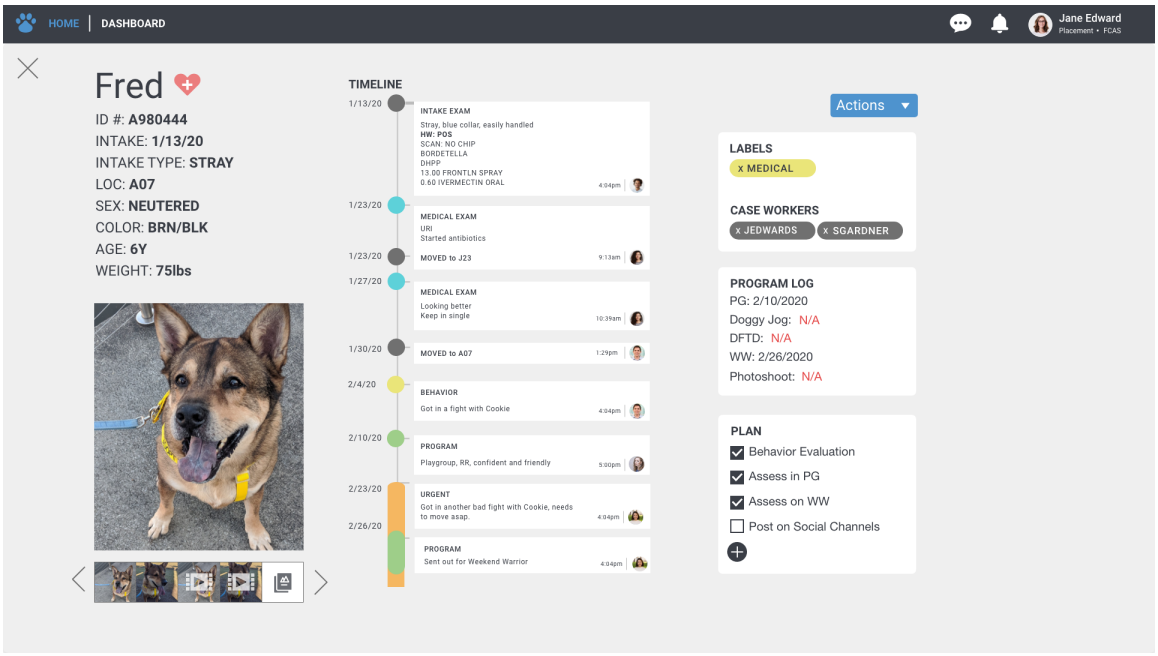

Figure 7.3: Iteration on the individual animal page.

medical writeup of heartworm status will be in a note on the timeline. The animal's weight was also missing from the tested design and was specifically noted by a participant to be included on the animal's card. This piece of information is important to both potential adopters, who might have weight limits on pets if they live in an apartment, and is crucial to veterinary staff for dosing medication. This information was added into the general data section under the animal's name.

7.6 Iteration on Data Dashboard

The majority of concerns surrounding the Data Dashboard can be solved by customization features that would allow different shelter employees to be tracking their own programs and KPI metrics that they would like to measure their success against. However, the KPI quick fact feature could be updated to be more clear and informative on the data it is showing. One suggestion from a user test participant was to make each metric clickable, opening more information about that metric. For the updated design, I adapted this idea so that the KPI's are hoverable and open up to a more detailed breakdown. This also clarifies which

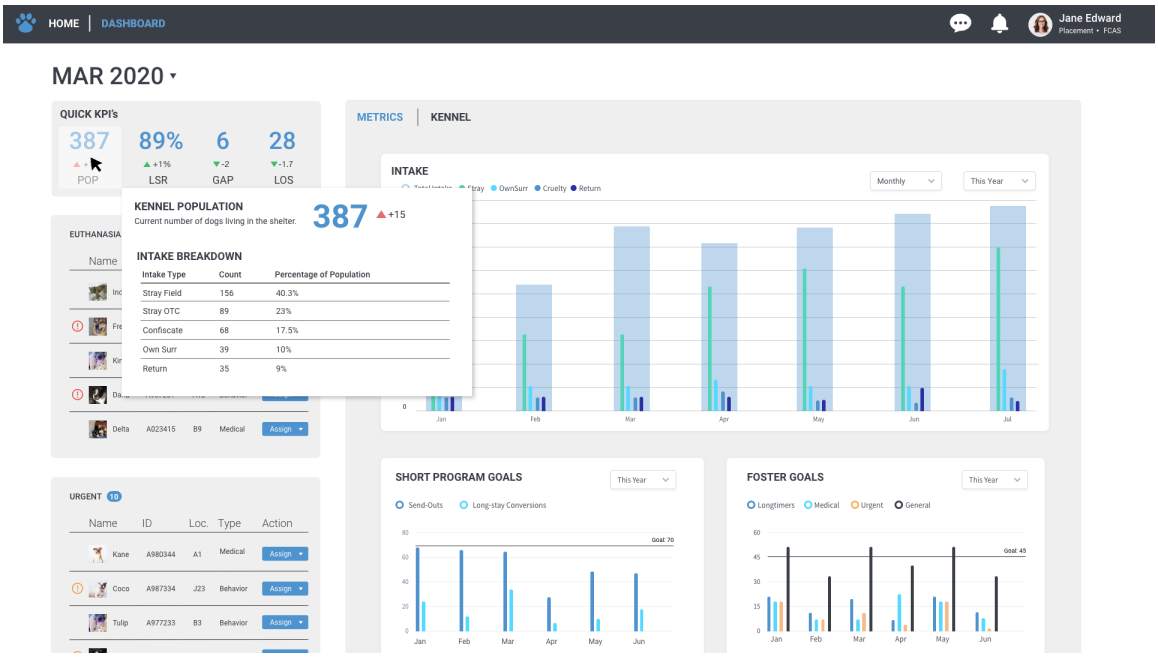

Figure 7.4: Iteration on the data dashboard page.

metrics to include and what the main graph should show. Figure 7.4 shows a zoomed-in view of the updated Quick KPI module. Further testing would need to be conducted to see how this improves understanding of the metrics or if this overwhelms the user with too much information. One benefit of the break-down and information included is that this feature promotes consistency in language and understanding of how lifesaving is measured across employees in all departments.

Also, from the user test, three out of six participants rated the usefulness of the Kennel visualization a 4. This heat map might only be useful to certain job roles, especially roles that involve directly working with the care of the animals. One suggestion was made to include a key for the heatmap, to show what range of numbers the faintest and brightest colors represent.

CHAPTER 8
CONCLUSION AND FUTURE WORK

This project aimed to uncover areas of opportunity for a shelter animal management tool to facilitate lifesaving sheltering practices. Through a series of ethnographic and participatory discovery methods, the current limitations and pain points surrounding shelter technology as it relates to managing and placing animals were discovered. These were used to ideate on design interventions to close the gap between progressive sheltering practices and the tools used to manage them. Ultimately, a number of innovative features were identified to build a tool that would help manage shelter animals in a way that is congruent with progressive sheltering practices and lifesaving efforts. Better technology surrounding data tracking and collaboration can directly impact lifesaving efforts and alleviate the current frustration of shelter employees with their technology and tools. These features were assessed and refined based on feedback from industry experts, leading to a final set of proposed designs and design criteria that could be further developed and deployed to benefit the operations of animal shelters nationally.

8.1 Limitations

A number of limitations throughout the design process could have affected the outcome of this project. Primarily, the aforementioned limitations due to the evaluation portion of Phase II coinciding with the COVID-19 pandemic led to a necessary reduction of the number of questions asked during user-testing. This resulted in an abbreviated version of feedback than was originally planned to inform future iterations of the design.

The fidelity of wireframing software instead of programming a working digital platform limited the degree of realistic experience when testing the interface. While the wireframes were built to reflect the design as best as possible, participants in the user test could not

actually type in fields, use filters, and open every section of the prototype like they would in a real application. For this reason, the user test was also focused on specific tasks and areas of the tool in order to evaluate the most essential design features. Thus, not all areas of the app were thoroughly evaluated and participants may not have uncovered certain problems involving areas that the questions did not focus on. The user test also did not incorporate any sort of collaborative workflow or work-environment setting due to scope. Shelters are a fast-paced and complex collaborative environment, which would play a significant aspect in the workflow of how the tool is used. If the prototype was developed further than wireframes a pilot test of the tool during a period of a few days would be much more effective in pinpointing areas of improvement in regard to collaboration.

Only eight employees that represented placement department job roles, and one animal care job role, were involved with the user test. Expanding this to more animal care, admin and customer service departments might result in different feedback. Similarly, the aim of this project was to identify features that would help track dogs and inform placement decisions, which kept the focus on features that assist stakeholders in getting to know dogs, managing information, and using the data to inform placement decisions and programming. Therefore, features that relate more to animal care, intake, veterinary management, and pet-owner management were left out of the design.

8.2 Future Work

First and foremost, the feedback from the user testing session was incorporated into a new set of designs but further testing has not been conducted. Conducting a second round of testing would be the most pressing next step. Also, a service design approach to detail the many touchpoints that are involved in the ecosystem of using this tool and how shelter operations might shift with the adoption of this new tool would be critical to the success of deployment. There are many different areas that need further thought to how this tool can support staff, including how to train and on-board staff, different touchpoints in the system

of managing animals that are outside the digital tool, how to train and manage volunteers using the tool, and how to ensure that the act of assigning tasks and utilizing the check-list feature is embedded into the workflow and culture of shelter employees.

There are also areas that are necessary for the system to function as a complete shelter management software that were outside the scope of this project, but should be developed for deployment. These include adding a veterinary and intake module to manage animal care, an account login for external rescue groups, further features for volunteer accounts, a foster management module to keep track of foster homes, a module to support animal control officers, and pet-owner management to keep track of people that relinquish or adopt pets. Each of these areas could be looked into with their own set of ethnographic and participatory methods to inform design.

Lastly, it would be beneficial to explore the adaptation of the design to mobile or table versions in order for users to have access to information as they move around the shelter. Shelter tasks involving working with animals require a lot of mobility, and stakeholders such as kennel staff and volunteers are not always near a desktop computer. Creating a mobile version would allow for faster updating of information, as users often take pictures of animals with their phones, they can upload and enter content and data in real-time while they are outside or in the kennel with the animal. This would also aid communication between staff through the collaborative features, as staff often get called away from their desks to complete tasks.

Overall, through ethnographic, participatory, and design-based research methods, this project proposes a tool that would align digital processes with current lifesaving practices that support the no-kill movement. Further iteration, development, and exploration of expansion to other devices, would be required to transition this design into a fully functional shelter management system.

Appendices

APPENDIX A

PERSONAS

TOOLS

- *Chameleon - Shelter Database System*
- *E-mail*
- *Facebook/ Messenger/ Groups*
- *Text Message*
- *Paper forms*
- *Spreadsheets/ Reporting*

DIRECTOR OF PLACEMENT

Name: *Jessica Long*
Age: *40 yrs old*

Job Role: *Responsible for managing all operations involving dogs leaving the shelter. In charge of overseeing implementation of lifesaving practices and programs*

DAILY TASKS & TOOL USE

- Looks up information about dogs on Chameleon
- Sends e-mails about highst-risk dogs to other placement staff
- Oversees judgment calls around difficult decisions
- Communicats with co-workers over Messenger and Text
- Receives and communicats about euthanasia list via text message
- Communicats with rescue partners about animals

GOALS

- To support and oversee other placement team roles
- To push the envelope on a progressive lifesaving culture
- To scale on lifesaving programs and efforts
- To foster transparency and communication around difficult decisions

FRUSTRATIONS

- Volume of dogs and managing all their outcomes
- Difficult to communicate with co-workers and volunteers
- Maintaining a lifesaving culture and training and aligning staff goals
- Difficult to track progress using current tools

Figure A.1: Director of Placement Persona

TOOLS

Chameleon - Shelter Database System

E-mail

Text Message

Paper forms

Facebook/ Messenger/ Groups

KENNEL STAFF

Name: *Lars Kenton*
Age: *30 yrs old*

Role: *In charge of giving daily care to animals, including feeding, cleaning, taking them outside, and monitoring behavior in the communal run. May sometimes be responsible for monitoring medical status, distributing meds, and writing up medical problems. Also is in charge of processing intakes and helping take dogs out for potential adopters when available.*

DAILY TASKS & TOOLS USED

- Creates animal profile and submits notes upon intake in Chameleon
- Monitor behavior and writes up any concerning behaviors on paper forms
- Switches dogs to different kenne locations, records changes on Chameleon
- Communicates with placement team verbally about their favorite dogs or dogs that might need help
- Receives shift updates and communication from managers over email
- May interact with volunteers about particular dogs through Facebook group

GOALS

- To provide the best care for animals as possible
- To work quickly
- To advocate for their favorite animals
- To communicate with other staff and volunteers about animals that may be struggling

FRUSTRATIONS

- Managing fighting in the runs can be stressful and dangerous
- Emotionally difficult to get attached to dogs that may end up on a euthanasia list
- Too many dogs to help and get to know all of them

Figure A.2: Kennel Staff Persona

TOOLS

- *Trello*
- *E-mail*
- *Facebook/ Messenger/ Groups*
- *Whiteboards*

VOLUNTEER

Name: *Nina Gupta*
Age: *21 yrs old*

Role: *Comes to the shelter on her weekends because she can't currently have a dog while at school. Likes to focus on large dogs that need manners work, but also helps with playgroups, walking, and taking photos of dogs.*

DAILY TASKS & TOOL USE

- Uses whiteboard office and speaks to volunteer coordinator about tasks and which dogs might need attention
- Takes photos of dogs she takes out and writes bios
- Communicates with fellow volunteers over Facebook Messenger
- Is active on volunteer Facebook page and posts about her favorite dogs that need fosters
- Uploads her photos and information about dogs to the volunteer-run Trello board

GOALS

- To help give dogs relief from their time at the shelter
- To advocate for her favorite dogs and try to find fosters or adopters for them
- To give dogs that need morem anners some basic training skills to increase their chance of getting adopted

FRUSTRATIONS

- Volume of dogs can be overwhelming
- Difficult to communicate with staff about the needs of her favorite dogs
- Volunteers cannot access Chameleon, the shelter database for privacy resaons
- Often worries about her favorite dogs when she is not at the shelter

Figure A.3: Volunteer Persona

APPENDIX B

WORKSHOP PLANS

Adoptions Flow Workshop

This workshop has two pieces in order to understand and improve the flow of adoptions-related shelter activities:

- The first is designed to identify all tasks that fall under the adoption counselor role, as well as the barriers and pain points surrounding those tasks. We will also be brainstorming possible improvements and solutions to these areas.
- Second, the tasks will be clustered into "task groups" that naturally fit together, which will ultimately help increase efficiency and cohesiveness for day-to-day shelter activities.

Journey map setup

Tasks/ activities/ events	Task1	Task2	Task X...
Barriers/ pain points			
Tool/Touchpoint			
Experience of Customer			
Solutions and Opportunities			
Other notes			

Reasons for each row:
Tasks - put all responsibilities out there, which will act as the core of the journey map
Barriers - addressing and identifying frustrations
Tool/Touchpoint - identifying which tool/method is used to complete the task (**this can be filled out later**, but might be helpful for identifying solutions)
Customer experience - putting ourselves in the customer (potential adopter's) shoes, to see where
KPI's - to look for opportunities to track the success of each task **(this can be filled out later)**
Solutions - a collaborative brainstorming session to gather ideas for improvement
Other notes - Some ideas could be the amount of time this task takes, or the location it takes place (i.e. office, kennel, vet trailer etc.)

Agenda
9:45 - breakfast / set up
10:00 - Introduction, agenda, questions (why are we doing this?)
10:10 - Tasks - (everyone writes things out on post-its, and puts it on the wall), cluster tasks so we don't have duplicates
10:20 - Barriers and Experience of Customer, (Mika will write tools/touchpoints row)
10:45 - Solutions and opportunities, "How might we ____(fix this barrier)", include other ideas in Think Tank box

11:00 - 10 min Break

11:10 - Debrief, talk about glaring insights
11:20 - Clustering "task groups", then name task groups
11:40 - Discussion, next steps

Placement Flow Workshops (II and III) Plan

Workshop Goals:

1. **For placement team and other staff to identify touchpoints, process, and communication of information when working on animals.**
2. **To understand processes and communication to inform her thesis.**

Use Cases - using specific dogs for concrete examples**:**

1. **Longtimer - Maya:** was length the trigger? Had some big fights but she was a staff fave so they kept trying to move her, adopted and returned, foster and returned, WW behavior foster, now in longterm foster
2. **High risk medical - Seashell:** - longterm in single crate, prolapse, rescue
3. **Field medical emergency rescue - Chapman:**
4. **Pregnant dogs -** rescue or foster are only options
5. **Little bite dog – Jack:** rescue only, volunteer advocate
6. **Cruelty (kennel/barn) - Marty:** long term hold, some in barn some in single crates, needed dog to dog test, all 3 went to Best Friends
7. **Owner surrender – Eden:** at Best Friends now
8. **Behavior foster - Victoria** - trial behavior foster, euth
9. **DFTD – Bronn** - 2 outings, amazing dog, positive outcome
10. **Annabelle –** fear aggression, stray, July 18 (maybe take her out?)
11. Semi-feral

Data needed for each dog we are looking at:
https://docs.google.com/spreadsheets/d/1gPWwMzkiScWS3cX6xjsPWiUdJS9B-Zep5-cPfWOZdo0/edit?usp=sharing
-General Info: name, ID, intake, length of stay, outcome
-Event Info: "Events" are anything that happens that either gives us information about the dog or "triggers" movement for the dog (such as behavior writeups, fights, appearing on urgent email, appearing on euth list, WW, playgroup etc.)

Code:
-Post-its
- -Green - Intake/outcome
- -Blue - medical
- -Dark Pink - Negative Event
- -Orange - Positive event
- -Light Pink - Pain points, insights, notes
- -Pink star - Trigger to move on placement
- -Yellow Star - Reaction to move on placement

-Dots
- -Blue - FB (post)
- -Yellow - Email
- -Green - Databases (Chameleon, Trello, Google sheets)

Placement Flow Workshops (II and III) Plan

Workshop Goals:

1. **For placement team and other staff to identify touchpoints, process, and communication of information when working on animals.**
2. **To understand processes and communication to inform her thesis.**

Use Cases - using specific dogs for concrete examples**:**

1. **Longtimer - Maya:** was length the trigger? Had some big fights but she was a staff fave so they kept trying to move her, adopted and returned, foster and returned, WW behavior foster, now in longterm foster
2. **High risk medical - Seashell:** - longterm in single crate, prolapse, rescue
3. **Field medical emergency rescue - Chapman:**
4. **Pregnant dogs -** rescue or foster are only options
5. **Little bite dog – Jack:** rescue only, volunteer advocate
6. **Cruelty (kennel/barn) - Marty:** long term hold, some in barn some in single crates, needed dog to dog test, all 3 went to Best Friends
7. **Owner surrender – Eden:** at Best Friends now
8. **Behavior foster - Victoria** - trial behavior foster, euth
9. **DFTD – Bronn** - 2 outings, amazing dog, positive outcome
10. **Annabelle –** fear aggression, stray, July 18 (maybe take her out?)
11. Semi-feral

Data needed for each dog we are looking at:
https://docs.google.com/spreadsheets/d/1gPWwMzkiScWS3cX6xjsPWiUdJS9B-Zep5-cPfWOZdo0/edit?usp=sharing
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APPENDIX C

USER TESTING QUESTIONS

User Testing for Shelter Data Dashboard Evaluation

1. Objective

The goal of this study is to assess a proposed design for a new shelter data dashboard. The usability, features, information flow, and satisfaction will be analyzed through a series of tasks and questions involving wireframes.

SECTION 1 - GENERAL:

OPEN: https://xd.adobe.com/view/6dcc9b63-fb7b-422d-78bd-cb17137cad18-1bfd/?fullscreen

1. "Click login"
2. Glance over the Home page.
3. Open the chat and open the notifications tabs. Please read the notifications. Close them.
4. On the Home view, open the dropdown that says "My Cases" and read the drop down options.
5. In the drop down, click "All Kennel".
6. In All Kennel, toggle between the list and card view options to the right of the dropdown.
7. On the left of the screen are the ways your can filter animals. Please read through the filters.

Questions 1.1:

1. Which options from the dropdown would you like to appear as the default setting when you open up the app?
    a. My Cases
    b. All Kennel
    c. In-Foster
    d. Search Back
    e. Other_____
2. Are there any other types of views you would like to see in the dropdown? If so please write it in Other.
    a. No
    b. Other_____
3. In All Kennel, on a scale of 1 to 5 please rate how much you prefer the card view or the list view. 3 being neutral.
4. On a scale of 1 to 5 please rate how helpful you think the in-app Chat feature is.
5. On a scale of 1 to 5 please rate how helpful you think the Notification dropdown is.
6. Was anything unclear or confusing about the notifications?

7. On a scale of 1 to 5 how satisfied are you with the filtering options on the left side of the screens.
8. On a scale of 1 to 5 how satisfied are you with the order of hierarchy (with most important on top) of the filtering options on the left side of the screens.
9. Are there any filtering options that you would add?
10. Free response: Was anything about the design in this section confusing? Anything you didn't like? Anything you'd change? Any ideas you'd like to see included?

TASK 2 - Individual dog cards:

OPEN:
https://xd.adobe.com/view/aa6d5c58-8124-4724-426b-450664fdc5aa-dc5c/?fullscreen

1. You want to see which dogs most need to go to foster by prioritizing the urgent ones that week. Figure out which dogs might be indicated as urgent.
2. You decide Fred is the urgent dog you want to look at. Click on his card.
3. Read Fred's timeline.
4. Use the "Program Log" section to figure out which programs he hasn't been on.
5. On Fred's "Plan" section, click the plus sign to assign your co-worker Sarah to send him to Foster.

Questions 2:

11. On a scale of 1 to 5 rate how satisfied you are with how urgency is denoted on the 'My Cases' grid view.
12. Please select anything that applied to your experience with looking at the grid of dog cards on My Cases.
    a. It was hard to find important information on the cards.
    b. It was hard to figure out where to look on the cards.
    c. The cards need less information.
    d. The cards need more information.
    e. It was hard to see which cards were most important.
13. Please select everything you think should be included on a card in the grid view of 'My Cases': (Name and ID, Intake Date, Location, Intake Type, Sex, Color, Size, Age, Picture, Behavior info, Care plan info, Case worker name)
14. On a scale of 1 to 5 rate how satisfied you are with the layout of the individual page view of a dog.
15. On a scale of 1 to 5 rate how easy it was to understand the timeline section on an individual dog's page.

16. On a scale of 1 to 5 rate how intuitive it was to assign a coworker to a task.
17. On a scale of 1 to 5 rate how useful the "Program Log" section is on an individual dog's page.
18. On a scale of 1 to 5 rate how useful the "Plan" section is on an individual dog's page.
19. Free response: Was anything about the design in this section confusing? Anything you didn't like? Anything you'd change? Any ideas you'd like to see included?

TASK 3: Data Dashboard

OPEN:
https://xd.adobe.com/view/a68e5832-42b8-4f46-47de-75471b27a5da-d0bf/?fullscreen

1. Look at general KPI's for the day.
2. See if any of your tracked dogs are on the euthanasia list for the week.
3. Oberve this year's monthly intake vs. outcome numbers.
4. The graphs would be customizable depending on job roles and what you want to track. Observe how you're doing in terms of foster program goals.
5. Go to the "Kennel" visualization view.
6. Change the visualization of the kennel to show Length of Stay spatially.

Questions 3:

1. On a scale of 1 to 5 rate how clear is the design of the quick fact KPI section?
2. On a scale of 1 to 5 rate how easy it was to tell if your any of your tracked dogs were on the euthanasia list.
3. Does the location of the euthanasia list make sense?
    a. Yes
    b. No, I would want it near the Kennel Database.
    c. No, I would want it near My Cases.
    d. No, I would want it in it's own section.
    e. Other_____
4. The Intake graph was easy to understand. (Disagree to Agree Likert Scale)
5. The graphs in the dashboard help me see if I'm reaching my goals. (Disagree to Agree Likert Scale)
6. On a scale of 1 to 5 how helpful do you think the kennel visualization is?
7. Short answer: Is there a different type of graph or visualization you would like to see?

8. Free response: Was anything about the design in this section confusing? Anything you didn't like? Anything you'd change? Any ideas you'd like to see included?

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