

BHCI Capstone Final Report

Animal Cop

Yiran Buckley
Vanessa Kalu
Sarah Moss-Horwitz
Miranda Nguyen
Maggie Yu



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Humane Animal Rescue

Time Frame

January - May 2017

Team

Yiran Buckley
Sarah Moss-Horwitz
Vanessa Kalu
Miranda Nguyen
Maggie Yu

Executive Summary

During the Spring of 2017, our team of BHCI students worked with the Humane Animal Rescue shelter to apply a user-centered design process to create a solution that simplifies the animal abuse reporting and investigation process.

As a result, we created Animal Cop which is comprised of a digital reporting form for concerned citizens and a management application for humane officers. In this report, we present our final design solution with a high level overview of the design and research process that led to this solution. Through this entire process, we managed to deploy a working MVP version of our solution for our clients.

Background

In January 2017, Pittsburgh's Animal Rescue League (ARL) and Western Pennsylvania Humane Society (WPHS) merged to form Humane Animal Rescue (HAR) -- one of the largest open-door shelter in Pennsylvania. Our clients hope to better promote animal welfare by expanding their humane investigations department and exploring technological solutions to support their new Humane Police Officer (HO). Humane officers conduct a variety of investigations animal including neglect, hoarding, cruelty, and even dog fighting operations. They are responsible for preventing, intervening, and prosecuting these cases.

Simultaneously, humane investigations require input from the public. Concerned citizens send reports of animal abuse to the HO for investigation. However, "humane investigations are complicated in Pennsylvania, and especially in Pittsburgh. Depending on the situation, federal, state, county and municipal laws may need to be enforced by different agencies with sometimes overlapping responsibilities, including police and municipal animal control employees in addition to Humane officers. Concerned, well-meaning citizens inevitably get confused, often contact the wrong authority, too late, and without the necessary evidence, which can prevent officers from taking action and successfully prosecuting criminal cases."

Client Need

In order to help the Humane Animal Rescue shelter provide better humane investigation services and help the community, our client would like to introduce a computer-based system that supports:

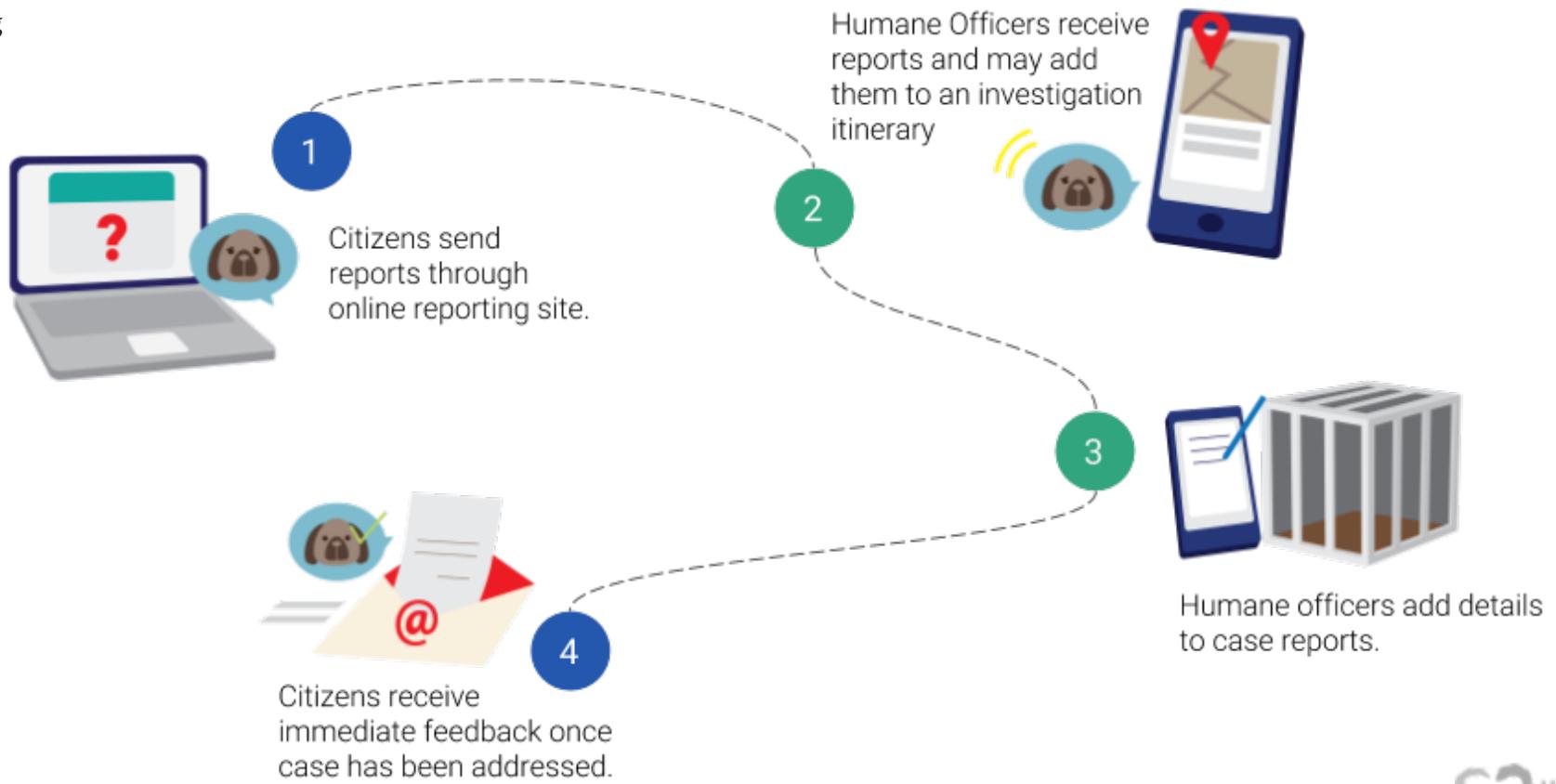
1. residents in reporting possible abuse
2. the shelter's new HO in managing those cases and interacting with other agencies
3. staff who work with animals that may be subject to abuse and who interact with potential offenders and witnesses during intake and adoptions.

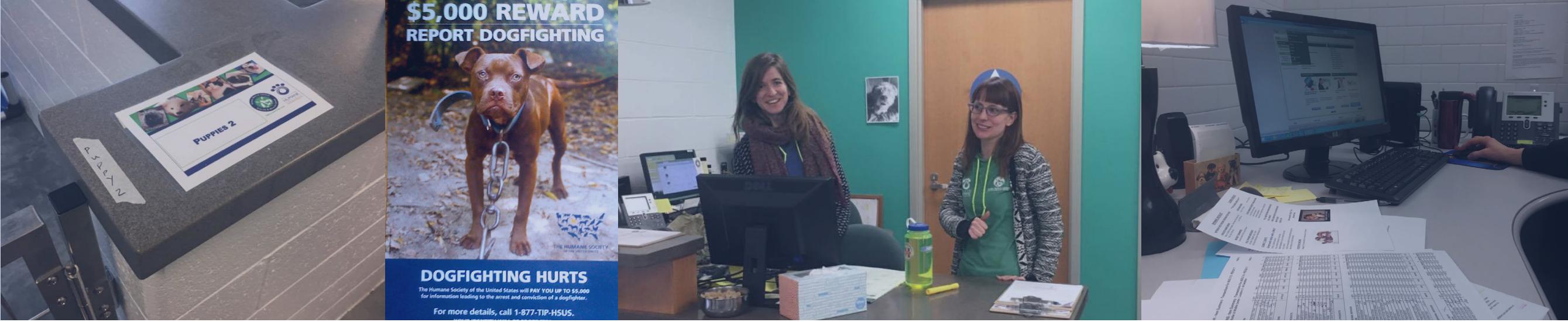
Solution

We created an online form that allows citizens to report their cases directly to the Human Officer in addition to a mobile friendly tool for Humane Officers to manage and update cases. Our final design can be accessed at:

<https://tinyurl.com/animalcop-dashboard>

<https://tinyurl.com/animalcop-reporting>





Research

Overview

During the research phase, we used a variety of HCI methods including interviews, contextual inquiries, literature reviews, and distilled our insights using different conceptual modeling and diagramming.

Hunt Statement

We aimed to design a solution that simplifies the humane investigation reporting process for both concerned citizens and staff at the Humane Animal Rescue shelter. To reach this solution, we explored the current obstacles and incentives for citizens to recognize and report animal abuse, as well as understand the current animal rescue process as conducted by the Pittsburgh animal rescue community. Additionally, we aimed to identify the key pain points humane officers face in investigating and managing humane cases.

Literature Review & Competitive Analysis

Since there were no direct technological competitors for us to examine in regards to our project, we decided to dive deep into five separate topics to gain knowledge that may be relevant to our project: Pennsylvania Animal Cruelty Laws, Child Abuse, Citizen Science, Municipal Reporting, and Bystander Intervention.

PA Animal Cruelty Laws

Reading cruelty laws helped us understand the legal role of a humane officer as deputizes law officers that enforce animal cruelty laws. We also understood the limits of their legal powers: Humane officers are not permitted to enter private residences without permission/search warrant as well as seize animals without proper cause. Animal cruelty legislation exists both on the state and county level. This leads to complications such as contradicting regulations and ambiguity across county lines. This helped us realize the type of misunderstandings that a citizen might have.

Child Abuse

We looked into ways technology is utilized to handle child abuse cases. We learned that technology primarily functions as a way to store client notes. However, the video applications like FaceTime and Skype can be used to conduct remote counseling sessions and make it easier for social workers to check-in with clients.

We learned that there was a need for social workers, hospital staff, and police to manage, gather, and store information on the go. This need was reflected in our own population of HOs and shelter staff.

Municipal Reporting

The City of Pittsburgh has a 311 Response Center that utilizes various forms of technology to make reporting non-emergency issues easier for residents. We learned that citizens can report animal related cases with the form, although these reports go directly to the Pittsburgh's Animal Care & Control (ACC) rather than humane officers and shelters. While we hoped to use this form for future design reference, we realized that it was a problem that cases only went to ACC.

Citizen Science

We found evidence that crowdsourcing has helped crime investigations in the past few years, indicating potential applications for crowdsourcing in animal abuse investigations. Although citizen scientists are eager to help, there are limitations on the validity of crowdsourced data. Volunteers can submit biased data due to lack of training, lie about data for a reward, and produce incorrect information. We kept this type of behavior in mind as we continued designing.

Bystander Intervention

The bystander effect is a well-studied psychological phenomenon wherein individuals observing a case of abuse/violence/emergency are less likely to help the victim if others are present. Latane and Darley's (1970) 5-stage model breaks down the sequence of intervention into 5 steps: 1. Noticing the event, 2. Recognizing it as an emergency, 3. Taking responsibility, 4. Knowing how to respond, 5. Having the confidence to respond

We considered using this model as a reference for focusing on moments in the reporting process for citizens when breakdowns are most likely to occur.

Contextual Inquiry & Interviews

We interviewed experts in animal rescue process and used contextual inquiry methods. Our interviews employed some guiding questions that would lead to more in-depth recounting of experiences. The contextual inquiry method involved more immersion in the actual processes of ARL by observation and in-the-moment questions.

Humane Officers & Staff

Humane officers are state agents who are affiliated with a shelter or rescue, and act to enforce Pennsylvania's Animal Cruelty Laws. They have full police power and can take an investigative role with regards to situations that breach those laws. In contrast, shelter staff are more concerned with the daily operation of the shelter and may have differing experience with how often they encounter animal abuse situations.

Debbie: a retired humane officer and animal rescuer from Butler County.

Lois: a staff member at HAR that previously worked as a huame officer in Beaver County for two years.

Rachel: HAR staff involved with behavioral work, intake, and humane cases. She directly assisted the previous humane officer, triaging cases and shadowing on site visits.

Pittsburgh Animal Care & Control

Animal Care and Control (ACC) is a city department whose jurisdiction often overlaps with that of animal shelters like the ARL and humane officer duties. More significantly, citizens often contact ACC and other animal-related organizations indiscriminately when responding to an animal-related case. For this reason, we also contacted ACC in order to learn more about their involvement in animal abuse cases.

Taylor: an agent and supervisor for ACC. Taylor handled cases that fell under ACC. During her tenure, she had experience working with both Pittsburgh Police and humane officers for cases that crossed jurisdiction.

Wildlife Officers

Wildlife officers are the courtcounterpart to humane officers who help enforce wildlife and game laws. However, the Pennsylvania Game Commission oversees wildlife issues of all types and therefore has the official jurisdiction over wildlife cases. Even though there are significant difference between the roles of humane officers and wildlife officers, we hoped to gather similarities and parallels between wildlife and domestic animal abuse cases that may help our research and solution design.

Rebecca: a current certified volunteer wildlife officer at the ARL Wildlife Center in Verona, PA. She deals with wildlife injury and abuse cases and helps assess situations on-site as well as capturing and rehabilitating animals.

Community Members

We also interviewed four community members who previously reported animal abuse cases in order to gain a general understanding of what happens when a case is reported and what problems may occur. We asked each interviewee to walk us through their process of witnessing, recognizing, and reporting animal abuse, as well as any follow-ups that may have occurred afterwards.

Natalie A., Laura B., Kelly H., and Kerri S.: community members

Research Insights

Based on our exploratory research we were able to distill six main research insights to inform our subsequent design process.

INSIGHT 1

The main goal of animal rescue is to educate, not confiscate.

INSIGHT 2

Laws are complicated and don't match people's assumptions.

INSIGHT 3

Animal rescue is like social work; it involves people, not just animals.

INSIGHT 4

Animal rescue operations are collaborative and co-dependent.

INSIGHT 5

Misreporting can have serious consequences for the organization, people, and animals involved.

INSIGHT 6

For citizen reporters, lack of feedback after reporting is frustrating and disheartening.

INSIGHT 1**The main goal of animal rescue is to educate, not confiscate.**

Debbie, Lois, and Rachel all highlighted cases where they gave as many resources to the animal owner as possible, rather than immediately taking the animal. This further emphasizes the importance of developing cooperative relationships with owners and taking an educational role when possible.

INSIGHT 2**Laws are complicated and don't match people's assumptions.**

Citizens don't know what legally constitutes animal abuse, making complaints that don't fall under cruelty law and reporting to the wrong agencies. Sometimes they don't even know that humane officers exist. When citizens' misunderstanding of laws impacts their reporting behaviors, valuable time and resources are wasted for all parties involved.

INSIGHT 3**Animal rescue is like social work; it involves people, not just animals.**

We found that animal abuse can occur due to altercations between people -i.e. a domestic incident resulting in the harm of a pet. Furthermore, false reporting can be submitted due to animosity or to target an individual. Social behavior cannot be taken out of the equation when thinking about animal rescue.

INSIGHT 4**Animal rescue operations are collaborative and co-dependent.**

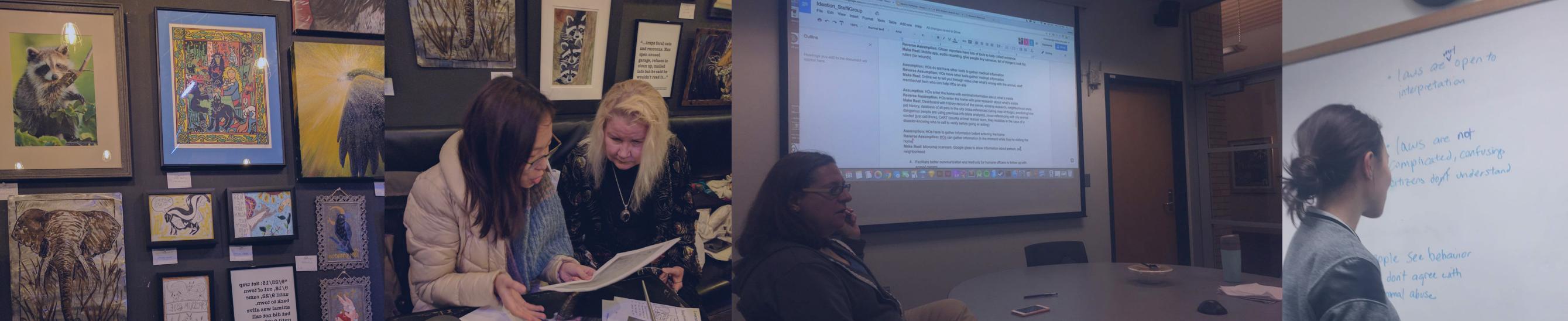
Our interview revealed that instances of animal abuse can co-occur with other crimes and violations. Because of this, cases require various agencies including Animal Control, humane officers, and Pittsburgh Police to work together. Breakdowns are especially detrimental in terms of communication of information and cooperation.

INSIGHT 5**Misreporting can have serious consequences for the organization, people, and animals involved.**

Humane Officers and Animal Shelters limited resources but numerous cases. They constantly attempt to maximize their efforts towards the most severe, with minimal information at hand. Malicious, incorrect, or underspecific reports strain an already burned officer. As such misreporting is a serious problem for prioritization and investigation of reports.

INSIGHT 6**For citizen reporters, lack of feedback after reporting is frustrating and disheartening.**

Community members who report animal abuse are often emotionally attached and strive to understand whether their actions have actually impacted the situation. Currently there are no follow-ups on mechanisms for these reporters. Citizen reporters may attempt to get updates from the shelter multiple times to no avail, become disheartened, and possibly discouraged from future reporting.



Ideation

Overview

We used our insights to guide our initial ideation process and reimagine a future that addresses the implied problems. We began our ideation process by collaboratively brainstorming with our clients and then group visioning as a team. We created storyboards to outline each idea, and then speed dated them with stakeholders and potential users. These storyboards acted as early prototypes of our ideas. Based on consolidated storyboard feedback, we summarized high level insights from feedback, and evaluated each broad idea based on feasibility and priority. This allowed us to select ideas that were most optimal.

Client Brainstorming

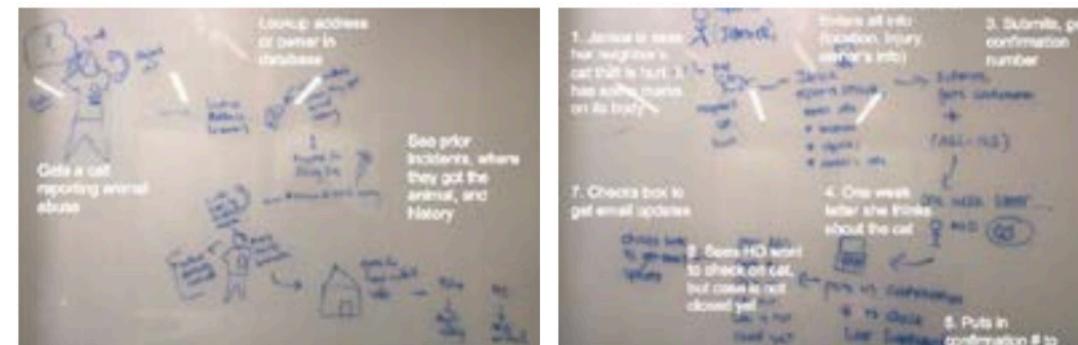
In order to generate design ideas, we decided to conduct an ideation brainstorming session with our client. We wanted to involve them in the process so they felt they had the ability to contribute to ideas as well as ensure we did not miss any important areas that they would like for us to address. We used the insights that we had generated during our research phase to directly inform our design process. For each key insight we (1) created a list of assumptions, (2) wrote reverse assumptions to each assumption, and (3) thought of ways in which we could make each assumption real. The ways in which we could make each reverse assumption real, served as our design ideas for each key insight. By the end of the session we had over 20 design ideas moving forward.

The most important ideas were as follows:

- Aid humane officers in educating citizens quickly and effectively.
- Help collect necessary information needed from reporters to improve humane officer's understanding about the severity of the case and whether it constitutes as animal abuse.
- Give reporters tools to collect evidence that will help HOs determine abuse before a visit.
- Tools for staff
- Support clear shared information and evidence gathering across organizations and stakeholders.
- Support reporter education on what constitutes animal abuse.
- Increase barrier for false reporting.
- Keep reporters in the loop

Group Visioning

Based on the results of our client brainstorming session, we proceeded to synthesize a list of more concrete design ideas and scenarios. After creating this list, we classified how each idea could fit into the current reporting/investigating process and selected the five most promising ideas to vision with. We wanted to test a variety of ideas, so our selected ideas spanned various parts of the reporting and investigation process.



Pictured: Examples of our visioning exercise. As a team, we told stories which incorporated our ideas and illustrated them as we went. These became the precursors to our storyboards in the next stage of the process.

Storyboard Speed Dating

The results of our visioning served as the basis for speed dating storyboards. For each vision, we identified a specific scenario that would occur during the humane investigation process. We then constructed three different storyboards containing variations and sub-components of designs that we visioned with. We used these storyboards for speed dating sessions. We hoped to understand if users could imagine themselves using our design ideas and to compare the efficacy of certain ideas. To get this feedback, we conducted sessions with two user groups: citizens and humane officers/ARL Staff.

To reach citizens, we attended an animal event, where we showed our ideas to 8 different participants that represented a combination of veteran and first time citizen reporters. We specifically showed citizens sets of storyboards that related to reporting. We only showed storyboards involving animal intake and HO investigations to one HO and ARL staff members during an on-site shelter visit.

Idea	Feasibility (1-5)	Priority (1-5)	Total Score (max=10)
Getting more info	2	3	5
Reporting Feedback	4	5	9
False Reporting	5	5	10
Hoarding Cases	1	1	2
Staff Handling	4	2	6
Collecting reports	5	5	10
Prioritizing reports	3	3.5	6.5

Pictured: A matrix consolidating the feasibility and priority ratings from the speed-dating sessions. A total score is given that is the summed scores of the two factors; the higher the total score, the more viable the idea. The yellow highlight shows the three top ideas based on this rating system. The grayed-out item is the least viable and decided to be out of our scope.

Using speed dating feedback and our own ranking based on feasibility, we narrowed down the most promising ideas for a baseline MVP and additional features.

Baseline MVP:

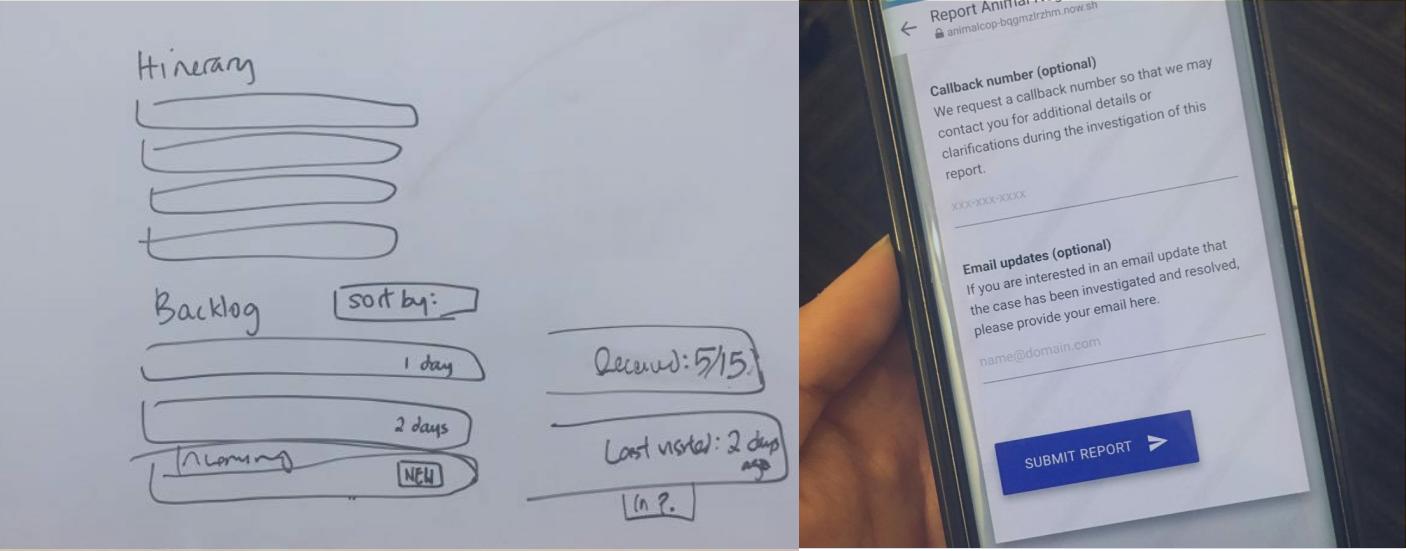
Develop an online citizen reporting system that is able to collect accurate information from users and convey it to staff/HOs. This system includes precautions against false reporting and feedback to users after reporting

Additional Feature 1:

A prioritization system that breaks down and analyzes information from citizen reports such that it can organize the reports based on severity/priority. The goal is to help HOs make decisions about how they want to conduct their investigations.

Additional Feature 2:

An additional feature of the prioritization system where the prioritized information is coupled with location information, creating a map with potential routes for the HO to take as they travel from situation to situation.



Prototyping

Overview

After selecting key features to actually implement, we proceeded to actually prototype designs. During this phrase, we separated development of the HO and citizen side, hoping to focus specifically on the issues and needs of these distinct user groups. As such, we began with lo-fidelity prototypes using paper and Google forms and then progressed to mid-fidelity prototyping with HTML/CSS and axure. Finally, we developed our designs into a final functional system comprised of a citizen reporting form and a humane officer management tool.

Lo-Fi Prototyping

Citizen Side

We created a low-fidelity prototype using Google Forms and paper pop ups, which included main question types, which include the personal information of the reporter, the time/location of the incident, and the description of the animal(s) involved. The goal of this iteration was to consider the types of questions that would appear on the form and to evaluate whether the content and framing of these questions was appropriate.

HO Side

For the humane officer interface, we first created a paper prototype of an interface that could support an incoming case and an itinerary for investigation. We aimed to understand how this fit into current HO workflows and tried to understand how adoptable it was.

Lo-Fi Testing

Citizen Side

We tested this prototype by conducting task analysis with potential users, asking them to imagine themselves in a scenario involving animal abuse and reporting with our form. The major findings of this phase showed:

- Reporters still need more education about what a HO does to feel confident about reporting
- Animal cruelty laws need to be at the forefront of the design
- The form needs to account for the entire range of possible situations, including the most common and the least likely.
- Reporters want more transparency about the feedback cycle.

HO Side

We also tested the usability of the prototype with staff and HO with simple task analysis and got general feedback through design walkthroughs. using simple task analysis. We learned:

- Prioritizing cases and planning routes are some of the most important tasks and are done at the beginning of the day, rather than adding cases to the route as the day goes on
- HOs normally attend to cases based on location (i.e one day they will focus on cases in the downtown area), however they may break this flow when urgent cases arise. As a result, we want to determine the best way for our system to develop an itinerary based on location and urgency.
- HOs need a way to refer to prior cases once they have been closed in the system

Mid-Fi Prototyping

Citizen Side

For the second iteration, we built the actual website using the Materialize CSS framework which allowed some more flexibility in how we structured our questions and input fields. To evaluate both versions, we recruited participants from around CMU with little to no reporting experience and asked them to imagine themselves in different scenarios involving animal cruelty and neglect.

HO Side

Based off of feedback from our paper prototype, we created a second prototype in Axure to mock up interactivity. This prototype was tested with an HAR staff member who had previous humane officer experience to ensure the prototype matched the workflow of the Human Officer.

Mid-Fi Testing

Citizen Side

We conducted more task analysis and small-scale A/B test to iterate through these designs. Based on this work we realized that:

- We had to find ways to minimize text while simultaneously encouraging users to read our information.
- Users want their report to fall under some discernable category, even if they aren't actual abuse/neglect cases
- Illustration was an appropriate way to grab user's attention
- More consistent UI interactions could support the goal of redirecting users to the right agency

HO Side

Once again we got feedback from shelter staff with HO experience by conducting design walkthroughs. Based on this we learned that:

- Major results of this testing revealed that our prototype needed to give more autonomy to the humane officer, rather than automating a lot of the process.
- A tool that assisted rather than dictated priority of cases would be useful for the HO as well.
- Notes are generally unstructured and dependent on the HO. As such a flexible note-taking system would be necessary

Solution Features

Through our prototyping and development process, we converged on a set of features to address pain points found in our initial research. While we were unable to implement all of our ideas, we have came up with features to address issues for both the Humane Officer tool and Citizen Reporter form. In the following section, we discuss key features in further detail.

Citizen Reporter Form Main Features

- Forms with structures questions to collect necessary information for the humane officer
- Opt-in to receive email updates about case closure
- In-line information informing users about the animal laws and regulations
- Pre-form page with warnings and directions for citizens to read before reporting
- Question fields that redirect users outside of the form when the citizen tries to report a case that does not fall under animal abuse.
- Fields to upload images and media to reports

Humane Officer Tool Main Features

- Presentation of case meta-data and information about priority/severity
- Organization tool to create a daily itinerary of cases, new cases, and in-progress cases and the flexibility to move cases within different categories
- A map that can route items in the HO itinerary and can show any incoming cases relative to the HO's current location.
- Archived case page for the HO to access and read previously investigated cases

Reducing Inappropriate Reporting

Report Animal Abuse or Neglect

Please use the following form to share as much as you can about the animal abuse or neglect situation.

Once you report animal abuse, a humane officer will be notified and assess the situation, and may come to court. Note that misreporting can have serious consequences for the shelter, humane officers and animals involved.

How to Report Animal Abuse





- Only use this form if you are in Allegheny County**
We can only accept cases that occur outside of Allegheny County. If you are located outside of Allegheny County, find your local Humane Officer through the Humane Society Police Officer Registry or call your local police station to report your case.
- Only report cases that you have witnessed firsthand**
Do not report cases that are not personally witnessed by the reporter. Reporting such cases is a strain on our system and prevents us from investigating actual cases. Always provide accurate and detailed information.
- Only report your case to one agency.**
Do not call multiple agencies with the same report. This will only lead to your case being investigated earlier or faster; it only leads to mismanagement of agency resources.

Report Animal Abuse and Neglect

Use this form to report animal abuse. Leave a detailed account about the case you have witnessed. This information will go to our Humane Officer for investigation.



Humane Officers need reliable and detailed information to actually investigate your case. Please be aware that misreporting can have serious consequences for the shelter, humane officers, animal owners, and animals involved.

Initial Iterations:

The original header relied on direct and simple language to warn reporters that misreporting can have serious consequences.

Second Iteration:

Testing demonstrated that the header text wasn't enough to grab people's attention. Users' misunderstandings about the reporting process made them suspicious of the HO and less willing to report. We added illustrations to an external page linking to the form and to the in-form header.

Report Animal Neglect and Cruelty in Pittsburgh



How to report animal abuse or neglect.

Neglect, hoarding, and cruelty, all the way to dog fighting operations, are sadly common cases in Pittsburgh. The reality of these cases touches the lives of citizens, pet-owning and non-pet-owning alike. At the Animal Rescue League, our Humane Officer provides investigative and law enforcement services to Allegheny County.

To report a case to our Humane Officer, follow these directions:





- Only report if you are in Allegheny County**
- Only report if you are a firsthand witness**
- Do not send reports to multiple agencies**

If your case is not covered by our Humane Officer's jurisdiction, call your local authorities to find the appropriate help.

If you've read the information above and you are ready to proceed, use our online reporting form to report your incident to our Humane Officer.

[ANIMAL CRUELTY & NEGLECT REPORTING FORM](#)

Final Iteration:

Testing revealed that users were able to remember context from main headers, but failed to read and pay attention to subtext. Based on this result, we removed text to make the content more digestable for reporters. We chose keep and illustrate the most common issues that delayed the reporting process.

Reducing Inappropriate Reporting

Adequate Shelter:

Any shelter must be proportional to the animal size, have at least three walls, a waterproof roof, and protects the animal for regional from the elements

[Learn more about this law](#)

Improper Conditions

Sanitation: Animals must be in a space free of excretions and other waste materials, dirt and trash that may be a health hazard

Food & Water: Animals need access to potable drinking water and edible food

[Learn more about this law](#)

Leaving Animals Outside:

Animals may be left outside if the following conditions are met:
 -animal is not outside for more than half an hour when the temperature is below 32 F or above 90 F
 -the animal has access to potable drinking water, edible food, and adequate shade or shelter

[Learn more about this law](#)

Leaving Animals Outside

Leaving Animals Outside has a lot of legal stipulations. It is unlawful for any person to

- tether, fasten, chain, tie, restrain or cause an unattended dog to be fastened, chained, tied or restrained

To the following objects:

- houses, trees, fences, garages, stakes or other stationary or highly immobile objects by means of a rope, chain, strap or other physical restraint for the purpose of confinement

Exceptions to the above law are made during circumstances where all of the following requirements are satisfied:

1. The animal is outside for a period of time that is reasonably necessary for the dog, owner or custodian to complete a temporary task that requires the dog to be physically restrained
2. Or if the animal has adequate food, water, and shelter

For the official documentation regarding this law, please refer to this link. If you have any questions or concerns regarding this law, please contact your local representative below:

Representative 1	Representative 2
Address	Address
Email	Email
Phone Number	Phone Number
Region	Region

You can also try to join other citizens who care about animal issues at the Pittsburgh Humane Society or the Pittsburgh Citizens Against Animal Cruelty.

We don't make the laws, but you can engage with your local legislature to change policies!

Type of incident (required)

Please note that these are the incidents listed are what constitutes under PA and federal law as animal cruelty. If you are attempting to report an incident involving dangerous animals, theft, or a stray animal, please contact the City of Pittsburgh Animal Control at (412) 255-2036. Select all that apply.

- Inadequate shelter (either in general or based on weather conditions) [Close](#)

Any shelter must be proportional to the animal size, have at least three walls, a waterproof roof, and protects the animal for regional from the elements.

[Learn more about this law](#)

- Improper conditions (dirty, lack of food/water, etc.) [Learn more ▶](#)

- Animal left outside [Learn more ▶](#)

- Physical violence against animal [Learn more ▶](#)

- Neglect of animal's illness or injuries [Learn more ▶](#)

Do any of the animals have... (optional)

Select all that apply.

- Visible wounds?

- Signs of severe hunger/thirst?

- Inadequate shelter given extreme weather conditions?

Iteration 1:

In our first iteration, we used paper “pop ups” that would appear on the screen when the user wanted to “click for info” next to some of the types of incidents. They provided explanations for each law and even directed citizens to their local representatives if they were unhappy and wanted to reach out to them in an attempt to change policies. However, many users during testing were confused about how the pop ups worked and/or missed seeing them on the form so did not attempt to click for more information.

Iteration 2:

We believed that the “Type” of incident field would be a good place in the form to notify users whether their cases fell under HO jurisdiction. To do so, we tried listing incident types that were abuse/neglect cases and information text telling users to visit another page if their case didn’t fall under the list of categories. Since pop ups were very effective, we believed that inline education would be more effective.

Reducing Inappropriate Reporting

Type of incident

Please note that the list below shows what is considered animal cruelty under PA and federal law. If you feel you are in immediate danger from an animal, it is always appropriate to call 911.

Select all that apply:

- Animal with inadequate shelter
- Animal living in improper conditions (dirty, lack of food/water, etc.)
- Physical violence against animal
- Neglect of animal's illness or injuries
- Animal tethered outside in improper conditions

what is this? ▶



Is the incident you're reporting not on this list? That means the type of incident is not under the jurisdiction of humane officers and should not be reported using this form. However, [we can help you figure out who to contact instead](#).

Reporting Other Animal-Related Incidents

These types of incidents are not under the jurisdiction of humane officers, but are nonetheless important. Please view the information below so we can direct you to the best way of resolving your situation.

Animal that is a stray, lost, or running-at-large

what is this? ▶

Animal being a nuisance or making disruptive noise

what is this? ▶

Animal attacks, bites, or otherwise dangerous animals

what is this? ▶

Animal without proper licensing or vaccinations

what is this? ▶

Theft of animal

what is this? ▶

Pet limit violations

what is this? ▶

Iteration 3:

In order to test the effectiveness of the alert we gave users scenarios that dealt with cases covered by the human officer or animal control. We asked them to walk through the reporting process based on the scenario. From our testing, we saw that many users were unaware of what to do when the scenario was not covered by the options shown and they did not read the help text that said to contact animal control. In order to solve this problem we created another version that had a large callout with a question mark that took reporters to another page if what they wanted was not on their list. This new page listed other possible scenarios they might want to report and reporters can see who to contact for each scenario by selecting the “what is this?” button.

Reducing Inappropriate Reporting

Describe the Type of Incident

Type of incident

Please note that the list below shows what is considered animal cruelty under PA and federal law. If you feel you are in immediate danger from an animal, it is always appropriate to call 911.

- Animal with inadequate shelter [What is this?](#)
- Animal living in improper conditions [What is this?](#)
- Animal tethered outside in improper conditions [What is this?](#)
- Physical violence against animal [What is this?](#)
- Neglect of animal's illness or injuries [What is this?](#)
- Other

Final Iteration:

We found that most users didn't read the informational text and did not know what to do when their case didn't fall under the listed categories. In some cases, they would choose a category despite the fact that their case didn't fall under it. To address these problems, we added an "other" field that would automatically redirect users to another page to report to the appropriate agency.

Contact Another Agency About Your Report

Your case may not fall under the jurisdiction of our humane officer.

Use this to see which agency you should report to instead.

- Animal that is lost, running-at large, or stray [Close](#)

Call Pittsburgh Animal Care and Control (Monday through Friday 7 a.m. to 3 p.m.):

412-255-2036

Call Pittsburgh Animal Care and Control (other hours):

412-255-2935

Dogs are not allowed to run loose in the City of Pittsburgh. Animal Care and Control will try to help ensure the safety of people in the community as well as trying to reunite the dog with its owner.

However, Animal Care and Control can't respond to calls regarding loose cats unless cats are contained (i.e. in carrier, cage, humane trap). You can call for access to a container.

- Animal being a nuisance or making disruptive noises [Report ►](#)
- Animal attacks, bites, or otherwise dangerous animals [Report ►](#)

Final Iteration: In this new page, we restructured the page to have the same UI interaction as the "Incident Type" section of the form. Testing revealed that having inconsistent interactions between this page and the original form led to participants not realizing what to do next. We hoped this would encourage users to read. We changed the side buttons to say "report" as a call to action message. Similar to the type of incident page, we shower information about who to report whenever a user clicked on a category. We changed the hierarchy to make the information easier to read and act on.

Giving Reporters Feedback



First Iteration:

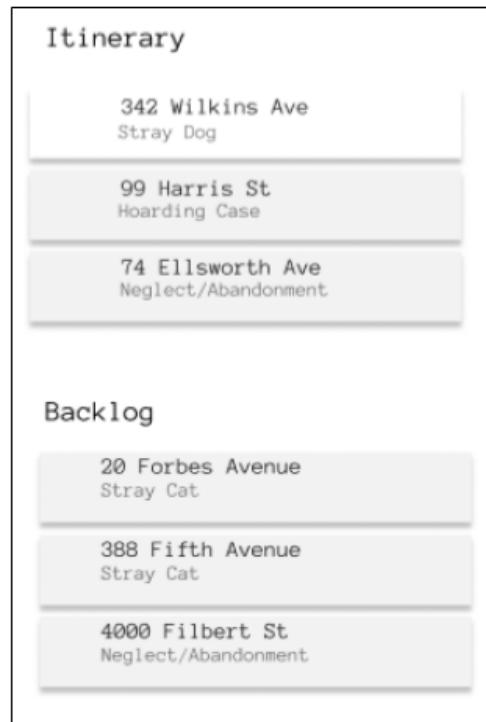
We created a simple email template that citizen reporters would receive as soon as an investigation was opened. While various citizens we spoke to expressed like for a wide array of mediums, this solution seemed to capture what most citizens wanted. It also was a low effort solution for the humane officer. While some citizens wanted personal phone calls this was not feasible considering how busy the HO typically is.



Final Iteration:

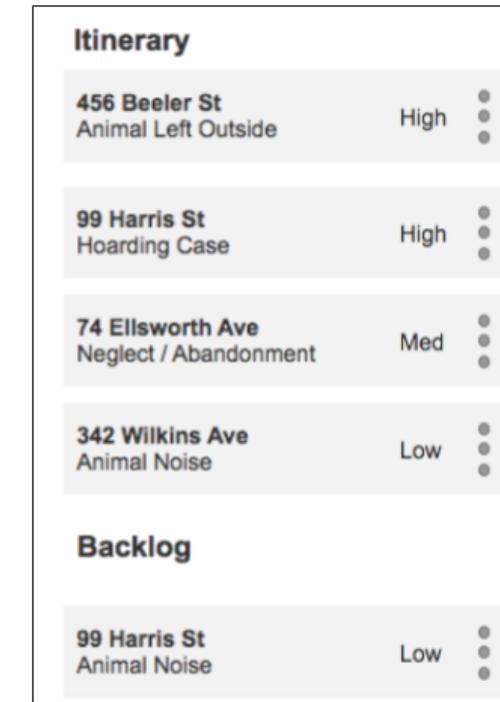
We decided that it was most appropriate to send an email when a case had been closed. This was due to the fact that the HO doesn't immediately check all cases. While the email is somewhat generic, we learned that the content was constrained by the fact that a lot of confidential information comes into play with humane investigations.

Allows officers to organize reports based on severity



Iteration 1:

All cases that enter the system are placed on the “Backlog” list. When the HO wants to plan which cases they want to attend to for the day, they are able to drag the cases from the “Backlog” and into the “Itinerary”. This initial iteration was meant to understand what information was most useful HOs to organize their cases.



Iteration 2:

Testing revealed that this backlog/itinerary area was a place to organize cases but also a place for the HO to make more informed decisions about their day. We added tags for cases that were urgent. This provide an indication to the HO as well as assist in which cases to prioritize. To better communicate that the cards were draggable, we also added indications on the right of each case. We originally planned for this itinerary list to be populated automatically by the tool, putting the most urgent and relevant cases into the itinerary.

Allows officers to organize reports based on severity and priority

Itinerary		Backlog 1	
X	Today 456 Beeler St Animal Left Outside	High	• •
X	1 Day Ago 99 Harris St Hoarding Case	High	• •
X	2 Days Ago 74 Ellsworth Ave Neglect / Abandonment	Med	• •
X	5 Days Ago 342 Wilkins Ave Animal Noise	Low	• •

Iteration 3:

From testing we found that it would be easier for the HO toggling between each section, instead of having both on one page and scrolling up and down.

Testing also revealed that HOs needed more flexibility on how the itinerary was population, so we added “plus” and “minus” buttons for HOs to move cases back and forth between the itinerary and backlog. We added the number of days since the incident was reported to help the HO better prioritize reports.

ITINERARY		
X	1221 Penn Avenue Animal with inadequate shelter Received on 5/15/2017	Urgent
X	122 Forbes Avenue Animal living in improper conditions Received on 5/15/2017	
X	43 Smallman Street Animal tethered outside in improper conditions Received on 5/15/2017	Urgent
X	343 melwood Animal with inadequate shelter Received on 5/15/2017	Urgent

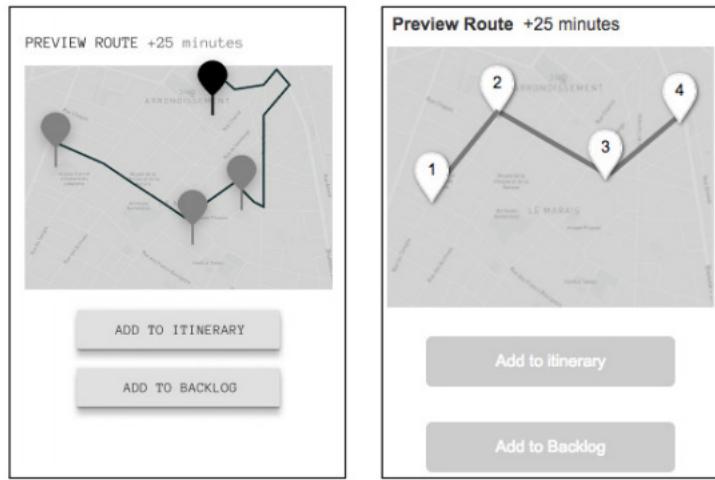
NEW	IN PROGRESS
+ 4000 Fifth Avenue Neglect of animal's illness or injuries Received on 5/15/2017	Urgent
+ 543 Wilkins Avenue Animal with inadequate shelter Received on 5/15/2017	Urgent

Final Iteration:

We decided to restructure the presentation of cases into three section: Itinerary, New, and In Progress. Rather than automatically populating the itinerary, we decided to have the HOs populate this themselves. This was done partially due to technological constraints on actually implementing this feature and the finding that HOs prefer more agency and expertise in creating itineraries. This design ultimately gave them more control and freedom.

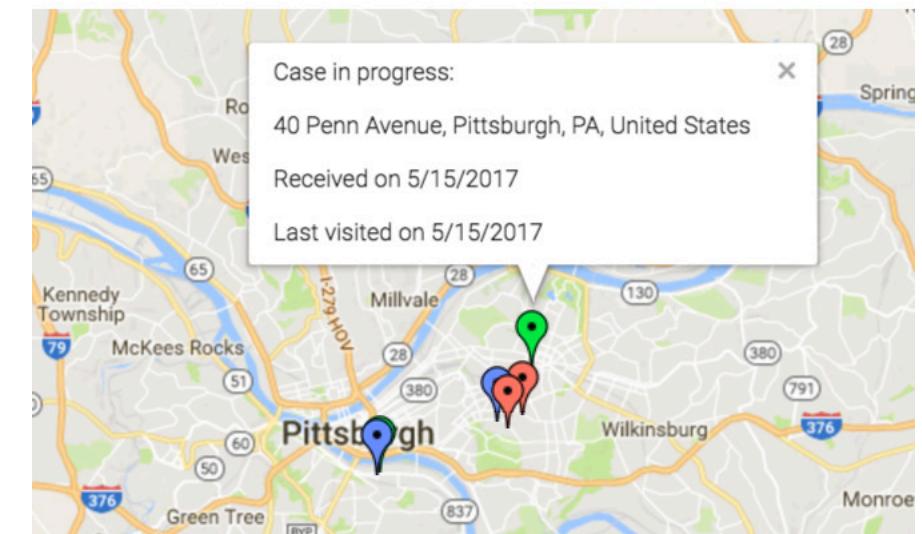
In having meta-data and urgency tags, we learned that this would be enough to help the HO prioritize and create itineraries on their own. Technology would support rather than constrain the HO's activities.

Providing location information & selecting cases to investigate



Humane Reports start trip

Hide Backlog



Iteration 1

Initial iterations only previewed potential routes and only displayed information about items that were in their itinerary. They had minimal information and focused specifically on communicating how a route would take place and how long it would take.

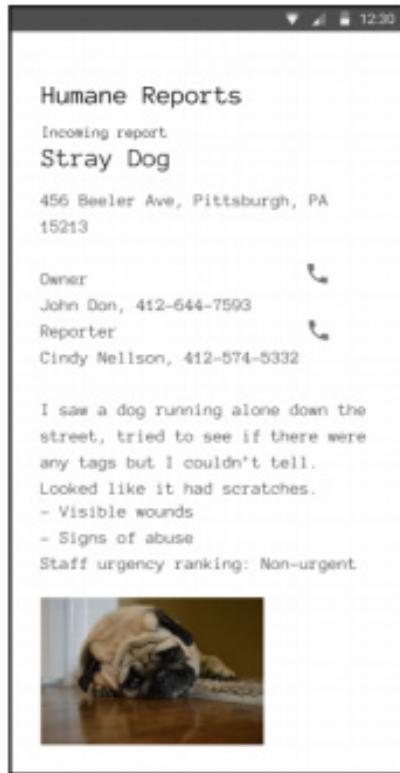
Iteration 2

In showing our initial design with staff, we realized that there was an opportunity to help HOs manage cases by efficiently planning routes. Officers want to visit the most crucial cases and any other cases close to it for efficiency. So, in the second iteration, we added a map overview mapping their itinerary with the potential to recommend the most efficient routes to visit cases. We showed cases that were in the backlog. Close enough cases could motivate the HO to visit them.

Final Iteration

Due to technical constraints, we couldn't provide route optimization features. However, we decided to keep the route planning and mapping features. In our final iteration, we added color to distinguish different types of cases to help the HO make better decisions to construct their own itineraries. We make case markers clickable to bring up relevant information and provide more context.

Storing reporter details and HO notes



Iteration 1

The initial note taking was comprised of information from the citizen report.

Iteration 2

When we showed our initial design to staff, we realized that the report section should also include note sections, for the HO to add information that they get from visiting the scene.

Initial Report

Animal Left Outside
456 Beeler St, Pittsburgh PA 15213

Owner
John Doe

Reporter
Anonymous, myu@gmail.com

Time of Incident: Ongoing

Animal Description
1 Dog (Black Lab)

Type of Incident
Inadequate shelter
Animal left outside
Extreme weather conditions

Additional Details
I have been seeing my neighbor's dog chained outside everyday and it looks really sad and hungry so I am worried about it

Report Notes

Owner Information

Owner Name
Jane Smith

Owner Number
412-123-4567

Owner Email
janessmith@gmail.com

Case status
Choose

Add Note

Add Animal

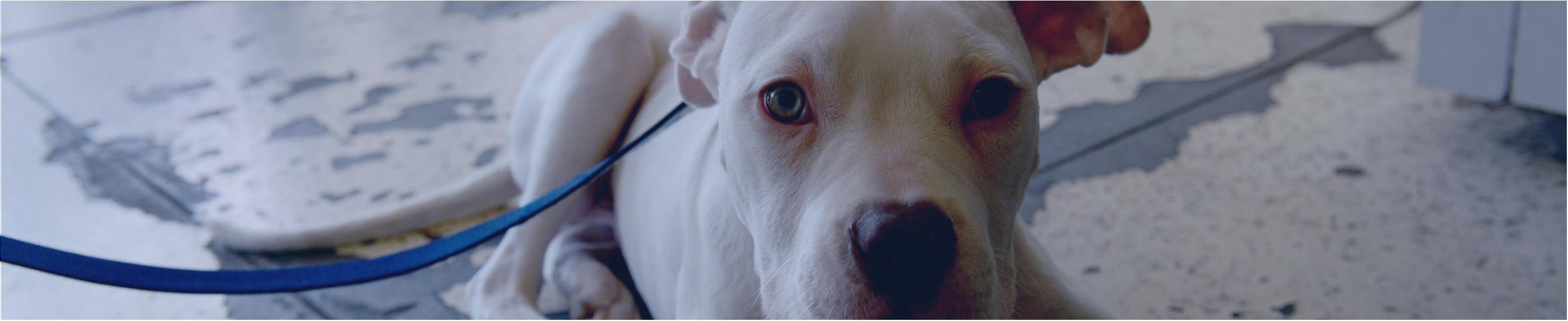
Notes

ADD CASE TO ITINERARY +

SAVE

Final Iteration

When we tried showing a note-taking feature to staff we learned that this section shouldn't be too structured. Each HO has their own way of investigating and storing information. Based on this feedback, we made the notes less structured, with open fields for the HO to fill in and supplement themselves.



Conclusion

Based on all of our work, we were able to deploy a functioning version of our solution for our clients. While not all of the technical features we hoped to implement were developed for this version, we believe that future designers and developers can pick up where we left off.

In order to help the Humane Animal Rescue shelter raise more interest and potential funding for their human investigations department, we also created marketing materials and demo videos about our project to show Pittsburgh Police, Animal Care & Control, and internal shelter stakeholders.

We acknowledge that this project can be developed further in the future and hope that ...

Appendix

Technical Documentation

Final deliverables

Google Drive folder - <https://drive.google.com/drive/folders/0B-qzOxOPx-3VXNFlheklBa3J3SmM?usp=sharing>

Technical Documentation

Deployed website links

Humane officer dashboard - <https://tinyurl.com/animalcop-dashboard>

Citizen reporting form - <https://tinyurl.com/animalcop-reporting>

Technical implementation

Node.js

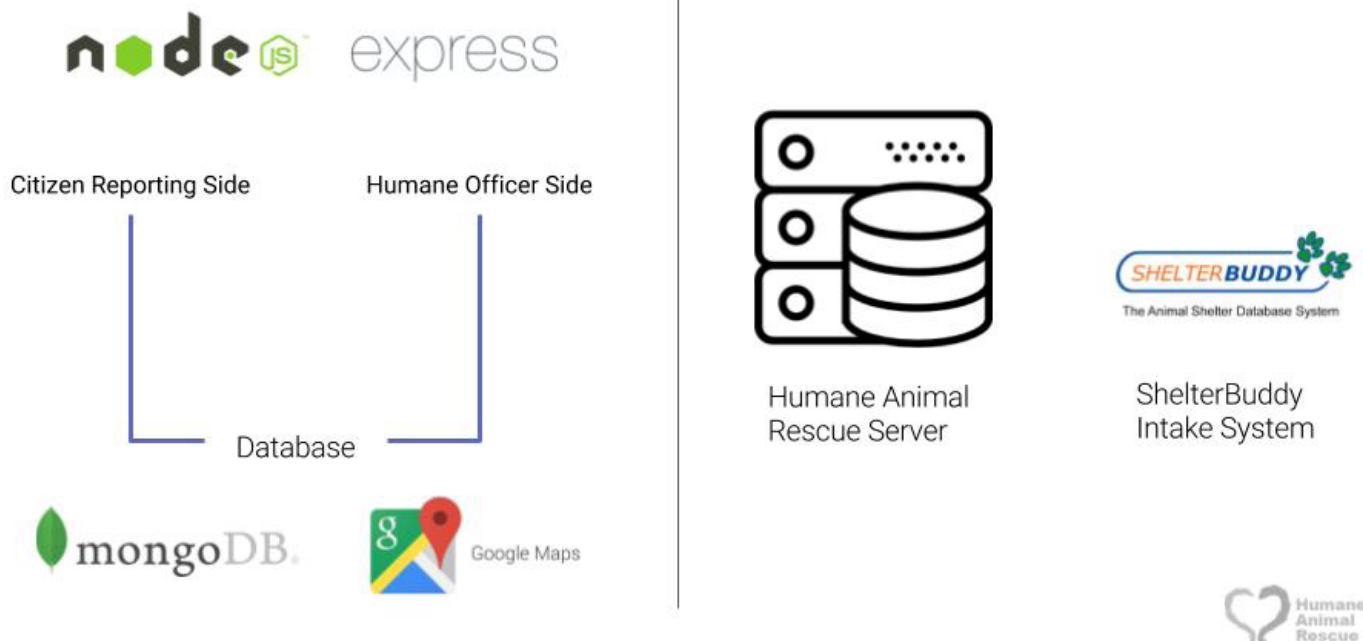
All node modules used are included in the project code base (EJS, Express, Body Parser, etc.)

Google Maps API

MongoDB database hosted on mLab (<https://mlab.com/>)

Website hosted on Zeit (<https://zeit.co/>)

Please contact Maggie Yu (maggie9595@gmail.com) if access is needed to any of the accounts above



Technical Documentation

Features to be implemented in the future

Most of the core functionality of the application has been implemented by the team and can be seen on the deployed version of the websites. In-line comments describing the existing features can be found in the code base.

The features included below were unimplemented due to the team's time and resource constraints, but they are ones we think would be valuable to the application and Human Animal Rescue. Please note that some of the features already have a frontend and only require the back-end functionality to be finished in the future.

Citizen reporting side

- Shelter buddy integration
- Ability to upload multiple images within the form
- Restrict form submissions to Pittsburgh region addresses only

Humane officer side

- Shelter Buddy integration
- Authentication/authorization system
- Sort by date, urgency, and proximity for new and in progress cases
- Search for archived cases
- Ability to view, edit, and add notes to each report
- Automatic email notification to the citizen reporter when a case status is changed to in progress/completed
- Optimize route based on current itinerary (via Google Maps)
Save current itinerary order to database
- Automatic itinerary ranking to be suggested and reset by the system each day (potentially at 5AM)
- Suggested ranking algorithm
 - Use the urgency and how many days have passed to calculate the first/most important case and add it to the itinerary
 - Then in order to find the other 4 cases for the itinerary, re-calculated the importance of every other case with urgency, how many days have passed, and distance from the first case and get the top 4 from this algorithm
- Limit suggested itinerary to 5 cases only, but still allow the user to add more if they wish

Marketing Materials



Marketing Materials

