



Getting Tails Back on the Trail

Creating a Culture of Health and History
Along the Delaware and Lehigh National
Heritage Corridor

Mid-Year Report

Tech Clinic Fall 2017

Executive Summary

The 2017-2018 Technology Clinic is working on an interdisciplinary project that focuses on promoting activity and participation on the D&L Heritage Corridor with the goal of improving and tracking health within the Lehigh Valley. We have been working directly with St. Luke's University Health Network and the Delaware and Lehigh National Heritage Corridor on their joint program called "Get Your Tail on the Trail (GYTOT)," which encourages healthy living through activities on the D&L corridor. Our team is working on finding ways to increase activity on the trail, participation in the GYTOT program and making it easier to track activity. We are suggesting a multifaceted approach: technological (Apps), social (social media), and historical (incorporating the rich history of the region).

Through conversations with the clients and data collection in the community, we found that participants want an easier way to track their miles and activity in the program. As a result, we have begun working through the initial ideas behind an application that would help track miles on or off the trail based on geolocation. We also feel that retention and overall participation in the program could be facilitated through increased social initiatives such as programming and a platform for connecting with other members. Some of our recommendations to increase participation include partnering with local youth organizations, helping plan a five-year anniversary kick-off event on the trail and adding a social media component to the existing website. Additionally, we feel that promoting the historical perspective on the trail would be a way to encourage continued participation in the GYTOT program and appreciation of the trail.

Next semester, we plan to further develop the application, look into ways to track other health aspects, work on reaching out to more community organizations, interact with members of the community and program, help plan the five-year anniversary kick-off event to showcase new aspects of the program, and reinvigorate community excitement for the program.

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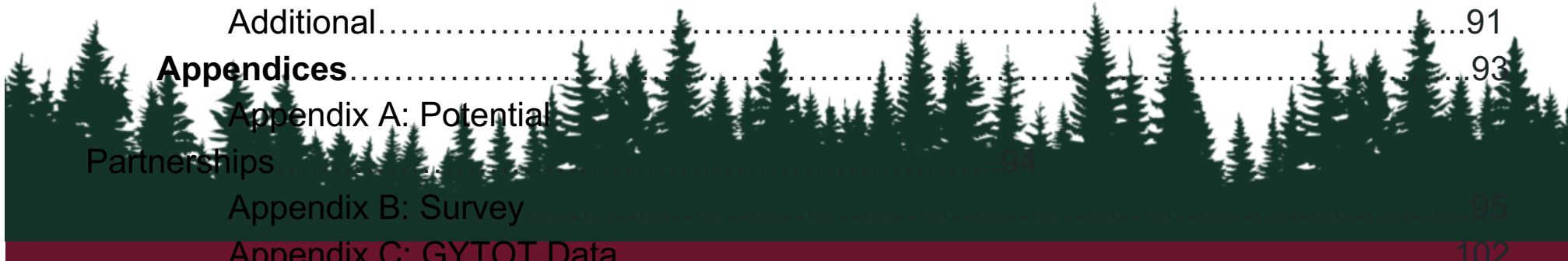
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MEET THE TEAM



Kamal Bookwala '20

Kamal is a Geology major from Allentown, Pennsylvania. In addition to Technology Clinic, Kamal is secretary of the South Asian Students Association, an EXCEL scholar in the Geology Department, a member of the Lafayette College Ambassador Program, and an Orientation Leader on campus.



Olivia Grigaux '19

Olivia is a Neuroscience and Women's and Gender Studies dual degree from Orange County, California. In addition to Technology Clinic, Olivia is captain of the Lafayette College Dance Team, a Kaleidoscope Social Justice Peer Educator, a member of the Lafayette College Ambassador Program, and an EXCEL scholar conducting research in the Neuroscience Department. After graduating from Lafayette, Olivia hopes to work with kids with developmental disabilities, with a focus in autism spectrum disorder.



Claire Grunewald '20

Claire is an International Affairs and Math double major from Bel Air, Maryland. In addition to Technology Clinic, Claire is the News Editor for The Lafayette and a member of the Lafayette Initiative for Malagasy Education trip going to Madagascar. Claire also works as a tour guide, on the marketing and media team for Recreation Services, and as a writing associate. She is also a member of Delta Gamma and Alpha Phi Omega.



Joshua Kruczek '19

Joshua is an Economics major and Government and Law minor from the greater Pittsburgh, Pennsylvania area. He is also a member of the Division I Men's Soccer Team on campus and values making a difference in the community as a student athlete through the Oaks Leadership Academy and Athletes 4 S.E.R.V.I.C.E. In his free time, Joshua enjoys playing and mixing music, travel and adventure photography, hiking, and video games. He hopes to pursue a career in finance post-Lafayette.



Gabrielle Martone '19

Gabrielle is a Computer Science major from Ramsey, New Jersey. In addition to Technology Clinic, Gabrielle is a captain on the Division I Women's Soccer Team on campus. She is also involved in the Oaks Leadership Academy, the Student Athlete Advisory Committee, and is co-chair of Athletes C.A.R.E.



Christopher Mayer '20

Christopher is an Economics and Philosophy major from Montville, New Jersey. Beyond Technology Clinic, Christopher is the captain of the Lafayette Debate Team and a participating member of the Lafayette Speech Team. He also coaches high school speech and debate and is an EXCEL research assistant for the German department.



Dan Bauer

Dan Bauer is founder of (and a longtime participant in) the Lafayette Technology Clinic Program. His educational background is in Engineering, Journalism (BA San José State University), and Social Anthropology (PhD University of Rochester). He served in community development in the Peace Corps in Perú. He has conducted long-term anthropological research on community level economics and politics in Ethiopia and rural Mexico. He is a photographer and has a passionate curiosity for problem solving.



Lawrence Malinconico

Professor Malinconico is completing his 29th year as a faculty member in the Department of Geology and Environmental Geosciences at Lafayette and is the Director of the Technology Clinic. His research areas involve volcanology, tectonics and geophysics and this has taken him to over 20 different countries. Additionally he is currently working with a team of faculty and students developing Apps for tablets for the digital collection and display of geologic field data.

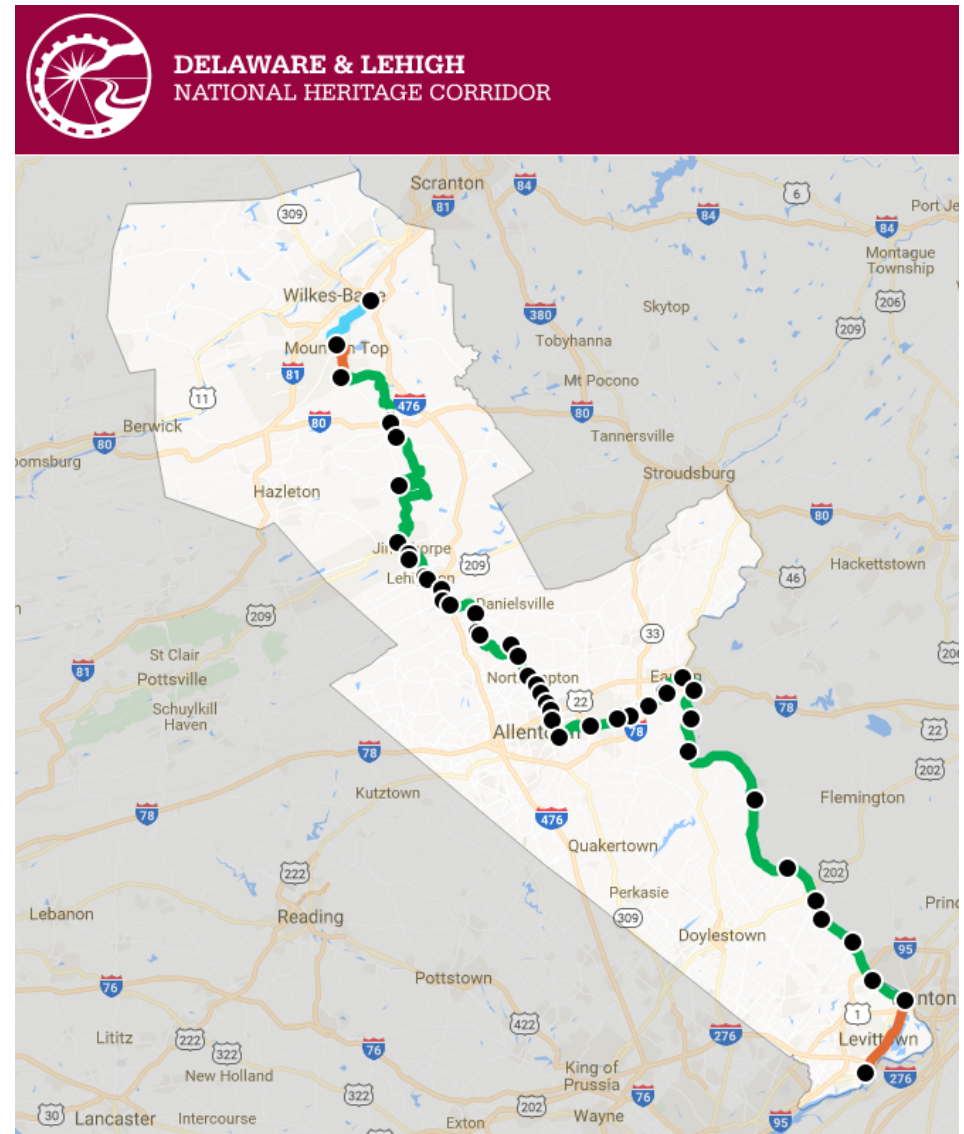
As director of the Lafayette College Technology Clinic Professor Malinconico has been involved in over 20 different projects that have examined issues of urban ecology & food justice, pandemics, museum development, community planning and preserving historical records.



BACKGROUND

The Charge: Creating a Culture of Health and History Along the D&L National Heritage Corridor

Lafayette College Technology Clinic was charged with the task of promoting the “Get Your Tail on the Trail” (GYTOT) program in order to promote health and enjoy the history and natural setting of the D&L trail system. The team was given direction by the Delaware and Lehigh National Heritage Corridor and St. Luke’s University Health Network, the two clients for the project. This task involves finding a way to encourage members of the GYTOT program to log their miles onto the St. Luke’s website; finding a way to evaluate the efficacy of the program from a health perspective; and promoting and preserving the D&L Trail (the old mills, locks, geology, wildlife, etc.). This project has been an intellectual challenge combining many areas including: computer science, history, economics, geology, and art.



Clients



St. Luke's University Health Network: St. Luke's is a regional nonprofit health network located in Eastern Pennsylvania and in New Jersey. They strive to create care for the communities by administering top quality health care, promoting ideals and programs that promote a healthy lifestyle, and maximizing the satisfaction of their patients and employees.



Delaware and Lehigh National Heritage Corridor: Delaware and Lehigh National Heritage corridor, most commonly known as the D&L, is a 165 mile long stretch of a historical trail and national park that begins spans five counties from the Lehigh Valley and ends in Bucks County. D&L promotes a nature and history filled locations that is friendly for people and pets alike to enjoy.



Get Your Tail on the Trail Program: St. Luke's partnered with D&L to form the *Get Your Tail on the Trail Program*. This program strives to get people out and exercising through a program that allows you to log your miles and earn prizes for reaching a mileage goal. There are two main challenges one can participate in: the *165 Mile Challenge* and the *30/30 Challenge*. The *165 Mile Challenge* occurs from May 1st to November 1st, and challenges you to walk, run, or bike 165 miles to obtain various prizes at the end of the challenge. The *30/30 Challenge* held in the winter months of February or March, strives to get people to continue to exercise throughout the winter.

Client Objectives

After our initial meeting with the clients at the start of the year we decided it would be best to divide the project into three separate sections and creating smaller teams within the teams to tackle problems on multiple fronts:

1. Technological

- i. Easier way to log your miles
- ii. Creation of an app to automatically or more easily log miles

2. Social

- i. Increased participation on the trail
- ii. Increased youth population on the trail (i.e creating programs through youth organizations)
- iii. All activities can be logged regardless location

3. Historical

- i. A better representation of the rich history the trail has to offer
- ii. Complete this through increased signage, an app, or a scavenger hunt



D&L National Heritage Corridor

The D&L Trail is a 165-mile long multi-use trail stretching from near Wilkes-Barre in the north, to Bristol in the south, following the Delaware and Lehigh River Valleys. The trail spans three distinct regions of Pennsylvania geography.

The first is the Anthracite Region, where the trail passes through Luzerne and Carbon counties. Anthracite coal, or hard coal, was extracted from this region, which helped stoke the American Industrial Revolution.

The second region is the Lehigh Valley Region, where the trail runs through Lehigh and Northampton counties. Running along the Lehigh river and the Lehigh canal, this portion of the trail is home to some of America's earliest industry, along with some of its most critical industrial cities, like Allentown, Bethlehem, and Easton.

The third region is the Delaware Canal Region and it lies along the Delaware canal, passing through Bucks County. The most historic segment of the trail, the D&L trail not only runs along the scenic Delaware Canal and river, but also passes hundreds of monuments, including the place where George Washington crossed the Delaware in 1776. Designated a National Heritage Corridor in 1988, the D&L Trail works diligently to both preserve and make accessible Pennsylvania's centuries-old heritage.



Project Significance

The **Get Your Tail on the Trail Program** has become an important initiative within the Lehigh Valley Community to promote daily exercise on the already established “free gym” that exists within the area: the Delaware and Lehigh Canal Trail. This program creates a connection between the health benefits of daily activity and outdoor exposure, the social importance of group interaction, and the historical importance of the region and the trail itself. While the program is currently serving as this bridge, the potential for its strengthened integration in the community is extremely important in increasing the program’s sustainability. With a long-lasting, community-based and supported program such as Get Your Tail on the Trail comes the communal mindset of overall healthy living that will perpetuate participation in the program. Making participation easier through technological solutions to make logging activity easier will also provide more available and accurate information to demonstrate the health benefits associated with increased, daily exercise.

Our team has identified several overall community benefits that result from the maintenance, promotion, and increased accessibility of the Get Your Tail on the Trail program such as:

1. Health Benefits
2. Social Interaction
3. Community Engagement and Programming
4. Lehigh Valley Connectivity
5. Historical and Nature Education and Appreciation

APPROACH

Methodology

1. **Preliminary Discussion:**

During our first meeting the team was informed of the clients and their general problem(s) by Dr. Malinconico and Professor Bauer. Made ourselves familiar with our project by posing initial questions regarding the details of the project and informally proposing ideas to spark more specific avenues of thought. Further, prepared for our initial client meeting.

2. **Initial Client Meeting:**

The team met with the clients (Kenneth Szydlow of St. Luke's; Elissa Garofalo, Brian Greene, and Patrick Stephens of the D&L) and gained a more detailed understanding of the client's' goals for our project by meeting together.

3. **Identify Key Goals:**

After discussion and reflection of the initial client meeting our team highlighted the most significant goals presented by our clients in order to move forward in generating our solutions. Among the most significant were (1) tracking/logging mileage, health, and location data more easily, (2) increasing and sustaining engaged participation within the program, and (3) increasing the historical awareness of the D&L Trail of users along the Trail.

4. Assigned Specific Divisions:

Our teams then split into subgroups to specialize and more efficiently pursue the specific goals of the clients. Gabrielle, Josh, and Chris represents the Technical Division in working on more easily recording mileage, health, and location data more easily. The Social Division consists of Olivia and Claire who work to increase and sustain engaged participation within the program. The third and final division created was the Historical Division represented by Kamal and Chris to increase the historical awareness of the D&L Trail to users along the Trail.

5. Biked Along Trail:

The Tech Clinic team then biked along the trail from the trailhead on the south side of Easton to Freemansburg, a historical town along the trail approximately eleven miles southwest toward Bethlehem, and back. Through this our team was able to physically experienced the trail understand the current setting and state of the trail.

6. Additional Correspondence:

Olivia then reached out to elementary and high school teachers and principals in the Easton Area School District to propose ways in which we can get Easton's youth population more active on the trail. Kamal and Chris met with the archivist at the National Canal Museum and reached out to librarians via phone from the Northampton County Historical and Genealogical Society to gain more information, specifically through before and after photos, of sites along the trail today.

7. Quarterly Client Meeting:

Met with Kenneth Szydlow, Elissa Garofalo, Brian Greene and phoned in Todd Nemura and Catherine DeBoeser to review the goals identified by our group and the solutions proposed by each division. Through this meeting we received feedback on the group's ideas and gained a broader understanding of the priority of the client's goals.

8. Create and Conduct Survey:

We then decided to create a survey to be distributed to users of the trail, encapsulating both members and non-members of the GYTOT Program. The survey was created to understand the tracking devices or apps the respondents use. It also us helped gain further insight into whether or not the current users would be interested if the Program had an app that linked with its website so miles could be logged more automatically.

9. Adjusted Approaches:

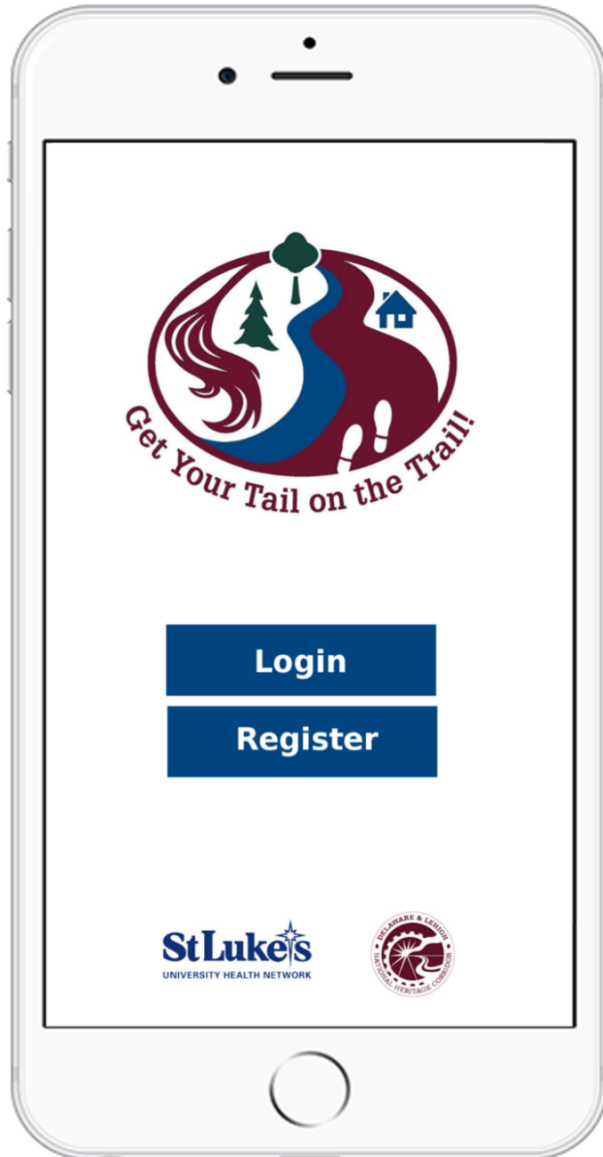
After reviewing and analyzing the data collected from the survey we adjusted the solutions discussed in the quarterly meeting to better fit the programs users. This allowed for a better understanding of the solutions and the convenience it would bring to the users.

10. Generate Preliminary Solutions:

Created clear solutions of the identified goals to be presented to our clients. The solutions are ideas which the group felt was feasible for our clients and ones that would have a lasting impact for the Program.

Data

Collection Process



As we brainstormed ideas and approaches for a solution, we wanted to gather information to help us narrow our approaches. We thought that valuable information could be gathered from not only Get Your Tail on the Trail users, but also users along the trail in general. Their feedback of the program and trail via survey has proved to be very helpful and, in fact, supported a specific solution of ours: **Creating a Get Your Tail on the Trail app.**

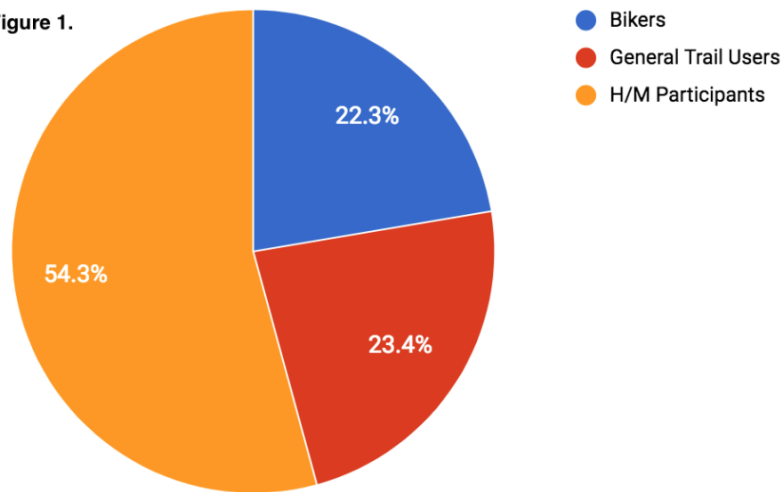
Initially, we created the survey and handed it out to users on the trail. This sample of 94 subjects is referred to as the “Physical Group” since the surveys were distributed and completed physically on the trail. Because the surveys were distributed at three specific events to different groups of people (in terms of activity), this sample consists of three subgroups: Bikers, general users on the trail, and half marathon runners. The biker group consists of colleagues that Dr. Malinconico rides with on the trail. To gain this data from them, he distributed the surveys throughout the group one day during one of the group’s rides. For the subgroup of general trail users, data was collected from both members and non-members of the Get Your Tail on the Trail Program during the Get Your Tail on the Trail’s Program’s 165 Mile Challenge Finish Event for 2017.

Although the event was affiliated with the Get Your Tail on the Trail Program, there were non-members participating at the event to whom the surveys were distributed as well. Therefore, this subgroup is referred to as consisting of general users on the trail. The third and final subgroup in this sample are the half marathon (H/M) participants and the surveys were distributed to them at the 2017 D&L Half Marathon Run and Walk. The makeup of the total sample is illustrated in Figure 1 below.

Although the data from the following questions in the survey are not separated in terms of these subgroups, it is important to note the activities that the subjects in this sample tend to perform. Moreover, before we continue, since the surveys were distributed at these events at our convenience (we distributed surveys to whoever was near and willing to complete it), it is essential that we acknowledge the possibility of convenience bias being induced in this sample which would confound the data.

Subgroups within the Physical (Survey) Group

Figure 1.



As we analyze the results of the Physical Group, we will compare its results question-by-question with that of another sample we gathered, this time online via Google Forms. A Google Forms survey link was sent to people subscribed to the Get Your Tail on the Trail Program's email list and asked them to complete the same survey for a chance to win an Amazon gift card. By the deadline of the survey (a week later), 449 surveys were completed. Not only does this larger sample produce more consistent results, but it also illustrates the effectiveness of the Program's email list (which has not been used in a considerable amount of time). As we move on throughout this section, this sample will be referred to as the "E-Group" since the data was distributed and collected via email online. Since the survey was distributed at the same time, it does not consist of any subgroups like those of the Physical Group.

Despite the larger sample size of this group, it is essential to acknowledge the possibility of volunteer bias (only the most passionate users subscribed to the email list will complete the survey) confounding the data even though the sample size is larger than that of the Physical Group.



flaticon.com

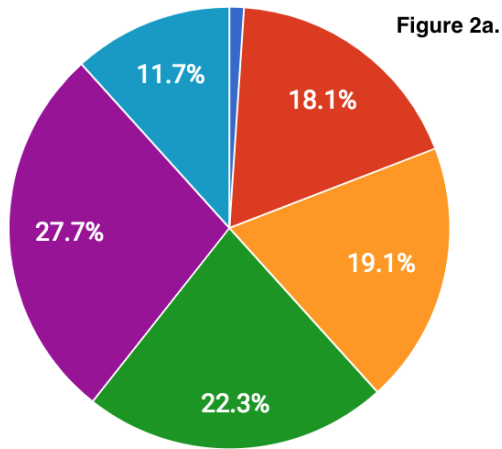


Demographic Results

Please identify your age group.

Physical Group

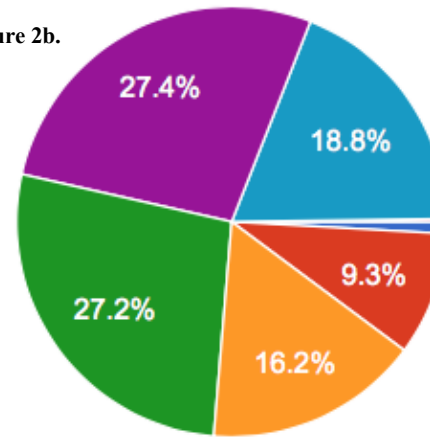
- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 and over



E-Group

Figure 2b.

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65 and over
- 14



What gender do you identify?

- Female
- Male

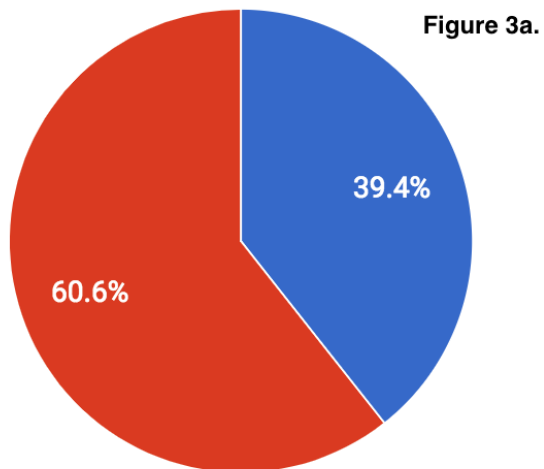
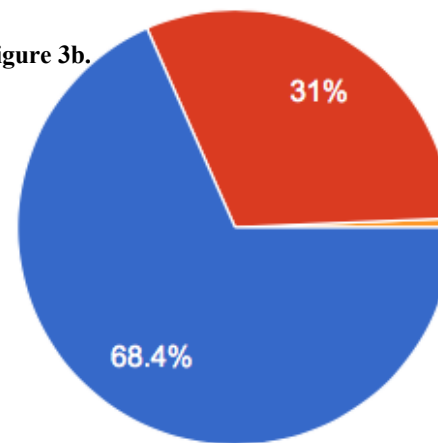


Figure 3b.

- Female
- Male
- Prefer not to say



These multiple choice questions gave us a feel for the demographics of the subjects in both samples. Both samples show that most users are between ages 45 and 64 while rarely any users are between ages 18 and 24. However, the gender makeup between both samples differ substantially as they appear to be quite inverse of each other. Approximately, men make up a two-thirds majority of the Physical Group while women make up a two-thirds majority of the E-Group.

Conclusion: This information tells us that (1) we are mostly targeting a middle-to-late-aged audience and (2) more men completed the surveys at the events while more women completed the survey online.

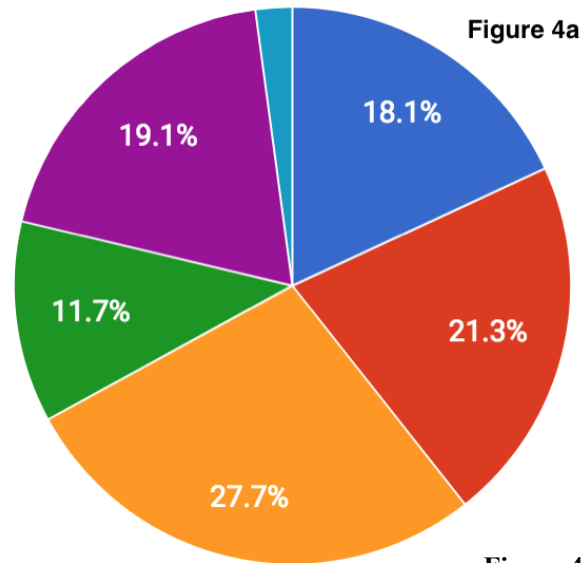


<https://tailonthetrail.org>

Trail Use Results

How often do you visit the trail?

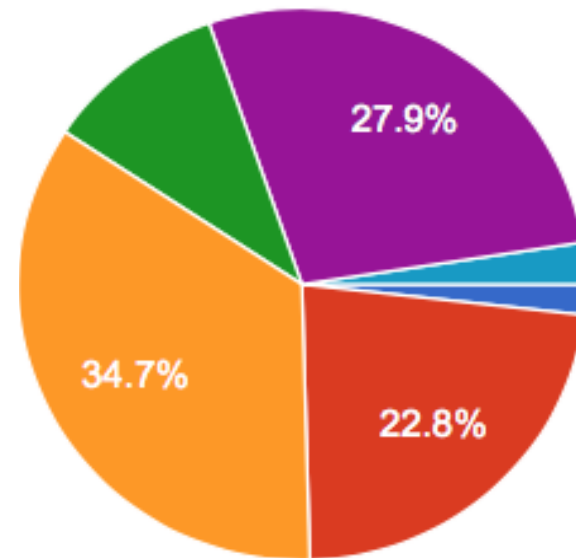
- This is my first time
- Few times a year
- Few times a month
- Once a week
- Several times a week
- Daily



Physical Group

Figure 4b.

- This is my first time
- A few times a year
- A few times a month
- Once a week
- Several times a week
- Daily



E-Group

This multiple choice question gave us an idea of how intensively individuals are using the trail. For the most part, both samples illustrate similar results in terms of the most popular options. Most users either visit the trail a few times a year, a few times a month, or several times a week. There is a considerable amount of subjects in the Physical Group who have only been on the trail once (it being their first time when they completed the survey). This could be due to the nature of the events where the surveys were recorded in that they attract individuals who have never been to the trail before. Therefore, this result should not be overanalyzed.

Conclusion: Most people use the trail a few times a year, a few times a month, or several times a week. However, this does not necessarily identify activity levels.



<http://delawareandlehigh.org/>

Program Results

Are you a participant in the “Get Your Tail on the Trail” program?

Physical Group

E-Group

- Yes
- No

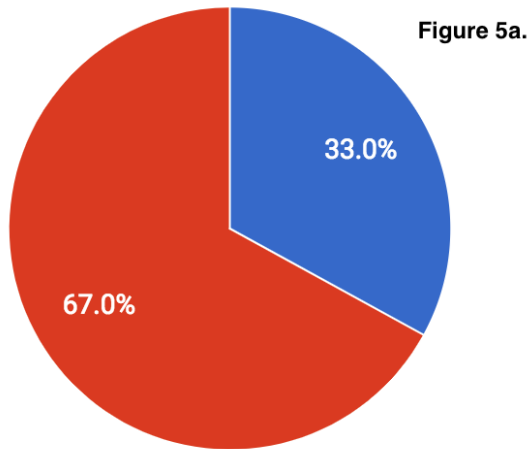
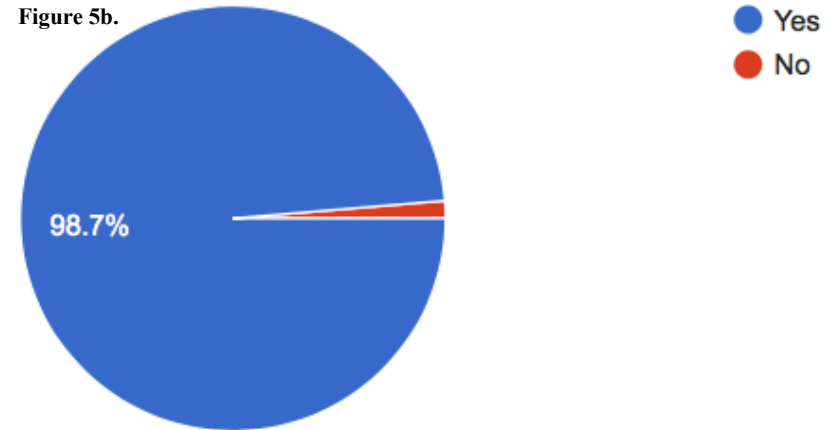


Figure 5b.



- Yes
- No

If you answered yes to the previous question, (how often) do you log your miles on the Get Your Tail on the Trail website?

- Yes
- No
- Occasionally
- Started to, but haven't for a while

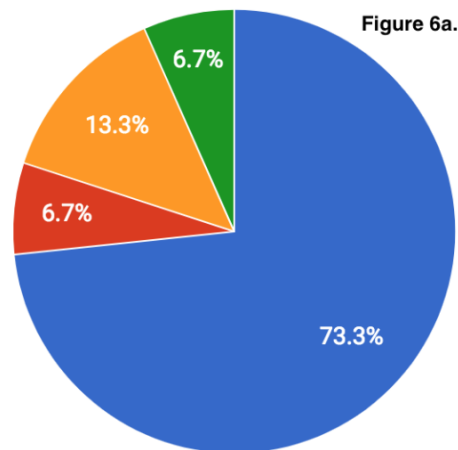
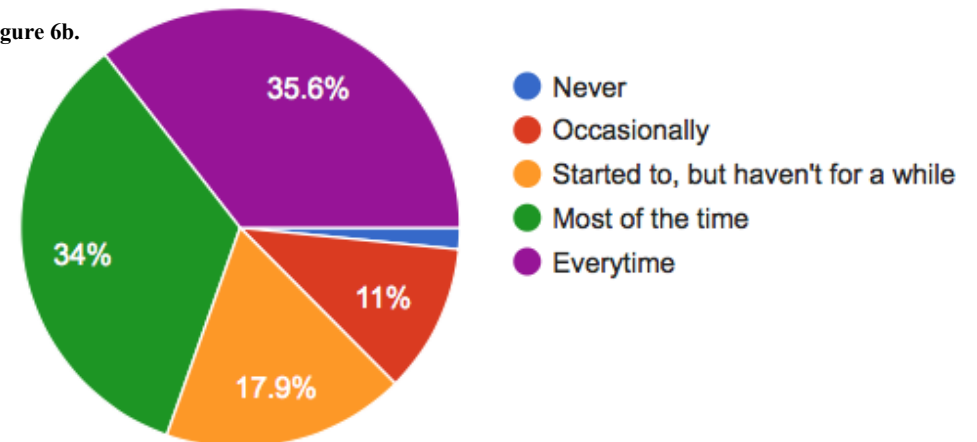
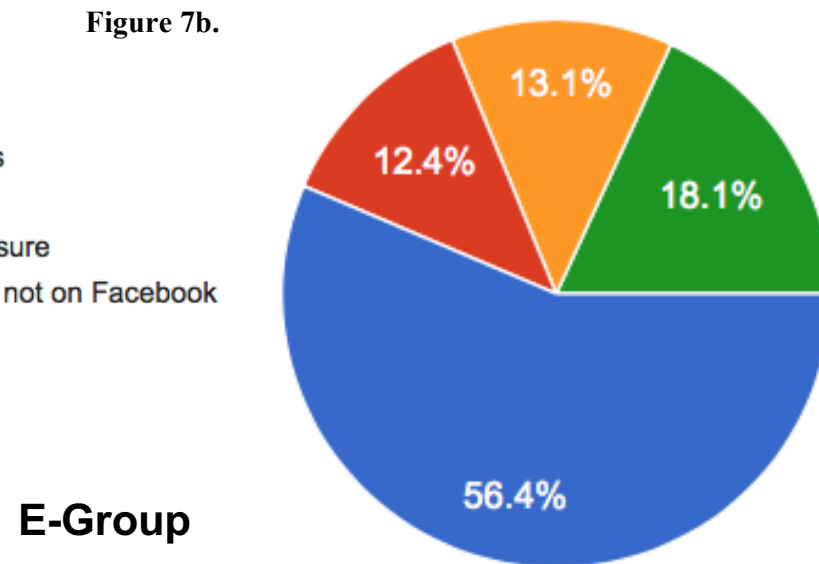
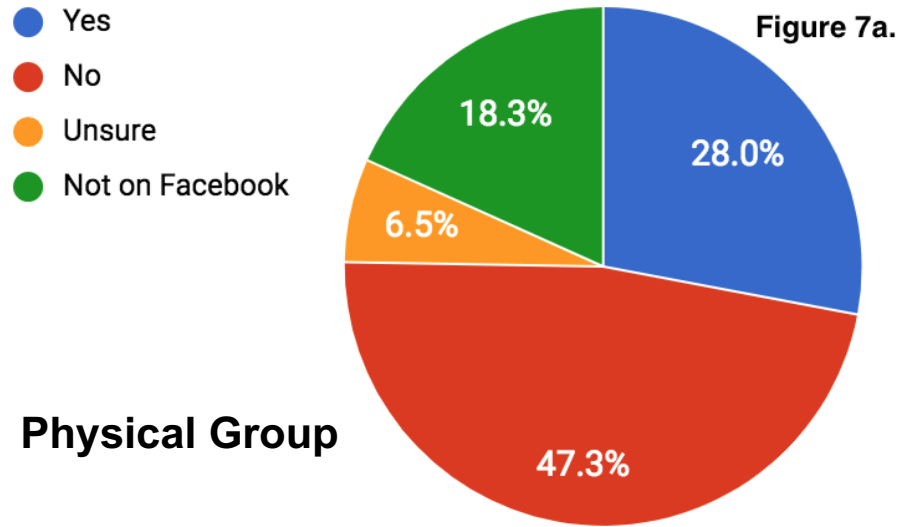


Figure 6b.



- Never
- Occasionally
- Started to, but haven't for a while
- Most of the time
- Evertime

If you are on Facebook, have you liked the “Tail on the Trail” Facebook page?



These multiple choice questions were asked to the subjects to help us better understand how many of them are registered in the Get Your Tail on the Trail Program, how much they participate in it in terms of logging miles, and whether or not they have liked the Get Your Tail on the Trail Facebook page (to see how many people consciously know that they liked the page, potentially implying regularly interacting with it). Subjects in the E-Group are all subscribed to the Program's email list, so the vast majority (if not all) of them should belong to the Program and therefore log miles fairly regularly and like the Program's Facebook page. On the other hand, subjects in the Physical Group do not necessarily belong to the Program since the events where they completed the survey are not exclusive to Program members and attract non-members as well. Moreover, due to a slight difference in options with the questions that asked if/how often members log their miles, the results appear quite different. However, they are most likely more similar than they initially appear. This is because "Yes" in the Physical Group's set of answers appears to encapture the "Everytime" and "Most of the time" options in the E-Group's set of answers. Therefore, it is very likely that an approximately three-quarters majority of subjects in each sample regularly (every time and most of the time) logs their miles.

Conclusion: Accounting for the difference in answers given to each sample, most participants regularly log their miles and have liked the Program's Facebook page.

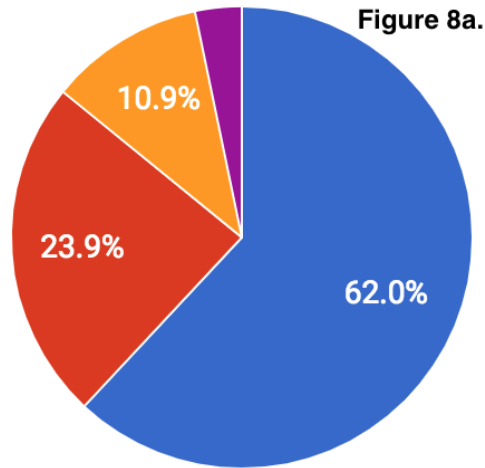


Smart Device Results

Do you own a smartphone?

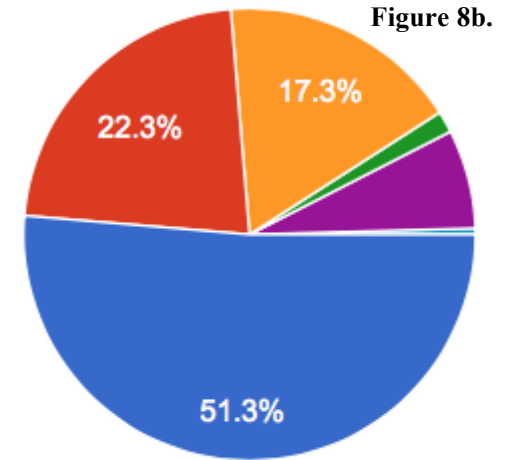
Physical Group

- iPhone
- Android
- Samsung
- Phone but no smartphone



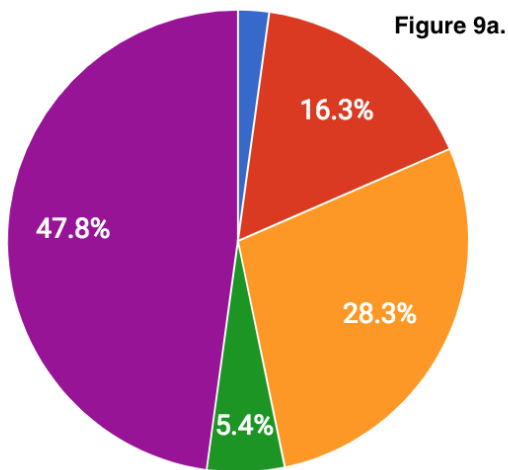
E-Group

- Yes; an iPhone
- Yes; an Android
- Yes; a Samsung
- Yes; other not mentioned above
- No; I have a phone, just not a smart phone
- No; I don't own a cell phone

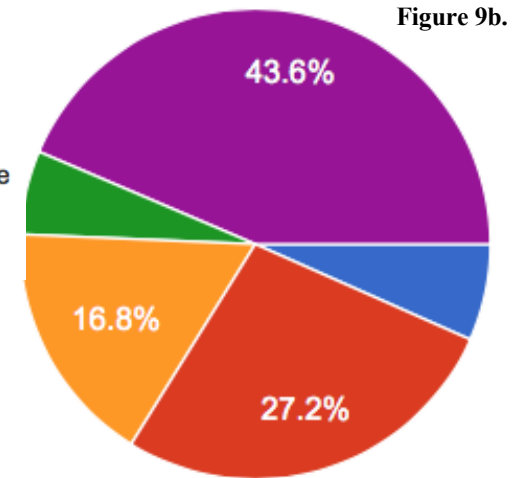


Do you own a smartwatch/fitness tracker?

- Apple Watch
- FitBit
- Garmin
- Other
- No



- Yes; an Apple watch
- Yes; a FitBit
- Yes; a Garmin
- Yes; other not mentioned above
- No



These multiple choice questions (with an open-ended section in addition to the “Other” options) gave us a feel for the kinds of cell phones and smartwatches/fitness trackers our audience is using. In both samples, the majority of subjects have iPhones while the majority of those remaining have Androids. It is important to note that Samsung smartphones are Android as well, so the total percentage of Android users in each sample is the sum of those two portions. However, this total in both samples is still smaller than the percentage of iPhone users. In terms of smartwatches/fitness trackers, a little under half of the subjects in each sample do not own one. If they do, most of them own either FitBits or Garmins. Apple Watches do not appear popular from these results.

Conclusion: Most of our audience has iPhones while almost half does not own a smartwatch/fitness tracker. If they do own a fitness tracker, most of them either own FitBits or Garmins.



support.apple.com



fitbit.com

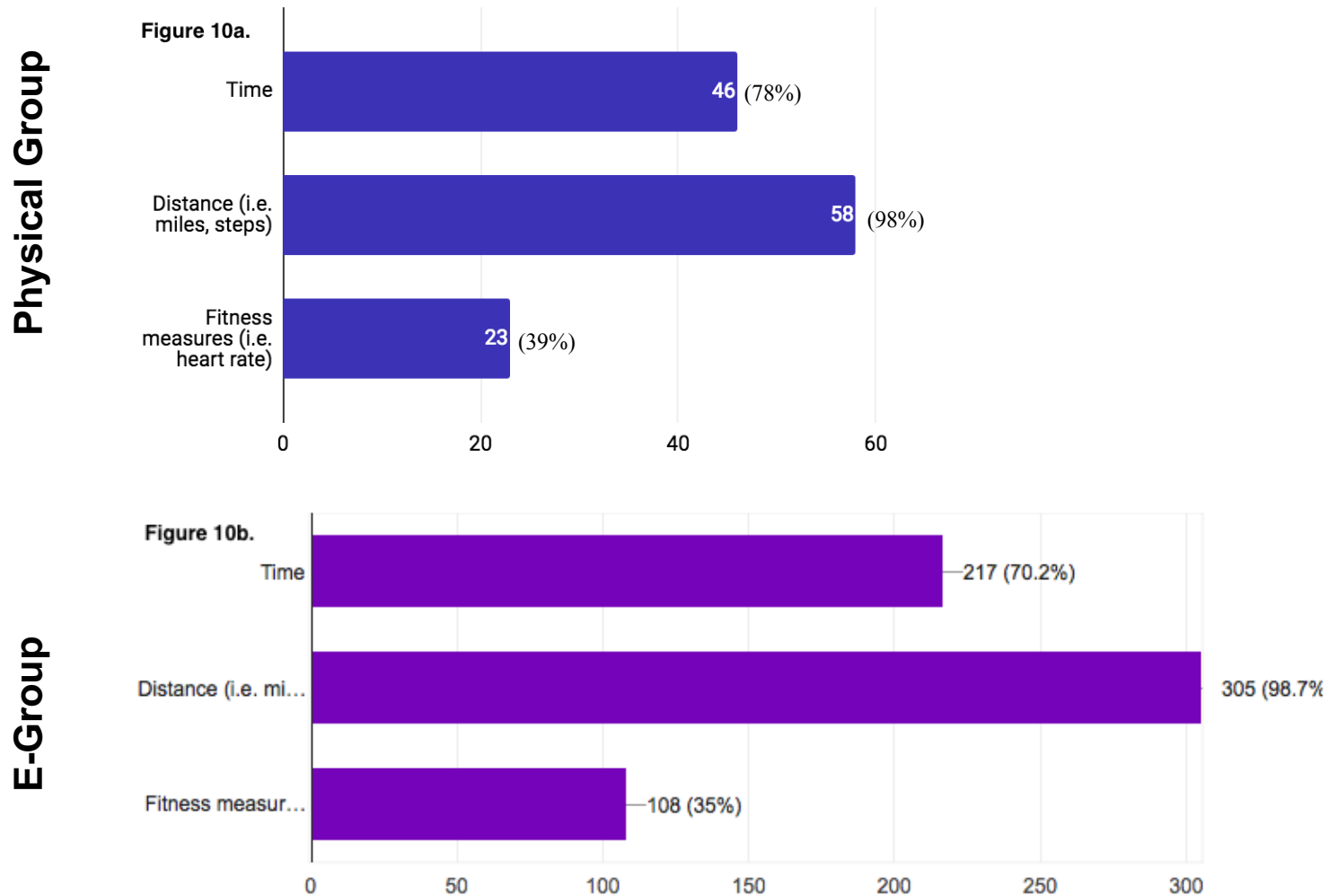


buy.garmin.com



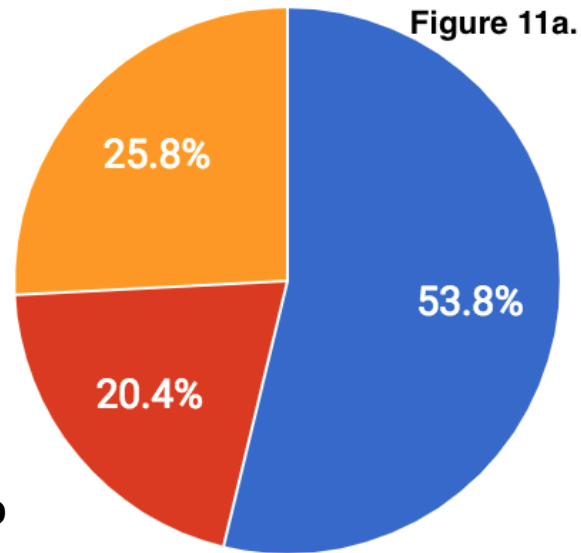
App Results

Do you use an app to track your activities (i.e. steps, miles, etc.)? If so, circle all that apply. If not, skip the question.



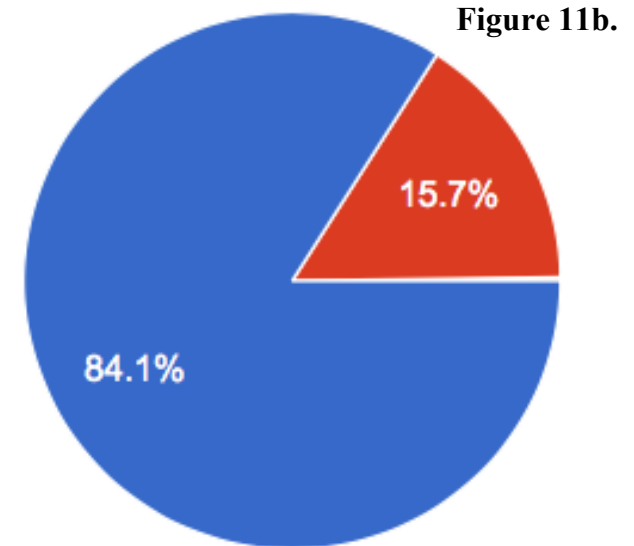
Would you be interested in having an app that would automatically log your miles into the Get Your Tail on the Trail Program?

- Yes
- No
- Don't participate in TotT program



Physical Group

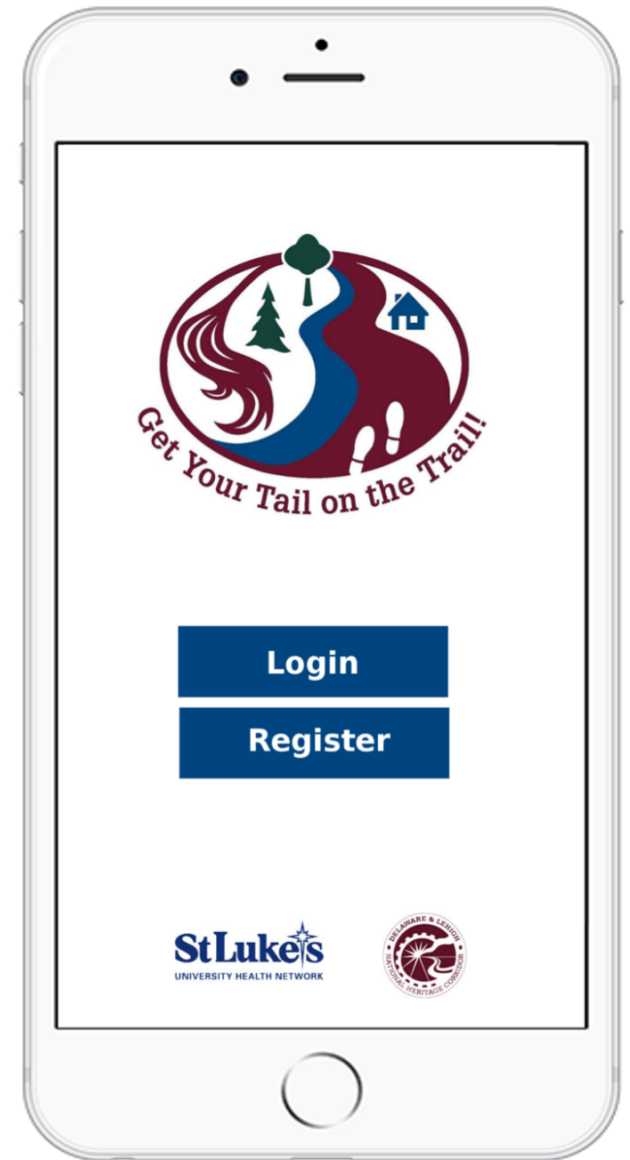
- Yes
- No
- I don't participate in the Tail on the Trail program



E-Group

These questions were included in the survey to get a better understanding of what our audience is tracking while they workout. Figure 10a. and 10b., respectively, show what our audience tracks while exercising for the Physical Group and E-Group. Both figures produced similar findings: Almost all subjects track distance while around three-quarters of subjects track time as well. Fitness measures, such as heart rate, are tracked considerably less. Moreover, we included the question above to see if this audience would like the idea of an app to make logging miles easier for the Program as the creation of such an app is a current solution of ours. Both samples appear to support such an idea/solution, even though around a quarter of subjects in the Physical group answered that they do not participate in the Program at all.

Conclusion: Distance and time (in that order) are the most popular variables our audience tracks while exercising. Furthermore, most of our audience is interested in the idea of an app that automatically logs miles to the Program.



“Love this program - such a great idea.”

“Thank you for this great program.”

“Keep doing what you’re doing. It’s great!”

“I enjoy the Tail on the Trail Program because it motivates me to go on the trails.”

Community Feedback*

“Love it ! Very motivating.”

“Thanks for the program! I’ve enjoyed being a part of it.”

“Great program...it motivates, sets goals and tracks progress.”

Observations

Bike Ride

September 30th, the team departed from Genesis Bike Store in Easton and biked 10 miles on the trail towards Freemansburg. The goal of the ride was to get a better understanding of the trail, Hugh Moore Park, attractions available on the way, and the types and number of people on the trail. We observed several things we feel are representative of the trail as whole, and that could be improved upon to increase participation.

Positives:

- Beautiful areas for picnics and community gatherings
- Hugh Moore Park's potential for GYTOT program events
- The historical preservation and maintenance of Freemansburg Park

Opportunities for Augmenting Improvement:

- Unmarked, overgrown remains of old structures
- Some confusing connections junctures (i.e. Parking lot by the Route 33 boat launch trailheads)
- Lack of attractions/activities for children on the trail
- Safety concerns, especially for children and women on the trail
- Lack of places to sit and relax (benches, picnic tables)



This was one of the unmarked structures we encountered on the trail. Others were commonly marked with graffiti.

Interactions with the Community

165 Mile Challenge Wrap-Up Event:

- Unexpectedly low number of people that turned out
- Facebook page said that 50 people were going to show up
 - Reality was closer to 10-15
- On going issue with inaccurate number of people showing up or not showing up to events
- Everyone that did show up though was very excited about the program, to be there, and to be walking together on the trail

D&L Half Marathon:

- Most participants were generally responsive and willing to respond to our survey, even though many did not necessarily know about the GYTOT program
- The D&L at the clean up for their Half-Marathon was grateful for any help that they could get and any extra hands
- Very clearly may need more people to volunteer and help out with tasks to relieve some of the stresses that large events can cause

SOLUTIONS

“I would ABSOLUTELY track my miles on TOT if there was an app!!!!”

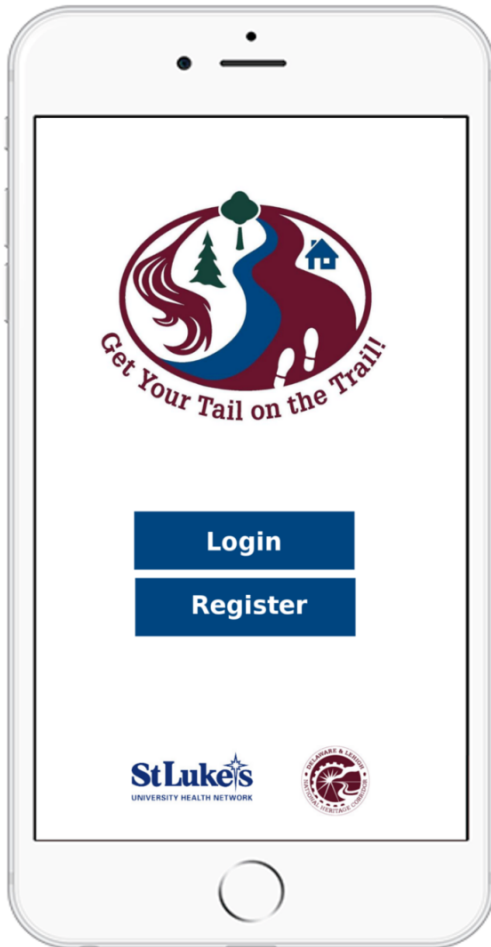
“It’s kind of time consuming to enter miles... under the current format of the site it takes too long to log your activities.”

Technological Solutions*

“Having an app that automatically logged my miles to tail on the trail would be
AWESOME!!!!!!!!”

“Logging miles on the new website tracker is cumbersome and time consuming.”

Creating an Application

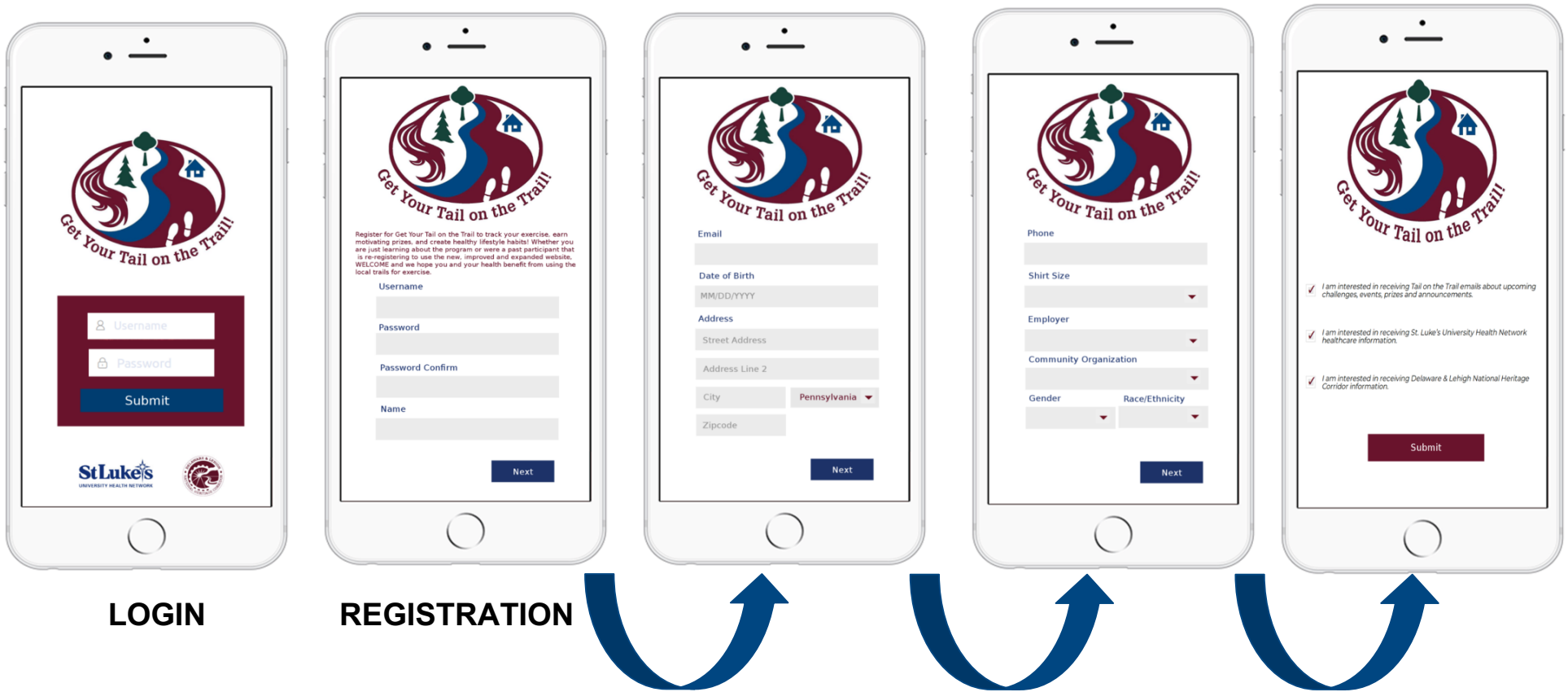


After considering various alternatives to track miles and reviewing the results of the surveys, we decided that the most efficient solution would be to create a mobile app. This app would use the GPS location services available on smartphones to locate the user while they exercise. The mobile app would sync to the database, keeping both the website and app up-to-date with the same data.

There are two options in which tracking location could be done. The first option, which is used in the app prototype, is using the GPS location services already on smartphones. The second option is using Google's API for geolocation. Geolocation tracks smartphones' locations relative to the distance the device is from nearby wifi or cellular towers. This works even when the device has no data service such as 4G LTE, so this could be very useful with the trail since there is no guarantee that devices will have service to provide an accurate location throughout the entire trail.

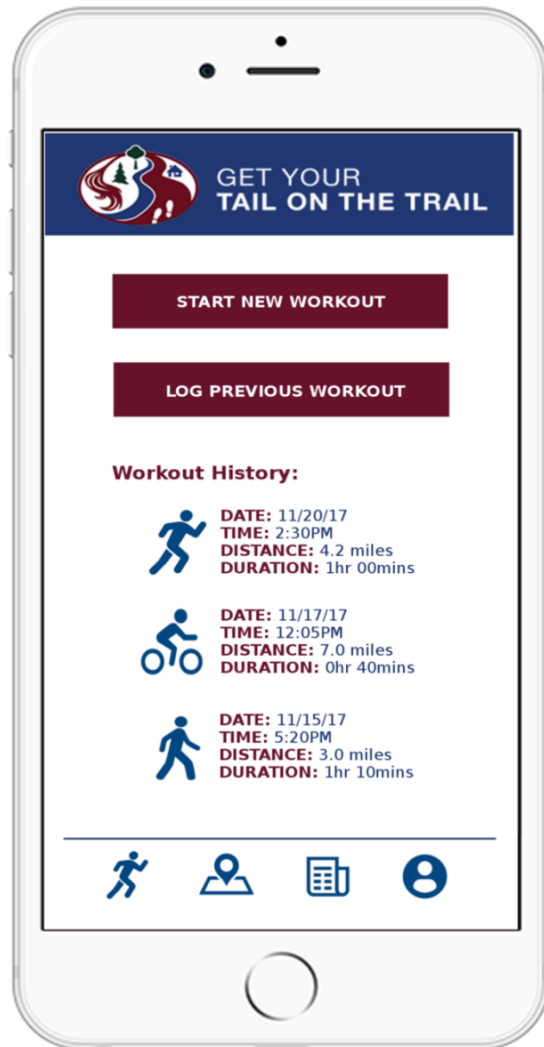
Since the majority of users range from 45-64 years old, we made sure the app follows a simplistic design. We created an illustrated prototype of the application to show how a user would use it to easily track miles, gather historical information on the trail, and interact with others. The smartphone to the left shows the initial screen the user would see upon opening the app. From this screen, the user has a choice of either logging in or registering to create a new profile. The login and registration follow the same protocols as the website administered.

Login and Registration



When the user clicks Login, the screen above will appear. When the user enters the information above and clicks Submit, the home screen will appear. Once the user selects register, the screen above will appear. The user will enter the information and click the Next button to walk through each of the following screens above. When the user gets to the last page they will select or deselect the boxes depending on their preference. After the Submit button is pressed, the user will be brought to the home screen.

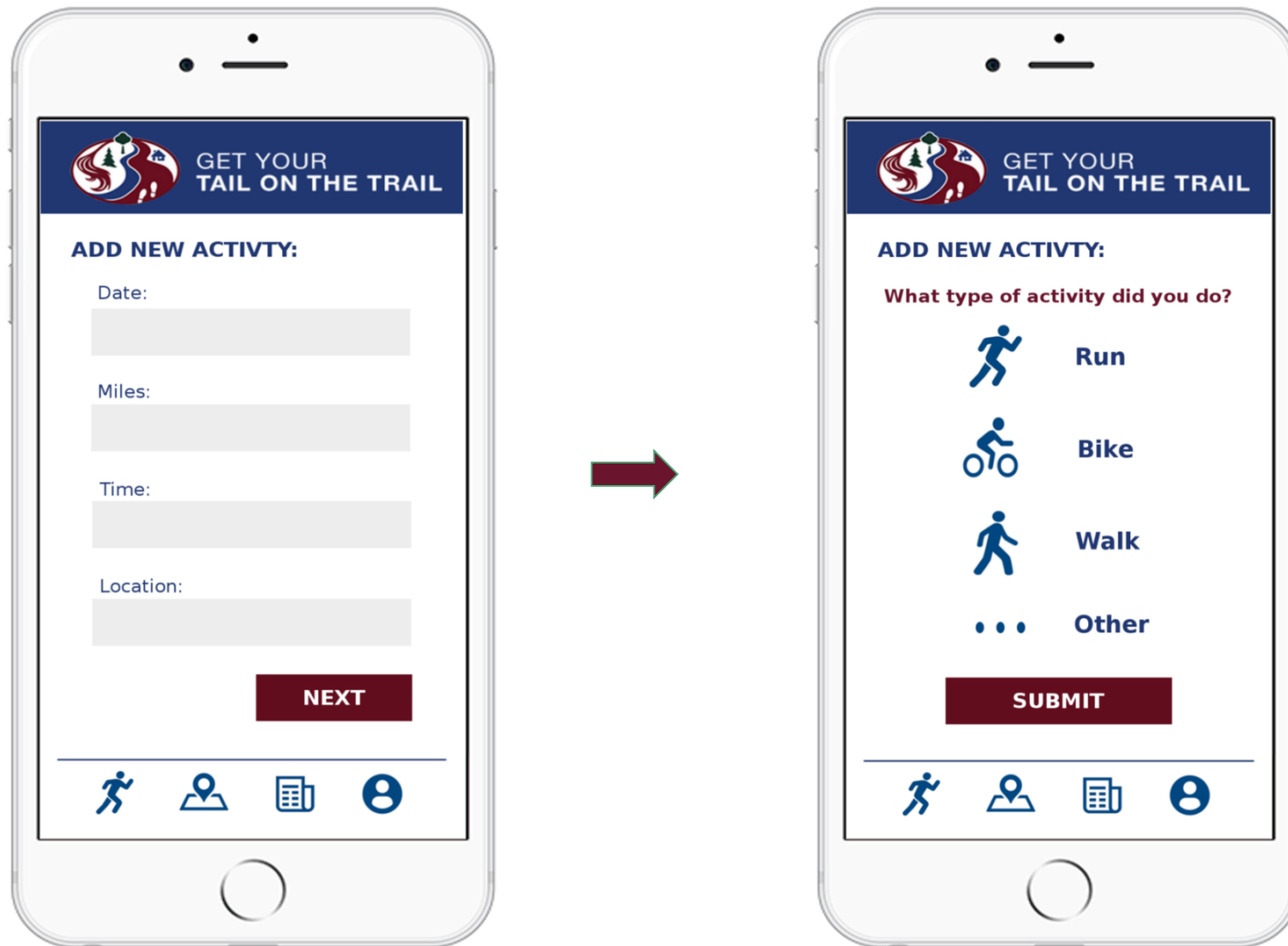
Home Screen



The user will then be taken to the home screen which is defaulted to the “My Workouts” page of the app. The My Workouts page is represented by the first icon (bottom-left corner) on the app’s main menu bar which is located toward the bottom of the screen. This menu bar allows the user to toggle between screens to navigate around the app. From left to right, the icons on the menu bar symbolize: My Workouts (home), Map, Newsfeed, and My Profile.

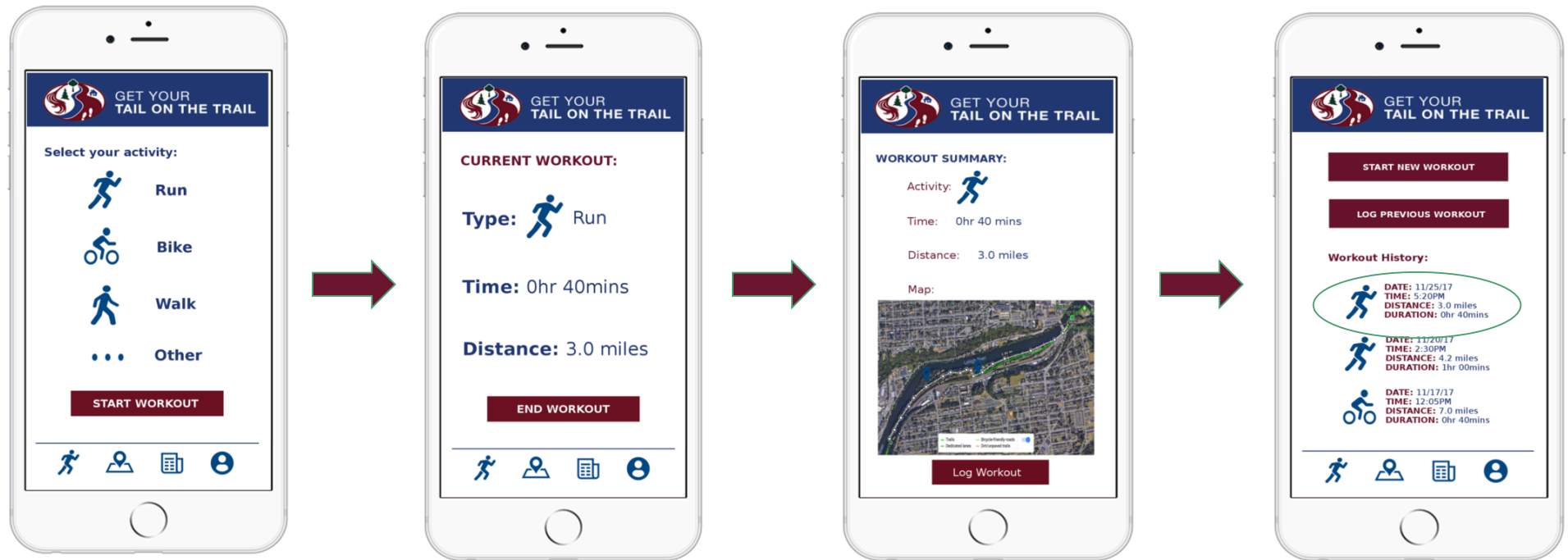
Specifically, on the My Workouts page, there is a Start New Workout button which will allow the user to start a GPS-or geolocation-tracked workout. If the user forgot to enter a prior workout (before they got the app, for example), the Log Previous Workout button allows the user to log it manually. Situated below these buttons, the Workout History section displays the previous workouts that were completed/logged for the user to scroll through.

Manually Log (Previous) Workout



If the user chooses the Log Previous Workout button, he or she will be able to log a workout manually by entering the data above. The information required here is the same currently on the website. The user will then enter the information and press the Next button to indicate his or her type of activity. Once that is completed, the user will be directed to select Submit and this previous workout will be displayed on the home screen under Workout History.

Starting New Workout

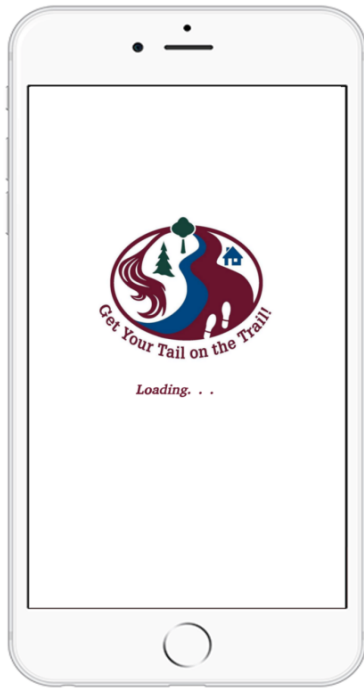


On the other hand, if the user wants to begin a new workout, he or she will do so by first selecting the Start New Workout button and then indicating the type of activity (on the Start Workout page). After this, the user will select the Start Workout button and the Current Workout page will appear. This page indicates that the workout has begun while GPS or geolocation has begun tracking the location of the smartphone. The distance and time will always be displayed live on this page. When the user completes the workout, they will select the End Workout button and the Workout Summary screen will appear.

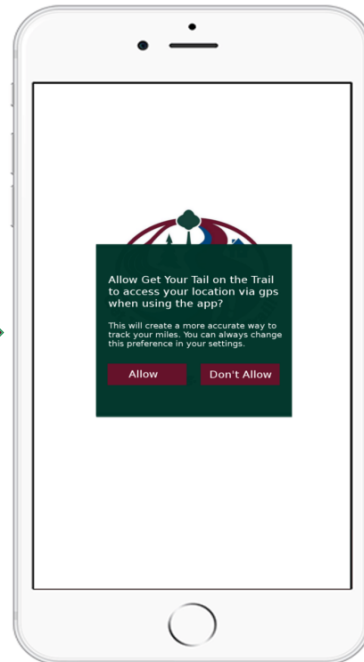
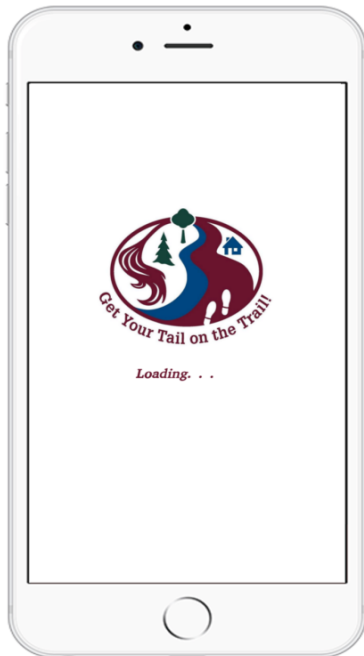
The Workout Summary screen provides the distance and time of the workout along with a map (powered through Google Maps) which shows a bird's-eye view of the distance covered by the user. Once the Log Workout button is selected, it will be saved and added to the Workout History section on the home screen.

Loading Screen: Initially Allowing

(I)



(II)



Tales Along The Trail:



Archival Photograph of Lock 44 at Freemansburg showing the locktender's house. This photo was taken in the late 1960s and is part of the Library of Congress' collection.



See it Now

Tales Along The Trail:



Archival Photograph of Lock 44 at Freemansburg showing the locktender's house. This photo was taken in the late 1960s and is part of the Library of Congress' collection.



Close

If the app is trying to load from page-to-page, the screen to the left will appear and allow for two different scenarios on this screen. The first is when the user logs-in after opening the app for the first time, a popup window will appear prompting the user to (1) allow the app to send them notifications and to (2) allow the app access to the phone's location services. This is done to (1) allow the app to update the user automatically with any activity going on within it and to (2) allow the app to use the phone's GPS/Geolocation features to track workouts. The user will be able to modify these settings in his or her phone's settings. The user will select either Allow or Don't Allow for each pop up window.

The second scenario occurs when the loading screen appears at any other time than the first. After initially logging-in, short fun facts about the history of the trail will also appear in a popup window. These facts will be randomly mixed allowing for new facts to be distributed to the user. The user can close the window at any time by clicking the X button in the upper right hand corner.

Allow Get Your Tail on the Trail to access your location via gps when using the app?

This will create a more accurate way to track your miles. You can always change this preference in your settings.

Allow

Don't Allow

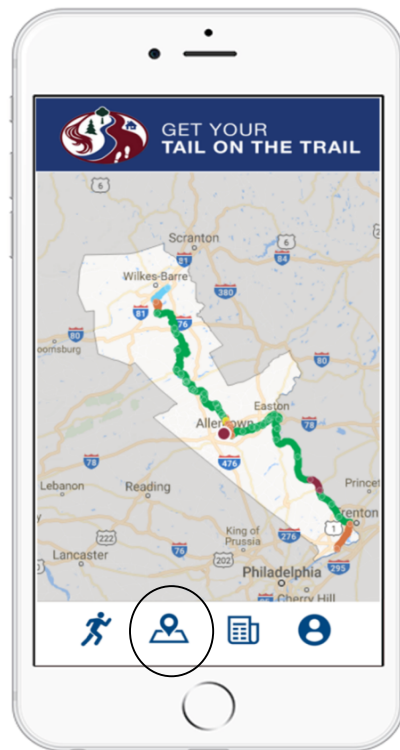
Allow Get Your Tail on the Trail to send you notifications?

You can always change this preference in your settings.

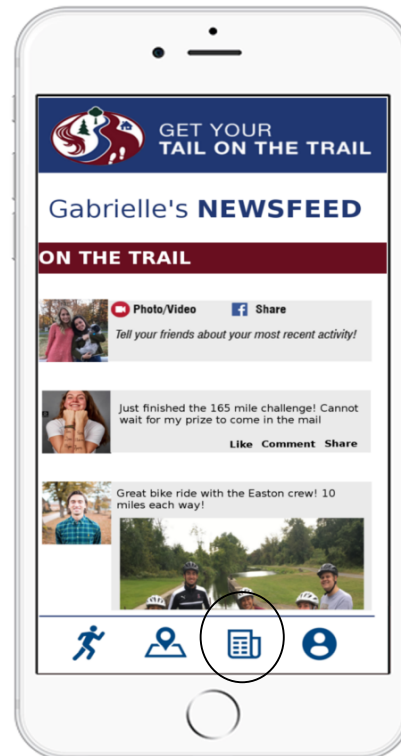
Allow

Don't Allow

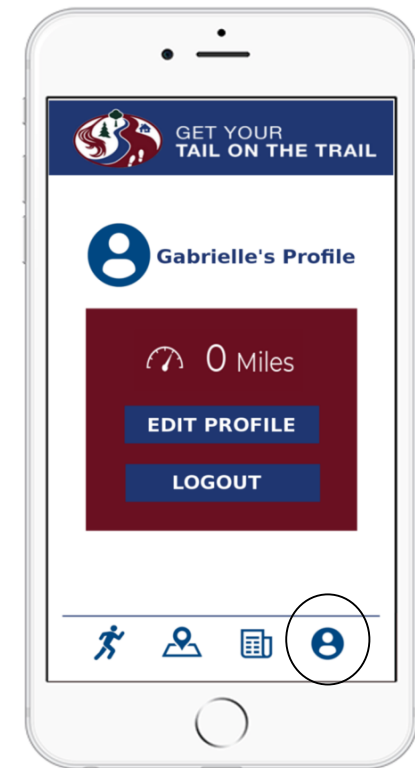
Menu Toggle



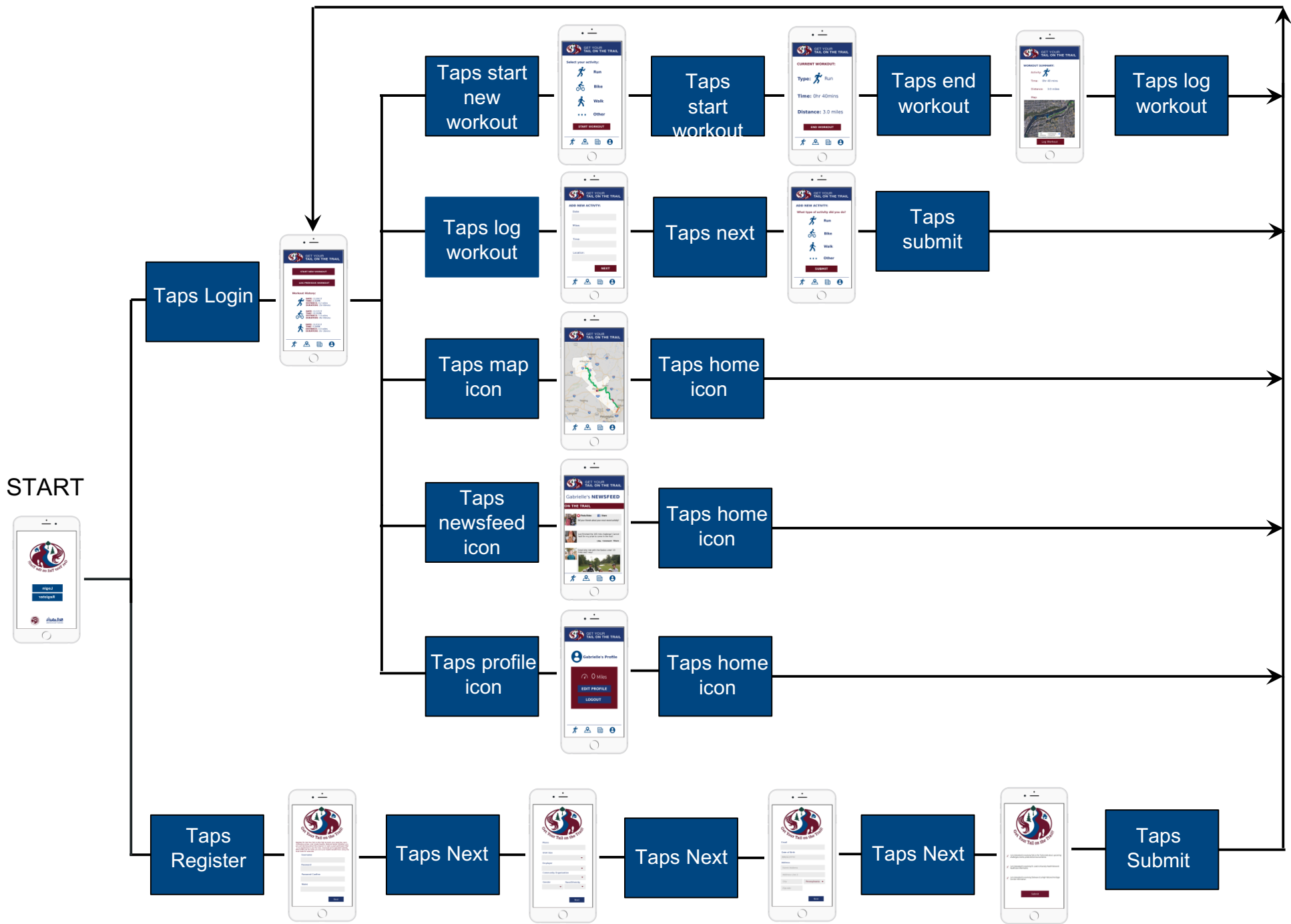
If the map icon from the menu bar is selected, the page above appears. The map will be the same as the one provided on the D&L Corridor website (powered by Google Maps). The user will be able to interact with the map by zooming in and out, and dragging to move around the map.



If the user clicks on the newsfeed icon (to the right of the map icon), the screen above will display. The idea behind the addition of a newsfeed is explained further in the social section. The user is able to scroll through the feed and connect with their friends.



Selection of the profile icon from the menu bar will bring the user's profile. It will display the same information as that of the website's, which is just miles logged. If the user clicks on the Edit Profile button, he or she will be allowed to edit their profile. The logout button allows the user to logout of their account.



Desirable Additions

- Syncing Fitbit, Apple Watch, or other fitness trackers to automatically send the tracked activity to the Get Your Tail on the Trail app
 - Incorporating heart rate or BPM measuring into our app
 - Allows for users who do or do not have a fitness tracker
- Map displaying historical locations along the trail via pins
 - When a user clicks on a pin, it will bring up a pop up window that displays the information, along with pictures if applicable
- Fast Facts will display based on either GPS location or geolocation of the user along the trail
 - The user will be allowed to set their preferences to allow these popups, similar to the notifications and GPS set up
- Miscellaneous features:
 - Using a different unit of measurement for activity
 - Steps
 - Miles
 - Adding back button which autosaves the information in the text fields
 - Having an Edit profile page
 - Adding more information to the profile page
 - Amount of hours completed in activities in total
 - Average amount of miles per day or total miles
 - If competing in a challenge, the distance still needed in order to complete the challenge

“A great opportunity to promote community involvement, create health lifestyles and get people involved in local recreation areas.”

Social Solutions*

“It would be nice to have some kind of local Facebook groups for support and walking buddies.”

“It would be nice to have a program to encourage teens to get out and hike.”

Partnerships with Local Organizations

In order to increase interactions with all demographics in the Lehigh Valley and expose more groups to the trail, we feel it is important to take advantage of the several outreach organizations and universities in the Lehigh Valley. We have created a list of potential partners for the program, as well as local business to sponsor events. The list in Appendix C focuses mostly on partnerships within Easton, but there is ample opportunity with similar organizations along the trail.

One important connection we focused on which exemplifies the potential partnerships with LVAIC colleges is that of working alongside Athletes C.A.R.E and the Boys and Girls Club of Easton. Athletes C.A.R.E is a student athlete organization at Lafayette College that integrates Lafayette's Division I athletes with the Easton community. Through this partnership, volunteers of Athletes C.A.R.E would plan activities to increase daily physical activity, as well as involvement on parts of the trail. These volunteers could also run GYTOT account to log participant's weekly activity at the Boys and Girls Club. Other student-run organizations at Lafayette College such as the Running Club showed interest in organizing races on the trail in the Easton community.

Currently, only 10% of participants are ages 18 and below. Such partnerships will help the program reach the youth demographic in the Get Your Tail on the Trail program. Additionally, these programs could link with other programs focused on increasing education and participation about history on the trail.



**ATHLETES
C.A.R.E.**

Five-Year Anniversary “Kick-Off” Event

The 5-Year Anniversary “Kick-Off” event would be the prime time to elicit strong community involvement, help people sign-up in person, and show-off the new programs and features the team has been working on throughout the project. It would be a prime opportunity to advertise the new mobile application for the program as well, and have people download it and sign-up right at the event. It would also be a great opportunity to create awareness for the Get Your Tail on the Trail program while simultaneously creating a sense of community between participants. When there is a social component involved, people are more likely to stay committed. We thought Hugh Moore Park would be a good location for the event, considering it has both suitable amenities, land, and it’s where the Canal Museum is located.

Activities for the Event:

- GYTOT sign-up tabling
- Breakfast / social - meet other members!
- 5k/1 mile run
- Open museum history tour



Website Enhancements

The current website has been effective in providing a platform for participants to log their miles, keep track of ongoing challenges, and learn about the trail itself. However, we feel that there is more potential for the website to provide a social platform for participants to increase a sense of belonging, which is highly correlated with commitment in general.

People like to share what they are doing, and they like to see what their friends are doing. If people see their friends tracking their miles and completing challenges, they will be more inclined to do so as well:

- Newsfeed
- Activity Circles

This feature would also be available on the app, so people can easily share updates and RSVP while they are on the trail.

Additionally, we feel it is important to encourage that participants can log all their activity on the program, not only activity on the trail. There are several easy additions to the website that would help clearly encourage participants to record all activity.





CLAIRE'S NEWSFEED

ON THE TRAIL



Photo/Video Share

Tell your friends about your most recent activity!



Just finished the 165 Day Challenge! Can't wait for my prizes to come in the mail!

Like Comment Share



Great bike ride today on the trail with the Easton crew! 10 miles each way!



facebook



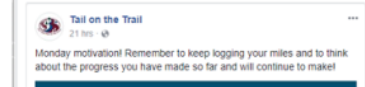
Status Photo/Video

Write something on this Page...

Photos



Posts



By adding a newsfeed like component, participants will be able to connect with friends and neighbors through the Lehigh Valley and easily follow their Get Your Tail on the Trail related activity. In order to connect the preexisting Facebook page with the new social website, we would include a feature where people can register/log in to Get Your Tail on the Trail with their Facebook accounts. If they have a Facebook and do this, there would be a widget alongside the other newsfeed that displays updates from the Get Your Tail on the Trail Facebook page itself.



CLAIRE'S CIRCLES

Best Friends

12

Recent Activity

- 12:34 pm Olivia Grigaux completed the 165 mile challenge
- 9:30 am Joshua Kruczek ran 5 miles on the trail
- Yesterday Gabriella Martone joined the group

+ Friends

Bethlehem Walking Group

50

Recent Activity

- 1:30 pm Dan Bauer walked 2 miles on the trail
- 11:25 am Kamal Bookwala created an event for Friday
- 9:02 am Claire Grunewald walked 3 miles with her dog

+ Friends

College Hill Neighbors

23

Recent Activity

- 3:30 pm Larry Malinconico biked 30 miles on the trail
- 11:09 am Brian Green ran 5 miles
- Yesterday Christopher Mayer create an event for Tuesday

+ Friends

Upcoming Events



Bethlehem Walking Group

2 mile walk starting at Hugh Moore Park

RSVP
12/05/17



Best Friends

20 mile ride from Easton to Freemansburg

RSVP
12/07/17



Tail on the Trail!

165 Mile Challenge Kick-off at Palmer Park

RSVP
12/08/17



College Hill Neighbors

20 mile ride from Easton to Freemansburg

RSVP
12/10/17

Suggested Circles

32

Easton Bikers

JOIN

6

Tea and Trails

JOIN

Participants would have the option to share as much as they like on the website and add other participants into their “activity circles.” Activity circles would facilitate the addition of a “Meet Up” component, where people could create events that others in the circle could easily see and RSVP too. Further, this would allow participants within one’s activity circle to challenge each other to different events on the trail, acting as a way to motivate participants.



ADD NEW ENTRY

Step 1/3

FIRST THING'S FIRST

Enter the date, distance, and length for your activity.

On the trail Other Location: _____

Date:

12/06/2017

Miles:

ENTER MILES

Time:

HRS

: MINS

NEXT

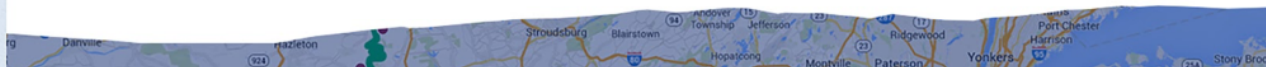
YOUR HISTORY

ON THE TRAIL

- 12/05/17 20 mile ride from Easton to Freemansburg
- 12/03/17 2 mile walk to Hugh Moore Park
- 12/02/17 5 mile run from to Palmer Park
- 11/30/17 2 mile walk in Bethlehem

OTHER ACTIVITY

- 12/04/17 3 mile run on the Karl Stirner Arts Trail
- 12/01/17 5 miles on the treadmill
- 11/28/17 20 mile ride on the Erie Canal Trail, NY
- 11/25/17 2 mile walk with dog around neighborhood



As shown above, if the option to classify one's activity as either "on the trail" or in "other locations" clearly shows participants that activity off the trail is accepted by the program. Additionally, including this other activity in the participant's history section shows it was recorded and counted towards their total mileage.

Website Enhancements: Facebook

The Facebook page currently serves as a social platform, and does so effectively. However, not everyone has a Facebook, and some people may be hesitant to post Get Your Tail on the Trail specific updates on their public accounts. Including this feature on the website would open up the social aspect to everyone involved in the program. Additionally, it would help create a sense of community around the program and increase interest in others' progress and activity on the trail. In order to connect the preexisting Facebook page with the new social website, we would include a feature where people can register/log in to Get Your Tail on the Trail with their Facebook accounts. If they have a Facebook and do this, there would be a widget alongside the other newsfeed that displays updates from the Get Your Tail on the Trail Facebook page itself.



BikeShare Program

From our observations of different cities and after our initial bike ride, our team began to think about the ways in which we could increase community participation on the trail, especially within the youth population.

Many people and participants of the Get Your Tail on The Trail Program enjoy biking along the trail. We decided it may be worth looking into a possible bike share program in which you could rent out bikes on some of the main trail heads. This would be a similar system to BikeShare systems that we have seen in New York City, Paris, and Washington D.C. (<https://www.capitalbikeshare.com>) to name a few.

While there is a pilot bike-share program in Bethlehem, this could become the foundation for an expanded program that has a built-in fitness aspect and promotes healthy living.



After speaking with David Hopkins, Director of Public Works of the the City of Easton, he informed the team that there is a plan to implement a bikeshare program in Easton by 2018. They plan on leading towards more of a grassroots approach to their program similar to how the City of Bethlehem has run their project. We would suggest that the program in Easton be coordinated with Bethlehem's program.

“I find it difficult to find out about upcoming programs. This is my first round of Get Your Tail on the Trail activities. I don’t want to miss next year.”

“This summer I got no emails. Assumed plan was cancelled”

Internship Opportunity*

“You stopped sending emails for Get Your Tail On the Trail, and because of that I no longer have any idea of what programs or events you are holding, and I actually forgot you even exist... so disappointing.”

From our numerous discussions with our clients, it appears as though there are not enough resources to send out weekly updates via email, send out Facebook posts, etc. Thus, it would be beneficial to hire a year-long intern -- a Lafayette College student who would work part-time during the school year and full time during the summer and would be able to complete all the tasks that the current employees of D&L and St. Luke's are not able to complete.



Key Points:

- Once Olivia sent out the email response, (within 1 week, 68% of members opened the email and 23% answered the survey!)
- The Five Year Anniversary of the GYTOT Program is coming up this Spring and it would be very beneficial to have another set of hands on deck.

Logistics for this Position:

- Beginning in the Spring Semester - Lafayette College Career Services can add an opening for the position - the Tech Clinic group would be willing to be a part of the search/hiring of the first intern.
- **Cost:** \$10 for 10 hours a week for 20 weeks is \$2,000 during the upcoming Spring Semester
- The student could meet with Todd and Brian since they would be a Lafayette College Student

Roles for the Intern:

(Interdisciplinary Internship between D&L and St. Luke's to facilitate joint challenges)

- Send out email blasts
- Organize challenges and making sure people get onto next challenge
- Manages webcams and email lists
- Keeps track of how often people are logging miles
- Update the calendar of events

“Love it, benefits everyone and gives inspiration to want to be outdoors and enjoy nature’s beauty.”

History and Nature*

“I enjoy the Tail on the Trail Program because it motivates me to go on the trails.”

Teaching History on the D&L National Heritage Corridor

Using nature and history to develop new interest in and strengthen old ties to the trail.

Possible Opportunities:

1. Signage
2. App
3. Scavenger Hunt

Meeting with Martha Capwell-Fox (Archivist at D&L):

She recommended that we avoid placing signs on the park because they are very expensive (starting at \$800) and they would need to be checked, cleaned, rid of graffiti, and would not be a sound investment for the Delaware and Lehigh National Heritage Corridor (or any or any of the member organizations that own the trail). She believed that it would make more sense to spend the money creating an augmented reality where people on the trail might see geo-referenced historical pictures as they progress throughout the trail. She really liked the idea of having rotating pictures/historical information though because she agreed that it would be really difficult to get people to want to learn more if they could only read the same information the first time they were on the trail and every subsequent time as well.

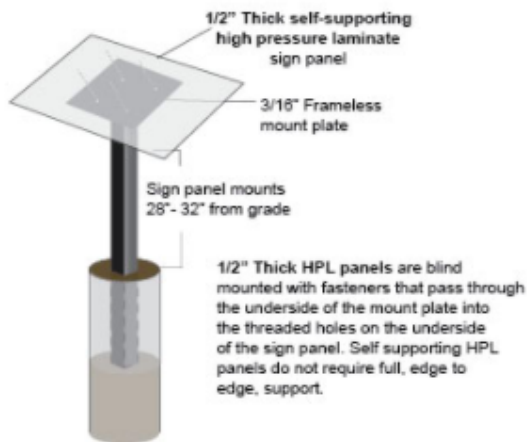
Signage

To get the most mileage out of trail-side signs, we suggest transitioning to a new signage system, one that focuses on rotating information seasonally to keep trail users engaged and interested in learning about the trail.

Some options:

GETTING STARTED... Understanding the Options

1 Frameless Mount Systems



Sign panel material option:

- 1/2" Thick self-supporting high pressure laminate sign panel.

2 Frame Mount Systems



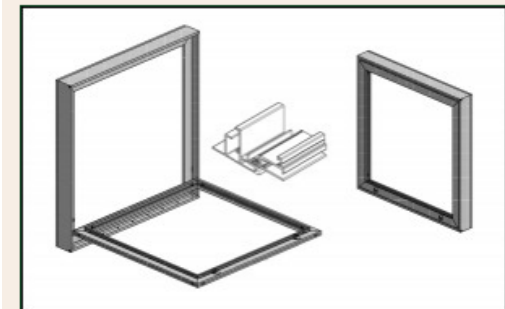
Sign panel material options:

- 1/8" Thick non self-supporting high pressure laminate sign panel.
- 1/8" Thick non self-supporting Tuff panel.

Bulletin Cases

Our bulletin cases are constructed with the same high quality aluminum extrusions and craftsmanship as our other exhibits, frames and pedestals. Available in 18"x24", 24"x36" and 36"x48", bulletin cases can be outfitted for wall, post or kiosk mount and include the following:

- All aluminum construction
- Clear acrylic face
- Keyed-alike locks
- Galvanized steel back for use with magnets
- Continuous piano hinge



Pennsylvania Trail Design & Development Principles

Guidelines for Sustainable, Non-motorized Trails



Plastic, per square foot

Material	Under 32 sq ft	33-100	over 100
1/8" Sintra	11.30	9.20	8.65
1/4" Sintra	13.55	11.05	10.40
13 oz vinyl banner	5.40	5.40	4.90

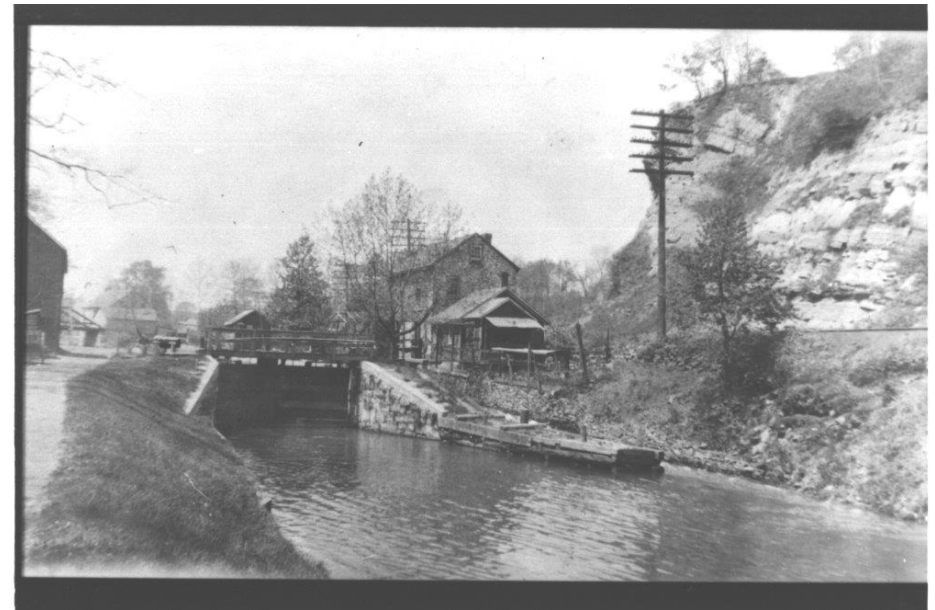
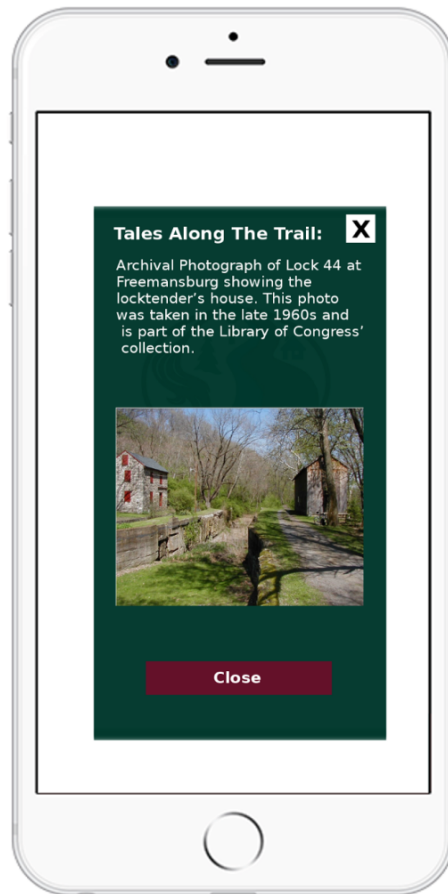
Metal - painted aluminum, each:

Size	Price
12x18"	\$27.00
18x24"	54.50
24x36"	108.00

The above document governs acceptable sign usage for Pennsylvania walking trails.

App

The National Canal Museum, Tales of the Towpath, and The Lehigh Canal Virtual Tour (through ancestry.com) are wonderful resources that already exist. They, among other elements, show photographs of what the canal looked like in the past. We'd like our app to do the same. Our app map will have markers pointing to prominent historical sites, which, when clicked, will display photos of the site from the past and information about its history.



Scavenger Hunt

There is so much history on the D&L Trail that putting up signs for each somewhat historically significant site is not feasible. Moreover, interactivity is a key component of engagement, especially when engaging with something static, like history. Therefore, we propose adding an interactive scavenger hunt component to our app, with focus on smaller historical sites and nature along the trail.

Implementation:

- Hunt would include both historical and nature-based sites along the trail
 - Nature-based sites would mainly comprise of flora and geological phenomena
- Time of year changes focus of the hunt; winter would have a heavier focus on history, summer a heavier focus on nature, with autumn and spring a healthy mix.
- Users would take pictures of objectives. Accuracy would be verified by GPS and geolocation technology for historical sites. For nature-based pictures, a preliminary photo-analysis algorithm would eliminate obviously false photos, while a D&L employee would verify the remaining photos.
- Winning users would be entered into a raffle for prizes like regional gift cards.



LOOKING FORWARD

Completed: First Semester

Completed:

- Brainstorming period
 - Successfully split up the project into three separate entities: Technological, Social, and Historical
- Initial Application sketch-ups
- Website Supplements
 - Initial “Newsfeed” sketch-ups
 - Initial “Activity Circles” sketch-ups
- Conducted a successful survey with over 500 participants
 - Data supported our initial idea behind creating an application
- Brainstorming of ideas of who to pair with for social entities for next semester
 - Boys and Girls Club of Easton
 - Athletes C.A.R.E
- Brainstorming different ideas for the Five Year GYTOT Anniversary
- Trips to the Canal Museum to look more into the archives there and the history the trail has to offer
- Created three different ideas to satisfy the historical aspect of the project
 - Increased Signage
 - App
 - Scavenger Hunt

Future Work: Second Semester

Looking Forward:

- Looking into options into creating the app
 - Having the Technology Clinic build the app or a backend code and outsourcing the design of the app
- Adding the additional features discussed in the section, Technological Solution: Additional Features, to the app
- Implementing an internship program for the GYTOT to help with tasks such as the Five Year Anniversary of the program
 - Possible Lafayette Student
- Contacting and creating a program with the Boys and Girls Club of Easton, working with Athletes C.A.R.E
- Creating a program with Lehigh Valley Live for a picture of the week
- Looking into the idea of BikeShare along major trailheads
- Going forward with historical aspect of the trail and pursuing one of our three ideas about how to increase historical presence on the trail
 - Implementing throughout a small section of the trail

“LOOSE ENDS” (Additional Information)

Acknowledgements

General Acknowledgement

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Technology Clinic Team

December 11th, 2017



D&L

- **Elissa Garofalo:** Executive Director of the Delaware & Lehigh National Heritage Corridor: elissa@delawareandlehigh.org
- **Brian Greene:** Trails Program Manager at Delaware & Lehigh National Heritage Corridor: programs@delawareandlehigh.org
- **Claire Sadler:** Director, Trails and Conservation at Delaware & Lehigh National Heritage Corridor: claire@delawareandlehigh.org
- **Patrick Stephens:** GIS Analyst and Cartographer at Delaware & Lehigh National Heritage Corridor: trail@delawareandlehigh.org
- **Loretta Susen:** Program Assistant at Delaware & Lehigh National Heritage Corridor: loretta@delawareandlehigh.org
- **Martha Capwell Fox:** Historian and Archives Coordinator at the Canal Museum: archives@delawareandlehigh.org



St. Luke's

- **Kenneth Szydlow:** Vice President of Marketing Advertising and Public Relations at St. Luke's University Health Network: kenneth.Szydlow@sluhn.org
- **Todd Nemura:** Healthy Living Program Coordinator at St. Luke's University Health Network: Todd.Nemura@sluhn.org
- **Kathleen Katchur:** Epidemiologist at St. Luke's University Health Network: Kathleen.Katchur@sluhn.org
- **Catherine DeBoeser:** Administrative Assistant-Marketing and Public Relations at St. Luke's University Health Network: Catherine.DeBoeser@sluhn.org
- **Mary Beth Golab:** Director, Internal Communications at St. Luke's University Health Network: MaryBeth.Golab@sluhn.org



Additional

- **David Hopkins:** Director Public Works of the City of Easton, PA: dhopkins@easton-pa.gov
- **MaryAnn Malinconico:** Research Associate at Lafayette College: lovem@lafayette.edu
- **Genesis Bike Shop:** local bike shop in Easton, PA, rob@genesisbikes.com
- **Kyle Grieger:** Principal at Easton Area High School: geigerk@eastonsd.org
- **Athletes C.A.R.E:** Lafayette College: geeja@athletes.care
- **Josephine Taormina:** Fourth Grade Teacher at Tracy Elementary School: taorminaj@eastonsd.org
- **Kara Kresge:** Fourth Grade Teacher at March Elementary School: kresgek@eastonsd.org
- **Judy Bauer**

Thank You!

Appendices

Appendix A: Potential Partnerships

Community Organizations

- Boys and Girl's Club of Easton (stars@fast.net)
- March Elementary School ((610) 250-2531)
- Lehigh Valley Live (events@lehighvalleylive.com)
- Lafayette Running Club (adamsev@lafayette.edu)
- Lehigh Valley Association of Independent Colleges (info@lvaic.org)
 - Service groups within each

Bike Shops:

- Curt's Cyclery (Nazareth) (<http://www.curtscyclery.com>)
- Genesis Bike Shop (Easton) (<https://genesisbicycles.com>)
- Trek Bike Shop (Allentown, Bethlehem)
(https://www.trekbikes.com/us/en_US/retail/allentown/)
- Cycle Funattics (Phillipsburg) (cyclefunattic@verizon.net)

Running shops/Other Sports Shops:

- Aardvark Sports Shop (sales@aardvarksportsshop.com)
- Easton Outdoor Company (<http://www.eastonoutdoorcompany.com/contact-us.html>)
- Strava running (<https://www.strava.com>)
- Lehigh Valley Road Runners Club (contact@lvrr.org)
- Emmaus Run Inn (emmaus@theruninns.com)

Appendix B: Survey

Get Your Tail on the Trail Survey

The Lafayette College Technology Clinic thanks you for taking our survey to help improve Get Your Tail on the Trail!

Please provide your email to be entered in the Amazon gift card raffle:

Short answer text

Please identify your age group... *

18-24

25-34

35-44

45-54

55-64

With what gender do you identify? *

- Female
- Male
- Prefer not to say
- Other...



How often do you visit trails? *

- This is my first time
- A few times a year
- A few times a month
- Once a week
- Several times a week
- Daily

Are you a participant of the "Get Your Tail on the Trail" program? *

- Yes
- No

If you answered yes to previous question, how often do you log your miles on the Tail on the Trail website?

E-Group:

- Never
- Occasionally
- Started to, but haven't for a while
- Most of the time
- Everytime

Physical Group:

- Yes
- Never
- Occasionally
- Started to, but haven't for a while

Do you own a smart phone/watch? *

- Yes; an iPhone
- Yes; an Android
- Yes; a Samsung
- Yes; other not mentioned above
- No; I have a phone, just not a smart phone
- No; I don't own a cell phone

Do you own a smart watch/Fitness tracker? *

- Yes; an Apple watch
- Yes; a FitBit
- Yes; a Garmin
- Yes; other not mentioned above
- No

Do you use an App to track your activities (i.e. steps, miles, etc.)? If you do, which App?

Short answer text
.....

Do you use an App to track...(check all that apply, if NONE apply skip the question)

- Time
- Distance (i.e. miles, steps)
- Fitness measures (i.e. heart rate)

Would you be interested in having an App that would automatically log your miles into the Tail on the Trail program? *

- Yes
- No
- I don't participate in the Tail on the Trail program

If you are on Facebook, have you liked the "Tail on the Trail" Facebook page? *

- Yes
- No
- Unsure
- I'm not on Facebook

Do you have any comments, questions, or concerns about the Get Your Tail on the Trail Program?

Long answer text

Would you be willing to participate in a health-tracking study (any information gathered will be completely confidential). If yes, please provide the following. Please provide your name:

Short answer text

Appendix C: GYTOT Data

Total people currently signed up = 2,265

A count of unique users each month:

Mar = 916

Apr = 513

May = 1,030

Jun = 986

Jul = 962

Aug = 934

Sept to date = 636

How many unique users entered at least one log since:

Mar 19 = 1,607 (The program's definition of an "active user" is at least one entry in the last 6 months)

Jun 19 = 1,169 (At least one entry in the last 3 months)

Aug 19 = 771 (At least one entry in the last 30 days)



Demographics

Race:

White = 94.5%

Hispanic = 2%

Other = 1.5%

Asian = 1%

Black/African-American = 1%

Gender:

Female = 66%

Male = 33%

Other = 1%

Age:

<18 = 10%

18-24 = 3%

25-44 = 26%

45-54 = 47% (I think this may be through age 65 but the website says 55)

55> = 14%



Sources

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- <https://goo.gl/images/uQT7ws> (ellipses)
- <https://goo.gl/images/EmWzfo> (placeholder on map)
- <https://goo.gl/images/SJWvK4> (news icon)
- <https://goo.gl/images/sssUh7> (profile icon)

- **Historical Pictures:**

- <http://freepages.history.rootsweb.ancestry.com/~carrleith/lehighcanal14.html>
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- **Get Your Tail On The Trail Logo:**

- <https://www.facebook.com/tailonthetrail/photos/a.146920852166750.1073741824.146919552166880/684751101717053/?type=1&theater>

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