

# MapSepta

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*Intro to User Centered Design*

*Usability Testing*

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### *Summary of Project:*

This project is an interactive Septa map that allows the user to navigate through a transportation map in order to get information about stations and routes. Areas in Center City will also contain important tourist information, such as nearby historical sites, theaters, etc. Bus, subway, and regional rail will all be shown on the map.

### *Demographic Information:*

- Data:
  - 144,472 people w/in Philadelphia city area use public transportation for commuting
  - 70.7% of people report using Septa 5+ days/wk
  - Majority of riders between 22-55 yrs. old
  - 66.3% of people reported being totally dependent or very dependent on public transportation for commuting
  - 81% of riders surveyed use Septa for commuting
  - 56% use it for recreational pursuits
  - 35.% of households do not own an automobile
- Personas:
  - The Commuter: The majority of the riders use Septa for commuting to work, both from within the city and the broader region. They range in age from 22-55. They tend to rely on Septa for commuting, as approximately 1/3 do not own a car. A Septa map helps the Commuter get to work on time.
  - The Recreationer: This user lives in the Philadelphia metro area and uses Septa for recreation, including sporting events, historical sites, theater productions, etc. While not the majority of riders, they represent a large percentage of riders. A Septa map helps the Recreationer find the places they want to get to.

### *Interaction:*

Each station and route will be clickable. Users can click to get information on each stop or route. The user will only see a portion of the map and to navigate, there will be directional (north, south, east, west) buttons that allow the user to navigate to other sections of the map.

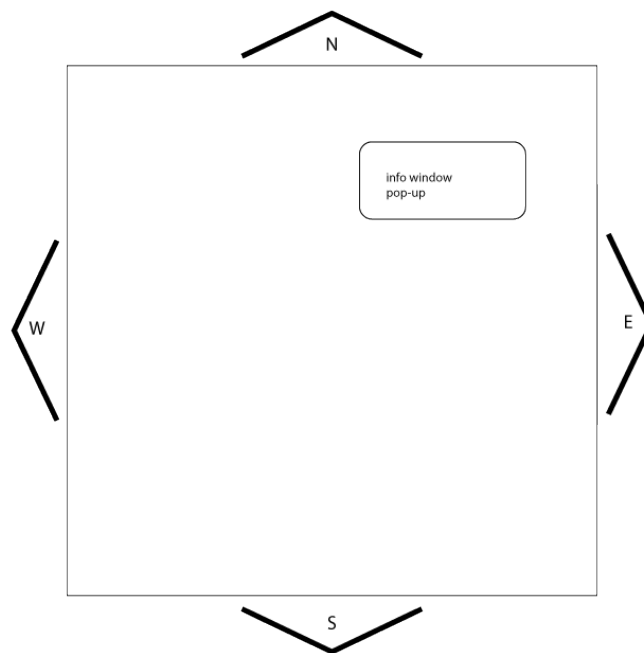
### *Design Schemes:*

- 1.Users are given a map and can drag it or use arrows on the side to navigate to the location. All types of transportation shown on one map.
- 2.Users can input a route or station/stop & the map will navigate there. All types of transportation shown on one map. Users can also navigate using arrows & dragging.
- 3.Each type of transportation shown on a different map. Users choose type of transportation and then search, drag & navigate with arrows to the area they want to get information for.

### *Design Sketches:*

header

search form



*Illustration 1: Sketch 1*

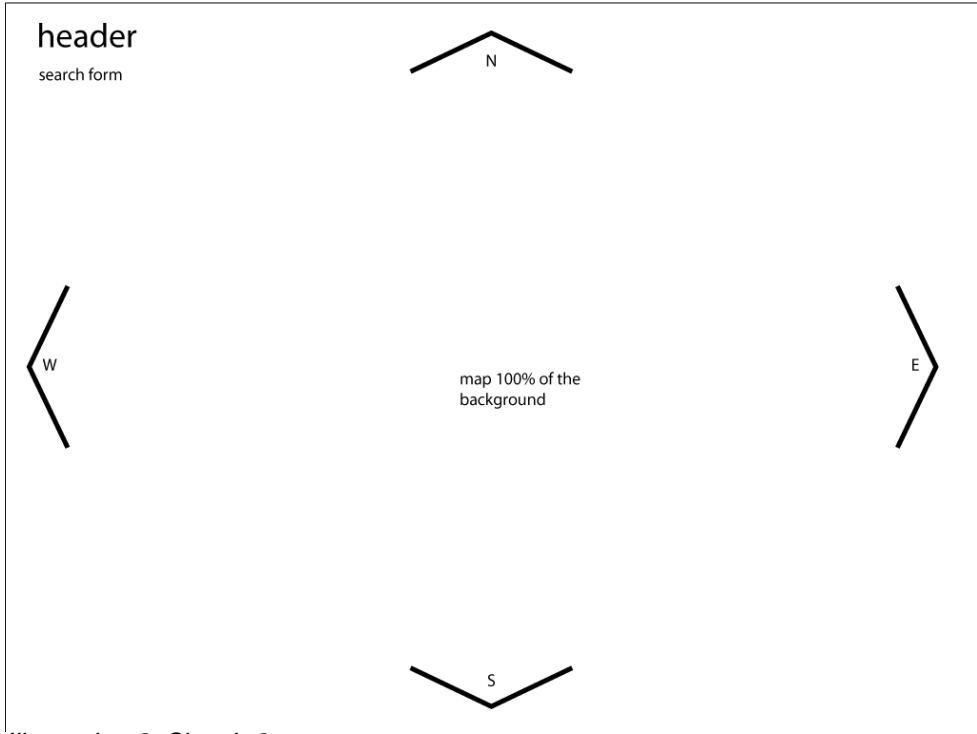


Illustration 2: Sketch 2

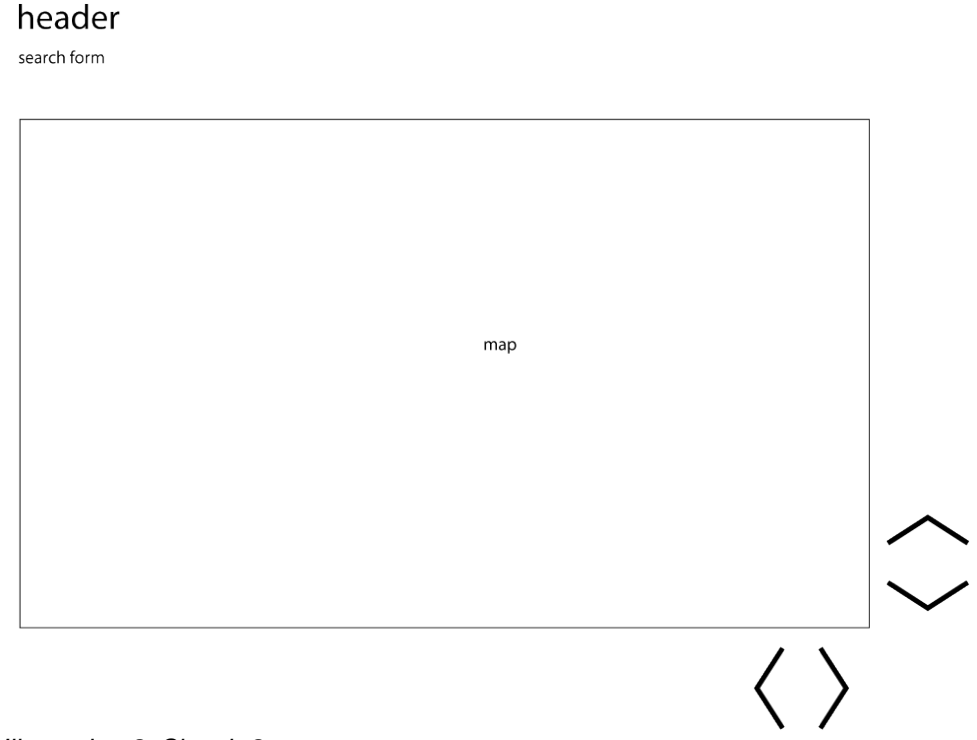


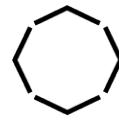
Illustration 3: Sketch 3

header

choose transportation

choose route

map



*Illustration 4: Sketch 4*

i want to:  
go someplace  
do something →

*Illustration 5: Sketch 5*

### *Sketch Survey Summary:*

Most people saw the project as a utilitarian web site that allows them to find where they want to go, so the first two options which included a map were the most popular, with the first sketch being the most popular. Each person interviewed said that they would like to be able to do searches by stop and location, and most said that a schedule would be important. One person mentioned a “plan your trip” type of option. People commented that it was a simple design that seemed to be easy to navigate. One person commented that the design needed more to it. Most said that the navigation seemed like it would be intuitive and the controls were fairly universal.

In order to improve on this layout I think I would need to enlarge the map for better viewing. I think the controls are intuitive, though some more directional indicators might be necessary (north, south, east, west). The search feature will be very important to allow users to easily find the information they are looking for.

### *Content Inventory:*

#### Maps:

- Market-Frankford Line Map: map of the M-F subway line
- Broad Street Line map: map of the BSL subway line
- Trolley map: map of the trolley line
- Regional Rail map: map of regional rail

#### Information:

- Stop/station information: information about each stop including lines utilized, transfers
- Tourist information: information tourist areas in Center City that are accessible by public transportation, including stop/line information

#### Map Controls

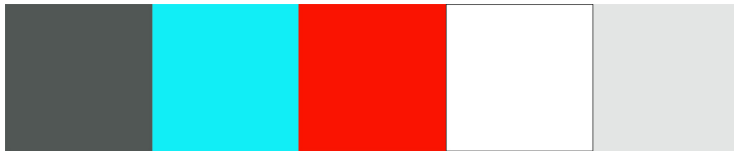
- Turn On/Off maps in viewport
- Directional Arrows: move map north/south, east/west
- Information Buttons: view information about each station
- Turn on/off tourist information

### *Results & Analysis of Card Sorting:*

The results of the card sorting allowed me to clarify some questions as far as the icons are concerned. The subway and trolley icons were easily recognizable and different enough from each other to show which icon represents which transit type, except that

the subway icon should be differentiated between the Market-Frankford Line and the Broad Street Line. The station/stop icon was a little more challenging to recognize. One suggestion was that a building or more station-like icon would be better for the station and that the icon worked for the stop symbol. Another suggestion was to see if there was a symbol that Septa already uses at its subway stations. The icon to represent tourist was the most troublesome, as the testers saw it more as a Walk/Don't Walk symbol, or maybe a symbol to represent getting off a train and walking to a destination. Unfortunately, they did not have any suggestions for alternate icons. The testers had some trouble sorting the cards during the open sorting, but found it easy to sort them in the closed card sorting.

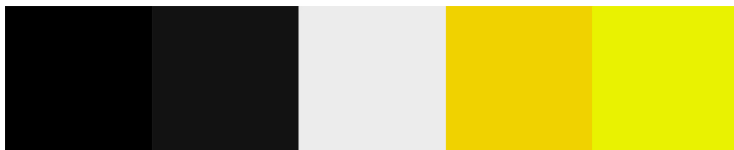
### *Color Palette Ideas:*



Modern, bright accent colors, plays off Septa's color scheme;



Blue/grey evokes a city feel of concrete; Enough variation in color



Yellow reminds me of a taxi, transit; Potential to be too bright, not enough variation

*Font Schemes:*

# Headings

Body

This combination has a mid-century feel that is still modern. With both sizes the same color there may not be enough variation, but with color it should be varied enough.

# Headings

Body

This combination uses a much bolder font for the heading, which I think is too thick, but offers more difference between the header & body text.

# Headings

Body

This combination uses a serif and sans serif for variation. While the serif font is nice and the variation is nice, I think that a serif font is the wrong choice for this website.

*Design Schemes:*

- Minimal text: use icons and pictorial representations; the user needs to do less reading and can recognize pictures much more quickly than reading
- Typography heavy: while it might take longer for the user to read through options, there will be less confusion if the user does not recognize the symbols used
- Mixed typography/icons: makes use of both with choices made as to what things can be represented via picture and what should contain text

Design Comps:



Illustration 6: Comp 1



Illustration 7: Comp 2



*Illustration 8: Comp 3*

### *Design Survey Summary:*

The test group stated that the comps all seemed to display the necessary elements to use the map. They all stated the types of interaction with the map that were in accordance with the planned interactions, including dragging the map and using the arrows to move the map. The testers agreed that the navigation was easy to use and that there was nothing extraneous on the maps. They agreed that there was enough contrast among the elements, but one tester stated that there needed to be more color to make the maps more visually appealing. The tester stated that it was “too white” and “visually boring”. All testers agreed that the logos fit with the overall design, as well as Septa's identity as a whole. The typography was one element that garnered the most difference of opinion. One tester stated that the typography used in the first two designs was more traditional Septa, while the typography used in the third design depicted a more modern, new Septa. This tester seemed to overall be pleased with the typography, saying that it is clean and modern and fits with the type of site. The third tester had the most negative reaction to the typography, saying that overall it was “thin and weak” and “unexpected”. The tester specified that the typography of the third design was unbalanced compared to the overall design.

Design Prototype:

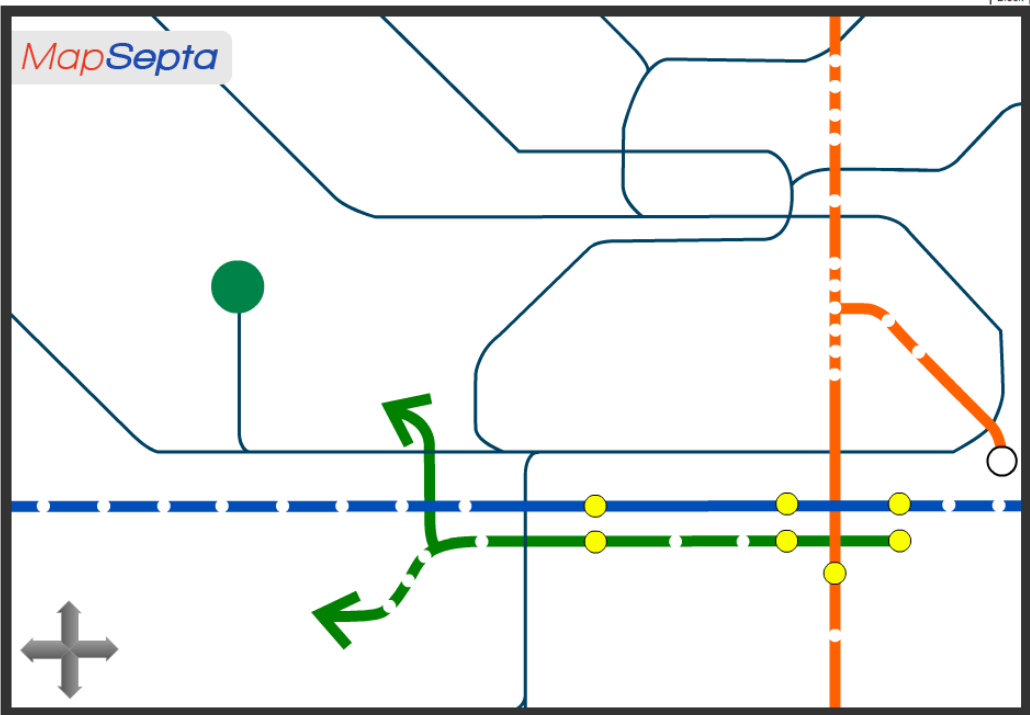


Illustration 9: Design 1, Landing Page

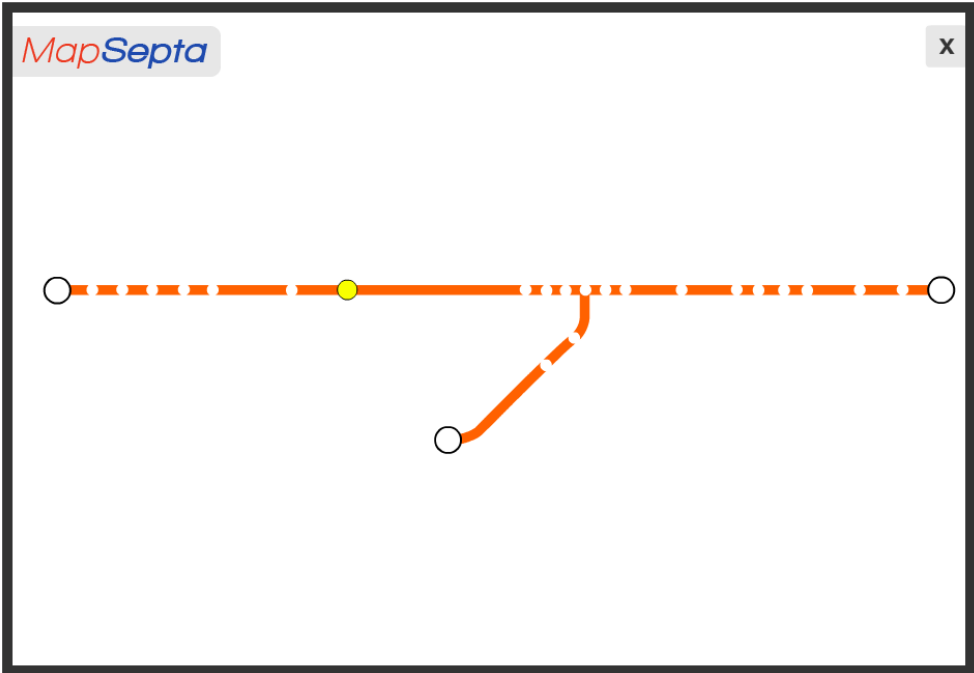


Illustration 10: Design 2, Broad Street Line

### *Design Prototype Survey Results:*

This survey looked at the Beta prototype, containing all of the interactions of the site, without the content. Testers were asked about their expected interactions with the map. Their answers ranged from point and click, clicking on the circles, and interactions similar to those of Google Maps. They were asked which interaction was more intuitive – dragging the map or using the arrows. The answers were split between both answers. The animation was also questioned, so as to ascertain whether it was too much movement compared to information. Most people (Four out of six) answered that it added to the map, while two responders had no preference. Five people out of six responders stated that they would use this map to get more information about Septa, with one responder having no preference. A question asking whether or not more interactions were needed to make it more useful received mixed results, as the responders seemed to not understand that the map was a prototype that did not yet have the content added. Of those who understood the question, one person responded that nothing needed to be added, while the other responded that they sometimes felt lost on the map and that they were could not find their way back to the central area of the map.

One question asked that provided very useful feedback, asked what was confusing on the map due to a design choice. This question received helpful feedback, especially as it pertained to the highlighting of each line on the main map. Using a red line was the solution used in the design prototype. Half of the users surveyed responded that, while it was necessary and a good idea to highlight the line, the red line was confusing. One responded that it cluttered the design and another commented that it made it seem like there was another line. Separate from the line highlighting, one responder stated that they did not know the map continued without seeing the arrows on the bottom.

A question asked about how easy it was for the user to figure out how to interact with the map received mixed results. Two users simply answered yes, while other users did not immediately know how to interact with the map, especially as it pertained to selecting and highlighting lines on the map. One user responded that “The arrows and route rollovers confused me at first.”

Alpha Test:

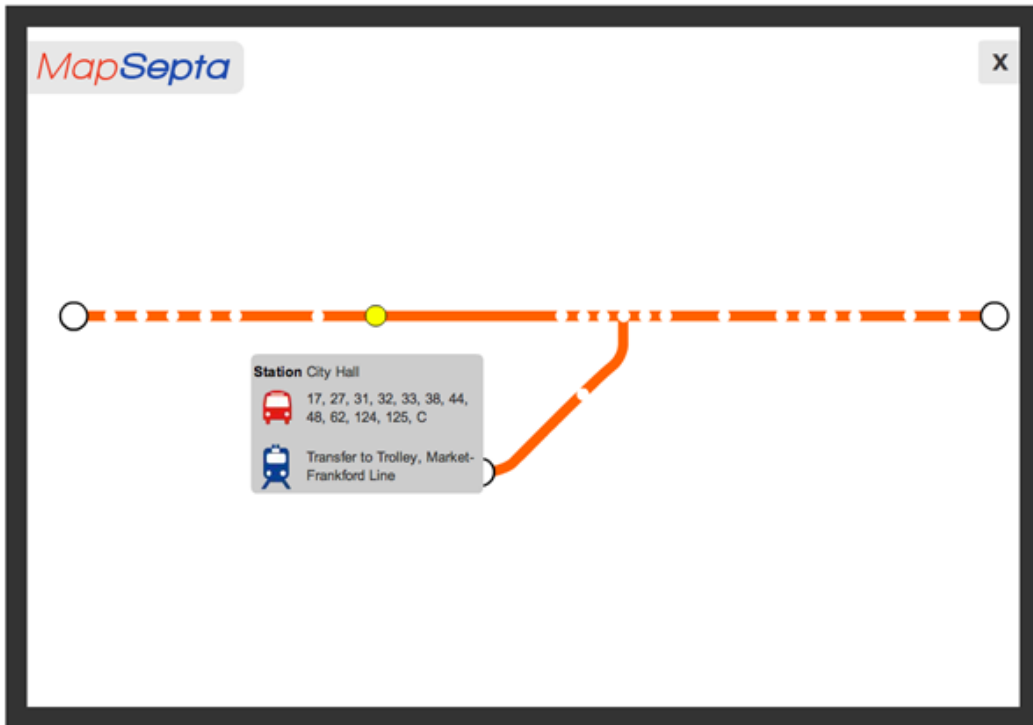


Illustration 11: Broad Street Line

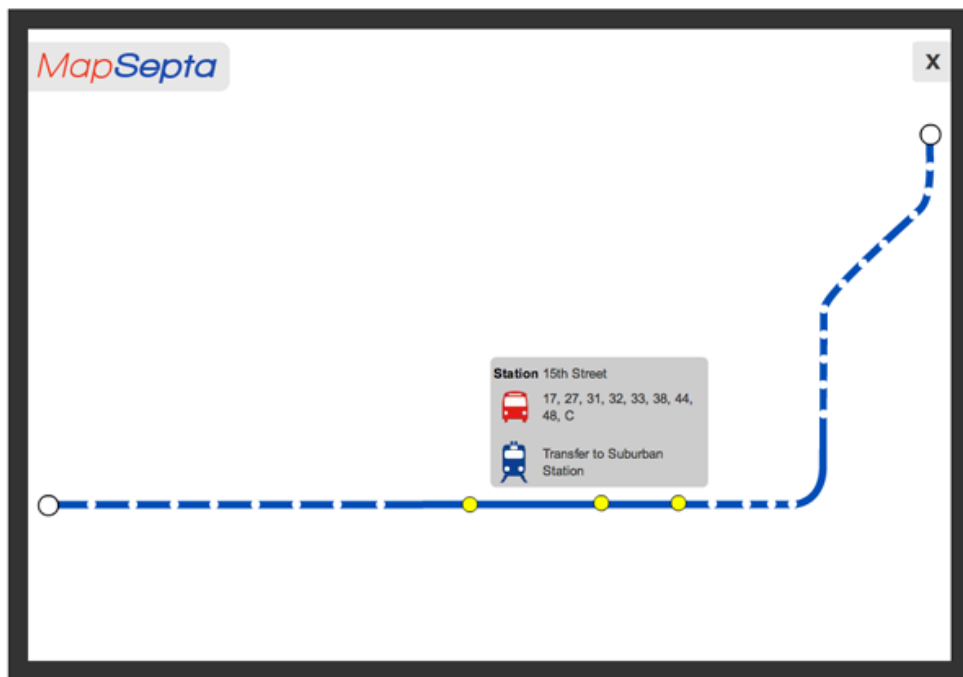


Illustration 12: Market-Frankford Line

### *Alpha Test Survey Results:*

This survey focused mainly on typography of the application. Eight of nine respondents thought that the font choice fit with the overall design, while one respondent thought a more “techy” font might work better. All respondents agreed that the font used for the tool tips was legible in all aspects, including contrast with the background and size. As far as amount of text and overall content, respondents gave mixed feedback as to how much information was displayed. Some respondents felt that more information would enhance the map, such as schedules and prices. One respondent felt that a legend might be useful as an addition to the content. Approximately half of the respondents stated that there was enough information displayed.

The other questions of this survey focused on the maps and the user's interactions with them. The testers were asked about the tool tips and whether they interfered with the map too much. All responded negatively. In trying to keep the maps as clutter free and simple as possible, as little information as possible was put on the maps. When asked whether or not this was a good choice, the users responded that it was and that putting more specific information on the map would have made it too cluttered. One question that received mixed feedback was whether each line map on its own page was helpful or if the ability to cross reference the other lines would be useful. One tester responded that it would be good to show both. Two responded that it would be too much clutter and one stated “separate pages works fine with what you are trying to accomplish”. Users asked whether a tool tip pop up or a modal/lightbox type of window would be better for displaying information. Users were split on their preference.

## Beta Test

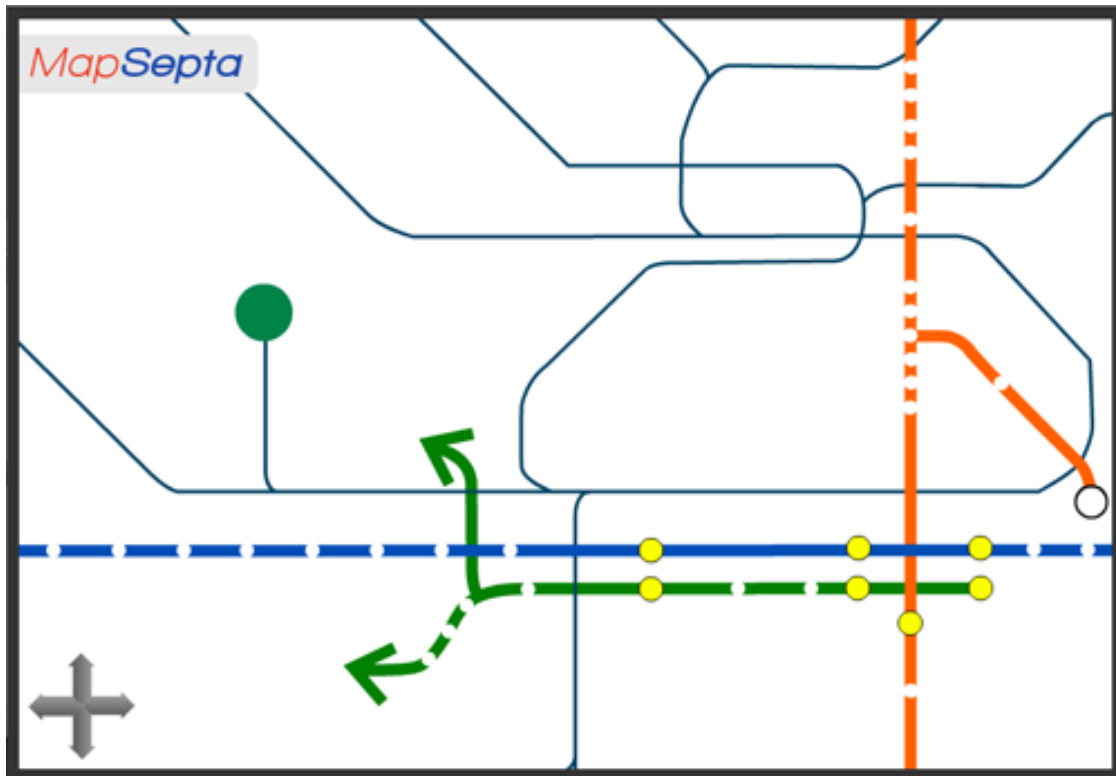


Illustration 13: Beta Test 1

## Beta Test Results

For the Beta Test, the focus was on the overall interaction and design of the site, especially elements not related to the text and typography. Users were first asked about the tool tips and how they could be improved. They responded that they were fine as is. Users were asked about the animation as well, and had positive responses to it. The users were asked about the arrows on the main map and two pointed out that they moved in the opposite direction. Users also suggested that instead of clicking the mouse, the map moves when rolled over. One interaction that users thought would be helpful is the map moving when the mouse goes to the edges of it. Users were asked about the large regional map and how it might be improved, but unfortunately the users did not have any suggestions for how to improve it. Finally users were asked about their overall impression of the site. One user answered all in the positive. One user mentioned that it was hard to get around and one user asked that a legend be added to

the map instead of the pop-up tool tips, but thought that overall the application looked good.

### *Conclusion:*

The goal of this project was to create an application that makes use of non-standard navigation techniques in order to go through the process of usability testing. Each step of the process, from the early sketches to the final application, was tested and the feedback received was used to alter and improve the usability of the project. In designing the Septa map, testers gave feedback with the goal of determining how to get some place via Septa's rail lines. Users gave feedback based on already known ways of navigating maps, for example, Google Maps, and also the new ways of viewing Septa's maps, for example individual map views and tool tips with animation. Ultimately, users wanted some familiarity in regards to map functionality, but were open to newer ways of displaying the information, through animation and tweening in Actionscript 3.