MOVE → ME

A Public Transportation Navigation App

And the story of its development through User Experience Research, Prototyping, and Testing

Jessa Farkas
Minneapolis College of Art & Design
User Experience Design: Spring 2020

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1. Competitive Research

Initial Inspiration **PAGE 4**

Popular in the Existing Market **PAGE 5**

With the purpose of gaining a well-rounded understanding of how existing apps have been developed, I first began the process of fleshing out a plan for the Move Me app by looking at one of the first apps that I remember using to help navigate New York's many public transportation options—HopStop. The app did a particularly good job of threading everything together, especially for having been so early on in the app game.

After this stage, I did additional research into other transportation apps that are more current and popular in the existing and present marketplace.

Initial Inspiration

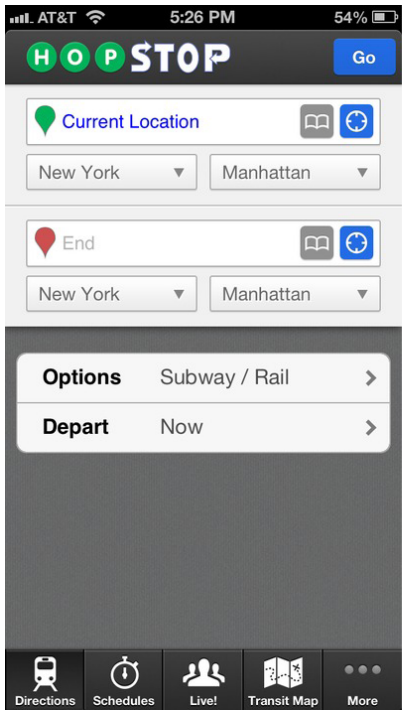
In hopes of supporting public transportation and its popularity, accessibility, and increased convenience amongst a broad spectrum of city dwellers, I will be focusing on creating an app that threads together a complex network of various public transportation navigational options. The inspiration for my app is a now-defunct app that I relied upon heavily while living in New York during its popularity: HopStop.

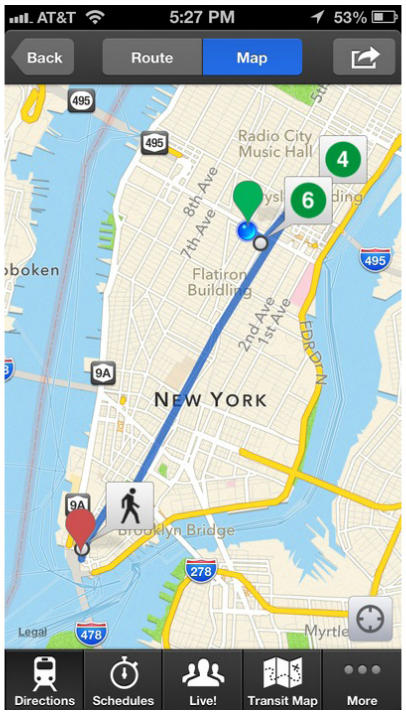
Named one of the top 100 fastest growing software companies in the US in 2011, HopStop was named App of the Week by the New York MTA in June 2011 and described as follows:

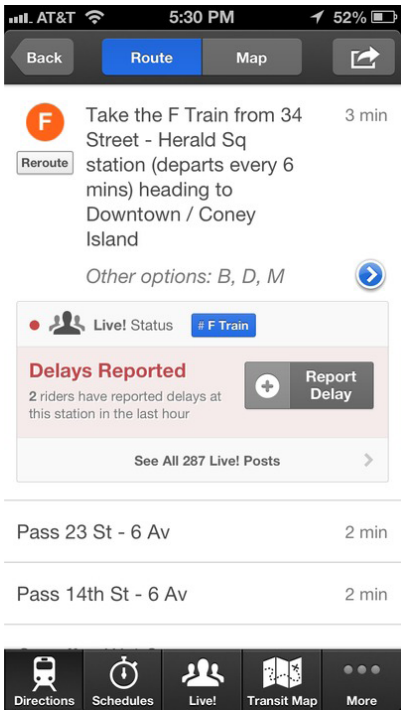
Whether you're traveling by the MTA's trains and buses or even via taxi, bicycle, or walking, this app will get you where you're going. HopStop lets you:

- Set mode preference (subway, bus, biking, cab/taxi, cars by the hour, walking only).
- Set travel preference (more street walking / fewer transfers vs. less street walking / more transfers).
- Choose whether to include regional rail, and/or vehicles operated by private companies.
- Re-route around service changes or delays, or choose to use a different stop than the one suggested.
- Estimated time and cost of cab/taxi and limo/sedan travel.
- Compare taking public transit vs. renting a car for a few hours (from ConnectByHertz) and book it on the spot.

Initial Inspiration: HopStop





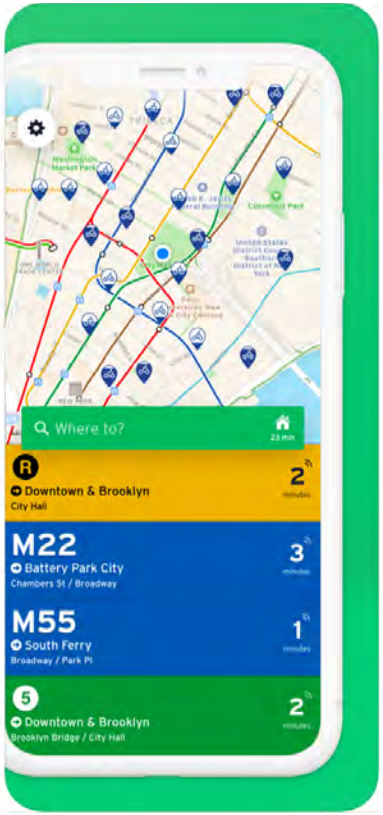


Popular in the Existing Market

Moovit

[Moovit on the App Store]

Transit



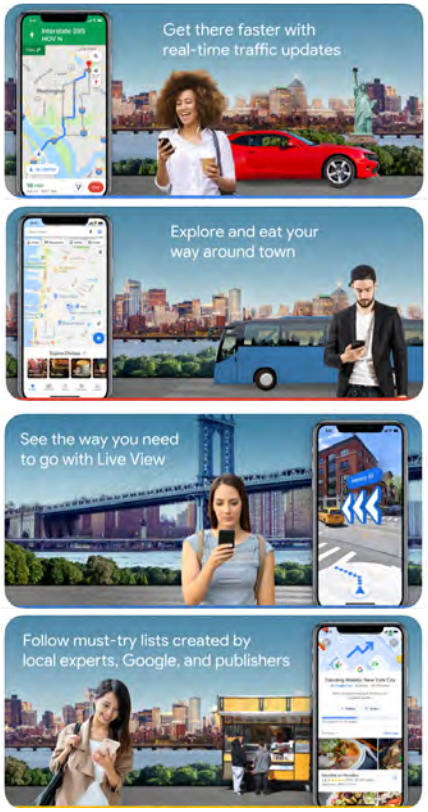
[Transit on the App Store]

Citymapper

[Citymapper on the App Store]

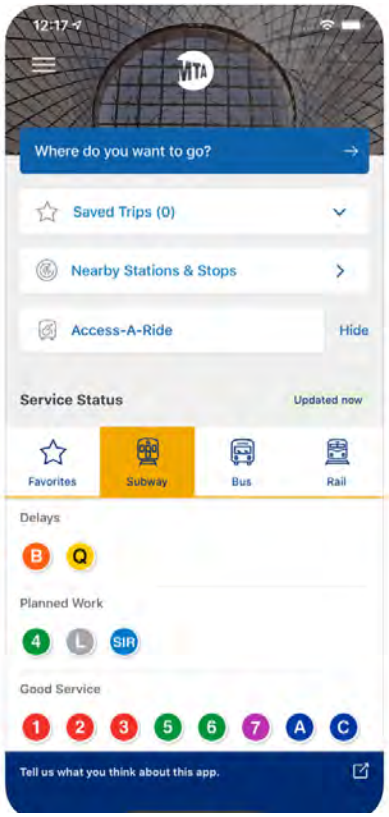
Popular in the Existing Market (continued)

Google Maps



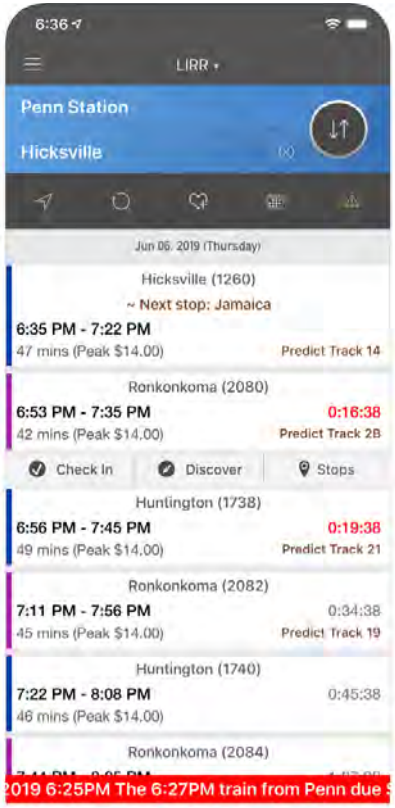
Google Maps on the App Store

MYmta



MYmta on the App Store

onTime



onTime on the App Store

2. User Research and App Planning

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Beginning the next phase of research by interviewing test users, I outlined their expectations—as well as my own—of the product requirements for a public transportation app—its features and tasks—and created a contextual scenario to be sure that Move Me would cover the needs of someone completing a hypothetical journey from Lower Manhattan to Sunnyside, Queens.

I then built out both a User Task Flow pertaining to the task of planning a trip, in addition to a general User Journey Flow pertaining to the larger eagle-eye view of the whole app and its offerings. Both gave me the opportunity to better explore and understand the road map that might be the most natural to a user.

User Interviews

Alex, 35
Brooklyn, NY
Photographer's Assistant

Lives in Brooklyn but assists on photoshoots that occur in all 5 boroughs and throughout the Tri-State Area. From the North Jersey Shore and returns home frequently.

DESIRED / EXPECTED FEATURES:

- Aggregation of all local and interstate (NY, NJ, CT) public transportation options
- Real-time delay warnings and re-routing capability
- Ability to save trips
- Comparable fares for different route options (i.e. How much would the LIRR + Subway be vs. How much would a charter bus be?)
- Transportation options would include more niche travel options such as airport-specific routes or ferries
- The ability to plan multiple trips at once

Cassia, 75
Norwalk, CT
Former CT to NYC Commuter

Commuted 5 days a week on Metro North to Grand Central for 20+ years. One job held was walkable from Grand Central. Another was off of the Houston 1 subway stop.

DESIRED / EXPECTED FEATURES:

- Access my contacts addresses for quick mapping to friends and family
- Capability for schedule look-up for dates in the future, with accurate changes incorporated based on weekends or holidays
- Funneling news of unexpected delays in real time (such as a sick passenger or an electrical outage)
- Dynamic zoom-able maps and timetables for each different transportation option
- Contact info (to speak to a human) for each different transportation

Lisa, 25
Queens, NY
Admin Assistant + Musician / DJ

Commutes to TriBeCa day job 5 days a week during rush hour. Plays shows and DJs throughout the city evenings / weekends. From Nanuet, NY and returns home often.

DESIRED / EXPECTED FEATURES:

- Incorporating safety precautions and warnings such as local crime stats and updates about stations and bus stops, etc.
- Real-time location status for busses and subways
- Expected arrival time based on real-time location status
- Location sharing with friends
- Comparable routes via different transport options (i.e. Would walking to the bus be faster than waiting for a subway?)
- Links out to or embedded digital ticket purchases and ability to act as central "wallet" for each various ticket

Product Requirements

NECESSARY FEATURES:	RESULTING USER FUNCTIONS:
Schedules / Timetables / Route Maps for all local public transportation options	• Toggle between schedules / timetables / route maps for Subway, Bus, Rail, Ferry, Airport Shuttle, Etc. • Toggle between schedule options based on date and time • Linked contact info for each transportation option
Plan a Trip / Save a Trip (so that it can be accessible without cell / Wi-Fi service)	• Zoom-able dynamic maps showing route options in context • Map current location and find closest hubs / stops / arrival times • Map out various options from Point A to Point B • Compare fares between various trip / route options • Pick one or multiple trip options to save for accessing without cell / WiFi service
Real-Time Alerts / Updates / Detours / Crime Reports	• Pick from suggested re-route options and re-save or replace saved trip • Filter to avoid certain areas based on Reports

Product Requirements (continued)

NECESSARY FEATURES:	RESULTING USER FUNCTIONS:
Ticket Sales + "Central Wallet"	• Links out to purchase all tickets (if possible) for saved trip • Save tickets by trip to a "central wallet" within app for easy access
Location / Trip Sharing	• Share a saved trip with selected contacts (accessed through phone contact list) • Share current location with selected contacts (accessed through phone contact list)
Transportation Vehicle Locations in real-time	• Use dynamic map to find the location and ETA of transportation vehicle • Filterable views (based on a saved trip or preferred mode of travel)

Contextual Scenario: Lisa's Journey

Who: Lisa, 25, lives in Sunnyside, Queens, and is a full-time administrative assistant at a school in TriBeCa during the day and plays shows or DJs around the city in the evenings.

What: Lisa is trying to plan her trip home to Queens after DJing in Chinatown. She's deciding whether to get a snack at the bar, or whether to rush to catch the subway and then eat a snack in Queens.

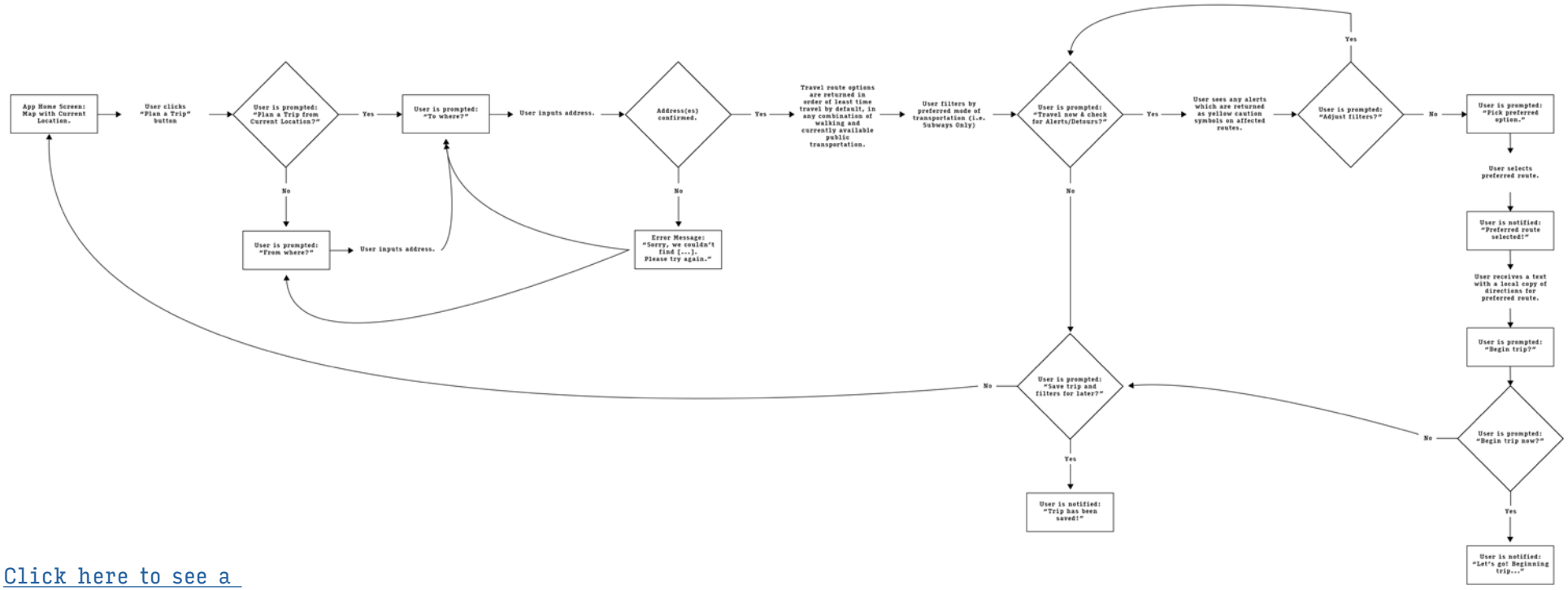
Where: Lisa is still at the bar where she DJed in Chinatown, and will be heading to Sunnyside, Queens. She is using her iPhone while sitting at the bar.

When: It is late at night—2am—on a Thursday. Lisa can't remember if she had seen any signs about late-night construction on the 7 train on her way into work earlier that day. Busses don't run often enough this late.

Why: Lisa does not have the money to take a cab all the way home to Queens from Chinatown, and she has a monthly Unlimited MTA pass provided by her employer.

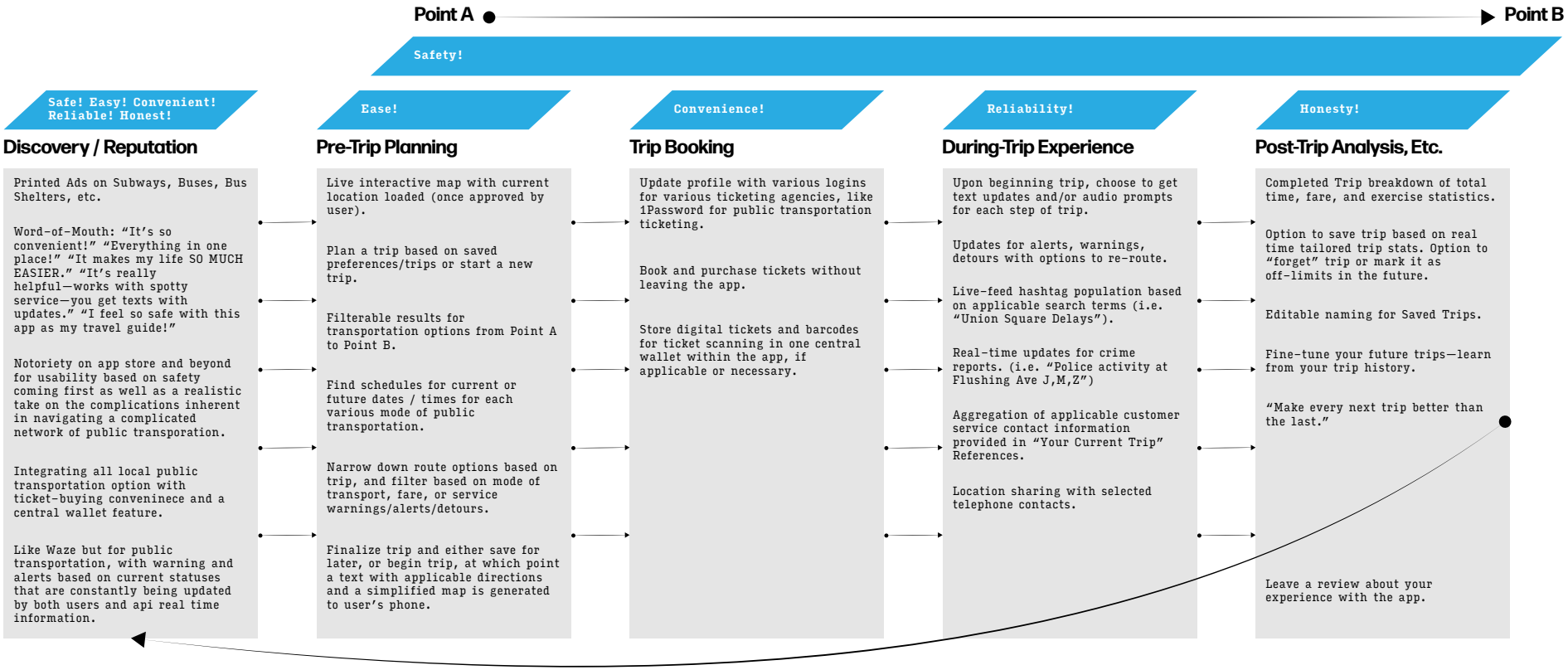
Lisa opens the Public Transportation Navigation App which greets her with her current location on a map that also shows nearby subway and bus stop locations > toggles to the App's Plan a Trip "tab" > inputs her address in Sunnyside and presses the button to filter out so only subways are returned as travel options > sees that while she has two options returned (the 4/5/6 subway to Grand Central and transfer to the 7 OR the 4/5/6 to 59th/Lexington and transfer to the E), there is a yellow alert popping up on the first option > clicks on the yellow alert, which warns that 7 trains are not running between midnight and 5am on weekdays as of tonight and through the weekend due to construction > decides to take the 2nd route which she is less familiar with so she presses Save Trip to save the directions (walking and subway stop count) locally to her app so she can access them even without cell or WiFi service > taps on the route's 4/5/6 subway icon on the Saved Trip's live map where she will begin her journey to check the real-time location and ETA of the next 4/5/6 train > sees that it is arriving in 7 minutes and because the directions state that she is a 4 minute walk from the subway station, she scrambles to grab her stuff, decides she'll eat in Queens, and says a quick goodbye to her friends at the bar.

User Task Flow: Planning a Trip



[Click here to see a full-size version of the initial User Task Flow](#).

User Journey Flow: Full App



[Click here to see a full-size version of the initial User Journey Flow.]

3. Initial Wireframes and User Testing I

Wireframe Planning and Sketches PAGE 15

Wireframes I PAGE 17

User Testing I: Script PAGE 18

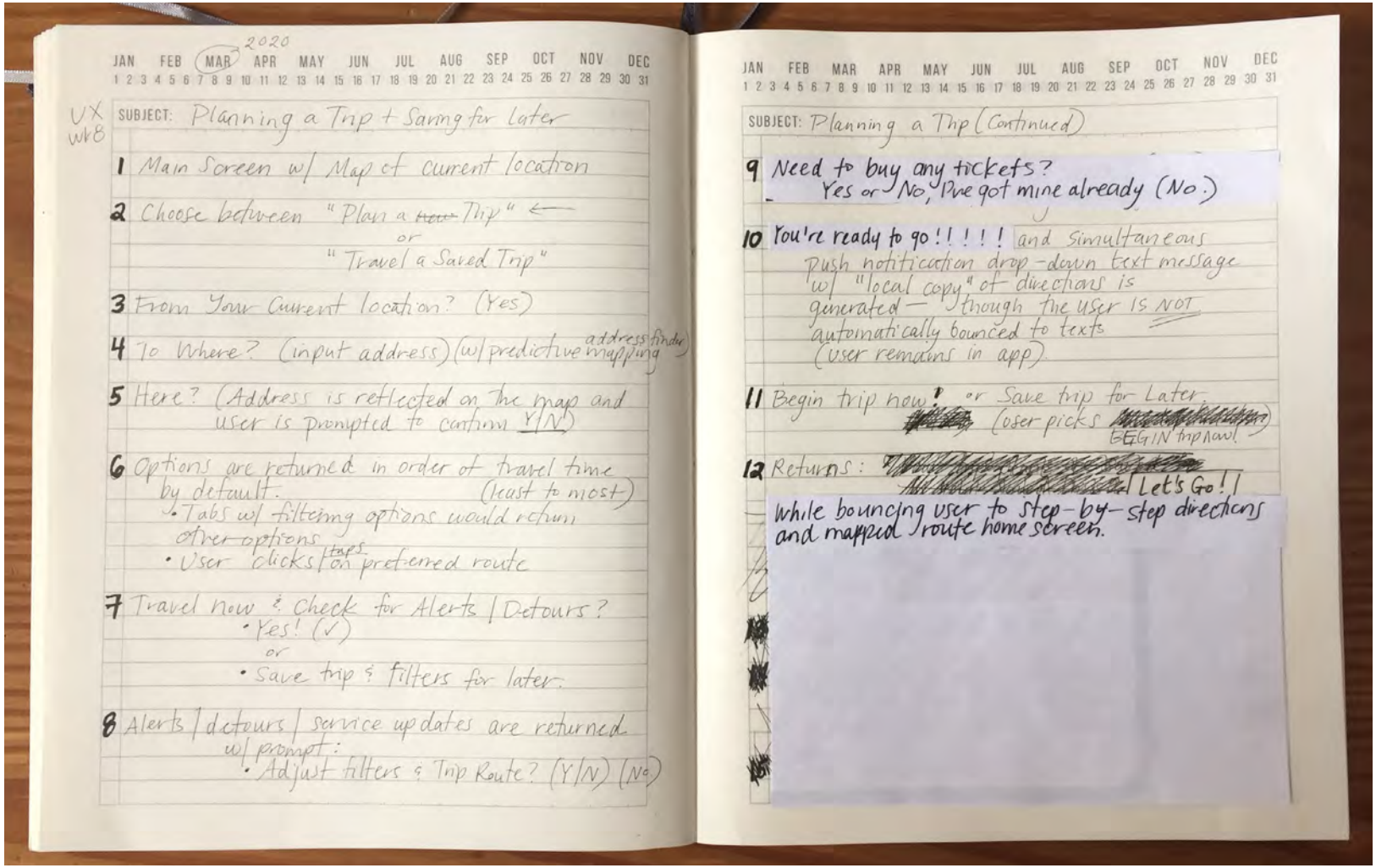
User Testing I: Results and Lessons Learned PAGE 19

Post-User Testing I Wireframe Flow Documentation PAGE 21

Based on the journey flows that I established in the prior phase of research and exploration, I digested those goals and created sketches of the specific journey flow—planning a trip. While only one zoomed-in experience of the Move Me app, this is feasibly the journey flow that will be most relied on by users.

Once I sketched, and then designed an initial round of Wireframes, I began my first round of User Testing with a simplified paper prototype to check the flow for logic and usability. Upon digesting the results from my first round of testing I created a Wireframe Flow that documented how my users “clicked” through the screens, noting specific areas that would need more attention in future rounds of prototyping and testing.

Wireframe Planning



JAN FEB MAR (2020) APR MAY JUN JUL AUG SEP OCT NOV DEC
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

UX wk8

SUBJECT: Planning a Trip + Saving for later

1 Main Screen w/ Map of current location

2 Choose between "Plan a ~~new~~ Trip" ←
or
"Travel a Saved Trip"

3 From Your Current location? (Yes)

4 To Where? (input address) (w/ predictive address finder mapping)

5 Here? (Address is reflected on the map and user is prompted to confirm Y/N)

6 Options are returned in order of travel time by default. (least to most)
- Tabs w/ filtering options would return other options
- User clicks (taps) on preferred route

7 Travel now & Check for Alerts | Detours?
- Yes! (✓)
or
- Save trip & filters for later.

8 Alerts | detours | service updates are returned w/ prompt:
- Adjust filters & Trip Route? (Y/N) (No)

JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

SUBJECT: Planning a Trip (Continued)

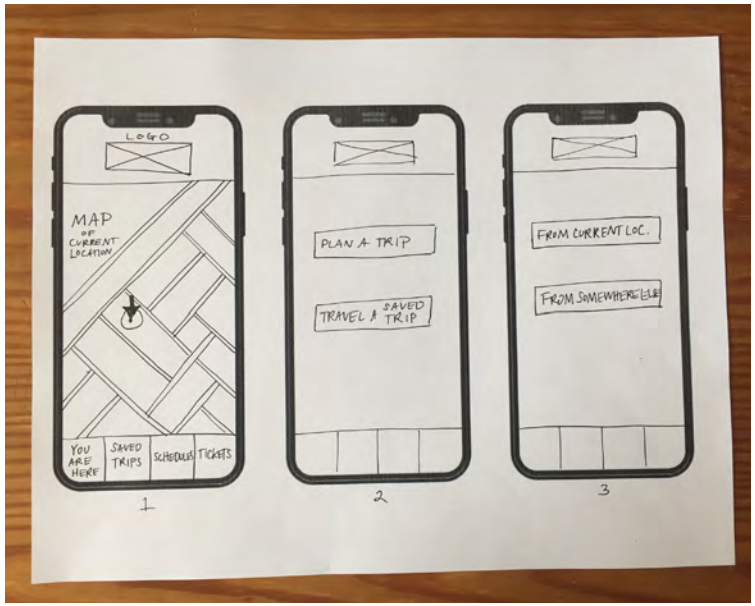
9 Need to buy any tickets?
Yes or No, I've got mine already (No.)

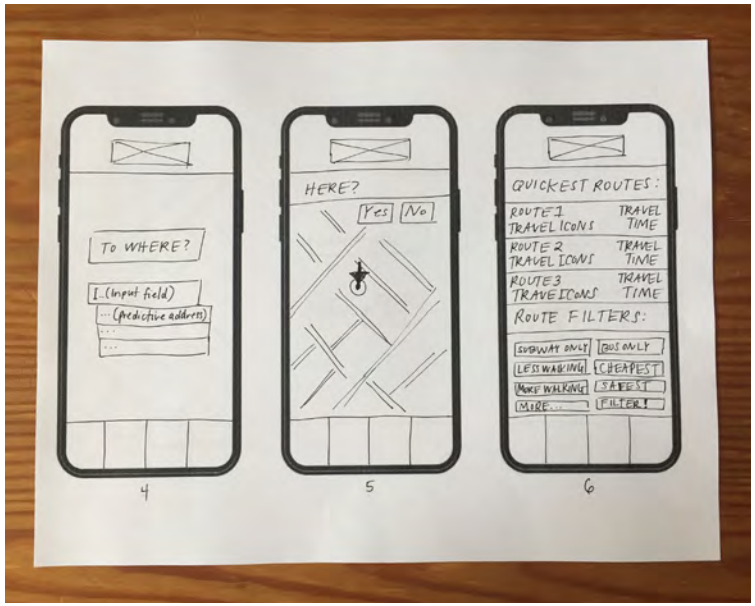
10 You're ready to go!!!!! and Simultaneous push notification drop-down text message w/ "local copy" of directions is generated — though the user IS NOT automatically bounced to texts (user remains in app)

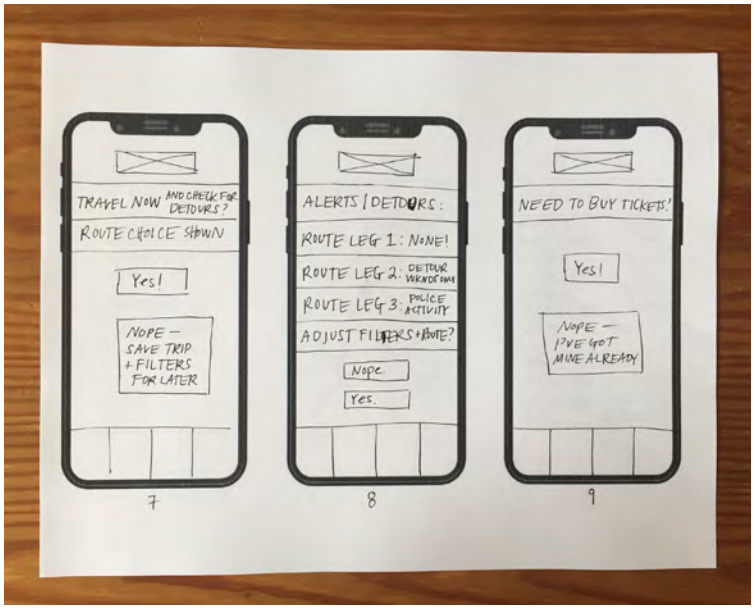
11 Begin trip now! or Save trip for Later
(user picks [redacted] BEGIN trip now!)

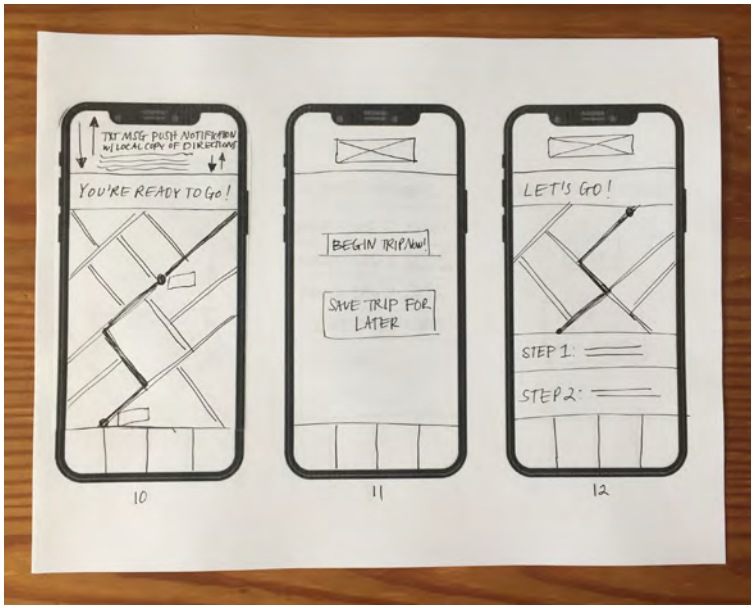
12 Returns: [redacted] Let's Go!!
While bouncing user to step-by-step directions and mapped route home screen.

Wireframe Sketches







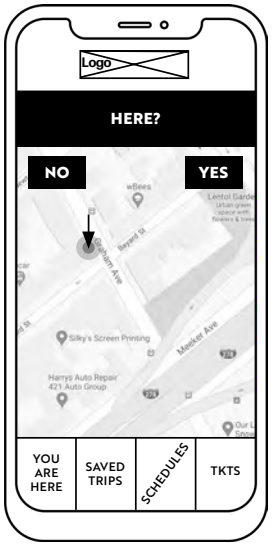


Wireframes I

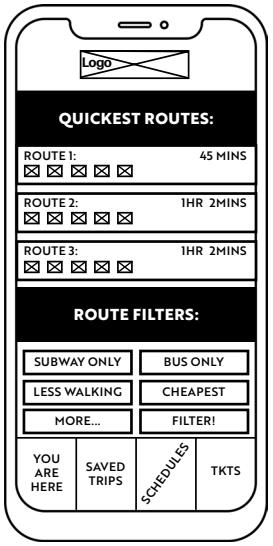
2a.

3a.

4a.

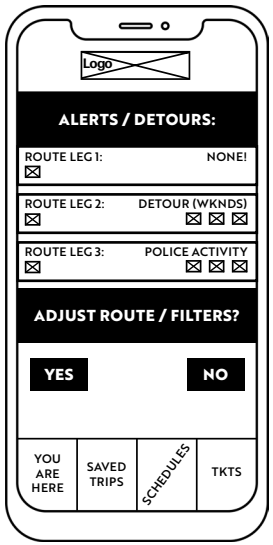


5a.



6a.

7a.



8a.

9a.

10.

11a.

12.

User Testing I: Script

Thank you for agreeing to assist me in strategizing the user experience design of an app meant to centralize a user's trip planning with various forms of available public transportation.

This is a hypothetical app that I am developing for my User Experience course at MCAD.

Your processing and evaluation of several tasks will allow me to perfect the app's design.

Please know that there are no right or wrong answers or statements, and any insights you have are greatly appreciated.

This process works best when users think aloud, so I encourage you to do so!

1. **Your first task is to plan a trip from your current location.**
2. **Your second task is to pick the route of your choice.**
3. **Your third task is to begin your trip without buying a ticket (because you already have your unlimited card)**
4. **Do you have any additional notes or suggestions you'd like to make? Are there any areas that seem specifically vague or confusing?**

User Testing I: Results

PROMPT:	JORDAN, 35	CASSIA, 75	ALEX, 35
Task 1: Plan a trip from your current location	In WF 4, does tapping the address lead to the automatic loading of WF 5? What about including a "Go" button in WF 4 to confirm the address you mean to pick out.	When do the schedules come into play? I see the schedules tab and as someone who would be more interested in the non-subway rail options, I'm curious about how that comes into play.	It would be annoying if I accidentally typed in the wrong address that the next page (WF 5) would be automatically loaded.
Task 2: Pick the route of your choice.	Straightforward. A note: having "More" and "Filter" buttons is confusing. I hate having to click 'filter' and would prefer the filters load as you tap them.	Is there a limit of 3 route options at a time?	I would expect WF 7 to have a more in-depth breakdown of each of the route's trip elements.
Task 3: Begin your trip without buying a ticket (because you already have your unlimited card).	Straightforward.	Straightforward, though I'm curious about how that ticketing system would interface with all of the different ticket carriers out there.	Straightforward.
Additional Comments:	I like that the app is designed to confirm the destination address on a map before additional trip planning.	The message prompts at the top of the screens look similar to the buttons, and I could see it helping to make those more visually different.	I like the idea of the text message with step-by-step directions. I've been in bad situations in the middle of a trip based on limited cell service in subway tunnels.

User Testing I: Lessons Learned

Overall I think that the app seems straightforward to users, and I believe that the main reason for this is that it has been designed using other transportation apps as a guide—with the intention of maintaining the intuitive flow of how users generally interact with these kinds of interfaces.

Some great points were made that now seem glaringly overlooked in hindsight—which helps me to see again how helpful user testing is!

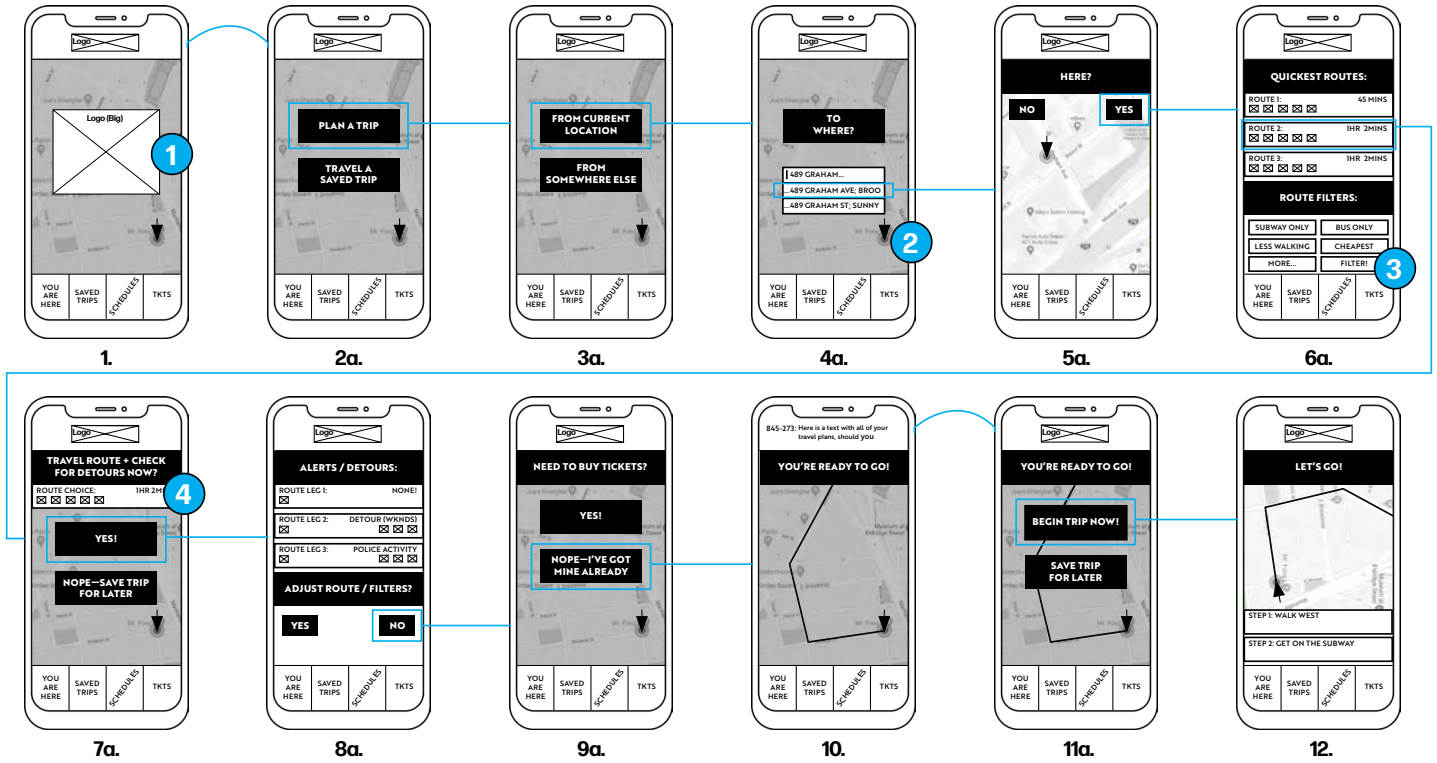
1. **There is a definite need to add a button "OK"-ing the address input in WF 4.**

2. **There is a lot of information on WF 6. I need to include an indication that the Quickest Routes are scroll-able, and there aren't only 3 options. I like Jordan's point that filters should not have to be applied beyond each particular being tapped / un-tapped.**

3. **I like Alex's suggestion of WF 7, (or some intermediate WF between 6 and 7) including a further breakdown of each leg of the route. I'm also thinking that perhaps this idea should just be combined with WF 8, essentially doing away with WF 7 (because the option to save trip for later or move forward doesn't necessarily need to occur there and already occurs later in WF 11).**

4. **I may want to include the scheduling or ticketing element in future wireframes, because these do seem potentially complicated and worth testing users about.**

Post-User Testing I Wireframe Flow Documentation



1. A user made a statement: "This is the mainscreen, and this logo goes away." It made me process that I did intend for the logo to be a brief appearance, like an intro gif—and not something that requires an action to move away from.

2. 2/3 users pointed to the lack of a button that confirms the address typed in, versus how I had overlooked that element, thinking the WF 5 would be generated from the tapping of the correctly populated address within the dropdown. I plan to add a "Go" button below the address input.

3. A user pointed out that the filter section in WF 6 could be simplified with the filters loading as they are tapped, doing away with the "Filter" button.

4. A user made a point about expecting WF 7 to include a breakdown of each leg of the route—and I now believe that WF 7 is unnecessary and that WF 6 can push the user directly to WF 8. The question is whether the Alerts / Detours would be useful for someone who was planning a trip for a different time—which would be the argument against removing WF 7.

[Click here to see a full-size version of the Post-User Testing I Wireframe Flow Documentation.]

4. Wireframes II and User Testing II (Paper Prototype)

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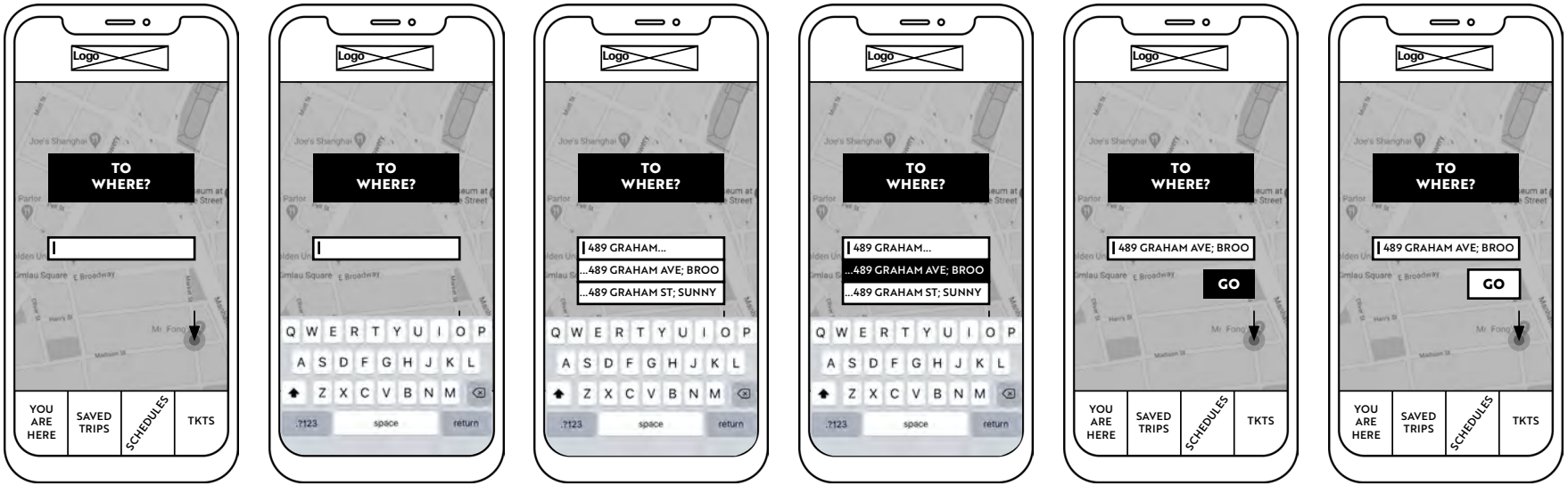
After processing insights gained from my first round of user testing, I enhanced the design of Move Me and prepared multiple options of wireframes to make use of during my 2nd round of user testing. An example of varying options for one wireframe used in this round was my Step 5—I asked my users if they preferred filters on the top half of the screen versus the bottom.

My insights in this second round of testing were helpful, however I realized at the end of the process that I had not developed my wireframes enough—nor morphed my test script questions—to gain the kind of specific feedback that would truly help push the app's design forward. I endeavored to increase the fidelity of my screens in the next phase in hopes of a more informative 3rd round of user testing.

Wireframe Updates Based on User Testing I: Step 3

Click here to see Complete Updated Wireframes I.

After my first round of user testing, I quickly realized that I would need to incorporate a wireframe for each step of even the most known and automatic of tasks, such as an input form with a keyboard that pops up. I therefore expanded and designed additional wireframes in Step 3 to properly carry a user through each interaction required to complete the task.

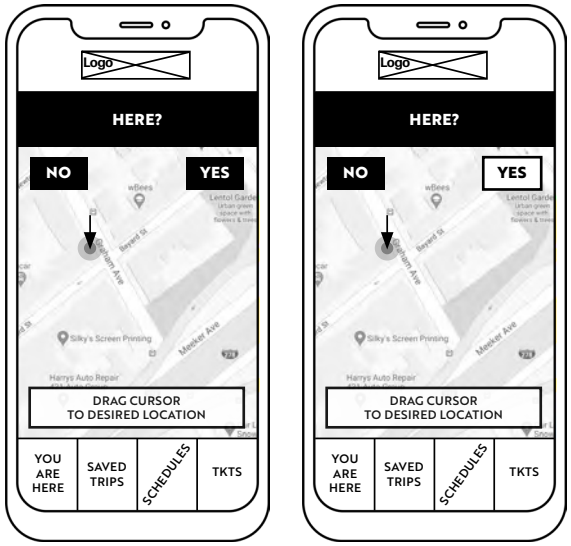


Wireframe Updates Based on User Testing I: Step 4

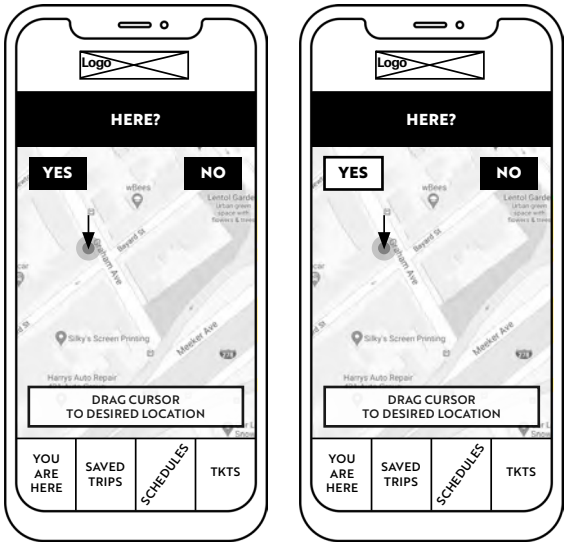
Click here to see Complete Updated Wireframes I.

I prepared two new wireframe options to query my future round of users about the placement of “Yes” and “No” buttons. This series of wireframes represents a moment during the app development when I began to question my consistency of buttons throughout the app’s design—or inconsistency... I also began to question the black banner of user-facing prompts when I added the side-prompt directing the user to drag the cursor to the desired location.

Step 4 (Option 1):



Step 4 (Option 2):

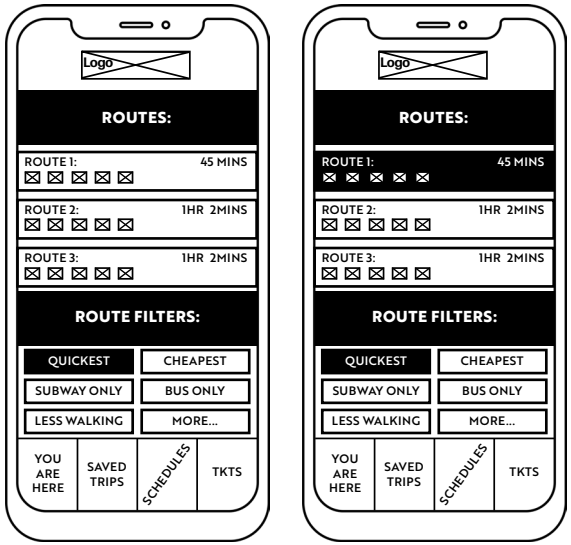


Wireframe Updates Based on User Testing I: Step 5

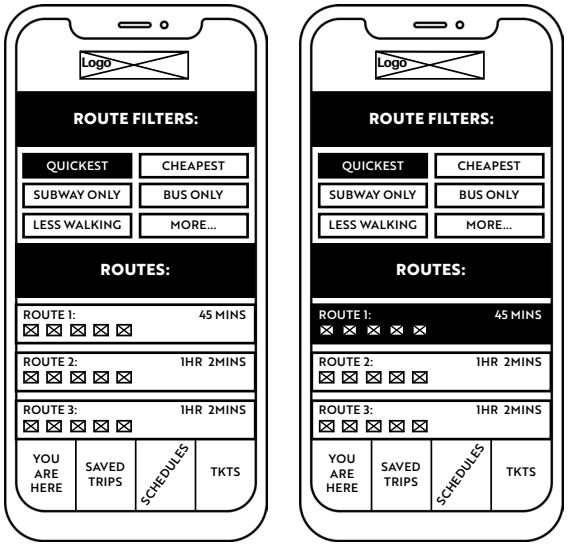
[Click here to see Complete Updated Wireframes I](#).

Step 5 also required two options of wireframes for the next round of testing, because I hoped to understand more of what would be most natural for a user to find when narrowing down their search for route options. This series of wireframes also represents another key moment of design, when I realized that this crucial moment in the user journey was cluttered and confusing—perhaps too confusing for users to give the kind of feedback I was hoping for.

Step 5 (Option 1):



Step 5 (Option 2):



Wireframes II

2a.

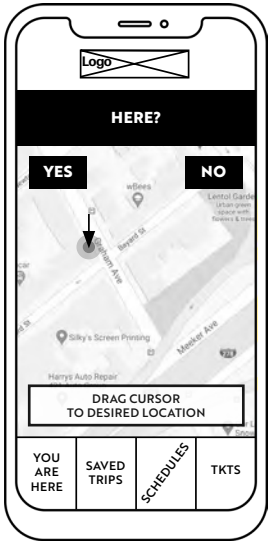
3a.

4a.

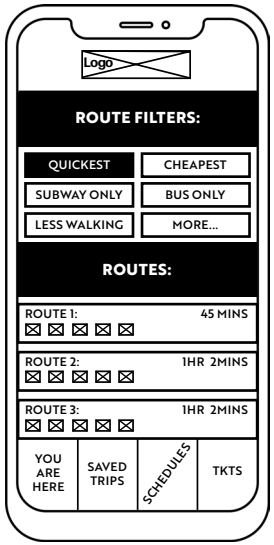
4b.

4c.

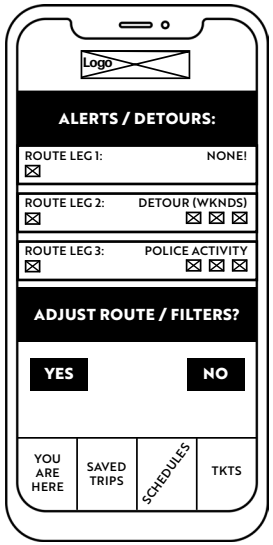
4e.



5-2a.



6-2a.



8a.

9a.

10.

11a.

12.

User Testing II Script

Thank you for agreeing to assist me again in strategizing the user experience design of my transportation app. Our 20 minute session gives us enough time for you to complete tasks and ask any questions or contribute any additional commentary.

As you walk through each task, I urge you to think aloud!

I will ask you to complete tasks as before, however elements have been adjusted, and in some cases there are a couple of different options that I am curious about which you prefer.

Your processing and evaluation of each step and task will allow me to best perfect the app's design.

Please know that there are no right or wrong answers or statements, and any insights you have are greatly appreciated.

1. **Your first task is to plan a trip from your current location.**

   What is your preference for the location of Y/N button?

   What do you think about the microcopy relating to dragging the cursor to your exact desired location?

2. **Your second task is to pick the route of your choice.**

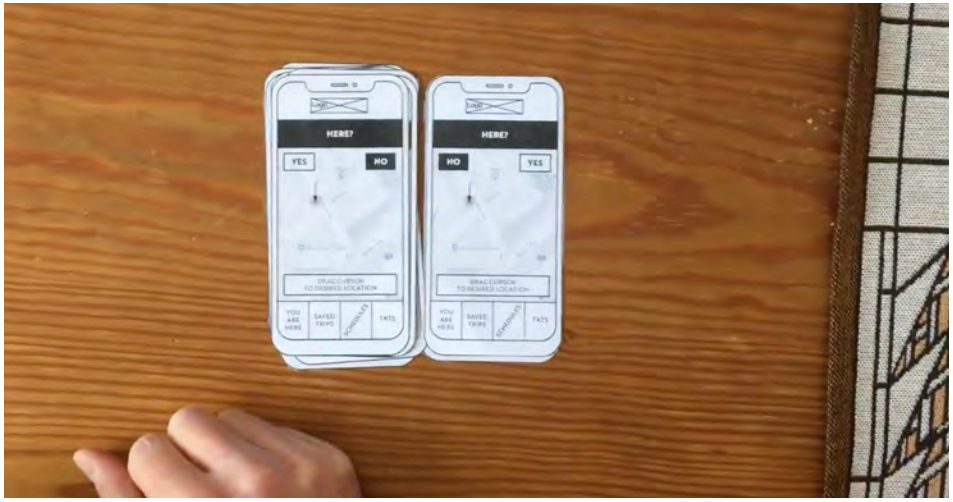
   What is your preference for the location of route filters?

3. **Your third task is to begin your trip without buying a ticket (because you already have your unlimited card)**

   What do you think about having to press a button to start your journey versus your journey automatically beginning?

4. **Do you have any additional notes or suggestions you'd like to make? Are there any areas that seem specifically vague or confusing?**

User Testing II



Watch the full Vimeo video here: https://vimeo.com/406646270/14c7fc77c5.

User Testing II Results

PROMPT:	JORDAN, 35	CASSIA, 75	ALEX, 35
Task 1: Plan a trip from your current location ***Q: Preference for Y/N Button?*** ***Q: Microcopy of dragging cursor?***	Preferred the "Yes" button on the left-hand side. Confirmation of understanding dragging the cursor, but pointed to pressing the microcopy as if it were a button. Would there need to be an additional button to confirm once a cursor is dragged to desired location? Noted "parenthetical" design instead of button-look.	Noted that it seems like the "Yes" button on the right-hand side is placed like a "Next" button would be placed. Was not comfortable with the concept of dragging the pin and moved her finger to press on the microcopy as if it were a button.	Preferred the "Yes" button on the left-hand side. Asked if the "No" leads you back to the address input form? Wanted to know the purpose of having the "No" button when the pin is draggable. Suggested that the drag-pin microcopy be more clearly "attached" to the pin itself so it appears less like a button as is.
Task 2: Pick the route of your choice. ***Q: Preference for location route filters?***	Preferred the top-alignment of the filters. Suggested that "Routes" banner divider be altered to state "Select Route."	Preferred the top-alignment of the filters. Was a little perplexed by the "Quickest Routes" being pre-loaded, but just paused a bit before picking her route choice.	Preferred the top-alignment of the filters. Wonders why you'd have to press "More" instead of just scrolling within that pane for more filter options.
Task 3: Begin your trip without buying a ticket. ***Q: Using a button to start your jouney vs. auto-start?***	Preferred button-selection start of journey vs. auto-start.	Preferrred to press a button to start the journey. Asked if the point of the button is to allow the user to save the journey for later for ease/speed of traveling without having to plan the journey in the moment.	Preferred the idea of the journey just loading "like it does in Google" and then giving you a smaller button to save the journey for later in the lower part of the screen.
Additional Comments:	Didn't register the text message receival wireframe, but understood the concept.	Suggested that the filters are more clearly outlined to indicate they are selected. The current black and white makes it confusing because there is so much black and white on the page already.	Thought the text message receival could occur at the same time as the journey began—and that that would be the way the the route was saved automatically.

User Testing II Lessons Learned

Things moved more smoothly with tasks in general this time around, and the pauses were due mainly to my questions about different options. WF 4, which was a hangup last time, now had very little attention as the users moved through each step of inputting their desired destination intuitively.

My consolidation of WF 7 and 8, or deletion of WF 7, which was unnecessary and redundant, also seemed successful with no pauses about how to proceed, and no questions as to the purpose of WF 8.

New things that will need finessing in the next round are:

1. **It seems that WF 5-2 is the way to go (vs WF 5-1), though Alex's note made me consider that perhaps there only needs to be one button to confirm. If someone wanted to start their destination-planning over, they could feasibly press the "You are Here" button on the lower left. This WF also continues to need some help due to the cursor microcopy looking like a button.**
2. **WF 6-2 is the unanimously-preferred configuration of information. The filters auto-loading "Quickest" made sense in general but would be easier to address in color wireframes (because of the current likeness to the "Route Filters" and "Routes" or "Select Route" banners). I like Jordan's suggestion of "Select Route" instead of "Routes" a lot!**
3. **WF 10, which documents the text message receival of the route directions, could be consolidated into WF 11 or WF 12 depending on if it does make sense to have the beginning of the journey auto-load or be loaded by the user pressing a button.**
4. **Users were 2-1 for a button being used to begin the journey. Cassia touched on the purpose of the button existing—to give the user the opportunity to save the journey for use at a not-immediate time, but Alex had an interesting alternate solution, too.**

5. Wireframes III and User Testing III (Clickable Prototype)

Wireframe Updates Based on User Testing II	**PAGE 32**
Wireframes III	**PAGE 36**
Wireframes III Wireflow	**PAGE 37**
User Testing III: Plan and Test Script	**PAGE 38**
User Testing III: Results and Lessons Learned	**PAGE 40**

I began this round of design and user testing with a major shift in the Move Me app design, having added a logo, icons, and a new layer of fidelity with the intention of gaining an increased depth of interaction, understanding, and engagement from my third round of users. This third round of testing would take place using the Marvel App, which allowed me to enhance the newly-improved designs with button assignments that follow my determined wireflow to create a convincing mock-up of a working app.

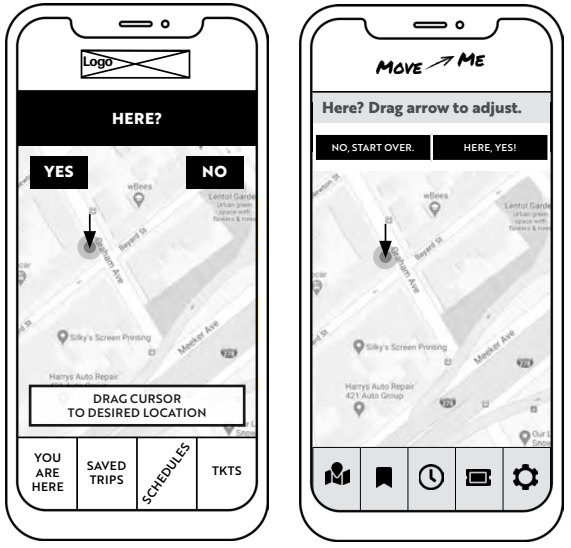
My experience of the third round of user testing led me to believe that users are more critical of a higher-fidelity prototype because it is more familiarly an app. As a result I found that, where my designs were flawed, my users seemed much more sure and opinionated about how the flaws affected their use of the app, as well as more sure of how the flaws could be improved.

Wireframe Updates Based on User Testing II: Step 4

[Click here to see Complete Updated Wireframes II](#).

Returning to a wireframe that I had focused on as a pivotal point in the Move Me app design in my last round of prototyping and user testing, the Step 4 wireframe was a good place to start in making sense of the hierarchy of prompts addressed to the user versus buttons requiring an action or decision by the user. In my past design iteration, the visual likenesses were confusing, and this wireframe was of particular interest because I had originally incorporated two different user-facing prompts, whereas in the next phase of design I simplified both into one that remained consistent throughout the complete user journey.

Step 4:



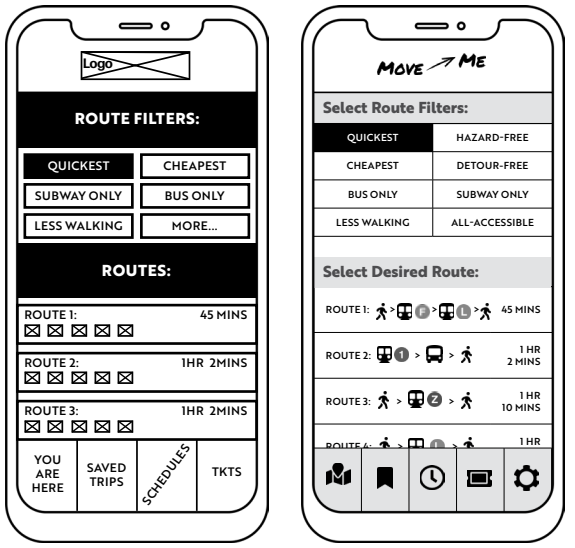
Before | After

Wireframe Updates Based on User Testing II: Step 5

[Click here to see Complete Updated Wireframes II](#).

Having established in the prior round that the filters were most naturally place at the top of this wireframe, I wanted to get more information moving forward about how users would interpret their interaction with the filters—if they expected that they would be able to pick more than one filter at a time, for instance. In order to focus on this I attempted to design everything else as one might see in an existing app so there were fewer mysteries for the user to be distracted by.

Step 5:



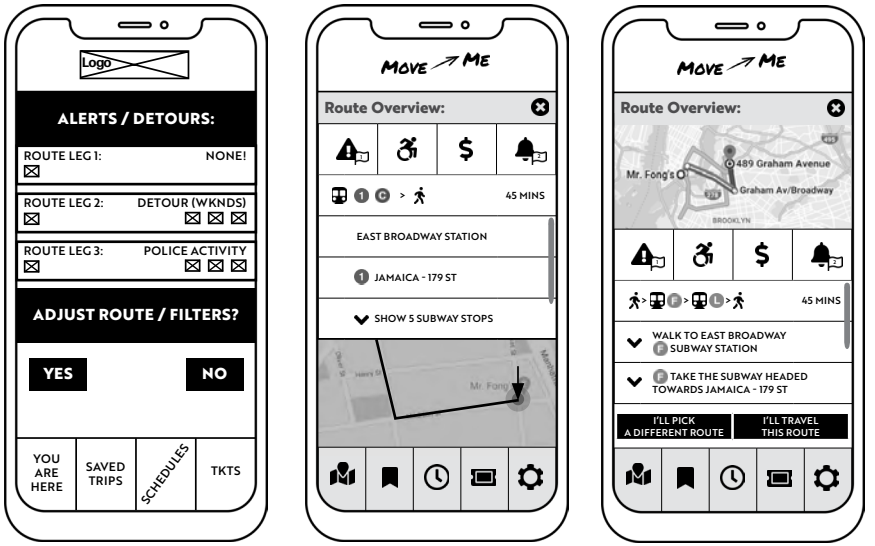
Before After

Wireframe Updates Based on User Testing II: Step 6

[Click here to see Complete Updated Wireframes II](#).

The route overview wireframe had not properly been registered by users in its earlier iteration—they seemed to gloss over it without much trouble, but I realized that they were interpreting it as redundant with the Step 5 wireframe because of the visually similar and low-fidelity nature of the earlier iteration, as well as the vague language used. This wireframe went through two design change processes before being shown to my 3rd round of users—the second iteration including buttons to pick the route or go back to where one can filter and choose a different one.

Step 6:



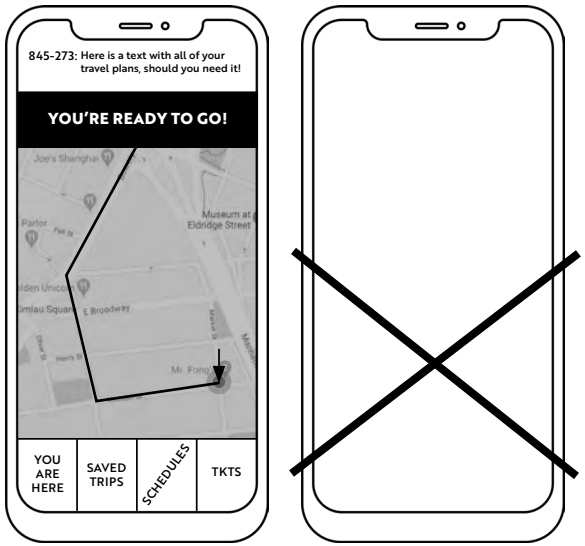
Before | After (1st) | After (2nd)

Wireframe Updates Based on User Testing II: Step 8

Click here to see Complete Updated Wireframes II.

Step 8 had been a problematic and vague element to test in this particular journey flow—the concept being that, upon picking a route, a user would receive a text with a version of directions saved locally to their phone. Because this is an action that could happen at any point in the journey flow without a particular disruption to the in-app flow, I decided that it was more important to iron out the journey flow at hand before pursuing this more rare app behavior further. For this reason I removed Step 8 before my 3rd round of user testing began.

Step 8:



Before

After

Wireframes III

Step 1

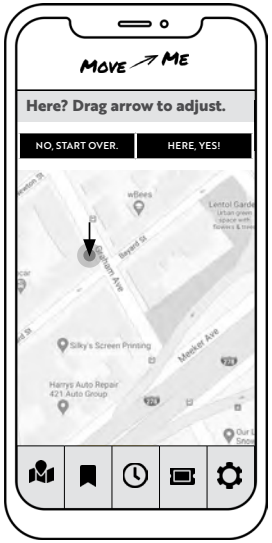
Step 2

Step 3-1

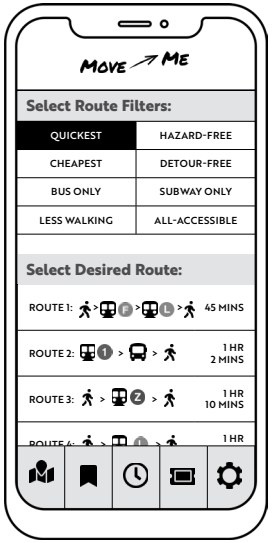
Step 3-2

Step 3-3

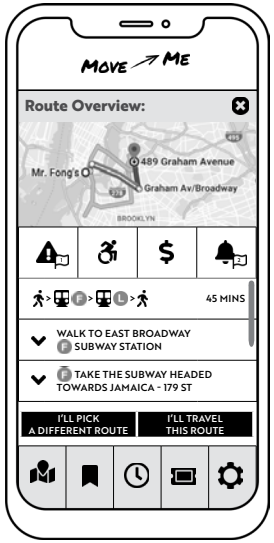
Step 3-4



Step 4



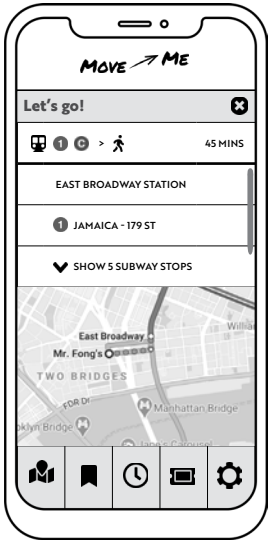
Step 5



Step 6

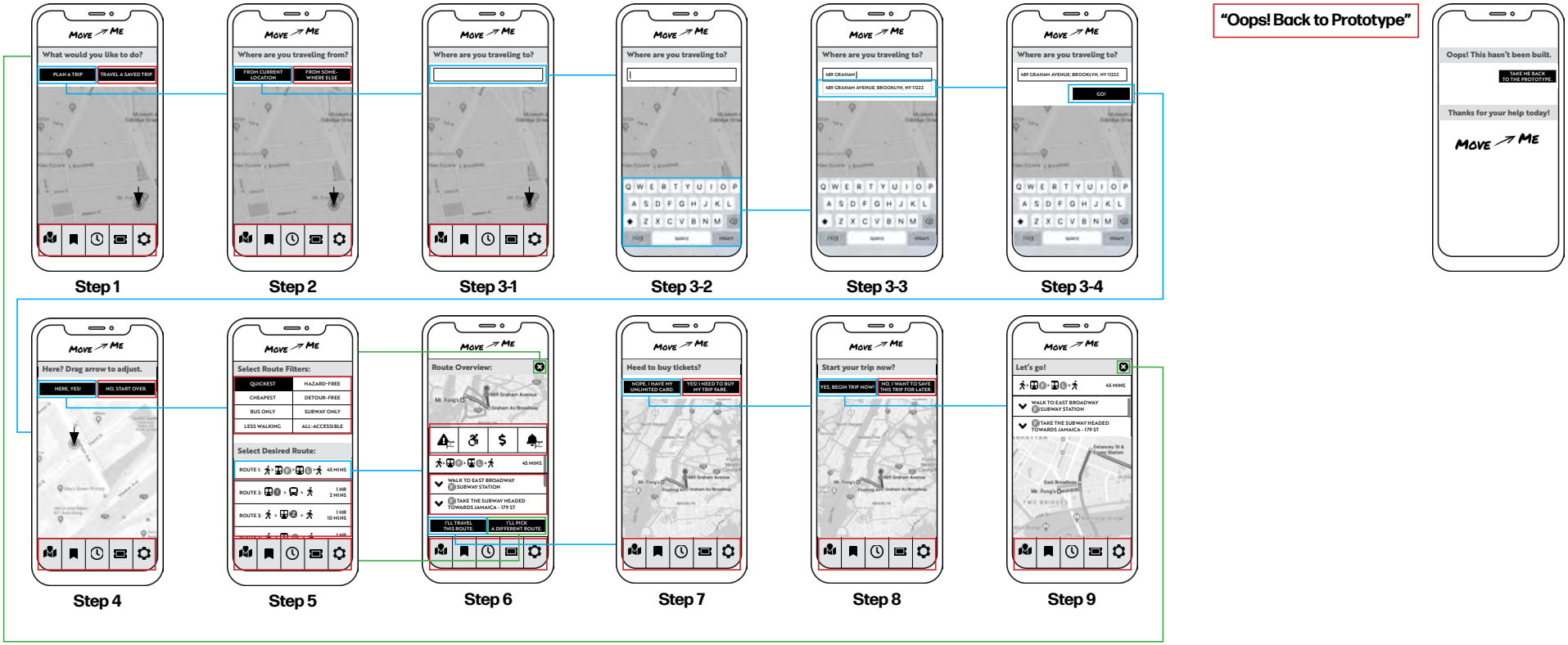
Step 7

Step 8



Step 9

Wireframes III Wireflow



[Click here to see a full-size version of the Wireframes III Wireflow.]

User Testing III

After updating my wireframes to maximize the main content of the screen, I felt confident to share my digital prototype with 3 new users. This round of testing was very fruitful in that my users understood what each step was trying to achieve. I believe the look was overall app-like enough for each user to get delightfully critical. I particularly enjoyed each user's rendition of what my app's icons were trying to convey!

One user made the valuable question of why she would want to navigate away from the Route Overview directions to head through a series of questions about tickets and saving the trip, when she just wanted to follow the route then and there. On the other side of the argument, my 2 other users believed it to be valuable for their style of travel—to plan a trip, and get tickets if need be, when not immediately ready to travel the trip. I will have to think over how to approach these 2 sides of the coin.

Relatedly, a user brought up the idea of the user having the options to either only see a map while traveling, only see the "narrative step-by-step" or both, as shown in my Route Overview and Let's Go screens.

User Testing III Script

Thank you for agreeing to assist me in strategizing the user experience design of my transportation app. Our 20 minute session gives us enough time for you to complete 3 tasks and ask any questions or contribute any additional commentary.

As you walk through each task, I urge you to think aloud!

I will ask you to complete tasks, and ask you a series of accompanying questions about your expectations and experience as you carry out each task.

Your processing and evaluation of each step and task will allow me to best perfect the app's design.

Please know that there are no right or wrong answers or statements, and any insights you have are greatly appreciated.

1. **Your first task is to plan a trip from your current location to 489 Graham Ave; Brooklyn, NY 11222.**

   a. What do you imagine each icon at the footer of the screen to represent?

   b. Do you feel clear about which elements on the screens are buttons and which are instructions?

   c. How would you imagine that you operate on the screen asking you to drag the arrow to your desired location?

   d. What would be the purpose of the "No, start over" button if you can drag the arrow to your desired location?

2. **Your second task is to pick the route of your choice.**

   a. How would you describe the filters working? Do you imagine that you can highlight multiple filters at once?

   b. How do you imagine "Saved Filters..." and "More Options..." to work?

   c. How do you think that you could get to the last selectable item in the list of routes?

   d. Do the icons in the center of the "Route Overview" screen appear to be clickable? How would you interpret their meaning?

   e. Do you imagine that you can zoom in on the map, and if so, how would you do so?

3. **Your third task is to begin your trip without buying a ticket (because you already have your unlimited card)**

   a. Does the copy on the ticket-purchasing screen make sense?

   b. Would you want your trip to load without asking the question of, "Start your trip now" ?

   c. Do you prefer the directions at the top of the page and the map at the bottom, as shown?

   d. How do you interpret the caret symbol on the left side of each direction?

   e. How do you imagine you would look ahead at directions that are further down the line of the journey?

4. **Do you have any additional notes or suggestions you'd like to make? Are there any areas that seem specifically vague or confusing?**

User Testing III Results: Task 1

TASK 1: PLAN A TRIP FROM YOUR CURRENT LOCATION TO 489 GRAHAM AVENUE; BROOKLYN, NY 11222			
QUESTION:	**JIM, 67**	**RYAN, 32**	**SABRINA, 35**
What do you imagine each icon at the footer of the screen to represent?	My guess... Honestly, I have no idea whatsoever what I would guess for any of them except for the middle one which would probably tell me how long it would take to get to my destination. from L to R: 1st—no idea, 2nd—no idea, 3rd—time to get from one place to the other, 4th—who knows, you might get a ticket, 5th—I dunno...	Far right: settings; the next one over: ticket transit purchase; middle: schedule/timetables; to the left of the clock: saved locations or trips? and the one all the way to the left, would be like main interface where we are now. Would be good to grey out or differentiate where you are in the app.	The one on the left I don't get. The next one, it looks like a bookmark. The one in the middle: time of some sort—schedule? The next one no idea and the one on the right: settings.
Do you feel clear about which elements on the screens are buttons and which are instructions?	Yes, both of those are clear.	Yes, so far I've had no question about what was a button or what was instruction.	I didn't have any pause about which were buttons or which were instructions.
How would you imagine that you operate on the screen asking you to drag the arrow to your desired location?	I would imagine that I would put my finger on the arrow and sort of press down and move my finger to where I'd want it to be and the arrow would move with it.	Using your finger to select the black arrow and move it around the map to where you'd want to go if it's not already indicating that.	I guess I would put my finger on the arrow and drag it to the place.
What would be the purpose of the "No, start over" button if you can drag the arrow to your desired location?	That if, for some reason, that it had somehow gotten the location wrong from the beginning—if I was going to someplace that was not on the screen, that it would take me back to where I would plug in a different address.	I guess if you were totally way off, and it took me to the wrong city, and it wasn't a smaller detail like being a corner off, but was as a result of a typo, you'd go back and re-type in the address.	I think it would take me back to the address—give me a chance to re-enter the address.

User Testing III Results: Task 2

TASK 2: NAVIGATE THROUGH PICKING OUT AND LEARNING MORE ABOUT ROUTE 1			
QUESTION:	**JIM, 67**	**RYAN, 32**	**SABRINA, 35**
How would you describe the filters working? Do you imagine that you can highlight multiple filters at once?	Quickest is pre-loaded. I imagine that you can load just one filter at a time.	It seems important to know whether you would be able to click and combine more than one filter. Like a tally at the bottom or even if it said "Pick one or more" or parentheses at the bottom with a number of what is being selected.	There are a lot of filters, but it's kinda nice. They're easy to read. The quickest is the currently selected route. I was imagining only filter at a time. "All-Accessible" sounds weird to me. Hazard-free, too.
How do you imagine "Saved Filters..." and "More Options..." to work?	I would say that "Saved Filters" feels extraneous to me because there's only 8 options on the screen and, assuming that you can only choose one filter, it seems that "Saved Filters" is redundant. "More Options" I imagine to be things like "most scenic route," "route with most services along the way."	Those seem straightforward, like if you have a go to set of criteria. "Quickest" filter is too visually similar to the buttons. Like the idea of having options being add-able subtract-able.	Saved Filters would be ones that I had maybe bookmarked? If there was an option to choose more than one filter, that would be good to know.
How do you think that you could get to the last selectable item in the list of routes?	The thing on the right seems like a thing you could drag—also bc Route 4 is not revealed—you could scroll to see it.	You would scroll to see additional items.	There's like a bar on the right side—scrolling?
Do the icons in the center of the "Route Overview" screen appear to be clickable? How would you interpret their meaning?	The 4th is a bell which means nothing to me. The bell is the destination? The notification flags don't register clearly. Unidentified bus vs. identified subways... The icons between bus and subway are not clearly differentiatied.	Indicate that there are potentially obstacles of some sort, like a closure, accessibility, cost, and the bell—hmm... is it that you have 2 minutes to get to it? The numbers—a notification of some sort.	The map is pretty zoomed out on this screen. The icons I'm not really sure what they're supposed to be communicating—hazards, accessibilty, price, bell=notifications? They are big so I guess they are clickable? I might make them smaller and more "button-like" more 3D? Something to differentiate them from what is below them.
Do you imagine that you can zoom in on the map, and if so, how would you do so?	Yes, like you can with an iPhone, and that it would show more detail as you zoomed in.	Yes, pinch style.	Yes, well it's not clear, like there's no zoom-in zoom-out function, but I assume it would be the general pinch function.

User Testing III Results: Task 3

TASK 3: BEGIN YOUR TRIP WITHOUT BUYING A TICKET (BECAUSE YOU ALREADY HAVE AN UNLIMITED CARD).			
QUESTION:	**JIM, 67**	**RYAN, 32**	**SABRINA, 35**
Does the copy on the ticket-purchasing screen make sense?	Yes, that's very clear.	My only quibble with the language is that you might already have a ticket but it's not necessarily an unlimited. "Nope I'm all set" instead?	Unlimited Card might not make sense if someone was unfamiliar with the area.
Would you want your trip to load without asking the question of, "Start your trip now"?	No, this is good because a lot of times people want to figure out their trip ahead of time, and have it locked in, but are not ready to take the trip, so I think it's a good screen.	I think it makes sense to affirmitively start the trip because if you have an errand to run in between for example. And if it auto-loaded, I could imagine having frustration about not wanting to have started yet.	See additional comment on next page. It does feel like it's asking me for a lot of confirmation.
Do you prefer the directions at the top of the page and the map at the bottom, as shown?	I think it's fine. Sometimes people have the ability to choose between maps and step-by-step narrative directions, so I might allow the user to choose one or the other or have both as shown.	Because of the way you hold a phone, the insructions might be better suited to the bottom half, so you can use your thumb easily to tap to expand more info about each direction step.	n/a. I don't know why I had to go through so many steps to get to this.
How do you interpret the caret symbol on the left side of each direction?	If you were to click on those there would be more detail provided. Like stuff would come down off of that with more detailed info.	To me it's telling you the flow of the directions or perhaps if you click on it there would be more info below. My gut is that it's just indicating the sequence.	I guess that a map would open and you could see more stuff? I feel like another window would open up below.
How do you imagine you would look ahead at directions that are further down the line of the journey?	I would imagine that they would automatically roll out as you move. But also you would be able to either scroll ahead with the narrative directions or tap on the route at another juncture to get more info.	Scroll bar, the directions staying in that small zone. Might make sense to have the breakdown of time on each separate step.	Scrolling ahead.

User Testing III Results: Additional Comments

ADDITIONAL COMMENTS			
QUESTION:	**JIM, 67**	**RYAN, 32**	**SABRINA, 35**
Additional Comments	None really. The whole thing might work better if there was color in there. You might be able to make things cleaner and clearer with the use of color.	The X on the final Let's Go page should take you back to the previous screen, where you trip has been planned. Color would be useful. Is the intent that the overall app is in B/W? Even one accent color might help to just note where you are in the app.	Doesn't understand why the route would not just load and "begin" once the route is selected (and have Route Overview be the page that the full navigation would take place from). The directions are already there so I'm not sure why I need another screen. Normally when I'm looking for directions I'm looking to use them right away. The "X" on the Route Overview page seems like it would close the whole route overview page and lead back to the picking route page.

6. Final Wireframes

Wireframe Updates Based on User Testing III PAGE 45

Final Wireframes PAGE 51

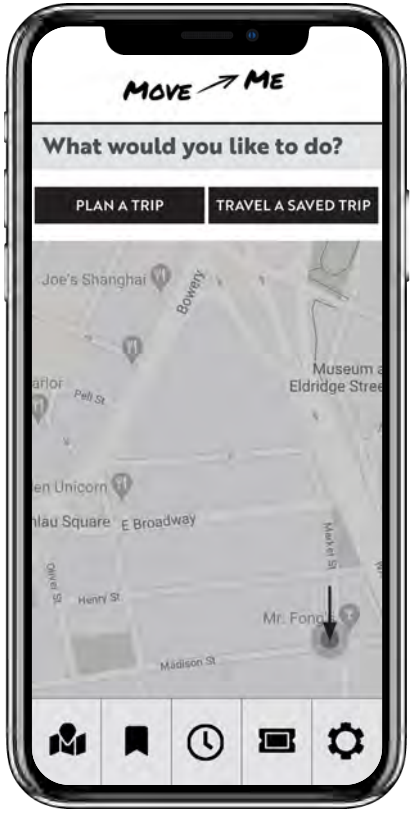
My third round of user testing yielded more concrete direction in terms of what needed to be solved for Move Me to be in its most user-friendly state. Because large-scale questions I had faced from the first set of wireframes onward were more clearly confronted, I knew that I had to make the more drastic change of removing and consolidating several wireframes. This was a change that I hadn't felt sure of making until the third round of user testing, and it was rewarding to have found that the higher-fidelity yielded an assuredness in my users' opinions. Because the users had conflicting opinions, however, I made my final changes to address the differing angles each user may have. I do believe that another round of User Testing in the future will be equally as invaluable to the progression of the Move Me app!

Updated Wireframes III: WF 1

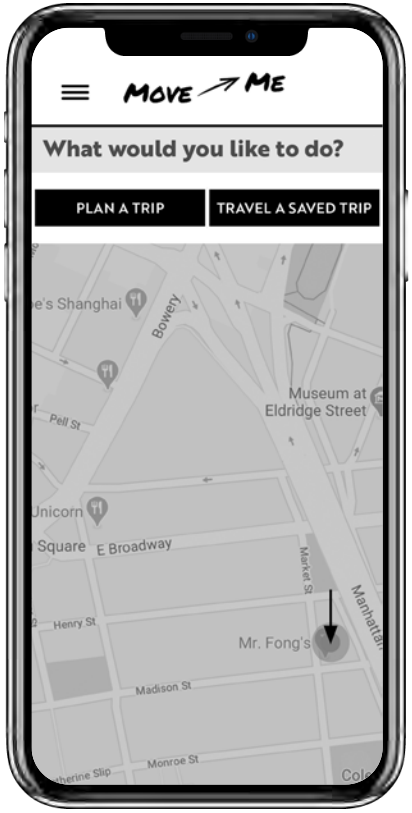
“Honestly, I have no idea whatsoever what I would guess for [the meanings of any of the icons]...”

Due to the consistent refrain (above) during the user testing of my clickable prototype, I made the choice to remove the lower footer banner. I replaced it with the familiar 3-bar menu icon on the top left, as a general go-to for the app’s additional capabilities, but the screen space is now more available to each specific task at hand.

Wireframe 1: Before



Wireframe 1: After



Updated Wireframes III: WF 8

“It seems important to know whether you would be able to click and combine more than one filter.”

“The filters look so much like the buttons.”

This is a crucial slide with a lot of information to take in, and it is a lot easier to see the divide in the two prompts with the space gained from the removal of the footer banner.

I also re-designed the filters to be more clearly reflective of what is chosen and how many routes result from which preferences. The check box system is universally used on the web for non-mutually-exclusive selection, so I hope that there is now clarity about one’s ability to combine filters.

I removed the “Saved Filters” button and re-worded “More Options...” to read “More route customization...” to simplify what could lead to the same location for both additional customizations and those that have been saved in the past.

Wireframe 8: Before

Wireframe 8: After

Updated Wireframes III: WF 9

“I don’t understand why the route wouldn’t just load once I selected it on the last screen... Normally when I’m looking for directions I’m looking to use them right away.”

“If the trip auto-loaded, I could imagine having frustration about not wanting to have started yet.”

Because I had varying responses to the journey taking users through multiple screens to actually begin the trip, I decided to consolidate all options into one screen, with the user in control of how they proceed, and how immediately (or not) they begin their trip. Now, users can pick to “travel this route now!”, “add this to my saved routes,” “pick a different route,” and/or “buy a ticket before I go.”

I also rearranged the order of route-specific notifications to take place at the top of the screen, and added text to the icons for clarity’s sake.

Additionally, I included a “To” “From” route itinerary above the selected route’s broad-strokes details. I carry this over to the next “let’s go” wireframe (WF 12) as well.

Wireframe 9: Before

Wireframe 9: After

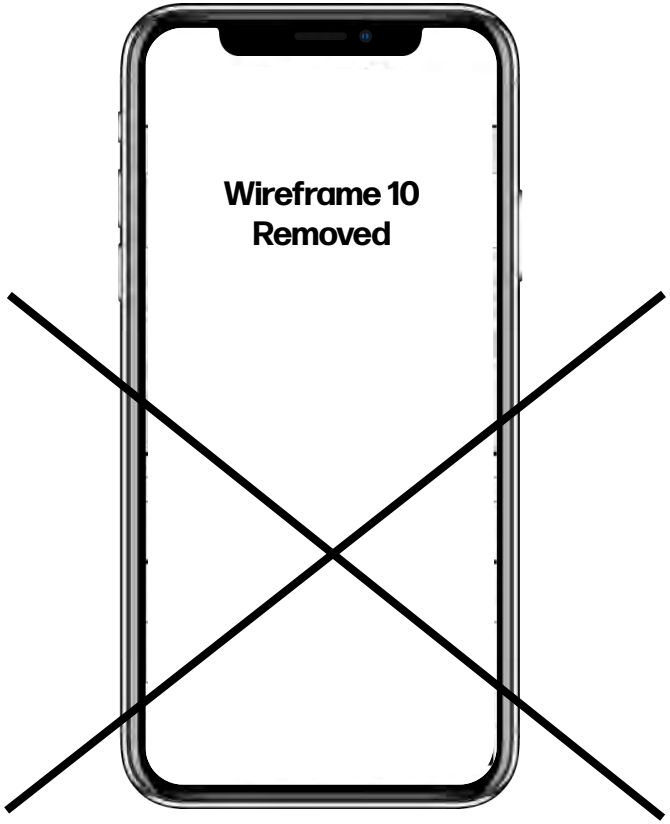
Updated Wireframes III: WF 10

“My only quibble with the language is that you might already have a ticket but it might not necessarily be an unlimited.”

My user’s comment (above), combined with another user’s comment about not wanting to have to go through these steps to start her trip, led me to think more about how this screen was acting as a barrier to some, and not detailed and varied enough to be helpful to others who actually may need to buy any number of different kinds of tickets. As a result I added the option to diverge from the route journey flow to buy a ticket on WF 9 and removed this, WF 10.

Wireframe 10: Before

Wireframe 10: After



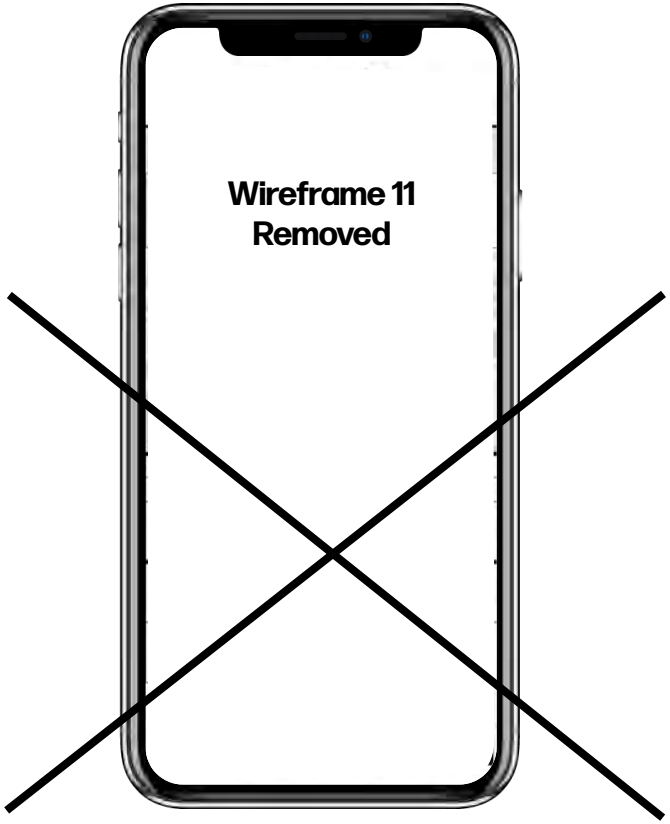
Updated Wireframes III: WF 11

"It feels like this app is asking me for a lot of confirmation..."

I removed this WF 11 as well because I am happy with the solution to give users all relevant options on the one screen of WF 9 without tripping them up (no pun intended!) on potentially-redundant screens that may unnecessarily be keeping them from their goal.

Wireframe 11: Before

Wireframe 11: After



Updated Wireframes III: WF 12

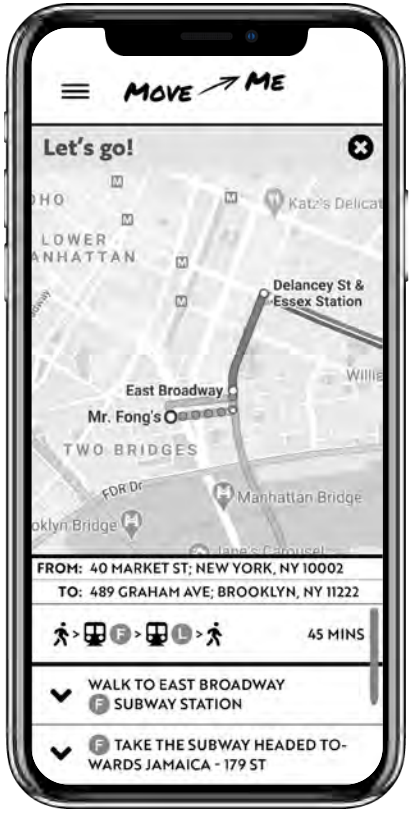
“Because of the way you hold a phone, the route instructions might be better suited to the bottom half, so you can use your thumb easily to tap and expand more info about each step.”

I enjoyed being reminded of the physical ergonomic placement of the fingers that are carrying out the user experience. Because of this, I took my user’s suggestion, and compared it to other current transit apps, realizing that this must be why they made the same decision to move the scrollable, text portion to the lower half of the screen, where most users are doing the bulk of their operating of the app.

I also carried over the itinerary intro to the text portion of the route so there is no confusion at the start of the journey. I compare this to the UI strategy of giving the user confidence that their request has been heard, similar to a loading symbol.

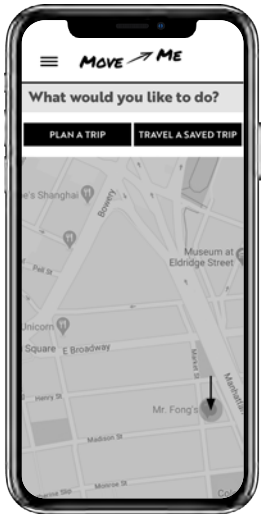
Wireframe 12: Before

Wireframe 12: After



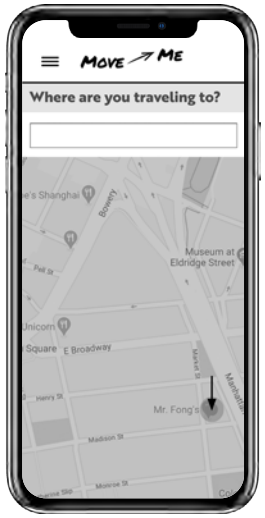
Final Wireframes

[Link to Final Wireframes Clickable Prototype on Marvel App](#).

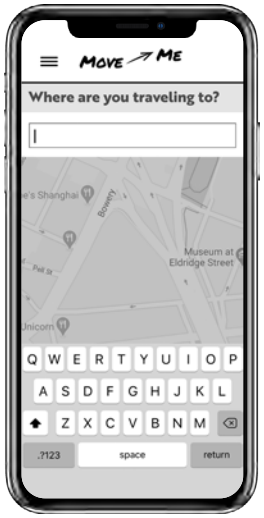


Step 1

Step 1

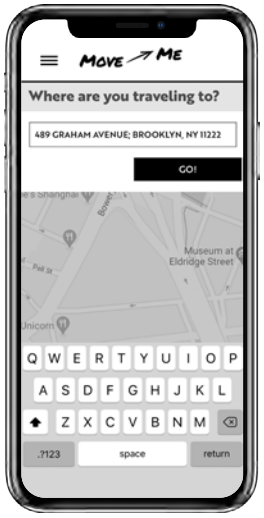


Step 1

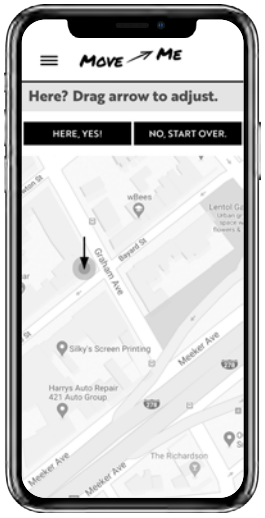


Step 1

Step 1



Step 1



Step 1

Step 1

Step 1

Step 1

Step 1

7. Final Thoughts

Paper vs. Digital Prototyping **PAGE 53**

As a final reflection, I weighed the importance of the different stages of prototyping (the earlier Paper stage versus the later digital clickable stage) in my experience of the Move Me app development process.

Paper vs. Digital Prototyping

My experience of testing with the clickable prototype was colored by multiple factors—the most important including that the fidelity of my wireframes had progressed a great deal since my paper prototype, so that placeholders were filled in, and my users could now as a result react to icons and smaller symbols such as carets. While I preferred this level of testing, having ironed out many of the earlier kinks that come along with vagaries that have yet to be clarified, I do believe that both tiers of testing (paper and clickable) are equally invaluable. Paper prototype testing was valuable for learning more about broad strokes that may be expected. Clickable prototyping was valuable because people are more familiar, and I believe as a result, more critical of what they are interacting with in front of them.

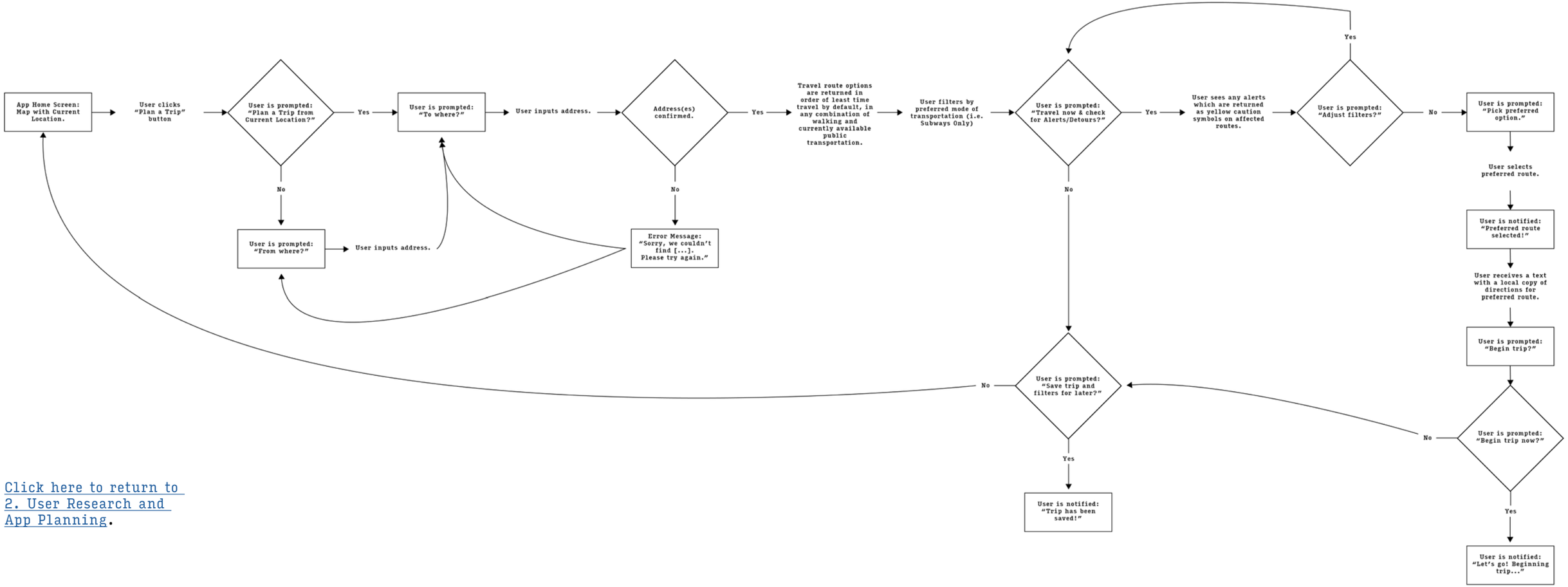
Because of this familiarity of screen and clicking, etc. at the clickable prototype level, I found there to be confusion with the difference between each wireframe and a fully functioning working app. My users were unanimously confused by the point at which they would hypothetically input text via the keyboard, because they were not fully confronted with acknowledging that the clickable prototype was still not an actual functioning app. Conversely, users are readily aware in the process of testing with a paper prototype that the app is not yet functioning.

In terms of the quality of answers, at this stage I definitely noticed a better effort by users to suggest specific solutions, perhaps because there was more material and clarity of purpose for them to use as helpful context to inspire more detailed thinking. It was easier for them to liken the clickable prototype to other existing apps that they might use regularly, and so there was more intrinsic background data for them to pull from.

A paper prototype doesn't allow for as much suspension of disbelief—the reminder that it isn't "real," and is, in most user's cases, the first time they are seeing something at this unfamiliar stage, occurs often in that format. I therefore found that the "learning curve" in ways was more steep in moments when the clickable prototyping app would veer away from a functioning app. On the other hand, this was because they aligned so quickly to the flow of clicking buttons to move through screens. It was funny that, in some of my users' cases, I found that I needed to slow them down so I could ask the questions I had in mind before they advanced away from the screen at hand, for instance. This natural flow of interacting with a prototype seemed to result in the kinks being more fully noticeable to the users to point to than in the case of the paper prototype, which has some intrinsic kinks of its own.

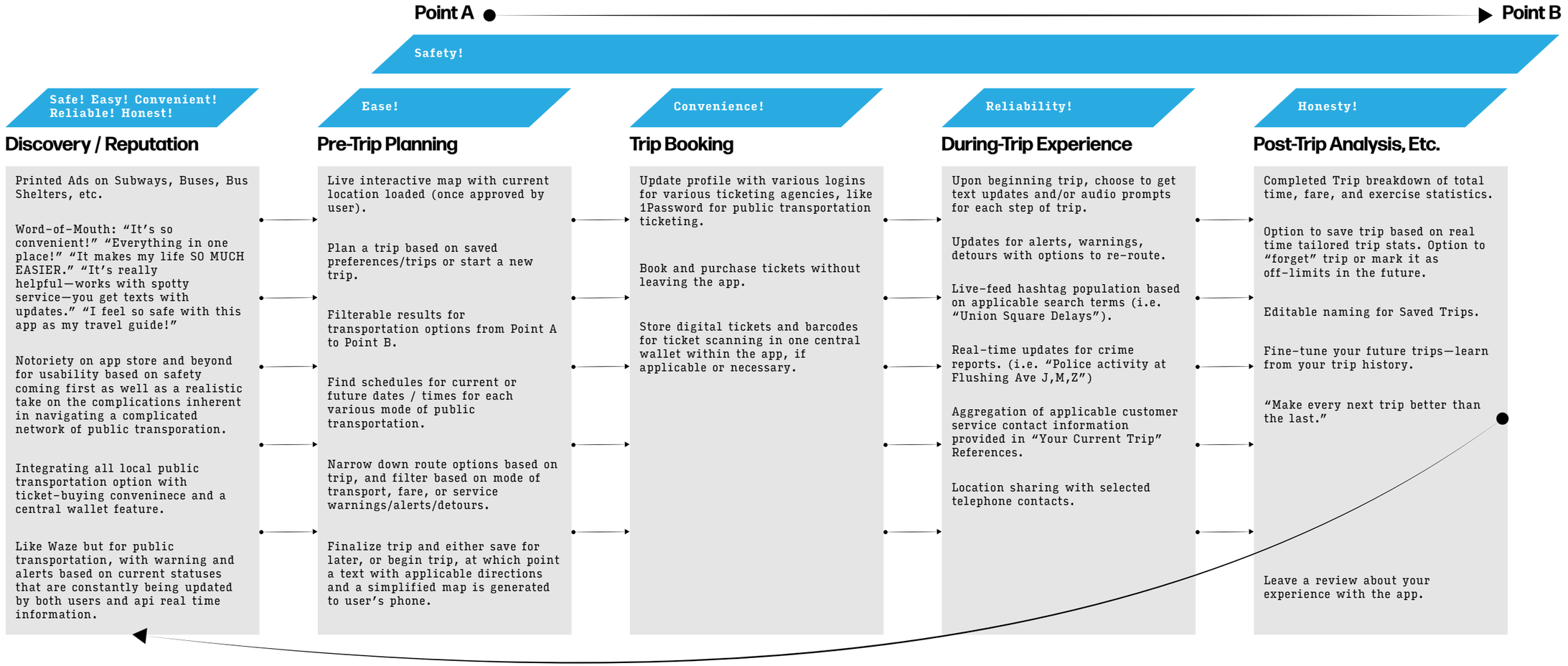
APPENDIX

User Task Flow: Planning a Trip



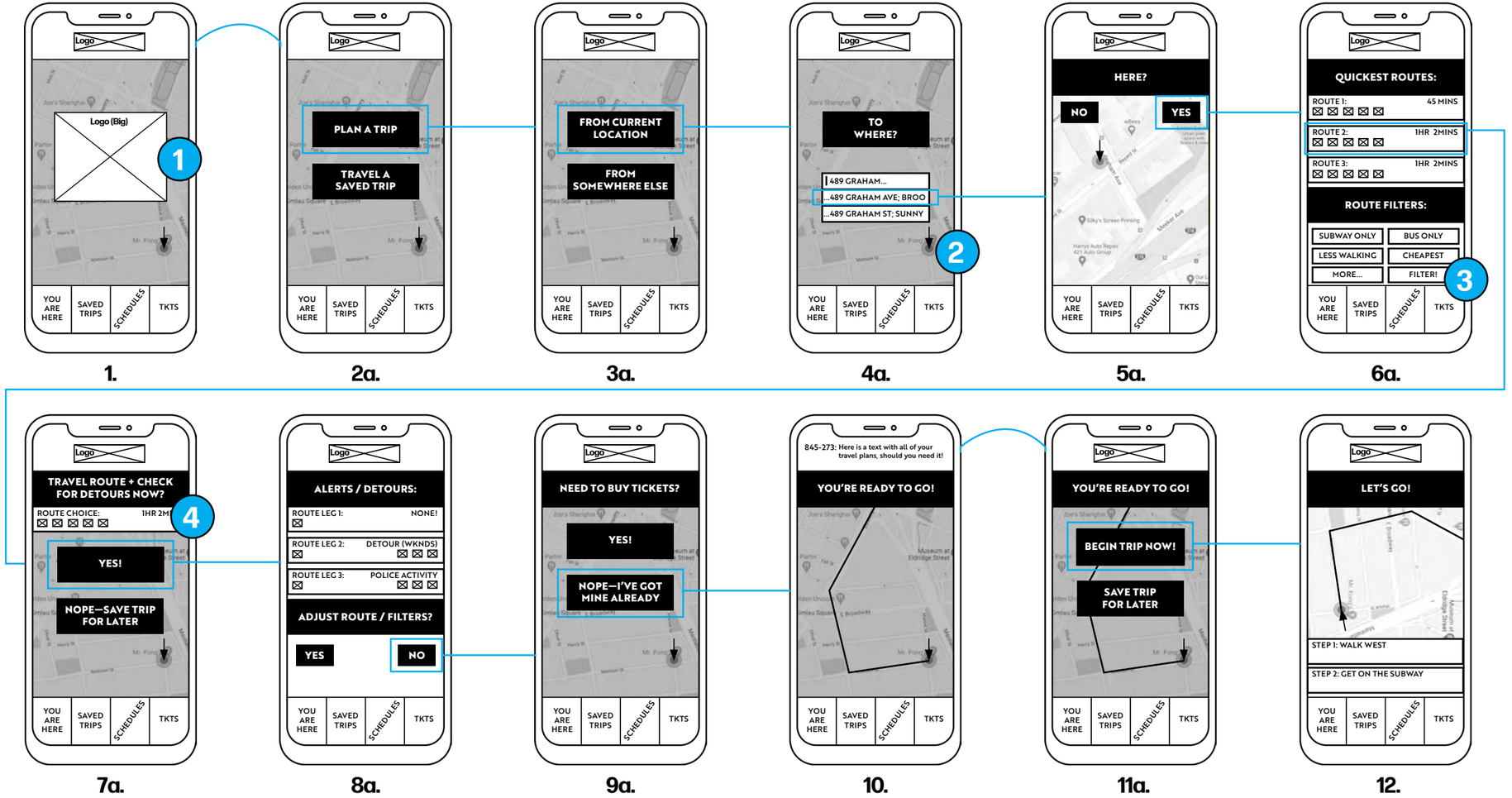
[Click here to return to 2. User Research and App Planning](#).

User Journey Flow: Full App



[Click here to return to 2. User Research and App Planning.]

Post-User Testing I Wireframe Flow Documentation



1. A user made a statement: "This is the mainscreen, and this logo goes away." It made me process that I did intend for the logo to be a brief appearance, like an intro gif—and not something that requires an action to move away from.

2. 2/3 users pointed to the lack of a button that confirms the address typed in, versus how I had overlooked that element, thinking the WF 5 would be generated from the tapping of the correctly populated address within the dropdown. I plan to add a "Go" button below the address input.

3. A user pointed out that the filter section in WF 6 could be simplified with the filters loading as they are tapped, doing away with the "Filter" button.

4. A user made a point about expecting WF 7 to include a breakdown of each leg of the route—and I now believe that WF 7 is unnecessary and that WF 6 can push the user directly to WF 8. The question is whether the Alerts / Detours would be useful for someone who was planning a trip for a different time—which would be the argument against removing WF 7.

Click here to return to 3. Initial Wireframes and User Testing I.

Complete Updated Wireframes I

Updated Wireframes I: Step 1 + Step 2

Click here to return to 4. Wireframes II and User Testing II (Paper Prototype).

Step 1:

2a.

2b.

Step 2:

3a.

3b.

Updated Wireframes I: Step 3

Click here to return to 4. Wireframes II and User Testing II (Paper Prototype).

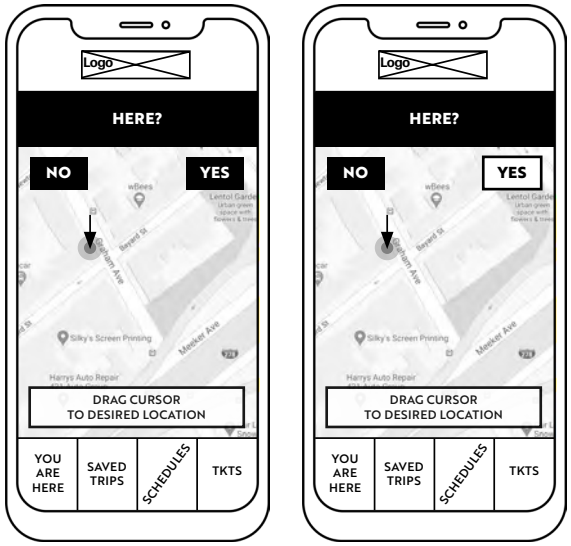
Step 3:

4a. 4b. 4c. 4d. 4e. 4f.

Updated Wireframes I: Step 4

Click here to return to 4. Wireframes II and User Testing II (Paper Prototype).

Step 4 (Option 1):

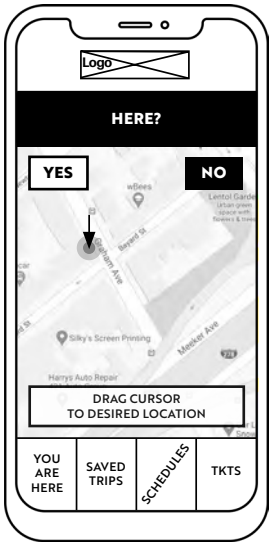


5a.

5b.

Step 4 (Option 2):

5-2a.

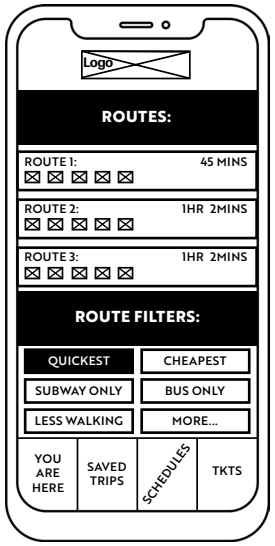


5-2b.

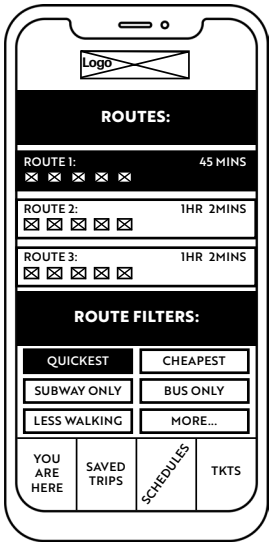
Updated Wireframes I: Step 5

Click here to return to 4. Wireframes II and User Testing II (Paper Prototype).

Step 5 (Option 1):

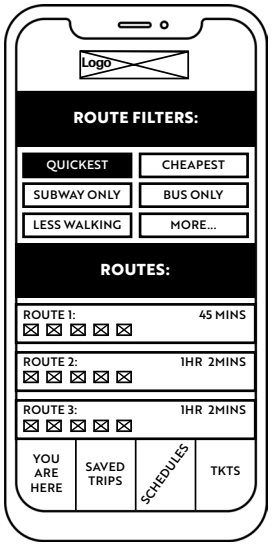


6-1a.



6-1b.

Step 5 (Option 2):



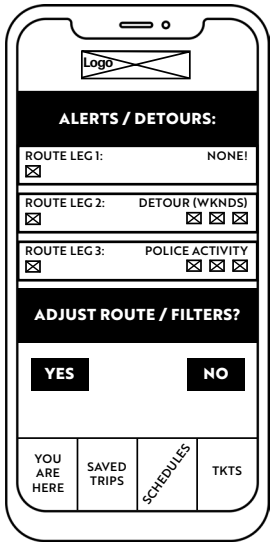
6-2a.

6-2b.

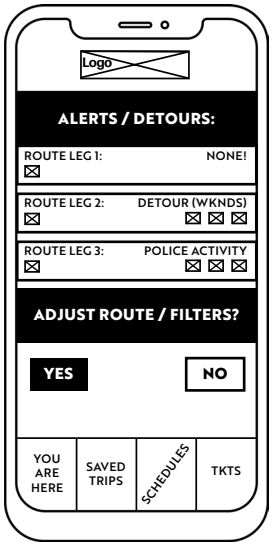
Updated Wireframes I: Step 6 + Step 7

Click here to return to 4. Wireframes II and User Testing II (Paper Prototype).

Step 6:



8a.



8b.

Step 7:

9a.

9b.

Updated Wireframes I: Step 8 + Step 9 + Step 10

Click here to return to 4. Wireframes II and User Testing II (Paper Prototype).

Step 8:

10.

Step 9:

11a.

11b.

Step 10:

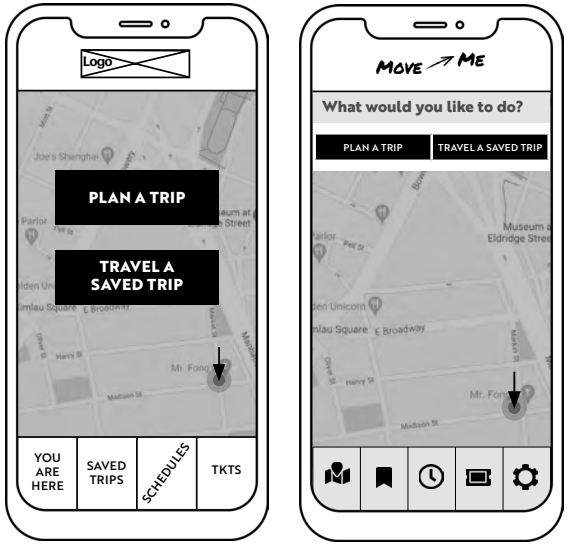
12.

Complete Updated Wireframes II

Updated Wireframes II: Step 1

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 1-1:



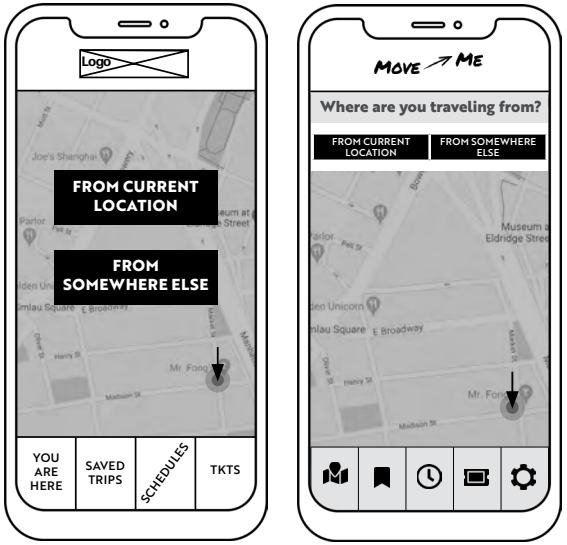
Before

After

Updated Wireframes II: Step 2

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 2-1:



Before

After

Updated Wireframes II: Step 3

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 3-1:

Before | After

Step 3-2:

Before | After

Updated Wireframes II: Step 3 (Continued)

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 3-3:

Before | After

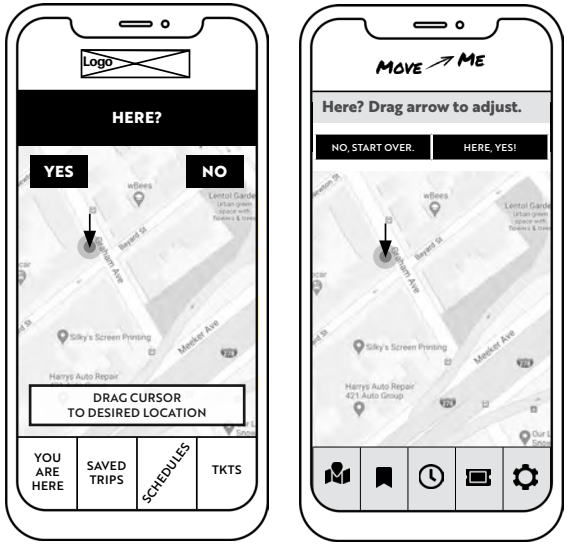
Step 3-4:

Before | After

Updated Wireframes II: Step 4

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 4-1:



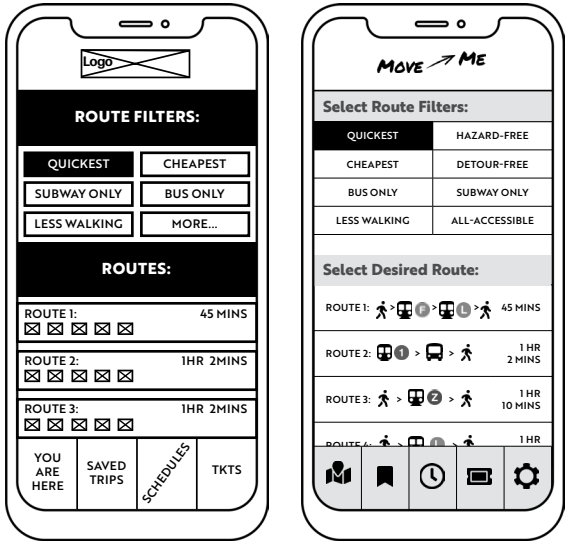
Before

After

Updated Wireframes II: Step 5

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 5:

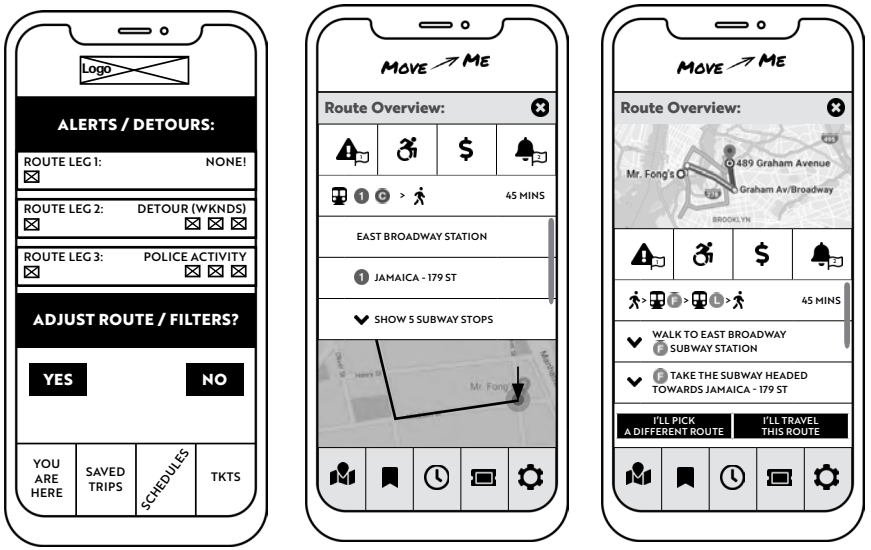


Before | After

Updated Wireframes II: Step 6

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 6:



Before **After (1st)** **After (2nd)**

Updated Wireframes II: Step 7

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 7-1:

Before

After

Updated Wireframes II: Step 9

Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 9-1:

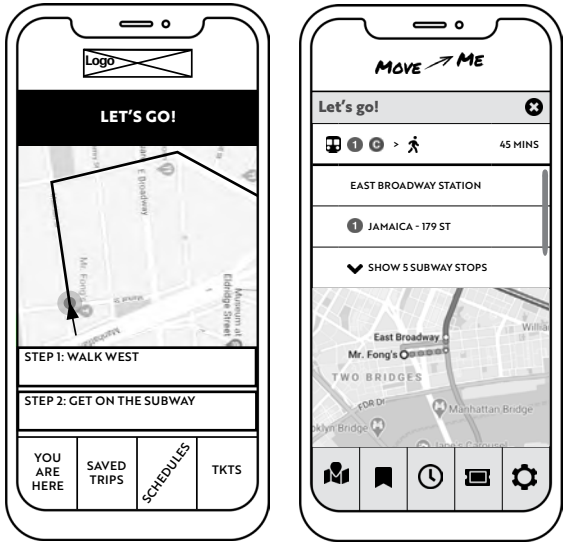
Before

After

Updated Wireframes II: Step 10

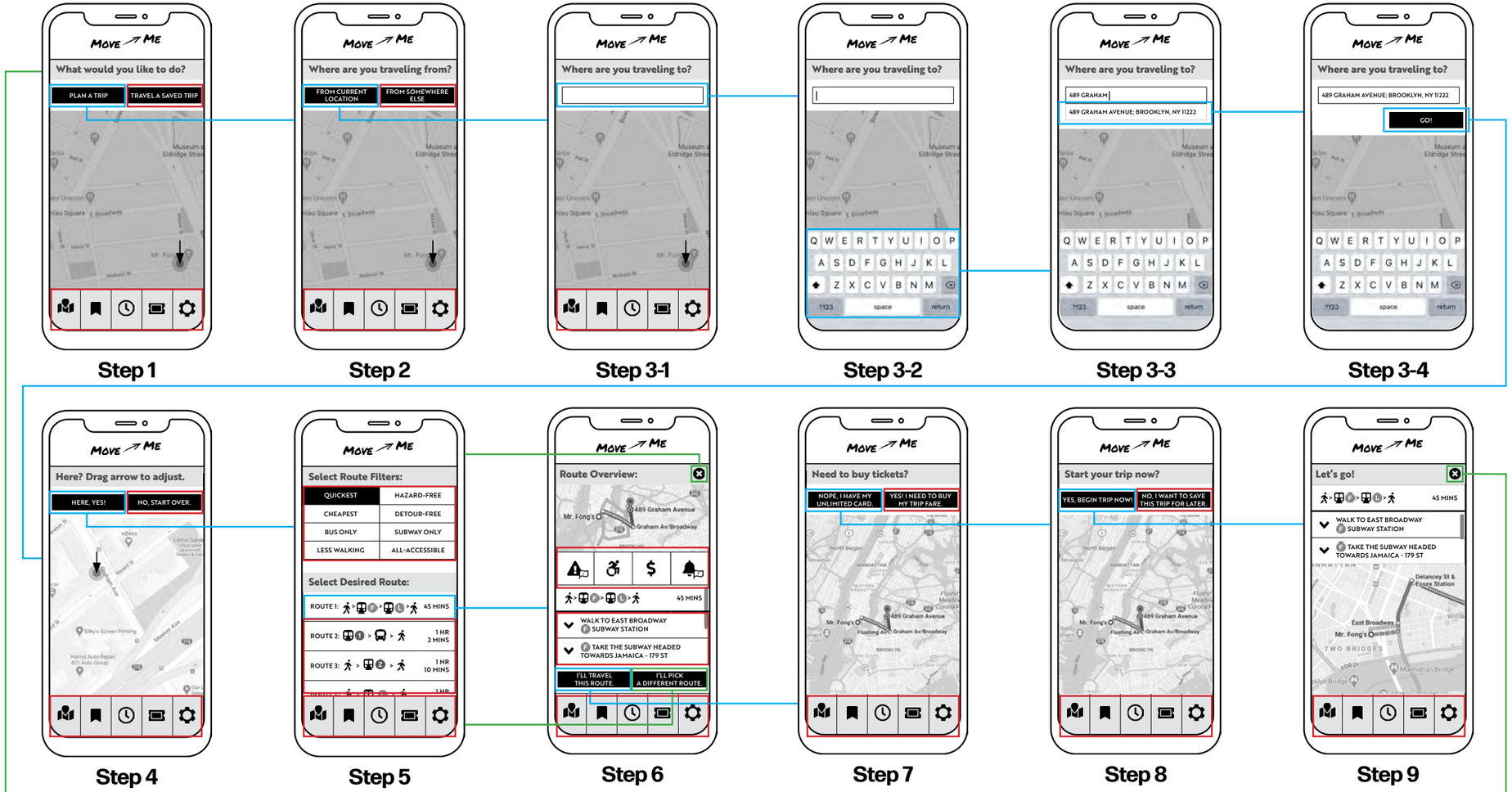
Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).

Step 10:



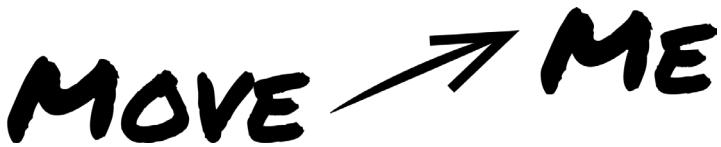
Before | After

Wireframes III Wireflow



"Oops! Back to Prototype"

[Click here to return to 5. Wireframes III and User Testing III (Clickable Prototype).]



Thank you!