



NJ TRANSIT

The Way To Go.

UX Case Study 2

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User Experience Design I
UCSD Extension

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Overview

About NJ Transit Mobile App

The NJ Transit Mobile App is the official mobile app for the NJ Transit System (NJT), the largest statewide public transportation system in the country, serving almost a million riders daily. According to the NJ Transit website, the app seeks to “**conveniently [provide] vital transit information on your mobile device**” (1). Users can buy tickets, view schedules, see departure and arrival information for stations, and more. First released in 2013, it currently holds a 2.0 star rating on in the iTunes App Store.

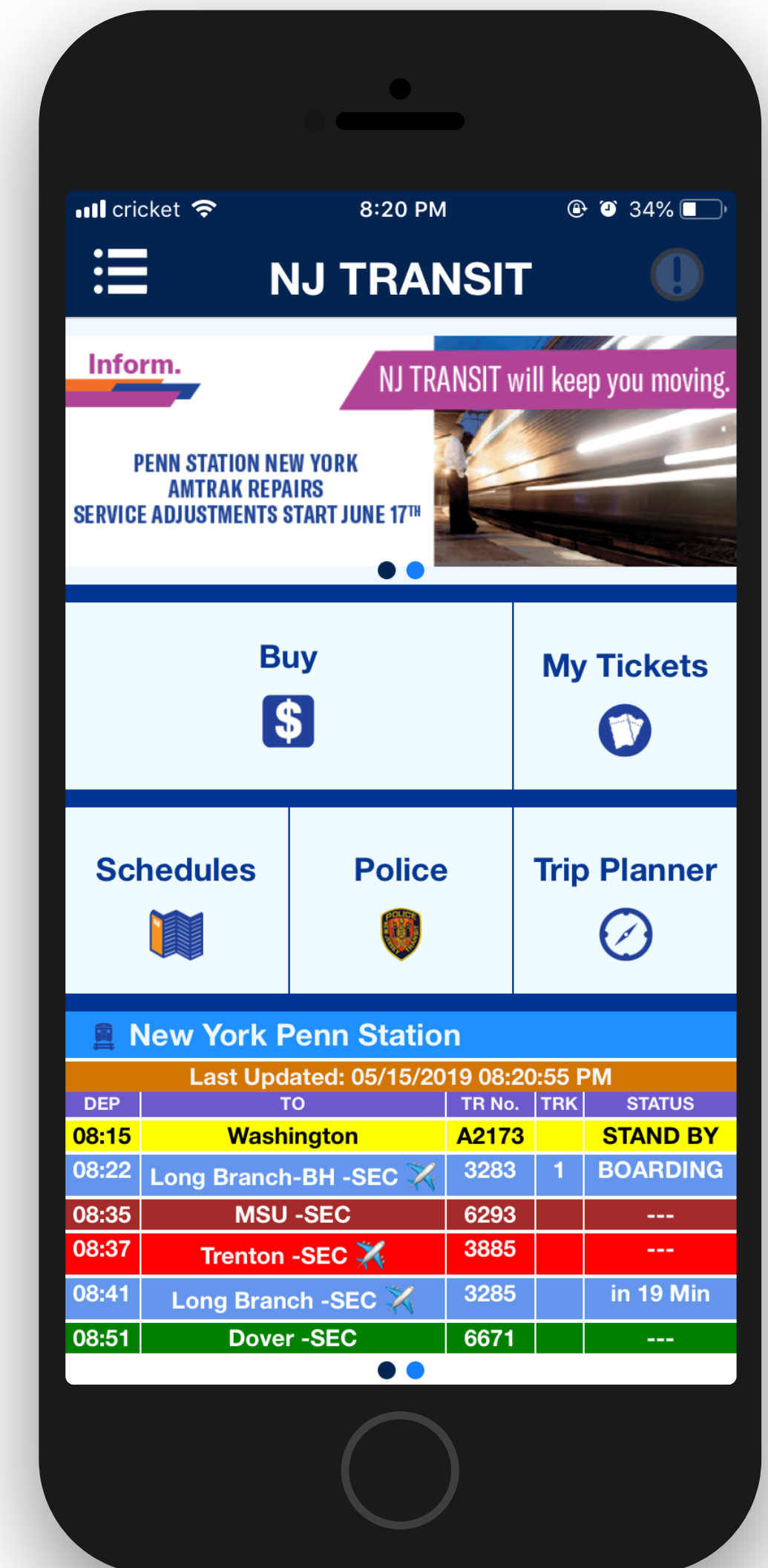
Purpose

Given the larger ridership of NJ Transit and the often negative emotional experience of commuting, it's critical that a transit app is **seamless, easy to use, and does not add to the stress of the commute**. Therefore the purpose of this case study is two-fold: first, assess whether the app truly **meets its stated goal of convenience** and ready access to information; second, determine and test **potential solutions to address any issues** preventing the app from fulfilling that goal.

Scope

The scope of this case study is limited to the following:

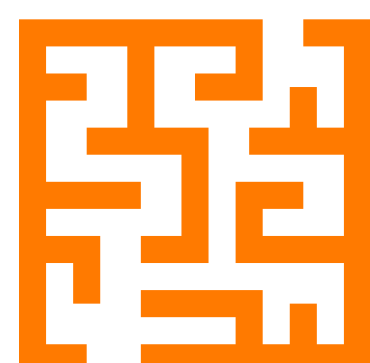
- A. iOS mobile app (Android app is excluded)
- B. Train-related experience (Buses are excluded)
- C. Usability and interaction of the app (the app is also troubled with functionality issues, i.e. crashes constantly, but such issues will not be addressed in this case study)



Current state issues

Summary

Three themes consistently appeared in analyses that drove a negative experience for users:



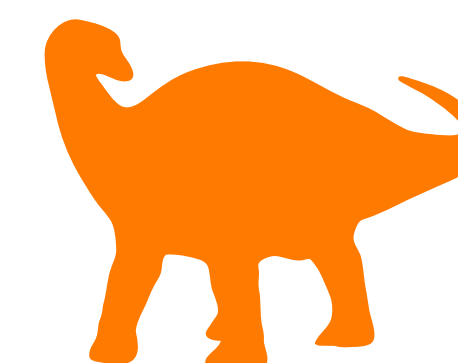
Clunky access to key information

Information is not delivered in an immediate and optimal manner for on-the-commute environment



Tedious task flow

Accomplishing key tasks (i.e. buying tickets, viewing train schedules) require unnecessary number of steps and can be streamlined



Outdated visual design

Unpolished aesthetic negatively impacts emotional response to app experience

Supporting analyses

App Store Review Catalogue

Sorted through 103 1-2 star reviews from 5/13/17-5/13/19 of current app design

Task Analysis

Developed task analysis for two main tasks

Competitive Analysis

Reviewed three transit apps (MTA, MuniMobile, Delta) to compare their performance in key themes

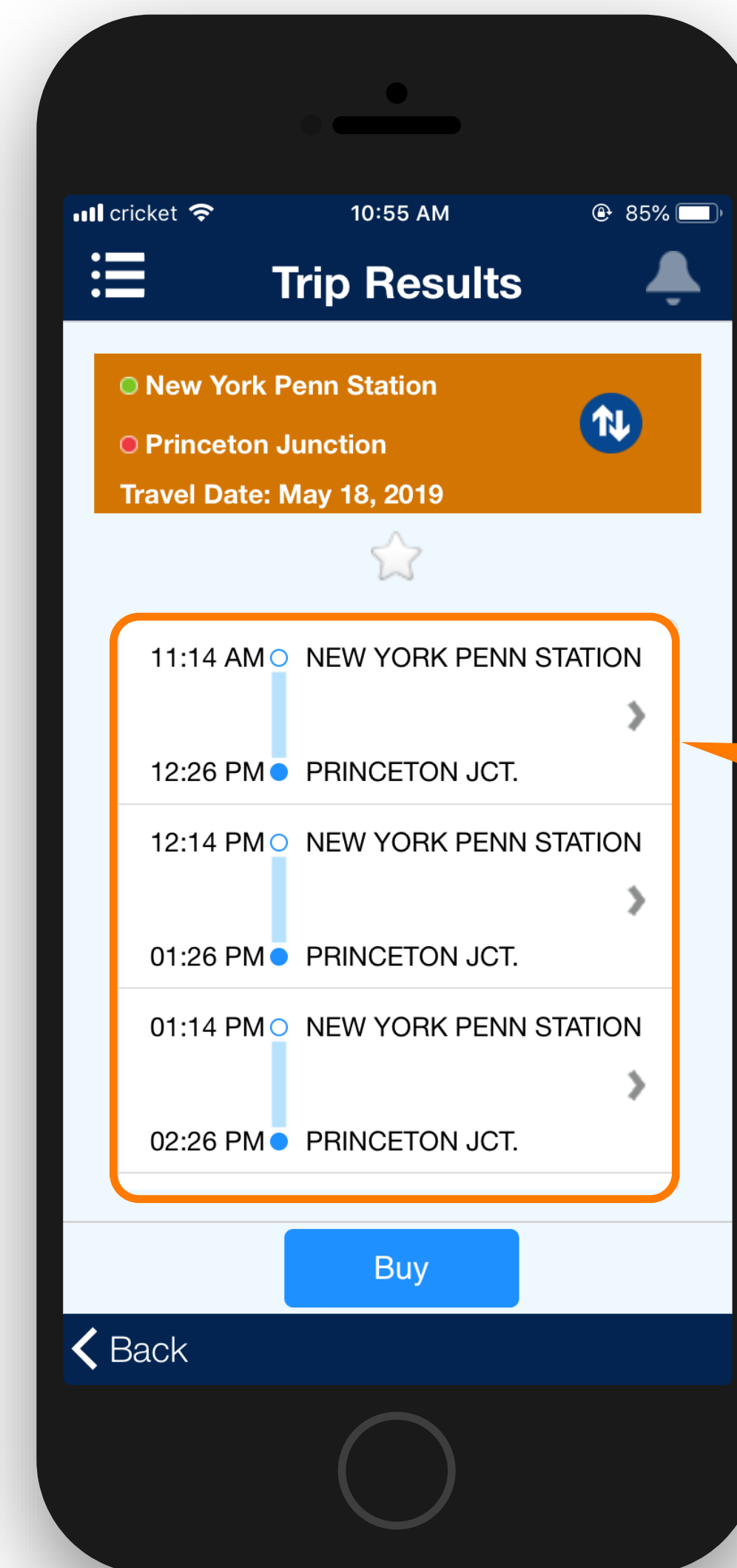
Clunky access to key information

What's the problem?

Despite its stated mission to provide “convenient” access, the app experience **struggles to deliver information immediately and seamlessly to the user**. This issue arises in two important use cases related to an **unaddressed need for information during the commute**. First, train schedules only provides arrival and departure information for upcoming train times; information on currently operating trains are not available. This is a pain point for riders who want to check when the train they have boarded will arrive at its destination, and enough of a frustration that 8% of catalogued iOS reviews mention this issue (2). Second, the app does not leverage features that can provide ticket and train information outside of the app, i.e. integration with Apple Wallet, notifications, and widgets. iOS users themselves have asked for this - of the 22% “missing features” complaints found in iOS reviews, a quarter of those explicitly asked for widget or wallet integration (2).

Why does this matter?

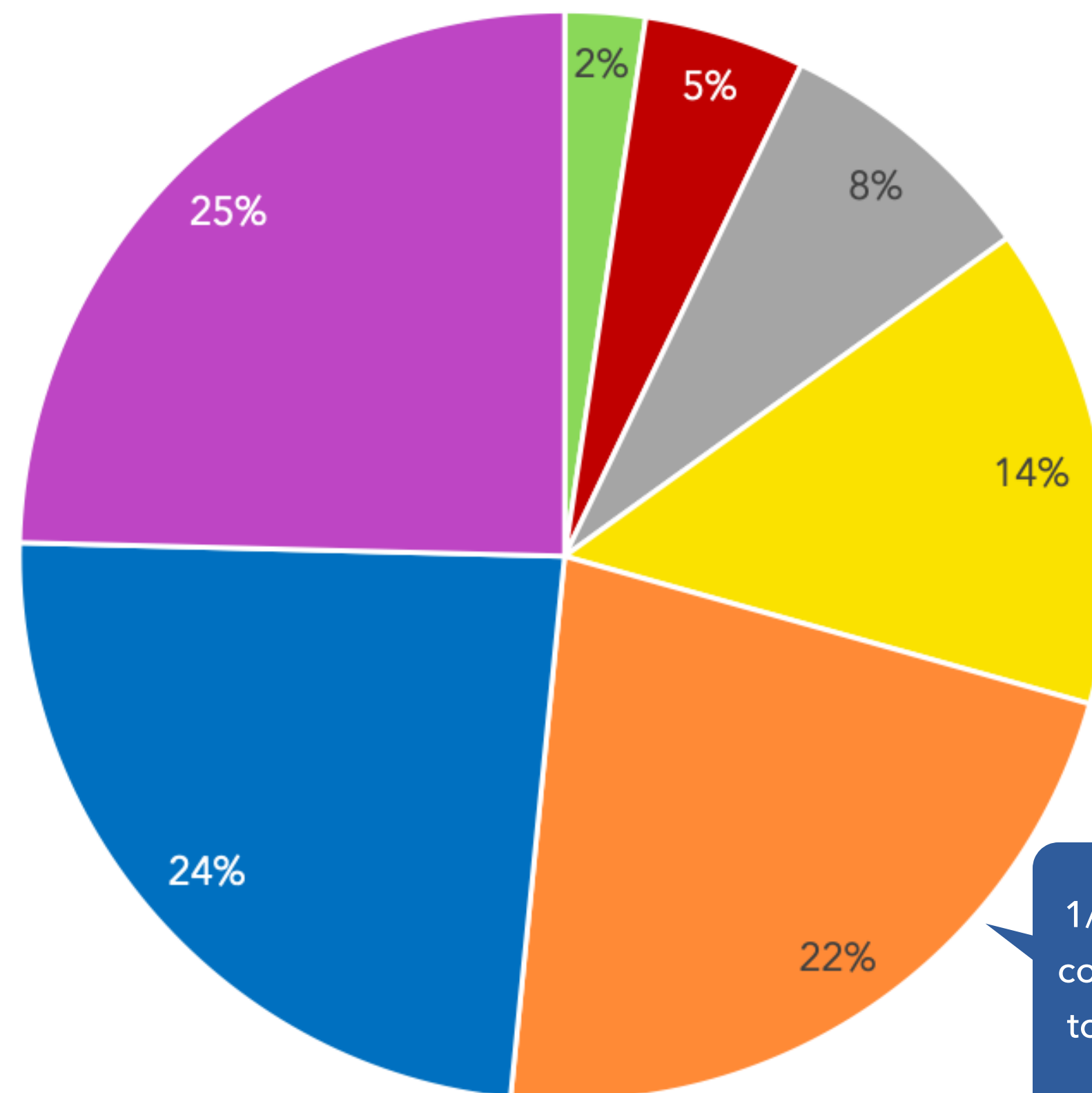
All design aspires to be convenient and easy, but in the **context of commuting**, that goal becomes **especially important**. The commuting experience is often hectic - commuters have to deal with crowds, are trying to not miss their train, and are likely tired from the workday. Within this environment, **the tolerance for delays or hindrances is lower than in a non-urgent environment**. By failing to provide commuters with key information, this difficult app experience **adds stress to the commute at best**, and can **further complicate the commute at worst**.



Clunky access to key information, cont.

User Experience Complaints in iOS Reviews

■ Lack of alerts ■ Poor navigation ■ Missing information ■ Not device optimized
■ Missing features ■ Poor UI design ■ Tedious task completion



1/4th of "missing features" complaints asked for ability to see information outside of app

Missing Information Complaints in Reviews

"If you want to see a train schedule you can only view trains after the time you are currently on the app... **meaning you can't get any information about a train trip you are currently on.** Awful."

"If you want to find out when you'll actually arrive at the destination once the train is in motion... you have to go out to the website and manually enter train numbers... this is **not an optimal workflow**"

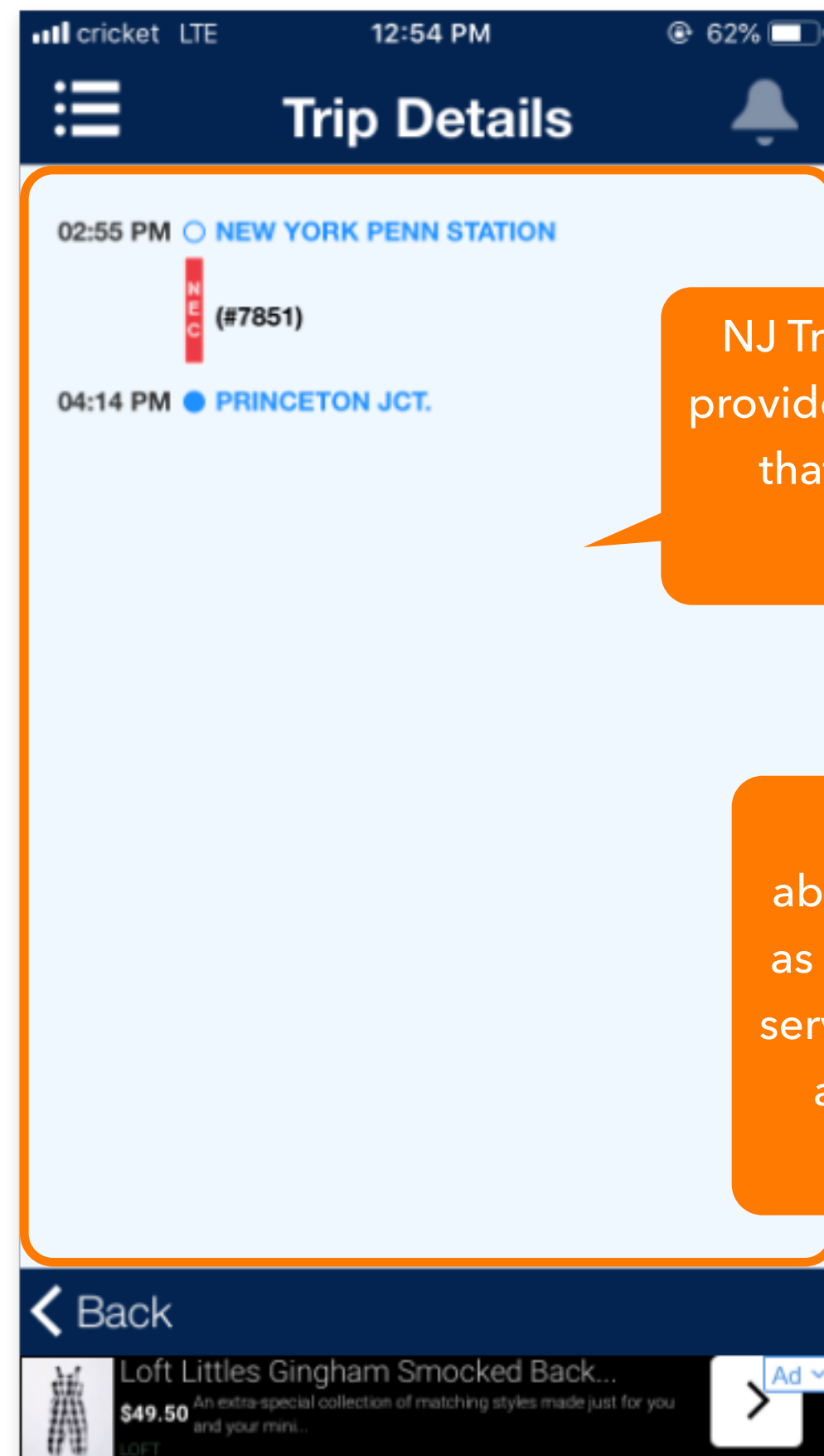
"I wish they would bring back the ticket **appearing in notification center**, though, so you could easily pull down and access it."

n=126 complaints. 103 iTunes reviews analyzed from 5/13/17-5/13/19

Clunky access to key information, cont.

Competitive app analysis

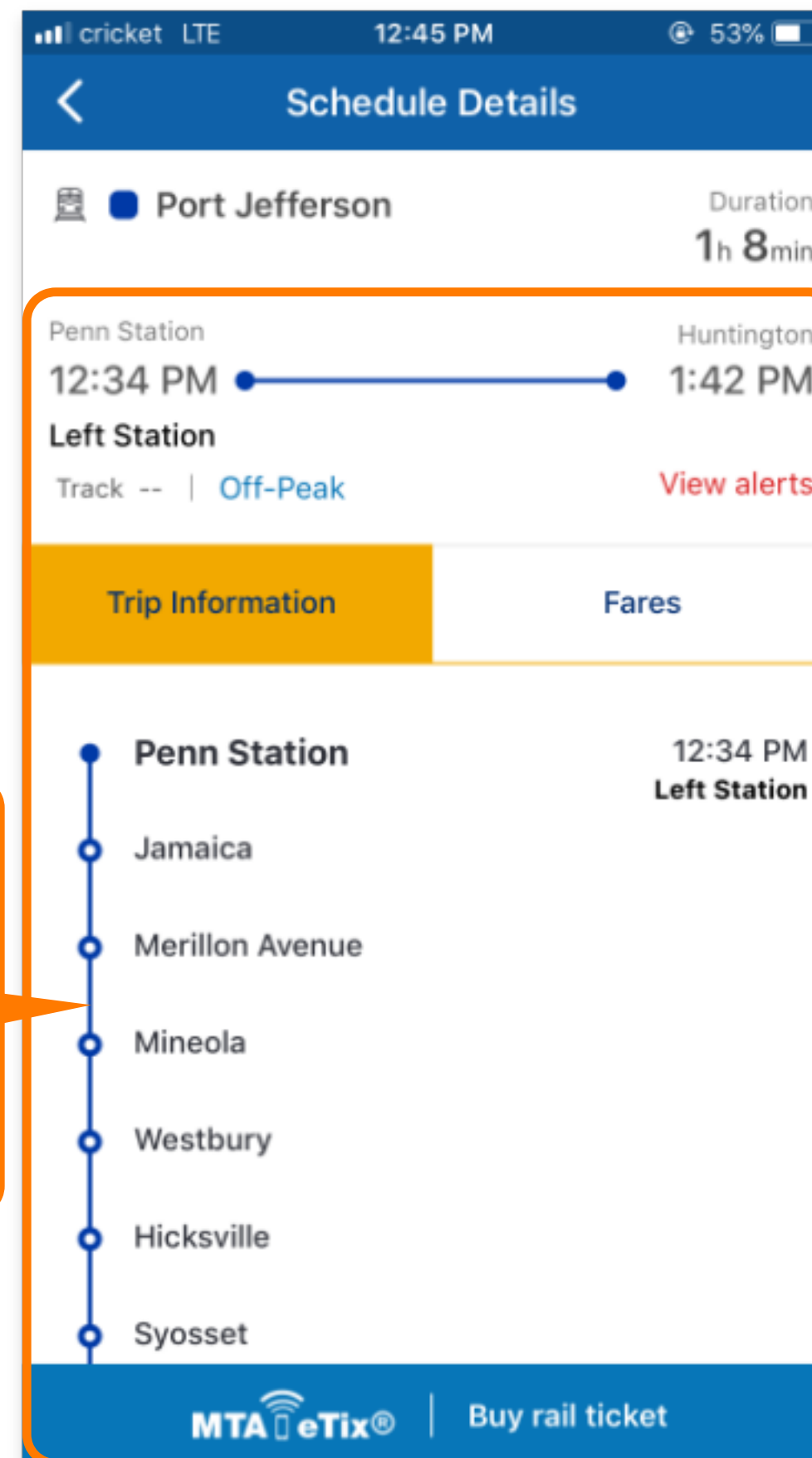
NJ Transit Trip Details



NJ Transit app trip details provides no new information that can help with trip planning.

MYmta's app provides abundant information, such as the type of schedule, key service alerts, all route stops, and the option to buy a ticket

MYmta Rail Schedule Details



Delta Apple Wallet Boarding Pass



Delta provides Apple Wallet boarding pass for easy access outside of the app, currently a non-existent feature in the NJ Transit app

Tedious task flow

What's the problem?

The user must navigate through an **excessive number of steps** in order to complete a task such as purchasing a ticket or viewing train schedules. **25% of catalogued iTunes review complaints** were related to tedious task completion, ranging from repetitive entries of credit card CVV to additional screens in the navigation process (2). Examples of said complaints can be found on the right. In a competitive task analysis of the NJ Transit app, SF MuniMobile app, and MTA app, while the number of screens were not that different between each app, what made a **big difference on the sense of task length were the navigation interactions** used (3). The competitor apps had more refined interactions to either add several smaller tasks onto one screen or more clearly denote how far along the user was in the task journey.

Why does this matter?

Again, commuting can be a stressful experience and commuters want their needs addressed as quickly as possible to avoid missing their train or other negative consequences. With a cumbersome task flow, the **app is unable to provide the immediacy that commuters desire.**

Tedious Task Flow Complaints in Reviews

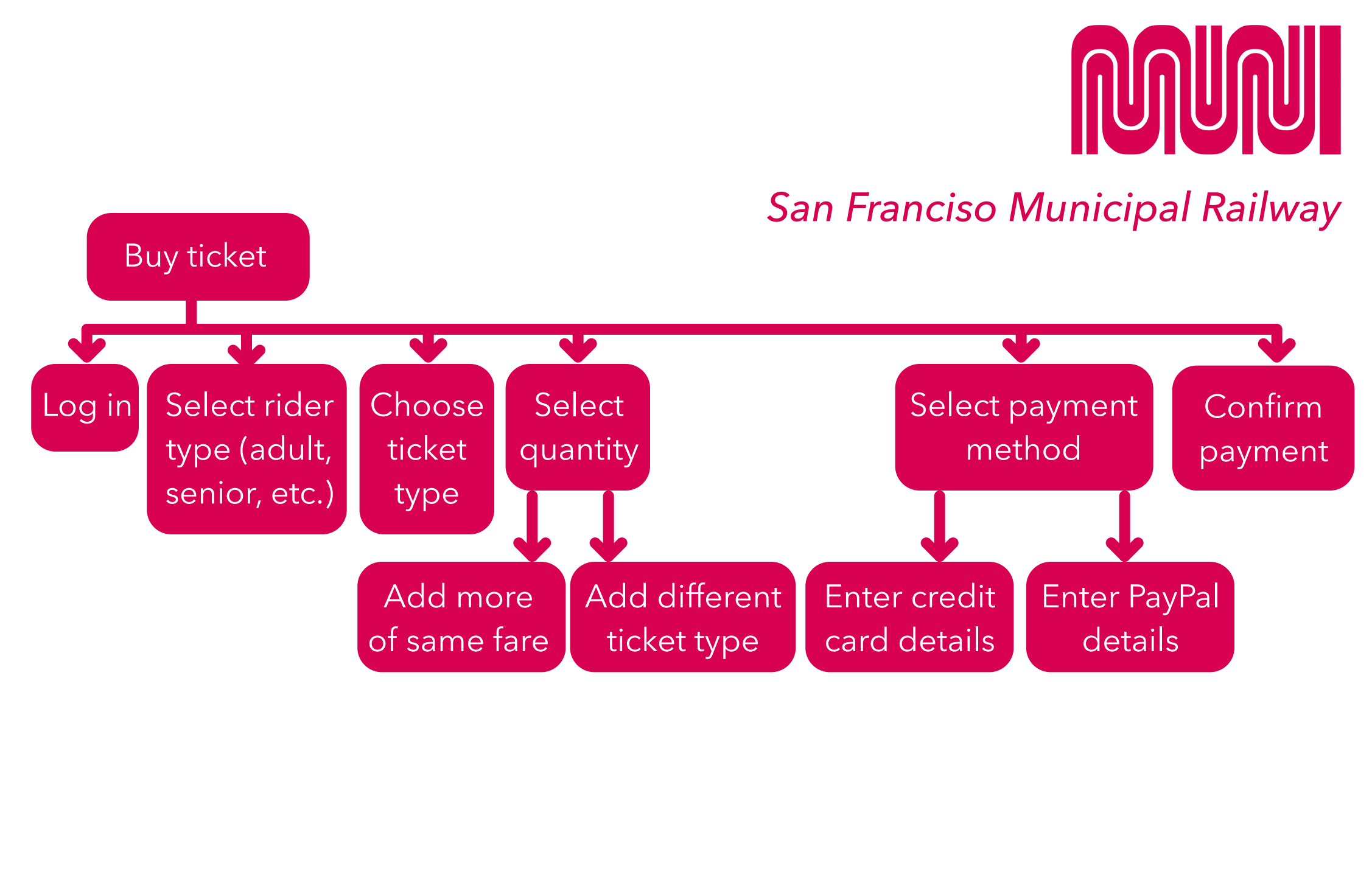
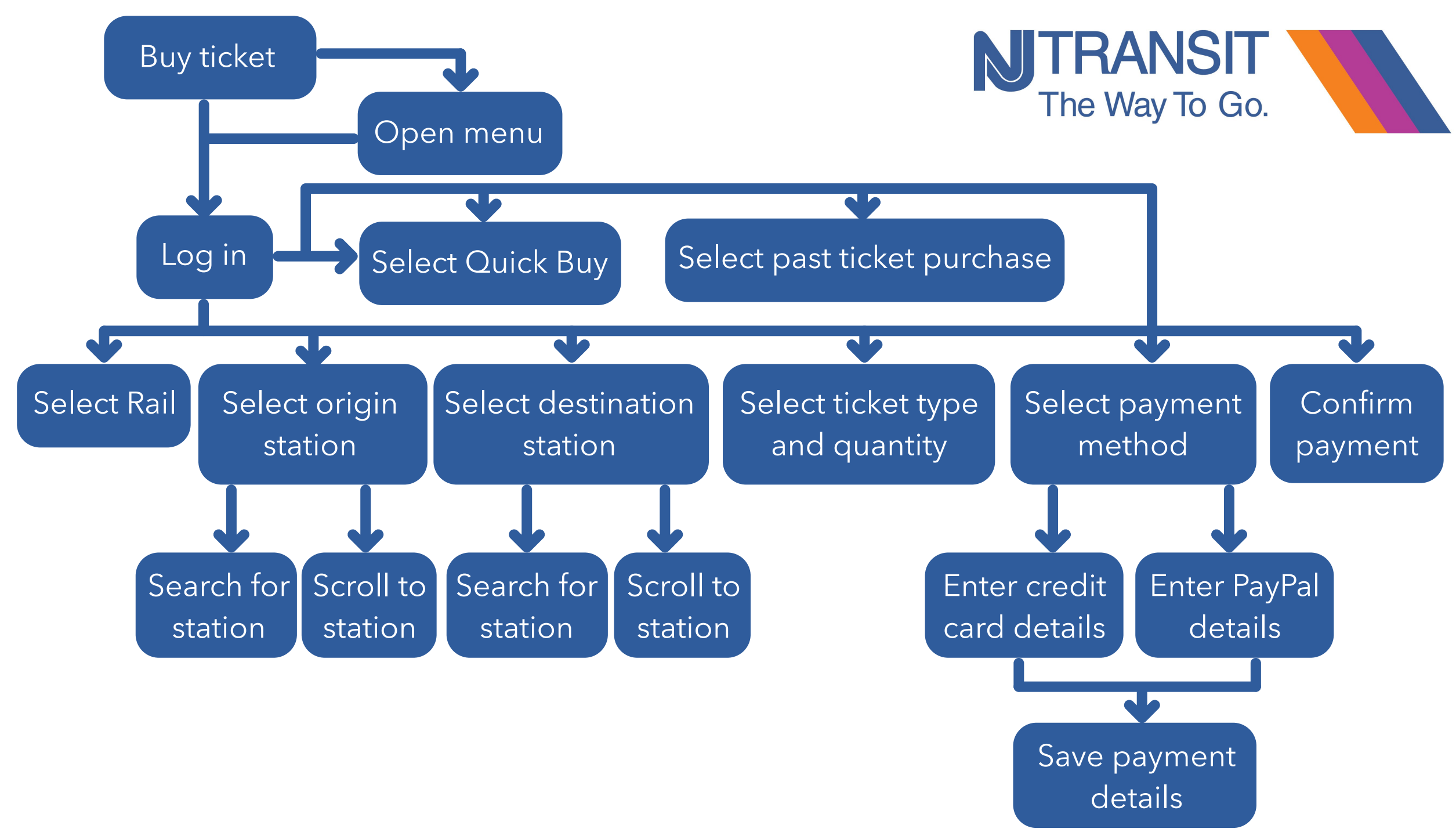
"You **cannot type your route number and get the schedule.** You need to know origin, final destination, to find a route."

"I'd like to be able to purchase ticket with 1 tap. **ATM you have to click like 10 things to confirm** and that about 1 min."

"No **direct or intuitive path** to get to what you need. Can we make a two step process six? Let's do it. Should someone type in a destination or scroll through 70 towns to get to a schedule? **Scrolling takes longer—lets do that!** You want a schedule? Going to need the origin, destination, travel date and departure time and only then will we give em the next two departure, **forget about an actual, you know, schedule.**"

Tedious task flow, cont.

Buy Tickets Task Analysis Comparison: NJ Transit vs. SFMTA



Key Takeaways

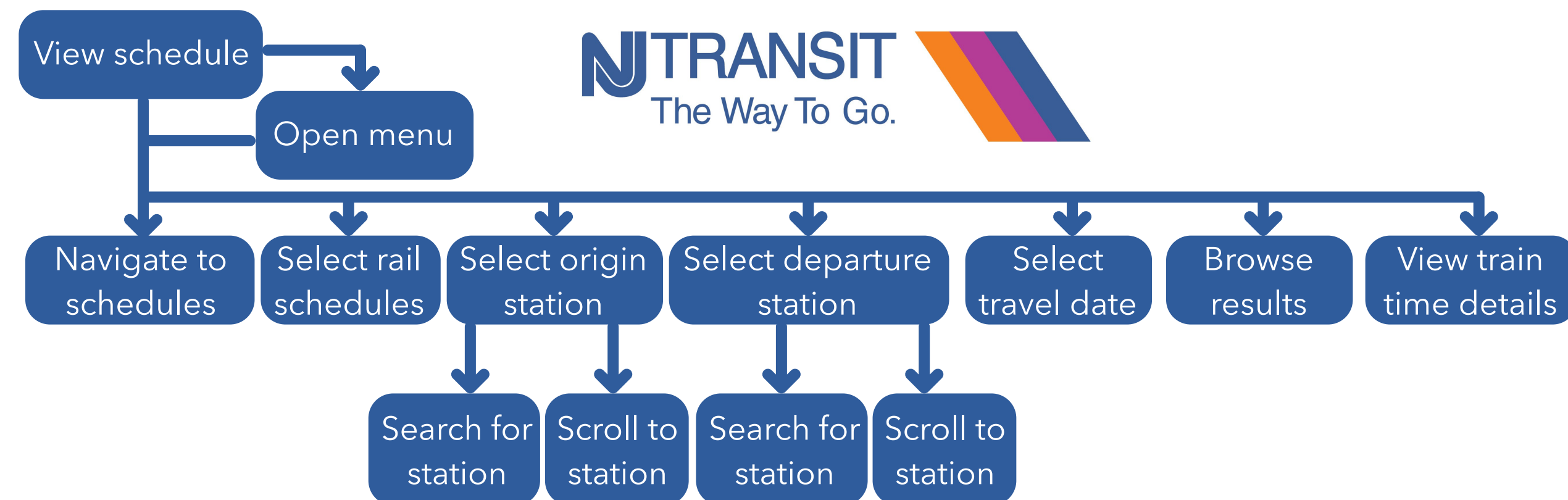
- User must go through 8 screens to confirm ticket purchase.
- Provides a "Quick Buy" option to select past purchases. While in theory it speeds up the process, the UI design is not optimized for maximum ease (i.e. an additional screen can be removed, stronger visual differentiation between past ticket purchases)

Key Takeaways

- User must go through minimum of 5 screens to confirm ticket purchase.
- Though the lack of origin & departure station does reduce the steps necessary, the app also combines certain steps in the same screen to make the process feel shorter (i.e. select payment method & confirm payment)

Tedious task flow, cont.

View Schedule Task Analysis Comparison: NJ Transit vs. MTA



Key Takeaways

- User must go through 5 screens to view train times for certain route
- Navigation interactions give the impression that the user is going through more screens (i.e. when selecting origin or departure station, the selection screen comes in from the right, giving the sense of moving "forward," only to return to the main travel information input screen)
- Time train details provide very limited information - only the train number, the arrival time, and departure time.



Key Takeaways

- User must go through 5 screens to view train times for certain route
- Navigation interactions make it clear how far the user is in the task journey (i.e. searching origin or departure station screen comes up from bottom, following conventions of selecting an input)
- Despite the same number of screens as NJ Transit, myMTA provides more functionality: i.e. allowing users to select "leave at" or "arrive by," see past searches, shows more train details such as alerts and all route stops

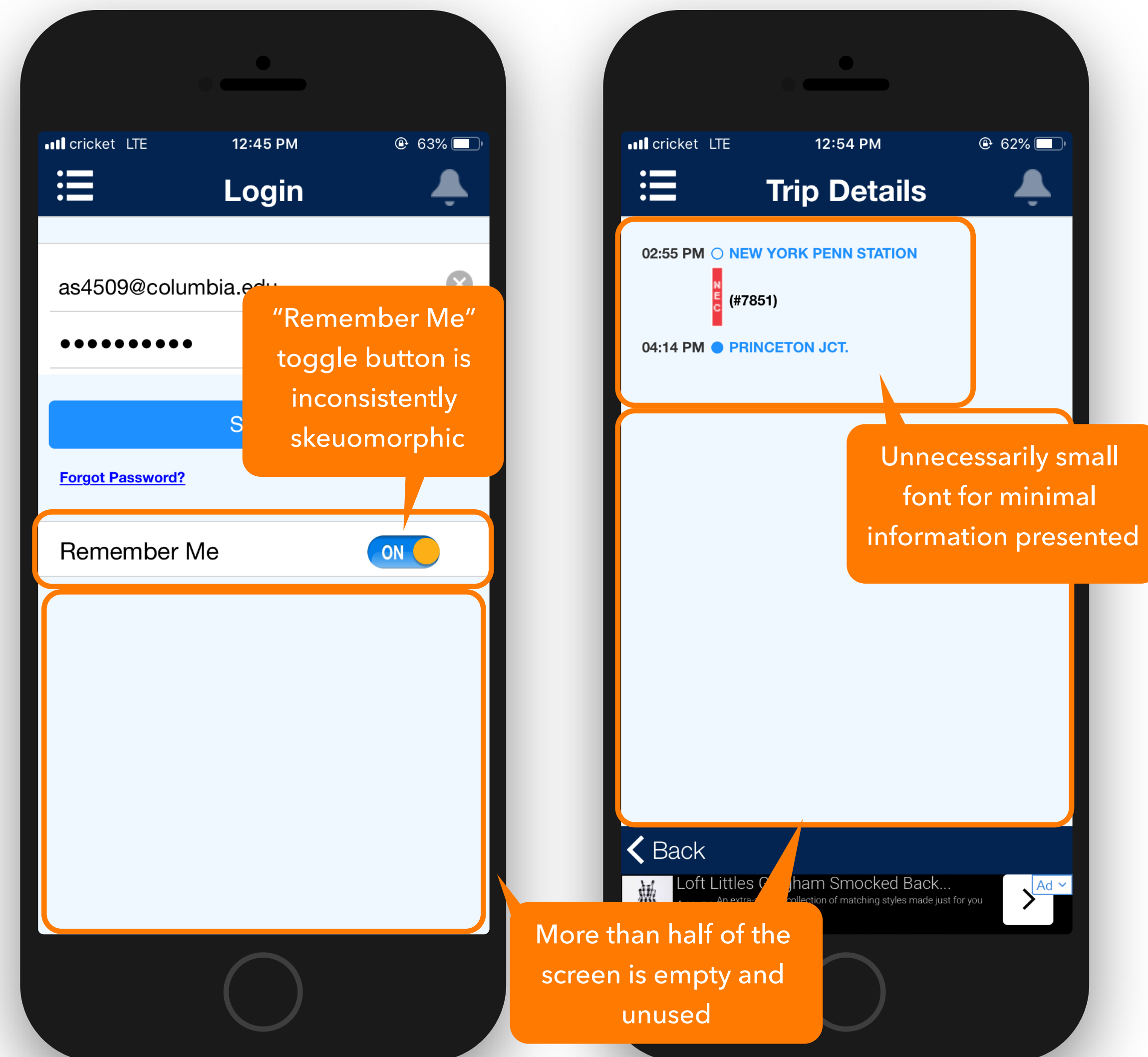
Outdated visual design

What's the problem?

The second most common complaint to appear in the catalogued iTunes reviews is the **"ugly" UI design**. **24% of all complaints were of this category** (2). Various examples include: tap targets are not always given sufficient space between each other; there are random instances of skeuomorphism; and there is a lot of empty space not utilized. Additionally, the app is **not optimized for iPhone X**, an additional 14% of complaints. The **overall impression feels amateur** and more like a set of wireframes than a polished mobile app.

Why does this matter?

Though beauty is in the eye of the beholder, less objective is the **attractiveness bias** - the idea that **attractive things work better** (4). Consumers nowadays also have **higher expectations for aesthetics**, driven by products such as Apple. Though an "ugly" aesthetic may have no bearing on the actual functionality, it can still make the overall emotional experience more negative. Thus, a commute app should strive to **avoid amplifying the misery of commuting** in all areas where it can, including its **visual design**.



Outdated visual design, cont.

Visual Design Complaints in iOS Reviews

"Seriously, after all this time it's **unacceptable** for an app this important for passengers to look like it was **designed in 2013...** iPhone X has been out for 18 months **more than enough time** to make the **necessary tweaks to the UI.... shameful**"

"The app looks **cluttered** and so 2007."

"An **ugly clunky app** with ads and an ugly all uppercase NAME because of 'branding'. Insta-deleted!"

"This app looks like **garbage** and is a **pain to use**. Get some professional help."

"This app is still **ugly as sin** and the UX feels **old** and **cluttered**"

"This is an **alarmingly amateur** app. The user experience is poor in the extreme; the design shows **zero understanding** of the **basic tropes and affordances** expected on a modern mobile platform like iOS"

"**Terribly dated interface, confusing** at the best of times and **outright obtuse** at the worst."

"They would benefit from some nice graphic design. **Visually**, this is **not up to par** with most apps on the App Store."

"The UX/UI is a **tragedy**. It's inconsistent throughout the app, navigation is confusing, and certain features are buried too deep."

Initial wireframes

Approach

In my initial wireframes, I tried to address these three themes in various ways, such as:

Clunky access to key information

- Showed activated tickets right on the homepage for easy access
- Designed an Apple Wallet integration
- Divided train schedules into “upcoming” vs “past” trains so users can view all train times in a more organized way

Tedious task flow

- Featured “past purchases” in buy screen for easy commuting repurchase
- Added a “scan credit card” feature for easier input
- Combined actions on the same screens

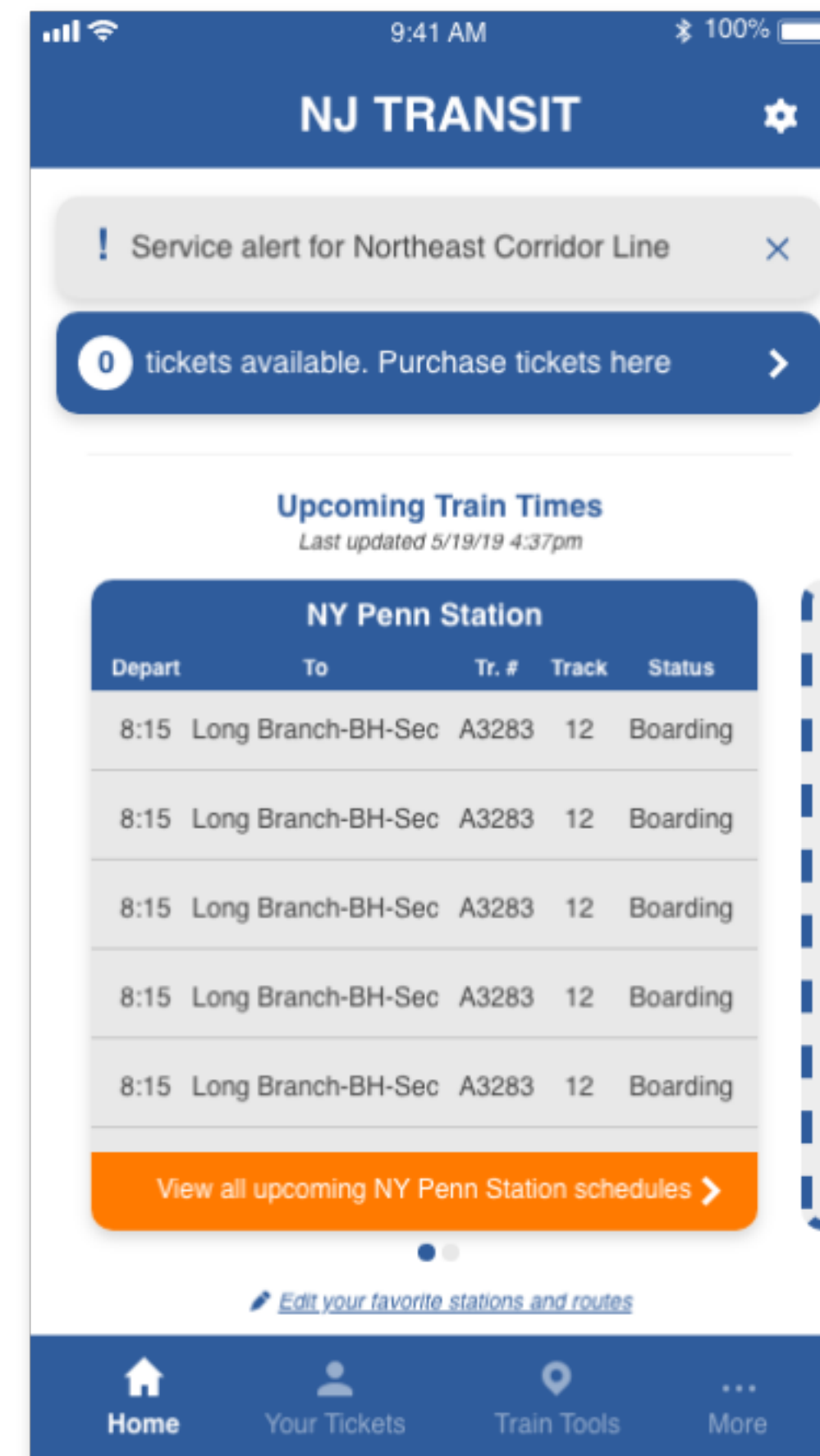
Outdated visual design

- Used softer brand colors and rounder shapes to modernize the aesthetic

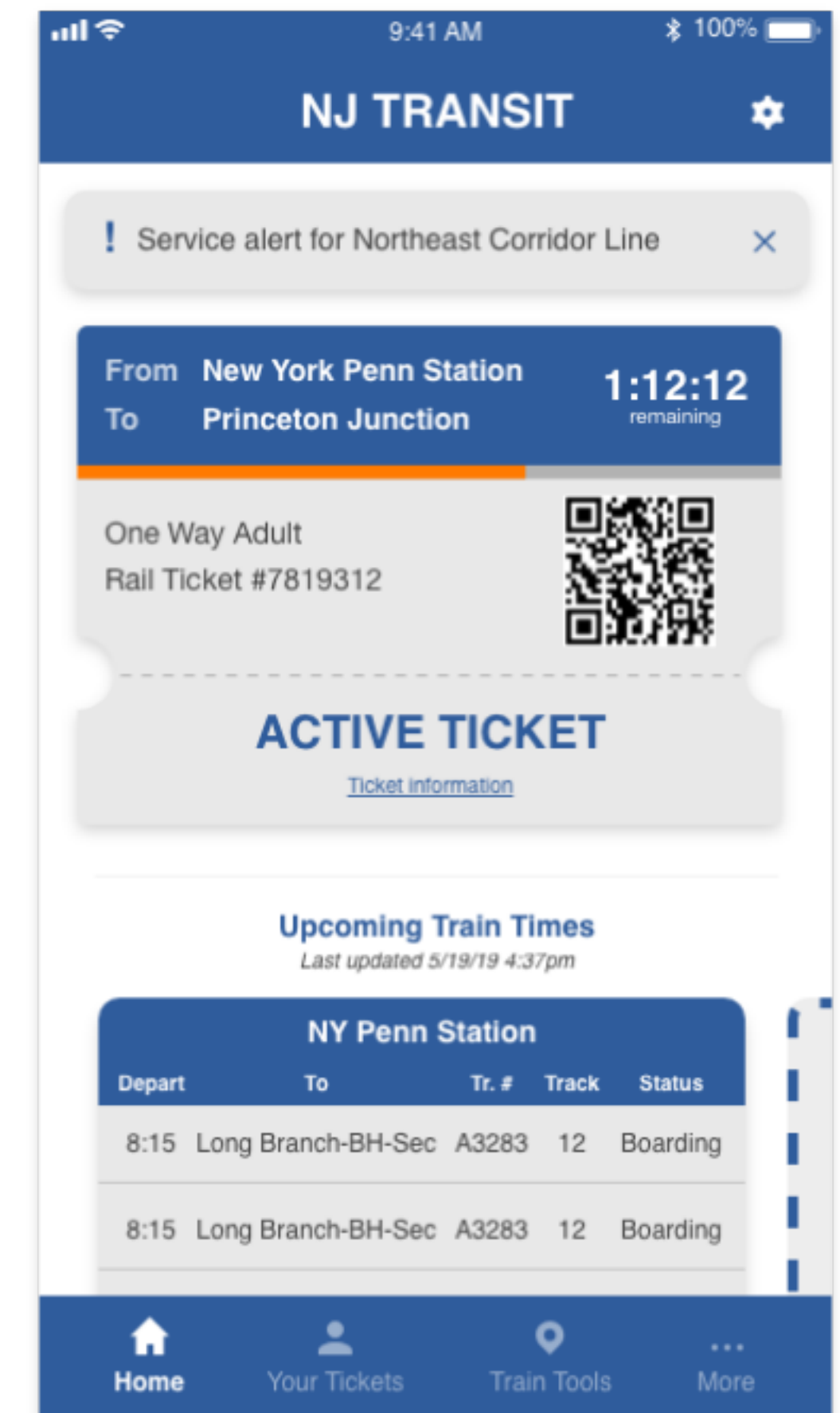
A pain point that I did not design for is the lack of optimization for iPhone X. I intentionally chose not to redesign the app for the iPhone X as I am not an iPhone X user and am unfamiliar with UI guidelines for that device.

Select Wireframes

Home screen



Home screen w/active ticket



Initial wireframes, cont.



User testing findings

Task Prompt

Three users, all familiar with the NJ Transit app, were asked to view a schedule between two given stations and buy a train ticket for those two stations. Overall users felt that the design was an improvement over the original app.

Findings & feedback by theme

Clunky access to key information

- The new "upcoming train times" is more legible than the original version
- Users enjoyed the Apple Wallet integration; one user commented that the usefulness of this still hinges on NJ Transit's connectivity issues, which is unrelated to UX

Tedious task flow

- The buy flow is intuitive and users responded positively to the credit card scan feature
- Users would like to eliminate the need of putting in their origin at all by having the app use their location to default populate the origin with the closest station

Outdated visual design

- The visuals are more pleasing, but the font and other elements feel a little small
- Visual hierarchy can be better emphasized

User Testing Quotes

"This is prettier and softer than the original app. The old one was so brute and ugly."

"This could be more like Google - just have my location show up so I don't have to enter an origin station"

"This is intuitive to use, definitely more modern than the original app. I think the visual hierarchy could be clearer so people know where to look"

Revised wireframes

Updates to wireframes

In response to feedback, the below updates were made to wireframes. To access the revised wireframes, click the prototype link to the left.

Clunky access to key information

- Streamlined “upcoming train times” further for greater clarity and removed button to reduce confusion

Tedious task flow

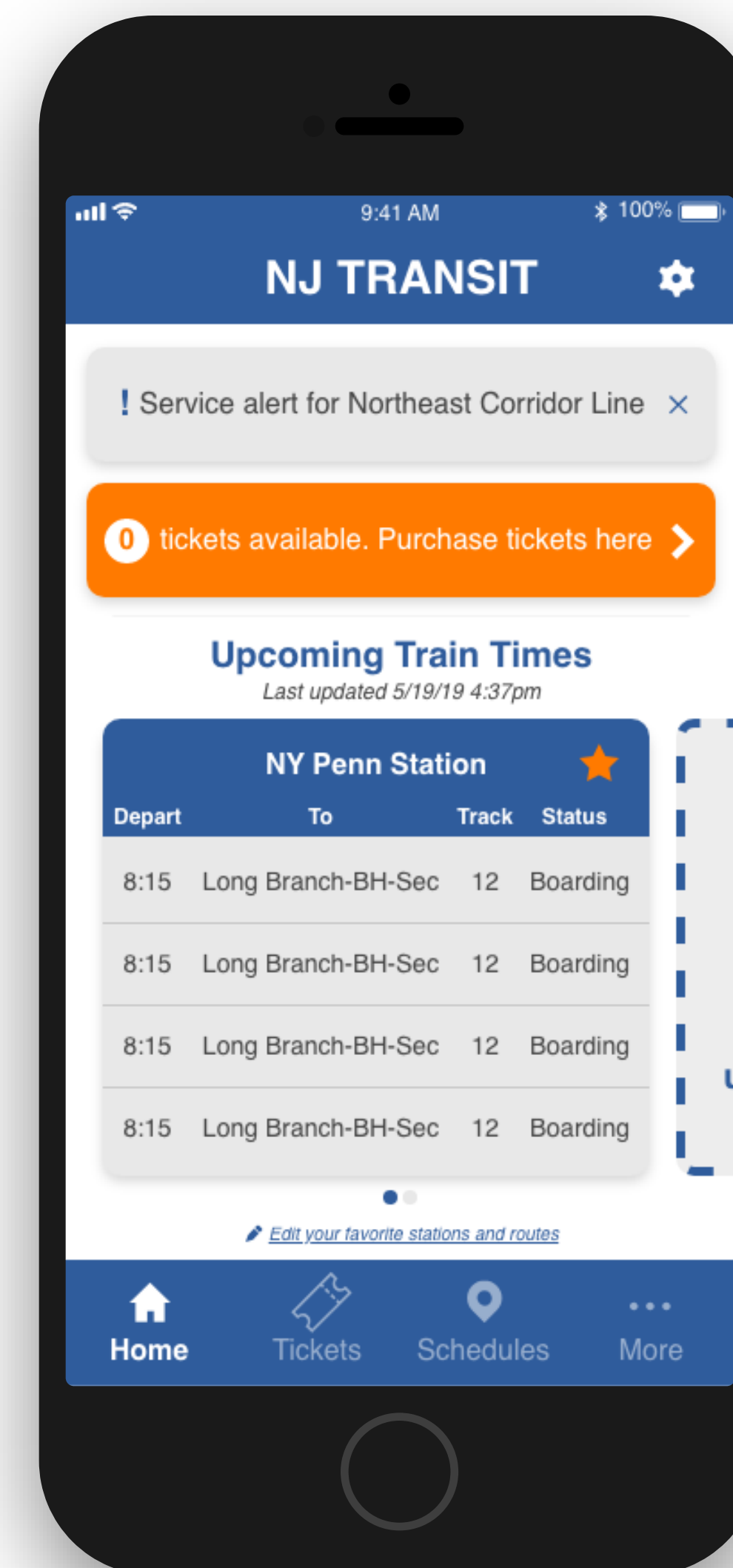
- Uplevelled buy flow task start to reduce a screen
- Changed section labels (i.e. Your Tickets to Tickets) to increase clarity
- Changed ticket quantity selector to a scrolling picker to reduce clicks

Outdated visual design

- Increased size of visual elements for easier interactions, stronger visual hierarchy, and improved legibility

Future design ideas

Future design ideas can include a functionality that automatically identifies a user’s location and offers nearby train stations, Apple Widget integration, and optimization for iPhone X.



View final wireframes at: <https://adobe.ly/2JzMhz2>

Conclusion

Conclusion

The NJ Transit App provides important functions and information to commuters that they may otherwise not have so readily available. To **drive its adoption and usefulness to its commuters**, the app can benefit from improved information access, streamlined task flows, and an updated visual look. All of the above will provide visitors with an app experience that not only serves the practical task of **getting commuters home in a timely manner**, but also can help **reduce the stressful experience of commuting** as a whole. While there are many ways to approach this, what matters most is that these changes are tested with commuters to truly understand what is useful for them.

Cited Sources

- [1] NJ Transit Mobile App, https://www.njtransit.com/var/var_servlet.srv?hdnPageAction=NJTAppTo
- [2] Analysis of 126 complaints logged in 103 negative (1-2 star) iOS reviews of the current app design, from 5/13/17 to 5/13/19. Data source: App Annie
- [3] Task analysis of NJ Transit Mobile App, SF MuniMobile App, and NYC MYmta Mobile App
- [4] Don Norman, "Emotion & Design: Attractive things work better," https://jnd.org/emotion_design_attractive_things_work_better/

Icons provided from The Noun Project:

Maze by Juan Pablo Bravo
Multiple windows by Hea Poh Lin
Dinosaur by Laura Barretta
Credit Card by alrigel
credit cards by jeff