CapMetro Final Report

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Introduction

CapMetro Basics

About CapMetro

CapMetro (Capital Metropolitan Transportation Authority) is Austin's public transit provider, offering bus, rail, and paratransit services. It focuses on making transportation sustainable and accessible, integrating technology to improve service efficiency and the rider experience.

Main Functions of CapMetro App

- **Trip Planning**: Helps users plan their routes by providing real-time schedules, routes, and updates for buses and trains.
- **Ticket Purchasing**: Allows users to buy and store digital tickets for CapMetro services directly through the app.
- **Real-Time Tracking**: Enables users to track the exact location of buses and trains in real-time, ensuring timely arrivals and reducing wait times.

Objective and Goal

1. **Assess the overall effectiveness of CapMetro** for different types of users as they perform basic tasks, such as purchasing tickets, finding nearby stops, and navigating to specific destinations.
2. **Detect barriers, frustrations, and user pain points** that hinder the user experience.
3. Use the findings from this usability study to **identify areas opportunity to improve** CapMetros user experience.

Research Design

Recruitment & Participants

Recruitment Criteria

- **Gender**: Mix
- **Age**: Mix between 18-60 years old
- **Area of Residence:** Austin, TX or Greater Austin Metropolitan Area
- **CapMetro Experience**: 50% will have experience with CapMetro services and the CapMetro App
- **CapMetro App Experience**: 50% will have little to no experience with the CapMetro App but have used CapMetro services

Participant Sample

- **Size**: 6 Participants
- **Gender**: Mix
- **Age**: Mix from 18 - 29
- **App Experience:** Mix

Task Structure Overview

Pre-Task Interview (10 min)

Participants are prompted to answer the following questions about their CapMetro experience:

- Tell me a little bit about your experience taking public transit in the Austin area.
- What experience, if any, do you have with the CapMetro app? If you have used it before, how long have you been using it for?
- What is your preferred method of finding CapMetro bus routes and schedules?
- If you have ever purchased a CapMetro bus ticket, how did you do so?

Task Session (35 min)

Participants are instructed to complete seven tasks on the CapMetro app using an iPhone. The moderator explains each task and encourages participants to think aloud while performing the tasks.

Our Approach

Task Design

- Conducted **6** moderated, in-person usability tests
- Designed **7** task scenarios:
  1. Signing-in and creating a virtual card
  2. Using the app to purchase transit fare
  3. Finding the two nearest bus stops to their current location
  4. Finding a route to a specific location
  5. Confirm which stop to get off at and arrival time.
  6. Finding the route to get to the bus stop
  7. Checking the status of the next bus

Methods

Applied a **think-aloud protocol** to gather users thoughts, feelings, and opinions towards the CapMetro App

Split participants into two groups.

- Group 1 began at task 1- Signing In
- Group 2 began at task 3- Nearby Stops

The Data

Data Collection

- **Audio and video recording** of participant
- **Screen recording** of participants actions on the app
- **Notes** taken by observer
- Task success rate
- Time-On-Task
- Two subjectivity Ratings
    1. Post-task difficulty scale (measured after the completion of each task)
    2. Post-test likert scale

Data Analysis

- **Affinity map** to analyze qualitative data from video recordings and observation notes
- **Statistical analysis** of the the time on tasks and subjectivity ratings

METRO

Qualitative Analysis

Dave Morgan

Chef

AGE	26
GENDER	Man
STATUS	Single
EDUCATION	Bachelor's
LOCATION	Austin

Punctual | Independent | Organised | Creative | Ambitious

"The bus is affordable and gets me to the restaurant, but delays can be frustrating, especially when I'm rushing to work. It would be helpful if the app provided more accurate information."

Bio

Dave Morgan is an Austin-based chef that works at a busy downtown restaurant. Without a car, he depends on the CapMetro buses to get to and from work and run errands around the city. Dave is passionate about creating innovative dishes and often draws inspiration from Austin's local markets and food trucks.

Goals

- Reliable commute
- Time well spent in between busy schedule
- Professional growth
- Exploring Austin's markets and new food spots

Frustrations

- Unexpected bus delays
- Finding exact locations for bus transfers
- Busy work schedule
- Unreliable bus schedules

Motivations

- Affordability and saving money
- Sustainable and green method of travel

Interests

- Cooking
- Exploring new restaurants
- Exercising
- Traveling

Influences

- Social Media
- Cookbooks
- Classes
- TV shows

Frequently used apps

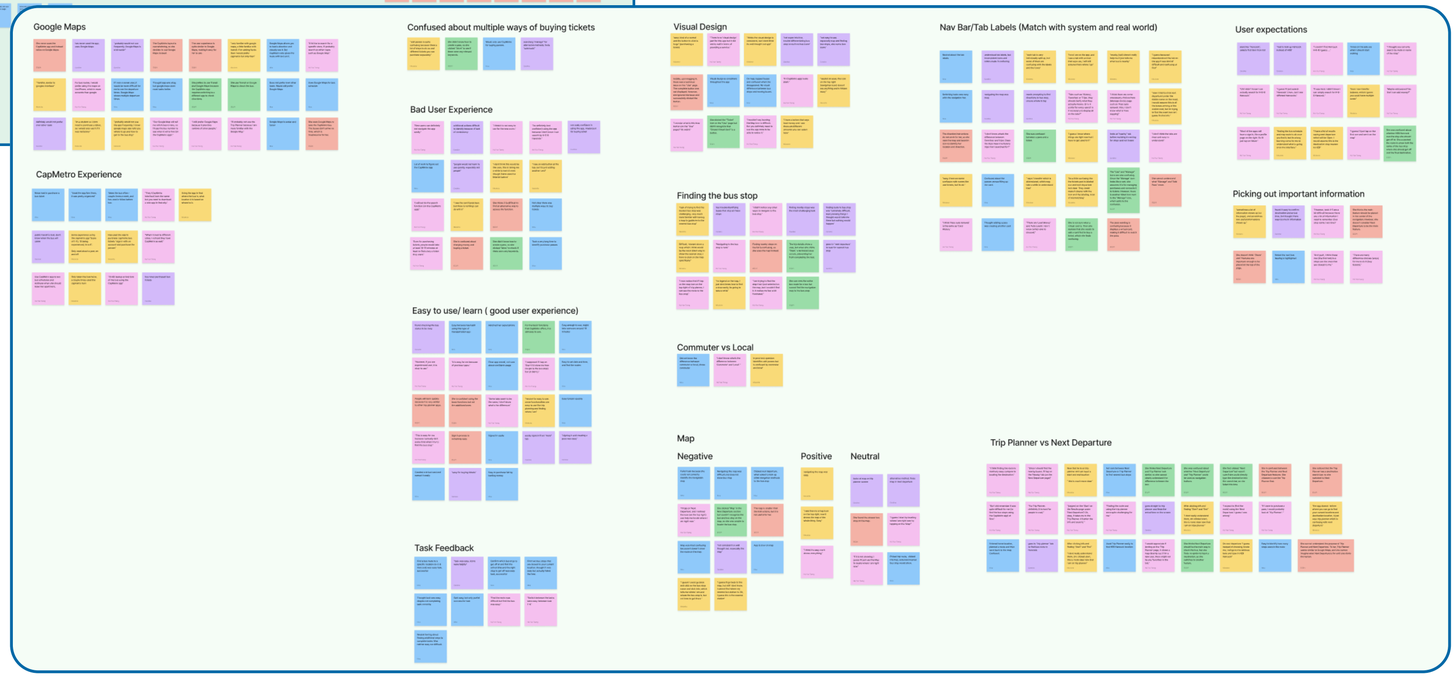
hulu Instagram CapMetro Google Maps

CapMetro User Journey

	Sign in & Create a Pass	Buy ticket	Find nearby bus stops	Find a route to H-E-B	Check arrival time the stop to get off	Navigate to the bus stop	Check bus status
Task list	• Sign in with credentials • Create a virtual card	• Add pass • Select local single ride • Load money to the pass	• Use the current location to determine to 2 closest bus stops	• Use the search bar to input destination	• Check the arrival time to the destination • Identify the stop to get off	• Use the drop-down or the map icon to identify current location • Identify the route to the bus stop	• Tap on the “Next Departure” icon to see the list of bus stops • Identify the bus that will be arriving next
Feeling & Thoughts	Signing in was super easy.	“I think loading money onto the card was pretty easy, since the button is large.”	Opportunity for improvement “ Its not super intuitive, it kind of hard to see the bus stops from bus icons (on the map)”	“I expect to (find the route) using the ‘Next Departure’. I guess I was wrong.”	“(It was) easy to find stop to get off at, (as it is) similar to Google Maps features.”	Opportunity for improvement “I supposed if I tap on ‘Start’ it’d show me how (to get to the bus stop) but (it didn’t).”	Goes straight to trip planner and finds the arrival time on the screen
Pain points	• Creating a virtual card is a bit difficult due to the mismatch between the nav bar label ("Use") and its ticket icon.	• Unclear about the difference between "Commuter" and "Local" tickets.	• The current design does not show the map directly, making it hard to find nearby bus stops.	• Users are unaware they can search specific locations like H-E-B Hancock.	• Information overload.	• The map icon is not prominant, making it difficult to navigate to the bus stop.	• Users wish they could see multiple departure times.
Improvement Opportunities	• Allow users to purchase tickets without needing to sign in.	• Consider combining “Load Money” and “Add Passes” into one page. • Add explanation of “Commuter” and “Local.”	• Combine “Next Departure” and “Trip Planner” • Make the map icon distinct and easily recognizable.	• Make it clearer that users can search for specific locations, not just bus stops.	• Simplify the page by moving detailed info (e.g., transit stop) to dropdowns.	• Add a clear icon to initiate navigation or display a bus stop map directly.	• Enable users to tap on a bus to view its specific schedule.

Affinity Mapping

Organize stickies based on common themes.



Through this exercise, we noticed the following:

- Shared **confusion between “Next Departure” and “Trip Planner.”**
- Unclear labels
- Information overload
- **Important features** such as “map” are **not prominently highlighted**

Quantitative Analysis

Time on Tasks

We use time-on-task to evaluate ease of use. Among our seven tasks, "Finding a route to HEB" and "Finding a route to the bus stop" take the longest to complete. The average time is almost two minutes, with some participants taking up to four minutes or more.

1. **Sign in + Create a Pass**
   Range: 48s-150s
   Average time: 85s

2. **Buying Tickets**
   Range: 16s-105s
   Average time: 55s

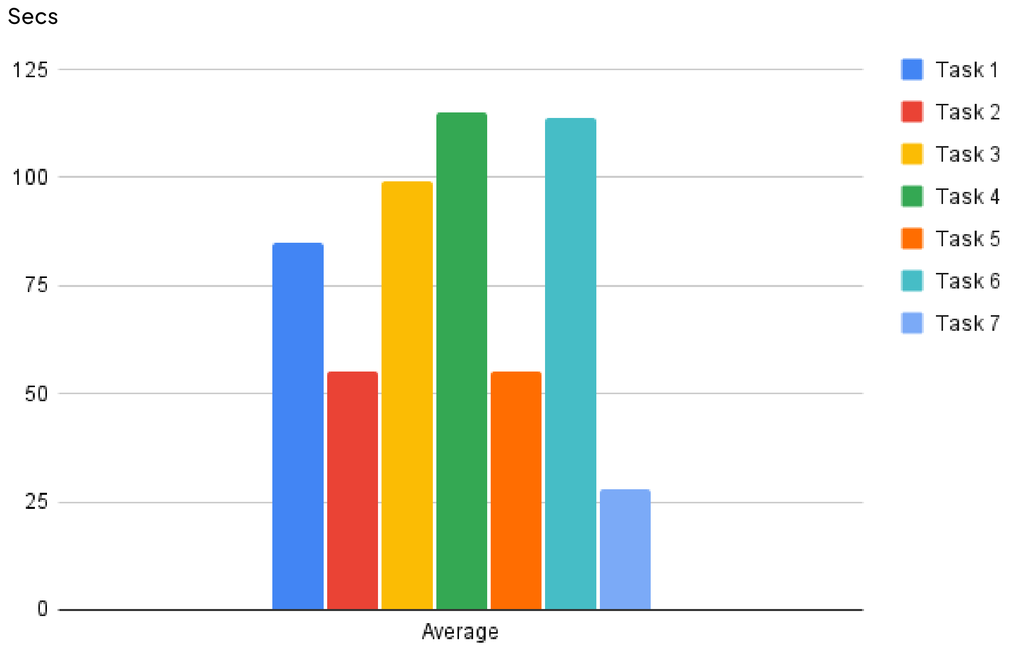
3. **Finding Nearby Stops**
   Range: 23s-240s
   Average time: 99s

4. **Finding a route to HEB**
   Range: 33s-240s
   Average time: **115s**

5. **Check get off time and stop**
   Range: 18s-100s
   Average time: 55s

6. **Finding a route to the bus stop**
   Range: 37s-257s
   Average time: **114s**

7. **Check the bus**
   Range: 9s-45s
   Average time: 28s

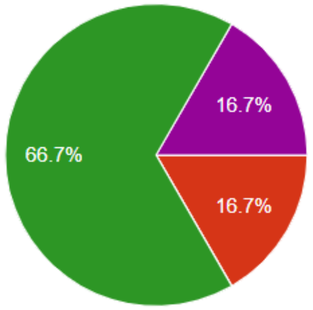


The feature of **Finding a route to HEB** and **Finding a route to the bus stop** are significantly harder for user to complete.

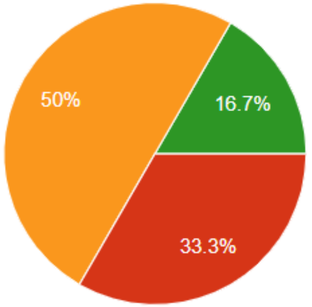
System Usability Scale

We asked eight system usability questions at the end of the test:

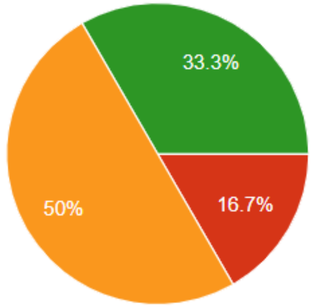
I think that I would use the CapMetro App frequently.



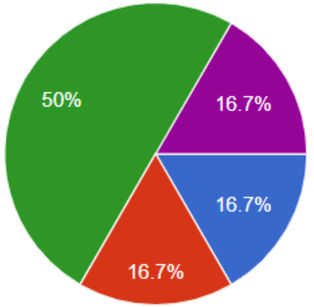
I thought the CapMetro app was easy to use.



I thought the visual design of the CapMetro app was consistent and well thought out.



I imagine that most people would learn to use the CapMetro app very quickly.

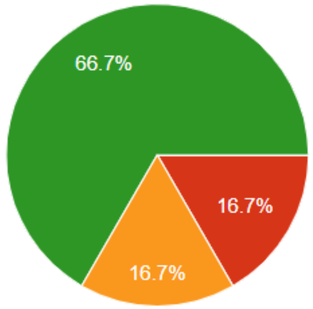


- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

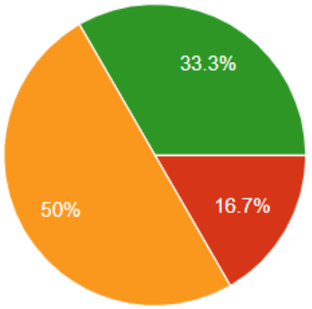
System Usability Scale

We asked eight system usability questions at the end of the test:

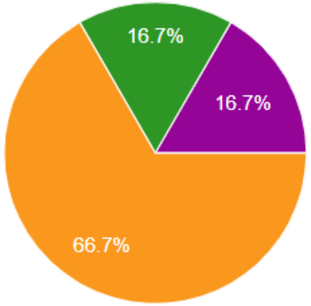
I understood the labels of each of the tabs in the CapMetro app.



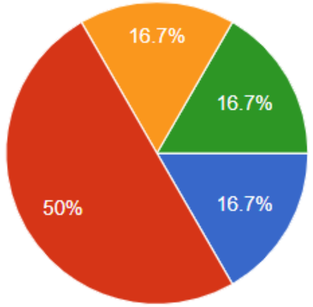
After using the CapMetro app, I feel very confident in using the app.



It was easy to identify additional actions could be taken on each tab (i.e finding the bus schedule or finding the route map)



It was easy to switch between different tasks in the app.



System Usability Scale

Adjusted System Usability Score:

44.8/100

From eight questions multiplied by 1.25 in order to compare with the ten question scale

Compared to Average:

68/100

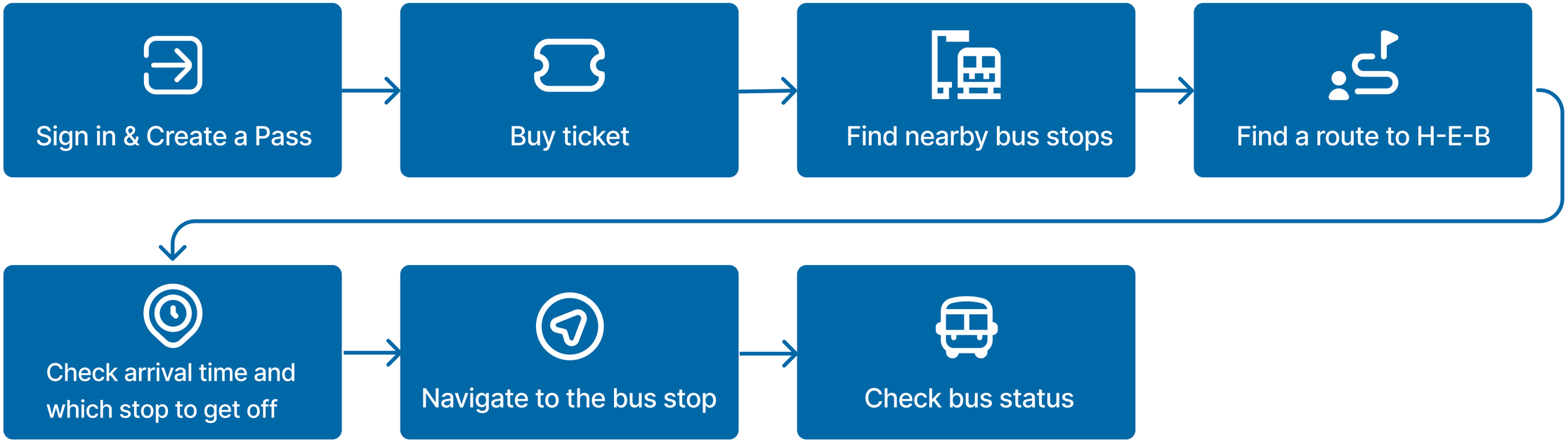
Average industry SUS

According to this score, a lot of work needs to be done in order to make this app more usable! In the following slides, we will talk more in depth about our insights and recommendations.

Task by task analysis

Task Overview

We designed the tasks based on the primary use of the CapMetro app: enabling users to purchase bus tickets and use them to reach their destinations. To evaluate the app's usability, we developed 7 tasks, which allowed us to identify its strengths and weaknesses as a transportation app and explore opportunities for further improvement.



Severity Rating Key

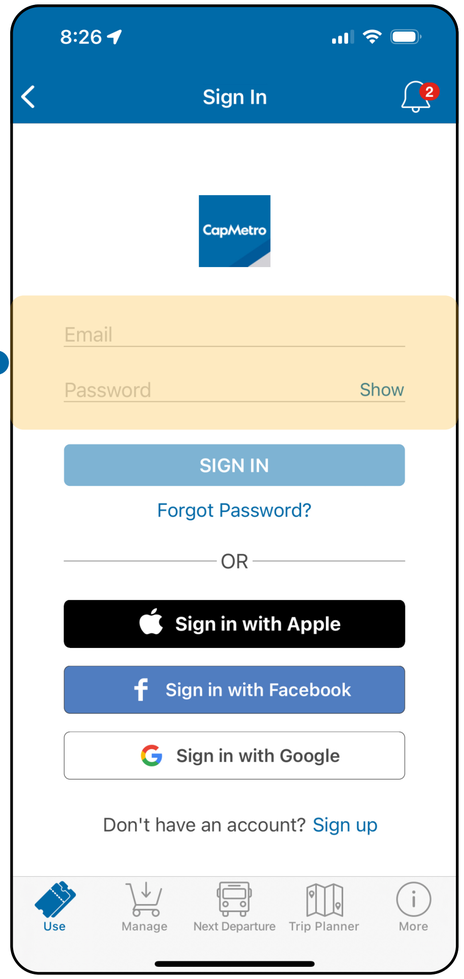
We use the severity rating key to determine the severity of an usability issue. The rating allow us to determine which issue needs to be addressed first.

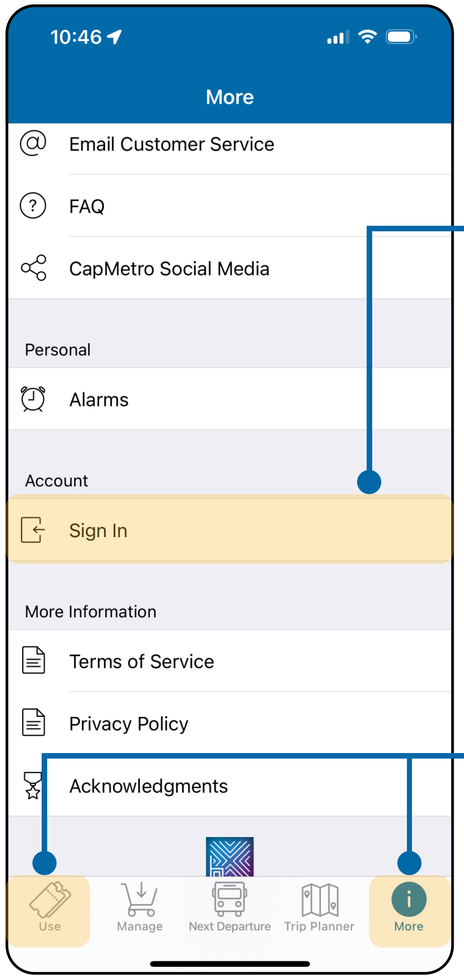
1	2	3	4	5
It is not considered a usability problem	Does not need to be fixed unless extra time is available	Minor usability problem; low priority	Major usability problem: high priority	Usability catastrophe: Fix immediately

Task 1 Part A: Sign in

First open the app, and determine: (1) **How to sign in with given credentials**

All participants successfully signed in.





One participant found a way to sign in through “More”.

Five out of six participants signed in through “Use”. One participant was able to sign in through “More”.

Task 1 Part A: Sign in 1

Task goal: Evaluate how easy or difficult it is for users to sign in.

Key stats

Success Rate

6/6

6 out of 6 participants succeed

Average Difficulty

2/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

41s

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 1 Part A: Sign in 1

Task goal: Evaluate how easy or difficult it is for users to sign in.

Quotes

"Signing in was super **easy**."

"Like most apps, I would think there is a **profile section**? I should find it inside of More."

"There is a **icon that looks like a ticket** and says Use, but I'm going to assume that's where I can login and will then eventually scan my ticket."

Insights

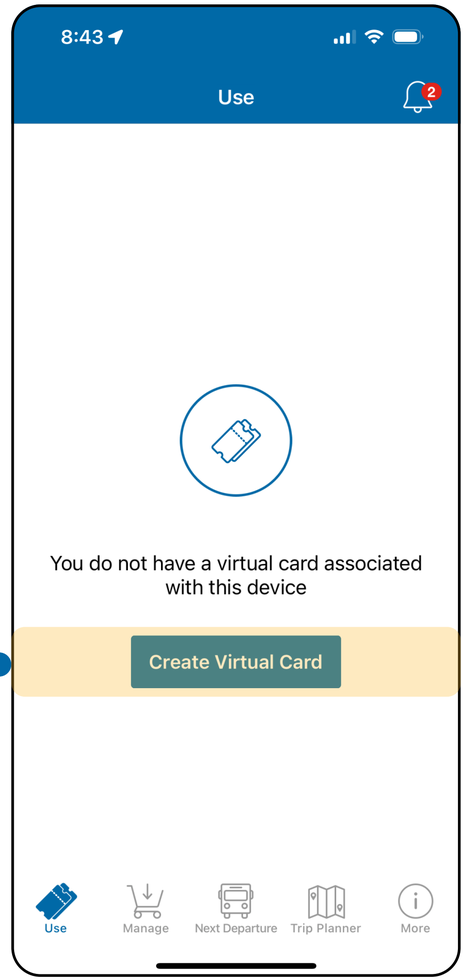
- CapMetro's sign in flow is easy and all were able to complete it.
- There were some questions as to where it would be located in the app with options like "Use", "Manage" and "More" in the navigation not being very clear.

Recommendations

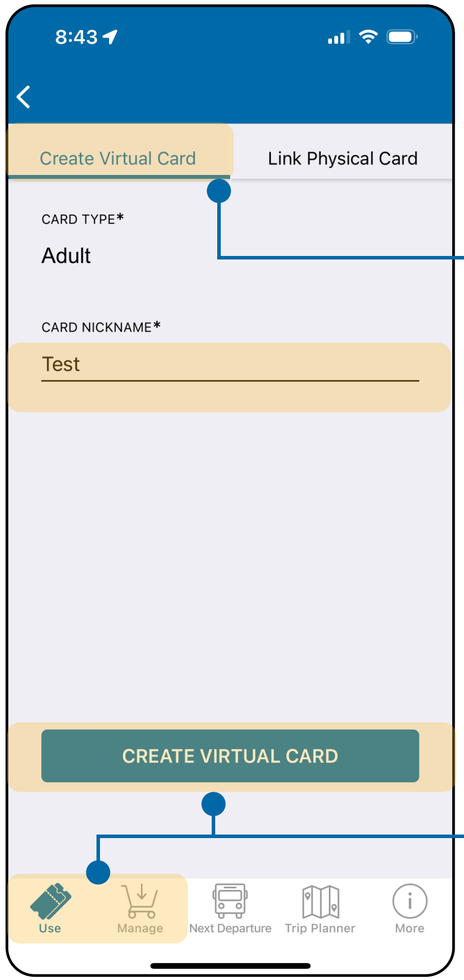
- Don't require users to sign in immediately before seeing any ticket information.
- Have users sign in or check out as a guest during ticket payment checkout.

Task 1 Part B: Create a Virtual Card

First open the app, and determine: (1) **How to create a virtual card.**



Five out of six participants tapped on “Create Virtual Card” in “Use” after signing in to create a pass.



Five out of six participants successfully created a virtual card and nicknamed it “Test”.

One participant was confused over the different names: “Use”, “Manage”, and “Virtual Card” and what they mean.

Task 1 Part B: Create a Virtual Card 3

Task goal: Evaluate how easy or difficult it is for users to determine how to create a virtual card.

Key stats

Success Rate

5/6

6 out of 6 participants succeed

Average Difficulty

2.5/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

44s

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 1 Part B: Create a Virtual Card 3

Task goal: Evaluate how easy or difficult it is for users to determine how to create a virtual card.

Quotes

"If I were to get a pass, I would probably look at **Trip Planner**. "

"It was pretty easy creating a pass after signing in because it was the **first thing shown** after."

"It's **confusing for the names** of things like Use, Virtual Card and Pass. It's a lot of names."

Insights

- Users were confused as to what it means to create a virtual card, because this simply generates a QR code with no monetary value.
- It's an extra step to make users complete without even having bus/rail fare purchased.

Recommendations

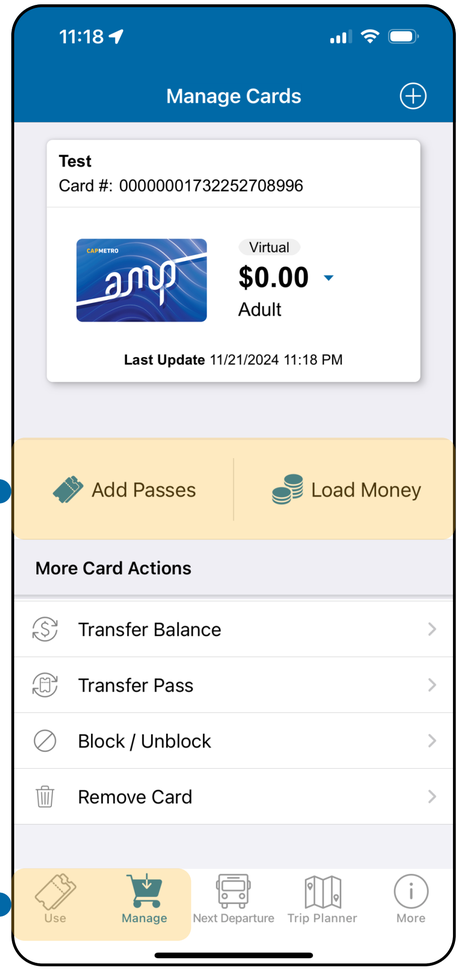
- Integrate this step into purchasing tickets, not as a separate step.
- Have consistent terminology for tickets, instead of using the following different words: Use, Manage, Virtual Card, Passes.

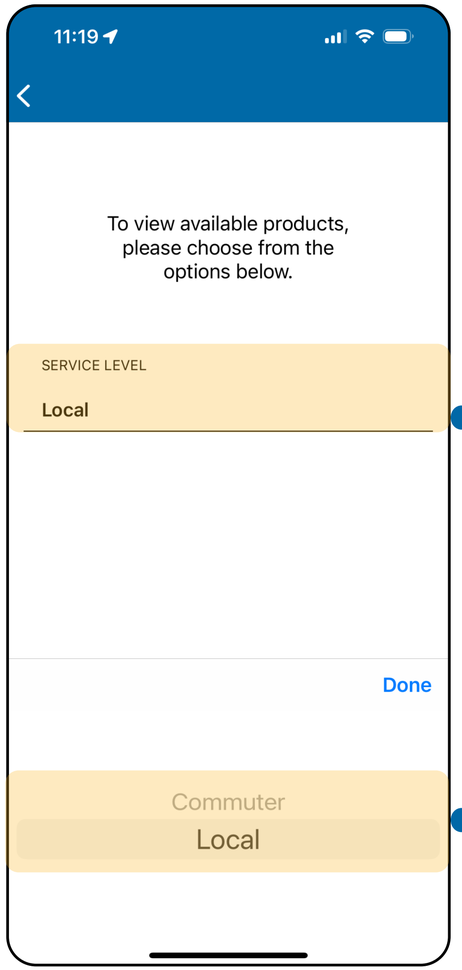
Task 2: Buying Tickets

First 1) **Buy bus fare through the app** (2) **Identify an alternate way to buy bus fare.**

All participants chose “Load Money”, after asking for an alternate method two participants discovered that “Add Passes” also worked.

Participants were confused between “Use” or “Manage”.





Participants were very confused on the difference between “Local” and “Commuter” for pricing. “Service Level” was also unclear.

One participant was sure that “Commuter” meant bus, but it actually means train.

Task 2: Buying Tickets 3

Task goal: Evaluate how easy or difficult it is for users to determine which ways they can purchase tickets.

Key stats

Success Rate

6/6

4 out of 6 participants succeed with one method of buying tickets.

2 out of 6 succeed in identifying two ways of buying tickets.

Average Difficulty

2/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

55s

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 2: Buying Tickets 3

Task goal: Evaluate how easy or difficult it is for users to determine which ways they can purchase tickets.

Quotes

"I think loading money onto the card was pretty easy, since the **button is large**."

"I think I can only select Load Money to add funds to this card. I **dont see any other option**."

"In Add Passes the **verbiage is odd**, for example Commuter or Local, a commuter can be considered local too. It's not clear."

Insights

- Load Money was identified as the main way to purchase bus tickets.
- Most users could not identify Add Passes as a way of purchasing a ticket.
- For the few who tried Add Passes, none selected the correct "Local" bus price. All incorrectly selected "Commuter" train pricing.

Recommendations

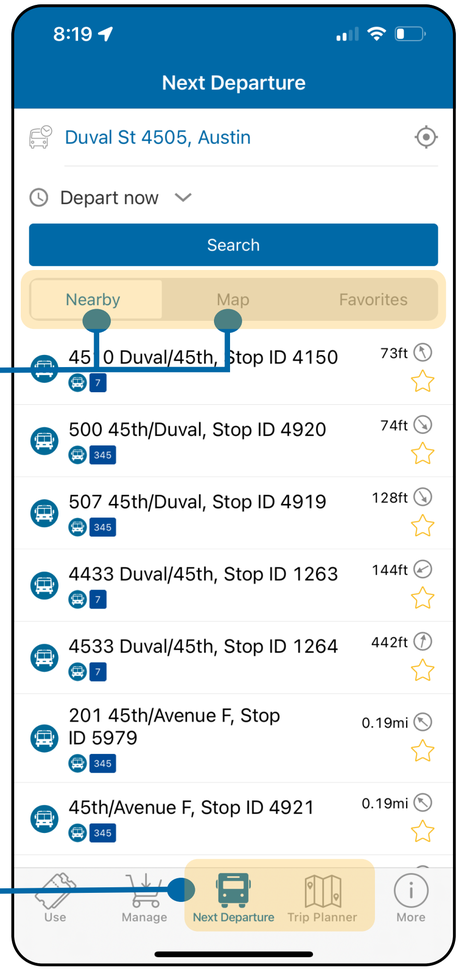
- Combine "Load Money" and "Add Passes" into one page, so users can see all of their purchasing options without being confused.
- Rename "Commuter" and "Local" into "Train" and "Bus"

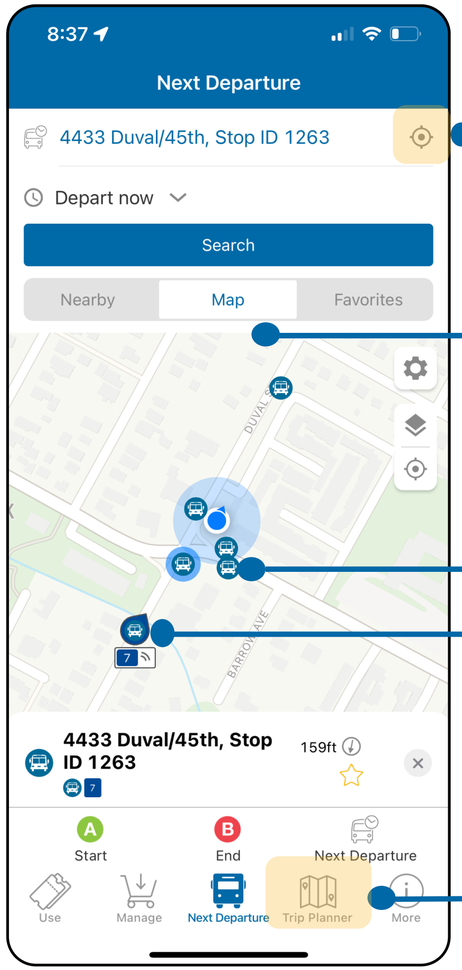
Task 3: Finding Nearby Bus Stops

First 1) **Find the nearest bus stops to you** (2) **Identify what buses that stop at these bus stops.**

Five out of six participants choose to use the map to locate the nearest bus stop rather then using the Nearby tab

Five out of six participants used next departure to locate the nearest stop, though three of the participants struggled to decide between Next Departure and Trip Planner.





Participants were able to easily recognize and select this icon to determine their current location.

Some participants could not distinguish between the icons used for the bus versus the bus stop.

One participant used trip planner instead of next departure to find nearby bus stops, and went through planning a bus route before completing the task.

Task 3: Finding Nearby Bus Stops 3

Task goal: Users will locate the nearest bus stop to them and identify buses that stop there.

Key stats

Success Rate

4.5/6

4 out of 6 participants completely succeed

Average Difficulty

2.17/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

99s

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 3: Finding Nearby Bus Stops 3

Task goal: Users will locate the nearest bus stop to them and identify buses that stop there.

Quotes

"It doesn't show a map which I think would be the most direct way to show the nearest stop, I have to click on the map specifically."

"It is easy for me now, but I did remember it was quite hard for me (to find the bus stops using the CapMetro app) at first."

"Its not super intuitive, it kind of hard the bus stops from bus icons (on the map)."

Insights

- Most users had trouble deciding between using Trip Planner or Next Departure to find nearby bus stops.
- Most users used the map to locate their location and find the nearest bus stop to them. 1 user noticed that the app does not defualt to the map view
- Icons on the map looked similar for the bus stop and the bus.

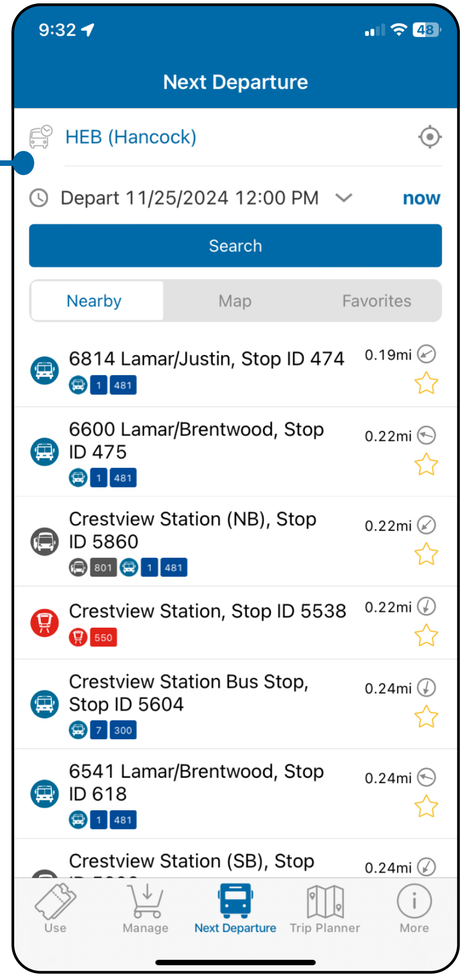
Recommendations

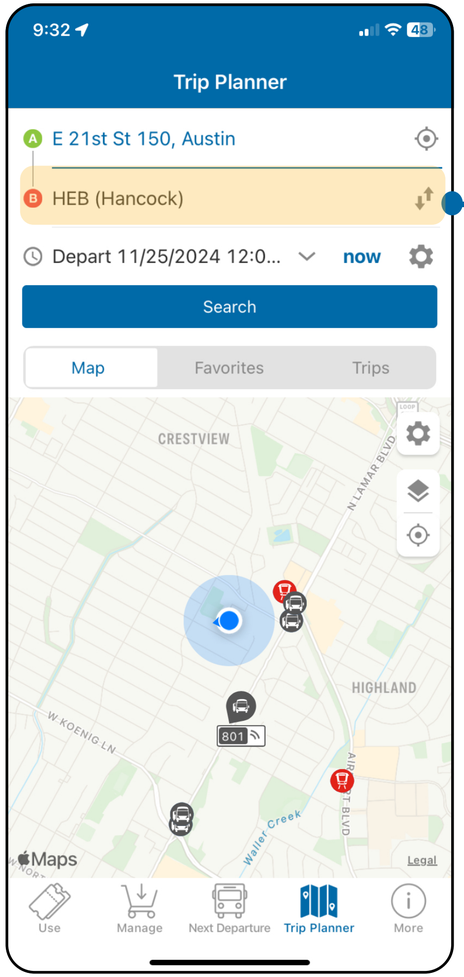
- Consider consolidating Next Departure and Trip Planner. Any function that can be completed in Next Departure can also be done in Trip Planner with the exception of the list view of nearby stops.
- Map icons should be distinct and easily recognizable.
- Prioritize the map view to align with user expectations

Task 4: Finding a route to a specific location

Task goal: Users will locate the HEB Hancock location, and then identify a specific bus route from their current location

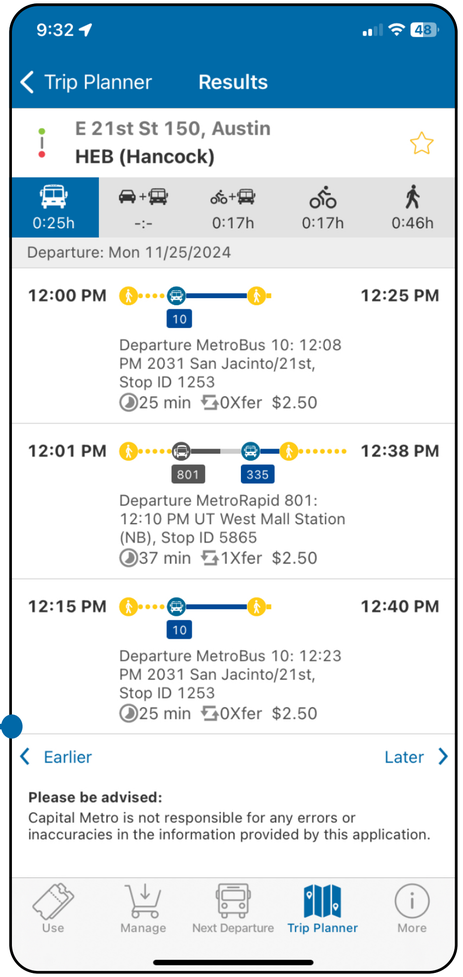
Three out of six participants attempted to use the Next Departure tab first.





Two participants did not realize they could search directly for HEB Hancock.

All participants were able to successfully reach the Results screen, but one chose the wrong starting location.



Task 4: Finding a route to a specific location 4

Task goal: Users will locate the HEB Hancock location, and then identify a specific bus route from their current location

Key stats

Success Rate

5/6

5 out of 6 participants succeed

Average Difficulty

2.08/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

115 secs

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 4: Finding a route to a specific location 4

Task goal: Users will locate the HEB Hancock location, and then identify a specific bus route they can take to that location

Quotes

"Oh! I didn't know I can actually search for H-E-B Hancock."

"I expect to (find the route) using the 'Next Departure'. I guess I was wrong."

"If I'd like to search for a specific store, I'll probably search on other maps such as Google Maps."

Insights

- Most were able to completely the task successfully but only after making a few errors, demonstrating that the app does not provide the user with a clear pathway to complete this task
- Many initially gravitated to the "Next Departure" tab to complete this task, although this was incorrect

Recommendations

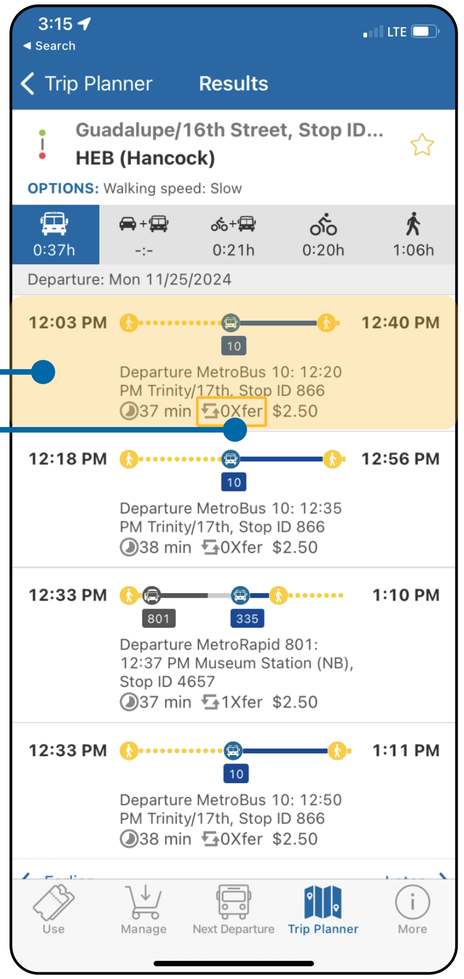
- Consider consolidating Next Departure and Trip Planner, or make their functions obvious enough to differentiate them quickly
- Make it more obvious that you can search for a specific location rather than just a bus stop

Task 5: Check which bus stop to get off

First check when the bus will arrive, and determine: (1) **How long the bus ride will take** (2) **Identify which stop to get off at**

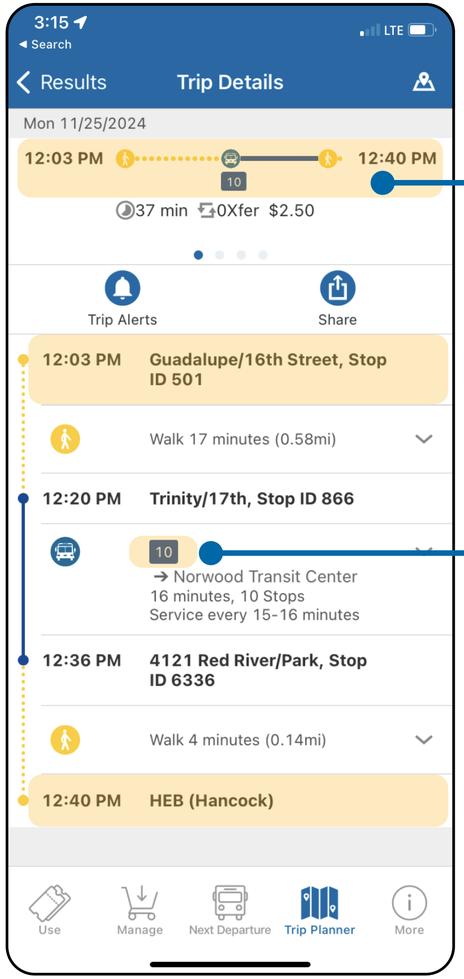
All participants tap on the route to view bus route information.

1 participant does not know what “0Xfer” mean.



All participants found the arrival time and identify the bus stop to get off at successfully.

One participant is confused and does not know whether "10" indicates the bus number or the number of stops.



Task 5: Check which bus stop to get off 1

Task goal: Evaluate how easy or difficult it is for users to determine which bus stop to get off at.

Key stats

Success Rate

6/6

6 out of 6 participants succeed

Average Difficulty

1.5/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

55 secs

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 5: Check which bus stop to get off 1

Task goal: Evaluate how easy or difficult it is for users to determine which bus stop to get off at.

Quotes

"(It was) easy to find stop to get off at, (as it is) **similar to Google Maps features**."

"It is extremely easy because I simply needs to stay on the trip details page for the bus stop information."

"A lot of **overwhelming information**, differentiate walk and bus route and trip alerts was confusing"

Insight

- CapMetro's interface for arrival times and bus stops is well-designed, offering detailed route information (e.g., ride duration, arrival time, destination).
- Although participants completed the task, issues like unclear abbreviations (e.g., "Xfer") and excessive information were noted.

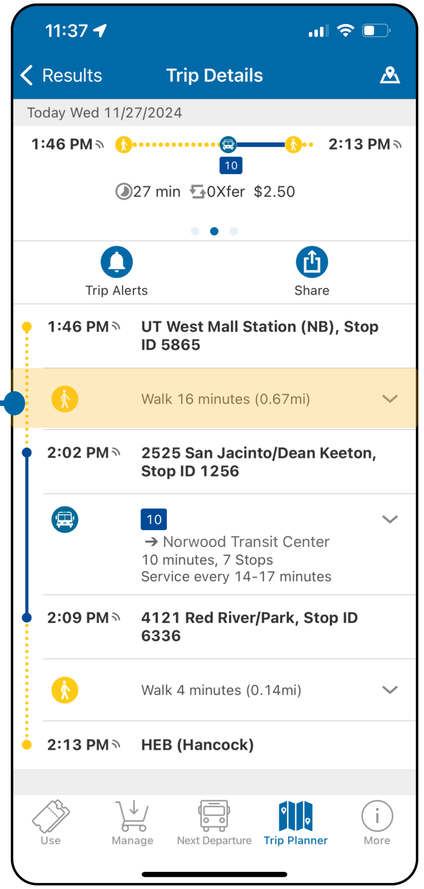
Recommendation

- Move detailed info (e.g., transit stop) to dropdowns.
- Highlight key details like "Arrival Time" and "Destination Stops."
- Replace "Xfer" with "transfer."

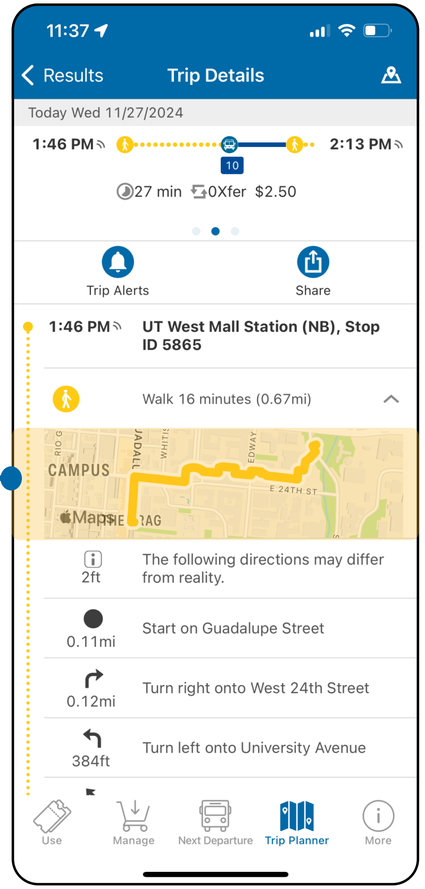
Task 6: Find a route to the bus stop

Task goal: Evaluate how easy or difficult it is for users to find the route to the bus stop.

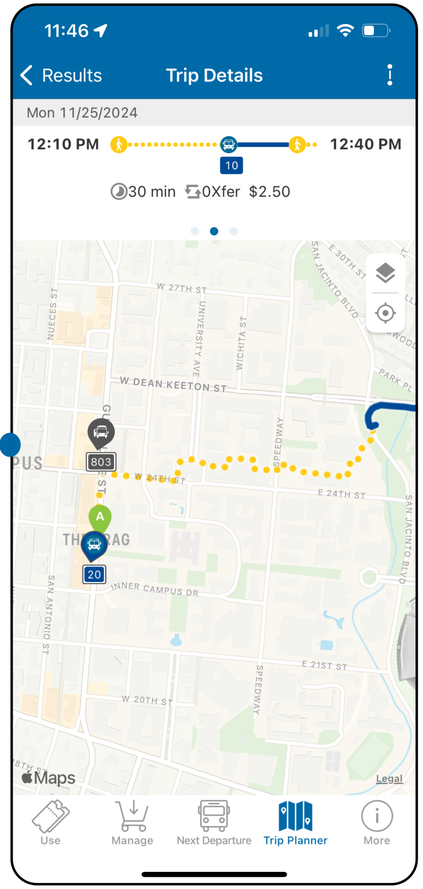
One participant taps on the walking route to extend the instructions to the bus stop.



It displays a small map of the route to the bus stop.

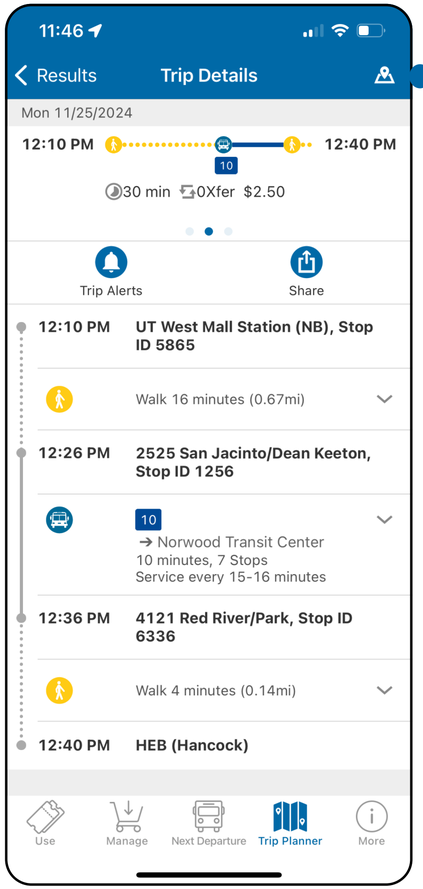


She used her current location on the map to check the directions to the bus stop.

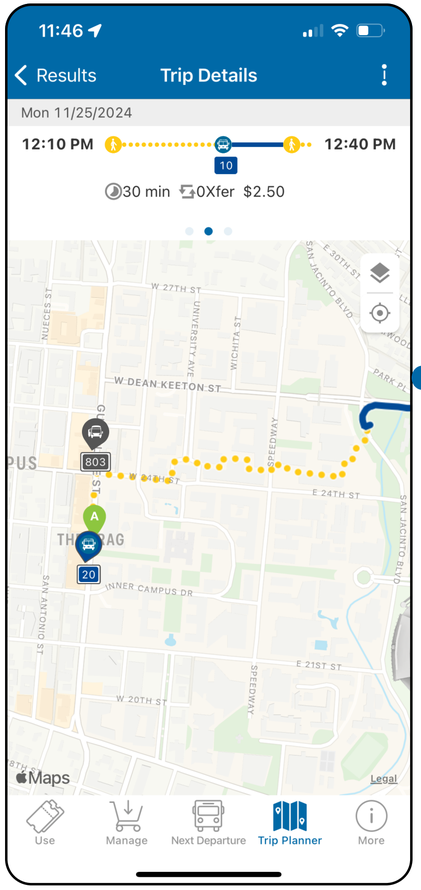


Task 6: Find a route to the bus stop

Task goal: Evaluate how easy or difficult it is for users to find the route to the bus stop.



One participant taps on the map icon to see what is displayed



It navigated to the route leading to the bus stop.

Task 6: Find a route to the bus stop 4

Task goal: Evaluate how easy or difficult it is for users to find the route to the bus stop.

Key stats

Success Rate

2/6

2 out of 6 participants completely succeed

Average Difficulty

3/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

114secs

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 6: Find a route to the bus stop 4

Task goal: Evaluate how easy or difficult it is for users to find the route to the bus stop.

Quotes

I tap on the map icon on the top right of trip planner, I can see the route to the bus stop.

“I guess I could go back and click on the bus stop name and click info, which tells me where I am and where the bus stop is, but not how to get there ”

“I supposed if I tap on ‘Start’ it’d show me how (to get to the bus stop) but (it didn’t).”

Insight

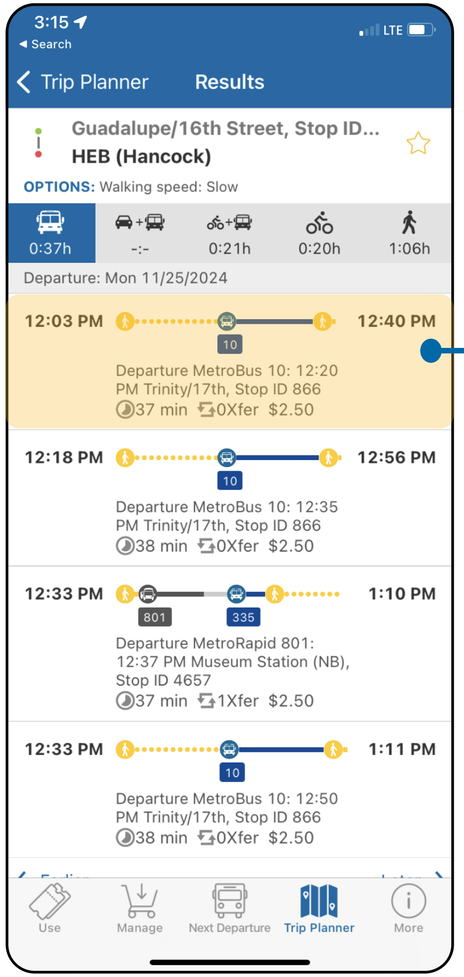
- The icon and map of the navigation route are hidden, so users cannot find the button to activate navigation to the bus stop.

Recommendations

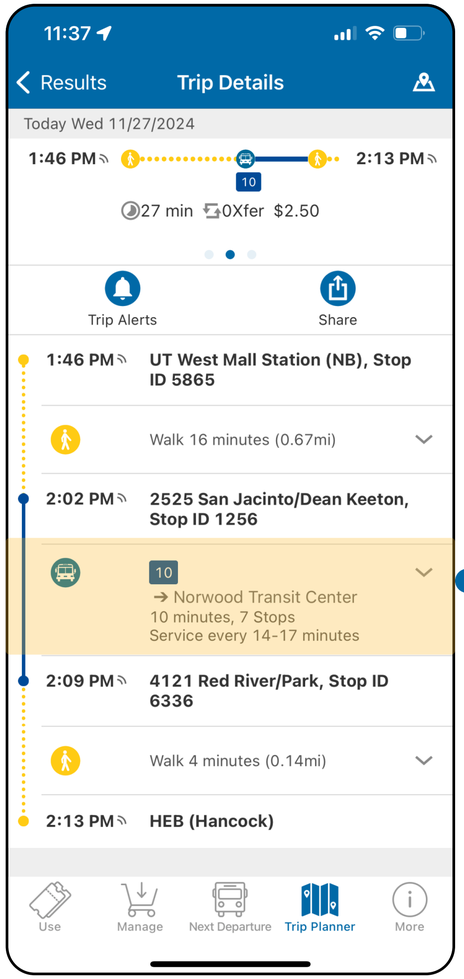
- Add a clear icon to start navigation or show a bus stop map directly.
- Add a description of the navigation icon.

Task 7: Check the bus updates status

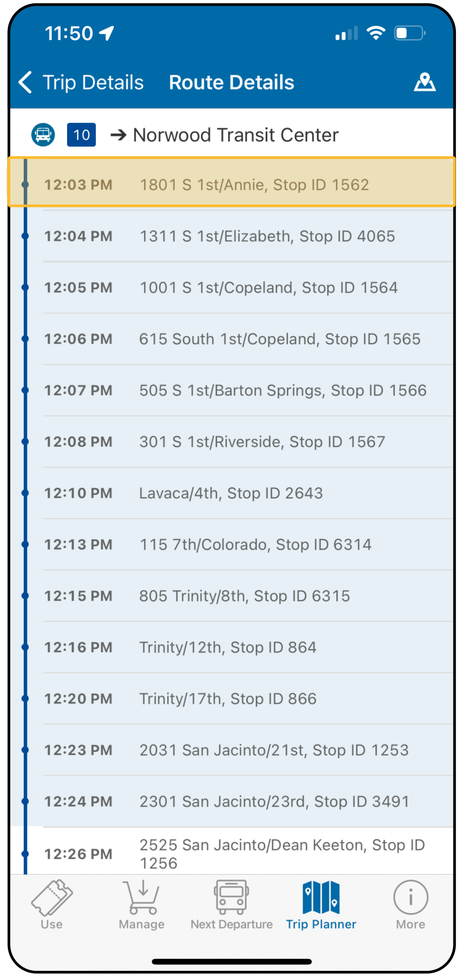
Task goal: Evaluate how easy or difficult it is for users to determine when will the bus arrive.



4/6 participants tap on the route to view bus's arrival time.



2/6 participants keep tap on the specific bus to view the whole bus schedule.



Task 7: Check the bus updates status 1

Task goal: Evaluate how easy or difficult it is for users to determine when will the bus arrive.

Key stats

Success Rate

6/6

6 out of 6 participants succeed

Average Difficulty

1.5/5

1: Extremely easy ; 5: Extremely difficult

Average Time-on Task

28 secs

Sum of time-on task divided by 6 participants

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Task 7: Check the bus updates status 1

Task goal: Evaluate how easy or difficult it is for users to determine when will the bus arrive.

Quotes

"with one click you should be able to find the bus departure info"

Checked different routes, went back to list and then found when the next bus leaves

If I was a newer user, it would be more difficult for me to see the departure times. Google Maps shows multiple departure times.

Insight

- The time on the route page directly displays the arrival time of the next bus, making it easy to find.

Recommendations

- Offering the time on the map would make it clearer for users to identify the bus's location and the time.

1 no usability problem 2 cosmetic problem 3 minor usability problem 4 major usability problem 5 usability catastrophe

Key Insights & Recommendations

Insights & Recommendations

Some **essential functions feel "hidden"** in the app and only easy to find by expert users, such as finding the map view of a route and directions to get to the closest bus stop.

We recommend **prioritizing the map view** so users can access that quickly. In addition, the app can providing a quick tutorial when user's first start exploring the app so these features are highlighted to the user.

The ticket-purchasing flow is lengthy and requires additional steps, and knowledge of ambiguous terminology in order to purchase the correct ticket.

We recommend **simplifying the ticket-purchasing experience** by having all prices and ticket options listed on one screen, and shown before needing to create an account.

Insights & Recommendations

The labels are confusing; for instance, there is no clear distinction between "Next Departure" and "Trip Planner." Additionally, users often struggle to differentiate between "Add Passes" and "Load Money."

Consider **combining similar functions** to reduce confusion. Additionally, we **recommend simplifying information** and highlighting key features to ensure clear and easy navigation.

There are multiple different ways to perform each task, often resulting in unnecessary clutter within the app and confusion regarding the specific pathways the user should take.

We recommend creating **simple, clear pathways** for the user to take in order to complete each major task within the app.

Appendix

CapMetro Heuristic Evaluation

Group 3: Nikolette Carlomangno, Hui-Yun Tseng (Sophia), Nina Kaplan, Pin-Yin Kuo, Caroline Pastrano

Introduction

About CapMetro

CapMetro (Capital Metropolitan Transportation Authority) is Austin's public transit provider, offering bus, rail, and paratransit services. It focuses on making transportation sustainable and accessible, integrating technology to improve service efficiency and the rider experience.

Main Functions of CapMetro App

- **Trip Planning**: Helps users plan their routes by providing real-time schedules, routes, and updates for buses and trains.
- **Ticket Purchasing**: Allows users to buy and store digital tickets for CapMetro services directly through the app.
- **Real-Time Tracking**: Enables users to track the exact location of buses and trains in real-time, ensuring timely arrivals and reducing wait times.

Severity Metrics & Key Issues

Severity Assessment Metrics

We assess the severity of heuristic violations **based on how significantly they hinder users from performing the app's core functions**, as outlined in the introduction.

Top 3 Heuristic Violations

- Match Between System and the Real World
- User Control and Freedom
- Consistency and Standards

Severity Levels

In the following slides, we will assess the severity of each heuristic violation. This will help us prioritize and address the most critical issues first to enhance the user experience.

1 **Cosmetic problem**
need not to be fixed unless extra time is available on the project

2 **Minor usability problem**
fixing this should be given low priority

3 **Major usability problem**
important to fix, so should be given high priority

4 **Usability catastrophe**
critical usability problem that must be fixed as soon as possible

Heuristic Violation #1:

Match Between the System and the Real World

Match Between System and the Real World 4

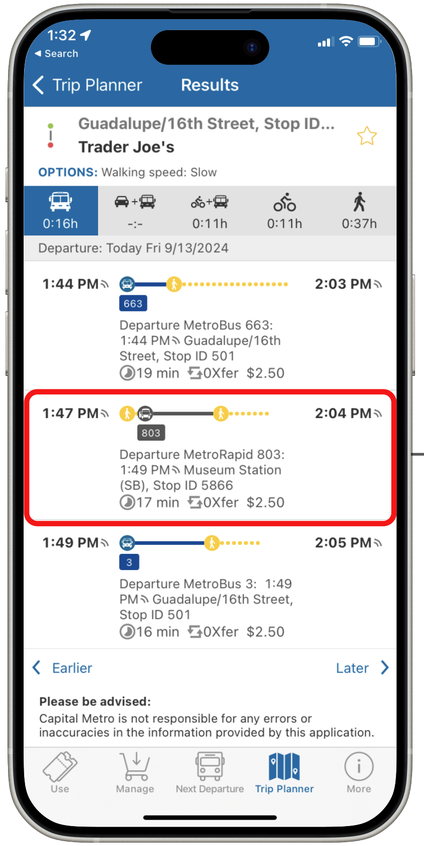
Use familiar language and follow real-world conventions to enhance understanding.

Issue

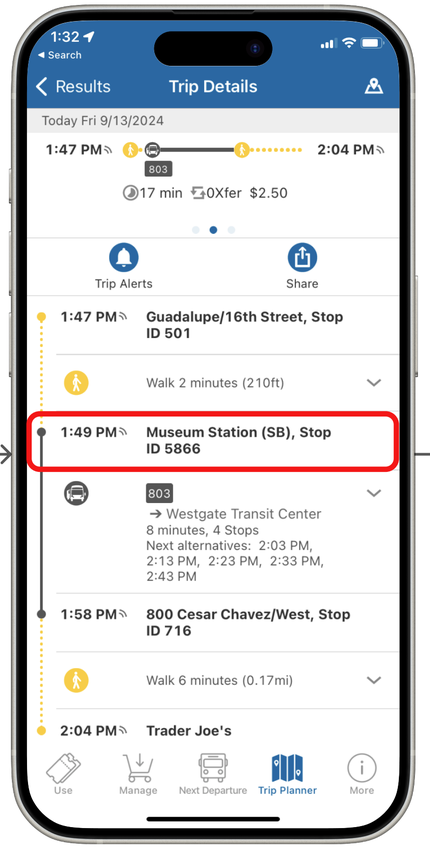
When users search for a bus to their destination and select a station, they expect to see the location of the relevant bus stop. Instead, the app displays the entire bus schedule, including information about other buses that users are not searching for, which can create confusion and make it harder to find the needed information.

Recommendation

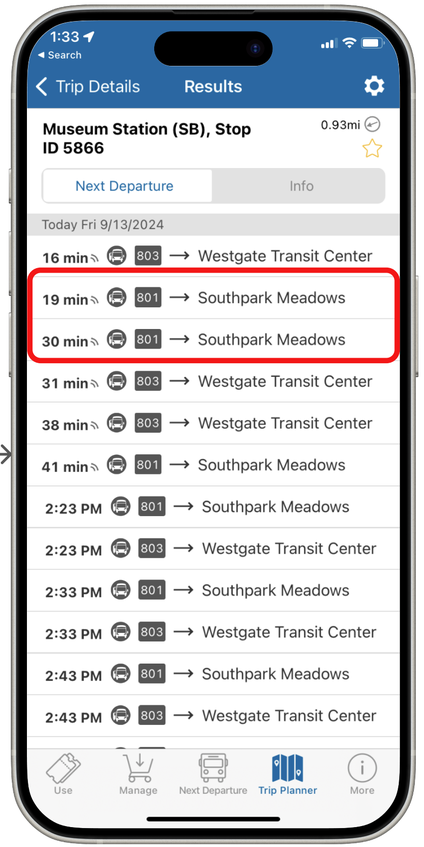
After selecting a bus station, the app should first display a clear map showing the station's location. Below the map, only the schedule for the selected bus should be shown, with an option to view other buses if needed. This will align with user expectations and reduce unnecessary information.



Tap on the bus schedule



The app displays the name of the stop. The user wants to tap it to see directions to the station.



Instead of showing directions to the station, the system displays a list of bus schedules, including buses the user isn't looking for

1 cosmetic problem 2 minor usability problem 3 major usability problem 4 usability catastrophe

Match Between System and the Real World 4

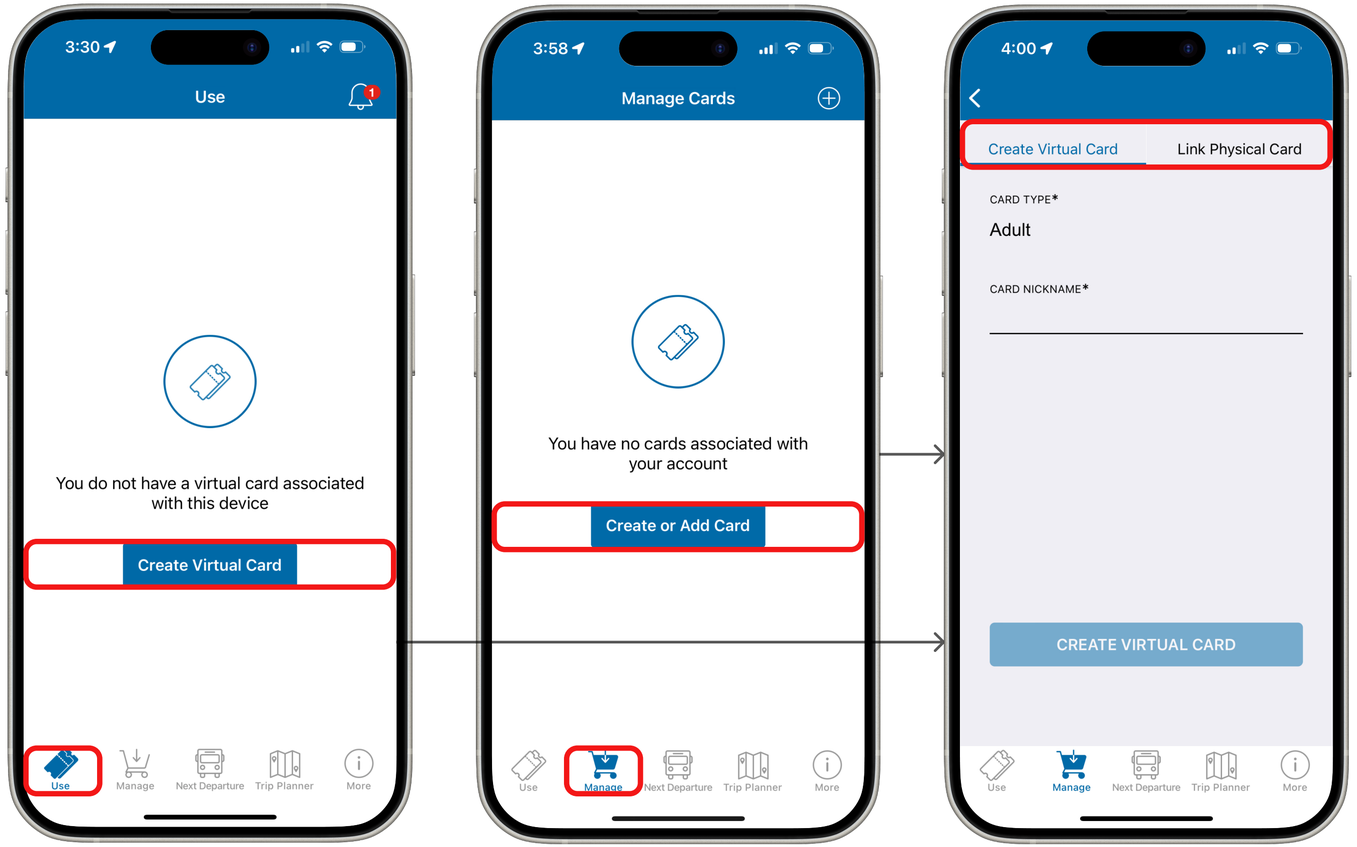
Use familiar language and follow real-world conventions to enhance understanding.

Issue

Users expect familiar language, meaning that navigation tabs called “Use” and “Manage” are confusing to the purpose of the app. In “Use” and “Manage” the words “tickets”, “fares”, or “passes” are never mentioned, and the user is told to create a virtual card but it doesn’t explain how to use it or why you need a virtual card when you are looking for a ticket.

Recommendation

“Use” and “Manage” should be combined into one navigation tab. “Tickets” would be more widely understandable. Prices and ticket types should be listed before prompting to add virtual or physical cards, because some ticket types may not require that (UT/ ACC student, Seniors, Military, Under 18 yrs old, Equifare, Riders with Disabilities or on Medicare).



Tap on Use

Tap on Manage

Both Use and Manage lead to create virtual card or link physical card

1 cosmetic problem 2 minor usability problem 3 major usability problem 4 usability catastrophe

Heuristic Violation #2:

User Control and Freedom

User Control and Freedom 3

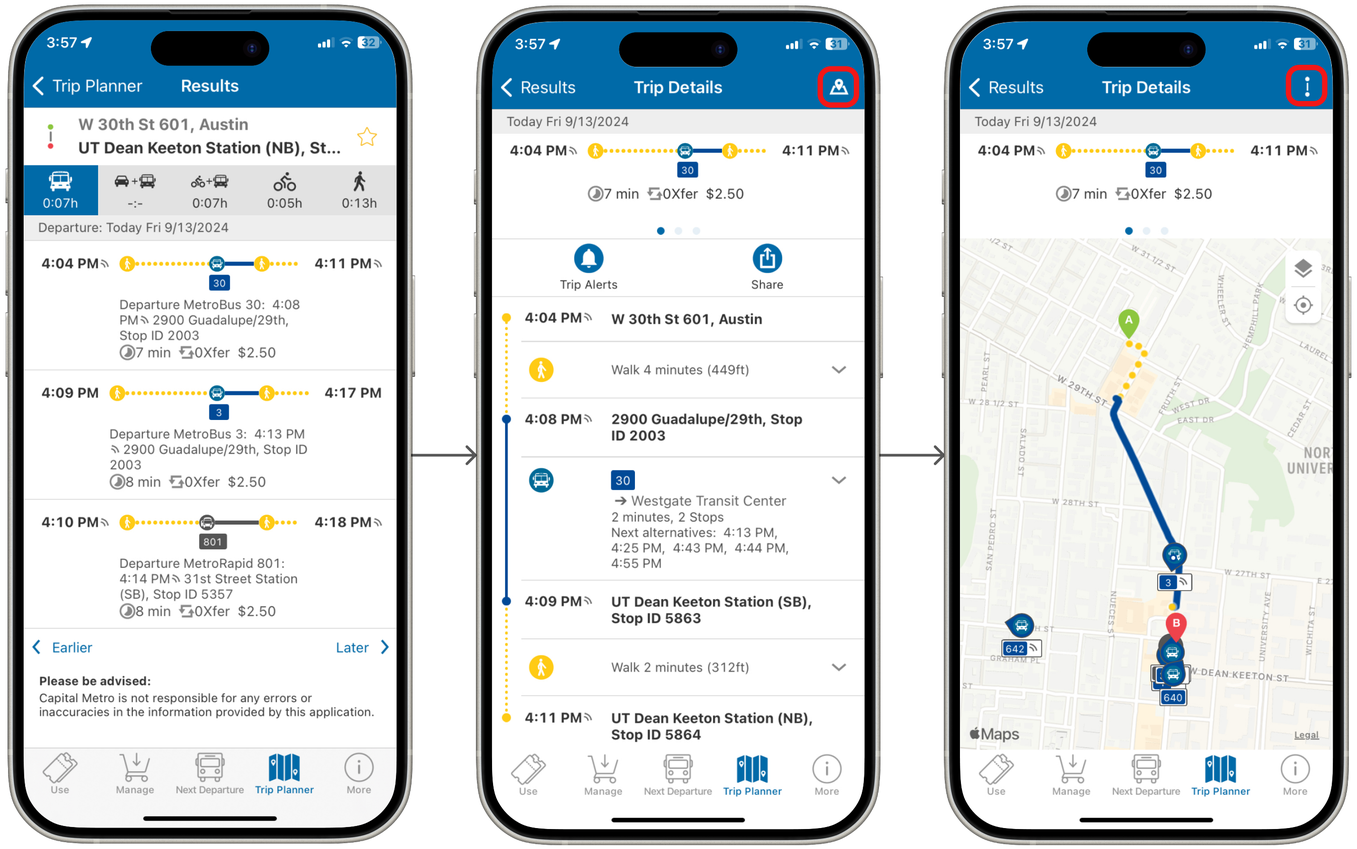
System functions should be easy to navigate and control

Issue

When searching for a route in the trip planner screen, the initial results view is cluttered with information that is not necessarily relevant, making it difficult to pick out the more important aspects. Upon choosing a route, it is difficult to find the button to view the trip on the map, which is arguably the most important view of these results. The button for returning to the written steps is also not obvious.

Recommendation

Make important information such as route number and stop names more prominent on the initial trip planner results page. Once the user has selected a route, give the user a more intuitive way to switch between written details and map view.



1 cosmetic problem 2 minor usability problem 3 major usability problem 4 usability catastrophe

User Control and Freedom 1

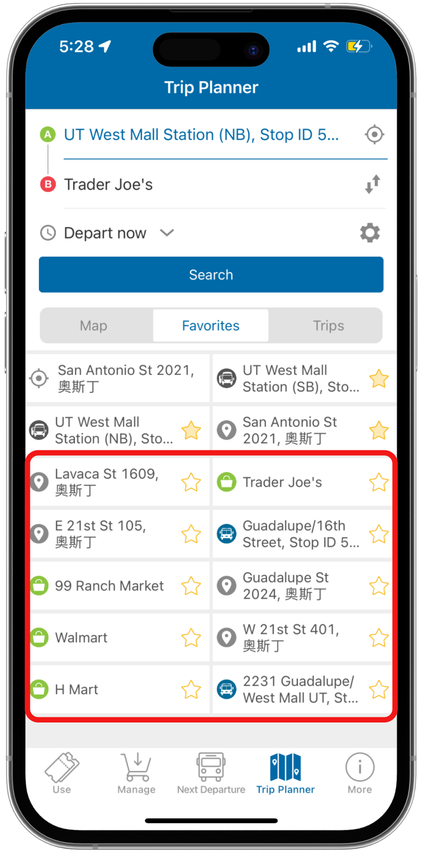
System functions should be easy to navigate and control

Issue

1. History search records cannot be cleared.
2. Items that are not selected as favorites remain on the list and cannot be removed.

Recommendation

Add a button to allow users to easily edit options, including deleting and arranging them in order. Additionally, options that are unselected need to disappear automatically.



The app displays the favorite section that users have added. However, these options cannot be edited or removed. Furthermore, if users cancel the selected stars on the right, those options will still remain on the list.

1 cosmetic problem 2 minor usability problem 3 major usability problem 4 usability catastrophe

Heuristic Violation #3:

Consistency and Standards

Consistency and Standards 2

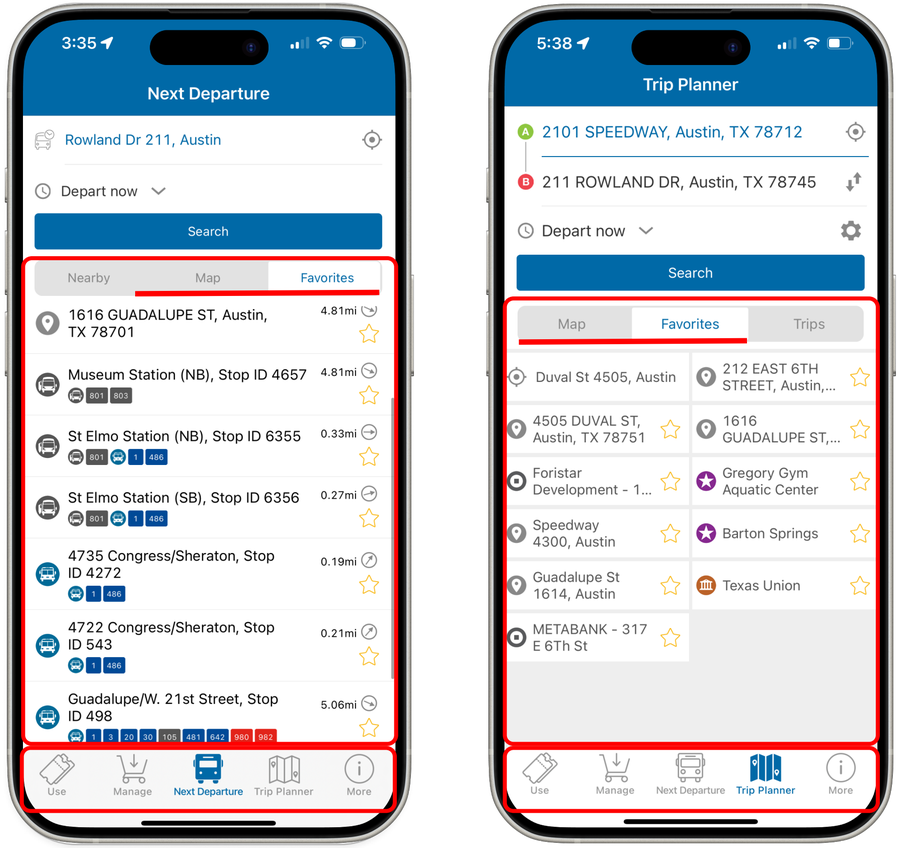
Users should not have to wonder if different, words, situations, or actions mean the same thing. Follow platform conventions.

Issue

The three tabs towards the top of the screen do not match up when navigating between Next Departure and Trip Planner; the Favorites and Map change places even though they should remain where they are. When navigating between Trip Planner and Next Departure, the Favorites tab layout changes style, making the design inconsistent. In addition, the bottom navigation background in sometimes white and sometimes gray.

Recommendation

Create consistent design systems so the app does not vary from page to page. Choose a style for the Favorites tab so it is consistent under both Next Departure and Trip Planner, and make sure the background colors on the app do not vary. Make the location of the Favorites and Map tabs static.



Toggling between Next Departure and Trip Planner reveals different layout style of the user's favorites. the Maps and Favorites tab shift to the right when navigating between the two locations.

1 cosmetic problem 2 minor usability problem 3 major usability problem 4 usability catastrophe

Consistency and Standards 1

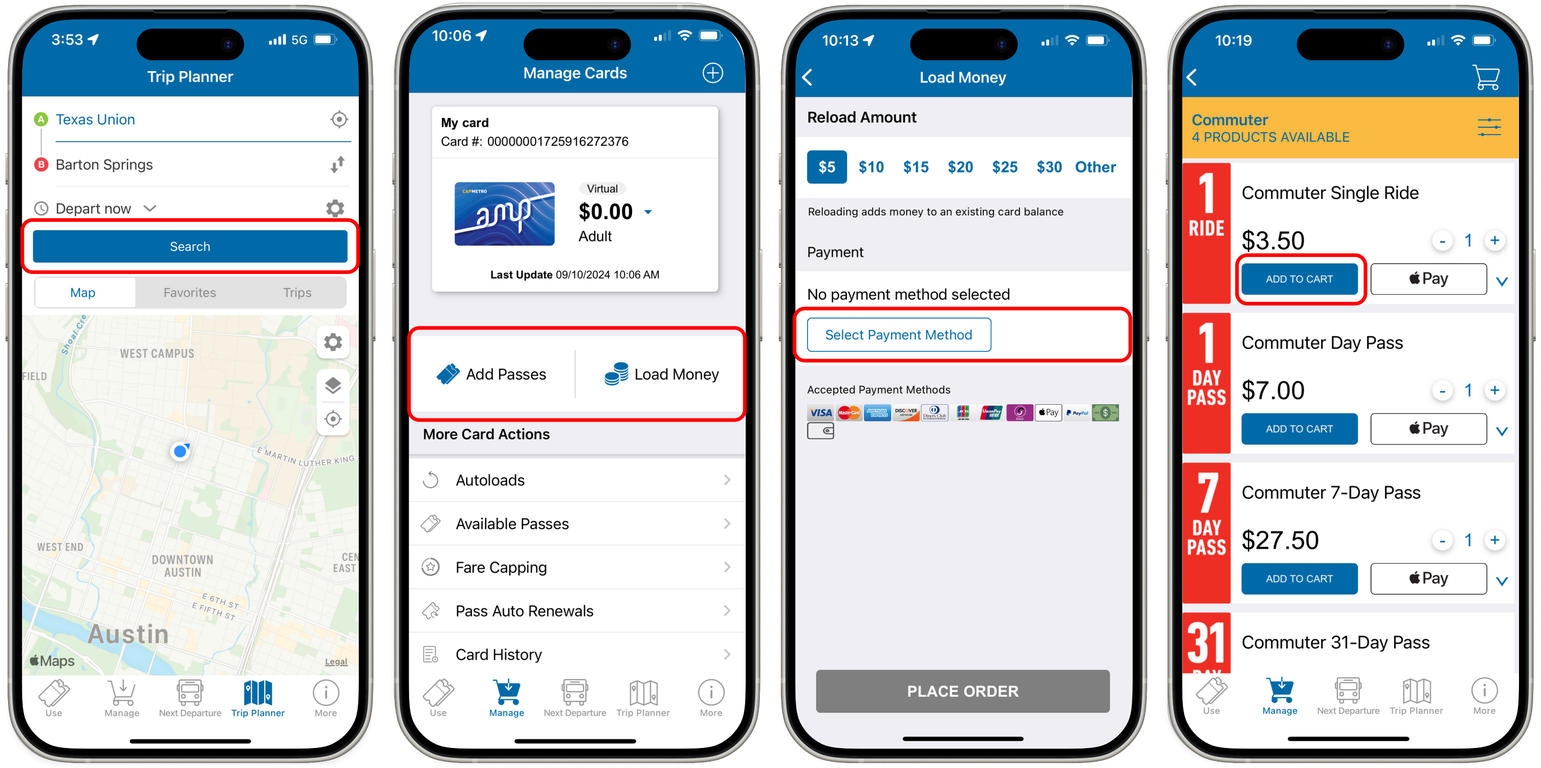
Users should not have to wonder if different, words, situations, or actions mean the same thing. Follow platform conventions.

Issue

Buttons throughout the interface are inconsistent. The Add Passes and Load Money buttons have a different design style then other buttons throughout the interface. Some buttons have a blue background with white text, while others have a white background with blue text.

Recommendation

Make the design of the buttons consistent throughout the interface. Each button should look the same and follow the same design standards set by the interface. The blue background with white text stands out to users as a clickable option.



1 cosmetic problem 2 minor usability problem 3 major usability problem 4 usability catastrophe

CapMetro Competitive Analysis

Group 3: Nikolette Carlomangno, Hui-Yun Tseng (Sophia), Nina Kaplan, Pin-Yin Kuo, Caroline Pastrano

Introduction

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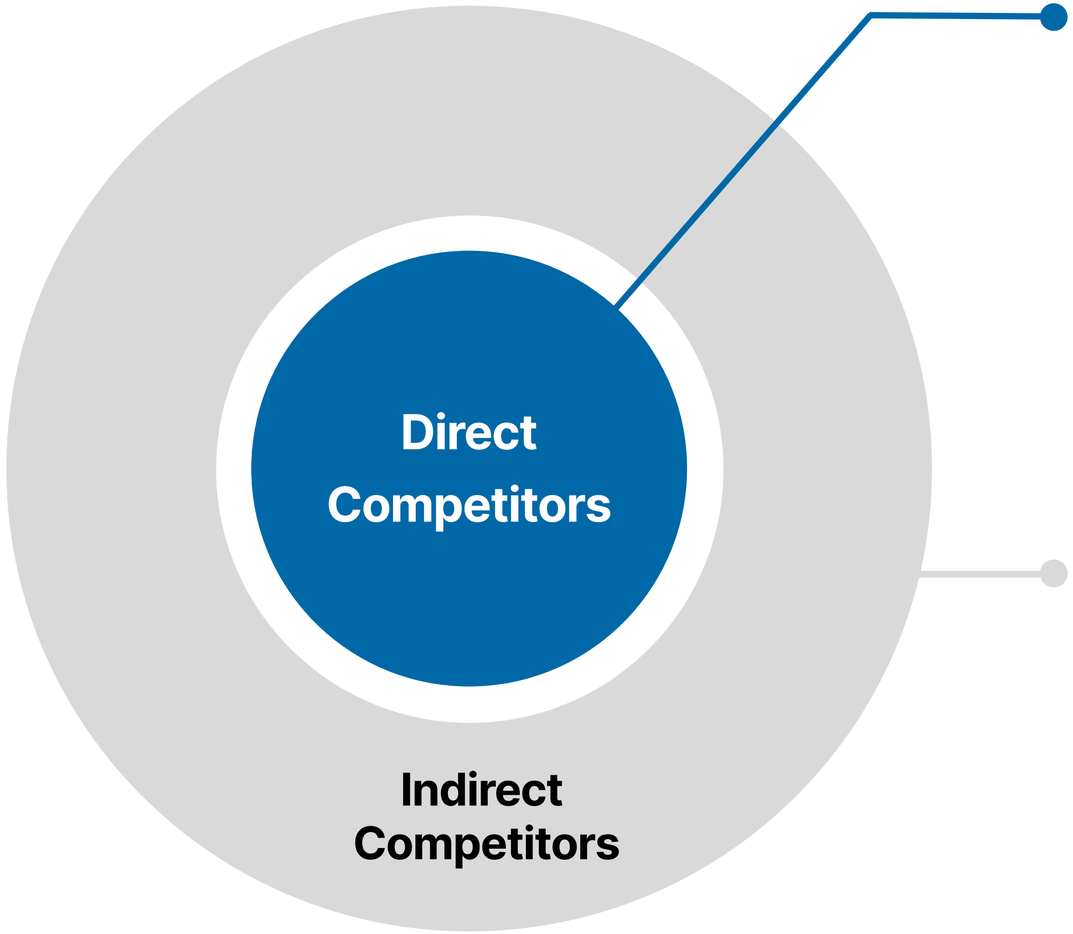
Competitor Selection

Competitor Selection



3 Direct Competitors

We chose direct competitors based on their **ability to provide real-time transit solutions or alternative transportation options** that directly compete with CapMetro's core public transportation services.

Google Map Uber Lime

3 Indirect Competitors

Indirect competitors were selected for **offering services that either reduce the need for public transit or provide alternative means of travel** for longer or less frequent trips.

American Airlines Turo DoorDash

Competitor Overview

Company Overview: Direct Competitors

	Google Maps	Lime	Uber
Company Info	• Founded: 2004 • Headquarters: California, USA	• Founded: 2017 • Headquarters: San Francisco, USA	• Founded: 2009 • Headquarters: San Francisco, USA
Main Feature	• Provides navigation for driving, walking, cycling, and public transportation. • Displays information about local businesses • Find nearby restaurants, shops, services, and more.	• Dockless electric scooters and e-bikes for short-term rental	• Ride hailing transportation app for requesting car rides • Uses GPS for accurate arrival time, and to follow the trip's duration, route and progress
Target Market	• General Consumers • Travelers and Tourists • Delivery and Ride-Hailing Services • Businesses and Advertisers	• Urban residents • Students • Tourists • People looking for short-distance transportation options	• Urban Professionals • Tourists • Business Travelers • Individuals seeking convenient and faster alternatives to public transportation
Service Area	• Worldwide	• Worldwide urban centers with high population density	• Worldwide • Over 10k cities and 70 countries
Service Cost	• Free for General Consumers and Businesses	• Unlock Fee: A $1 charge to start the ride • Per-Minute Fee: $0.30 - $0.40 per minute	• Varies by city, service type, demand, distance, surge pricing and availability • Estimated price is shown before ordering

Company Overview: Indirect Competitors

	American Airlines	TURO	DOORDASH
Company Info	• Founded: 1926, App launched in 2010 • Headquarters: Fort Worth, Texas USA	• Founded: 2009 • Headquarters: San Francisco, California, USA	• Founded: 2013 • Headquarters: San Francisco, California, USA
Main Feature	• Booking airline tickets for domestic and international flights	• Peer-to-peer car rental service which allows people to book basic to luxury car rentals.	• Food ordering and delivery platform, online and mobile platforms available.
Target Market	• Business Travelers • Leisure Travelers • AAdvantage Loyalty Members	• Vehicle owners • Entrepreneurs • Tourist and Business travelers • Car Enthusiest	• Students • Young adults • Working professionals • Parents
Service Area	• Connects over 350 destinations in more than 60 countries	• Turo is available in over 56 countries, including the United States, Canada, United Kingdom, France, and Australia.	• All US states
Service Cost	• Varies by route, ticket type, booking • Average domestic ~$390 • Average international ~$700-1300	• Varies by length of booking, location, and type of vehicle. Costs for economy cars start as low as $10 a day, all the way up to $500+ a day for a luxury vehicle.	• Varies by location, distance, and time of day. Often offers free delivery promotions, although tipping and service charges will still apply.

Direct Competitors Zoom-in

Direct Competitor Zoom-in: Google Maps

Google Maps

Google Maps is a web service offering maps, satellite imagery, real-time traffic, and navigation for various travel modes. It also allows local business searches and reviews.

Strength

Wide Availability

Operates in numerous countries globally.

Convenience

Easy to use, making it accessible to a wide range of users. Features are straightforward.

Accurate Navigation

Provides precise turn-by-turn navigation for various modes of transport

Extensive Business information

Includes detailed information on millions of businesses worldwide

Street View

Allows users to virtually explore neighborhoods and landmarks

Personalization:

Users can create and customize maps, save favorite places, share routes,

Weakness

Data Accuracy

In less developed regions or rural areas, map data may be outdated, inaccurate, or incomplete.

Reliance on User-Generated Data:

Faces regulations and restrictions i relies heavily on user contributions for reviews, photos, and updatesn many cities.

Direct Competitor Zoom-in: Lime

Lime Scooter is a micro-mobility service providing electric scooters for convenient, eco-friendly urban travel. Users can rent, locate, and pay for rides via a mobile app, offering a fast, sustainable way to travel short distances while reducing traffic and emissions.

Strength

Wide Availability
Operates in numerous cities globally.

Convenience
Easy to use, with readily available scooters in popular areas.

Affordability
Relatively low cost for short trips, especially compared to taxis or ride-hailing.

Sustainability
Promotes eco-friendly transportation and reduces reliance on cars.

Weakness

Safety Concerns
Accidents and injuries involving e-scooters are a concern.

Clutter and Parking Issues
Improperly parked scooters can create obstacles.

Regulatory Challenges
Faces regulations and restrictions in many cities.

Vandalism and Theft
Scooters are susceptible to damage and theft.

Direct Competitor Zoom-in: Uber

Uber

Uber is a ride-hailing transportation app that uses GPS to connect nearby drivers and passengers. Users have the choice of a variety of different vehicles based on wait time, group size, price, car type, accessibility and sustainability considerations.

Strength

Wide Availability

One of the most popular ride-hailing app in the world. Globally operates in over 10k cities and 70 countries.

Convenience

User-friendly app, easy to navigate. Provides alternatives to driving and public transit.

Personalization

Has a variety of cars to cater to the larger population like Share, Comfort, Electric, Priority, XL, Pet, Premier, SUV, WAV.

Accessibility

Offers accessible rides (WAV), and notifies users if their driver is deaf or hard of hearing.

Weakness

Surge Pricing

Fares can significantly increase during times of high demands like holidays, concerts and natural disasters. Some call that pricing model predatory.

Passenger Safety

Incidents of assaults by drivers led to lawsuits, and app safety features had to be created.

Indirect Competitors Zoom-in

Indirect Competitor Zoom-in: American Airlines

American Airlines is one of the world's largest airlines, servicing over 350 destinations. They provide various travel tiers, from Basic Economy to First Class, and focus on customer loyalty through the AAdvantage loyalty program.

Strength

Vast Network

One of the most popular airlines, connecting over 350 destinations in more than 60 countries.

App Features

App sends real-time flight updates and notifications. Mobile check-in and digital boarding passes make travel more convenient.

Loyalty Program

AAdvantage loyalty program allows users to earn miles for flights, upgrades, hotels and car rentals.

Personalization

Has 6 levels of ticket tiers: Basic Economy, Main Cabin, Main Cabin Extra, Premium Economy, Business Class and First Class to purchase based on price and perks.

Weakness

Delays and Cancellations

Only 66-73% of AA flights arrive on time, and 2-3% get cancelled.

Customer Service

Customers reported difficulties reaching customer service during high-demand periods and long waiting times.

Indirect Competitor Zoom-in: Turo

TURO

A peer-to-peer car rental service. Users can either rent a car at a myriad of price points, or become a host and offer their vehicles to be rented.

Strength

Convenience

Located in a wide verity of locations, the vehicle can be picked up or dropped off at anytime. Hosts can also deliver the vehicle to the renter.

Variety

Offers a range of cars for renters to choose from. Choice of vehicles from basic, electric, and high-end luxury vehicles.

Protection

All Turo users have to go through an account verification process before booking or hosting. Offers insurance options for renters and hosts.

Interface

App is intuitive and simple to use. Easy learnability, and keeps to a minimalist design and aesthetic so it is easy to navigate.

Weakness

Scams

Users report being hit with claims for pre-existing damage, receiving a car with mechanical issues, car description being misrepresented on the app,

Customer Service

Both hosts and renters report frustration when seeking help from customer service for problems such as account verification, accessing vehicles, damage claims, and cancellations.

Indirect Competitor Zoom-in: DoorDash

DOORDASH A food ordering and delivery platform with online and mobile platforms available.

Strength

Convenience

20m active consumers, 450k active merchants, 1m delivery couriers throughout the United States

Usage

Easy to order and schedule delivery of all kinds of different foods from convenience stores to sit-down restaurants; also has ordering options for non-food products from various stores

Branding

Company branding is iconic and recognizable

Interface

App is intuitive and simple to use. Easy to search and browse within specific categories, and to select for either pickup or delivery.

Weakness

Company Practices

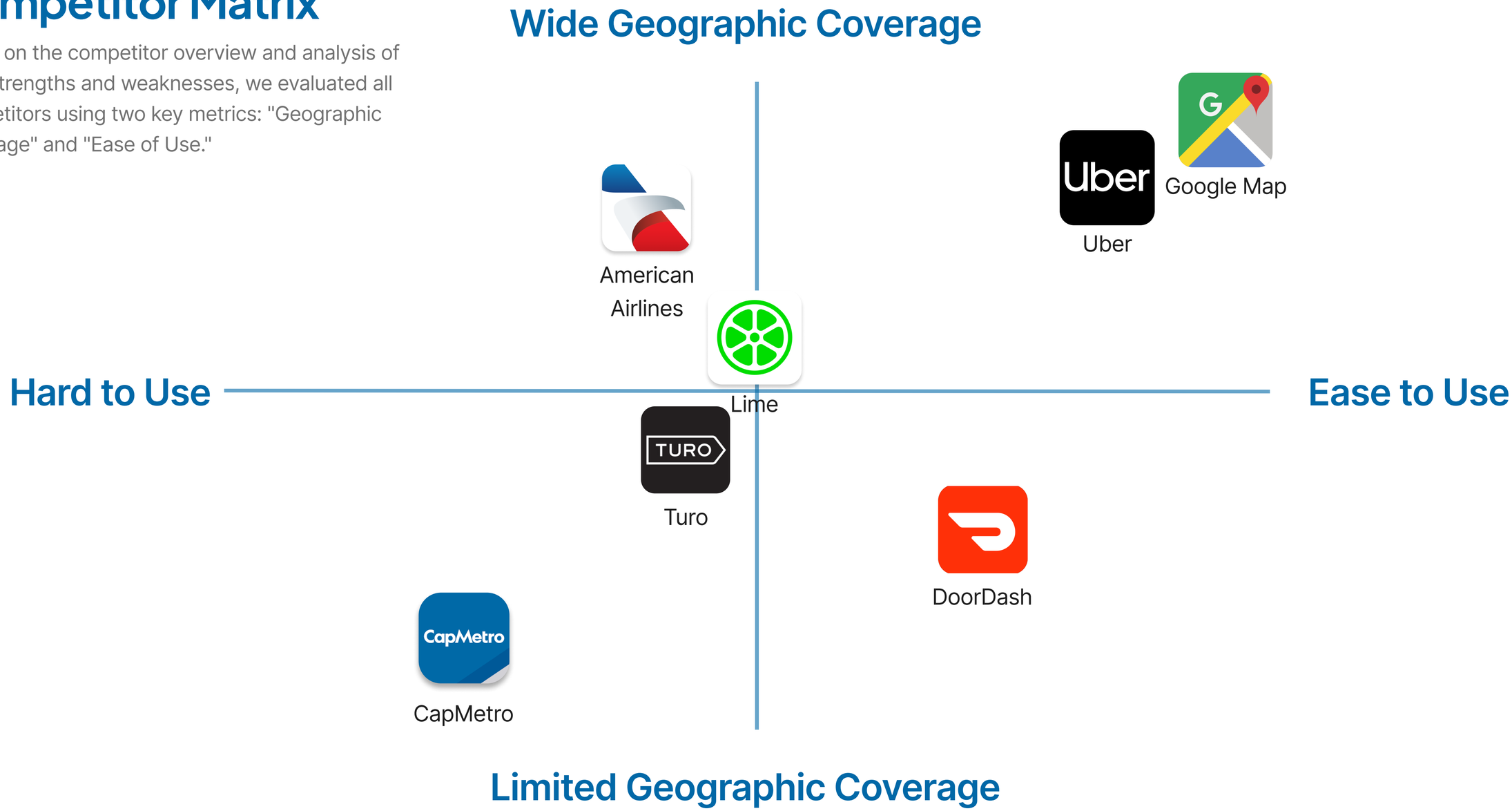
DoorDash has faced considerable media attention and backlash in recent years for its questionable company practices, including underpaying drivers, lack of tipping transparency, and allegedly charging iPhone users more than Android users for certain orders

Cost

Delivery fees can become prohibitive depending on location and distance

Competitor Matrix

Based on the competitor overview and analysis of their strengths and weaknesses, we evaluated all competitors using two key metrics: "Geographic Coverage" and "Ease of Use."



SWOT Analysis for CapMetro

SWOT Analysis for CapMetro

Strength

Exclusive features
Currently, it's the only mobile app available for purchasing Austin bus tickets, meaning customers who want to buy tickets on their phones will have to use it no matter what.

Route search
It allows users to quickly enter their current location and desired destination to view transit options.

Affordability
Affordable public transportation option offering many reduced fair options for students, seniors, military, people with disabilities, people with Medicare. Accepts multiple forms of payment (cash, app, credit/debit card).

Station history and saving feature
Records the stations users have visited and allows passengers to save their favorite stations. This design offer quick access to frequently used routes.

Scan QR code to board
Scanning the QR code makes boarding quick and easy.

Weakness

Inconsistent Reliability
Delays and route changes can make the service less reliable for users who need timely transportation. Additionally, inconsistent information about bus stop closures further adds to the frustration.

Direct users to another platform
On social media (Instagram for example), CapMetro urges users to use "Transit" app instead of its own, directing users to other platforms.

Poor Bus Map Accessibility and Color Coding
The bus map must be downloaded to view, and all lines are shown in one color, making it confusing without color-coding.

Confusion with using payment options
The app's multistep process makes it challenging for users to purchase passes and use prepaid funds for those passes.

Complex or poorly designed interface
The CapMetro app's complex interface forces users to rely on both CapMetro and Google Maps to check bus numbers, reducing its convenience.

SWOT Analysis for CapMetro

Opportunities

Integration of virtual exploration feature

Incorporate Google Maps' Street View or AR navigation to allow passengers to virtually explore stations and surrounding areas within the app. This would help users more easily locate stations and understand the routes.

Ticket Purchasing

Purchasing flow can be improved and more information so it's clear how much a ticket costs, what that includes (transfers, ticket duration) and how to reload/etc.

Interactive Route Map

Like Uber and Google Maps, users can see detailed specific routes and buslines with ability to drag a pin to their start/end locations.

Real-Time Updates and Accuracy

Like Google Maps, CapMetro can introduce push notifications to alert users of delays, service interruptions, or schedule changes, keeping them informed even when not actively using the app.

Threats

Links that lead to external webpages

Pages like "Schedules" and "Route Maps" for instance, bring users to external web browser links instead of within the app. This discourages users to stay inside the CapMetro app.

Increased Competition from Ride-Sharing and Micro-Mobility Services

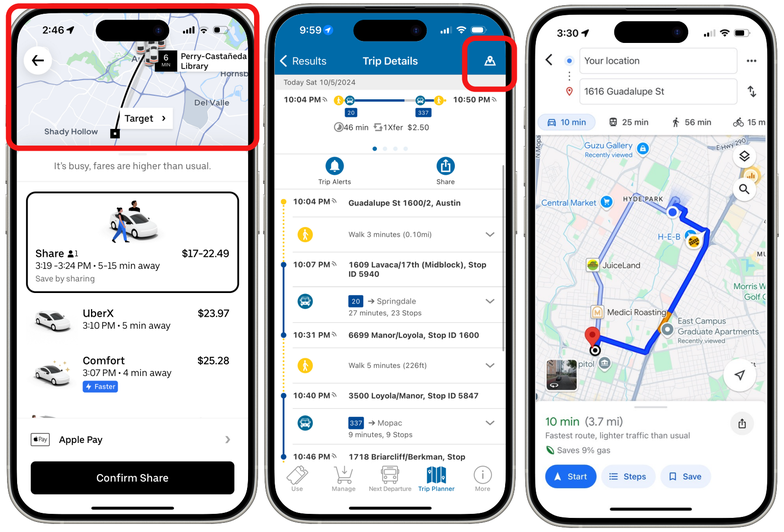
Companies like Uber, Lyft, Lime, and Bird offer flexible, on-demand transportation that may draw riders away from public transit, especially for short trips or in areas with less frequent bus service.

Recommendations

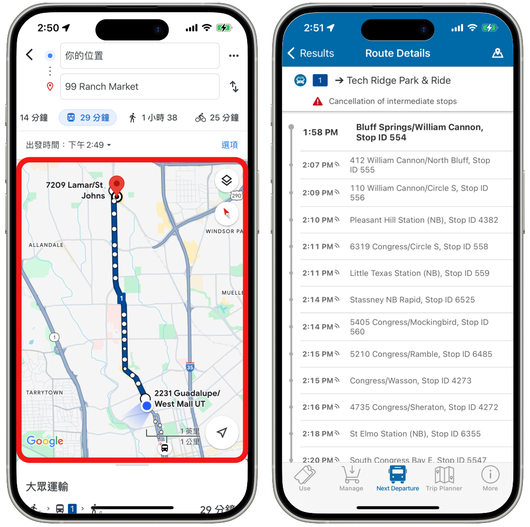
Recommendations: Enhanced Map Features

Visual Map of Routes

A map view of the routes being available automatically on Trip Details after a search would enhance visual understanding versus just relying on textual information; this would allow users to more easily compare route options without having to navigate further into the app. CapMetro could also allow users to see real-time information on how many stops they have left for their trip.



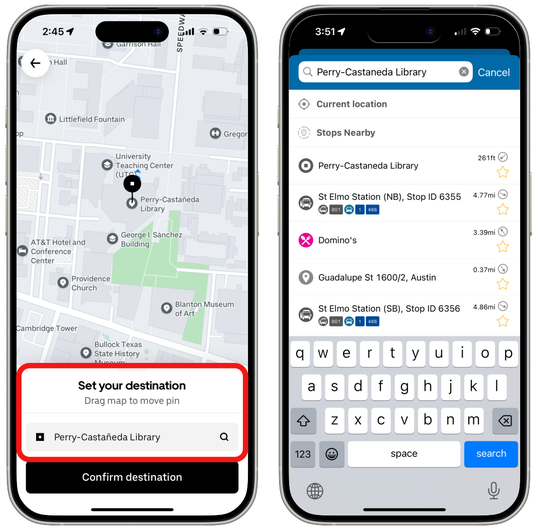
Uber allows users to view multiple options at once in a clean visual interface. Users can quickly compare options quickly based on the visual preview with text and a map shown, while CapMetro makes you navigate further to see this type of view. Google Maps also allows users to instantly compare route options via a map view.



Google maps allows users to see real-time information on how many stops in a route is left. CapMetro currently shows the number of stops listed out, but does not update while the user is taking the route.

Interactive Map

On Uber, users can drag the map to move a pin for more accurate pick up and drop off. CapMetro could utilize this feature so it would make it easier to view a variety of bus stops and trip options.

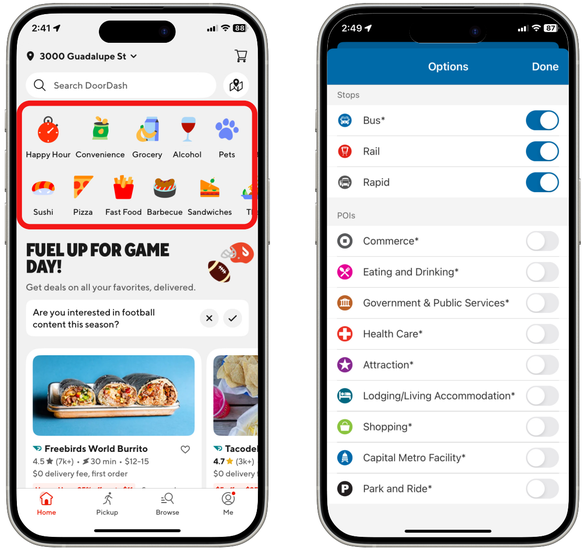


Uber allows users more flexibility in choosing a destination with an interactive map. The ability to drag and drop a pin instead of relying solely on textual names gives users more options in planning their trip.

Recommendations: Enhance Points of Interest and Pricing Transparency

Points of Interest

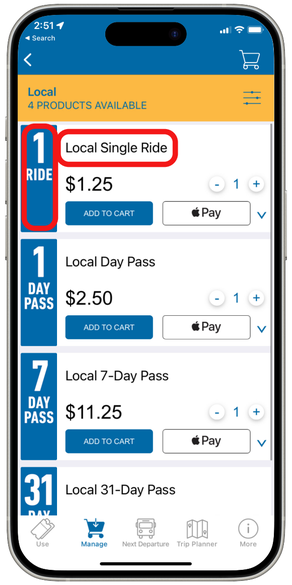
The CapMetro app currently has a feature that wants to show the user certain points of interest, but does not have full functionality. It could take inspiration from the way the DoorDash app uses icons to display specific categories that the user can browse.



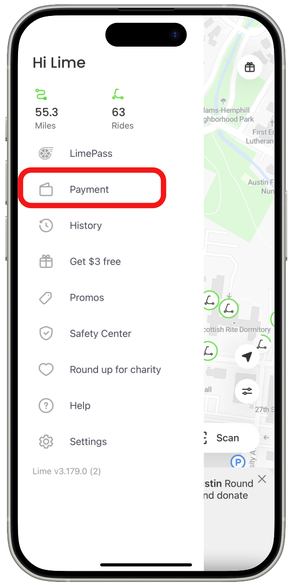
Doordash utilizes visual icons as a way to help users find what they're looking for, and to share information for the points of interest.

Display Pricing More Clearly

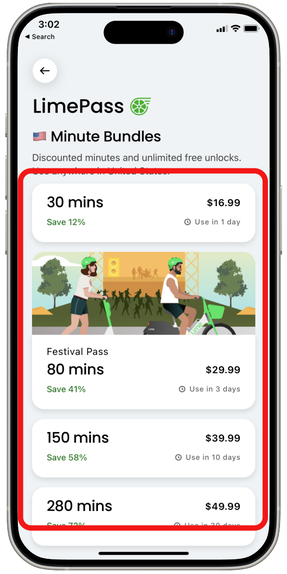
CapMetro's primary strength is its affordable transportation services, but the app fails to showcase this effectively. We recommend that CapMetro implement a simple accordion-style menu, similar to Lime's, allowing users to easily view prices and improve pricing transparency.



It takes users multiple steps to view ticket price (Manage > Add Passes > Select Service Level > Pricing List). Also, The current UI wastes space with duplicate messages like "1 Ride" and "Single Ride."



An accordion-style menu can be used to display all main features, including pricing, across all pages to ensure important functions are easily accessible.



CapMetro can enhance its pricing page by using visual hierarchy and text size more effectively like what Lime does.

CapMetro Screener & Test Materials

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Screener and Test Materials

Screener

Moderator Script