



# TriMet Transit App

Fall 2017 • Product Design Studio • PD 486

Tim Clark • Instructor  
School of Art and Design  
Department of Product Design

## **Acknowledgements**

The students would like to acknowledge and thank TriMet and their Southwest Corridor partners for making this project possible. We would also like to thank the following staff who were instrumental to this project.

Jeb Doran, Senior Project Manager, TriMet

Bob Hastings, Agency Architect, Trimet

## About SCI

The Sustainable Cities Initiative (SCI) is a cross-disciplinary organization at the University of Oregon that promotes education, service, public outreach, and research on the design and development of sustainable cities. We are redefining higher education for the public good and catalyzing community change toward sustainability. Our work addresses sustainability at multiple scales and emerges from the conviction that creating the sustainable city cannot happen within any single discipline. SCI is grounded in cross-disciplinary engagement as the key strategy for improving community sustainability. Our work connects student energy, faculty experience, and community needs to produce innovative, tangible solutions for the creation of a sustainable society.

## About SCYP

The Sustainable City Year Program (SCYP) is a year-long partnership between SCI and a partner in Oregon, in which students and faculty in courses from across the university collaborate with a public entity on sustainability and livability projects. SCYP faculty and students work in collaboration with staff from the partner agency through a variety of studio projects and service-learning courses to provide students with real world projects to investigate. Students bring energy, enthusiasm, and innovative approaches to difficult, persistent problems. SCYP's primary value derives from collaborations resulting in on-the-ground impact and expanded conversations for a community ready to transition to a more sustainable and livable future.

## SCI Directors and Staff

Marc Schlossberg, SCI Co-Director, and Professor of Planning, Public Policy, and Management, University of Oregon

Nico Larco, SCI Co-Director, and Associate Professor of Architecture, University of Oregon

Megan Banks, SCYP Manager, University of Oregon

## About TriMet

The Tri-County Metropolitan Transportation District of Oregon was created by the Oregon Legislature in 1969 to operate and oversee mass transit in the Portland Metropolitan region. This public entity was formed by the legislature as a municipal corporation to replace the multiple private interest mass transit companies that previously operated in Multnomah County, Clackamas County, and Washington County; the counties that make up TriMet.

In addition to operating bus lines, light rail, and paratransit in the defined Tri-Metropolitan district, TriMet also connects to external mass transit services to provide wider blanket coverage for the region. TriMet's nationally recognized transit system provides more than 100 million rides annually, and carries 45% of rush hour commuters going into the downtown Portland area. TriMet not only moves people, but helps build sustainable cities by improving public health; creating vibrant, walkable communities; supporting economic growth; and working to enhance the region's livability.

Several civic leaders have been highlighted as key Figures in the creation, establishment, and ultimate success of TriMet. Governor Tom McCall is credited with the initial call for the creation of the public corporation; other key contributors include Congressman Earl Blumenauer, Rick Gustafson, Dick Feeney, and Mayor Neil Goldschmidt. All were instrumental in shaping the organization itself, as well as the land use, civic development, and transformation policies that make TriMet the success that it is today.

The vision and efforts of these individuals and countless others have borne fruit. Recently, TriMet celebrated the second anniversary of the opening of its most recent light rail line. Since its inauguration the 7.3-mile MAX Orange Line has experienced continued growth, having a six percent year-to-year increase in ridership. Illustrating the holistic approach that has been a part of TriMet from its inception, there have been wider community benefits such as a positive impact on employment and a focus on sustainable practices such as bio-swales, eco-roofs, a first-in-the-nation eco-track segment, solar paneling, and regenerative energy systems.

TriMet is a key partner in the region's Southwest Corridor Plan and Shared Investment Strategy. Eleven partner agencies are participating in planning for a new 12-mile light rail line in southwest Portland and southeast Washington County that will also include bicycle, pedestrian, and roadway projects to improve safety and access to light rail stations. Southwest Corridor stakeholders include Metro (the regional government), Washington County, Oregon Department of Transportation, and the cities of Beaverton, Durham, King City, Portland, Sherwood, Tigard, and Tualatin. This collaborative approach strives to align local, regional, and state policies and investments in the Corridor, and will implement and support adopted regional and local plans. These initiatives and outcomes from participation with the UO's Sustainable City Year Program will help develop ideas that are cost effective to build and operate, provide safe and convenient access, and achieve sustainability goals while supporting the corridor's projected growth in population and employment.

# Course Participants

Gunnar Hanson, Product Design Undergraduate  
Zachary Meyer, Product Design Undergraduate  
Cara Murray, Product Design Undergraduate  
Natalie Thomas, Product Design Undergraduate  
Aileen Tran, Product Design Undergraduate

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*This report represents original student work and recommendations prepared by students in the University of Oregon's Sustainable City Year Program for TriMet's Southwest Corridor project. Text and images contained in this report may not be used without permission from the University of Oregon.*

## Executive Summary

Students in Tim Clark's Product Design Studio (BFA 486) were asked develop a multimodal urban transit app to serve users of TriMet's public transit services. The purpose of a TriMet transit app is to provide users with real time information needed to guide everyday mobility choices, with the goal of minimizing travel time and costs to make public transit equally accessible and flexible as private vehicles. An integrated transit app can help draw people out of their private cars and onto transit, while also connecting transit to the communities that it serves. Ride-share apps such as Uber and Lyft innovated the taxi industry by demonstrating that an improved customer experience and increased access to information through their app interfaces. TriMet has the opportunity to do the same for transit through the development of an integrated transit app. Over 70 different apps currently use TriMet's open source data to offer transit navigation systems, but none fully integrate the daily necessities of ticketing, trip planner, geo-location, and user preferences.

Students used open data from existing transit, bike share, and ride-share programs to inform the future development of an app for TriMet's services. The proposed app provides real time information of city maps, locations, transit system updates, traffic conditions, transit schedule, bike share locations and availability, ride-share availability, parking locations and availability, as well as overall trip fees. It also includes multiple features to enhance the rider experience, such as gamification, personal analytics, multi-destination trip planning, and neighborhood profiles. The app is envisioned as a planning tool that allows users to chart point-to-point trips using all available resources. Potential sustainable benefits include support for active transportation, improved access to urban mobility choices, reduced dependence on private vehicles and technological advances. The development of an integrated transit app can incentivize transit use, promote local businesses, and inform transit users about the communities where they live, work, and play.

The class utilized five unique user profiles of TriMet services that represent different use cases and service locations. Students analyzed each user profile to identify the potential needs each user might expect from a transit app, and identified specific app features that could be developed to meet those needs. Four of the user profiles and service communities are presented in this report. These needs and features from each profile were then combined into a presentation of potential mock-ups of a future TriMet mobile app that can deliver an integrated and intuitive travel experience along the Southwest Corridor.

## Rider Profiles

The Southwest Corridor Plan includes a 12-mile light rail line in southwest Portland and southeast Washington County that will greatly expand the access to public transit within that region. Along with the physical expansion of the light rail line and other transit projects, the proposed TriMet mobile app will serve residents throughout the Southwest Corridor (SWC). The class identified five distinct habitats along the Southwest Corridor, each with its own identity, characteristics, and transit challenges. For each habitat, a single rider profile was used to guide the development of app features that would best serve the needs of that given community. Four of those habitats and rider profiles are presented in this report. From these individual rider profiles, the class compiled a list of ideal features to include in a TriMet mobile app and used those features to develop a user workflow and mock-up of the mobile app.

### Lair Hill

Located in South Portland, the Lair Hill neighborhood has a rich history and deep heritage. However, one key problem facing Lair Hill are the many roads and highways that break up the neighborhood and divide it from the rest of Portland. Lair Hill is isolated by barriers such as I-405, Barbur Boulevard, and Naito Parkway.

Local resident Jim Gardner served as a rider profile representative of transit users within the Lair Hill community. He has lived in the same house in South Portland for over 40 years, has great pride in his community, and enjoys sharing the history of the area. Gardner's transit needs and use cases led the class to identify the following goals to be addressed by the TriMet mobile app:

- Increase ease of transportation in and out of the neighborhood.
- Celebrate the history and heritage of Lair Hill.
- Connect the neighborhood to the rest of Portland.

### Burlingame

Burlingame is a neighborhood located in Southwest Portland, and is characterized by a mix of residential and business areas, and has a strong sense of local community. Much of the neighborhood is zoned low density residential. It is largely dominated by automobiles, though has some pockets of walkability throughout. Finally, there are many bisecting roads that isolate the community from the rest of the region.

For a rider profile, the class turned to Burlingame resident Michal Kisor and used his experience with using public transit to identify app features that specifically serve the needs of riders like him. He is a member of the SWC Community Advisory Council, and is highly interested in the future development of the SWC and increased access to public transit. In his primary career as a software engineer, he is highly detailed oriented and appreciates having a high degree of control and flexibility over his commute. He typically bikes as his primary form of transportation, which allows him to avoid certain problems of public transit, such as missing buses, navigating confusing routes, and dealing with crowded vehicles. Michael's rider profile underscores the need of a TriMet mobile app to offer the same level of flexibility and control as they experience when walking or biking. The class identified the following goals:

- Provide a high degree of personalization and allow each individual rider to create their own unique transit experience.
- Maintain individual agency and allow individual riders to take control over their commutes and choose public transit options that serve them most effectively.
- Reinforce the reliability of public transit by providing real-time information about trip status and any potential delays.



## Portland Community College Sylvania

Portland Community College's Sylvania campus and the surrounding areas represent Portland's Far Southwest Neighborhood. Barbur Boulevard on the west side, as well as a combination of hills and a lack of sidewalks, creates an area that is not bike or pedestrian friendly. However, Portland Community College does provide many transportation services such as its campus shuttle, Car2Go, ReachNow, bike rentals, and a 50% TriMet pass.

Mark Gorman was identified as a rider profile for commuters in the neighborhood. Mark utilizes multiple modes of transportation, and sees different benefits in each. Driving offers flexibility and complete control over his own commute. Using an electric bike enables him to "zip around so much faster," and public transit offers an opportunity to sit back as a passenger and enjoy lower stress levels in the commute. For Mark, an optimal public transit experience provides quality of time, excitement and entertainment, as well as freedom and control. To serve these needs, the class identified the following goals:

- Encourage the use of public transit by offering free trips and other discounts for continual commuter use.
- Provide control and autonomy to riders by developing an efficient trip planner.
- Bring excitement to the commute by offering gamifications and other entertainment features.

## Downtown Tigard

Tigard is a unique community south of Portland that has many unique transit needs. Unlike many of the other areas that TriMet serves, Tigard has significantly more commuters ride in than those who leave. The ratio of commuters entering to those leaving Tigard is approximately 2:1. Tigard has shared spaces between residential and commercial areas, as well as general ease of access thanks to TriMet's extensive bus service.

The class identified Lonnie Martinez as a rider profile for commuters in the Downtown Tigard area. He describes himself as a "go-getter," and believes in the importance of always being on time—which for him means being early. He needs access to a transit schedule that serves his needs on a consistent basis. Lonnie also seeks appreciation and recognition as a transit customer. Together, these aspects have the potential to spark his curiosity and desire to explore the city.

To serve these needs, the class recommended the following goals for the transit app:

- Provide users with the ability to save frequently used locations and routes as favorites. These favorites can be easily accessed within the app to provide a quick way for riders to start their commutes via public transit.
- Utilize personal analytics to track general information about an individual's transit use. This information can be used to provide feedback to riders about the positive impacts that their use of public transit is having.
- Include a "discover mode" that showcases local businesses, events, and other attractions within the local community.

## Recommended App Features

Using the rider profile from each neighborhood, the class compiled the following list of features that might be considered for inclusion in a TriMet mobile app. These features serve many of the individual needs that each rider profile identified, and as a whole can contribute to a positive commuter experience with TriMet services. The features are divided into two categories: those related to the specific transit experience, and those related to community engagement.

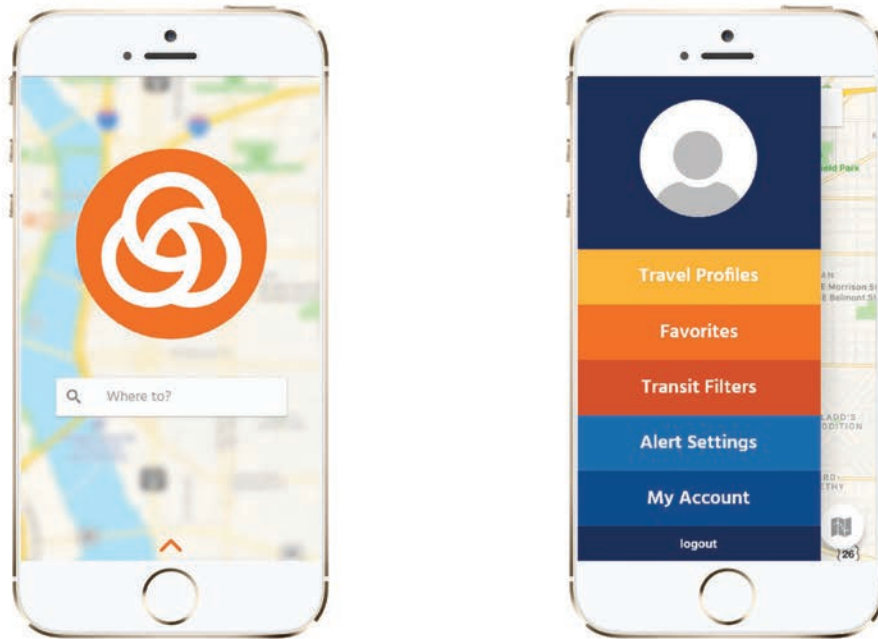


Figure 1: A mock-up of the home screen of the TriMet app. Most app features are accessible from a single menu.

### Transit Features

- Daily trip planner; flexibility and control
- Multi-modal (transit, bike share, ride-share, private ride for hire—Uber, Lyft)
- In-app tickets
- Geo-location
- Travel profiles
- Real-time updates
- Personal user analytics

### Community Features

- Discover mode
- Rewards program—connected to user analytics
- Gamification
- Partnerships with local businesses

# User Workflow

The class developed a working mock-up of a TriMet mobile app. Screenshots of the app’s features, layout, and design are included in Appendix A. While developing the app mock-up, students utilized a user workflow to determine what app features need to be most readily available. The workflow (Figure 2) outlines general use of the mobile app, and designates the connections between various certain menu items. Using a user workflow enabled the class to organize and develop an app mock-up that will be viable in real-world use cases.

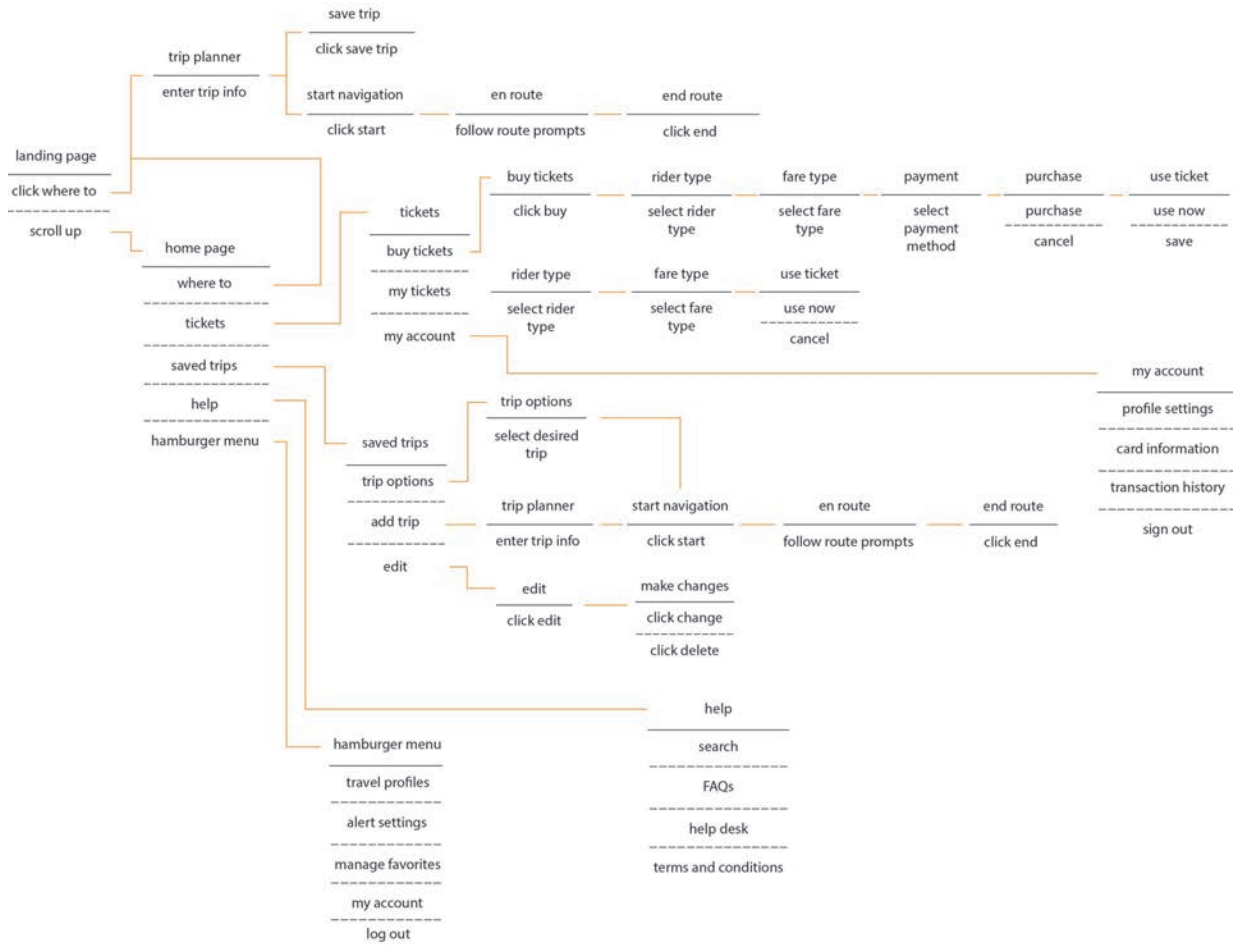


Figure 2: The user workflow groups like tasks and information to minimize number of screens and clicks necessary to accomplish actions.

## Conclusion

TriMet currently has the unique opportunity to unify the multitude of existing transit apps and combine their features into a single cohesive transit experience offered through a TriMet mobile app. This study demonstrates the possibilities of an integrated transit app, and the comprehensive services that can be offered. The user profiles and features identified by the class in their studies of neighborhoods along the SWC provide a useful basis for how TriMet can develop a mobile app to best serve commuters' needs. The identified features can either serve as a framework for a single integrated transit app, or as a basis for creating connections among other apps to improve the overall user experience.

The class created a working mock-up of the TriMet transit app to demonstrate the app features that were identified. Tonal blues and oranges complement and expand TriMet's existing color scheme. Bold colors in the slide-out menu distinguish customizable features while everyday necessities can be accessed from the map-centric home screen. The class recommends that TriMet utilize the rider profiles, individual app features, and proposed app mock-up to move forward with the development of an official TriMet transit app.

Such an app could help to serve the existing goals of the SWC project, such as increasing access and availability of public transit. By making public transit as appealing as other forms of transportation, such as walking or cycling, more people will be encouraged to utilize TriMet services when commuting. Furthermore, turning commuting into a fun and exciting activity and supporting current users can enhance the overall customer experience and bring in new transit riders.

# Appendix A: TriMet App Mock-up

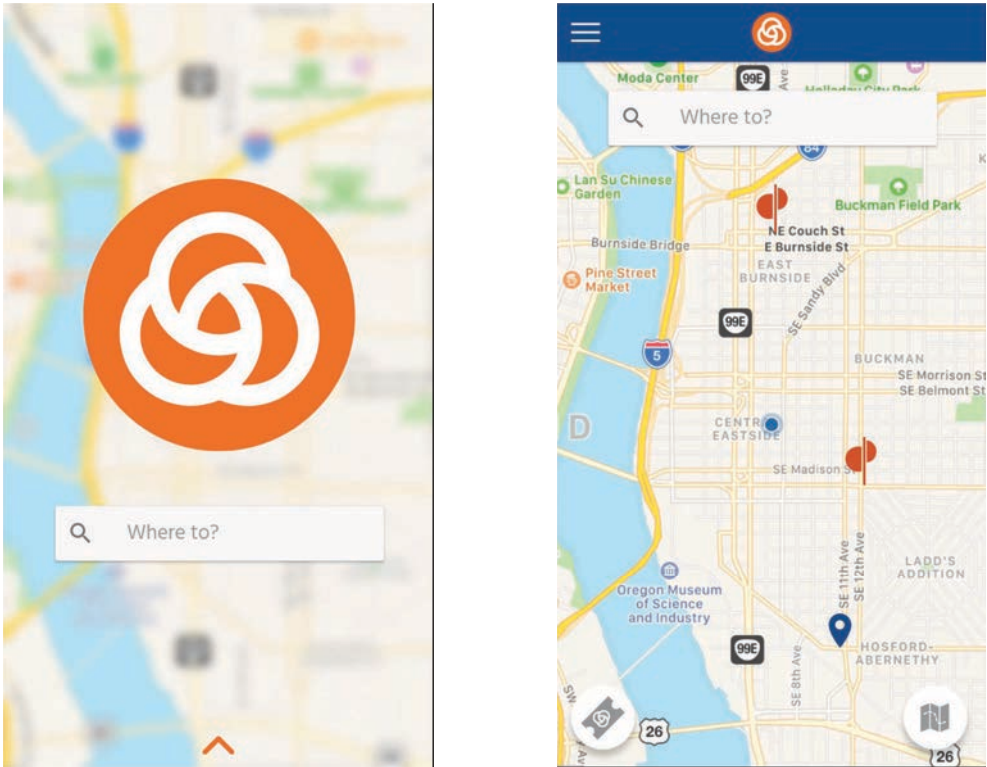


Figure 3: Upon opening the app, the user is able to immediately search for a destination. They can also swipe up and scroll through a map of the TriMet service area.

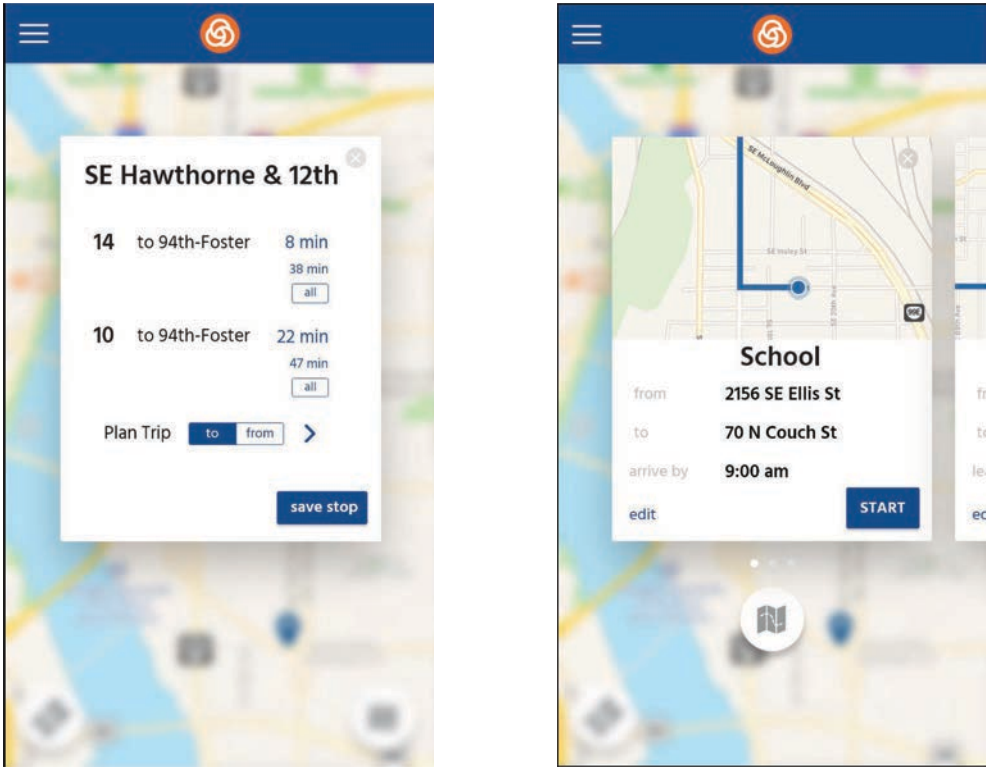


Figure 4: The app is able to store a user's favorite stops as well as favorite destinations. The app also provides real-time information about routes that serve those saved locations.

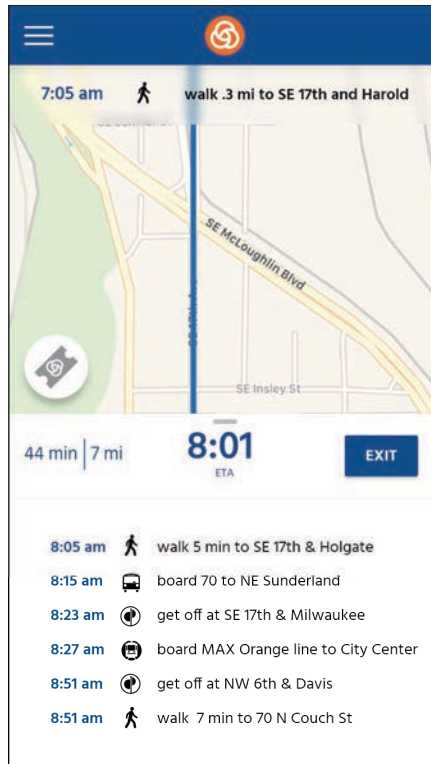


Figure 5: During navigation, the app displays the estimated time to arrival, trip overview, and provides real-time updates in response to delays, traffic, and other commute information.

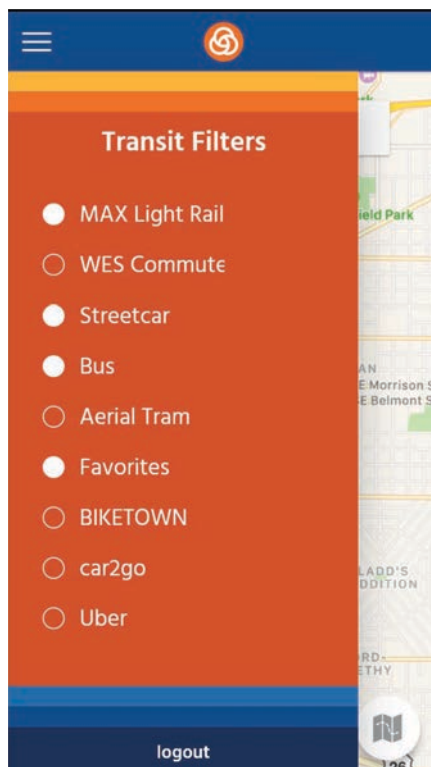


Figure 6: The app includes multi-modal transit filters which allow the user to customize their commute by selecting which transit modes they would like to be included on their routes.

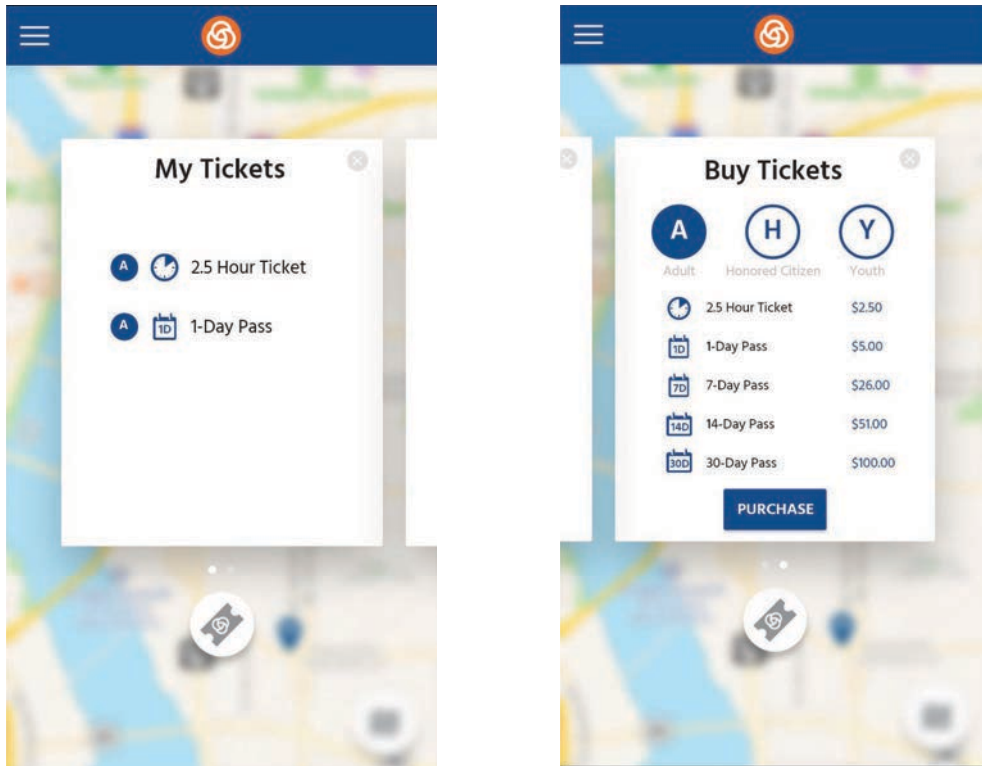


Figure 7: Users can purchase tickets from within the app, as well as save them for later use.

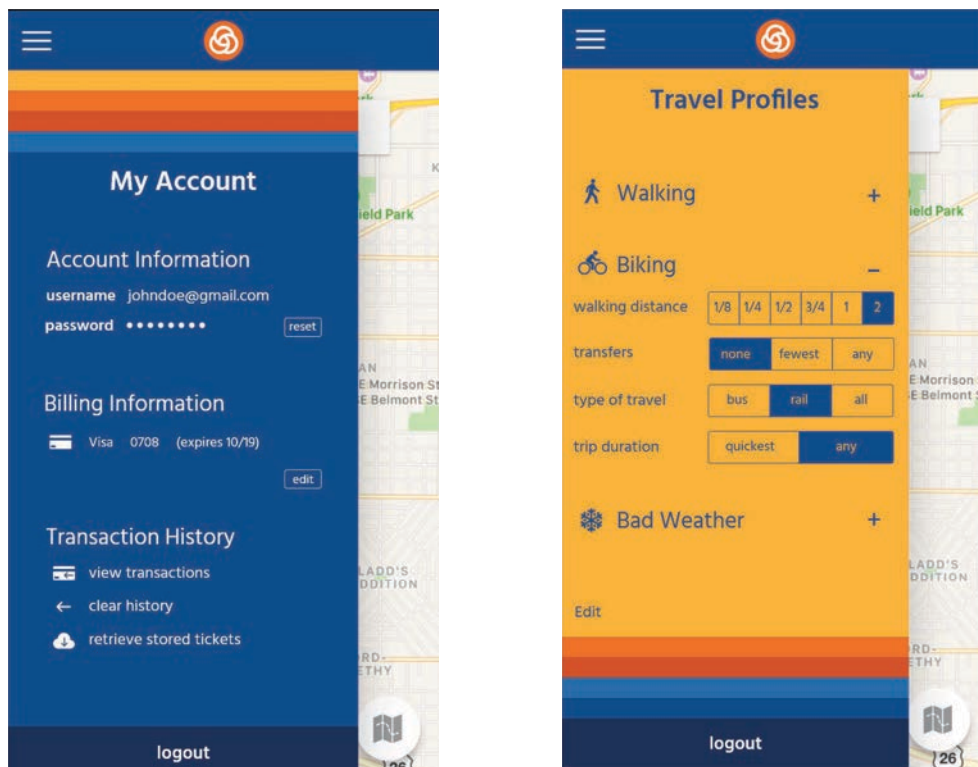


Figure 8: All app data is associated with an individual user account. This level of personalization enables users to define their own travel profiles to customize the routing options that are presented when commuting.

## Appendix B: TriMet Transit App Presentation



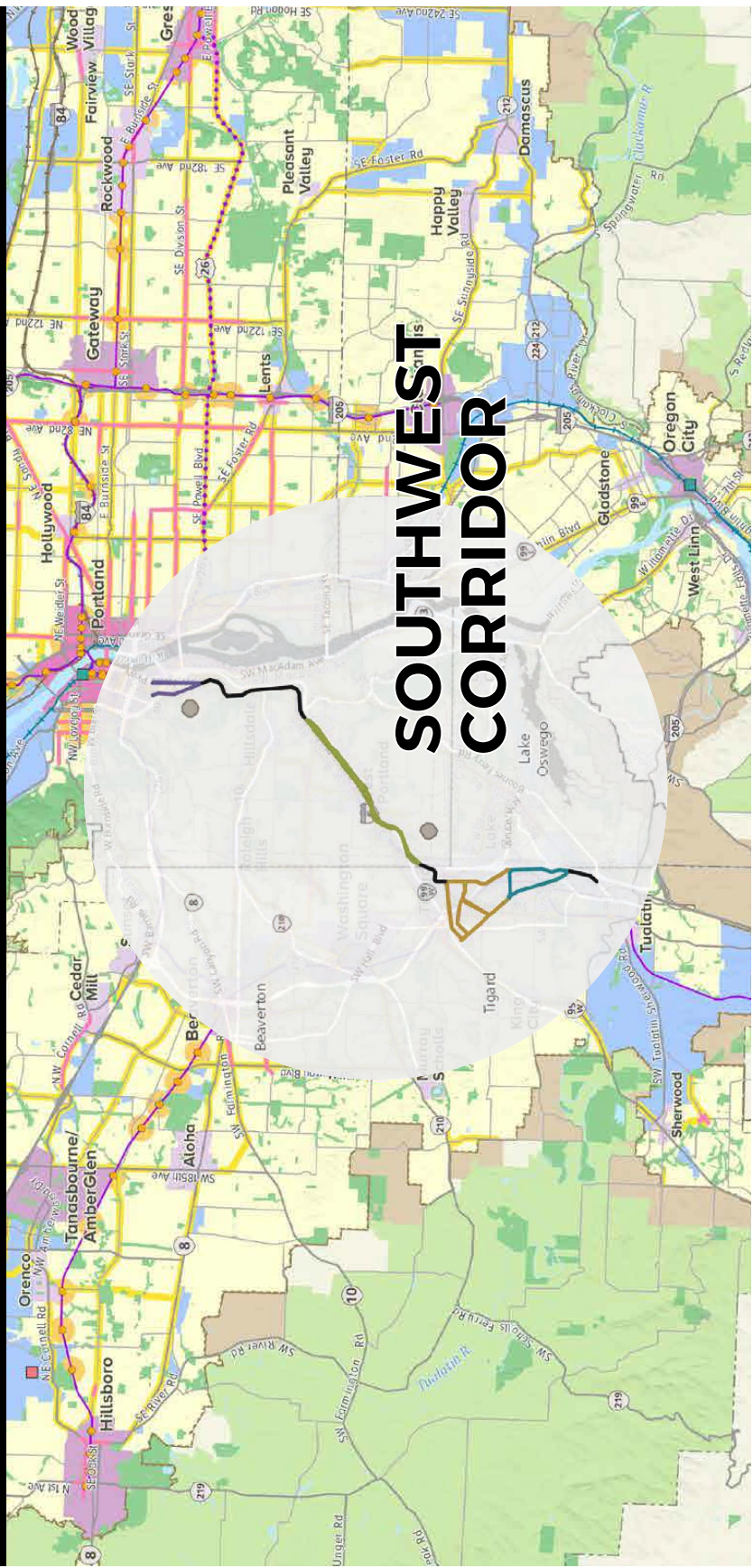


# TRIMET TRANSIT APP

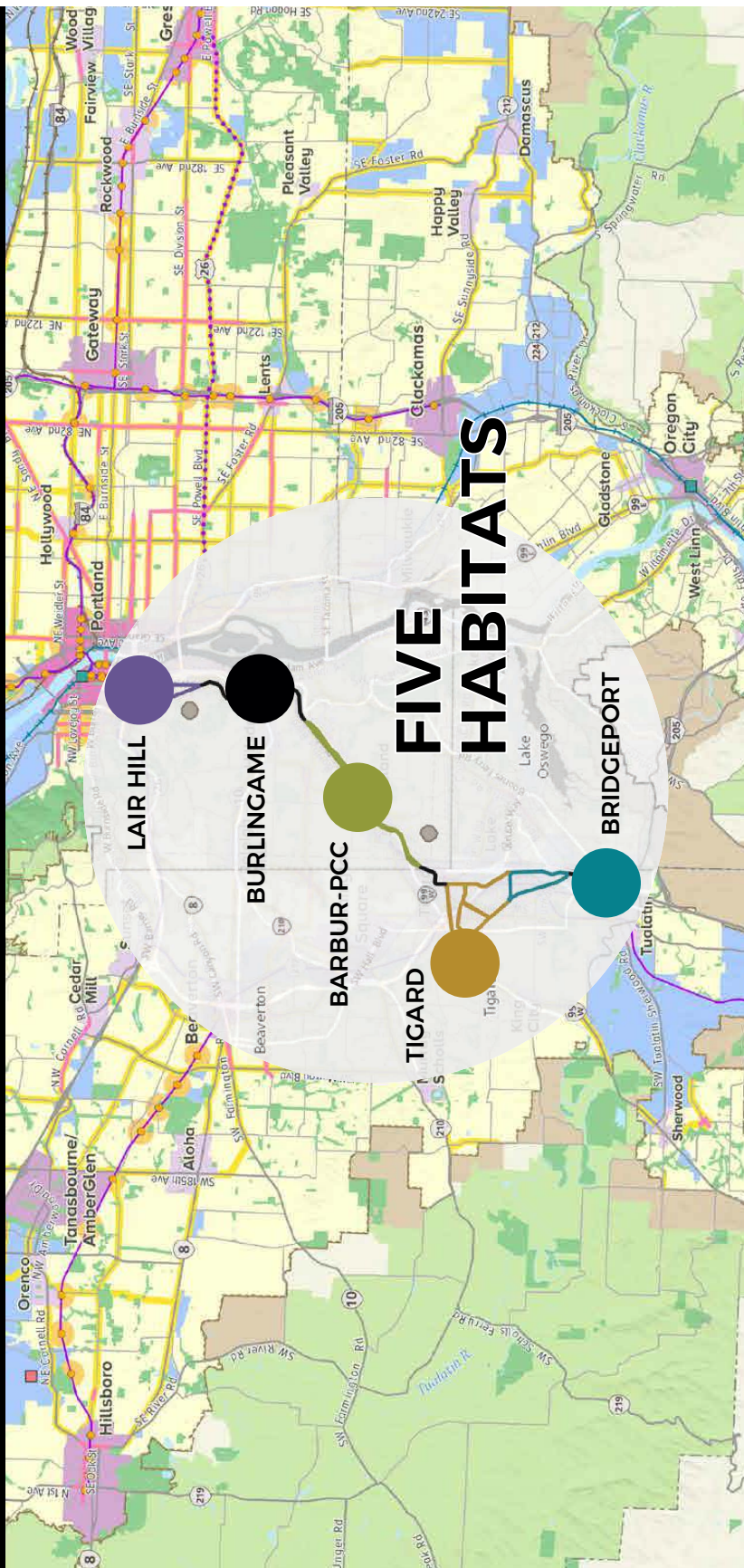
## ENABLE GREAT PRESENTATIONS:

1. SAVE COMMENTS/ INPUT FOR END
2. TAKE NOTES
3. UTILIZE OPEN HOUSE

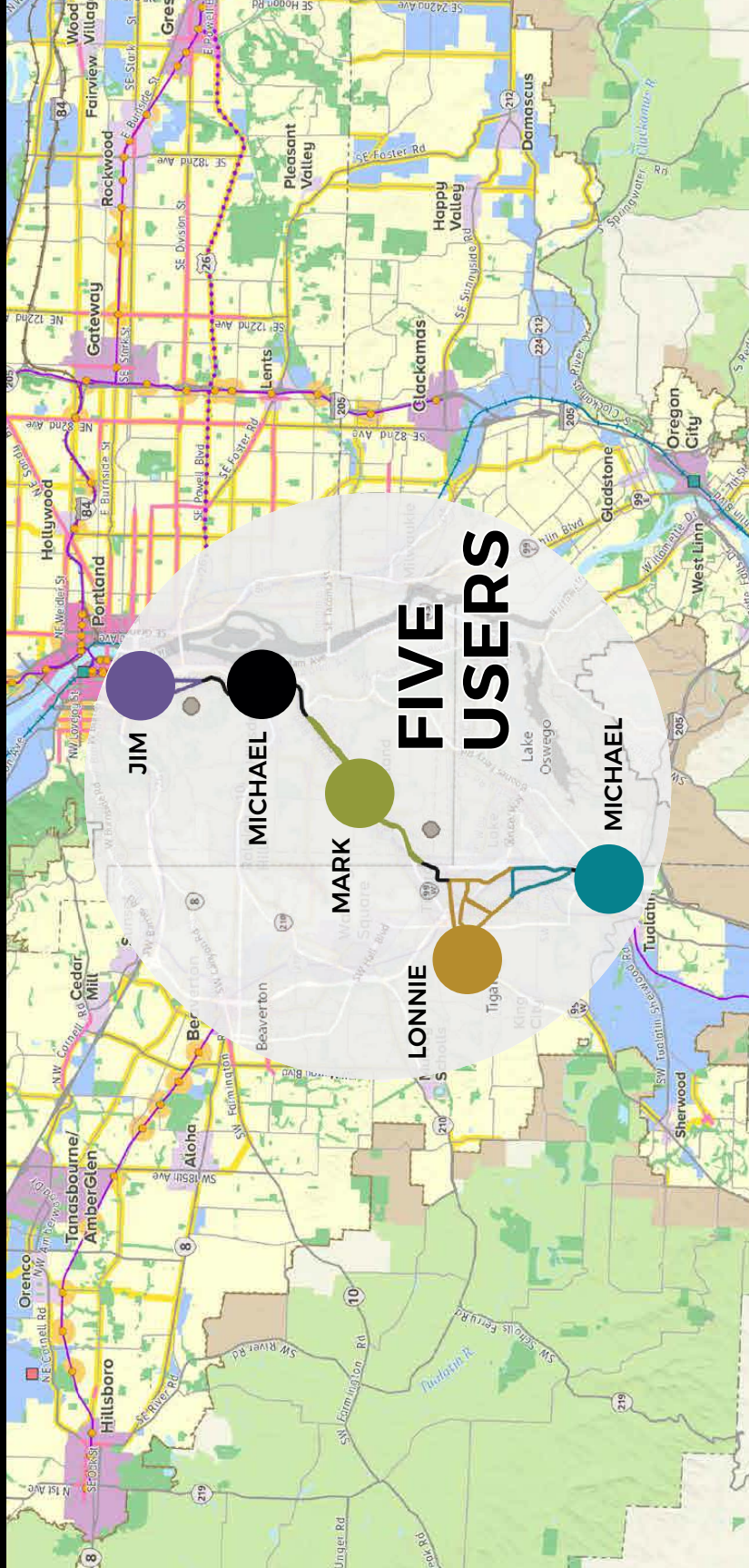
# TRIMET TRANSIT APP



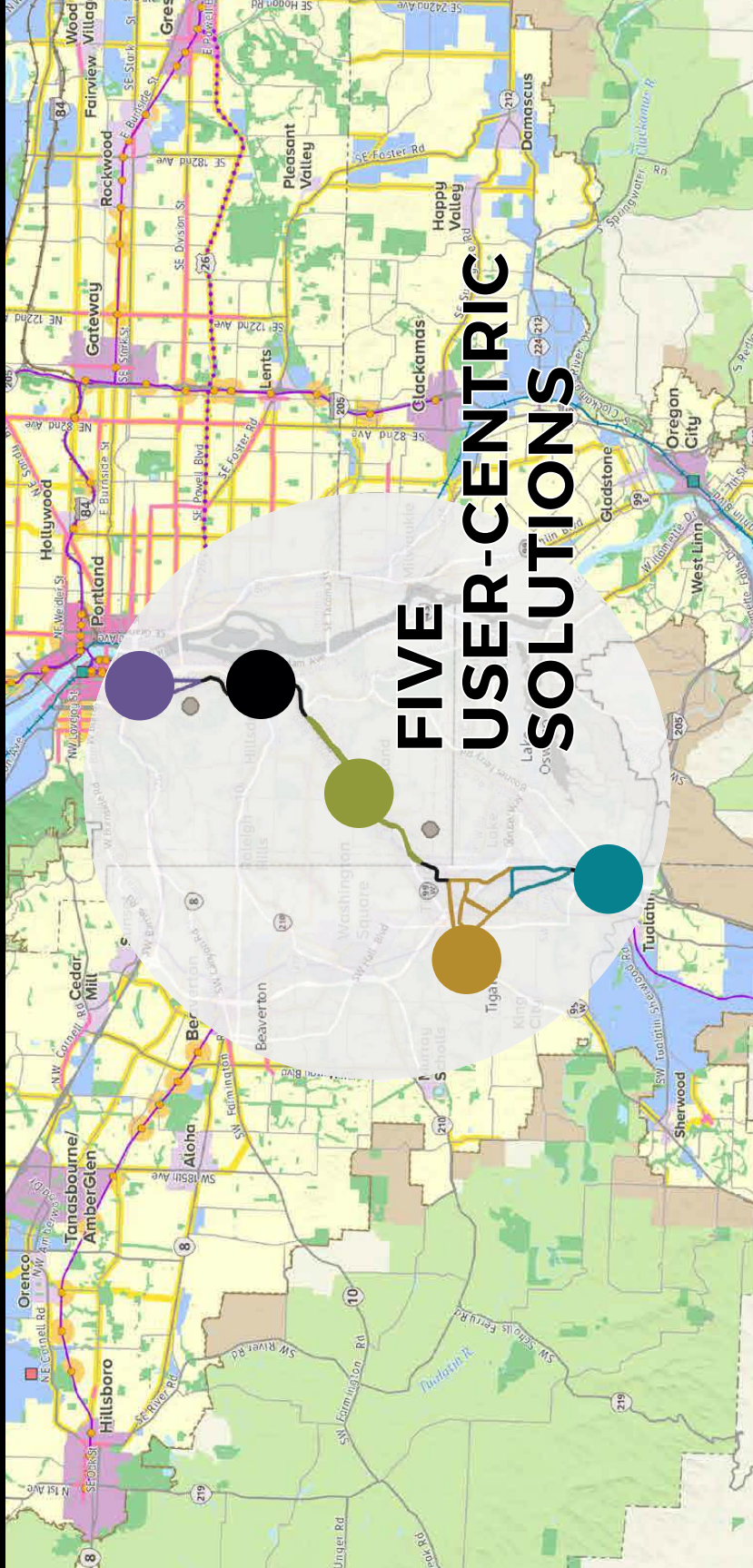
# TRIMET TRANSIT APP



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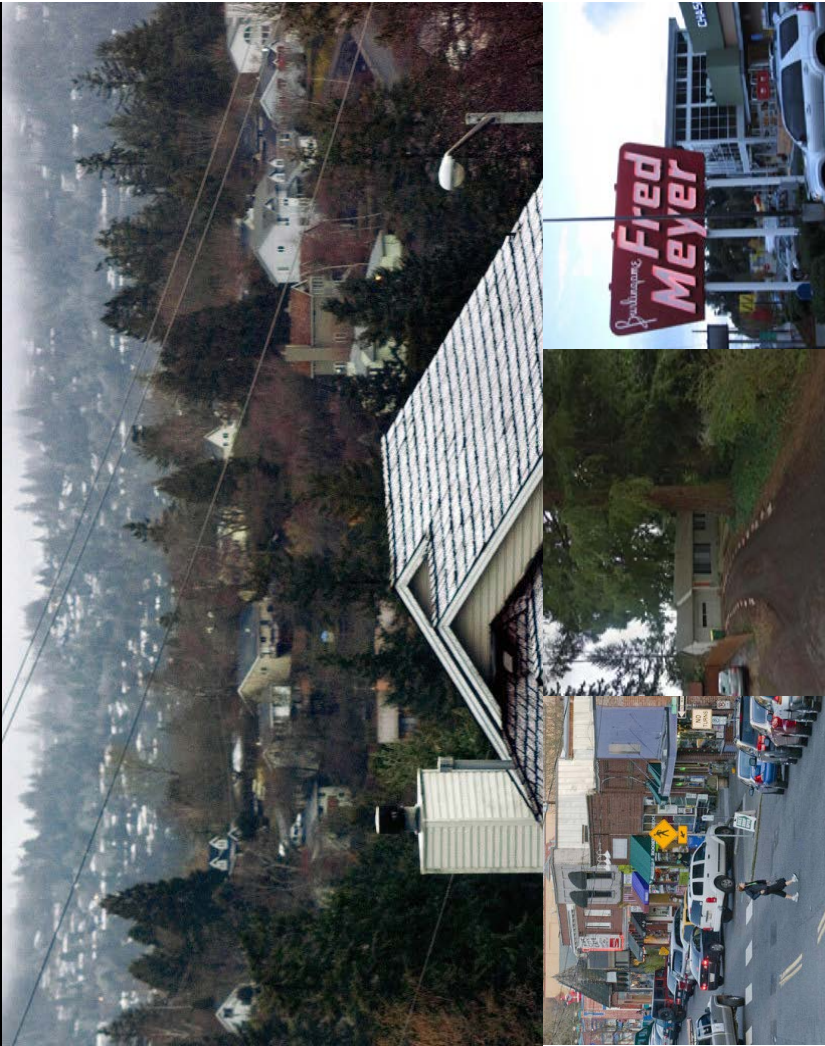
# TRIMET TRANSIT APP



# BURLINGAME

## THE URBAN VILLAGES

1. LOW DENSITY RESIDENTIAL
2. AUTODOMINATED WITH POCKETS OF WALKABILITY
3. ISOLATED BY BISECTING ROADS



# MICHAEL KISOR



## THE DETAIL GUY

A software engineer, Michael is highly detail oriented

## THE ADVOCATE

Michael serves on the SW Corridor Community Advisory Council

## THE CYCLIST

As an avid cyclist, biking is Michael's main form of transportation



MISSED

FRUSTRATING

CROWDED



# I JUST WANNA GO

How can we give transit riders the same level of flexibility and control as they experience when walking or biking?



# GOALS & FEATURES

## USER GOALS

- PERSONALIZATION
- RELIABILITY
- AGENCY

## APP GOALS

- COMMUNICATION
- CONTROL

## FEATURES

- TRIP PLANNER
- IN-APP TICKETING
- GEO-LOCATION
- TRAVEL PROFILES
- FAVORITES
- REALTIME UPDATES



# GOALS & FEATURES

## USER GOALS

PERSONALIZATION

RELIABILITY

AGENCY

## APP GOALS

COMMUNICATION

CONTROL

## FEATURES

TRIP PLANNER

IN-APP TICKETING

GEO-LOCATION

TRAVEL PROFILES

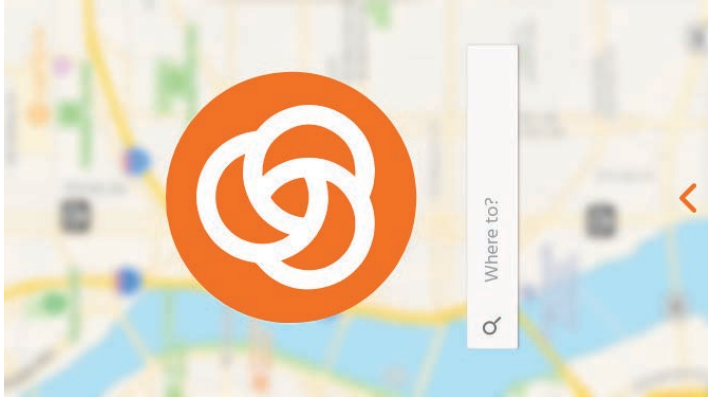
FAVORITES

REALTIME UPDATES





# APP RUN THROUGH



# PCC Sylvanna

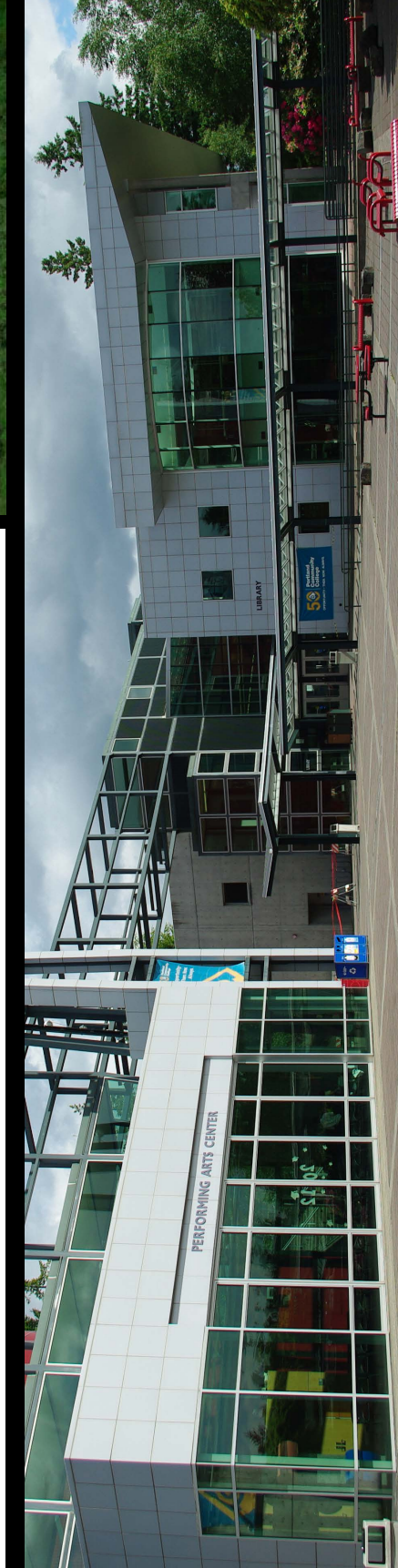
## SW Barbur

Combination of hills and lack of sidewalks creates area that is not bike or pedestrian friendly.



## PCC Transportation Services

PCC shuttle, CAR2GO, ReachNow, bike rentals, 50% Trimet pass



# MARK GORMAN

## Driving

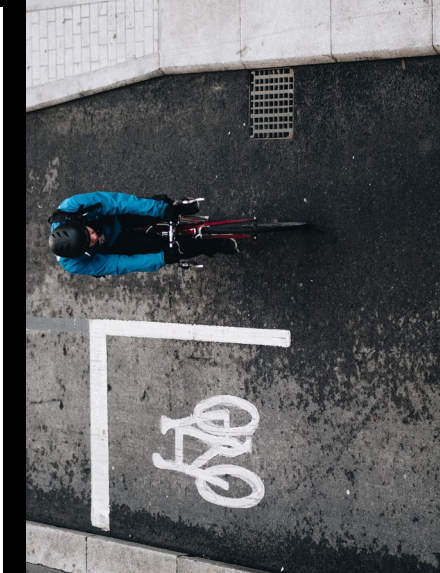
"You can tell by the way I talk I'm a go go go"

## Electric Bike

"I can zip around so much faster"

## Public Transit

"You're a passenger, you're looking around. Stress levels are really low"

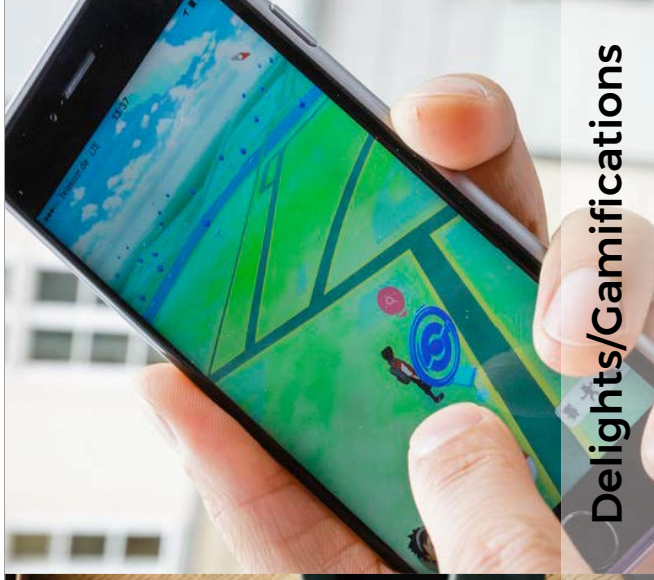


# SHOW ME THE WORTH

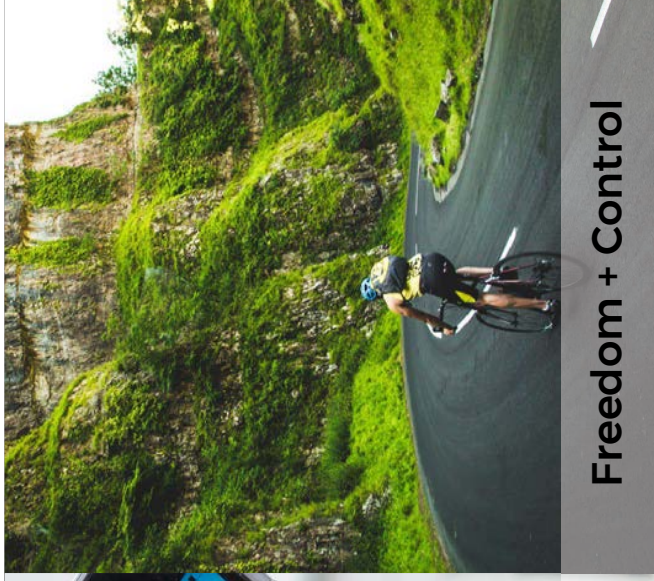
How can we turn commuting into a fun and exciting experience?



Quality of Time



Delights/Gamifications

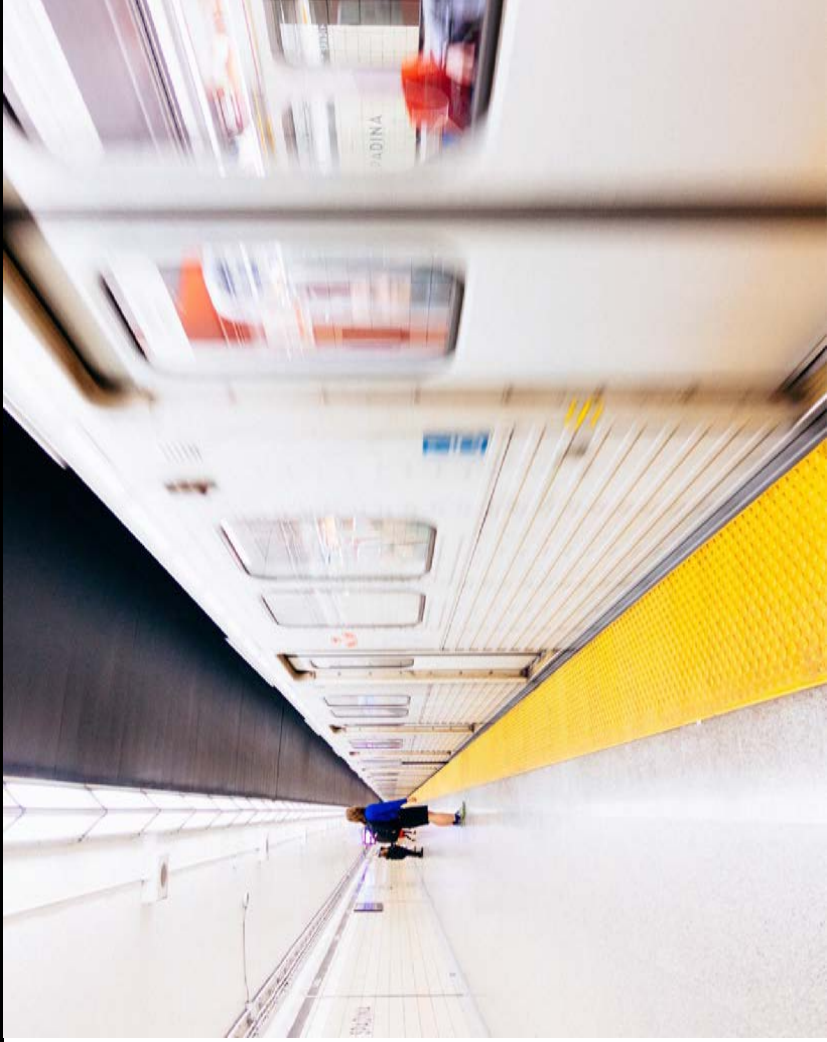


Freedom + Control



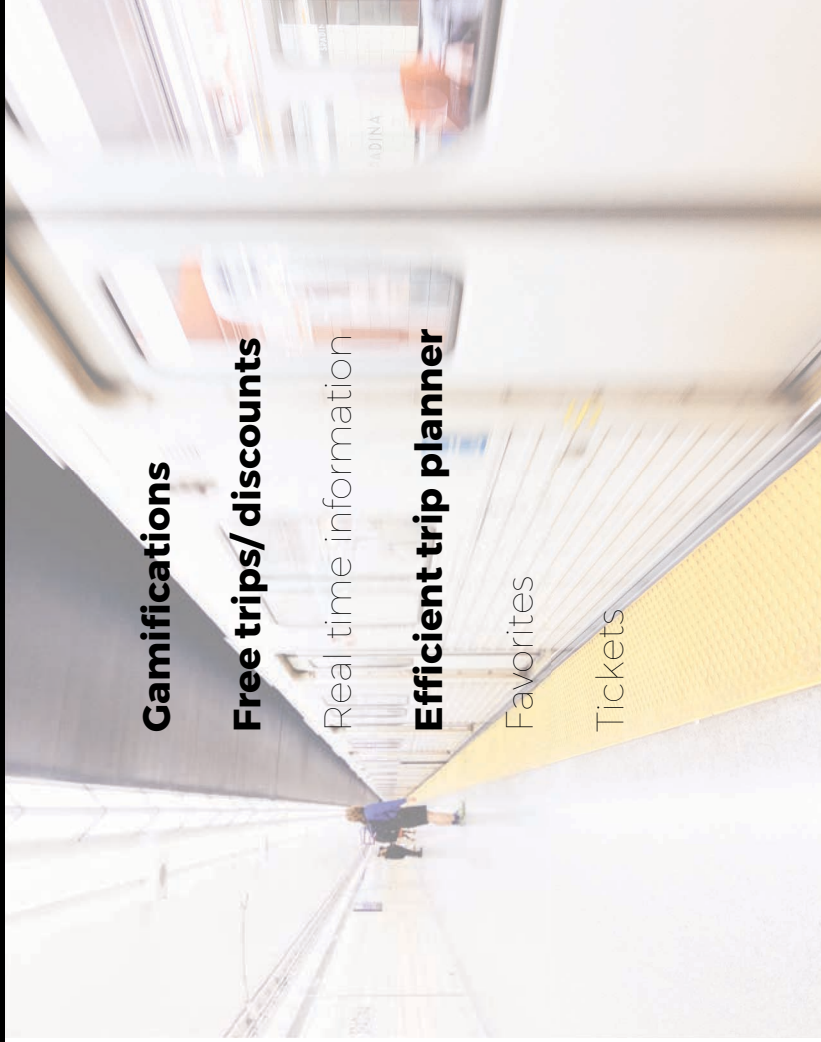
# APP GOALS

1. Encourage public transit
2. Bring excitement to the commute

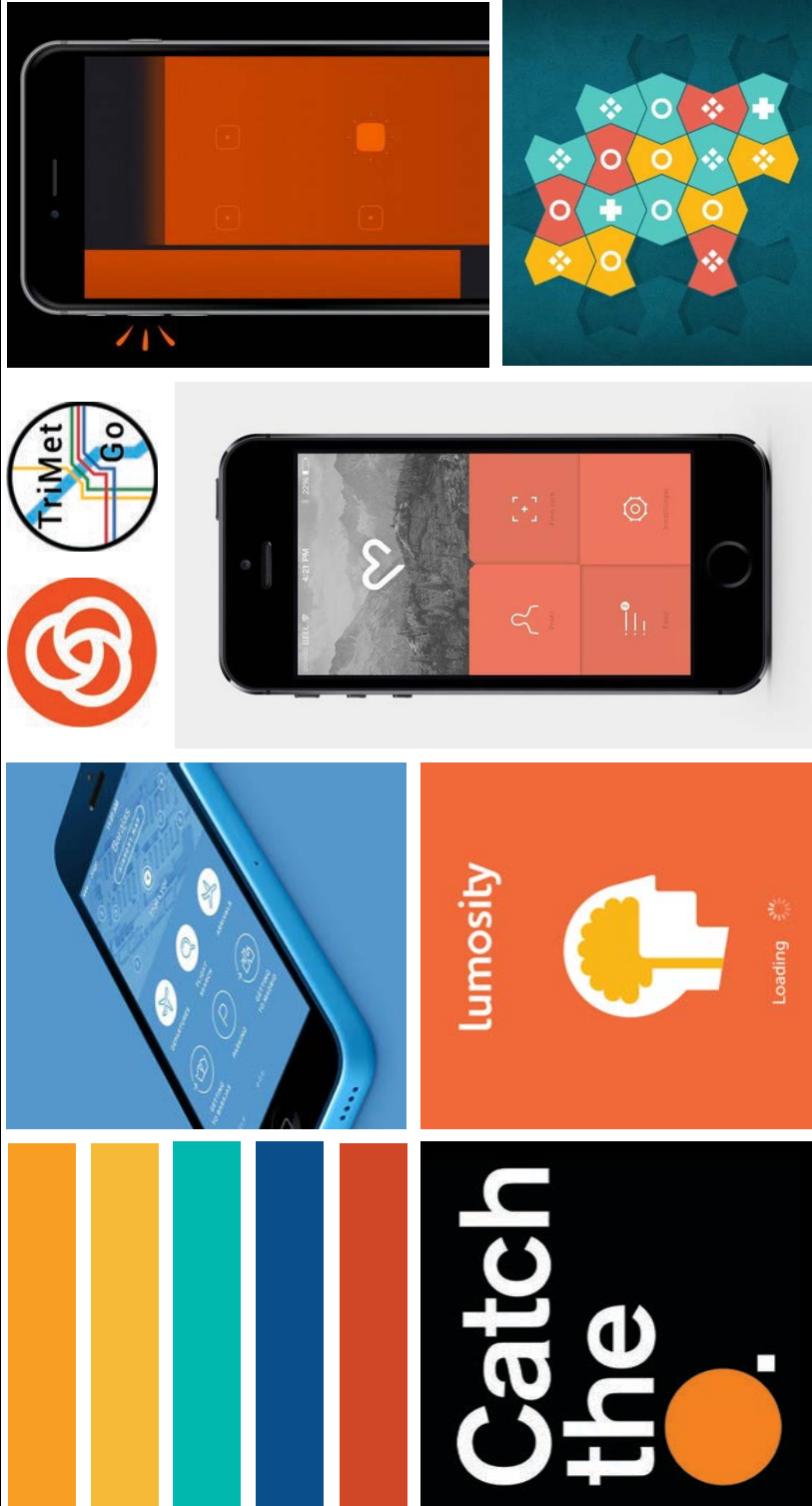


# APP GOALS

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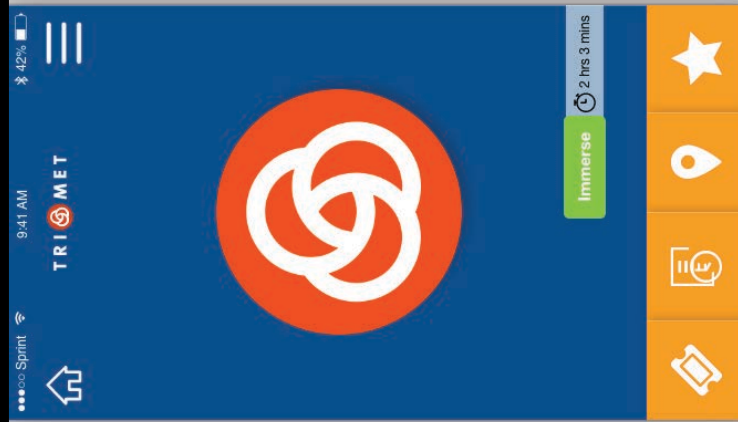
# MOOD BOARD



# APP RUN THROUGH



# APP RUN THROUGH



# Jim Gardner

Jim has lived in the same house in South Portland for over 40 years. He enjoys sharing his knowledge of the area and its history. He walked me around the neighborhood on a few separate occasions while filling me on its wonderful heritage.

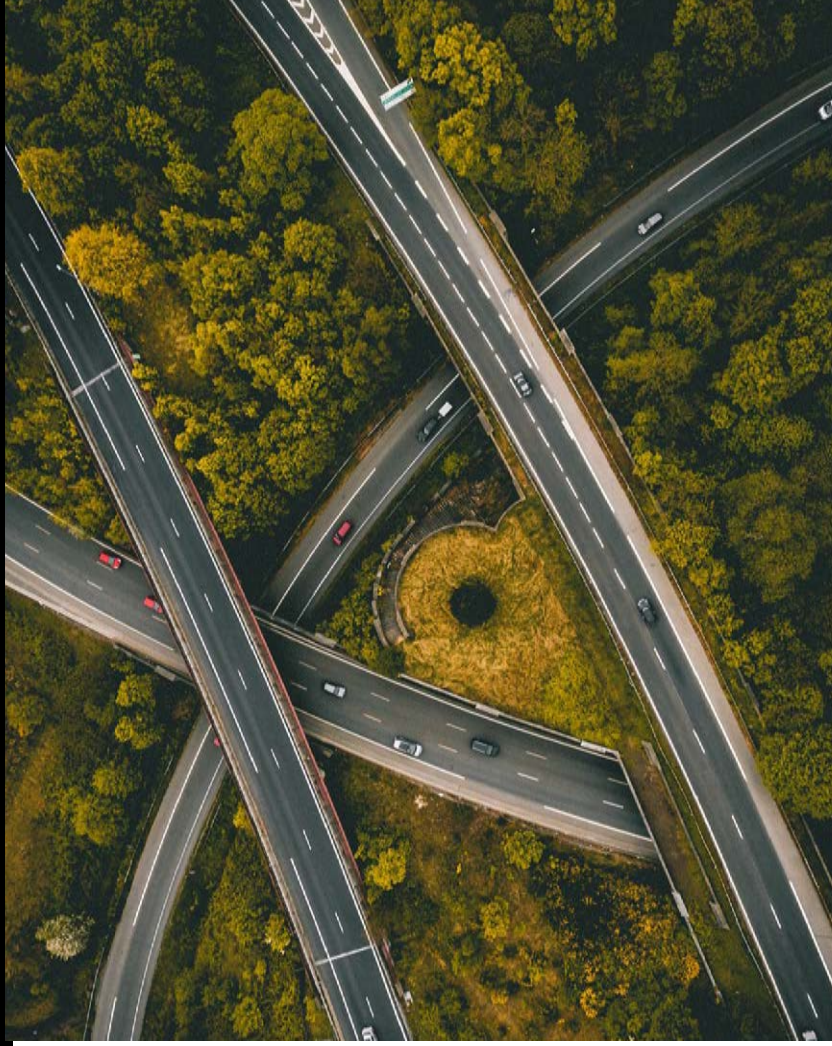


# South Portland / Lair Hill

An area filled with deep heritage, rich history and streets of colorful homes.



# Problem



## Barrier

1. Breaks up the neighborhood
2. Isolates Lair Hill
3. Disconnects from Portland



# App Goals

1. In and out of the neighborhood.
2. Celebrate Lair Hill
3. Connect to Portland.



# Mood Board



Marine Blue



Citrine



Orange Aurora



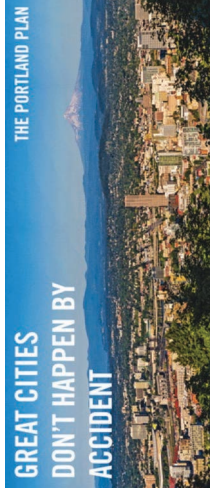
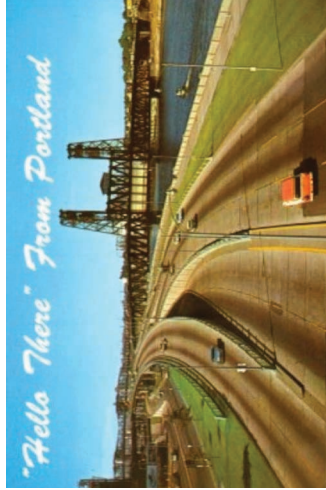
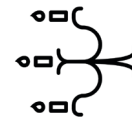
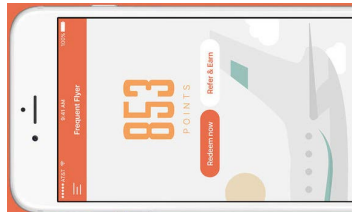
Canton



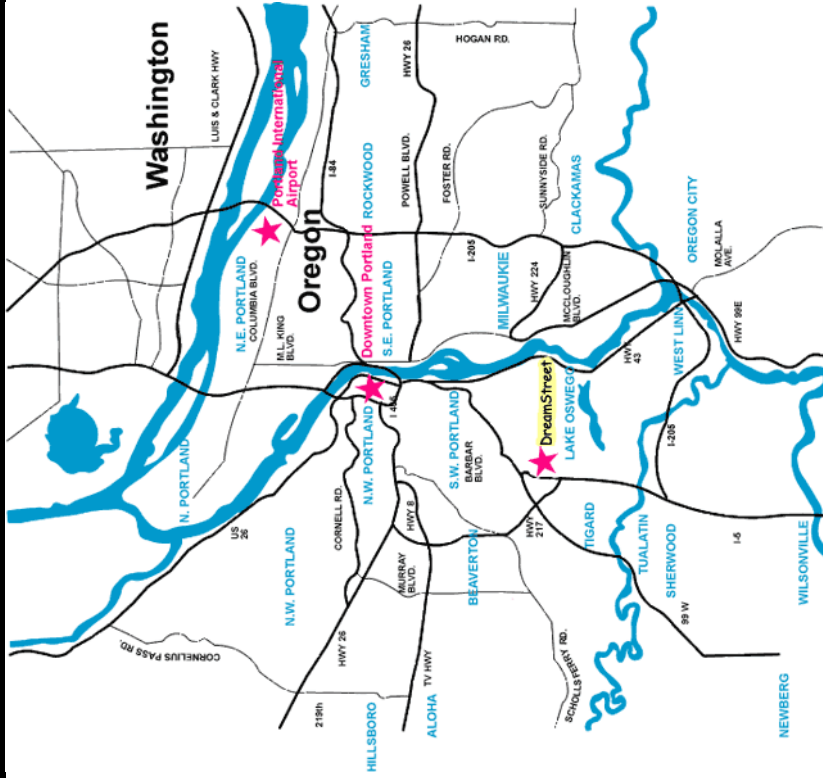
Pale Lime



Magnolia



# Portland



# View the App



# HABITAT

## DOWNTOWN TIGARD

"Tigard is a unique habitat in that more commuters ride in than leave, it's actually at a 2:1 ratio."

BUS SERVICE



SHARED SPACE



EASE OF ACCESS



# USER



## LONNIE MARTINEZ

"If there is a bus that will put me at my destination on time, I take the one before that."

### APPRECIATION



### BENDING TO SCHEDULE



### SINGLE CAR COMMITMENT



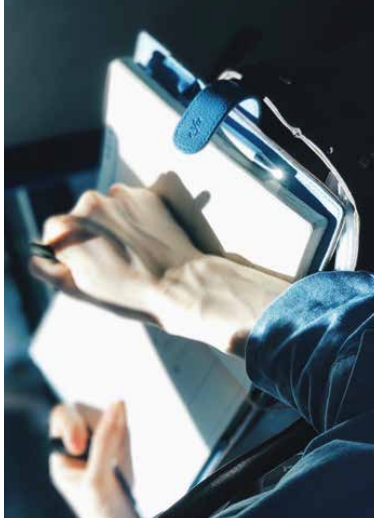
# PROBLEM STATEMENT

How can I leverage Lonnie's desire for **appreciation and recognition** as a customer and need for an **accessible and accurate schedule** in order to unlock his **curiosity and exploration** of the city and TriMet services?

I AM AN OWNER



COMFORT IN PREDICATABILITY



NEW PERSPECTIVE



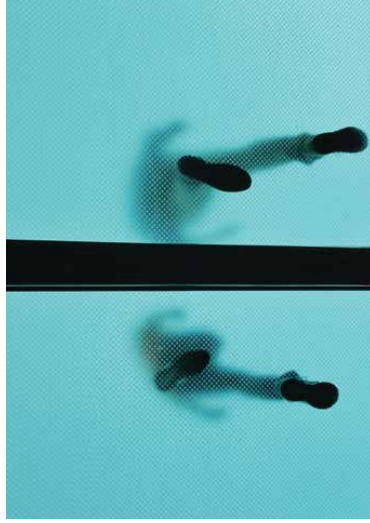
# APP GOALS

What could I put into an app to solve these problems and create a seamless transit experience for Lonnie?

APPRECIATED, THANKED



SYNC SCHEDULE TO USER



UNLOCK CURIOSITY





# FEATURES

Lorem ipsum

- Location/Route Saving
- Discover Mode
- Feedback/report to Trimet
- Personal Analytics/Impact
- Mileage Tracking
- Ticketing
- Queue
- Capacity Alert
- Real-Time Locating
- Consolidation of piece-meal apps

# FEATURES

Lorem ipsum

- Location/Route Saving
- Discover Mode
- Feedback/report to Trimet
- Personal Analytics/Impact
- Mileage Tracking
- Ticketing
- Queue
- Capacity Alert
- Real-Time Locating
- Consolidation of piece-meal apps

## 1. Personal Analytics/Impact

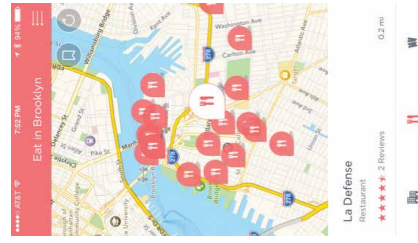
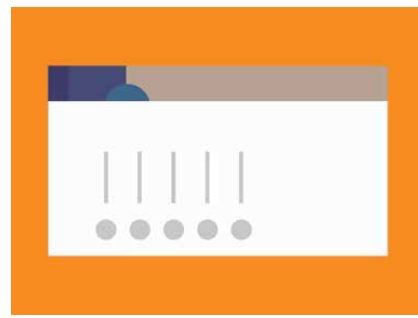
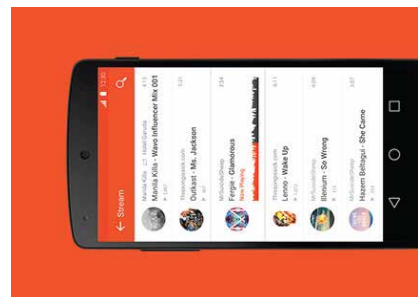
## 2. Discover Mode

## 3. Queue Scheduling

# MOODBOARD



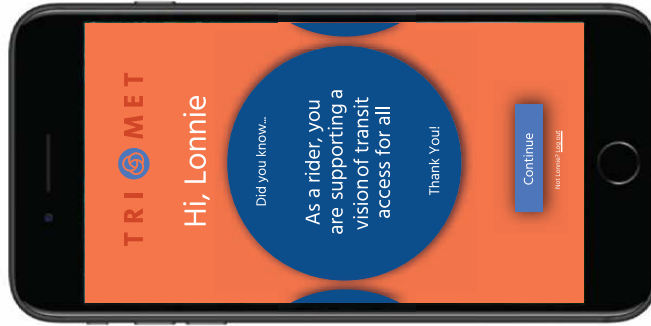
**Heading: Hind SemiBold 24pt**  
**Subheading: Hind Regular 18 pt**  
 Body will also be hind regular but the size will be 12 pt.  
 Lorem ipsum dolor sit amet, consectetur adipiscing elit,  
 sed do eiusmod tempor incididunt ut labore et dolore magna



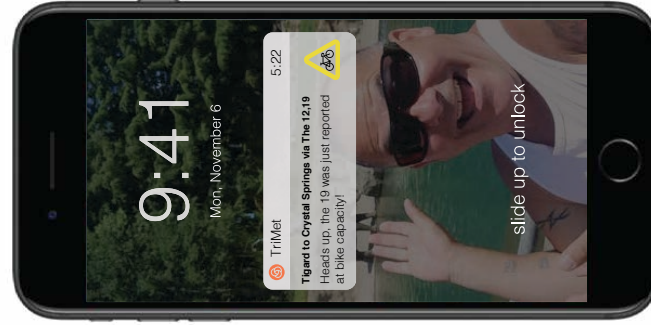
THE APP



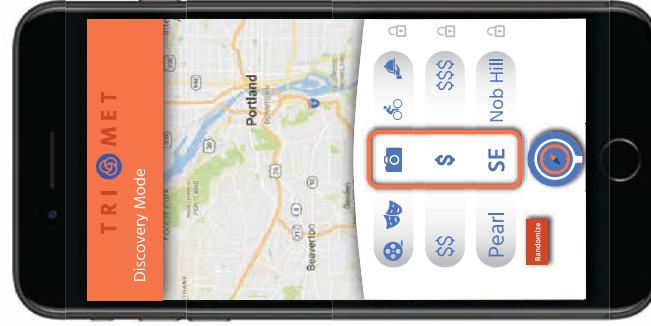
# REVIEW



APPRECIATION



SYNCED SCHEDULE



UNLOCK CURIOSITY

THANK YOU

