

## 5 Requirements

### 5.1 Capability Requirements

#### 5.1.1 Platform

1. The application shall be compatible with the iOS mobile platform.
2. The application shall be compatible with the Android mobile platform.

#### 5.1.2 User Accounts

1. If it is a users first-time opening the application, the application shall prompt the user to enter an email address, password, credit card information, and to create or link to a TAP account.!
  - (a) If the account is created successfully, the application shall send a confirmation to the users stored email address.
  - (b) If the account creation is not successful, the application shall display an error message that prompts the user to reenter their information and will not be logged in.
2. If a returning user opens the application, it shall prompt the user to enter their log-in information.
  - (a) If the log-in attempt fails, the application will display an error message that prompts the user to reenter their log-in information.
  - (b) If the log-in attempt succeeds, the user will be shown a transit management screen.

#### 5.1.3 Usage

1. If the application loses connectivity, the application shall display an error message.
2. The application shall retrieve the users location at intervals of 120 10 seconds.
3. Upon updating the users location, the application shall update information for nearby Metro transportation.
4. The application shall be able to display a static map with Metro routes.
5. The application shall allow the user to change their email address.
6. The application shall allow the user to change their password.
7. The application shall allow the user to delete their account.
8. The user shall be able to link up to 5 dependents (name & birthdate) to their account.

#### 5.1.4 Payments

1. The application shall allow users to purchase non-exclusive TAP passes.
2. If the user selects to purchase a ticket, the application shall check to see if the user has an applicable TAP pass.
  - (a) If the user has an applicable TAP pass, the application shall generate the selected virtual ticket.
  - (b) If the user does not have an applicable TAP pass, the application shall confirm with the user it will charge the stored credit card.
  - (c) If the card does not process, an error message shall be displayed and the order shall not be accepted.
  - (d) If the transaction succeeds, the application shall create a virtual ticket.
3. The user shall be able to select up to 2 dependents accounts to be attached to a virtual ticket.
  - (a) If the dependent is over 5 years old, the application shall calculate the additional ticket fare.
4. If the user selects to use their ticket, the application shall signal the gate up to a maximum of 3 attempts at 20 5 second intervals to accept.
  - (a) If the application is unsuccessful on the 3rd attempt, the application shall attempt to use bluetooth to signal the gate (see 4.5).
  - (b) Otherwise, the gate is unlocked, permitting the user to pass through.
5. If the application does not have connectivity when the user attempts to use a ticket, the application shall attempt to use bluetooth to use the ticket up to a maximum of 3 attempts at 20 5 second intervals.
  - (a) If the application is unsuccessful on the 3rd attempt, an error message shall be displayed.
  - (b) Otherwise, the gate is unlocked, permitting the user to pass through.
6. The application shall store unused virtual tickets for at least 1 year.
7. The application shall store used virtual tickets for at least 30 days.
8. The application shall allow the user to change their credit card information.
9. The application shall support remote adjustment of ticket prices (e.g., senior discount) by TAP id through a web interface.

## 5.2 Level of Service Requirements

LOS Requirements	Desired Level	Accepted Level
LOS-1: Concurrent Users	150000	75000
LOS-2: Start-up and user location time	7 s	15 s
LOS-3: Ticket Purchase Transaction Time	5 s	20 s
LOS-4: Update Account Information Time	10 s	30 s
LOS-5: Tickets stored per User	1500	500
LOS-6: % first-time users able to purchase ticket without outside help	80	75
LOS-7: % first-time users able to use ticket without outside help	85	80
LOS-8: % users that ride metro at least once per week that would rate ease of use at 3 out of 5 or higher	90	80
LOS-9: Average Time for User to Create an Account	45 s	60 s
LOS-10: Failed Ticket Purchases per 1000	0.25	1
LOS-11: Failed Ticket Uses per 1000	0.25	1
LOS-12: Hours per day that app shall purchase tickets	20	19.5
LOS-13: Hours per day that app shall allow use of tickets	20	19.5
LOS-14: # iOS generations app shall support	3	2
LOS-15: # Android generations app shall support	3	2
LOS-16: # versions of app that Metro system shall support	3	2