

## 4Ride Mobile Functional Specification

### Overview

4Ride Mobile is an iOS-based application that allows students to interface with GW's campus 4Ride service from a mobile device. The application will be available for download from the Apple App Store. Additionally, drivers will be able to download a standalone application that provides corresponding itineraries.

The student application presents users with a map of Foggy Bottom that displays all 4Ride vehicles currently in service. A student is able to enter a destination and request a 4Ride pickup from his or her current location. 4Ride Mobile will then issue a vehicle assignment to the user, providing the name of the driver and highlighting the vehicle on the application's map. If the request is no longer needed before the 4Ride vehicle arrives, a cancellation can be issued from the application.

The driver application presents a split view with a map of the Foggy Bottom campus and an active itinerary. As student requests are issued, those assigned to a specific driver will display on his or her application's map as well as itinerary. The itinerary lists the upcoming destinations in order, including pickup and drop off locations. These itineraries are

determined using an optimization scheduling algorithm, which issues driver itineraries that handle student requests in the least amount of time possible.

This specification refrains from detailing the technical implementation of either applications or the optimization scheduling algorithm. Instead, this document focuses on the user experience of 4Ride Mobile.

## Scenarios

The following are several scenarios that demonstrate how the product will impact users.

### **Scenario 1: Neha**

Neha is a typical undergraduate GW student who relies on mobility around campus to facilitate her stressful schedule. As a pre-med senior, Neha is beginning to put in later hours at Gelman library as well as the dorms of other pre-med students studying for the MCAT. Often studying past 2 AM, Neha is concerned for her safety and relies on 4Ride to transport her to the other side of campus. Lately Neha has been noticing that 4Ride's antiquated web-based service does not always dispatch a vehicle to her location. A frustrating online map with vehicle locations does not update unless constantly refreshed. On top of that, drivers do not hold accountability for non-serviced requests since their information is not provided to Neha. As a result, Neha has to either wait in the dark morning hours until a vehicle request is serviced or walk home alone.

Fast forward to the release of 4Ride Mobile. Neha has decided to download the application on her phone. Now when she is getting ready to leave her study location, she can request a 4Ride vehicle and automatically receive feedback on her driver's name, phone number, and exact location. There is no need to refresh a faulty online map every time she wishes to see the location of her vehicle. Instead, the vehicle's location is updated in real time on her mobile phone. If the driver decides to override her request, she will be informed immediately without having to wonder why her vehicle did not show up. As a result, Neha has felt considerably safer lately with a service that works around her needs.

#### **Scenario 2: Dara**

Dara is another typical GW undergraduate student. However, Dara typically uses the 4Ride service to get this amazing sushi from Whole Foods. She is only a freshman and still not sick of Whole Food shopping yet. Dara relies on 4Ride as a quick way to get her sushi and return to her studies. However, she is starting to notice how slow such a short trip to Whole Foods can be. When she gets in the car at South Hall, the vehicle ends up going to other areas on campus such as Thurston Hall or E Street before turning around toward Whole Foods. She also realizes that many times these long detours pick up and drop off the same students before she reaches her own destination. As a result, she has decided to stop using 4Ride whenever she has a tight schedule.

Like Neha, Dara also decides to download the new 4Ride Mobile application and give the service another chance. Over the next few rides, she realizes that she is reaching her destination much more quickly. Often a vehicle's drop offs reflect the order in which students are picked up, but also respect quick detours if adhering strictly to a "first in first out" policy does not make sense. Additionally, vehicle itineraries seem to prioritize certain locations based on typical surges such as the library at midnight or Whole Foods on the weekends. Overall, she is able to get more value out of a service that prioritizes on a fair basis.

## Non-Goals

This application will not support the following features: user authentication, non-iOS platforms, and user preferences. User authentication, such as being a valid-GW student, is outside the scope of developing an optimal scheduling platform for the campus 4Ride service. This will be the responsibility of the university's transportation services if the project is continued. Since iOS holds a dominant presence at GW, the application will be developed on this platform only. Lastly, the features outlined will be unchangeable. Thus no user preferences will be provided.

## User Experience

### Students

The student user interface will be very simple. There will be a single view with a map that centers on the Foggy Bottom campus. This map will occupy the upper portion of the application, with a dot noting the student's current location and vehicle icons noting the location of all 4Ride vehicles in service. Underneath the map will be a text field to enter a destination. When the field is filled, the "Request" button will become highlighted. If the user chooses to issue a request, the request button will be replaced with the "Cancel" button. The map will then highlight the vehicle assigned and remove all others. Additionally, a distance and approximate time of arrival will display under the map in place of the destination field. The user can choose to click on the highlighted vehicle to access a pop up detailing the driver's name and phone number. If the user chooses to press cancel, the request will disappear and the app will revert to the original view.

### Drivers

The driver user interface will be slightly more complex. Unlike the student app, the driver app will have a dedicated itinerary and map view. The itinerary view will list all the pickup and drop off points in order of execution. Each destination will specify the number of individuals being picked up and dropped off, the phone numbers of all individuals to be picked up, the address, the estimated time of arrival, and the distance. The map view will display the itinerary as a series of connected points on a map. The vehicle's current location will also be visible. Clicking on the points will display the same details of each location outlined above.