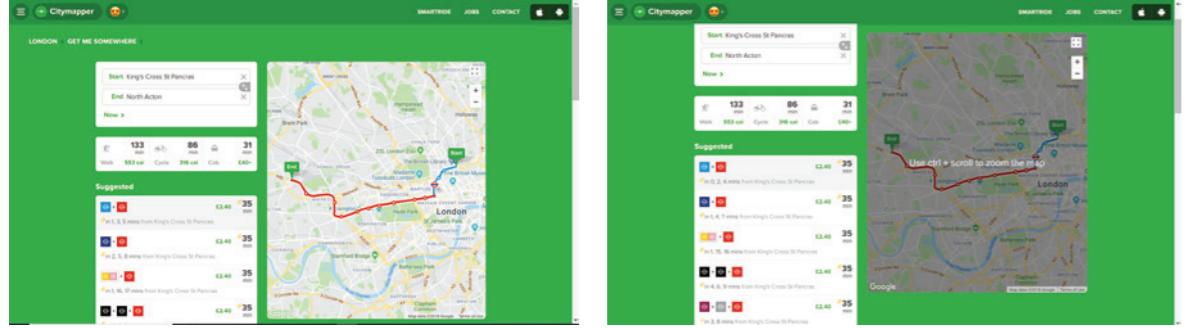


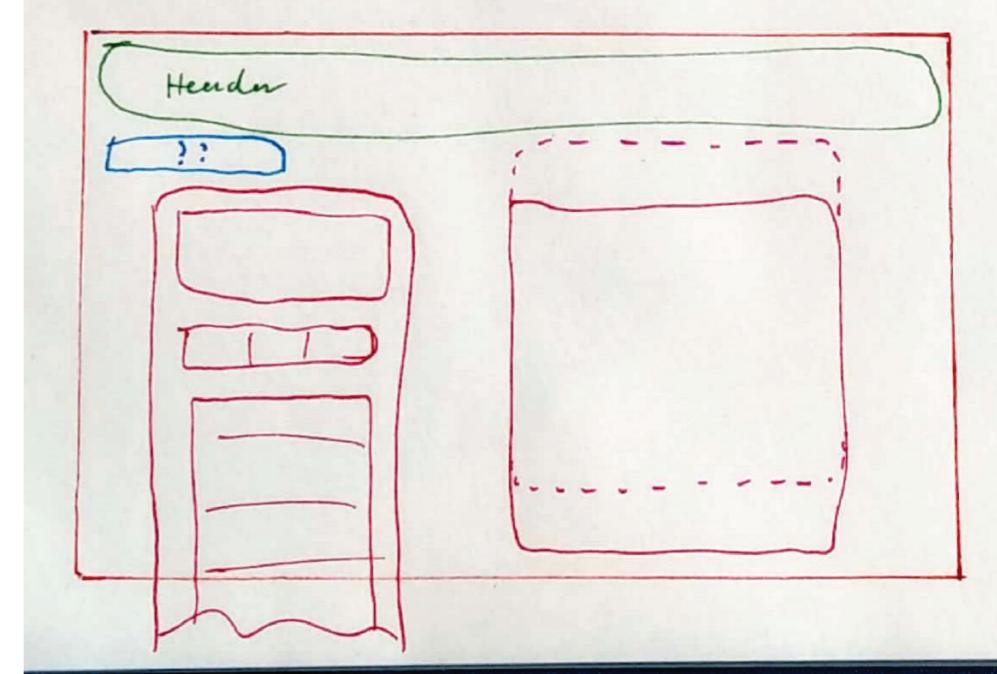
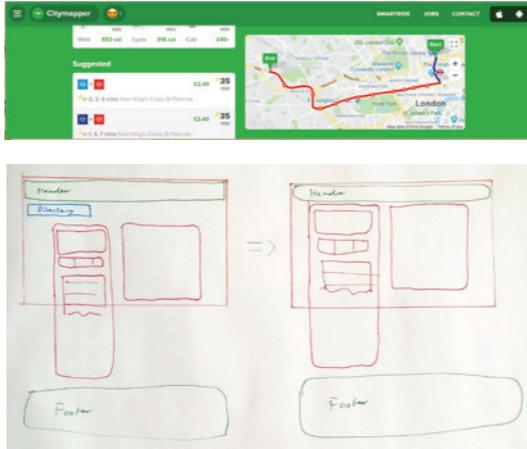
Design Direction One -Web navigator scroll issue.



The web version of the navigation page uses a two column layout, the route options on one side and the map adjusted to the viewport height on the other. A third element not fitted to either column, the route indicator, forces both columns down, meaning the map ‘jumps’ when the user scrolls the route options. This creates the necessity for the un-intuitive and intrusive “use ctrl to scroll” option as well as an unpleasant jumping effect.

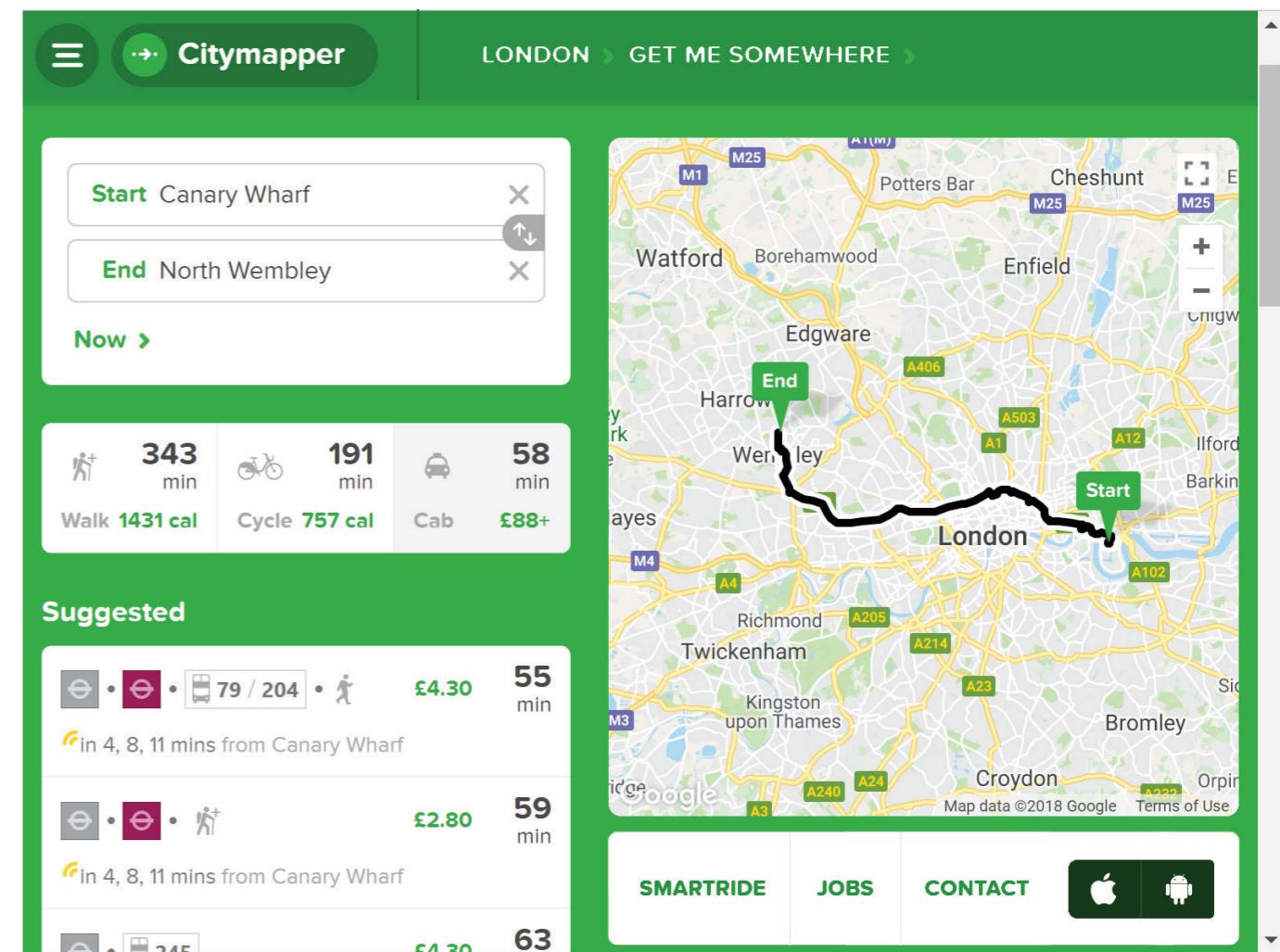
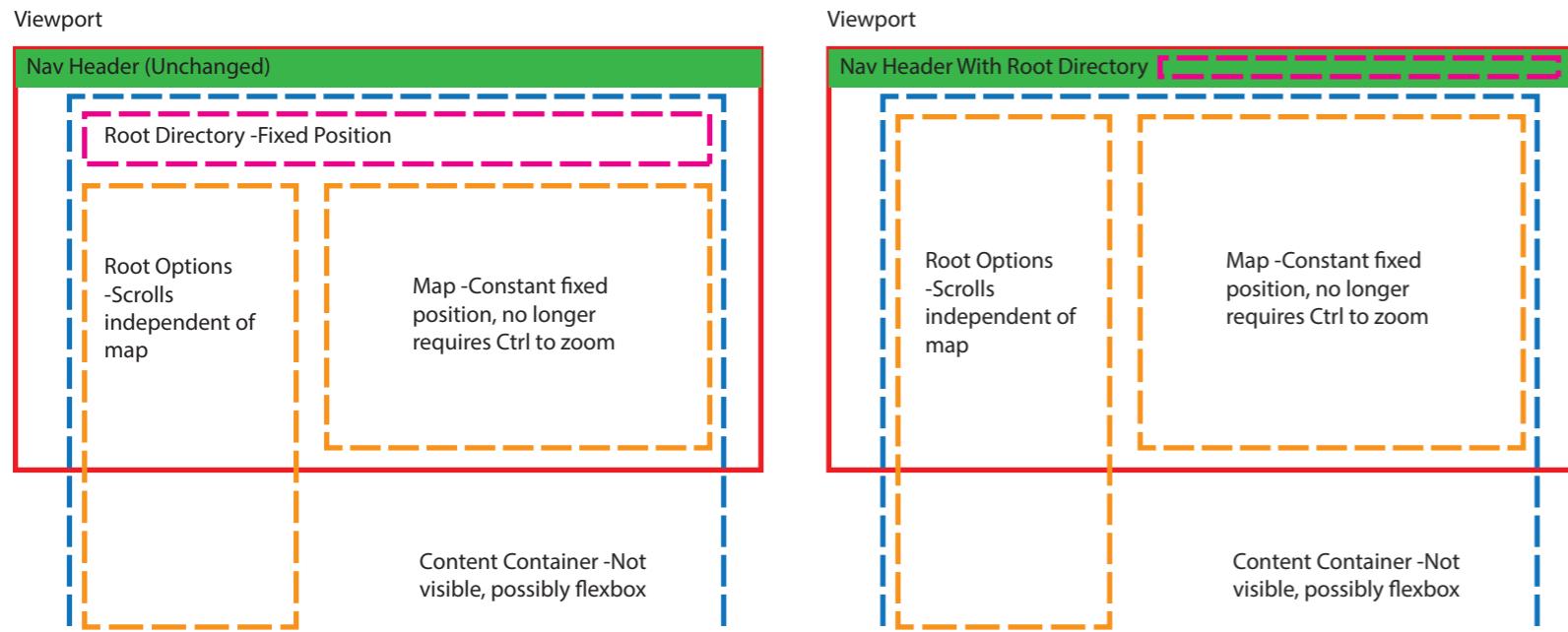


The map sizes to the viewport at even extreme dimensions yet the jumping persists.



Minor UI changes such as the examples shown below could relocate the route indicator and allow the map to maintain fixed position (until the footer comes up), not scrolling.

Re-locating the route indicator to the main header can be achieved by putting the promotional buttons fixed below the map.

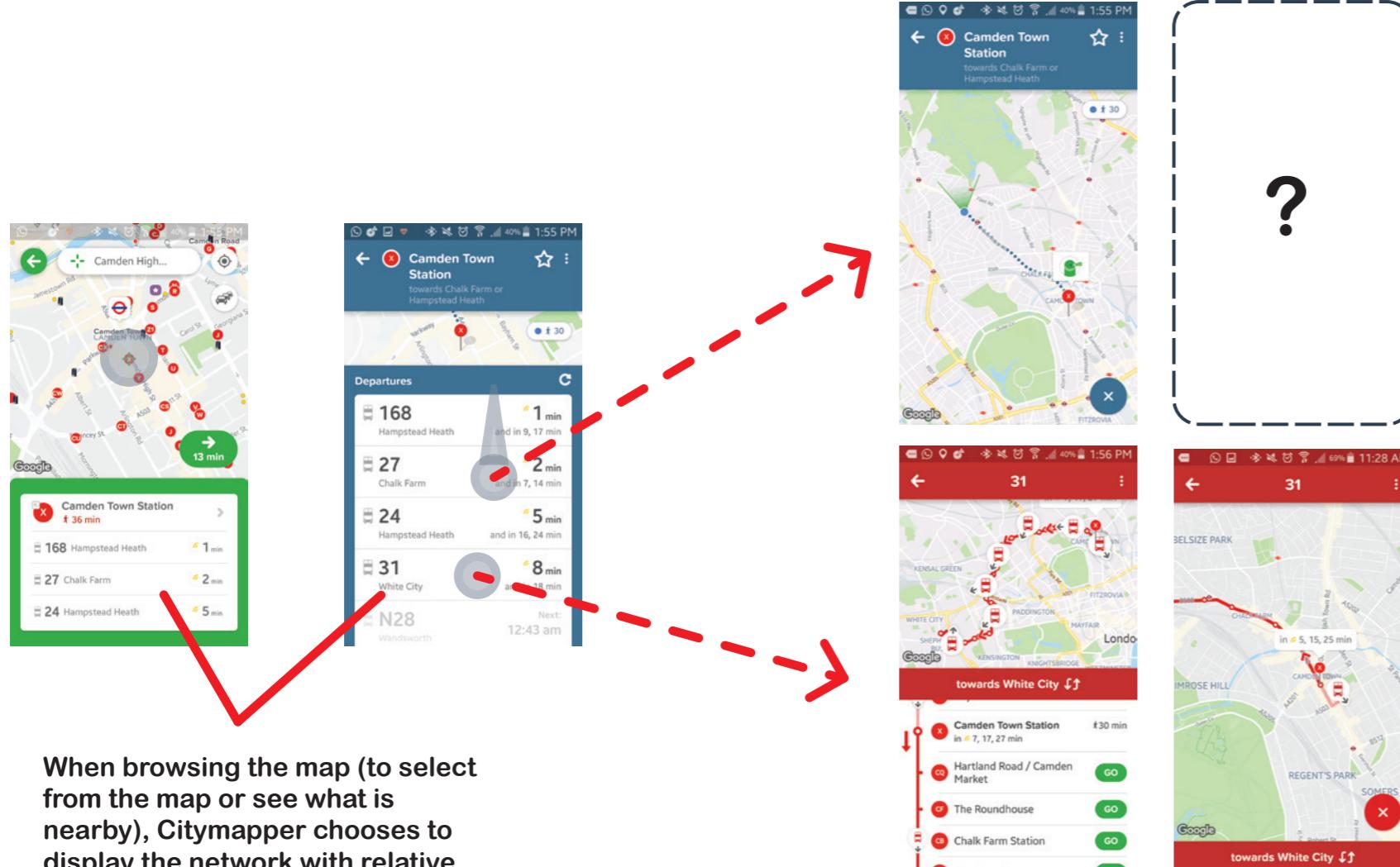


Design Direction Two -Visualisation of Complex Routes

I believe visualisation of complex networks like buses could be improved by adding the option to view a part of the network relative to a stop / station. That is, when viewing the live arrivals menu having clicked on the stop, the user sees a visual representation of the various routes calling there.

This would give the user the ability to quickly gauge the direction options relative to their positions.

With over 8000 scheduled buses and over 700 individual routes, the bus network in London illustrates a type of transport I here refer to as a 'high density network' ('density' referring to number of lines, stops, individual vehicles).



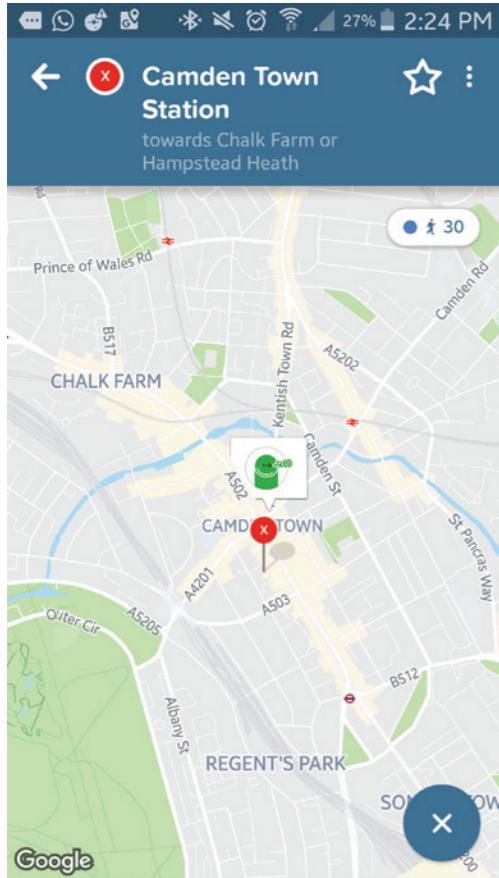
To create a starting point for how this idea might be realised we can consider the following user stories, at the maps view stage shown in the sequence above.

- 1) As a user, I can toggle a view of the routes of the particular high density network when a stop / station is selected.
- 2) As a user, I can see a graphical representation of the lines which stop at my station and no others.
- 3) As a user, I can gauge the relative direction of each line and have some indication of vehicles moving along it.
- 4) As a user, I can read the number, colour or other indicator assigned to each route simultaneously.
- 5) As a user, when I click or tap away from the stop, these added graphics disappear, if I click on another stop, data pertaining to that stop appears.
- 6) Where a route turns around or reverses, I only see the proportion pertaining to the direction it will travel at my selected stop, unless my stop is multi-directional.
For example, if I view London bus Camden Town Station X (northbound), I do not see data for the corresponding Camden Town Station R or T (southbound) nor any part of the southbound line.
- 7) As a user, all of this browsing functionality is optional and can be toggled on or off at any time without deselecting the station / stop.

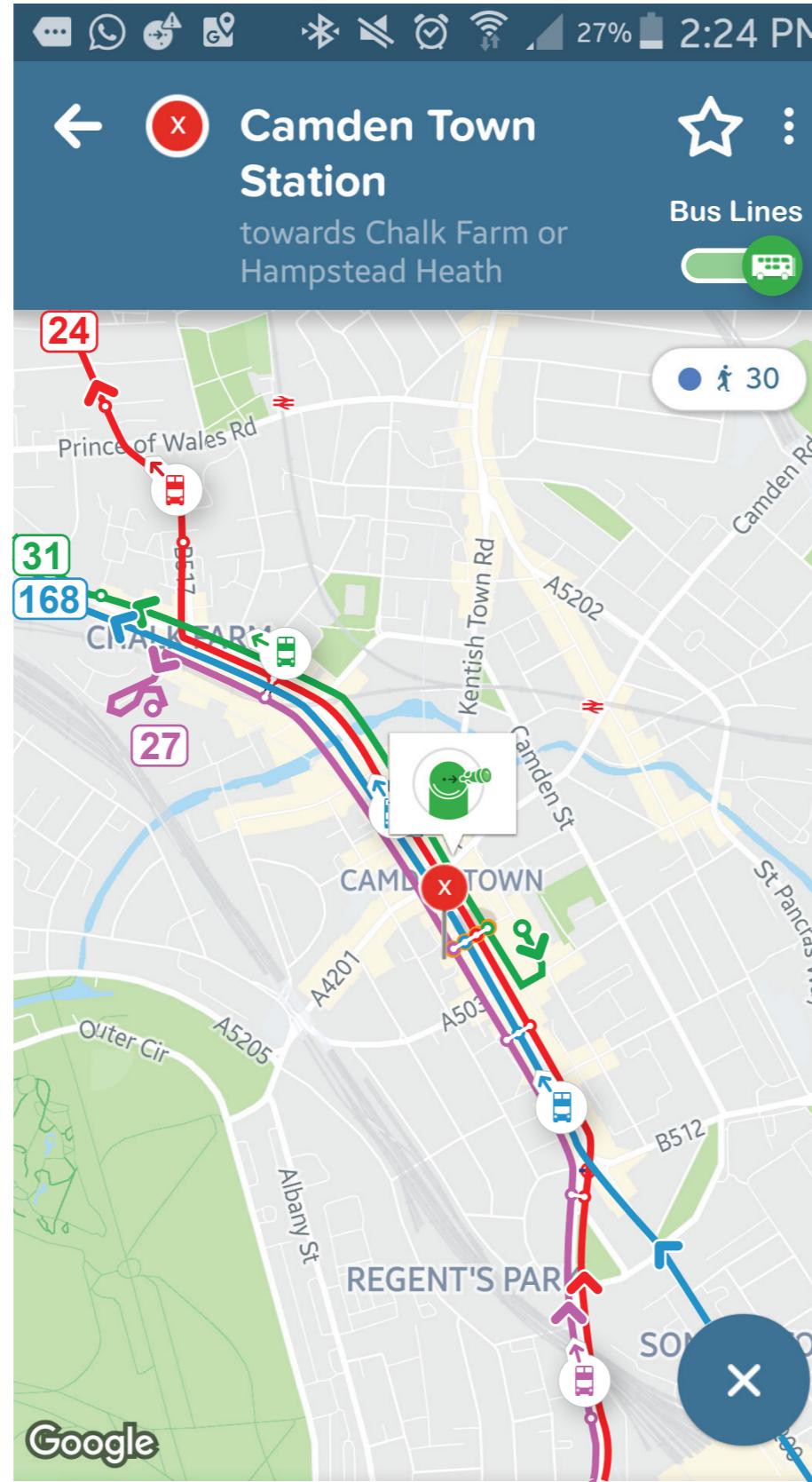
Design Direction Two -Visualisation of Complex Routes

Shown below is a rough draft mock-up of what such an interface would look like, with Camden Town Station X selected.

This view would be toggleable via the new 'bus Lines' button to preserve the original view. This mode enables the user to, at a glance, see roughly which direction the buses go in, what stops they share, and where parallel routes diverge or meet.



Before changes



With changes

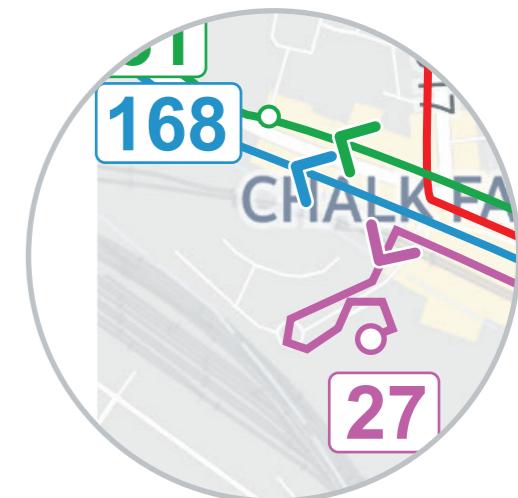
Route numbers or other identifiers align themselves along the edge of the viewport or at the end of a line if the end is on screen. They attach to the end of the line in which vehicles are travelling towards (in this case, predominantly north).

Typical 'tube-style' lines represent the routes with assigned colours. The selected station shows an orange hue border. Live icons show up, similar to the signal line view, colour corresponding to the line.

Two arrows appear per line, one at furthest most point, relative to the viewport, and one offset from the beginning to immediately communicate direction.

All icons and lines size themselves relative to the viewport meaning that increased detail and scale can be afforded by zooming, as is typical in the rest of the application.

Swipe up to return to the live departures board.



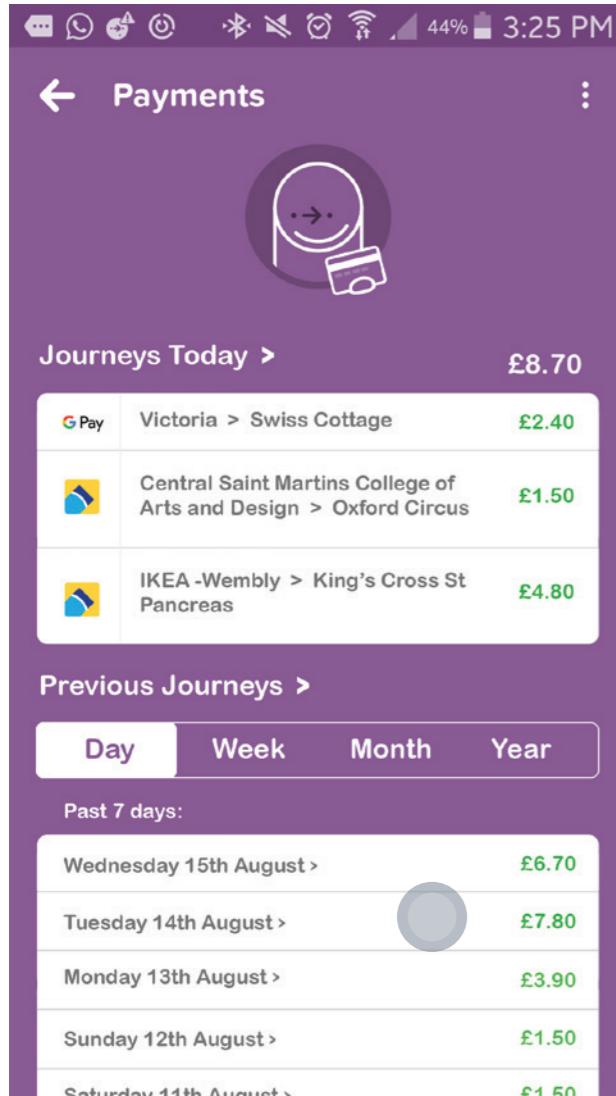
Here we can easily see the live position of a route 31 bus, represented by green. We can also quickly glib that three of the four available buses stop here, with the exemption of the 168.

Design Direction Three -Integrated Payment Tracking and Analysis

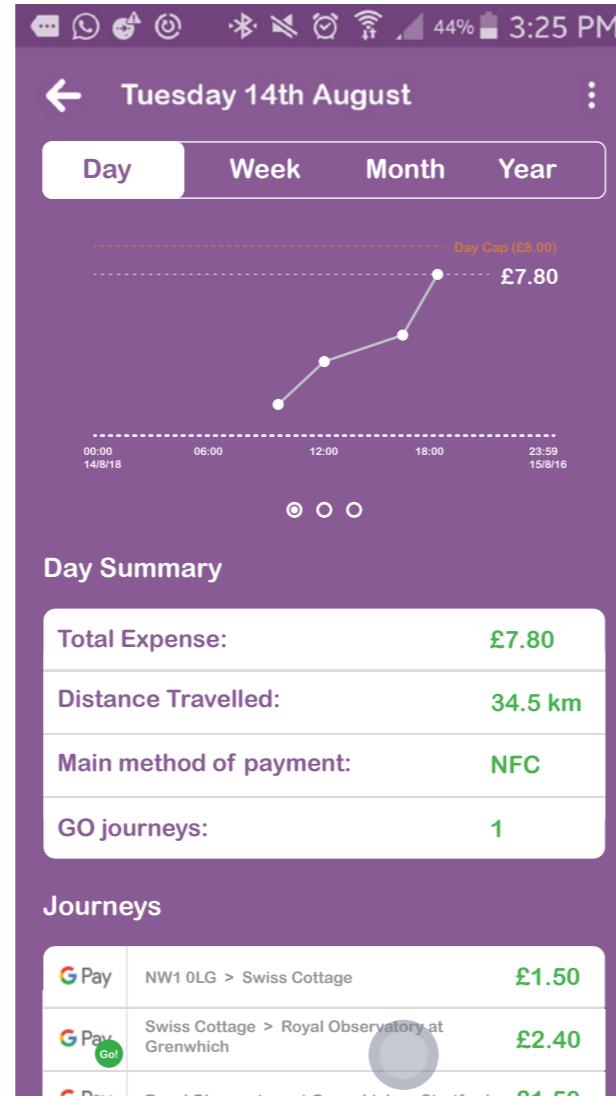
With the introduction of the Smart Rides, the Citymapper app has a form of payment capability built in. Along with the journey tracking capability of 'GO', it may be possible to handle transactions through the app to allow users a record of their expenses and analyse the cost-efficiency of their route.

In most use cases, the Citymapper app will be used for in-the-moment results and prizes time efficiency over other factors most of the time.

But what if waiting 10 minutes when leaving the office every day could offer a better, more comfortable or cheaper option? This feature can analyse thousands of routes and speculate on such issues.

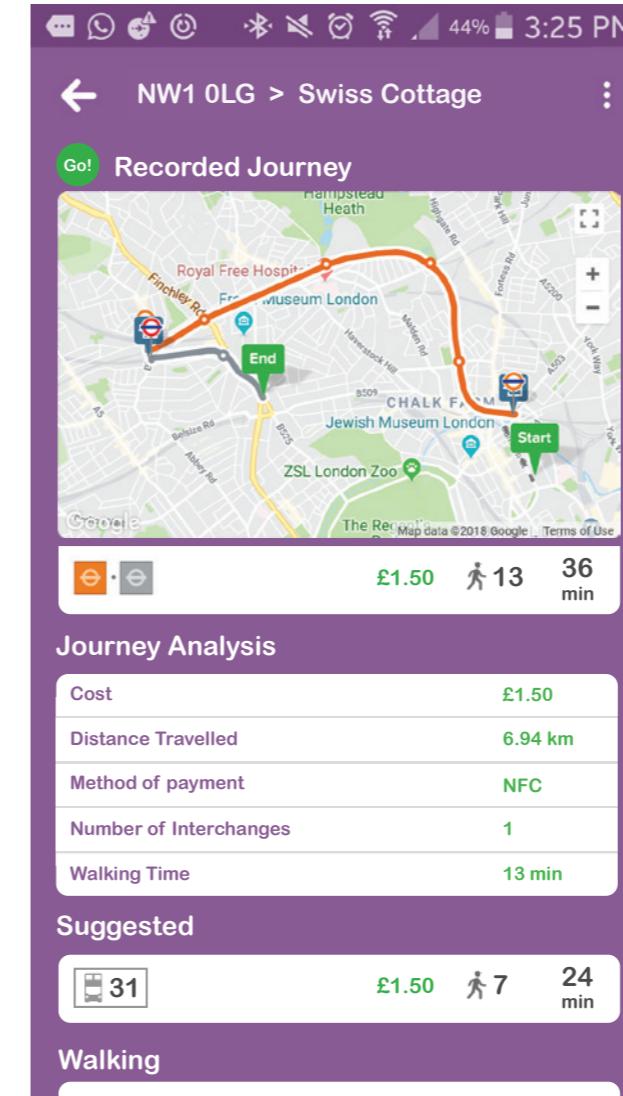


The first screen, accessed through the sidebar menu (where the Smart Ride pay is), shows todays journeys and displays past journeys in different time units, with total expenditures displayed.



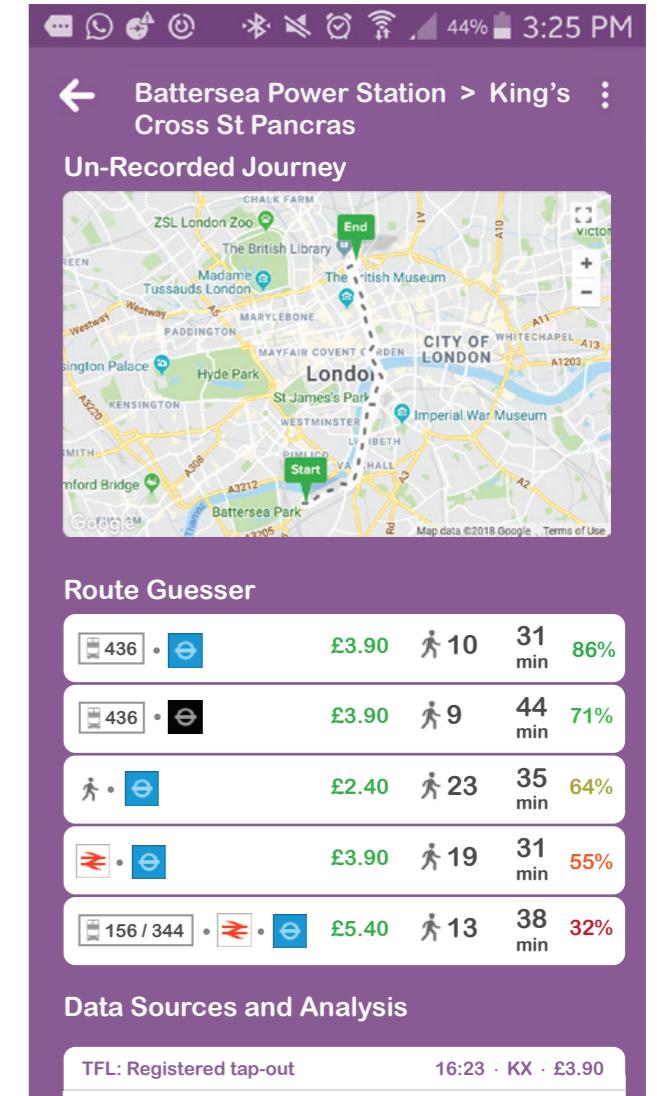
Second level; analytics page. The user can see a cost analysis, tips to optimise regular journeys etc. and journeys contained within.

For example, if the user clicks on a month (or switches using the tab slider), they see all the weeks within that month and totals.



Individual journey page, shows as many details as possible of a journey, accessed through a range of sources with explicit user consent. It can make individual route recommendations to increase efficiency.

This might include suggesting a route that looks longer but is faster, suggesting a shortcut or proposing waiting a duration of time for a better journey, less walking etc.



If the route was not recorded with 'GO' then Citymapper will use available data to guess what the user did, representing the possibility of each guess as a percentage.

In terms of large scale analytics, Citymapper will factor in guessed routes if a threshold of certainty can be met.

Design Direction Three -Integrated Payment Tracking and Analysis

Date / Time	Journey / Action	Charge	Balance
Sunday, 26 August 2018			
15:43 - 16:11	Liverpool Street [London Underground] to Belsize Park	£2.00	£3.10
14:05 - 14:13	London Bridge [London Underground] to Moorgate	£2.40	£5.10
11:49 - 12:19	Belsize Park to London Bridge [London Underground]	£2.40	£7.50
Saturday, 25 August 2018			
20:26 - 20:50	Leicester Square to Belsize Park	£0.00	£9.90
18:01 - 18:10	Holborn to Leicester Square	£0.00	£9.90
12:40 - 12:57	Notting Hill Gate to Chancery Lane	£0.50	£9.90
12:33	Bus journey, route 328	£1.50	£10.40
11:03 - 11:38	Kings Cross (Piccadilly, Victoria lines) to High Street Kensington	£2.40	£11.90
09:53 - 10:06	Belsize Park to Kings Cross (Piccadilly, Victoria lines)	£2.40	£14.30
Friday, 24 August 2018			
21:54 - 22:29	Finchley Road to Belsize Park	£0.00	£16.70
17:05 - 17:24	Kings Cross (Met, Circle, H&C lines) to Finchley Road	£0.00	£16.70
15:30 - 15:43	Embankment to Euston [London Underground]	£0.00	£16.70
14:27 - 14:35	London Bridge [London Underground] to Waterloo (Colonnade) [London Underground]	£0.00	£16.70
13:10 - 13:21	Westminster to London Bridge [London Underground]	£2.00	£16.70

A screenshot from my own registered oyster card on TFL's website, demonstrating a potential data source and what details TFL stores.

User stories:

1) As a user I can see a visual representation of my journey history divided by cascading time categories.

2) As a user I can view a given category and see the journeys within it represented as the next unit. (for example, clicking a particular month will show the weeks within that month. Clicking a week will show days and so on).

3) Citymapper will use multiple data sources and permissions to show as many journeys as possible, aggregating data and avoiding duplication.

4) As a user I can see accumulated statistics and analysis for a given set of journeys.

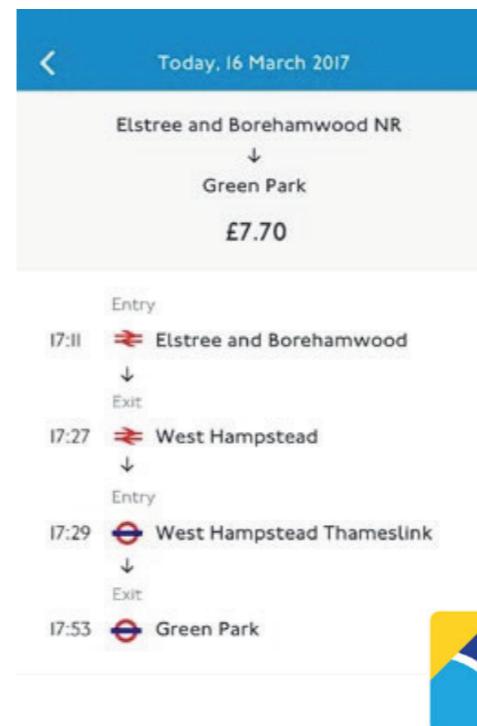
5) Citymapper will provide journey analysis to provide insights on noted patterns and provide useful hints and perspective back to the user. The exact nature of this will be user-specific.

6) Citymapper stores data locally doing AI computations through open, anonymous requests. Any data stored server side is encrypted and only done with express user permission.

7) Likewise, all additional journey tracking, data collection, third party Oauth and speculative route analysis is done with explicit permission from the user with adequate disclaimers about accuracy and privacy given.

This idea is the most hypothetical so defining set user stories and criteria are not only difficult to pin down but will differ based on the city to which this feature is applied.

In this instance, a hypothetical oauth API from TFL is used. Such an API does exist for their Oyster app but is not public. In reality then, this could perhaps entail collaboration with the TFL Digital team.



TFL registered Oyster data API



Local Data



Local NFC payment



Citymapper built-in NFC payment

Design Direction Four -Payment Information and Instructions

Deciphering payment methods and ticket acquirement is possible the most difficult part of visiting a city for the first time, certainly if it is a foreign currency, culture, language etc.

This idea is a set of built in instructions on payment methods and applicability, for instance how gates and ticket machines work, common misconceptions, options etc. This could greatly minimise anxiety and confusion for first time visitors.

First screen gives filtered information in readable form with images and annotations provided. This information will be opinionated with new visitors in mind. Unlike other articles from the web, this will only show relevant information with no extraneous detail.

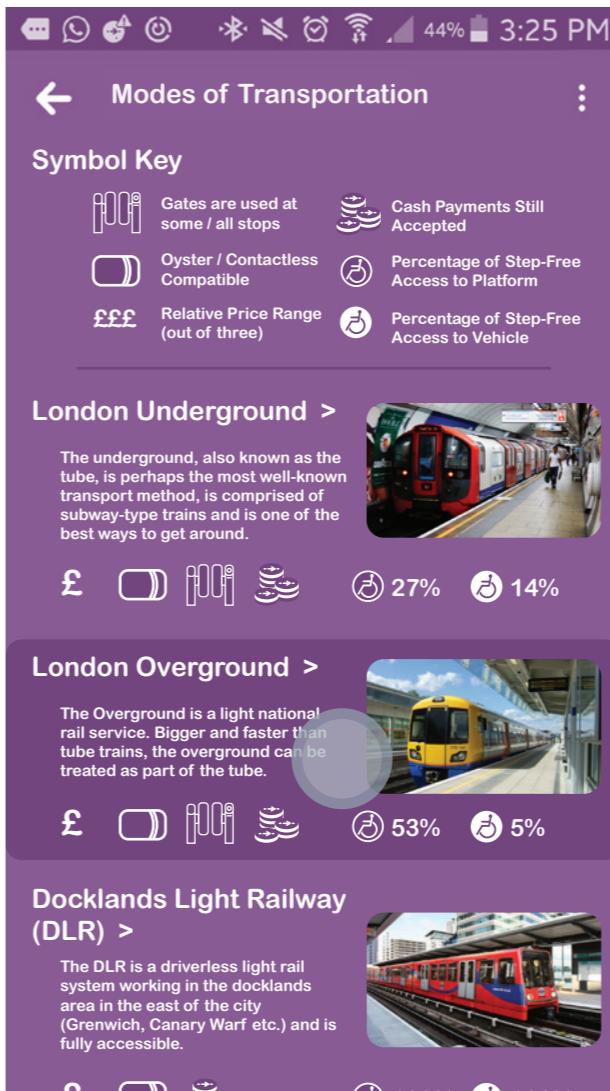
The user should trust this reference.

This should provide answers to all their nagging questions, be the resource they consult rather than say, googling obscure questions and finding veritable encyclopaedias in response.

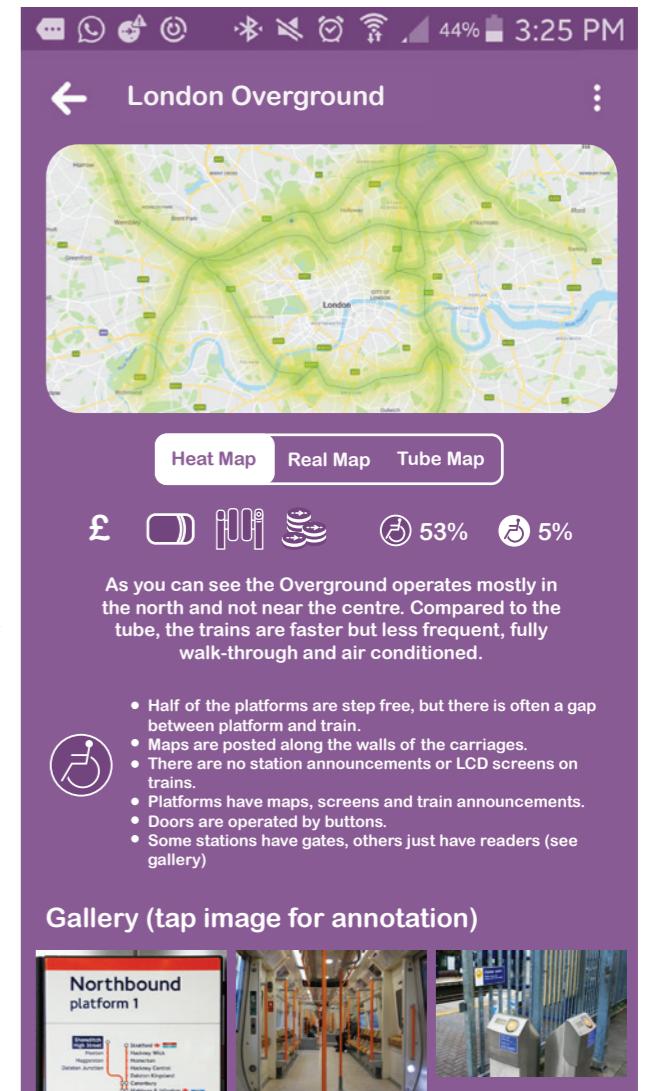


More would be revealed on scroll including pay caps, travel zones, and local culture norms (for instance standing on the right, walking left)

The next screen; perhaps accessed by scrolling or by link. Provides a list of transportation methods in order of potential use for a visitor, each identifies features using a series of icons, for instance an icon for Oyster compatibility, if gates are common, is there a 24 hr option, relative price brackets and so on.



The last screen expands on these brief details giving a more in depth look at each mode of transport. This uses more text and imagery, including tips and answering FAQ's.



Design Direction Four -Payment Information and Instructions



User stories:

- 1) As a user, I can find a mini reference with information pertaining to transportation methods in a given city and available payment methods / operational requirements.
- 2) As a user, I can view an overview of the basic prerequisite knowledge I need to know to navigate the city.
- 3) As a user, I can tap on a section (such as a payment method) to see a more in-depth description with external links to a source.
- 4) As a user, I can see a list of transportation methods with a brief description which quickly conveys relevant information (such as price, accessibility metrics, payment compatibility).
- 5) I can click on a transport method to find a more in-depth description with external reference ibn addition to hints, tips, FAQ's and "un-written knowledge"; things not formally documented that are useful to know such as cultural norms, common misconceptions.
- 6) This reference should be intuitive to navigate, linking sections together where necessary to provide an accurate picture to the user.
- 7) This reference should be visually 'clean' and not give the impression that there is anything hidden from the user, with information arranged in a hierarchy of importance.
- 8) This reference should contain a filtered information base, only communicating the things relevant to a first time visitor and properly linking externally where necessary.
- 9) This reference should be trusted by the user, acting as a single repository to eliminate the need to trawl the web.

"Can I take my bike on the tube?"

"I'm nervous about getting to my accommodation when I arrive"

"Do you tip cab drivers here?"

"What's the etiquette about taking food on the tube?"

"Can I pay with cash on the bus?"

"What sort of area does the DLR cover?"

"What happens if I don't have enough money on my card when I get to my destination?"

"What does 'national rail' mean?"

"How does it work if a station has no gates? How would they catch you if you don't pay? I don't get it."

"What are my best options if my English isn't great?"

Hypothetical concerns or statements of new visitors, based on some primary research, personal experience and commonly overheard conversations.