

Usability Test Results

Usability Calculations:

SUS Score is calculated by:

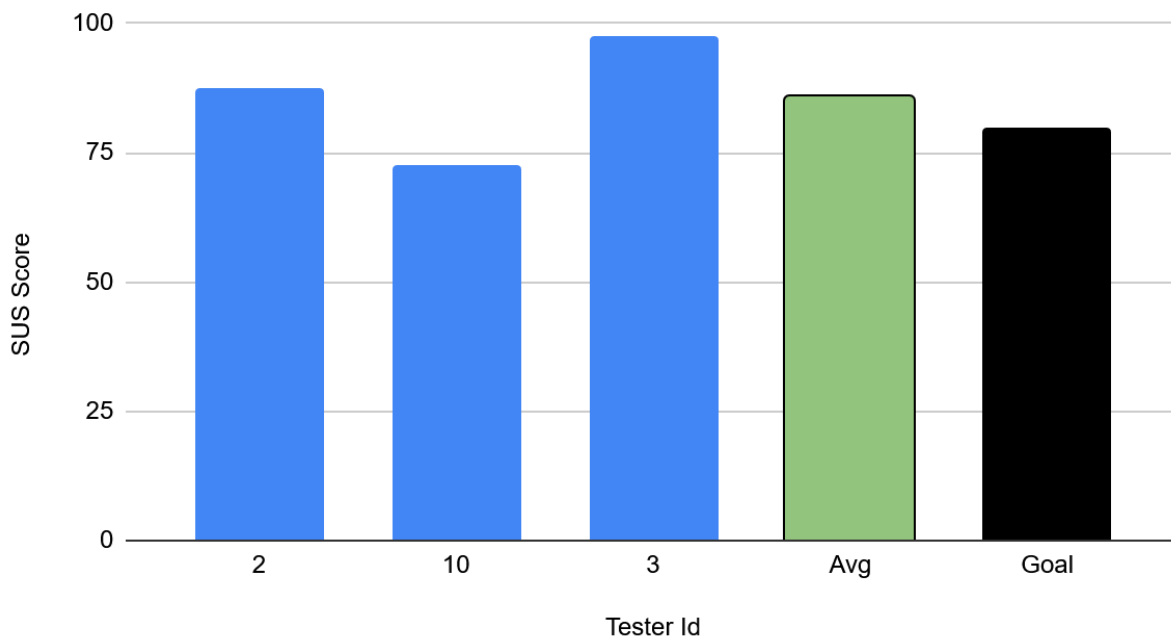
$$(((Q1 + Q3 + Q5 + Q7 + Q9) - 5) + (25 - (Q2 + Q4 + Q6 + Q8 + Q10))) * 2.5$$

This gives a maximum score of 100.

'SUS' Score Calculations:

Tester ID	Student ID	SUS Score
2	300637620	87.5
10	300651328	72.5
3	300653149	97.5

SUS Score



Comparison to goals:

The overall goal for our prototype was to get a SUS score greater than or equal to 80. While one of our test scores fell short, only getting a score of 72.5, the average score calculated from the mean was 85.8, exceeding our expectations.

All Issues Identified by User Testing:

1. Lack of user location on map

During testing, a user noted confusion while searching for a route because their current location was not displayed on the map. This made it difficult to orient themselves relative to the suggested route.

Severity: Low

Heuristic Violated: Visibility of system status.

2. Alert Button Label

During testing, a user misinterpreted the “Alert” button as indicating a system malfunction or user error, rather than as a source of transport-related notifications. This caused slight confusion and hesitation to interact with the feature.

Severity: Low

Heuristic Violated: Match between system and the real world.

3. Alert cards not displaying time alongside date

During testing, a user observed that alert cards did not display the time of the alert alongside the date. Though this was intended, as some alerts could last for multiple days and even longer. The text body would also display any relevant times related to the alerts.

Severity: Low

Heuristic Violated: Visibility of system status.

4. Reducing Icon inconsistency: Reducing Icon inconsistency

During testing, a user observed an inconsistency in train icons used to display transport type of routes. An older icon from a previous iteration of the wireframes was used in the Favourited Routes screen, while a newer icon was used in the rest of the system.

Severity: Low

Heuristic Violated: Consistency and standards.

5. No example/placeholder information on route cards on the Favourited Routes screen

During testing, a user highlighted the lack of information shown on route cards on the Favourited Routes screen. Combined with the screen being unscrollable (out-of-scope) despite showing part of a route card (indicating the ability to scroll), this led to user confusion.

Severity: Low

Heuristic Violated: Visibility of system status.

6. Alert information from Route Information screen was not tailored & Alert Context Specificity

During testing, a user identified that checking the alerts from the position of looking at a specific route did not lead to alerts tailored to that specific route.

Alert information shows all alerts rather than being filtered to the specific selected route.

Severity: Medium

Heuristic Violated: Match between system and real world, user control and freedom.

7. Route screen does not have a quick option to return to the Home screen, forcing users to use the Back button

During testing, a user found that there was no quick way to return to the Home (map) screen, instead having to tap the back (left chevron located in top left of screen) multiple times to return to the Home screen.

Severity: Low

Heuristic Violated: User control and freedom, flexibility and efficiency of use.

8. Users expect text size settings to be in general settings rather than accessibility settings

During testing, a user expected text size settings to be located within the general settings, rather than in accessibility settings.

Severity: Low

Heuristic Violated: Match between system and real world.

9. Removing elements from bottom of screen

From the user feedback, a user would reduce the number of elements in the bottom navigation bar to make them easier to select on a mobile phone.

Severity: Low

Heuristic Violated: Minimalist design

10. Transport Mode Filter Visibility

During testing, a user was unsure whether to select the icon or the label “filter” in the Route Planning Screen. Both of these options lead to the same pop-up screen. This contributed to them skipping a required step of task 1.1.

Severity: High

Heuristic Violated: Match between system and real world.

11. Toggle State Visual Clarity

During testing, a user was unsure whether a toggle button was on or off. They needed to examine the icon of a tick or a cross within the toggle to understand. The inclusion of colour (green vs grey) did not assist their assessment.

Severity: Low

Heuristic Violated: Visibility of System Status

12. Visual Navigation Feedback

During testing, a user noticed their current location was not being displayed. This led to confusion as they struggled to orient the map in context to where they would be traveling from.

Severity: Medium

Heuristic Violated: Match between system and real world

13. Too many elements at top of screen (Accessibility issue)

& Search Bar Accessibility

From the user feedback, a user concerned the interface has too many elements placed at the top of the screen, making it inconvenient to reach on larger mobile phones one-handed.

Severity: Medium

Heuristic Violated: Efficiency of Use, Accessibility

14. Show Current Location on Map

Insufficient context provided to user for map implementation. From testing we found that Tester 2 expressed interest in seeing their current location present on the map. In our prototype implementation none of the pages containing the map have this feature.

Severity: Medium

Heuristic Violated: Visibility of system status.

15. Favourites Screen Not Scrollable

Problem: The favourites screen misleading users by indicating a scrolling feature. During testing a user attempted to scroll this screen without scrolling enabled. The Favourites screen indicates scroll-ability, but this functionality was not implemented yet in the prototype. However other pages do have the scrolling functionality implemented causing confusion

Severity: Low

Heuristic Violated: Consistency and standards

16. Improving Clarity Of Favourites / Saved Routes Page

Improving clarity of favourites / saved routes page is an issue that was brought up in the form by Tester 2. Tester 2 highlighted the need for a more intuitive and user-friendly layout for the favorites/saved routes page in the feedback form, explicitly mentioning, "the saved routes page is confusing."

Severity: Low

Heuristic Violated: Recognition rather than recall

17. Route Screen Bottom Bar

Problem: In the Route Screen the bottom navigation bar disappears, forcing the user to use the back chevron to return to the home screen. Tester 2 encountered a disruption in their navigation experience when accessing the Route Screen due to the disappearance of the bottom navigation bar. This inconsistency forces users to rely on the back chevron to return to the home screen, potentially causing confusion and a less intuitive user flow.

Severity: Medium

Heuristic Violated: Consistency and standards

18. Adding navigation bar to Route Information Screen

Problem: During testing, a user expressed that not having a navigation bar at the bottom of the Route Information screen makes navigating the app 'tricky'. This resulted in users needing to tap the back button multiple times to get to the home screen from the Route Information screen, causing inconvenience and unneeded complexity.

Severity: Medium

Heuristic Violated: User control and freedom

19. Functionality for sharing unfavourited routes

Problem: One user responded in our survey with the comment "I guess I find it strange that you cannot share any route you find, only the ones you have favorited.". Although this was functionality that wasn't present in the prototype, our intentions were to add in the case a full app was to be developed.

Severity: Low

Heuristic Violated: Match between system and the real world

20. Improve interface hierarchy and button states

Problem: During testing, a user attempted to use the arrow button to advance to the next screen instead of the intended way of using the route card. This indicates that there could be some unclear interface hierarchy and button states.

Severity: Medium

Heuristic Violated: Recognition rather than recall

21. Apply Button Visibility in Settings

Users take time to notice the "Apply" button to finalize changes in accessibility settings.

Severity: Low

Heuristic Violated: Recognition

Usability Test Tasks:

Task 1.1:

From the Home Screen, find a route to Victoria University that only includes buses and trains. During planning, you should aim to find any details about the route you can. Finish the task by starting the route.

Task 1.2:

From the Route Information Screen, examine any alerts associated with your route and find what stops are impacted.

Task 2.1:

From the Home Screen, change the accessibility settings such that in-app text size is set to large.

Task 2.2:

From the Settings screen, change the in-app language to Te Reo Māori. Return to the Home Screen.

Task 3.1:

From the Home Screen, find the route information of a favourited route.

Task 3.2:

From the Favourite Screen, copy the share link of a favourited route.

Individual Usability Test Results:

Tester ID: 02

Facilitator: Adam Tither

Note Taker: Philip Chang

SUS Score: 87.5

Task 1.1:

User Actions Observed:

1. Search Initiation: User correctly assumed that route planning could be done starting from the search bar or tapping on the Route button.
2. Filter Access: User tapped on the Filter button found in the search bar on the home screen.
3. Transport Mode Selection: User was able to easily toggle the correct Bus and Train toggles.
4. Navigation Progression: From the search bar, user tapped on Victoria University in the recent searches to proceed to the Route Planning screen.
5. Route Selection: User selected the correct suggested route card.
6. Information Review: User checked the route information, examining the in-depth information provided within the Route Information screen.
7. Task Completion: User tapped Start to begin navigation.

Successfully Completed:

- Task successfully completed with minimal guidance.

User Feedback:

- Map Clarity: User would have liked to see current location on the map to easily distinguish where they were starting the route from.

Task 1.2:

User Actions Observed:

1. Alert Discovery: User noticed the triangle Alert button, momentarily thought that it was due to an error, but quickly tapped on it when realising that it was for the Alerts.
2. Detailed Investigation: User examined the alert cards and clicked through the upcoming, bus and ferry alerts before checking the individual train alert cards to see further information.
3. Impact Assessment: User compared multiple alert cards to determine which alert was relevant to their route.

Successfully Completed:

- Task successfully completed with minimal guidance.

User Feedback:

- Alert Button Clarity: User assumed Alert button was due to an error in the app or user error rather than to see transportation system alerts.

- Alert Time: User would have liked to see the time on alerts on the alert cards as well as in the in-depth alert information pop-ups.
- Alerts Screen: User liked the layout and information displayed in the Alerts screen.
- Alerts Screen Back Button: User found using the back button cumbersome (observers explained that it was due to Figma limitations).

Task 2.1:

User Actions Observed:

1. Settings Navigation: User initiated by selecting the settings icon from the tab bar.
2. Initial Search: User immediately tapped on the Accessibility options and found the correct submenu.
3. Text Size Adjustment: User changed text size to large.
4. Setting Application: User applied the change.

Successfully Completed:

- Task successfully completed with no guidance.

User Feedback:

- Accessibility: User liked ease of access and variety of accessibility options.

Task 2.2:

User Actions Observed:

1. Language Access: User tapped the Language button.
2. Language Selection: User selected Te Reo Māori using the radio button.
3. Setting Application: User applied the change.
4. Navigation Return: User used the Map icon from the tab bar to return to the Home screen.

Successfully Completed:

- Task successfully completed with no guidance.

Task 3.1:

User Actions Observed:

1. Favorites Navigation: User selected the Favorites icon from the tab bar.
2. Route Selection: User immediately noted inconsistency in train icons and attempted to scroll the screen to see the partially covered routes, then tapped on the first route to move to the Route Information screen.
3. Information Discovery: User examined the information provided on the screen.

Successfully Completed:

- Task successfully completed with minimal guidance.

User Feedback:

- User would have liked consistent transportation type icons.
- User would have liked to be able to scroll through the routes displayed in the Favorites screen (out-of-scope).

Task 3.2:

User Actions Observed:

1. Favourites Navigation: User selected the Favourites icon from the tab bar.
2. Share Icon Recognition: User glanced over the share icon once before realising and going back to tap on it.
3. Copy Link Action: User identified the copy link button and tapped on it.

Successfully Completed:

- Task successfully completed with no guidance.

User Feedback:

- User liked the route export feature.
- User would have liked to see example/placeholder route information on the route cards displayed in the Favourited screen.

Post-Test Survey:

I think that I would like to use this system frequently.	4
I found the system unnecessarily complex.	1
I thought the system was easy to use.	4
I think that I would need the support of a technical person to be able to use this system.	1
I found the various functions in this system were well integrated.	4
I thought there was too much inconsistency in this system.	3
I would imagine that most people would learn to use this system very quickly.	5
I found the system very cumbersome to use.	1
I felt very confident using the system.	5
I needed to learn a lot of things before I could get going with this system.	1
What did you think of the system overall?	It was clean, i liked the theme and layout
What did you like most about the system? Why?	I liked the share link, some of the icons where friendly, and the alert system
What did you dislike the most about the system? Why?	I would prefer that icons are consistent and the saved routes page is confusing
What would you change about the app?	Not too much, just want i said before.
SUS Score	87.5

Tester ID: 03

Facilitator: Ben Ferguson

Note Taker: Nagare Negishi

SUS Score: 97.5

Task 1.1:

User Actions Observed:

1. Search Initiation: User initiated search using the search bar.
2. Filter Access: User selected filter, momentarily wondered whether to select the icon or word "filter" to access the option.
3. Transport Mode Selection: User toggled bus and train options, it took a moment for them to figure out if the toggles were on or off, but they determined the status from the check icon in the toggle (judgment didn't appear to be based on color).
4. Navigation Progression: User used the arrow (→) button to proceed to the next screen.
5. Route Selection: User selected a route card.
6. Information Review: User checked the route information.
7. Task Completion: User selected "Start" to begin navigation.

Successfully Completed:

- All task requirements are completed successfully.

Task 1.2:

User Actions Observed:

1. Alert Discovery: User noticed the triangle (!) button and clicked it.
2. Detailed Investigation: User examined the alert cards and clicked individual cards to see further information.
3. Impact Assessment: User compared multiple alert details to determine which alert is more impactful.

Successfully Completed:

- All task requirements are completed successfully.

User Feedback:

- Alert Context Issue: Alert information is not tailored for specific route.

Task 2.1:

User Actions Observed:

1. Settings Navigation: User initiated by selecting the settings icon from the tab bar.
2. Initial Search: User initially looked for more general setting options and wondered if this setting might be in language settings.
3. Accessibility Access: User selected the accessibility option.
4. Text Size Adjustment: User changed text size to large.

5. Change Application: User applied the change.

Successfully Completed:

- All task requirements are completed successfully.

User Feedback:

- Setting Organization: User expected text setting to be in general settings separated from accessibility.

Task 2.2:

User Actions Observed:

1. Language Access: User selected the language option.
2. Language Selection: User selected Te Reo Māori using the radio button.
3. Change Application: User applied the changes.
4. Navigation Return: User used the Map icon from tab bar to return to the home screen.

Successful Completed:

- All task requirements are completed successfully.

Task 3.1:

User Actions Observed:

1. Favorites Navigation: User selected the favorite icon from the tab bar.
2. Route Selection: User selected one of the favorite cards to move to the route navigation screen.
3. Information Discovery: User found information in the screen.

Successfully Completed:

- All task requirements are completed successfully.

Task 3.2:

User Actions Observed:

1. User used the back button to return to the home screen.
2. Favorites Navigation: User selected the favorite icon from the tab bar.
3. Share Icon Recognition: User identified the icon indicating share and clicked it.
4. Copy Link Action: User identified the copy link button and clicked it.

Successfully Completed:

- All task requirements are completed successfully.

User Feedback:

- Navigation Issue: Route screen doesn't have a quick option to return to home screen.

Post-Test Survey:

I think that I would like to use this system frequently.	5
I found the system unnecessarily complex.	1
I thought the system was easy to use.	4
I think that I would need the support of a technical person to be able to use this system.	1
I found the various functions in this system were well integrated.	5
I thought there was too much inconsistency in this system.	1
I would imagine that most people would learn to use this system very quickly.	5
I found the system very cumbersome to use.	1
I felt very confident using the system.	5
I needed to learn a lot of things before I could get going with this system.	1
What did you think of the system overall?	It was very clean UI, and followed public transport standard conventions making it easy to learn.
What did you like most about the system? Why?	I liked the sharing feature, which is unique and cool
What did you dislike the most about the system? Why?	I felt that the alerts was very generalised and it made it a bit tricky to determine which alerts affect a particular route. Navigation from route detail is tricky due to lack of navigation bar (e.g. cant go straight from details to the settings.)
What would you change about the app?	The thing about the alerts, when looking at a specific route, I'd highlight alerts that relate to it in particular. Have the nav bar visible or even just a hanburger menu somewhere.
SUS Score	97.5

Tester ID: 10

Facilitator: Joshua Neylan

Note Taker: Nagare Negishi

SUS Score: 72.5

Task 1.1:

User Actions Observed:

1. Search Initiation: User initiated search using the search bar.
2. Initial Selection Issue: User initially selected "Wellington Station" from recent searches, but our prototype only had prepared screens for Wellington to Victoria University route, which caused confusion.
3. Navigation Recovery: User used the back button to return to home screen and reselected "Victoria University" from recent searches.
4. Feature Exploration: User explored the departure time functionality.
5. Filter Oversight: User skipped the transport mode filter step (buses and trains only) - unclear whether this was forgotten or the filter option wasn't noticed.
6. Route Selection: User used the arrow (→) button to proceed to route selection screen.
7. Navigation Attempts: User attempted to use the arrow (→) button multiple times to advance to the next screen.
8. Route Information Access: User selected the route information card to access the route navigation screen.
9. Task Completion: User selected "Start" to begin navigation.

Successfully Completed:

- Found a route to Victoria University.
- Explored route details and information.
- Successfully started the route navigation.

Incomplete:

- Failed to use transport mode filter to restrict results to only buses and trains.

User Feedback:

- Search Bar Accessibility: The search bar positioned at the top of the screen is difficult to reach in mobile app context (thumb reach issue).
- Visual Navigation Feedback: When navigation starts, user expected the map to visually display the route from current location to destination.

Task 1.2:

User Actions Observed:

1. Alert Discovery: User noticed the triangle (!) button and clicked it.
2. Alert Exploration: User examined alerts by switching between current, incoming, and bus, train, ferry options.
3. Limited Investigation: User did not open individual alert cards to see further details.

Successfully Completed:

- Examined alerts associated with the route.

Incomplete:

- Failed to identify what specific stops are impacted.

User Feedback:

- Alert Context Issue: Alert information from the (!) button shows all alert information, but since it was initiated from route search, user expected to see only alerts related to the selected route.
- Alert Discovery: User mentioned that if the task hadn't specifically asked about alerts, they would not have noticed the triangle (!) button.

Task 2.1:

User Actions Observed:

1. Settings Navigation: User initiated by selecting the settings icon from the tab bar.
2. Accessibility Access: User selected the accessibility option.
3. Text Size Adjustment: User changed text size to large.
4. Change Application: User applied the change.

Successfully Completed:

- All task requirements are completed successfully.

Note:

- Apply Button Visibility: While the user achieved the task, they took a moment to notice the apply button to finalize the change - unclear whether they didn't initially notice the button or didn't realize it was part of the task requirements.

Task 2.2:

User Actions Observed:

1. Language Access: User selected the language option.
2. Language Selection: User selected Te Reo Māori using the radio button.
3. Change Application: User applied the changes.
4. User used the back button to return to the home screen.

Successfully Completed:

- All task requirements are completed successfully.

Task 3.1:

User Actions Observed:

1. Favorites Navigation: User selected the favorite icon from the tab bar.
2. Route Selection: User selected one of the favorite cards to move to the route navigation screen.

3. Information Discovery: User found information in the screen.

Successfully Completed:

- All task requirements are completed successfully.

Task 3.2:

User Actions Observed:

1. Favorites Navigation: User selected the favorite icon from the tab bar.
2. Share Icon Recognition: User identified the icon indicating share and clicked it.
3. Copy Link Action: User identified the copy link button and clicked it.

Successfully Completed:

- All task requirements are completed successfully.

Post-Test Survey:

I think that I would like to use this system frequently.	4
I found the system unnecessarily complex.	2
I thought the system was easy to use.	4
I think that I would need the support of a technical person to be able to use this system.	3
I found the various functions in this system were well integrated.	4
I thought there was too much inconsistency in this system.	2
I would imagine that most people would learn to use this system very quickly.	4
I found the system very cumbersome to use.	2
I felt very confident using the system.	4
I needed to learn a lot of things before I could get going with this system.	2
What did you think of the system overall?	System works very well overall. Functionality is clear and mostly easy to use first time, only requiring a couple hints from the team.
What did you like most about the system? Why?	It is a cool idea to include a way of sharing the favoured routes to other users via a link. Makes it handy if you want to take the same route as someone else. I guess I find it strange that you cannot share any route you find, only the ones you have favoured.
What did you dislike the most about the system? Why?	I am concerned the interface has too many elements placed at the top of the screen, making it inconvenient to reach on larger mobile phones one-handed.
What would you change about the app?	Other than moving elements further down the screen for easier reach, I would maybe reduce the number of elements in the bottom navigation bar to make them easier to select on a mobile phone.
SUS Score	72.5