

# Your Melbourne 2030

## Sustainable City Project

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# Acknowledgment of Country

We acknowledge and respect the traditional lands of all Aboriginal people, We respect all Elders past and present, present & future. We ask all people that walk, work & live on the traditional Aboriginal lands, to be respectful of culture & traditions and work together as one to be better Aboriginal Health.

# Overview

Our main focus when completing this project was to improve upon mostly already existing structures, as well as create an improved living and eco structure for the new generations moving in to Melbourne as a massively growing city. We focused in on what makes Melbourne unique as a city and focused on enhancing the good things and improving others to build an environment we can be proud to call the most livable city.

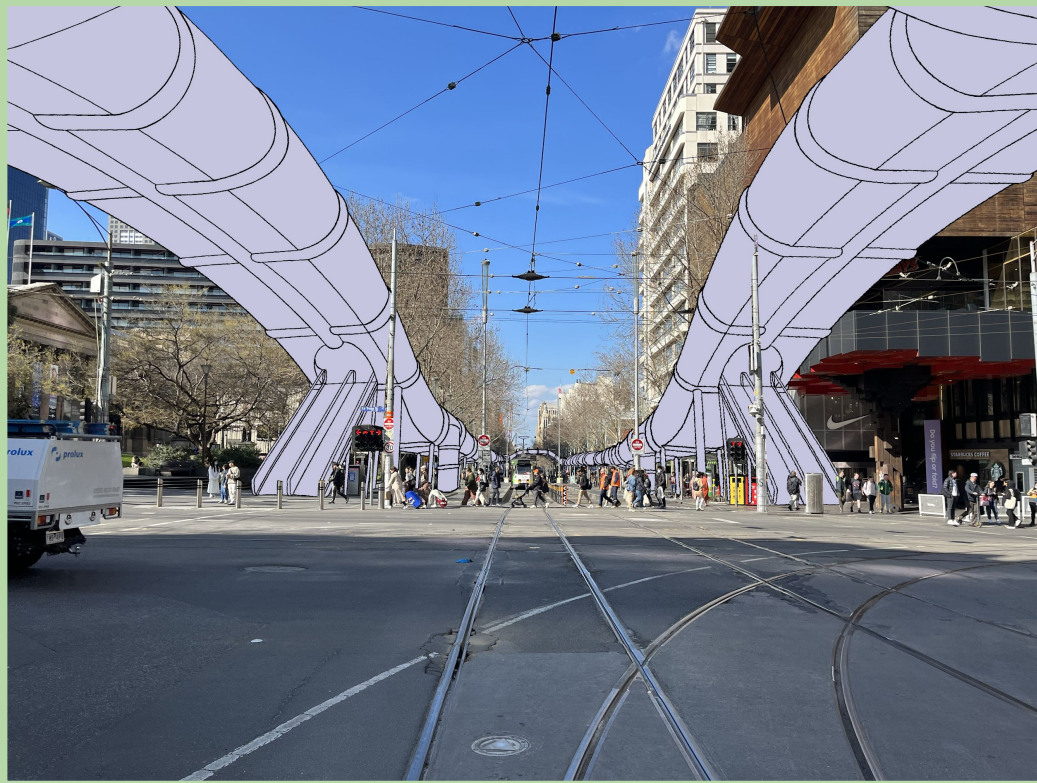
Our main focuses are:

- ❑ Improved Transport
- ❑ Green energy and sustainability
- ❑ Green spaces
- ❑ Accessible clean environments
- ❑ Equality

We honed into these focus groups and created solutions and upgrades to improve our city for the better and create an environment that is sustainable for both the people and the land in the future. We made sure to consult the focus groups of the Sustainable Development goals whilst creating our solutions to make sure that we have developed the best possible and unique solutions for the future of Melbourne.



# Raised paths



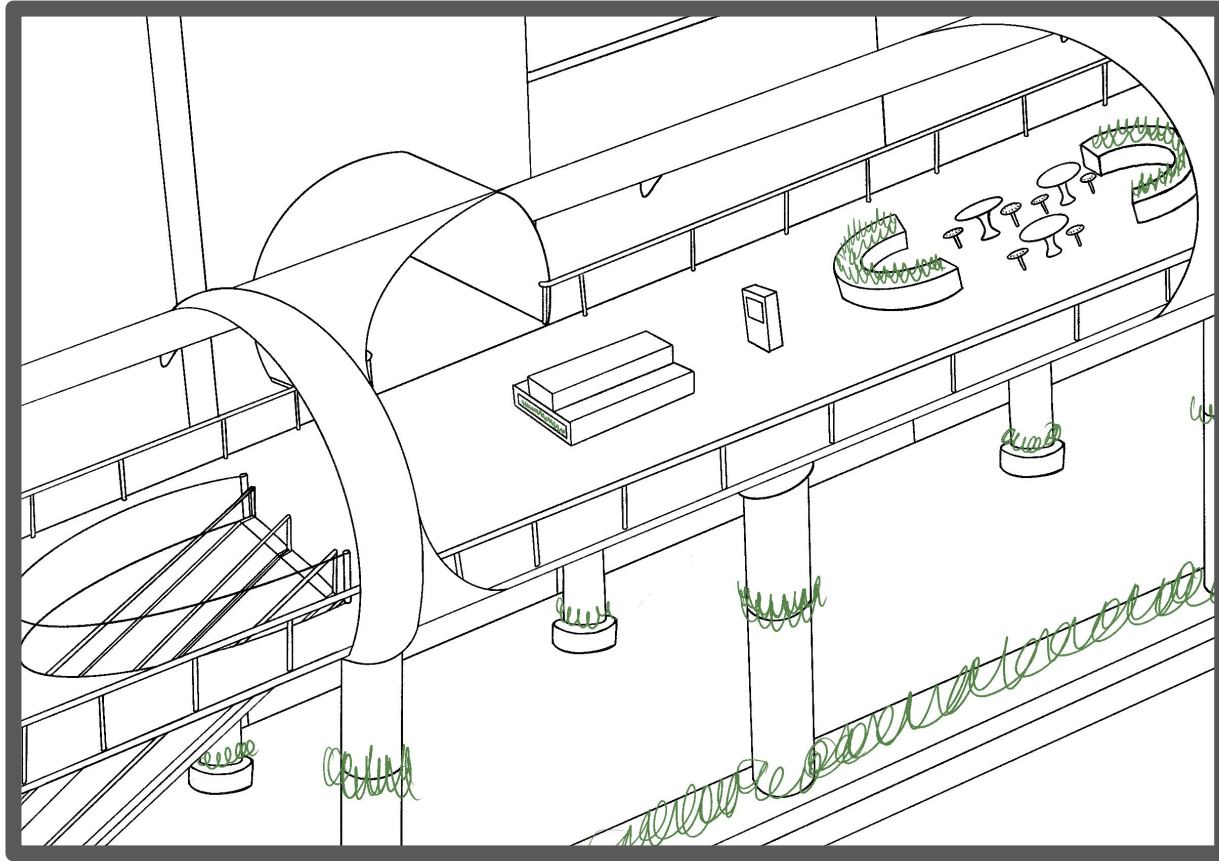
Raised pathways leading down swanston street and bourke street mall

The purpose of this is to create more open room for foot traffic creating easier to access pathways and more space for people within the cbd, as well as creating a safe and and weather proffer environment to keep the city open during heavy weather conditions.

“A study by Gruen documented that pedestrians would walk 5,000 feet for 20 minutes in a highly attractive, completely weather protected, climate-controlled area, compared to the 600 feet for only 2 minutes in an unattractive environment” ( Gruen, V., The Heart of our Cities, The Urban Crisis: Diagnostic Cure,;New York: Simon & Schuster, 1964.)

This creates a more sustainable path for E-bikes and E-scooters to travel through the cbd whilst also making it safer for pedestrians with an increase in small transportation being used on walkways





The Impact is a safer and more convenient travel, bypassing crossings for both convenience and safety of drivers and pedestrians. Creating a less crowded environment in inner cbd. Creating areas that have maintained plant life

Creating space on the ground for further green expansion and for small transport options. Weatherproof for unpredictable weather conditions. Self sufficient and gives back to the grid using solar power and collecting rainwater via drain systems in built.





# Solar power & drainage system (paths)

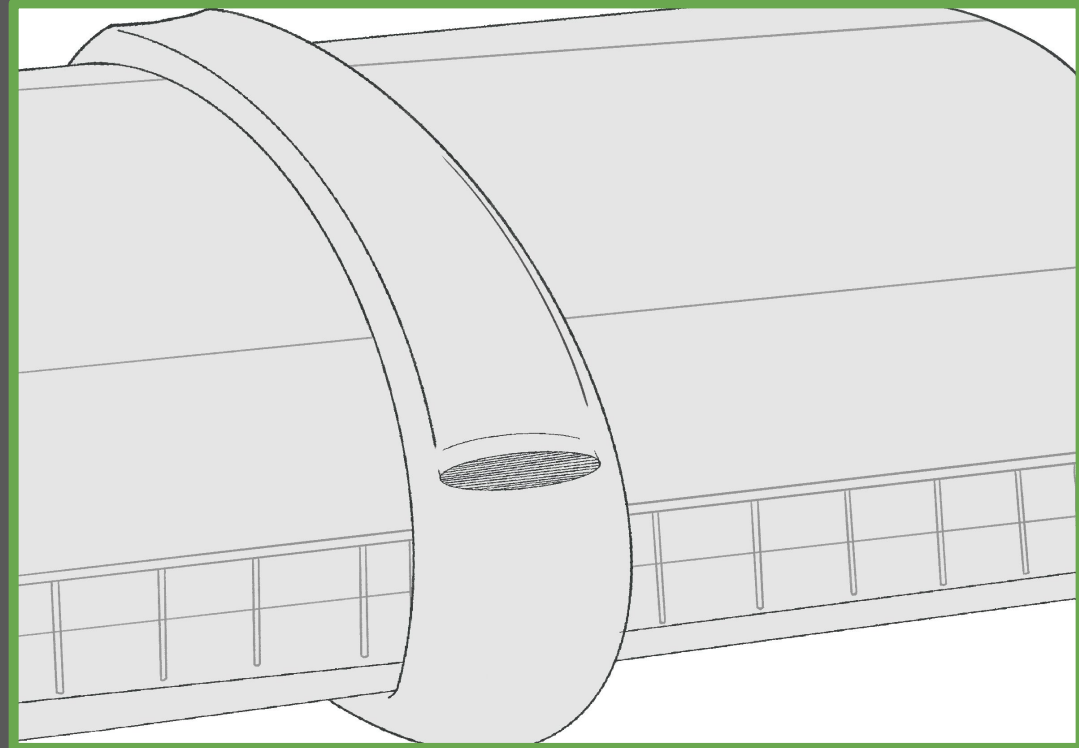
A rainwater collection system. And a solar power glass system make the pathways self sufficient and possible give back to the cbd power grid

The pathways will be mostly enclosed as such glass like tinted solar panels can be installed as a way to both use sunlight during the day and to power the pathways systems such as escalators, elevators, lighting, water systems and info tablets.

This will make the pathways self sustaining and creating a power net 0 environment that does not environmentally impact the cbd but improve it

A German manufacturer, Heliatek Gmb, has developed this partially clear solar panel, which can absorb about 60 percent of the sunlight it receives.

(<https://solarmagazine.com/solar-panels/transparent-solar-panels/>)



**3** GOOD HEALTH  
AND WELL-BEING



**6** CLEAN WATER  
AND SANITATION



**7** AFFORDABLE AND  
CLEAN ENERGY



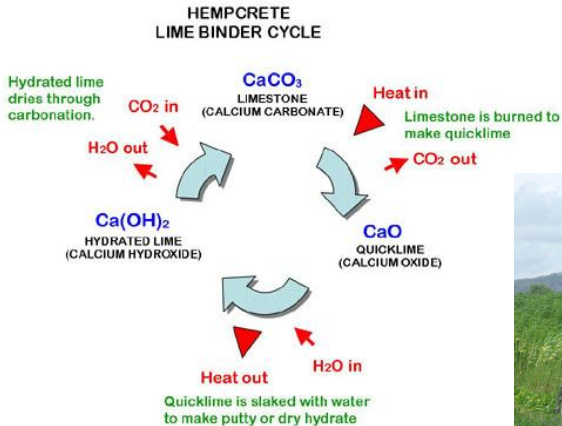
**13** CLIMATE  
ACTION



# Material Use

Quote: Hemp is far more productive than typical agro-forestry projects, producing annual, versatile biomass alongside more rapid CO<sub>2</sub> uptake. It can produce a vast range of sustainable raw materials with an overall low environmental impact, as well as improving soil structure, using low fertiliser and no other chemical inputs (i.e. reduced agrochemical residues).

([https://www.hempcrete.com.au/index.php?option=com\\_content&view=article&id=24&Itemid=25](https://www.hempcrete.com.au/index.php?option=com_content&view=article&id=24&Itemid=25))



9 INDUSTRY, INNOVATION  
AND INFRASTRUCTURE



11 SUSTAINABLE CITIES  
AND COMMUNITIES



12 RESPONSIBLE  
CONSUMPTION  
AND PRODUCTION



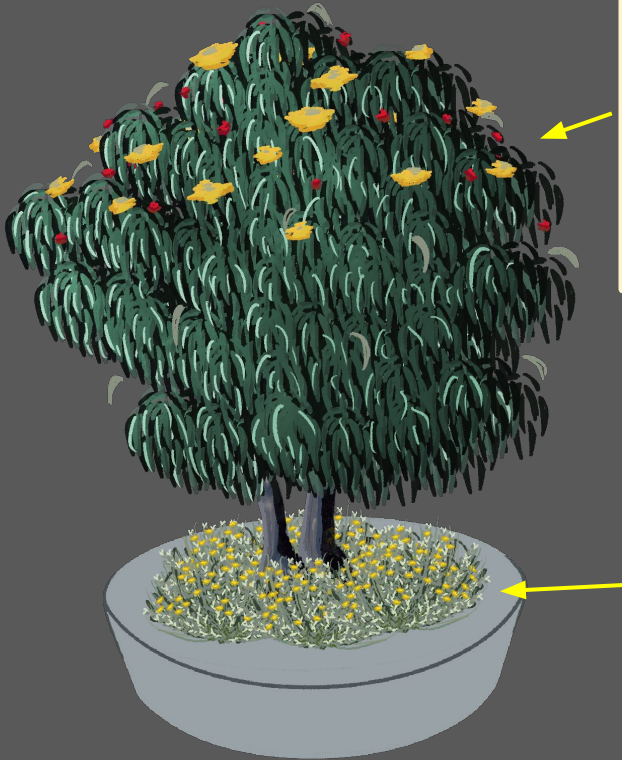
The main use of materials in the projects we present are: Hempcrete, solar glass, bamboo, steel

The reason for these choices are that the development of both stronger and more eco friendly building materials is the clear choice for building our new city structures.

The impact of using more eco centric materials creates a lower footprint from the builds. Not only that but hempcrete being the main concrete substitute is a stronger more stable building material than regular concrete creating a steady and extremely safe structure. The solar paneled glass replacing regular glass in the builds walls and roofing creates a sustainable way to collect electricity that can power the builds with minimal pull from the grid. This self sustaining electrical source supplements the use of natural light by use of skylights and then stores power to run supplementary lighting at night. The power will also help run the entry/exit elevators and the watering system for the plant life in and around the builds.



# Plantation



Red capped Gum (*Eucalyptus erythrocorys*)

[https://www.inaturalist.org/guide\\_taxa/233944](https://www.inaturalist.org/guide_taxa/233944)



Common Everlasting (*Chrysocephalum apiculatum*)

[https://www.suncrestnursery.com/pfts\\_shop.php?id=chrysoadef](https://www.suncrestnursery.com/pfts_shop.php?id=chrysoadef)

We focused on avoiding over plantation of non native plants and using plants natural and built for the environments of the country.

Most solutions simply state to place grass in areas not built or able to sustain heavy weighted plant life, this solution creates a urban forest experience using native plants that are built to sustain themselves in the Melbourne weather as well as not detriment the structures of historic and modern architecture. It also provides a learning experience about the natural world of Australia and an insight into the native flora of our state.

The impact of choosing to plant specifically Australian and Victorian native plants helps to make sure our natural flora stays thriving and to teach the city of the natural beauty of the land we live.

Each plant proposed was carefully chosen looking at the attributes of both its origin, care needed and sustainability. Many of these plants also have the ability to be used in food and spices and can be a learning experience into aboriginal culture and cuisine.





*Myoporum floribundum* (Slender Myoporum)  
<https://malleedesign.com.au/the-most-weeping-of-the-weeping-myoporum-floribundum/>



*Eremophila glabra*  
 (Common Emu-bush)  
<https://davesgarden.com/guides/pf/showimage/444165/#b>



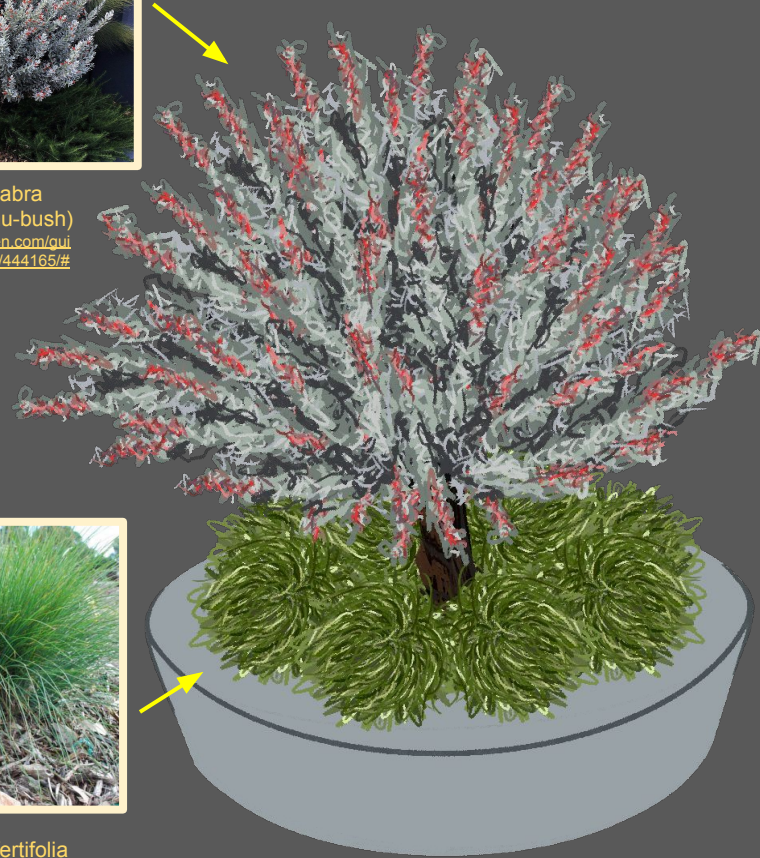
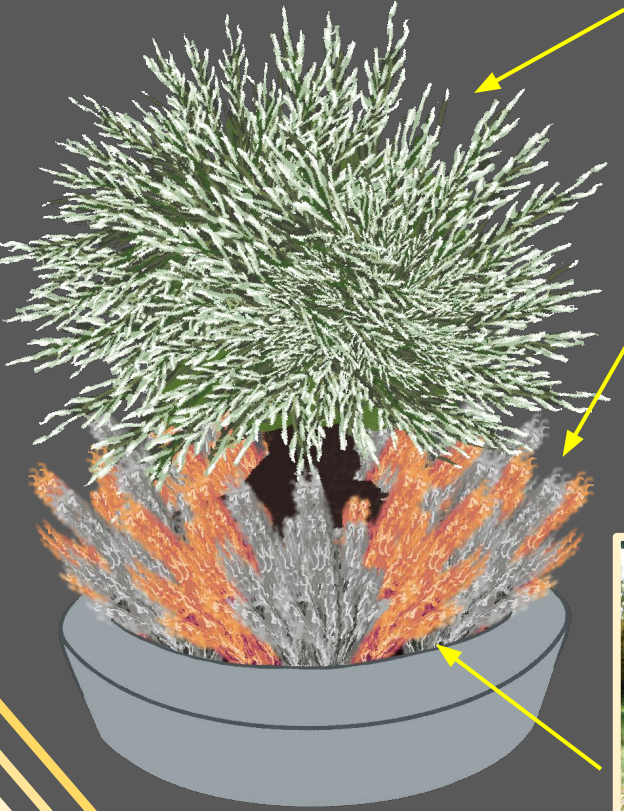
*Maireana sedifolia* (Pearl Bluebush)  
<https://bnp.net.au/gallery/Plants%20list/Maireana%20sedifolia.jpg.html>



*Lomandra confertifolia*  
<https://www.australianplantsonline.com.au/lomandra-frosty-top.html>



Gorse Bitter-pea (*Daviesia ulicifolia*)  
<https://www.victoriannativeseed.com.au/?product=daviesia-ulicifolia>



# City gardens



Expanding small city food gardens into unused spaces within the city to create public rest spaces and community food gardens.



The concepts consists of creating a more green city by building spaces for food to be grown and shared with the community in the inner cbd. This could create a point of contact for helping those with issues of food and safety. The gardens could provide a place for multiple people to get involved in helping the community as well as making the city more fresh with splashes of beautiful gardens throughout.



The gardens would be able to provide produce and activities for those who need it as well as provide shelter to those who frequently work in the garden. The gardens could also be used to teach people about fresh produce and the benefits of eating more healthy or home grown produce.



The gardens would include sheltered rest spaces which could be used to provide short term accommodation and work. This is something that could be used as a way to help people get back on their feet and give a good basis point for helping people find further work and more stable accommodation. The shelters can provide resources and basic necessities such as restrooms and showers as well as access to food and water provided by the garden they work in.



# City Navigation/ Information tablets

A navigational and information tablet based around finding and discovering the city of Melbourne.

Public access information is scarce without access to internet or a personal device, This makes vital information such as navigational tools and knowledge about our city accessible to those who may not have those tools at their disposal. The tablet is able to show different route options to help people navigate through the city using multiple modes of transport based on preferences. Once routes are set information about places and spaces at and along the route can be accessed and read showing popular stops and locals in and around the city and broadening people's destination base especially helpful for tourists . Specific locations can also be looked up and information can be found on them from a city search the information may be provided by the locations themselves or community knowledge. Other features also includes a device charging station and a list of public job listings from local shops and communities that can be listed to a public notice board connected to the tablets interface.

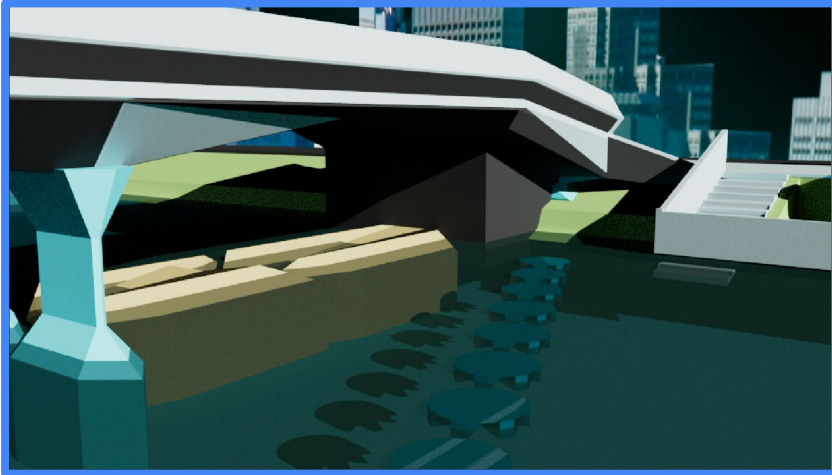
There is also the inclusion of emergency contacts and notification that can be used in time of need when access to other devices is not an option. The tablets all include a emergency contact option in which someone can use the tablet to either call emergency services using quick prompts or report a more detailed situation via a non emergency report system. This gives quick access to safety and emergency services that would otherwise possibly be inaccessible or in a more discrete and fast way that may be safer in specific circumstances.





# Yarra filtering system

In light of the Yarra dredging and cleaning effort, “This year, divers have removed more than 60 bikes, more than 40 trolleys and at least a dozen tables and chairs” (Parks Victoria 2022). I believe this filtering system will allow for efforts such as the Yarra deep clean to be easier for everyone involved, as it will make the water clearer and safer for wildlife and divers.



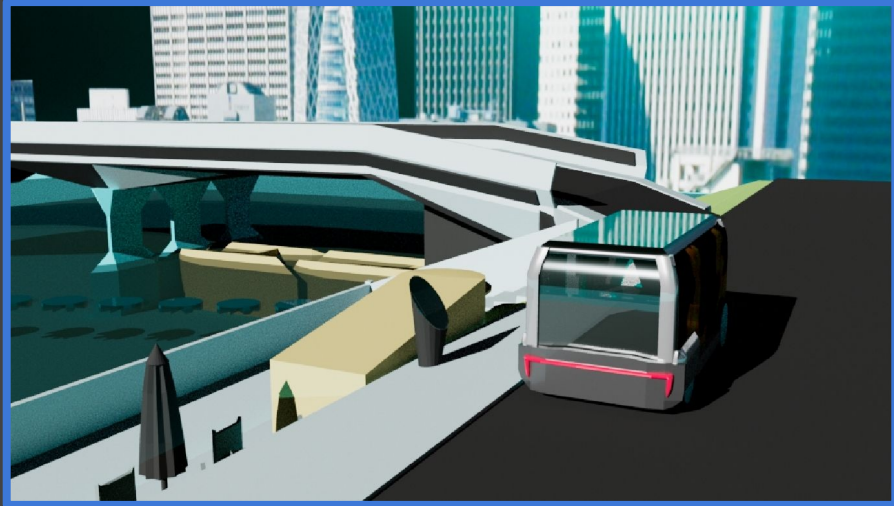
The Yarra filtering system comes in two parts, and is easily retrofitted to any of the bridges along the Yarra. The first part of this system comes in the form of a green bridge filtering system, which would be used to filter the Yarra river’s water and provide shelter for any wildlife that may need it. This would be made up of fibrous materials and sedimentary rocks in order to filter the water.

The secondary system that will be used is a floating waste collection method called the “river cleaning system”, which uses floating buoys that are placed on an angle to rotate with the river current. They are attached under the surface of the water and are given enough rope length to rise and fall with the water level. This is an animal safe and sustainable way to move floating waste out of the water for collection while also allowing for unrestricted boat travel.

The goal is to make the Yarra river swimmable.



# Public carpooling service



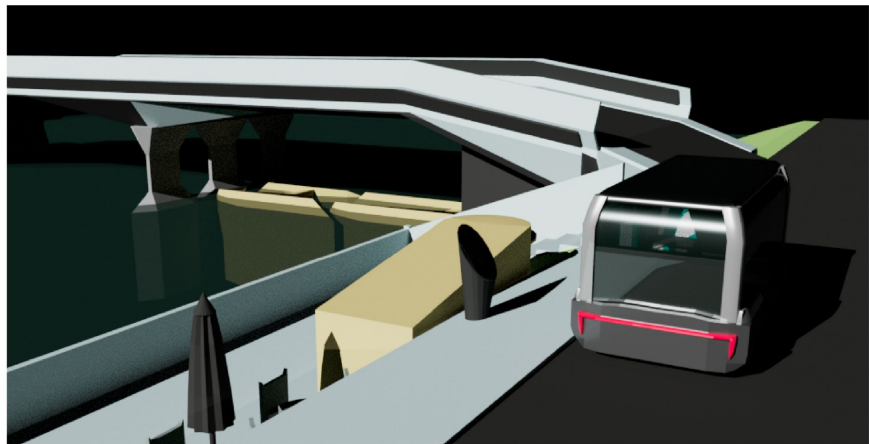
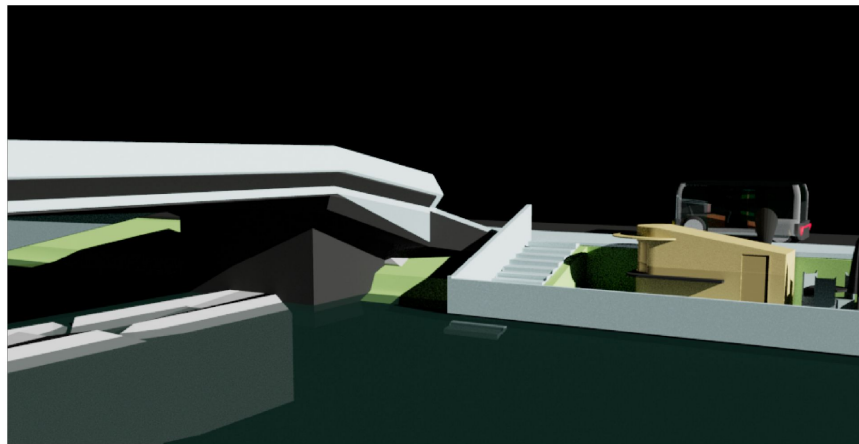
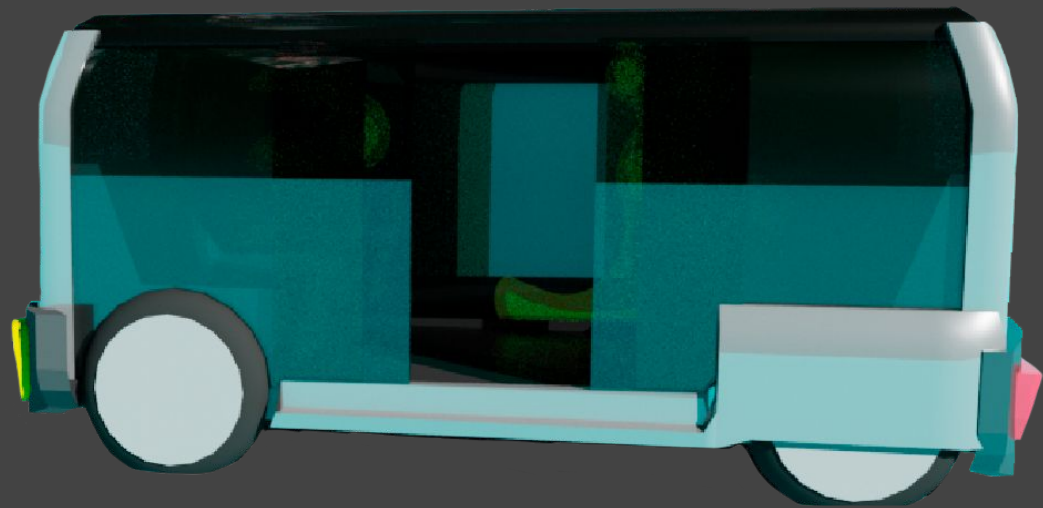
Here I have designed an autonomous electric vehicle created for carpooling in urban areas. This vehicle will be able to drive in between the tram, train and bus zones of Melbourne's CBD and surrounding suburbs; providing jobs and space alleviation for train or tram services.

With the goal to make public transport into the city feel more personal for travellers, this system will be integrated with our public transport app. This allows users to call nearby vehicles to their location from any zone they are active in. The user may wish for their ride to be private or public, depending on time and location to make travel safe and reliable.

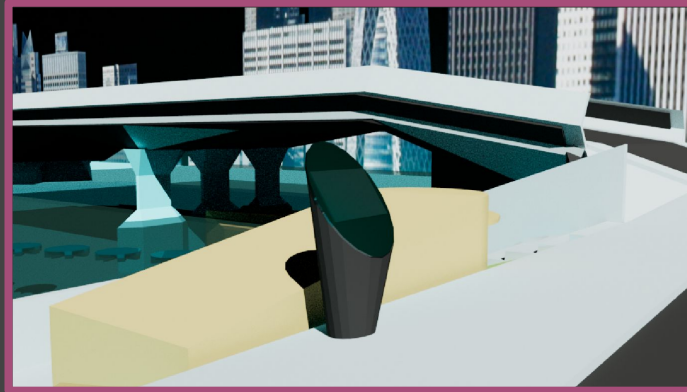
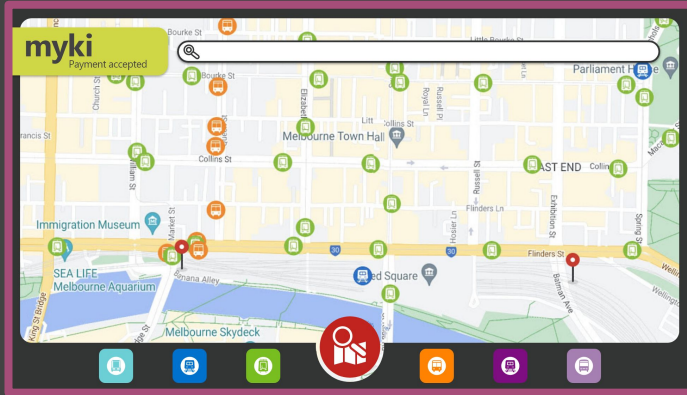
With the idea to have central depots for each travel zone, we can provide jobs for mechanics and cleaning crews as well as maintain a community-known area for lost and found items.







# EV Integration

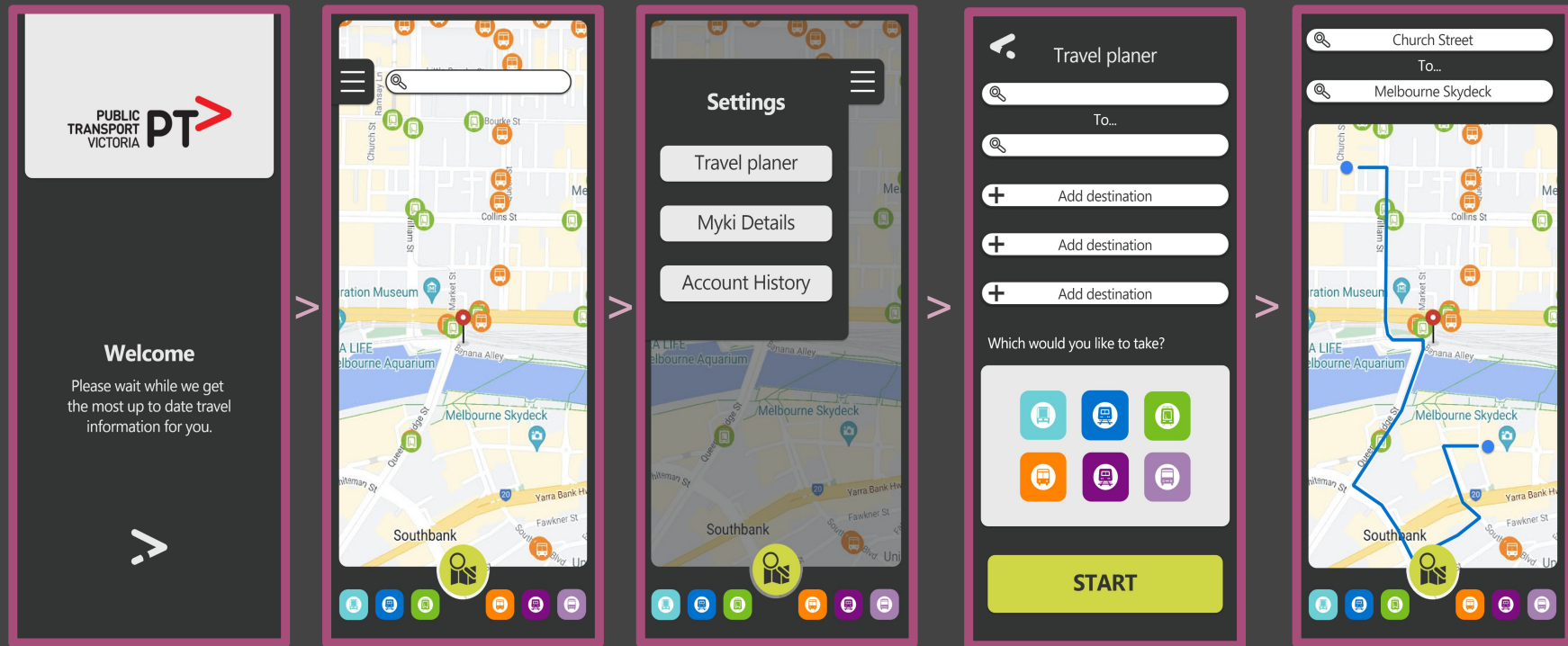


A lite version of this application will be put on kiosks around the city and on the raised pathways. This is to allow for convenience for those who may not use mobile devices or have devices with insufficient battery power.

These kiosks will accept myki payment and will allow for myki top up if required.

A feature that will be available on both the app and kiosks will be the ability to hail an electronic vehicle to the user's location. The option to carpool will be provided to the user at a lower rate in exchange for other passengers present in the vehicle.

# User Journey



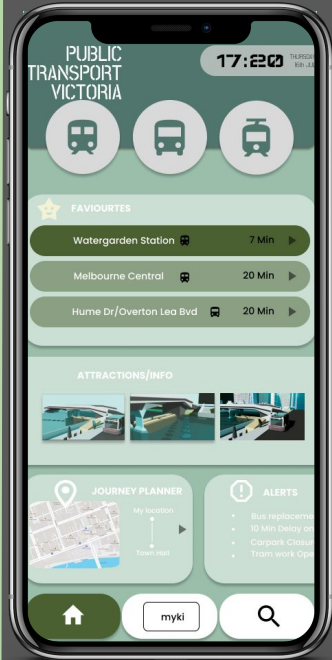
# PTV APP

The aim to redesign the PTV app help to promote the use of public transport and help passengers to navigate through our electronic transport in a accessible and convenient way. The app acts as a information page and a tool that connects all public transports together. It interlinks the people and city together as one.

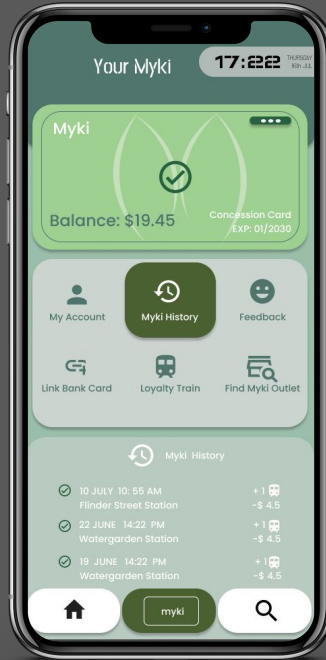
Due to the increase amount of people living in Melbourne city, the population will increase to over 5.9 million people by 2030, becoming the largest city in Australia . We want to make Melbourne's Public transport accessible, affordable and efficient for anyone and everyone in melbourne city.



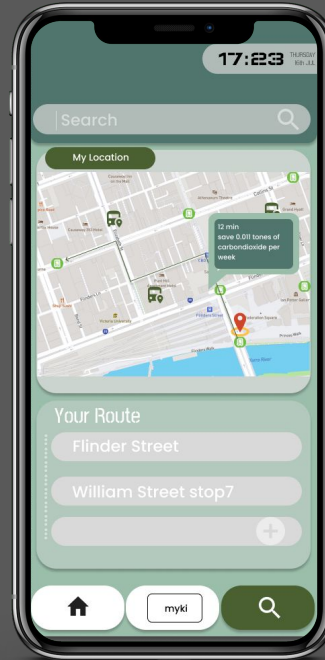
# Main Screens



Home Page



Myki Page



Search Page

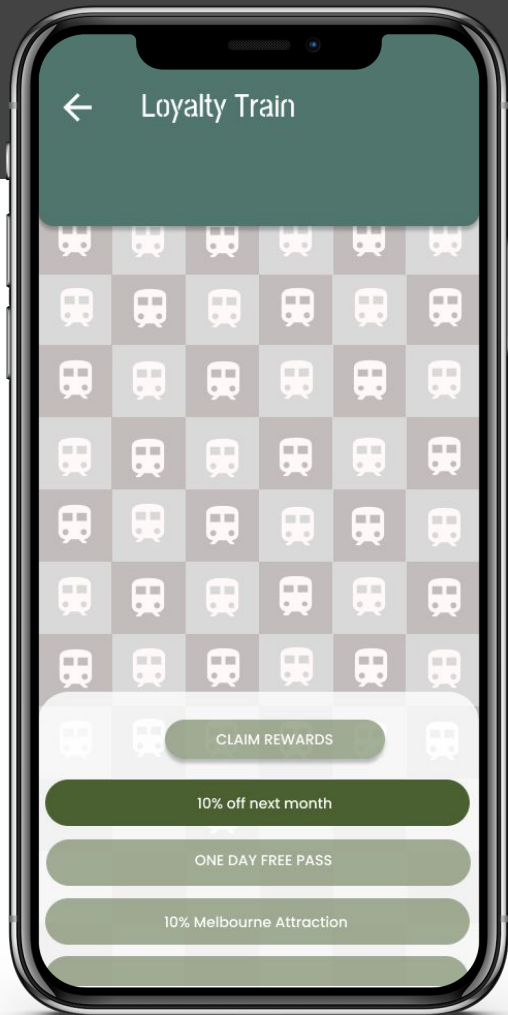
The app is visually attractive for quick access and easily understandable with three main screens.

Home page: Favourites of locations you travelled the most allow you to spot when the next train/ buses will arrive immediately, saving you time the to search. Alerts including bus replacement, rail works and delays will be updated 'live' so passengers can reschedule to their transportation to avoid inconvenience.

Myki Page: Digital Myki allow you to tap on , tap off and check balance and top up anytime through the app. Keep history of your transactions and loyalty train every time you travel.

Search Page: Map will help you navigate through the city for tram, train , buses and locations for electronic vehicle . You can plan your journey through the search page. Most importantly, it shows how much carbon dioxide you reduced by using public transport. Promoting a greenery future.





# Loyalty Train

Everytime you tap on you will earn one loyalty train, once you reach to 100, you will activate one reward, the more you tap on the more discount you will get.

The more you use our autonomous electric vehicle allow you to grain rewards , attracts new users and encourage them to use public transport instead of personal vehicles.

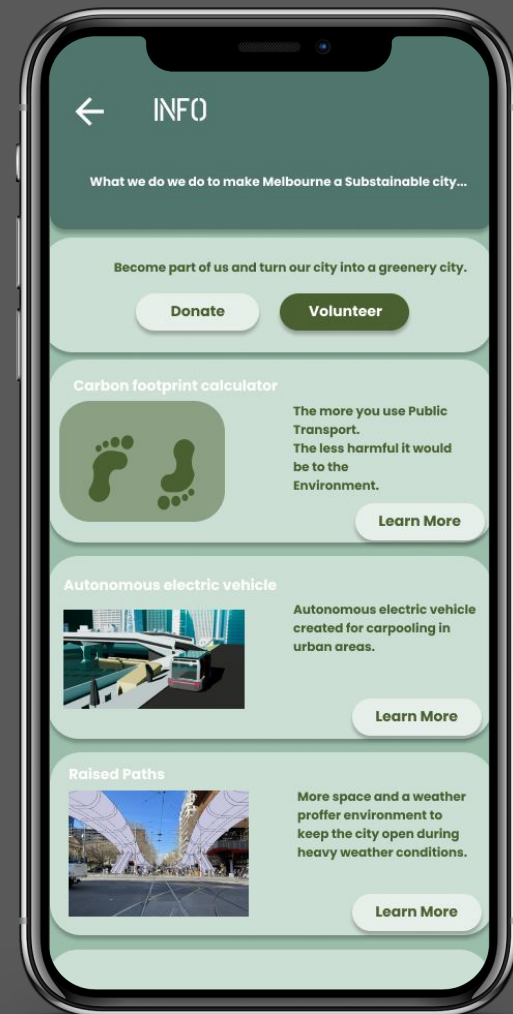
The rewards system on the app can reinforce the action of using public transport, knowing they will be getting discount offers , free traveling and so on. It encourages people to constantly repeat their actions. Improves traffics on public transport can allow more trains , and buses to be scheduled more frequently reducing waiting period , crows and inconvenience for transportation.

# Information Page

This information page contains carbon footprint calculator , calculating how much carbon dioxide we can reduce by using public transport. According to the Australian Bureau of Statistics, the average travelled by passenger vehicle was 13, 818 km per year which convert to 37.9 km per day and 265 km per week. This will produce 0.205 carbon dioxide by passenger vehicle and 0.023 carbon dioxide by tram. We can educate people with environmental knowledge so people can be aware of our surrounding and make the effort to look after our city.

By give people to chance to understand what we do for the city help make the city into a sustainable environment to live in. Allowing others to contribute to the environment by donating and volunteering.

The information page also introduce our carpooling service, raised paths , yarra filtering system, it's a way to attract more tourism and spread awareness.



# Sub Screen



The icons in home screen will lead to these sub pages with timetables journey planner of where you wanted to travel to. Categorized train, tram and tram buses into sections allow easier understanding for both tourism and locals using the app.

# Citation list: for quotes and analytics citation

Parks Victoria (2022) *Yarra River gets a deep clean*, Parks Victoria, accessed 20 September 2022.

<https://www.parks.vic.gov.au/news/2022/08/31/03/56/yarra-river-gets-a-deep-clean>

City of Melbourne (2022) *Clean waterways*, City of Melbourne, accessed 21 September 2022.

<https://www.melbourne.vic.gov.au/community/boating-waterways/Pages/clean-waterways.aspx>

River Cleaning (2022) *River Cleaning System*, River Cleaning, accessed 21 September 2022. <https://rivercleaning.com/river-cleaning-system/>

<https://www.budgetdirect.com.au/car-insurance/research/average-fuel-consumption-australia.html>

<https://www.sgaonline.org.au/community-resources/community-gardens-manual/>

[https://www.koalainvest.com.au/post?post\\_id=3442](https://www.koalainvest.com.au/post?post_id=3442)

<https://www.budgetdirect.com.au/car-insurance/research/average-kilometers-driven.html>

<https://www.abs.gov.au/statistics/industry/tourism-and-transport/survey-motor-vehicle-use-australia/latest-release>