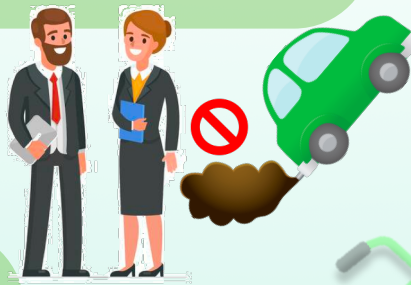


1

## How do we go greener?

In Durban the **transportation sector** is responsible for **37%** of the CO2 emissions

We need to **mobilize people** in a **sustainable and green way!**



2

The most important **challenge** to overcome is the kilometres travelled by **motor vehicle**.

We need **more bikers** and we need to mobilize the **youth!**

How do we make Durban **more bike-attractive** and increase the share of inhabitants using it?



3

## Infrastructure and culture is the way!

To support **secure, efficient & accessible** biking we need to establish: *Separate bike lanes, smart traffic lights and additional parking spaces with safe storage and shower facilities*

To **successfully** foster a **cultural change**, we need: *An educative approach, the use of nudging and green ambassadors*



4

**Public partnerships** with schools, the police and social influencers will secure the manifestation of a **greener pro-biking mindset**

**Private partnerships** in infrastructure, will secure **introduction of innovations** such as *smart traffic lights and bicycle barometer* on bike lanes in Durban.



5

## A greener Durban!

With a cultural change where **sustainable transportation** is **desirable** and an infrastructure that **substantially improves** the ease of **biking**, we hope to achieve **lower emissions** and a **better environment** in Durban.



## The Challenge



Durban is facing a challenge in mobilizing its citizens in a sustainable and green way. With a private motorized vehicle fleet above the national average, the city's main challenge is the transportation sector's significant contribution of particulate matter and NOx concentration. The transportation sector alone was accountable for around 37% of the municipality's 29 million tons of CO2 emission.

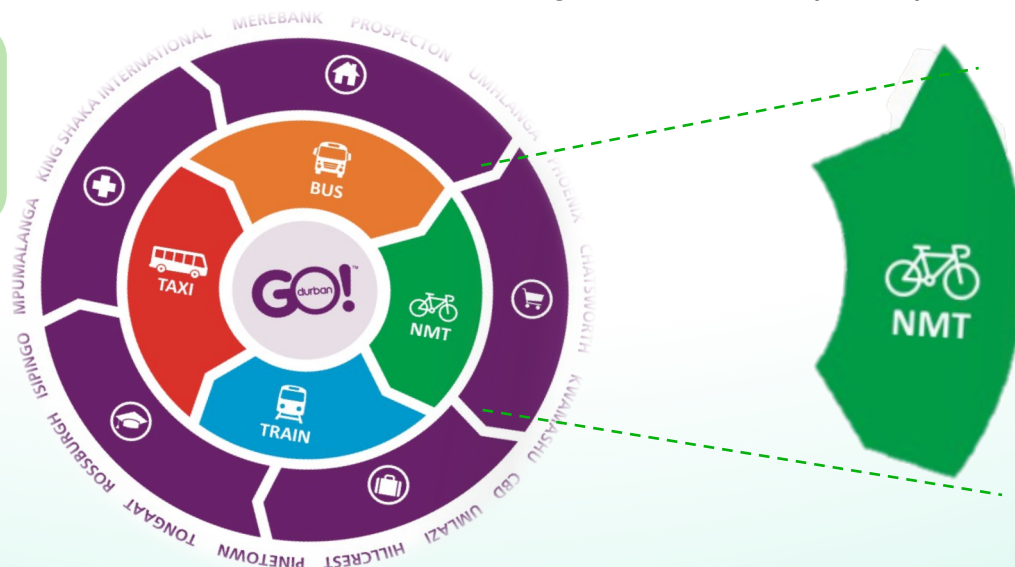
Making the transition to a greener infrastructure and more sustainable means of transportation is difficult in a city so reliant on motor vehicle transportation. The municipality has also identified several problems in the environment of the city, making it unpleasant for pedestrians. In addition to the target of reducing CO2 emission in Durban, part of the challenge is to change the car-dominant design of the central city. This in itself will incentivize citizens to choose sustainable means of transportation.

Durban has already initiated the transition to sustainable mobility through their Integrated Rapid Public Transport Network, and especially the Non-Motorized Transportation part of the Integrated Development Plan is of particular interest to us. We will use this as our starting point and come up with new initiatives that can help develop the Non-motorized Transportation plan. The largest part of the population is young, as people below the age of 35 represents 63% of the total population. This will be our main target group. The younger part of the population is more resilient to changes in their transportation behaviour and are easier to influence and nudge towards more sustainable ways of living.

In order to achieve Durban's vision of promoting "A safe, reliable, effective, efficient, coordinated, integrated, and environmentally friendly land passenger transport system (...) to ensure that people experience improving levels of mobility and accessibility.", it is essential that the kilometres travelled by motor vehicle is minimized. In context of the IRPTN, the identified focus area of creating a biking infrastructure is the inner city of Durban. However, providing an infrastructure would not be sufficient to turn Durban into a biking city. Thus, besides aiming on providing a biking infrastructure, our solution takes on a holistic approach by also focussing on creating a "culture of biking" amongst the population of Durban.

Copenhagen is one of the most bike-friendly cities in the world. With an increased amount of bikes comes several positive side-effects, many of them useful in the city of Durban. We have extensive insight into the innovative and unique solutions used in Copenhagen, and how they can mitigate the challenges facing the implementation of a biking promotion programme. With a business perspective and experiences from public sector policy making, we have analysed the Durban case to bring insight on how to implement a well-functioning transition from an infrastructure and culture focused on motor vehicles to a greener, bike friendly society.

## The Solution



While solutions from Copenhagen can inspire our vision for Durban, we are also aware of several cultural and structural differences between the two cities. This is why we have reached out to city representatives to get better insight into the complex circumstances in South Africa. The current structure of Durban does not encourage citizens to bike, as both the traffic and pollution in the city are dangerous factors contributing to the low usage of bikes in Durban. Building on the situation in Copenhagen, we see that residents' cycling in 2016 saved the environment 3.2 tonnes of particulate matter and 147 tonnes of NOx. Further, people who cycle in Copenhagen on average request 1.1 million fewer sick days. Increasing the amount of people who uses bikes is an effective and cost-efficient way of supporting Durban's vision towards a "vibrant, liveable and walkable city center". As the unemployment rate has increased from 21,8% in 2018 to 26,1% in 2019, we do not wish to remove the already existing transport systems such as taxi and minibuses, but rather create new jobs within our sustainable approach.

To make Durban more bike-attractive and increase the share of inhabitants using bikes, our solution focuses on two aspects, the **infrastructure** and the **culture**.



## Infrastructure initiatives

First, the infrastructure must enable secure and efficient biking. To achieve this, we suggest:

### Bring your bike everywhere and bike-sharing platforms



By implementing a bike-compartment on the trains and in the busses, you provide the opportunity for people to travel greater distances with their own bikes and provide a great alternative to taking the car. Introducing bike-sharing platforms increases the availability and convenience for citizens to use a bike. These bikes would be stored in the safe bike-hubs we are creating.

### Public transport and Bike Hubs



To enhance the convenience of biking, a specific focus will be put on making biking accessible close to strategically located places such as public transport, schools and companies. This will enable people to easily combine biking and commuting by public transport.

### Smart traffic lights



Lights that will time phasing of traffic lights to match the speed of cyclists to make biking more effective. Further, by allowing bikes to go before cars, you minimize the possibility of a "left-turn-crash".

### Broader and safer bike lanes



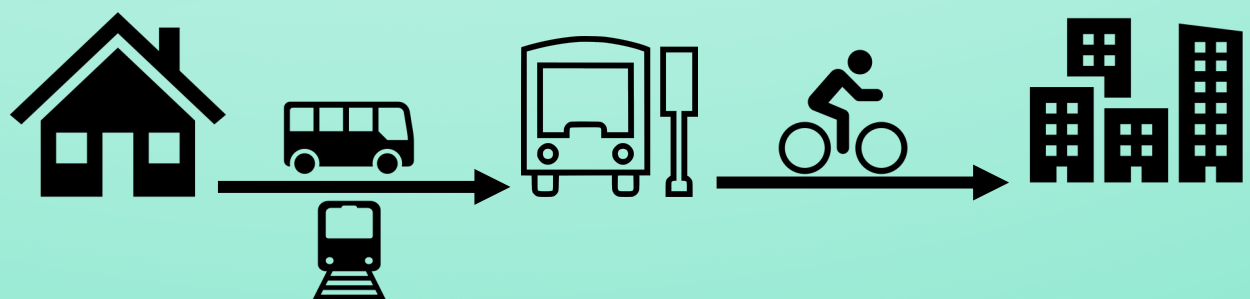
By elevating parts of the road or building separating poles between the car-road and the bike-road. This way, there will be a clear separation between automotive vehicles and bikes, and no biker has to fear the dangerous car traffic. The bike lanes should be broad and clearly marked, and we encourage to include separate traffic lights for bikers to increase safety.

### Additional safe parking spaces with shower facilities



Parking for bikes around the city will also have to be built in order to accommodate the increased amount of bikes. With the high risk of bike theft, old buildings in the city center will be transformed to safe bike storage where commuters can leave their bikes during work hours.

Let's  
Build!





## Cultural initiatives

Secondly, we are targeting the **culture** to foster a behavioural change towards biking. To change the culture, we have designed a three-sided solution; (I) an educative approach, (II) the use of nudges and (III) green ambassadors. Our focus group is the younger part of the population, as it is the biggest and will shape the future. We want to change the young citizens mindset of transport and see information as a crucial element to succeed.

Our solution consists of a *theoretical* and *practical* approach. On the one hand it is important that school children get educated about the importance of sustainable transportation and the effects of air pollution. On the other hand, they have to practically experience biking. This practical experience will better provide the school children with skills to navigate safely through the streets of Durban and reduce the amount of accidents.



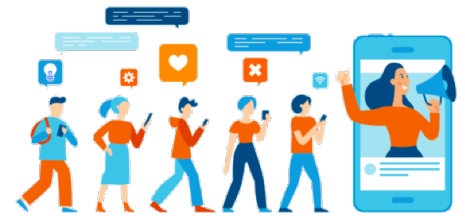
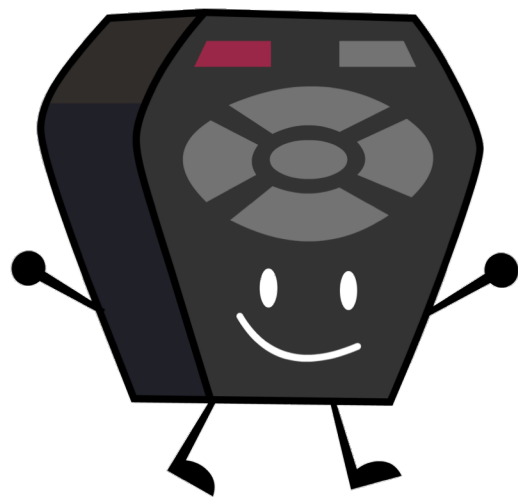
By introducing a campaign where citizens are encouraged to leave their car at home, we are aiming to create a norm where bikes becomes the natural means of transportation, in the same way Meatless Mondays have aimed at reducing meat consumption.

Part of this is implementing a “biking licence” organized by the schools in collaboration with the police, as has previously been done in Germany.

Green Ambassadors’ play an important role within our solution. As social media is gaining in relevance (50% of the people in Durban has a Facebook profile), there is a huge potential for digital ambassadors diving a behavior change towards biking. Serving as frontrunners and idols for young people, ambassadors can encourage them to use their bikes on a regular basis. They will also share information about biking and other green alternatives on SOME, such as Facebook and Pinterest.

The second side of the solution includes Nudging, which will create and enhance a positive culture around sustainable transportation. By for example introducing signs saying “thanks for biking” and “you are a climate hero”, sustainable transportation will be seen as desirable and right. This also includes the use of bicycle barometers, creating a social norm to bike.





## Partnerships

We see plenty of opportunities for partnerships, especially when it comes to changing the culture to foster a behavioural change towards biking. In educating the young about the benefits of sustainable transportation, we suggest partnerships with schools in Durban. The schools will also be part of the “biking licenses”, organized together with the police. The approach of changing the culture also enables partnerships with local NGOs to create information campaigns and advertisements encouraging biking.

An important part is also the partnerships with “Green ambassadors” and influencers, as this will be a crucial part of changing the culture and view on biking and sustainable transportation. Tying prominent profiles to the biking campaign is aimed at changing the perception of biking and increase awareness of the sustainable challenges Durban is facing.

When it comes to infrastructure, an example of a natural partnership is Cowi, a company producing smart traffic lights that will assist in making bike lanes and biking infrastructure more attractive, efficient and accessible to the citizens. There are also a number of bike-sharing companies in the market that the municipality could team up with to provide easier access to bikes in convenient locations. Another potential partnership is with the company ITS, a producer of biking barometers working as a nudge to encourage people to bike and contribute to the social norm that biking is the “standard” choice of transportation.



**GO Durban!**  
Key partner for holistic integration



**Durban University of Technology**  
Key partner for first mover changes



**eThekweni Transport Authority**  
Key partner for policy integration



**Tongaat Hulett**  
Key partner for infrastructural projects



**Global Road Safety Partnership**  
Key partner for cultural changes in society



**Re-cycle**  
Key partner for enabling everyone to own a bike

## A Greener Durban

Our solution will have several positive impacts. First and foremost, increasing the share of transportation made by bikes and reducing the number of cars on the roads will decrease greenhouse gas emissions within the inner city of Durban. In addition to lowering the CO<sub>2</sub> footprint, fewer cars will also mean a better environment in central Durban for pedestrians, hopefully increasing the amount of bikers even more. The reduction of emissions is the main goal of this project.

The increased usage of bikes will however create several positive side-effects that should not be neglected. Health benefits coming from the extra exercise bikers get will in the long run increase well-being for citizens and lower health costs for the municipality. Related to this, research shows how active travel improves mental health, leading to less depression, stress and anxiety. The positive aspects for citizens health benefits both the individual and society.

Other economic upsides can be mentioned: A more efficient transportation network will empower the economy with less time used in traffic and thereby higher productivity. An increased number of people on bike lanes and sidewalks also creates a boost in the local stores income, potentially resulting in higher employment. Studies show a possible decrease of 17 % in retail vacancies and a 40 % customer time increase in local stores. In addition, the construction and administration of implementing our solution will create lots of employment opportunities in itself.

Studies show that private cars are parked over 95 % of the time, and by decreasing the amount of private cars we will create more space in the city centre. That space can be used for additional housing, green parks or other community supportive areas. Through our research we have also noticed the high rate of criminal acts in the city, reduces the amount of pedestrians as they do not feel safe. As a final point, our solution with car-free days have previously shown to have a good effect in crime, with criminal acts dropping as much as 74 % on car-free days according to studies.

## The Impacts





## The Team



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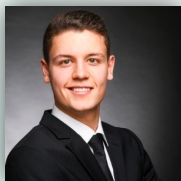


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