



### Cycling Infrastructure

Cycling is a form of transport that has been popular since late 19th century, when the bike as we know it was invented. In the UK it is estimated that approximately 42% of the population have access to a bike. Prioritizing bicycles ensures reliable transport for all income groups. Travelling by bike is emission-free, as well as being a healthy way to travel.

To improve cycling infrastructure, the city could invest in creation of lots more new cycle lanes as well as installation of many more bike-for-hire stations across the city.

### Considerations

- In comparison to a car, purchasing a bicycle has much lower upfront costs, as well as lower running costs.
- Many employers offer employees access to ‘cycle to work’ schemes, offering discounted cycling equipment that can be paid in installments.
- If a third of all inner-city car travelling was replaced with cycling, a 30% reduction in traffic jams could be seen.
- Cycling is a form of exercise that reduces the risk of heart disease for those who regularly cycle.
- Not everyone is a proficient cyclist, so some may be afraid to cycle on roads, and cycling is not an activity that is accessible to everyone.
- Cycling may not be appropriate for those with longer distances to commute, and people may be put off by significant inclines on their journey. This could be addressed through use of e-bikes.
- Cyclists are more exposed to weather conditions than users of other forms of transport, especially during winter months.



## Hydrogen buses

Hydrogen buses make use of hydrogen gas as a fuel source. Since the 1990s hundreds of hydrogen buses have been in operation worldwide. Aberdeen is already making use of this clean technology. It has had hydrogen buses in operation since 2015 and began operation of the world's first double decker hydrogen bus towards the end of 2020.

### Considerations

- The use of hydrogen as a fuel results in a vehicle with no exhaust fumes. The only by-product that is produced is water.
- Hydrogen buses run much more quietly than traditional vehicles with internal combustion engines.
- The electricity required to generate hydrogen fuel can be from renewable sources.
- Buses can take passengers on set routes only, with some walking required between the bus stop and the passenger's final destination.
- Transporting hydrogen fuel has higher costs than transporting other forms of fuel, such as petrol or diesel.
- The system of fuel cells and electric motors required for these vehicles is not as durable as traditional internal combustion engines, and so require more maintenance and don't last as long.



## Electric Car Infrastructure

Electric cars are gaining popularity, with an increase in registrations of fully electric cars up by 127% in 2020, in comparison to 2019. Electric cars do not produce emissions through exhaust gases like cars with traditional petrol and diesel engines. Over the lifetime of the vehicle, electric cars are cheaper to run than petrol or diesel cars, due to the fact that electric cars have fewer moving parts and so experience less wear and tear. Electric car charging stations are popping up all across the city and country, making it easier than ever before to charge an electric car. In 2020, there were over 1,500 charging points across Scotland.

## Considerations

- Electric cars do not produce emissions through exhaust gases like cars with traditional petrol and diesel engines
- Only accessible to those with a driving license.
- The distances that can be driven with an electric car are limited, with charging required more often than refueling with a petrol or diesel car.
- There is currently a limited range of electric cars, but this is always improving, with the upfront cost of electric cars also reducing as time goes on.
- Charging stations aren't as accessible or as available as petrol stations and current design reduces space on pavements/driveways.
- Not everyone has a driveway or parking space where they can have a personal electric car charging point.
- Companies like Trojan Energy are coming up with new charging point designs – for example, one that can be stored under the pavement when not in use.
- Manufacture of electric vehicles and installing charging points have associated emissions.
- A reliable source of electricity must be available to charge electric vehicles when required, especially if demand from electric vehicles increases significantly.
- Electric vehicles still contribute to congestion and air pollution through their tyres and breaks, and don't carry the health benefits of active travel options like walking or cycling.