

# Considerations for future electric vehicle infrastructure in Bristol



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## About the research

This briefing examines the best approach for Electric Vehicle charging infrastructure in Bristol, taking into consideration the needs of Bristol now and in the future – with the influence of non-financial factors, city-specific tailoring and futureproofing being key factors.

This work was produced as a dissertation partnership scheme with Bristol City Council (BCC) and Bristol City Office, in support of the Bristol One City Plan (2019).

This work is comprised of a literature review of existing policy and wider best practices in electric vehicle charging, alongside interviews with local stakeholders and Bristol City Council to form policy recommendations for the city.

Bristol City Council (BCC) have declared a “Climate Emergency” and aim to reduce city carbon emissions to net-zero by 2030, also aiming to become a “sustainable, healthy and fair” city as a part of the Bristol One City Plan by 2050.

Electric vehicles are considered a leading method globally to reduce carbon emissions from road transport, particularly in cities where they can also significantly reduce harmful air pollution emissions through the replacement of conventionally powered petrol and diesel cars and vans.

However, there are a number of obstacles to adoption of electric vehicles, particularly with the charging station infrastructure required to recharge electric vehicles for the city’s residents.

Such concerns are also linked to how Bristol should sustainably adapt electric vehicle charging infrastructure into the wider One City Plan, made up of the “Themes” of Connectivity, Economy, Skills and Learning, Health and Wellbeing, Environment, Homes and Communities.

## Policy recommendations

- Local Authorities should act as an enabler in electric vehicle infrastructure policy in their urban economy, making electric vehicles an easier and more attractive option to local residents through easier planning and standardised blueprints for charging stations
- Electric vehicle should be inclusive and accessible to all EV users in an urban area; including simpler payment and access for charging (such as contactless payment), non-obtrusive charging points (lamp-post charging) and varied charging methods (from kerbside charge stations to fast charging hubs) to suit different user needs
- Electric vehicle infrastructure should support shifts to public transport in order to reduce congestion on a road network and incentivise active/public transportation use- avoiding the “rebound” effect of electric vehicles adding to city congestion by ensuring strategic use of charging points
- Electric vehicle infrastructure in cities should be adaptable and future-proof, to emergent charging technologies, such as autonomous vehicles, vehicle-to-grid charging inductive charging which can further improve the acceptance of electric vehicles.

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## Key findings

The main barriers identified to the adoption of an electric vehicle in Bristol were:

- The higher relative cost of an electric vehicle to a combustion engine equivalent and the charging point
- User fears over electric vehicle range and finding a location to charge their vehicle (also called “Range Anxiety”) from the adoption of a new technology – even if such fears were irrational (owing due to other factors such as payment for charging, the ease of use and the differences in charger speed and charging socket type)
- Increased pressure on the electricity distribution network of the city, through an increased use of electricity from charging stations.
- Bristol’s high proportion of on-street parking across the city limiting the number of fixed charging points for local residents.

Such obstacles were considered in the context of the One City Plan’s themes:

- The themes of Health and Wellbeing, Skills and Learning, and Environment would be positively impacted by electric vehicle infrastructure – with the development of such infrastructures providing strong support to the goals of these themes positive benefits to the local air quality, supporting the local knowledge economy and reducing the city’s carbon emissions respectively.

- The themes of Connectivity, Homes and Communities, and Economy would have more mixed impacts from electric vehicle infrastructure, requiring further understanding to ensure the benefits from electric vehicles are gained to these themes’ goals- owing to such vehicles continuing to contribute to the city’s congestion, creating additional strains on parking, inequality in the city and wider distribution grid, as well as the financial cost of supporting a new type of vehicle infrastructure network respectively for multiple stakeholders.

### Further information

- Bristol One City Plan: <https://www.bristolonecity.com/about-the-one-city-plan>

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