Introduction to Electric Mobility

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In this video you will learn:

- A global overview: the sustainability challenge
- Getting e-mobility right: opportunities and requirements
  - Planning and policy framework: Sustainable Urban Mobility Planning
    - Case Study: Kisumu Sustainable Mobility Plan (Kenya)

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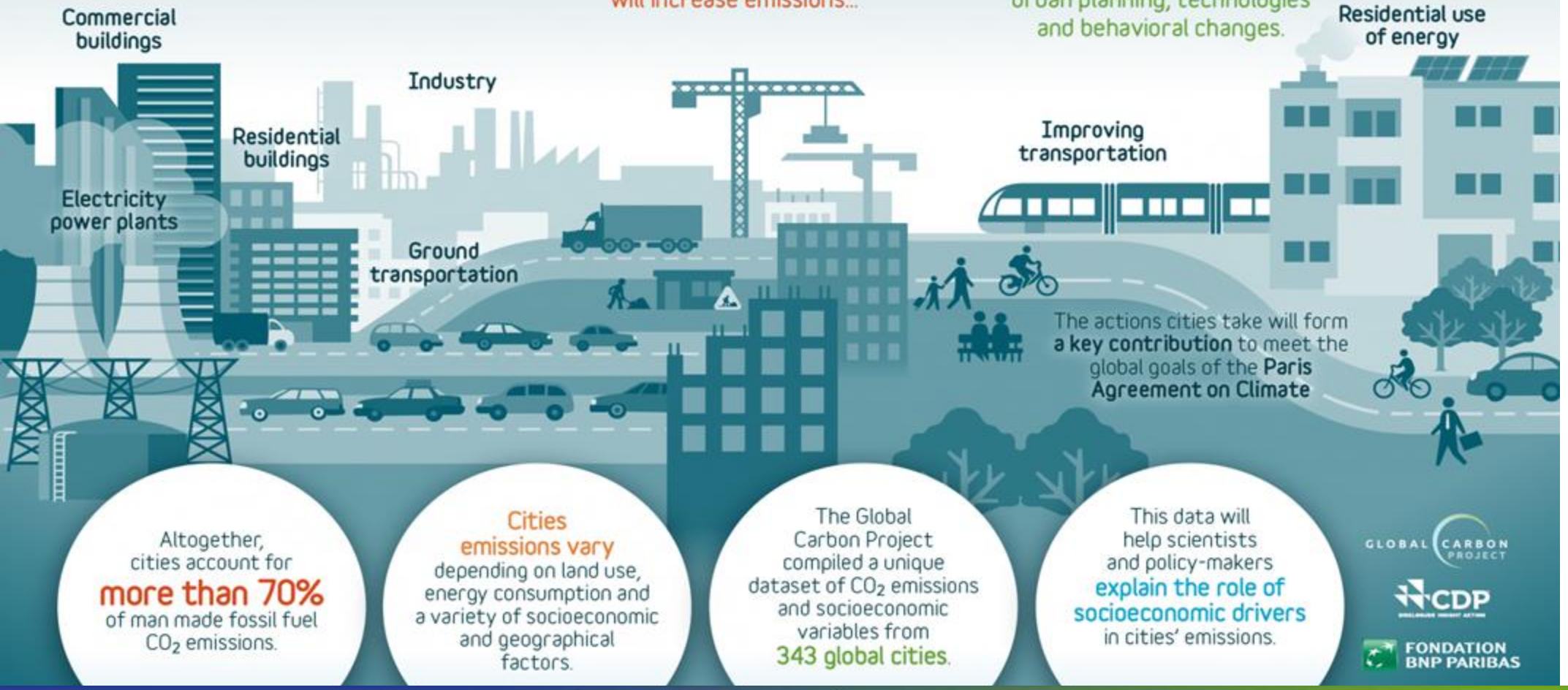
High energy use and dense populations – the city is a CO_2 hotspot

1 The main contributing sectors are:

2 Urbanization will continue in the future, and this process will increase emissions...

3 ...unless cities take actions to reduce emissions through urban planning, technologies and behavioral changes.



Altogether, cities account for **more than 70%** of man made fossil fuel CO_2 emissions.

Cities emissions vary depending on land use, energy consumption and a variety of socioeconomic and geographical factors.

The Global Carbon Project compiled a unique dataset of CO_2 emissions and socioeconomic variables from **343 global cities**.

This data will help scientists and policy-makers **explain the role of socioeconomic drivers** in cities' emissions.

GLOBAL CARBON PROJECT

CDP

FONDATION BNP PARIBAS

solutions plus

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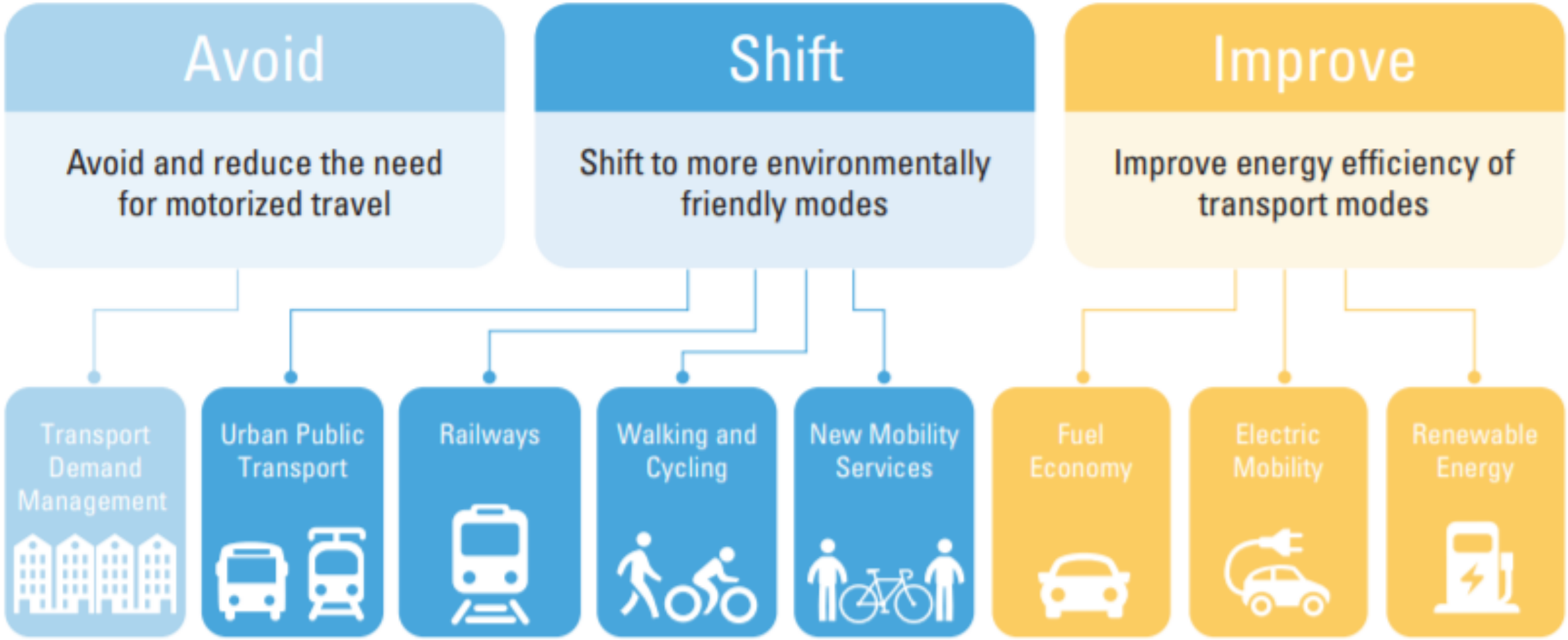
The Avoid-Shift-Improve framework



Accessibility- Bringing People and Places together

Source: SLoCaT, 2018

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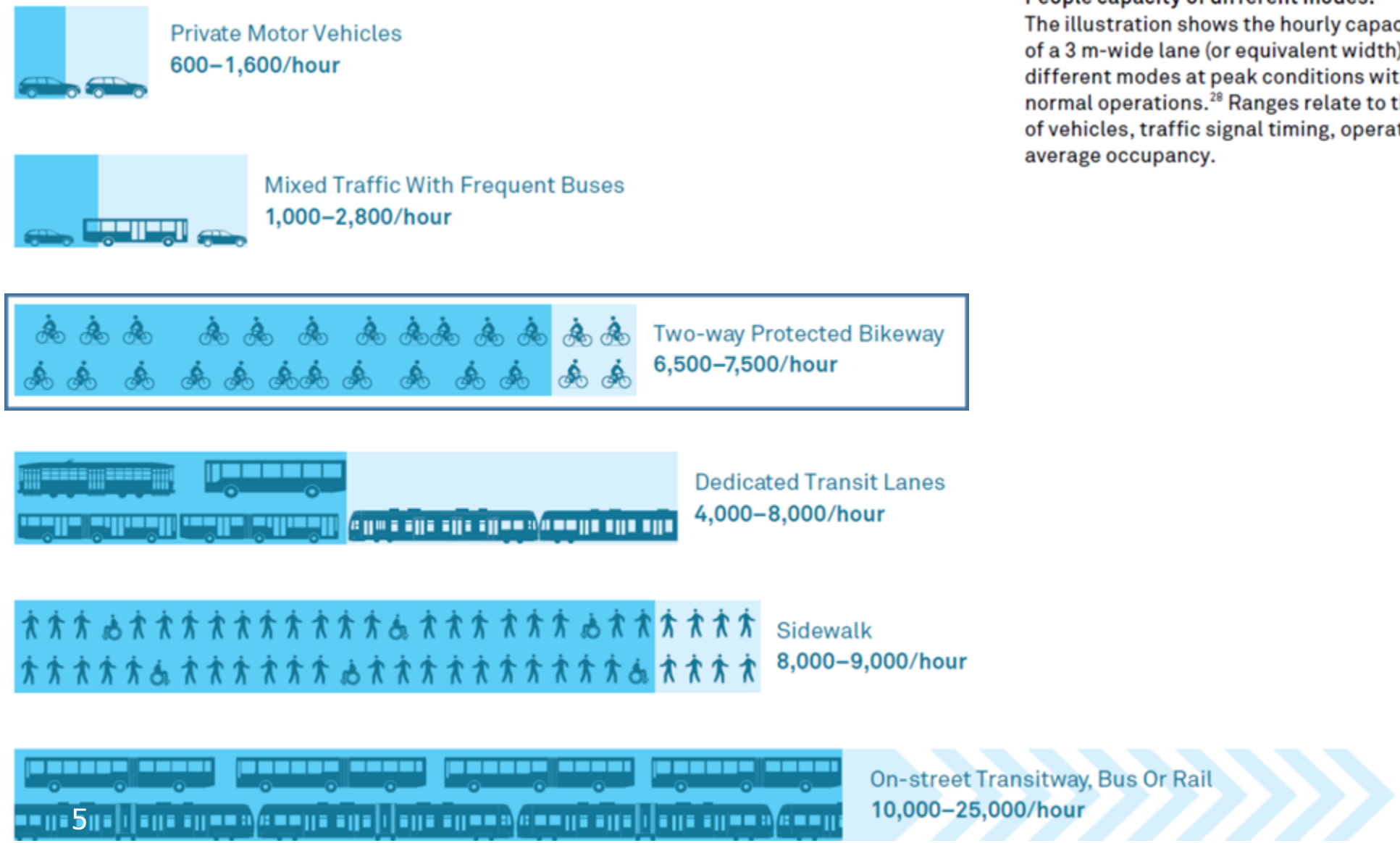
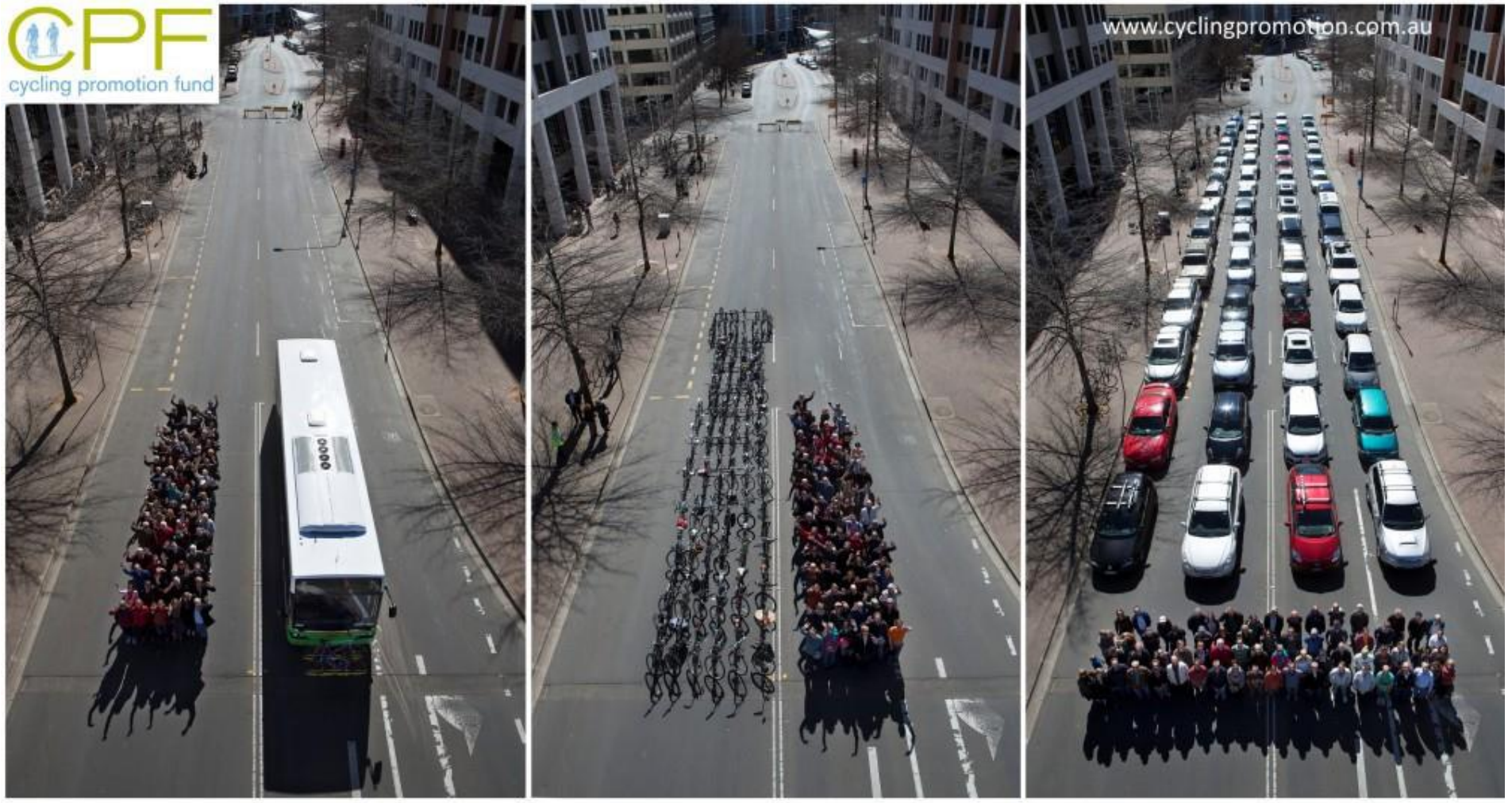
Alternative modes of transport by capacity



People capacity of different modes.
The illustration shows the hourly capacity of a 3 m-wide lane (or equivalent width) by different modes at peak conditions with normal operations.[28] Ranges relate to the type of vehicles, traffic signal timing, operation, and average occupancy.

E-mobility implementation: how to get it right?



What challenges can be tackled with E-mobility?

Policy domain	Policy goal	Specific policy targets
Public health (& environment	Air quality	Limit NOx, Sox, particulate emissions
Climate change	Limit global warming	Reduce greenhouse gas emissions, esp. CO_2
Energy	Energy security/affordability	Renewable energy sources, energy efficiency and decarbonisation
Transport	Mobility/accessibility	Reduce congestion and ensure an efficient decarbonised transport system
Economy	Increase social welfare	Ensure competitive technology/industry, create jobs

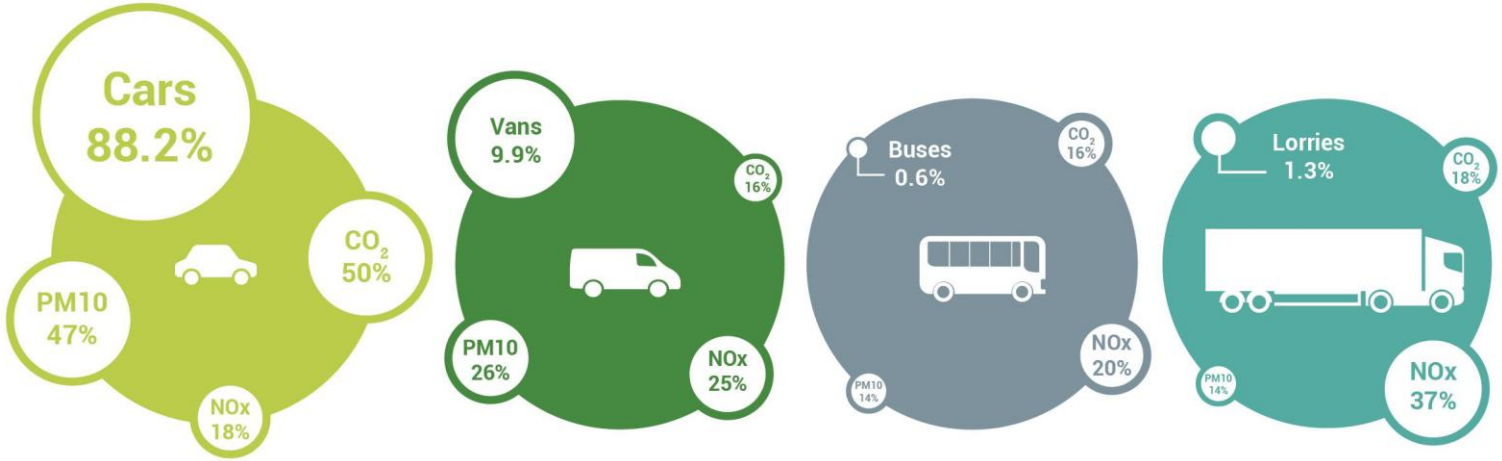
An opportunity to transform the mobility system

- E-mobility can steer changes in travel behaviour and contribute to more efficient use of resources
- Potential to enhance multimodality and resilience of the network
- Chance to give priority to sustainable modes
- Provide alternatives and new mobility services to more effectively address user needs
- Improve the cost-effectiveness of new mobility solutions by exploiting synergies and service integration

Maximise impact and efficiency

Focus on heavy-duty vehicles:

- Fleets that are the most polluting ones (buses, trucks)
- Fleets which cover long distances per day
- Direct decision by the public local authorities
- Big impact of the electrification of these fleets (compared to cars)



Source: Transport Decarbonisation Alliance

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E-mobility support schemes

Strategic, financial and regulatory incentives

- **Vision statement and a set of targets**
- **Procurement programmes** to kick-start demand and stimulate innovators to increase the availability of EVs on the market
- **Policy measures** that increase the value proposition of EVs (e.g. electricity tariffs for EV charging , establish green and industrial park , …)
- Requirements regarding **interoperability** and minimum availability levels for publicly accessible charging infrastructure
- **Regulatory measures** related to charging infrastructure include minimum requirements to ensure “EV readiness” in new or refurbished buildings/ parking lots
- **Deployment** of publicly accessible chargers in cities and on highway networks

Challenges of urban transport planning in emerging economies

- Urban planning is a **complex task**. Planners are confronted with often **contradictory demands**.
- It is noted that urban form, once built, is hard to change. It is best to design for integrated urban design and transport outcomes in the first place
- Urban form designed around transit and mixed use centres will reduce the need for travel
- Requires integration of land use planning, transport and financing.

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What is a SUMP?

An integrated, strategic, long-term transport plan with clear goals designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life

Essence of SUMP: The eight principles

1 Plan for sustainable mobility in the "functional urban area"

2 Cooperate across institutional boundaries

3 Involve citizens and stakeholders

4 Assess current and future performance

5 Define a long-term vision and a clear implementation plan

6 Develop all transport modes in an integrated manner

7 Arrange for monitoring and evaluation

8 Assure quality

Kisumu Sustainable Mobility Plan (KSMP)

- The City of Kisumu is experiencing rapid economic and population growth, resulting in high rates of urbanization and motorization.
- Conventional planning solutions have focused more on addressing the needs of motorists, neglecting the needs of pedestrians, cyclists and public transport
- The KSMP recognizes that integration of land use and transport planning is fundamental to improving the quality of life for Kisumu residents.
- The KSMP has the provision for better public transport and NMT facilities, within its 10-year goals for mobility, all public transport vehicles are Euro 4 or better, introduction of electric vehicles

Additional References

- Integration is key: the role of electric mobility for low-carbon and sustainable cities: https://unhabitat.org/integration-is-key-the-role-of-electric-mobility-for-low-carbon-and-sustainable-cities
- Kisumu Sustainable Mobility Plan: https://www.itdp.org/wp-content/uploads/2021/03/Kisumu-Sustainable-Mobility-Plan-210216.pdf
- https://wetu.co.ke/wemobility/

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