



# Sustainable Transportation 101

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## **Introduction to Sustainability & Transportation**

# What Is Sustainability?

## Sustainability

encompasses a holistic consideration of economic, social, and environmental progress over the long term.

# Sustainability Triple Bottom Line (TBL)

**Sustainability has three primary focus areas:**



**Economy**



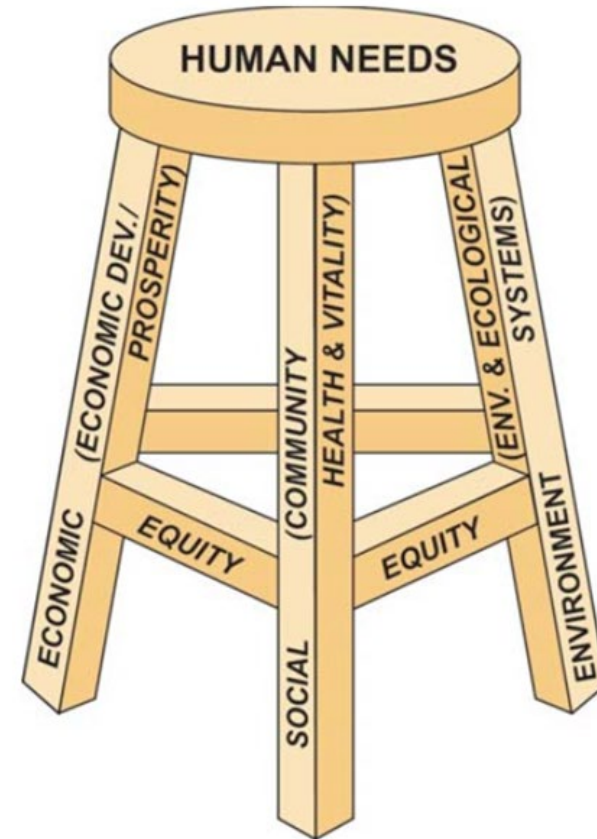
**Society**



**Environment**

# Sustainability Principles and Equity

- **Fundamental principles of sustainability:**
  - Preserving and restoring environmental and ecological systems
  - Fostering community health and vitality
  - Promoting economic development and prosperity
  - Ensuring equity among population groups over generations
- **Equity connects each element of triple bottom line sustainability**



Source: NCHRP Report 708: A Guidebook for Sustainability Performance Measurement for Transportation Agencies. National Academies Press. <https://doi.org/10.17226/14598>

# Transportation and Sustainability



There are several areas in which transportation impacts sustainability



Sustainability principles and considerations can apply to every stage of the transportation life cycle



Sustainable transportation reflects how sustainability principles are applied to the transportation sector

# Transportation and Sustainability (Continued)

**Energy/climate  
change**

**Habitat**

**Water quality**

**Hydrologic  
cycle**

**Air quality**

**Mobility and  
access**

**Community  
impacts**

**Non-renewable  
resources**

# Sustainability across the Transportation Life Cycle



# Policies and Programs Partially Addressing Sustainability

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**Climate change**

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**Resilience**

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**Context-sensitive solutions**

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**Health**

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**Equity**

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**Environment**

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**Connectivity**

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**Neighborhood revitalization**

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**Smart growth**

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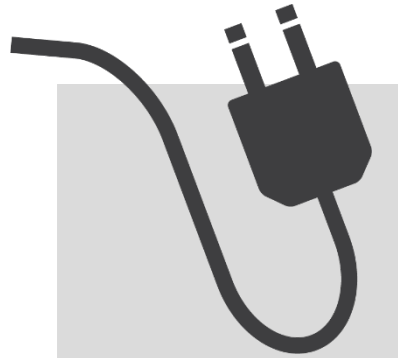
**Multimodal transportation**



# Sustainability and Emerging Transportation Trends



**Mobility  
Transformation**



**Electrification**



**Connectivity**



**Autonomy**

# Performance Measures for Sustainable Transportation

<b>Description</b>	Describe the effect of program or policy
<b>Evaluation</b>	Assess progress and diagnose problems or barriers
<b>Accountability</b>	Set targets for specific staff or programs and measure how well they are reaching those goals
<b>Decision Support</b>	Inform which approach supports the most sustainable outcomes
<b>Communication</b>	Explain to stakeholders what the program or policy is achieving

Source: *NCHRP Report 708: A Guidebook for Sustainability Performance Measurement for Transportation Agencies*. National Academies Press.  
<https://doi.org/10.17226/14598>

# Key Points

- Sustainability has social, economic, and environmental dimensions
- Sustainable transportation applies sustainability principles to the transportation sector
- There are several linkages between sustainability and transportation
- Sustainability concepts are applicable across the transportation life cycle
- Several transportation-sector programs relate to sustainability
- Challenges and opportunities are associated with new transportation trends
- Performance measures can help transportation agencies understand and apply sustainability concepts



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