

Sustainable Urban Development

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1. Introduction

- Sustainable urban development plans cities to meet present needs without compromising future generations.
- **Three pillars:** Balances environmental protection, economic viability and social equity.

2. Core Principles

- **Compact growth:** Higher densities and mixed use reduce sprawl and travel distances.
- **Resource efficiency:** Conserves energy, water and land while cutting waste and emissions.
- **Equity:** Ensures affordable housing, services and opportunity for all residents.

3. Key Strategies

- **Public transport and walkability:** Reduce car dependence and improve air quality.
- **Green infrastructure:** Parks, green roofs and urban trees manage stormwater and heat.
- **Renewable energy:** District systems and efficient buildings lower the carbon footprint.

4. Tools and Frameworks

- **Sustainability indicators:** Track emissions, energy use and quality of life.
- **Certification systems:** LEED for Cities and BREEAM Communities benchmark performance.
- **Policy instruments:** Zoning, incentives and the UN Sustainable Development Goals guide action.

5. Challenges

- Funding, political will and rapid urbanization complicate implementation.
- Balancing growth with conservation requires long-term commitment and community participation.