
**Smart community infrastructures —
Guidance on smart transportation
for energy saving in transportation
services**

*Infrastructures urbaines intelligentes — Recommandations sur le
transport intelligent pour les économies d'énergie dans les services de
transport*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 268, *Sustainable cities and communities*, Subcommittee SC 1, *Smart community infrastructures*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Energy saving is one of the typical and measurable issues to be addressed in every city in the world. Energy is consumed whenever citizens move within and between cities by using transportation services for their daily living and business activities. This energy consumption volume is higher than that of other city functions such as water and ICT systems, as transportation systems convey a large number of passengers and delivery items or freight – which can sometimes be enormous – resulting in large, heavy vehicles travelling at high speed. Smart transportation is not necessarily an infrastructure but definitely a solution to existing or future city issues, as explained in ISO 37154. Transportation operation itself will be targeted and expected to produce drastic energy savings, but there is also large energy consumption and waste in transport procedures besides operation. Smart transportation for energy saving is, therefore, an important factor in enhancing city performance, quality and potential.

The principle of smart transportation for energy saving depends not only on transportation modes but also on methods of traction for running transportation vehicles, because energy is consumed mainly when driving vehicles. In addition to vehicle operation, energy is used to support dispatch operations and organize entire transportation systems. Therefore, to successfully reduce energy consumption, the entire structure of transportation systems needs to be studied. This would involve identifying where energy can be saved in the system and the people who can make arrangements for or directly contribute to energy saving. Different energy-saving options are available. By combining these methods, energy can be more effectively saved in transportation which consists of a variety of technical and service fields supporting the system.

This document describes what smart transportation for energy saving targets and how it works in transportation systems, according to the general guidelines on smart transportation of ISO 37154, which fully explain the structures, aspects and features of transportation operation, services and technical/business content from the different viewpoints of those who use, plan and provide or operate transportation systems. This document also identifies specific ways to save energy consumed in transportation operation and services.

In the development of this document, ISO Guide 82 has been taken into account in addressing sustainability issues.

Smart community infrastructures — Guidance on smart transportation for energy saving in transportation services

1 Scope

This document provides guidance on reducing the energy consumed by transportation for passengers, delivery items, freight and postal item services in cities and city zones.

This document does not designate specific procedures to save energy but suggests energy-saving options to be adopted in transportation systems normally organized in different locations, on different scales and for different purposes.

NOTE Some typical energy-saving options are listed in [6.2.2](#).

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

transportation energy

energy consumed in transportation operations and services

3.2

city zone

area that comprises a single core city or more than one core city connected or related for/with business, economic and political activities

Note 1 to entry: A city zone comprising more than one core city is called a megalopolis. Some well-known examples are BosWash (USA), Blue Banana (Europe) and the Tokaido Megalopolis (Japan).

4 Fundamentals

4.1 Basic ideas and goals

As stated in ISO 37154, any smart transportation has basic ideas and goals. They are considered according to the criteria listed below:

- to improve the status of a city;
- to lower environmental load;
- to realize transportation facilities based on concrete planning (e.g. payable budget scales, environmental harmonization);