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Smart community infrastructures — Best practice guidelines for transportation

Infrastructures territoriales intelligentes — Lignes directrices relatives aux pratiques optimales pour le transport

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Foreword

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Introduction

A well-functioning community infrastructure, of which energy (power), water and wastewater, solid waste disposal, information and communications technology and transportation are essential elements, is critical to the quality of life and economic productivity of any city or human settlement. Transportation plays a highly visible role in the lives of residents, ensuring people can get to work, engage in social activities, take part in commerce and access cultural institutions and any other amenity the city offers. In addition, transportation networks are needed for the distribution of goods throughout a city or region. Inadequate or poorly designed transportation systems can create significant economic costs from lost productivity, environmental impacts and health problems.

The features and services provided by such infrastructures are intended to assist people in communities with their businesses and lives, and to help stimulate activities to promote their businesses and enhance their lives by providing opportunities to come to, stay in and move within/outside communities. People do not want to spend all their time at home or in an office, even though improved information and communication technologies would bring them possibilities to do business or take action anywhere they like and anytime without moving. There is more to life than just business supported by electronic communication. People want to be able to move around independently and see, hear, touch, taste and smell directly what they have an interest in.

Transportation networks can be very complex, interweaving many different modes: by air, ship, ferry, train, truck and passenger vehicle, and by human-powered modes, like walking or biking. In particular, transportation serviced for intra-/inter-city communication by commuter rail, inter-city rail, high-speed rail, metro, trams, monorail, light rail transit, automated guideway transit systems, buses, trucks, ferries and air vehicles is popular and convenient for people, including the disabled, the elderly and those whose physical performance is declining, working or living in communities and coming to or out from there. This is because such means of transportation successfully convey passengers, delivery items and freight in large lots, punctually and at low cost, supported by established basic technologies that have developed over a long period and that are still being steadily improved even now. Cities need to have transportation systems that meet the needs of a diverse group of users, including commuters both within and outside the city, persons with disabilities and the elderly, and those shipping freight or other goods and parcels.

This document describes how transportation is planned, designed, implemented, operated, maintained and upgraded to take into account the points of view of different stakeholders, including the residents and governing authorities of communities, as well as the needs of the environment. This document also outlines minimum conditions to be respected in the performance of transportation systems, even after they have been installed, in order to realize the objectives of a smart transportation infrastructure, i.e. economically efficient transportation systems that meet or exceed user needs while minimizing environmental impact.

Decisions ranging from large-scale planning and investments to individual choices can shape the impact of transportation systems on a city. Decision makers need to think critically about transportation modes, as well as the features and services of those modes, to ensure the positive impacts of transportation infrastructure outweigh the potential negative impacts. In addition, given that populations and technologies change, decision makers need to monitor transportation systems to ensure that they continue to meet transportation goals. This document describes the smart transportation objectives and offers support for the development of integrated urban mobility plans, including the selection and application of transportation services.