

The Future of Transportation

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More than half of the world's population now lives in urban areas according the United Nations—an amount expected to increase in the next decades. Specifically, 10 percent of the urban population will concentrate in 24 megacities of more than 10 million people. Transportation—the means by which residents travel between common origins and transportation in cities and satisfy basic needs—comprises a major issue for modern society. It is a topic of emerging importance which requires communities to leverage innovative solutions and address issues of increased livability, enhanced health, greater economic productivity, decreased pollution, and reduced traffic congestion.

From a transportation perspective, several explicit and implicit policy decisions have spawned generations of residents who rely almost exclusively on auto travel; residents expect to travel at free-flow speeds for only the cost of their auto and their gasoline. Many advantages result from the policies that have transpired. Free-market economists continually remind us that, in the aggregate, our quality of life has never been higher. However, the land use and transportation system in many metropolitan areas is often thought of as the problem leading to growth, gridlock, and sprawl. Drivers and non-drivers, alike, are wanting for better or more consistent service or facilities. Are private autos indeed the future of intra-city travel? What prospects hold for other modes of travel or other transportation management techniques? Different forms and modes of travel are available to address some of the above issues. Furthermore, there is an emerging role for technological enhancements to alleviate dependence of the automobile or at least improve conditions spawned auto-related traffic.

This session focuses on developing strategies for intra-city travel that are environmentally sustainable and adaptive. From an engineering stand-point, the design of infrastructures that are efficient, low-polluting and multi-functional can be important in achieving multiple sustainability goals. In the era of the Internet, information and communication technologies provide valuable and important tools to significantly improve transport systems, such as floating car data, inter-vehicular and vehicle-to-road infrastructure communication techniques.

Uncovering creative approaches to move people across networks over time and space, all in keeping with the goals of a community, requires communities to move beyond our disciplinary upbringings. Cross-disciplinary approaches – across engineering, urban planning, policy, psychology – are important in understanding these interactions to develop sustainable transport options in cities of the future. Transportation outcomes in cities depend not only on technology and design, but also on human behavior, market mechanisms, and public policy. This session therefore also looks to the role of collaborative visioning between the various aspects involved (i.e., traffic engineering, mathematical modeling, computer science, electrical engineering, telecommunications, and even behavioral science).