

Abstract

Automated vehicle technology offers the possibility of significant benefits to social welfare—saving lives, reducing crashes, increasing mobility for the mobility-impaired, increasing transit use, more sustainable environments, and ultimately improving land use. But it could also lead to greater congestion and fuel consumption, lost parking revenue, declining mass transit ridership, and fewer transportation jobs.

After examining the advantages and disadvantages of automated vehicles, the RAND corporation researchers determined that the overall societal benefits of this new technology likely outweigh the disadvantages. Research needs to be focused on the issues of automated vehicles, automated transit networks, parking, transit and urban design simultaneously. A paper titled: “Creating Fully Sustainable Walkable Communities with PRT” presented at the ASCE TDI (American Society of Civil Engineers Transportation and Development Institute) 2011 conference in Chicago was an early paper and presentation examining the relationships of walking, accessibility in hilly terrain and an ATN system. Other related research topics identified from a 2014 Summer TRB workshop are the “Promise of Auto-Valet Parking: a Panacea or Simply Shifting the Problem” and “Integration of Automation and Shared Mobility into the Urban Fabric”.

Carefully examining the early unrealized community designs of Columbia, MD and Milton Keynes, UK that incorporated these technologies at their design inception can provide some possibilities for how to create more sustainable communities not fully dependent on the private vehicle. Also, by examining the drawings of Paul Rudolph, Louis Kahn, and Ulrich Franzen that integrate these technologies into the built fabric they can provide further insight to the potential positive community design outcomes. Walter Gruen also proposed a downtown central business district for Fort Worth incorporating this “new technology” in the 1950’s. Identifying and codifying the unique spatial community and urban design relationships that were imagined due to these technologies will be the first step in understanding the potential of integrating automated transit networks, today. Also, examining how existing applications of ATN in Masdar City, Abu Dhabi, Suncheon City, S. Korea, and Morgantown, WVA applied some of the identified unique spatial relationships to provide greater benefits to the community will provide a full picture of the potential of this technology to create better connected and sustainable communities.